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DNA ELECTRICAL OVERSTRESS – HARDNESS ASSURANCE DATA VOLUME

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28 July 1980

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20. ABSTRACT (Continue on reverse side if necessary and identify by block number)

This volume contains experimental data taken in support of the development of electrical overstress hardness assurance techniques. The data was taken to investigate two areas: causes of maverick behavior and factors determining nominal (20) hardness. The devices tested were specially designed silicon-on-sapphire diodes. These devices had controlled variation in the manufacturing parameters such as junction area, doping levels and epitaxial thickness for the investigation of nominal device hardness. The devices also included simulated manufacturing defects for the investigation of maverick behavior.

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PREFACE

This report, BDM/TAC-80-373-TR, summarizes the data taken under Defense Nuclear Agency (DNA) Contract DNA-001-79-C-0138. This data on the electrical pulse failure levels of silicon-on-sapphire diodes supports development of electrical overstress hardness assurance techniques. This report is submitted to DNA by BDM Corporation, P. O. Box 9274, Albuquerque, New Mexico 87119.

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INTRODUCTION

A. OVERVIEW OF THE EXPERIMENTAL EFFORT

This volume documents the experimental data taken under the Defense Nuclear Agency (DNA) Electrical Overstress Hardness Assurance contract, DNA 001-79-C-0138. The final report for this contract, contained in a separate volume, explains the goals and results of the entire program. The following sections provide a brief overview of the program and the goals of the experimental work.

The DNA electrical overstress phenomenology program sought to identify the sources of maverick behavior in semiconductor electrical overstress failure and to determine the sensitivity of failure level to critical device variables, e.g., junction area, doping levels, epitaxial thickness, and junction radius of curvature. Once the dependencies are identified and characterized, hardness assurance tests and procedures can be developed. The approach utilized in this program to identify the physical and electrical parameters that affect overstress failure was both analytical and experimental.

The experimental portion of the program involves failure testing of specially designed silicon-on-sapphire (SOS) diodes which have been built with variations in important parameters. Data on these devices provide information on maverick behavior due to various forms of diffusion and metallization spikes. In addition, the controlled variations in critical device parameters on the diode test structures provide data on the sensitivity of these parameters to overstress failure level. The SOS diode was chosen for the test structure because it can be utilized to visually observe the formation of hot spots using techniques developed by Sunshine and Lampert and refined by Budenstein. The structure also provides a convenient means of precisely controlling parameter variations since a vertical cross section of an actual device can be represented by a thin horizontal "slice" layered down on a transparent substrate. With this

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structure such defects as metallization and diffusion spikes can be built into the mask set. Although the SOS diode structures provide a convenient tool for visual observation of damage and controlled variation of parameters, the results of overstress failure tests in the SOS structures may be different from real devices. In the SOS structure, all p-n junctions are abrupt, the epitaxial layer next to the substrate contains many crystalline defects which affect lifetime, and the sapphire substrate provides a large heat sink for the silicon. These differences may result in different qualitative as well as quantitative dependencies of overstress failure level on the critical parameters.

Therefore, an analytical model is needed to provide a physical interpretation of the results and bridge the gap between the SOS diode results and failure data on real devices. The program integrates the analytical and experimental efforts so that the critical overstress failure level dependencies can be established on real devices.

One of the tasks in this program was the experimental investigation of mavericks using the spiked SOS diodes. Although there are few, if any, well-documented cases of maverick behavior in electrical overstress failure testing, the possibility of mavericks poses a real threat, especially for systems with requirements for very low failure rates. The most likely defect in an actual device that would give rise to an abnormally low overstress juncton burnout level is a spike in either the metallization or a diffusion. A large array of SOS diodes with variations in spike amplitude, position, and frequency are included in the SOS test chip. These structures demonstrated that spikes result in a significant reduction in overstress failure level as compared to a similar structure without the spike.

Another task involves the experimental investigation of the sensitivity of overstress failure level to critical device parameters. The parameters investigated include junction area, background doping density, expitaxial thickness, and junction radius of curvature. Within the SOS test structure each of these parameters is varied over a wide range while maintaining all other parameters constant. The experimental data were taken by Dr. Paul Budenstein at Auburn University. The data were analyzed at BDM and plotted to demonstrate the dependence of pulse electrical overstress failure level on each of the critical parameters.

B. OVERVIEW OF THIS VOLUME

Special test structures have been fabricated by Rockwell for use in this study. These structures consist of lateral diodes fabricated on sapphire substrates. These diodes are described in detail in chapter II of this volume. The design of these diodes provides variation in the critical device parameters such as doping concentration, length, and width. These structures also provide simulated metallization spikes and diffusion spikes. Chapter II also contains an explanation of the technique for estimating the doping concentration based on breakdown voltage.

Doping concentration can also be estimated from resistance measurements. Each die on the wafer contains a doping level test structure that allows a resistance measurement to be made of the bulk silicon. Chapter III explains the technique for estimating doping concentration from the resistance measurement and summarizes the resistance measurement and estimated doping concentration for each die tested during this effort.

The detailed test plan in chapter IV provides clarification on the goals and requirements of the testing performed at Auburn University. Due to the time constraints of this project and the limitations of the constant current pulser, not all available devices could be tested. The test plan discusses the importance of the devices selected for testing and the test setup. The first step in the failure sequence was a measurement of breakdown voltage using a curved tracer to sweep the current voltage characteristics in reverse bias. Then the device under test was pulsed with the constant current pulser at a 10 microsecond pulse width. After each pulse test with the constant current pulser, the breakdown voltage measurement was repeated to determine if failure had occurred. Failure was defined as a significant change in the breakdown voltage. The process of increasing the amplitude and pulsing with the constant current pulser and then checking the breakdown voltage for failure was repeated until failure occurred. From this sequence of pulse tests, two tests were selected for digitization: the test which resulted in failure and the test producing the highest power without causing failure. The results of these two tests provide an upper and lower estimate of the failure power.

For each test with the constant current pulser, the voltage and current waveforms were recorded with oscilloscope photographs. Since the waveforms are, in general, irregular, the voltage and current waveforms must be digitized so that average power may be computed. Chapter V provides an explanation and listing of the digitization program.

Too many voltage current waveform pairs were digitized under this effort to be conveniently included in this data volume. The voltage current waveform pairs fell into 12 groups with all the waveform pairs in the group having a similar shape. Examples of the 12 waveform pairs are illustrated in chapter VI. A cross-reference between the 12 waveform groups and the device tested is also provided in chapter VI.

Summary data from the digitized waveforms and descriptive information about the device tested were entered into a computerized data base. The contents of the data base are explained in chapter VII, along with a listing of the entire data base. The data base program provided a convenient means for selecting certain data out of the data base and plotting that data to show the effect of the critical device parameters on the damage constant for the device. These summary plots of the data are also contained in chapter VII.

CHAPTER II
DESCRIPTION OF DEVICES

A. DEVICE DESIGN AND FABRICATION

Test devices designed and fabricated under this program include SOS p-n diodes for characterization and analysis by Auburn University. These devices were fabricated with a sufficiently large range of physical and processing parameters to permit the determination of electrical-overstress-induced junction second breakdown failure thresholds as related to (1) inherent silicon properties, (2) fabrication properties, and (3) quality control properties.

Device characteristics such as

Background doping concentration
Effects related to junction radius of curvature
Metallization defects
Lateral diffusion spikes
Diode body width
N^+ to P^+ separation distance

have been considered for this purpose.

Devices fabricated for this program have utilized a proven, cost-effective, multicell mask design. The mask design contains multiple cells so that a number of special test devices are included in a single mask design. Each wafer contains all the test devices and demonstration vehicles requied to meet the second breakdown diode-characterization objective of this program. This approach is routinely employed in R&D programs requiring a variety of special test structures and demonstration vehicles. Hardened Complementary Metal-Oxide-Silicon/Silicon-on-Sapphire (CMOS/SOS) technology was employed to fabricate SOS transistors and SOS diodes with various design and processing parameters.

B. MASK DESIGN AND GENERATION

For the SOS Electrical Overstress Investigation Program, the following steps were used in the development of the 13 required masks:

Step 1: Circuit design and analysis
Step 2: Circuit layout
Step 3: Digitization/MOS-DRAW
Step 4: Tape generation
Step 5: Pen-plot
Step 6: Color guides and mask generation.

Interrelationships of these steps are shown in the CMOS/SOS Mask Fabrication block diagram of figure 1.

C. DEVICE DESIGN REQUIREMENTS

Device design requirements imposed on the final design were:

(1) Starting material doping, N_D, will be limited to five concentrations, 10^{14}, 10^{15}, 10^{16}, 10^{17}, 5×10^{17} atom/cm^3.

Substrate doping concentrations were obtained by ion implementation. The amount of implant dose used for each doping level was determined from the relationship

$$D = NKt$$

where

D = dose, cm^{-2}
N = impurity concentration, atom/cm^3
K = 0.33 - 0.35
t = silicon thickness, cm

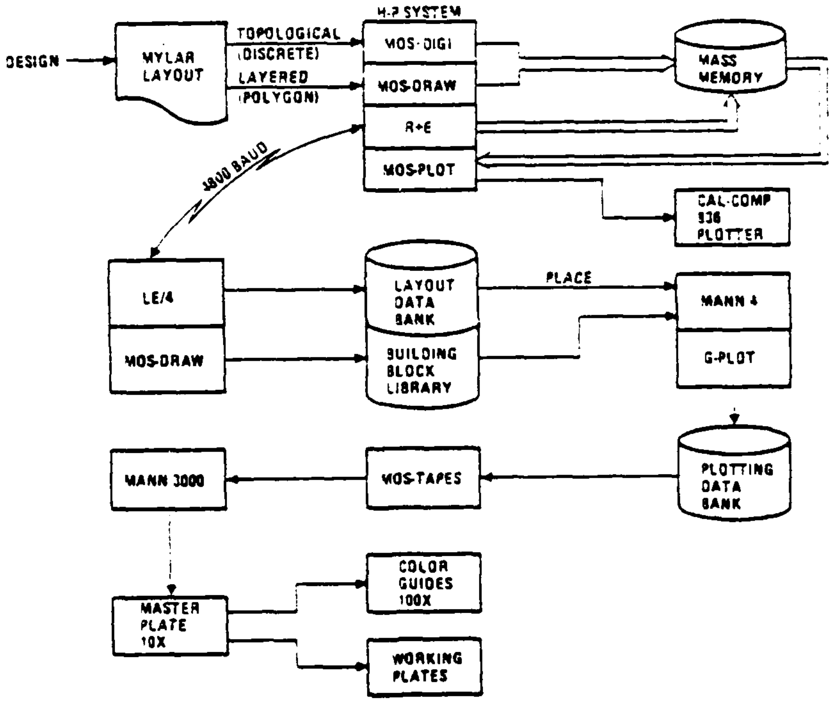


Figure 1. CMOS/SOS Mask Fabrication

The 10^{14} atom/cm^3 wafer did not receive any ion implant as 10^{14} atom/cm^3 is the intrinsic value of the silicon epitaxial layer.

(2) A structure to measure the doping level of the substrate is provided. This structure is described in figure 2.

(3) A "no defect" standard reference structure will be included for baseline comparison purposes. This structure is described in figure 3.

(4) Edge-type diodes are to be the preferred structure, but some enclosed structures will be included.

Geometric edge effects on hot spot nucleation will be studied by including a set of Enclosed Reference Structure devices (figure 4) of the same dimensions as the standard reference structures.

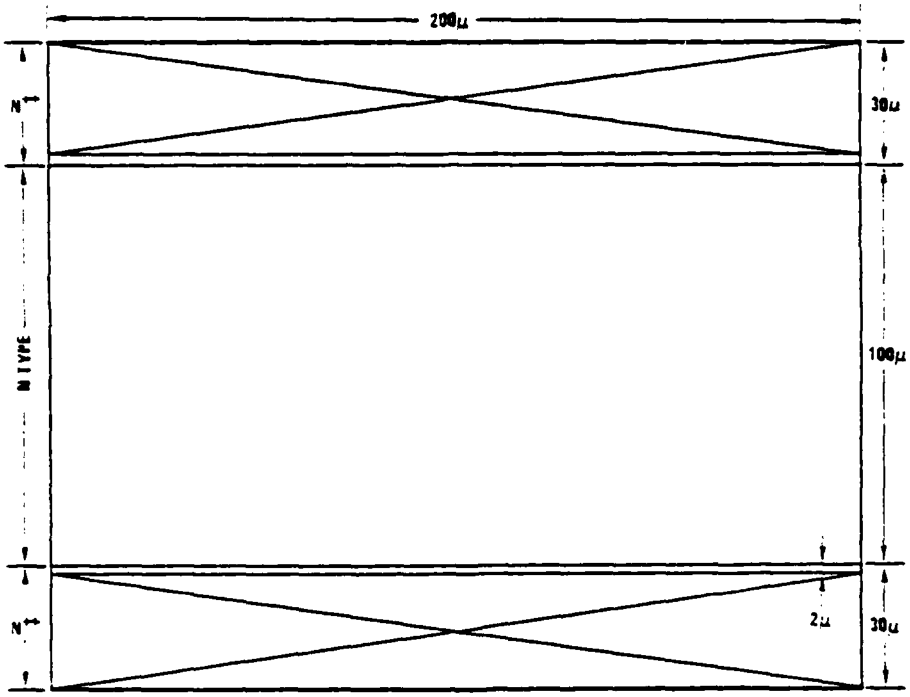
(5) Diodes of 20-mil junction width will be included for experimental continuity with previous work done at Auburn University.

(6) Separation of p^{++} and n^{++} regions, X_E, will have five values, 10, 30, 100, 300, and 500 microns.

The range of lengths of the n region was selected to represent the smaller geometry devices (10 microns at one end) to a length sufficient to prevent punch through at the test pulse biases (500 microns at the long end).

(7) Diode metal-to-metal spacing will be at least 3 mils, where practical. (Note: This dimension will be about 2.4 mils on devices with X_E = 10 m.)

(8) Production fabrication problems resulting in metal contact spikes extending into the diffused regions or diffusion spikes extending from one diffused region into another may affect the initiation of second breakdown. Considerable attention was given to the spike design and its unique implementation into mask design and mask fabrication. This concern is indicated by the quantity of items listed regarding spike design.



- 1 DEVICE
- N - TYPE IMPLANT LEVEL

  1×10^{14}
  1×10^{15}
  1×10^{16}
  1×10^{17}
  1×10^{17}

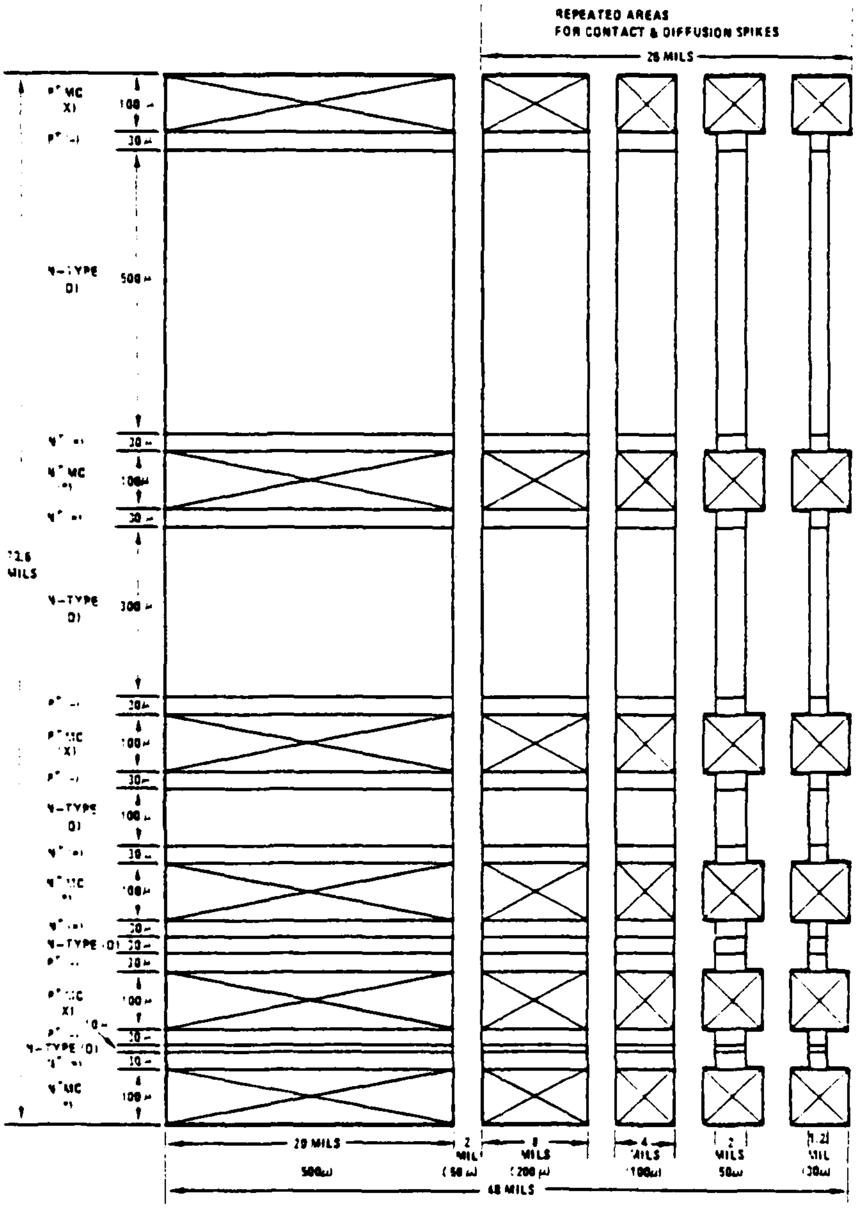
- LENGTH BETWEEN CONTACTS

  100 μ (4 MILS)

- WIDTH

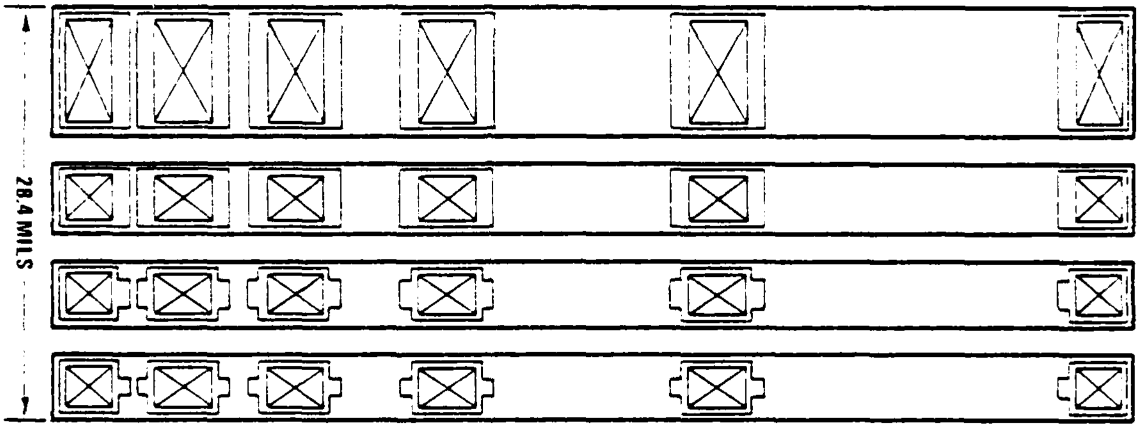
  200 μ (8 MILS)

Figure 2. Doping Level Test Structure



- 25 DEVICES
- N - TYPE CONTROLLED DOPING REGION (X_E) LENGTH
  - 10 μ
  - 30 μ
  - 100 μ
  - 300 μ
  - 500 μ
- BASIC REFERENCE STRUCTURE WIDTH
  - 20 MILS
  - 8 MILS
  - 4 MILS
  - 2 MILS
  - 1.2 MILS

Figure 3. Standard Reference Structures



- 20 DEVICES
- N - TYPE CONTROLLED DOPING REGION (X_E) LENGTH
  - 10 μ
  - 30 μ
  - 100 μ
  - 300 μ
  - 500 μ
- BASIC REFERENCE STRUCTURE WIDTH
  - 8 MILS
  - 4 MILS
  - 2 MILS
  - 1.2 MILS

Figure 4. Enclosed Reference Structure

Spikes, both metal and diffusion type will be described as follows:

(a) Single spikes will be included on both p^{++}, n and n^{++}, n junctions.

(b) Metal spikes will not overlap the p^{++}, n or n^{++}, n junctions.

(c) Metal spikes will extend from the contact into the p^{+} or n^{+} regions.

(d) Spike shape is to be 60 degrees equilateral triangle, as shown in figure 5.

A full diode complement will consist of a set of diodes of widths 1.2, 2, 4, and 8 mils. The 8-mil width will be the standard width diode on the chip.

(a) There will be one full diode complement of spikes using a 5-micron height.

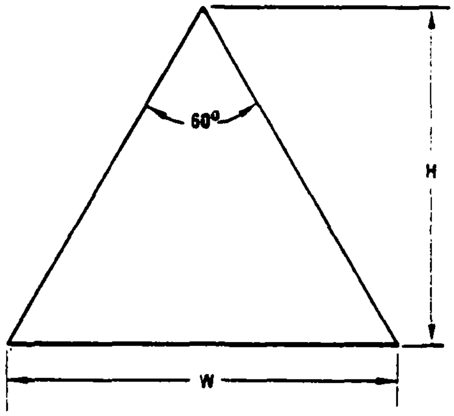
(b) There will be one full diode complement of spikes using a 2 1/2 micron height.

(c) Multiple spikes will be designed to have 1, 2, 4 and 8-micron heights, with the 1-micron spikes located sawtooth-wise across the entire junction and the 2, 4, or 8-micron spikes located as shown in figure 5. All multiple-spike diodes will be 8 mils wide, with X_E = 10, 30, and 100 microns. Details of multiple spike construction are depicted in figure 5.

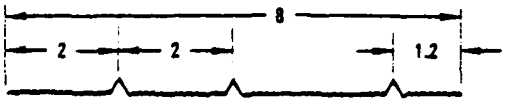
(d) A minimum of 1-mil separation will be allowed between spikes and sharp contours, edges, metal, etc.

(e) Single spikes will be located one-fourth of the distance from the diode edge.

(f) The spikes will be fabricated with a point of approximately 1 micron diameter (minimum dimension, because of lateral diffusion limits). 80 single-spike devices as described in figure 5 will be included on the Standard Reference Structure type of diodes in figure 3 to study



(A) SPIKE SHAPE, W = $\frac{2\sqrt{3}}{3}$ H



(B) MULTIPLE SPIKE LOCATIONS ON JUNCTION. (DIMENSIONS IN MILS)

(C) MULTIPLE SPIKE CONSTRUCTION DETAIL. H = 2, 4 OR 8 MICRONS

- 80 DEVICES
- N - TYPE CONTROLLED DOPING REGION (X_E) LENGTH
  - 10μ
  - 10 μ
  - 30 μ
  - 100 μ
  - 300 μ
  - 500 μ
- BASIC STRUCTURE WIDTH
  - 8 MILS
  - 4 MILS
  - 2 MILS
  - 1.2 MILS

● SPIKE LENGTHS	LOCATION
5 μ	¼ DISTANCE FROM LEFT HAND ISLAND EDGE

- SPIKE DIRECTION

N^{++} CONTACT	N - TYPE	N^{++} DIFFUSION	N - TYPE
P^{++} CONTACT	N - TYPE	P^{++} DIFFUSION	N - TYPE

Figure 5. Spike Detail

their effects in this regard. An attempt to determine the effects of spike size will be implemented by including a set of one-half size spikes on 20 devices as described in figure 6. Finally, a set of diodes containing multiple spikes in combination as shown in figure 5 is arranged according to the description of figure 7, "Multiple Spike Structures." The 1-micron sawtooth edge is included to represent a non-smooth p-n junction or metal edge. Larger spikes are placed in areas where hot spot nucleations probably would not normally occur.

(9) Structures to simulate bipolar transistor emitter current behavior as a function of radius of curvature are included. Features of this cross-sectional simulation are listed and shown in the topological layout of figure 8.

(10) A four-pad structure is included to study cross current crowding effects; that is, the effects of a cross current in the N region of the diode while the current pulse is being applied between the N^{++} and P^{++} regions. This structure is described in figure 9.

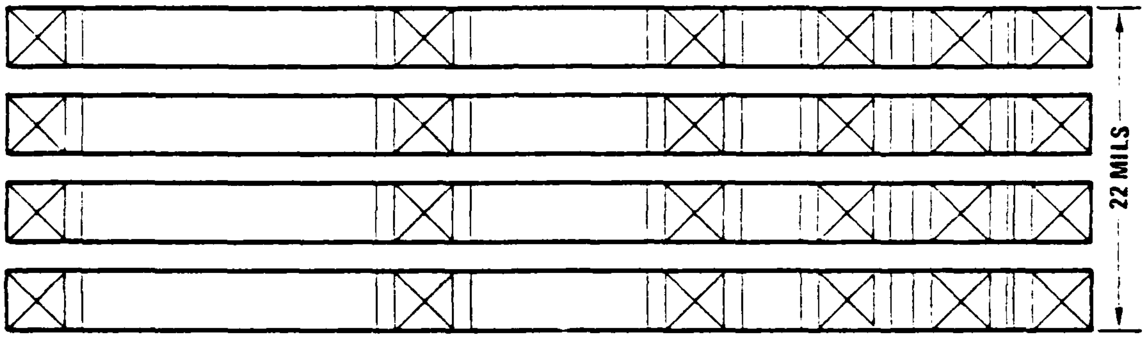
(11) Simulated interdigitated structures as shown in figure 10 are included. This structure simulates a cross section of an interdigitated device as illustrated in figure 11. This device is provided to enable study of laterial junction effect on hot-spot nucleations.

(12) Metallization bonding pads will be 4 mils x 4 mils square. Although smaller pads could be used, this size allows reasonable ease of micro probing both for electrical characterization at Rockwell International and for Auburn University's stroboscopic pulse tests.

Design items which were considered but omitted by mutual consent were:

(a) "V" notch indents - no significant effect expected.

(b) 10-micron width diodes - impractically small.



- 20 DEVICES
- N - TYPE CONTROLLED DOPING REGION (X_E) LENGTH
  - 10 µ
  - 30 µ
  - 100 µ
  - 300 µ
  - 500 µ
- BASIC STRUCTURE WIDTH

4 MILS

- SPIKE LENGTHS

2.5 µ

- SPIKE DIRECTION

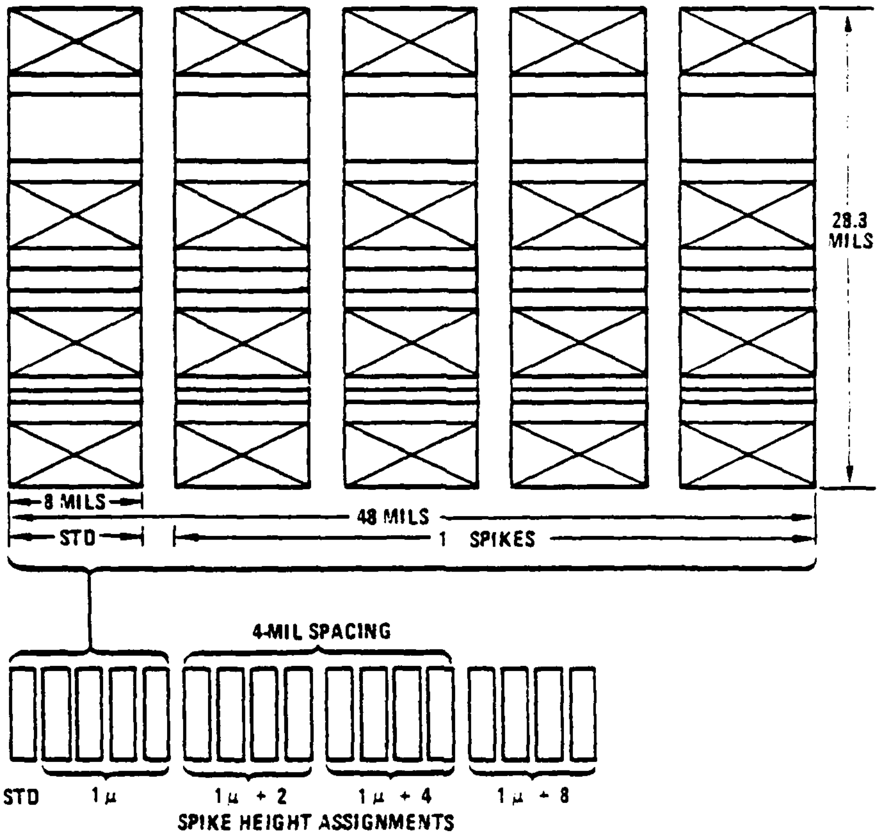
N^{++} CONTACT → N - TYPE
P^{++} CONTACT → N - TYPE

LOCATION

1 MIL FROM LEFT - HAND EDGE

N^{++} DIFFUSION → N - TYPE
P^{++} DIFFUSION → N - TYPE

Figure 6. Half-Size Spike Structure



- 51 DEVICES
- N - TYPE CONTROLLED DOPING REGION (X_E) LENGTH

  10µ
  30µ
  100µ

- BASIC STRUCTURE WIDTH

  8 MILS (200µ)

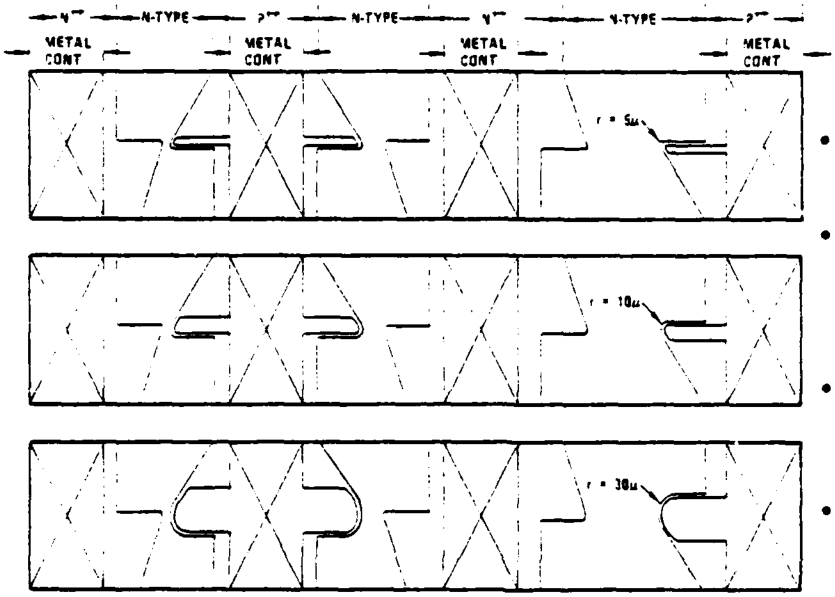
- SPIKE LENGTH

1µ	LOCATION
2µ	CONTINUOUS ACROSS DEVICE
2µ	2 MIL, 4 MIL, & 6.8 MIL FROM LH EDGE
4µ	2 MIL, 4 MIL, & 6.8 MIL FROM LH EDGE
8µ	2 MIL, 4 MIL, & 6.8 MIL FROM LH EDGE

- SPIKE DIRECTION

N^{++} CONTACT → N - TYPE	N^{++} DIFFUSION → N - TYPE
P^{++} CONTACT → N - TYPE	P^{++} DIFFUSION → N - TYPE

Figure 7. Multiple Spike Structures



- 9 DEVICES
- RADIUS ON P++ DIFFUSION

  5 μ
  10 μ
  30 μ
- RADIUS ON N++ DIFFUSION

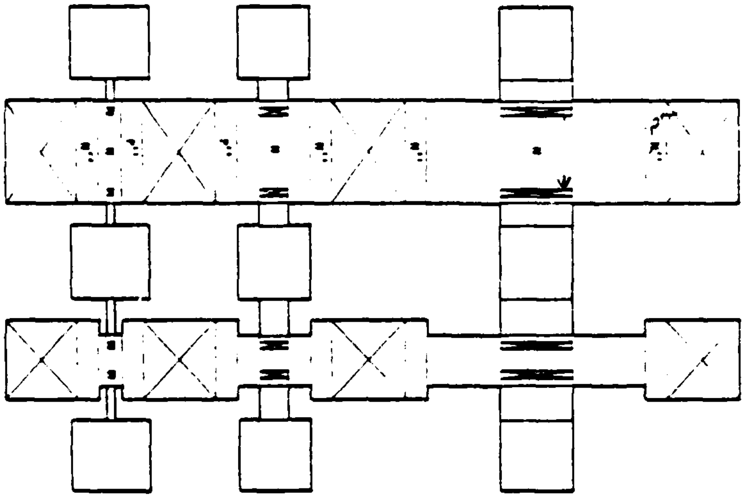
  5
- RADIUS SEPARATION

  10 μ
  30 μ
  100 μ
- CONTACT OPENING FROM P++ DIFFUSION EDGE

  5 μ
- METAL OVERLAP OF CONTACT

  2 μ

Figure 8. Radius of Curvature Structure

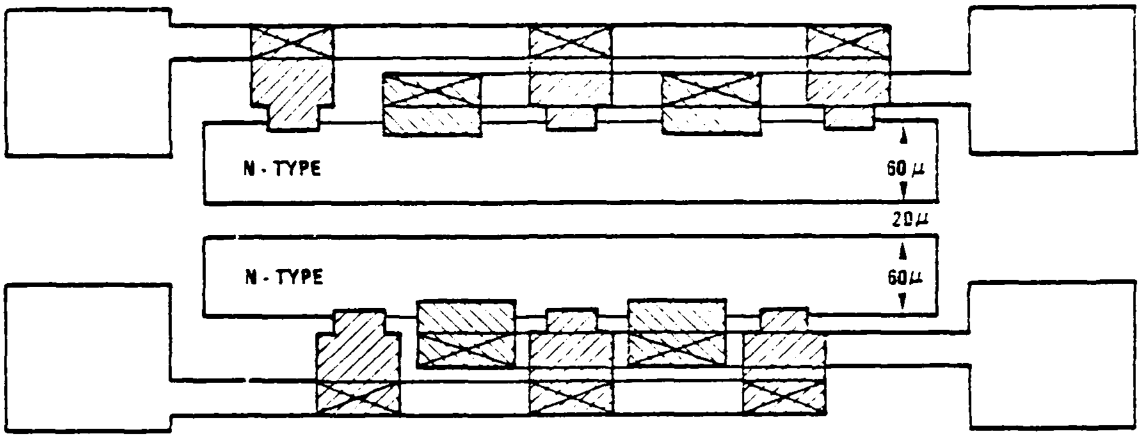


- 6 DEVICES
- N - TYPE CONTROLLED DOPING REGION (X_E) LENGTH

  30 μ
  90 μ
  300 μ
- BASIC STRUCTURE WIDTH AT CONTROL POINTS

  1.2 MIL
  4 MIL
- EQUAL SPACING BETWEEN CONTROL REGIONS AND CONTACT REGIONS

Figure 9. Four Terminal Structure



▨ N^{++}

▧ P^{++}

- 2 DEVICES
- N^{++} DIFFUSION LENGTH 5μ
- P^{++} DIFFUSION LENGTH 10μ
- N^{++} DIFFUSION WIDTH 30μ
- P^{++} DIFFUSION WIDTH 60μ
- N^{++} - P^{++} DIFFUSION SEPARATION
  - DEVICE # 1. 40 μ
  - DEVICE # 2: 20μ
- N TYPE SEPARATION 20μ

Figure 10. Interdigitated Device

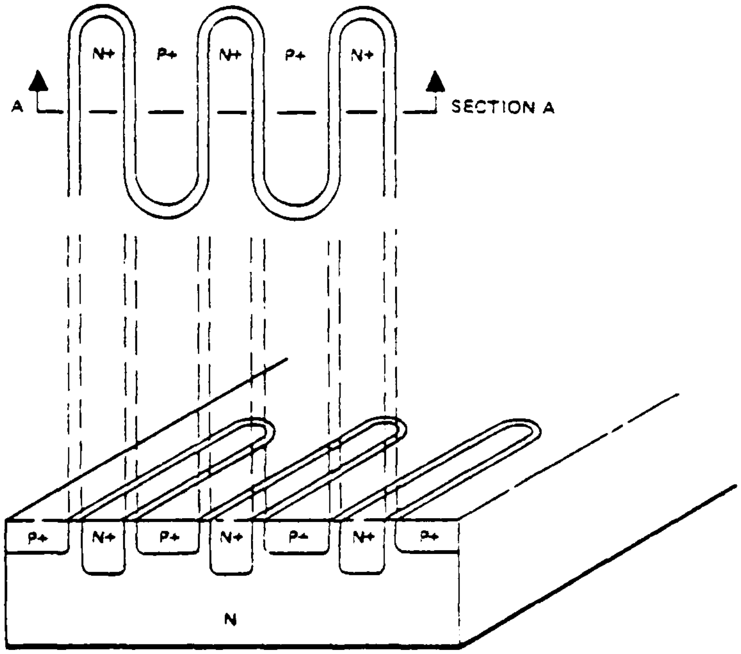


Figure 11. Origin of Simulated Interdigitated Structure

(c) Circular and star structures - not enough chip area available.

(d) Four- to ten-pad MSU structure - Mississippi State University withdrew their request for this device.

D. WAFER FABRICATION

Following chip device designs and mask design and fabrication, the wafers were ready for actual fabrication processing.

Special consideration was given to the preparation of SOS starting-material wafers in view of the optical requirements of the stroboscopic second breakdown tests to be performed at Auburn University.

(1) The backside of the sapphire substrate was polished optically smooth.

(2) To facilitate determination of top versus bottom of the wafers, a special second flat ground on each wafer as shown in figure 12.

(3) An intrinsic epi layer of silicon (0.55 to 0.65 microns thick) was doped at Rockwell International by ion implantation to obtain the five starting material doping levels. All wafers were sliced from a single boule.

Consideration was given to using 2-micron thick epi silicon layers to minimize current crowding effects. However, two factors made use of a thicker epi layer unattractive:

(1) Thicker epi layers result in less transparency. This fact impacts the Auburn University tests.

(2) Increasing the epi thickness would introduce a new variable (additional yield risk) into the SOS device-fabrication process.

1. Diffusion Doping Versus Ion Implantation

In the interest of keeping the series resistance of the n^{++} and p^{++} regions as low as possible, the diffusion doping method (~ 25 Ω/□ and ~ 100 Ω/□, respectively) is ppreferred over the ion implantation method (∿200 Ω/□ and ∿400 Ω/□, respectively). Diffusion doping was used for forming both p^{++} and n^{++} areas.

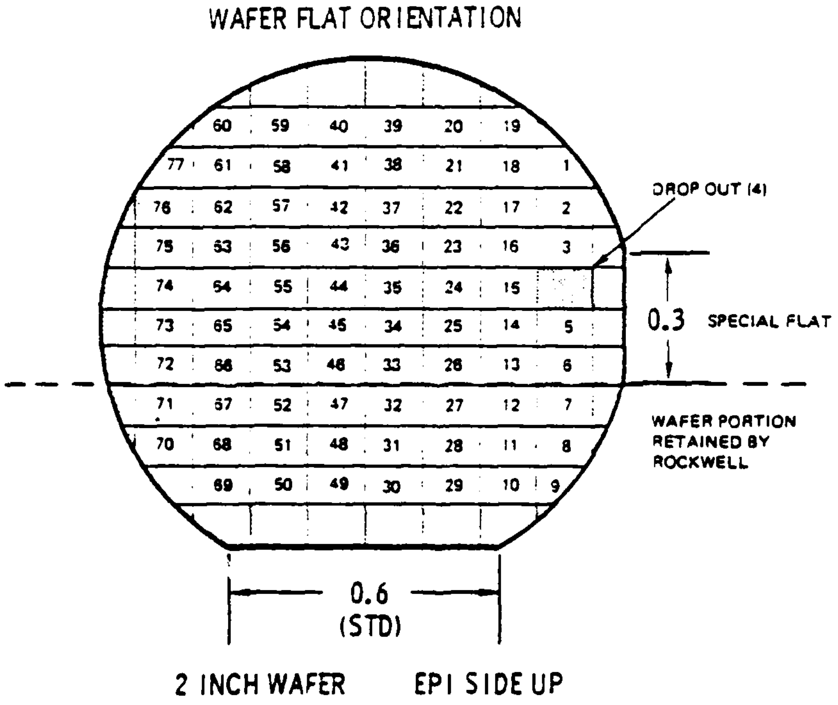


Figure 12. Die Identification

2. Processing Steps

An outline of the SOS Electrical Overstress Processing Steps used to fabricate this chip is listed squentially in figure 13, Si-Gate CMOS/SOS Process. It should be noted that following step L, a doped silox passivation layer is deposited and the pad areas are etched for electrical contacts.

Also, this set of processing steps is necessary to fabricate both n channel and p channel transistors on the process evaluation test pattern. Only steps A through E actually apply to the fabrication of the diodes to be used in second breakdown tests.

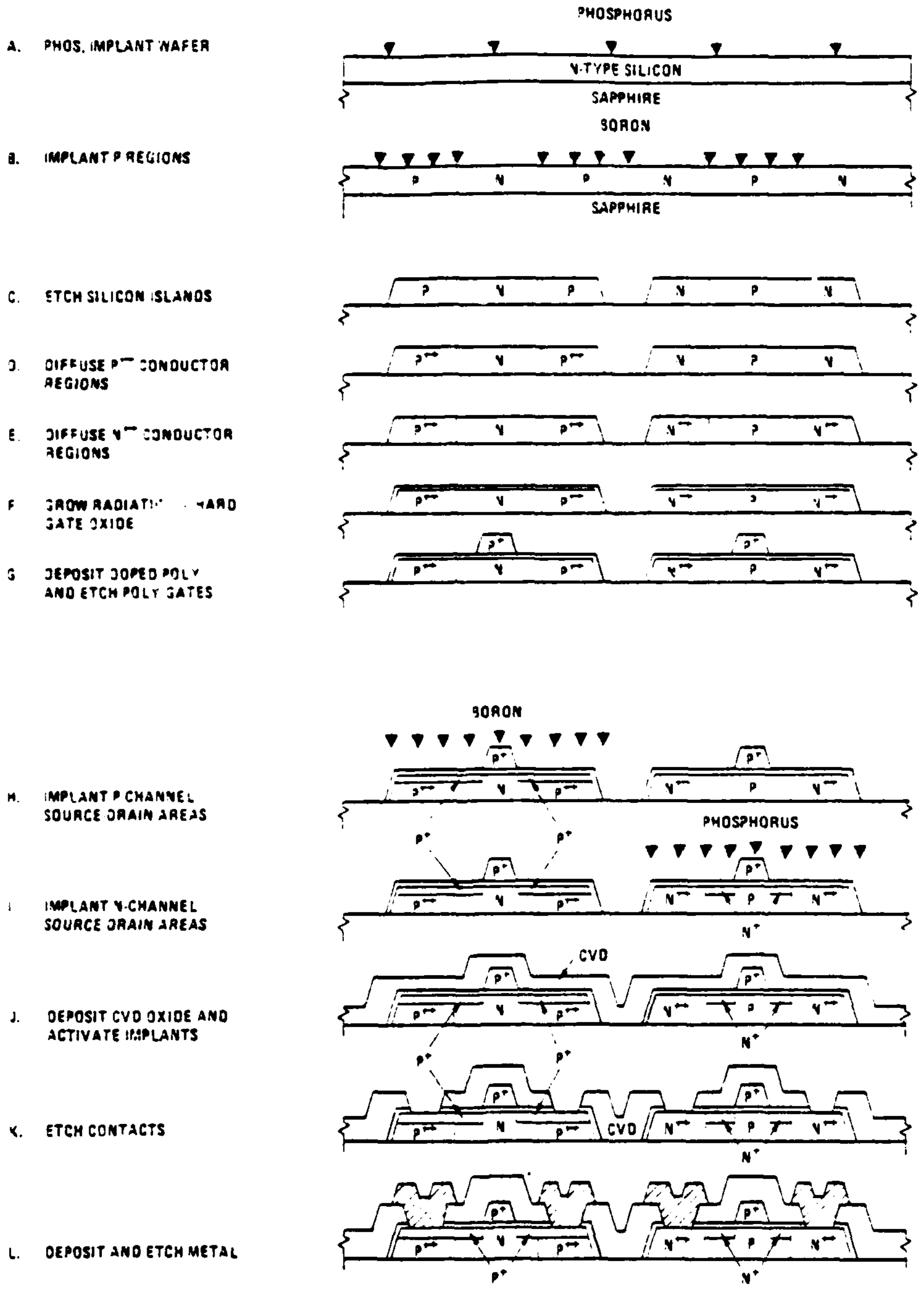


Figure 13. Si-Gate CMOS/SOS Process

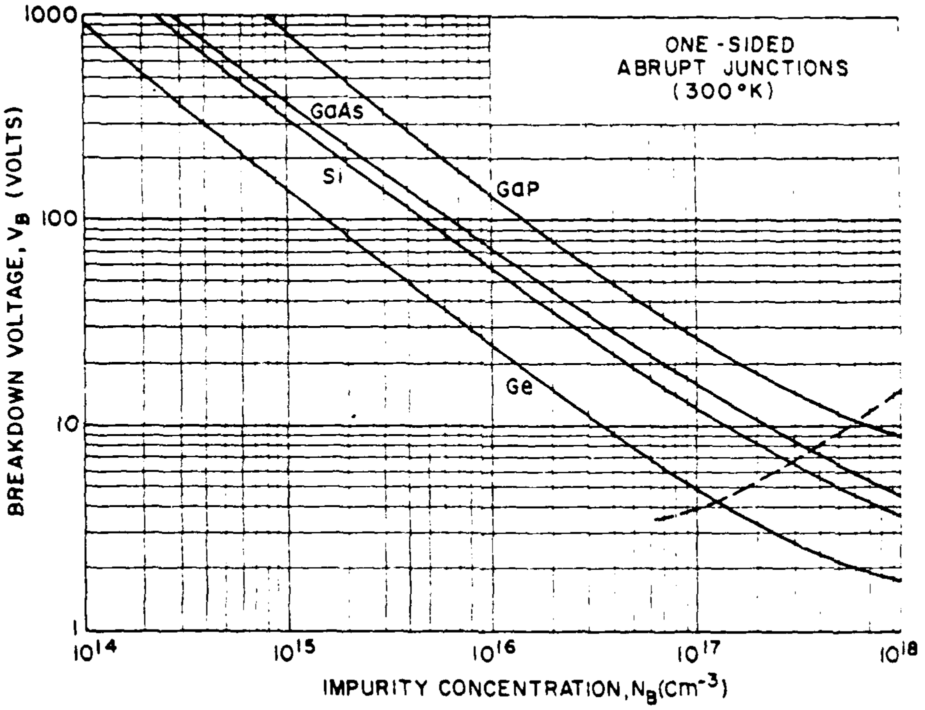
CHAPTER III

ESTIMATION OF DOPING LEVELS

The doping level in the lightly doped N region of each silicon-on-sapphire diode was intentionally varied from one wafer to another. The doping levels actually achieved in this region may be estimated from either resistance measurements or breakdown voltage measurements. The procedures used for these estimates are described in the following sections. These procedures for estimating doping levels are based on measurements for single crystal silicon. However, silicon-on-sapphire has a layer of surface states at the silicon-sapphire interface and grain boundaries due to its somewhat polysilicon nature. The grain boundaries and surface states increase the resistance measured for a particular structure and make the estimate of doping level from a resistance measurement appear artificially low. However, these defects can act as nucleation sites and reduce the breakdown voltage at a given doping level. Thus, these defects make the estimate of doping level from breakdown voltage measurements appear artificially high. This difference in the estimated doping level was most pronounced for the lighest doped wafer, wafer 1. For the more heavily doped wafers, wafers 4 and 5, the difference in estimated doping level from the two techniques was reasonably small.

A. ESTIMATION OF DOPING LEVEL FROM BREAKDOWN VOLTAGE MEASUREMENTS

The doping concentration for a given breakdown voltage may be read directly from a graph, such as is shown in figure 14. There are some limitations which must be considered. One of these is that the graph in figure 14 is based on single crystalline silicon so that for silicon-on-sapphire devices the value read from the graph for doping concentration will be too large. This is particularly true for very low doping concentrations as discussed previously.



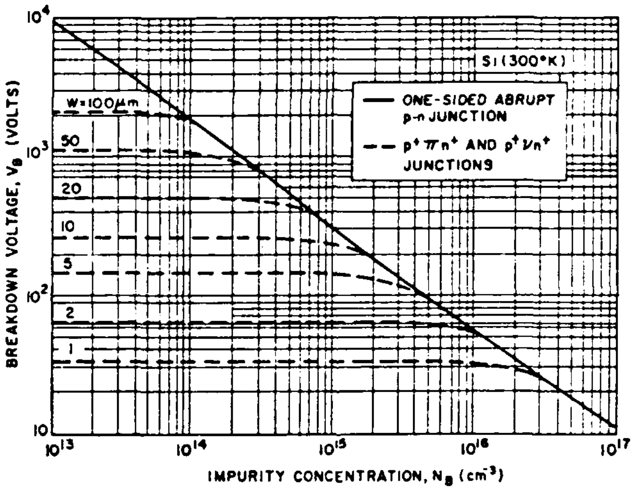
Avalanche breakdown voltage versus impurity concentration for one-sided abrupt junctions in Ge, Si, GaAs, and GaP. The dashed line indicates the maximum doping beyond which the tunneling mechanism will dominate the voltage breakdown characteristic.

Figure 14. Breakdown Voltages Versus Doping Concentration

Another limitation arises when the depletion layer spreads all the way across the lightly doped N region into the more heavily doped N+ region of the silicon-on-sapphire diode. Since the depletion layer is the widest for the lightest doping level, this effect is most likely to occur in wafer 1 for the diodes with a 10 μm length of the lightly doped region. As shown in figure 15, the breakdown voltage becomes relatively independent of doping concentration once the depletion layer spreads completely across the lightly doped N region. Also, once the depletion region spreads completely across the lightly doped N region, the breakdown voltage is proportional to the length of the lightly doped region.

On wafer 1, the lightest doped wafer, the breakdown voltages range from approximately 105 volts to 150 volts for the 10 micron length. However, on wafer 1, the breakdown voltages range from approximately 180 volts to 260 volts for the 30 micron length devices. Both of these breakdown voltage ranges are taken from the standard reference structure. Since the breakdown voltage range of the 30 micron length is roughly twice the breakdown voltage range of the 10 micron length, it would appear that the depletion region spreads completely across the 10 micron length device but only part way across the 30 micron length device. If the depletion region did not spread completely across the 10 micron length device, then both the 10 micron length device and the 30 micron length device should have the same range of breakdown voltages. If the depletion region were spreading completely across the 30 micron length device, then the 30 micron length device should have a breakdown voltage of approximately three times the range of breakdown voltages for the 10 micron length device.

For wafer 1, the breakdown voltage range from the 30 micron length devices would predict a doping concentration range between 1 and 2 x 10^{15} cm^{-3}. On wafer 4, the breakdown voltage range is between 26 volts and 32 volts which predicts a doping concentration range of 2.5 to 3.5 x 10^{16} cm^{-3}. From figure 15, it is clear that a doping concentration on the order of 10^{16} poses no danger of having a depletion region which spreads



Breakdown voltage for $p^+\pi n^+$ and $p^+\nu n^+$ structure where π is for lightly doped *p* type and ν for lightly doped *n* type. *W* is the thickness of the π or ν region.

Figure 15. Breakdown Voltage Versus P^+N N^+ Structure

completely across a 10 micron device. On wafer 4, the range of breakdown voltages was between 11 and 13 volts which predicts a range between 0.95 and 1.05×10^{17} cm^{-3}. Once again, the length of the lightly doped region is not important to breakdown voltage for wafer 5. The breakdown voltage for each individual diode tested is given in the data base which is included in its entirety in chapter VII of this report.

B. ESTIMATION OF DOPING LEVEL FROM RESISTANCE MEASUREMENTS

Doping level may be estimated by measuring the resistance of the doping level test structure described in chapter II. The resistivity is calculated from the geometry of the structure:

$$\rho = \frac{R t_{si} w}{L}$$

where

R = resistance in ohms
t_{si} = silicon thickness, cm
w = structure width, cm
L = structure length, cm.

The corresponding impurity concentration is found from a graph of resistivity versus impurity concentration such as the one in figure 16. The initial epitaxial silicon thickness was 0.6 micron, but processing of the wafers resulted in some of the silicon being consumed. Thus, by the end of the processing, perhaps 0.4 micron of silicon remains. Using 0.4 microns, 200 microns and 100 microns for the thickness, width and length of the doping level test structure, the estimated doping levels are given for each die tested in table 1.

Another factor which could affect the measurement is the presence of surface charge. An attempt to reduce the effects of surface charge was made by performing an hydroflouric acid etch of a test chip from each doping level to remove the oxide. The measurements were repeated immediately with no noticeable differences. Thus surface charge effects were

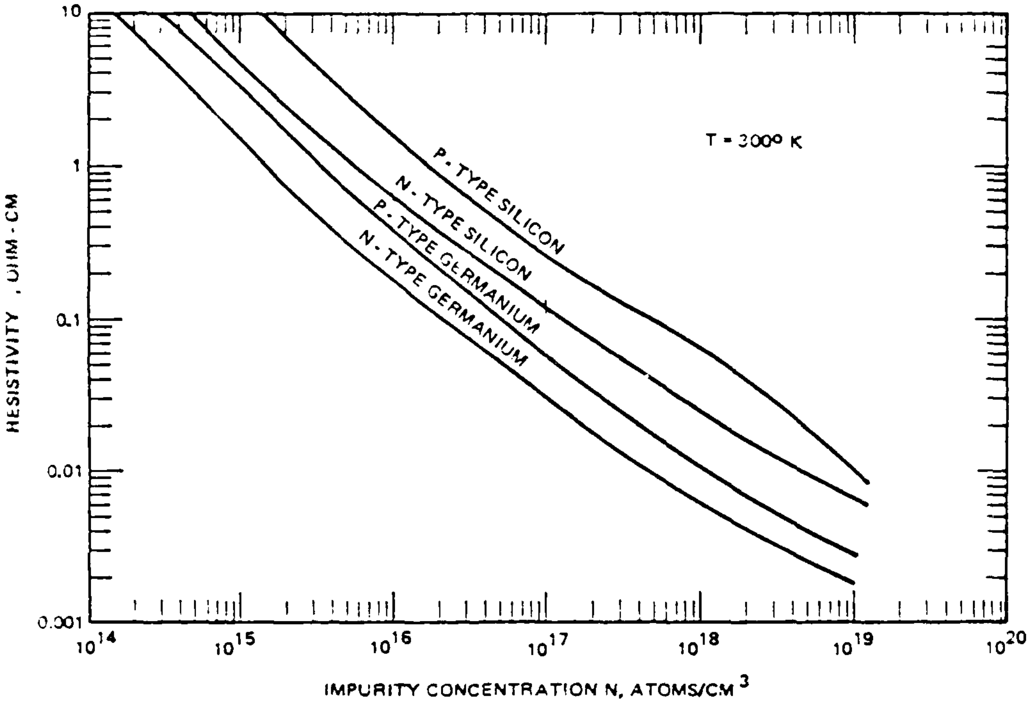


Figure 16. Resistivity as a Function of Impurity Concentration

excluded as a consideration from the resistivity measurements. As mentioned previously, interface states at the silicon-sapphire boundary and grain boundaries will make the measured resistance appear too large and the estimated doping appear too small.

TABLE 1. IMPURITY CONCENTRATION

Wafer	Die	Page	R_{DLTS}(kΩ)	AT Current (μA)	N_D(cm-3)
2-1	17	249	440	25	1.1×10^{14}
	20	77	190	20	3.0×10^{14}
	21	103	250	20	2.5×10^{14}
	34	1	210	47	3.0×10^{14}
	34	170	300	35	1.5×10^{14}
	35	282	270	35	1.8×10^{14}
	36	13	220	45	3.0×10^{14}
	37	24	280	20	1.8×10^{14}
	37	247	280	40	2.5×10^{14}
	38	132	150	20	3.5×10^{14}
	39	241	120	50	4.0×10^{14}
	40	212	120	50	4.0×10^{14}
	41	179	140	50	3.5×10^{14}
	42				
	43	291	330	30	1.5×10^{14}
	43	467	200	50	3.0×10^{14}
	46	467	400	50	1.1×10^{14}
	46	25	170	20	3.4×10^{14}
	53	25	180	20	3.3×10^{14}
	54	50	250	20	2.5×10^{14}
	56	171	400	25	1.1×10^{14}
	57	466	200	50	3.0×10^{14}
2-4	24	827	6.8	50	8.0×10^{15}
	34	839	7.0	50	8.0×10^{15}
	35	813	6.6	50	8.2×10^{15}

TABLE 1. IMPURITY CONCENTRATION (Concluded)

Wafer	Die	Page	R_{DPLTS}(kΩ)	AT Current (μA)	N_D(cm-2)
	36	794	6.4	50	8.4×10^{15}
	38	884	6.3	50	8.5×10^{15}
	41	879	6.7	50	8.0×10^{15}
	42	868	6.8	50	8.0×10^{15}
	43				
	55	858	7.1	50	7.9×10^{15}
	63	466	7.5	50	7.5×10^{15}
	64	465	7.7	50	7.5×10^{15}
	65	465	7.7	50	7.5×10^{15}
	73	464	7.5	50	7.5×10^{15}
	74	464	7.5	50	7.5×10^{15}
	75	463	7.0	50	8.0×10^{15}
	76	463	6.7	50	8.0×10^{15}
2-5	36	777	0.98	250	8.7×10^{16}
	53	468	1.0	250	8.5×10^{16}
	61	774	1.0	250	8.5×10^{16}
	62	775	1.1	250	8.0×10^{16}
	63	775	1.0	250	8.5×10^{16}
	64	776	1.1	250	8.0×10^{16}
	65	776	1.1	250	8.0×10^{16}
	66	772	1.1	250	8.0×10^{16}
	72	772	1.1	250	8.0×10^{16}
	73	773	1.3	250	6.5×10^{16}
	74	773	1.1	250	8.0×10^{16}
	75	774	1.1	250	8.0×10^{16}

CHAPTER IV

TEST PLAN FOR PULSED FAILURE TESTING OF SOS DIODES

A. MAVERICK DEVICES

1. Goals

It is desirable to develop a screen which will eliminate maverick devices, that is, devices which are extremely sensitive to electrical pulse power burnout. However, to date no technique has been developed which successfully eliminates maverick devices without producing serious concerns about the reliability of the remaining devices. As a preliminary to the development of a screening technique, the existence of maverick devices must be demonstrated. Preferably, the causes of maverick behavior would be indicated during demonstration maverick behavior. Further, the frequency of occurrence of maverick devices within a test group should be known and preferably controlled so that the test group may be used in the development and verification of candidate screening techniques.

2. Approach

The steps to achieving these goals have been: (1) the identification of possible causes of maverick behavior, (2) the construction of silicon-on-sapphire (SOS) diodes which include intentionally constructed defects representing the causes of maverick behavior, and (3) testing of these SOS diodes to verify that the defects do indeed produce the anticipated maverick behavior. The probable causes of maverick behavior which have been identified are metallization spikes at the metal-silicon interface and diffusion spikes at the metallurgical junction. The SOS diodes constructed include reference structures as well as those with intentional defects and are described in detail in chapter II. Although screening techniques are not to be developed for SOS diodes under this contract, the SOS diodes provide a very convenient vehicle for the study of the causes of maverick behavior in that the heating within the diode may be observed and photographed. Thus, hot spot formation can be related directly to the defect structures. The test results of the SOS diodes provide the experimental basis for the next phase of the screen development which would be to build three-dimensional silicon devices which contain intentional defects to produce maverick behavior and normal three-dimensional devices as a reference.

3. Data Required

a. Voltage, Current, Power, and Failure Time

Voltage, current, and power as a function of time are required for a single waveform for several reasons. Since the source impedance in a system subjected to electrical overstress pulses varies over a significant range, neither the voltage or current alone is sufficient for system analysis or design. Thus, pulse power is an important parameter. Both voltage and current are needed, not only for systems analysis, but for understanding and insight into the failure mechanisms. Since relatively isolated electrical overstress pulses are of interest to the system design, the overlapping of effects to repetitive pulsing should be minimized. Also since the devices are tested to failure and failure is caused by a single pulse, the voltage current on a single waveform must be simultaneously recorded. Since the pulse power necessary to cause failure is a function of the pulse width, the failure time should be determined if the device fails before the end of the pulse.

b. Difference in Failure Levels Between Reference Structures and Maverick Devices

Due to the limited testing time available, the difference in failure levels between the reference structures and maverick devices should be tested for the worst case, that is, the case expected to produce the greatest difference. Since the intentional defects in the maverick devices are expected to produce large variations in the failure thresholds, large test samples and statistical techniques are not necessary.

c. SOS Diode Width Significance

To the first order, theory would indicate that the width of the SOS diodes (measured parallel to the metallurgical junction) has no impact on the difference in failure thresholds between the maverick devices and the reference structures. However, in narrower diodes, the defect width is a larger fraction of the total device width and might be expected to result in a larger impact of the defect structure on the failure threshold. An overriding consideration is the practical limitations of the test circuit which places an upper bound on the allowable impedance of the test device. Since the impedance of the test device is inversely proportional to the width of the diode, the upper bound on device impedance corresponds to a lower bound on device width which will, in some cases, restrict the choice of structures which may be tested.

d. Worst Case for Metallization Spikes

The largest difference between the failure threshold of a diode with a metallization spike and the reference diode of the same geometry would be expected for the following conditions: (1) the shortest N region (measured perpendicular to the metallurgical junction), (2) metallization spike from the metal contact into the N^+ region, and (3) lowest doping of the N region. Due to time constraints, only the structures containing a single spike will be considered. Since the metallization spike is the same size for all the single spike structures, the shortest N region results in the largest relative size of the metallization spike. The N region is of importance because it is the lightest doped region which, therefore, becomes the hottest under electrical overstress conditons and contains the filimentary hot spots characteristic of the onset of damage. The lowest doping level provides the greatest contrast in doping level between metallization and the N region. The metallization contact to N^+ region was chosen as worst case somewhat arbitrarily as there is no clearcut theoretical difference between the two possible metallization spikes. Due to time constraints and limitations in the metallization spike structure described below, only one metallization spike configuration was chosen for testing.

The concept of the metallization spike as a mechanism for reducing the failure thresholds is that the metallization spike will tend to concentrate the electric field. However, the difference between the conductivity of the silicon adjacent to the metallization and the conductivity of the metallization is an important factor in the degree to which the electric field will be concentrated by the metallization spike. The metallization spike structure illustrated in figure 17 illustrates two limitations of the structure. First, the metallization spike extends into the very highly doped (10^{20} cm^{-3}) contact regions under the metallization. Therefore, the difference between the conductivity of the silicon contact region shown as N^+ and the conductivity of the metallization is relatively small and will result in a minimum field concentration at the metallization spike. In addition, the metallization on top of the silicon dioxide insulating layer significantly overhangs the metallization spike which is in the silicon. This metallization overhang introduces a vertical electric field perpendicular to the usual electric field which would be concentrated by the metallization spike. Normally, this perpendicular electric field would not be present in the region of metallization spike. The presence of this perpendicular field raises questions about the significance of the metallization spike. Because of these two limitations, the metallization spike structure may not be a good representation of a typical metallization spike in a normal bulk silicon production device. Therefore, the results of tests on this structure are of questionable significance.

e. Four Terminal Devices as Metallization Spikes

Due to the limitations of the metallization spike structures, tests of the four terminal devices are being considered as possibly more representative of metallization spikes in production devices. The four terminal devices are SOS diodes with metallization contacts implanted on each side of the lightly doped N region so that when a voltage is applied between these additional metallization structures, the resulting electrical field is parallel to the metallurgical junction and perpendicular to the electric field induced under ordinary conditions.

The four-terminal structure should be tested in two different modes. The first test is to pulse test the device using only the additional metallization structures, thus driving current side-to-side through the N region with the ordinary diode metallization contacts open circuited. This test would most closely correspond to a forward bias

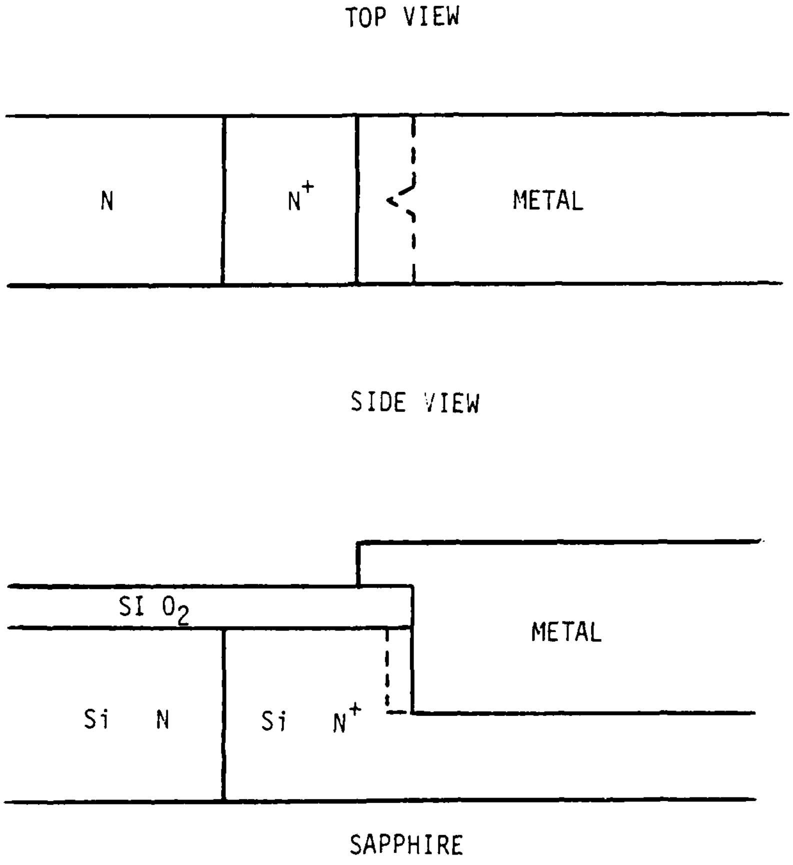


Figure 17. Metallization Spike Structure

test of the reference structure where the metallurgical junction contributes a negligible voltage drop compared to the total failure voltage. The second test consists of tying the two additional metallization contacts to the metallization contact associated with the N^+ region. Thus, the current is flowing reverse bias through the diode as with tests of the other structures, but an additional current path has been provided by the lateral metallization structures. These lateral metallization structures have relatively sharp corners and represent a sharp contrast in conductivity between the silicon and the metallization. Therefore, the corners of the metallization structures can be expected to cause significant concentration of the electric field leading to the formation of hot spots and failure at lower levels than for the reference structures.

f. Diffusion Spikes

The diffusion spikes structures to be tested include different spike configurations, different wafers, different lengths of the lightly doped N region, and different diode widths. The diffusion spike structures included are a spike from the N^+ to the N region and a spike from the P^+ to the N region. Diffusion spikes will be tested on wafers 1, 4, and 5 from lot 2. The lengths of the N region to be tested are 10, 30, and 100 microns. The diode widths to be tested are 8 mils and 1.2 mils except where the upper bound on impedance at the test device dictates that a wider device be tested. The priorities associated with all the tests are discussed in section D of this chapter. These test conditions are designed to fully characterize the effect of diffusion spikes on failure threshold levels. As with the metallization spikes, the shortest diode lengths and lowest doping level (wafer 1) represent the conditions expected to produce the largest difference in threshold between the diffusion spike structure and the reference diode. It is of primary importance to determine that diffusion spikes do or do not have a significant impact on failure thresholds under the conditions expected to be most sensitive. If the impact on failure thresholds is significant as anticipated, the next objective is to study the effects of varying diode lengths and doping levels on the failure thresholds to gain valuable insight into the effects of diffusion spikes on the device operation during overstress operation.

g. Reference Structures

Reference structures corresponding to the metallization spike devices, four terminal devices, and diffusion spike devices discussed in sections d, e, and f above must be tested to provide a basis for comparison. Ideally, the reference structure would be from the same die as the corresponding spike device or four terminal device of the same length and width. This would minimize unwanted variations between the reference structure and the spike structure due to variations from one die to another. However, it is recognized that many of the devices have been previously tested and it may not be possible to test the reference structure and corresponding structure from the same die.

h. Pretest and Posttest

A pretest curve tracer photograph of each device tested and a curve tracer photograph of the doping level test structure from each die on which any devices are tested are needed to allow correct measurement of the avalanche voltage of the device under test and calculation of the actual doping level for that die by two independent methods. Posttest curve tracer photographs will be useful in documenting the nature of the failure.

B. NOMINAL HARDNESS SCREEN

1. Goals

A screen to determine the nominal or average hardness of a particular lot needs to be developed to monitor variations from one lot to another, manufacturer to manufacturer, and for a replacement device type. This nominal hardness screen can be used to reject lots which are particularly sensitive to electrical pulse burnout due to changes in the manufacturing process. Such a screen can be achieved with lot sample destructive testing. However, a screen is desired which is less expensive and quicker while retaining the accuracy and simplicity of implementation of lot sample destructive testing. A screen based on parameters which can be measured on automatic test sets is expected to meet these requirements in a cost-effective manner. The first step in developing such a screen is to develop the relationship between the failure threshold levels and physical device parameters. The physical parameters must then be related to parameters which may be measured on automatic test sets.

2. Approach

a. Primary Physical Parameters

The primary physical parameters identified to date are junction area, doping level, and geometry. Junction area has been identified as the most important parameter in determining pulse power burnout since the earliest work in this area by Wunsch and Bell. Thus, the effect of junction area on failure levels is relatively well understood. Recent work has indicated that inclusion of doping levels can improve the capability to predict failure level within a class of similar devices such as zener diodes. However, inclusion of doping in models to predict failure levels gives worse results when all the device types are considered. This indicates that either the method of including doping level effects on failure levels needs to be refined or that another parameter such as geometry needs to be considered. Since normal production devices of the same type may be made using several different geometries by several different manufacturers, geometry can be expected to play some role in determining the failure threshold levels. Specifically, different geometries will produce a different minimum radius of curvature of the metallurgical junction. That is, some geometries will tend to produce relatively sharp corners or edges in the metallurgical junction while in other geometries the corners and edges will be relatively soft.

b. Analytical Investigation of Doping Effects

Detailed theoretical modeling of the SOS devices will be done by The BDM Corporation, Auburn University, and Mission Research Corporation to predict the effect of doping level on failure thresholds. The tests conducted by Auburn University described in this section of the test plan will provide data for comparison with the results of the analytical modeling.

c. Tests of Bulk Silicon Devices

Data from two sources will be used to empirically investigate the effects of doping levels and geometry on failure thresholds. The first source of data is a composite of data from previous test programs on bulk silicon production devices. However, the use of these data is limited by the fact that the doping levels and geometries are not always well known. The second source of data is a test program by BDM which is currently testing specially fabricated bulk silicon devices for which geometries and doping levels are well known. These data will not be complete for several months. These data will provide information on the effects of both doping level and geometry in bulk silicon devices representative of production items. The metallurgical junction in bulk silicon devices is a three-dimensional problem having potentially different radius of curvature in two different planes.

d. SOS Diode Tests

The SOS diodes allow the study of the effect of doping alone on failure threshold levels through the use of the reference structures. These devices also allow the study of the combination of doping levels and geometry through the use of the radius of curvature structures. The SOS diodes have the advantage of an essentially two-dimensional junction geometry with a radius of curvature on only one plane. The SOS diodes have the further advantage of a structure which allows the observation of hot spot formation showing the relationship between hot spots and the junction curvature.

3. Data Required

a. Voltage, Current, Power, and Failure Time

Voltage, current, and power as a function of time are required for a single waveform for several reasons. Since the source impedance in a system subjected to electrical overstress pulses varies over a significant range, neither the voltage or current alone are sufficient for system analysis or design, and pulse power is an important parameter. Both voltage and current are needed, not only for systems analysis, but for understanding and insight into the failure mechanisms.

Since relatively isolated electrical overstress pulses are of interest to the systems design, the overlapping of effects due to repetitive pulsing should be minimized. Also since the devices are tested to failure and failure is caused by a single pulse, the voltage and current on a single waveform must be simultaneously recorded. Since the pulse power necessary to cause failure is a function of the pulse width, the failure time should be determined if the device fails before the end of the pulse.

b. Standard Reference Structures

The data required for reference structures in the development of a nominal hardness screen is the same as the data for reference structures corresponding to the diffusion spike structures discussed in chapter II. Specifically, wafers 1, 4, and 5 of lot 2 with N region lengths of 10, 30, and 100 microns and diode widths of 1.2 and 8 mils should be tested. These data will serve a double purpose for both comparison to the results of tests on the diffusion spike structures and for the development of a nominal hardness screen. The maximum N region length and minimum electrical pulse width are limited by the maximum voltage capabilities of the constant current pulser. The minimum diode width is limited by the upper bound on test device impedance imposed by the constant current pulser. As previously discussed, diode width is proportional to junction area and should produce very predictable results. Therefore, only a wide diode and a narrow diode are tested to verify this relationship.

c. Radius of Curvature

The effect of junction radius of curvature can be demonstrated by two different comparisons. First, the lowest failure thresholds due to the maximum electrical field crowding produced by the minimum radius of curvature can be compared to the corresponding reference structure. However, this comparison is complicated somewhat by the fact that the radius of curvature structure tends to reduce the effective junction area in addition to causing concentration of the electrical field due to the curvature itself. The second comparison is between the longest radius of curvature and the shortest radius of curvature. Any significant difference between the failure thresholds of the long radius of curvature and short radius of curvature structures would verify the significance of the radius of curvature. If there is no significant difference between the failure thresholds of the longest and shortest radius of curvature structures, this would not rule out the possibility of a dependence of failure thresholds on the radius curvature. It is possible that all the radius of curvature structures are effectively very short or very long and thus do not represent a significant spread in radius of curvature. If the failure thresholds on the longest radius of curvature and shortest radius of curvature structures are significantly different, then data on the middle radius of curvature structure will be very useful in understanding the dependence of failure thresholds on the radius of curvature.

d. Pretest and Posttest

A pretest curve tracer photograph of each device tested and a curve tracer photograph of the doping level test structure from each die on which any devices are tested are needed to allow correct measurement of the avalanche voltage of the device under test and calculation of the actual doping level for that die by two independent methods. Posttest curve tracer photographs will be useful in documenting the nature of the failure.

C. FAILURE TESTING METHOD

1. Test to "Failure"

Two power levels associated with failure can be used in this effort. The level at which hot spots are first seen to form is needed for direct comparison to the analytical models based on uniform heating across the width of the device. This level also represents a power level close to burnout which the device can survive. In previous test programs where hot spots could not be observed, the failure level had to be determined by step stressing to demonstrate a failure pulse and a pulse which the device survived. These two levels bracketed the failure threshold. From the onset of hot spots, the device should be step stressed to failure with the test current being increased approximately 10 percent with each step; thus, failure should be reached within a few steps. The devices need to be tested all the way to failure since systems designs are based on actual failure levels.

Testing to failure imposes several requirements on the test method. Since a single pulse at a higher pulse amplitude is generally sufficient to fail the device, the testing should be done in the single-shot mode. Since both current and voltage, as a function of time, are required for the same pulse, both quantities must be photographed simultaneously. Once failure has occurred or if failure is suspected, another voltage and current photograph should be taken at the same pulser setting. This will verify that failure has indeed occurred.

2. Single-Shot Mode

For the reasons discussed above, all photographs of voltage and current pulses should be taken in the single-shot mode.

3. Optical Photographs

A few optical photographs of the test device should be taken to document the hot spot location and any unusual features of the hot spot formation. Also, a few special photographs should be taken of a spike structure and the corresponding reference structure at the same current level.

4. Pulser Circuit

The pulse circuit to be used is shown in figure 18. This circuit is based on the constant current pulser circuit previously used by Auburn with the addition of an emitter resistor R_E and a resistor in parallel with the test device R_T. The emitter resistor makes the current more constant by removing the effects of variation in transistor gain. The resistor R_T improves the fall time of the voltage waveform by providing a discharge path for parasitic capacitance in parallel with the test device. The resistors R_E and R_T should have the values of 220 ohms and 100 kilohms, respectively. The transistor used for T1 and the model of fluke DC power supply depend on the voltage required.

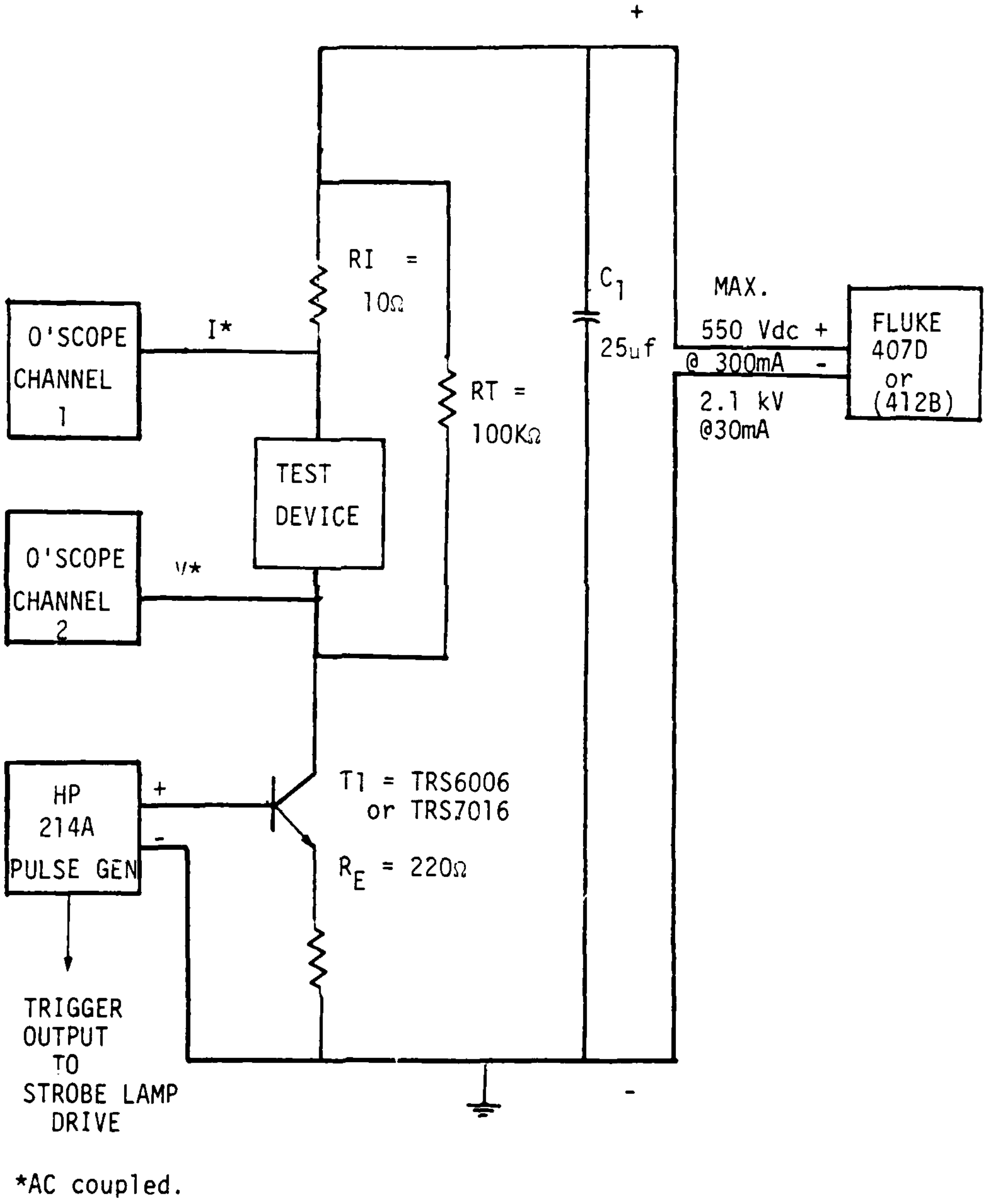


Figure 18. Constant Current Pulser Circuit

This circuit has several inherent limitations. The maximum voltage of the HP214A pulse generator used to drive transistor T1 and the emitter resistor R_E limit useful constant current range to values between 2.5 milliamps and 200 milliamps. Higher currents would require more than 50 volts out of the pulse generator and lower currents would allow the current to become subject to variation due to variations in the transistor gain. The parasitic capacitance (20 to 40 Pf) in parallel with the test device and the device impedance, defined as the ratio of the failure voltage over the failure current, limit the rise time of the voltage pulse. Since the testing is done at a pulse width of 10 microseconds, rise time should be limited to less than 2 microseconds for the voltage waveform. A maximum rise time of 2 microseconds will impose an upper bound on the test device impedance of 50 kilohms. This upper bound on device impedance is expected to impose a lower limit on the device width which can be tested for some doping levels. The resistor R_T was chosen to be ten times greater than the maximum device impedance so that variations in the test device impedance would not affect the current flowing to the test device. The maximum failure voltage which can be tested is determined by the DC source and the transistor and is 490 volts with the fluke 407D and the TRS6006 and 640 volts for the fluke 412B and transistor TRS7016. The maximum voltage may not be sufficient to fail the longest devices, that is, the 100-micron length for the lightly doped wafers, 1 and possibly 4, with a 10-microsecond pulse width.

5. Pulse Width

All the pulse testing should be done at a 10-microsecond pulse width except for those devices where the failure voltage exceeds the maximum voltage available from the pulser. For these devices, the 100-microsecond pulse width should be used.

6. Sample Size

For each structure and diode correspondng to the unique length and width, one test sample consists of the same structure and diode tested on five different die on the same wafer. Thus if the wafer were ideally uniform, the data on the five devices in a sample would be identical.

7. Doping Level Test Structure

For each die containing a device tested under this effort, a curve tracer photograph should be taken of the doping level test structure. The resistance computed with the curve tracer photograph of the doping level test structure and the avalanche voltage measured with the curve tracer for the device under test provide two independent methods of determining the effective doping of the wafer in the region of the device under test.

D. TEST PRIORITIES

The testing priorities are outlined in table 2 which refers to the paragraph detailing the test requirements. This table also lists the lot, wafer, structure, and diode identifying numbers of the devices to be tested as well as the length and width of the N region. The estimates of duration for each test is based on two diodes per hour as previously discussed with Dr. Budenstein and a sample size of five devices for each unique combination of lot, wafer, structure, and diode. The priority is listed as an I for a test which needs to be done independently of the results of any of the other tests, or a D followed by a number for a test which may or may not be conducted, depending upon the results of the test whose number follows the D.

TABLE 2. TEST PRIORITIES

TEST	REFERENCE PARAGRAPH	DESCRIPTION	LOT-WAFER	STRUCTURE-DIODE	L_D (µm)	W_D[1] (mils)	TEST[2] TIME (DAYS)	PRIORITY[3]
1	II C3, 4	METAL SPIKE TO N^+	2-1	04-15	10	2.	.3	I
2.0	II C3, 5	FOUR TERMINAL:LATERAL	2-1	08-04	300	1.2[4]	.3	I
2.1		P AND LATERAL	2-1	08-03	30	4	.3	I
3.0	II C3, 6	DIFFUSION SPIKES: P^+ to N, N^+ to N	2-1	05-15, 06-15	10	2	.6	I
3.1		MINIMUM WIDTH	2-1	05-09, 06-09	30	4	.6	D 3.0, 4.0
3.2			2-1	05-03, 06-03	100[4]	8	.6	D 3.1, 4.1
3.3			2-4, 2-5	05-20, 06-20	10	1.2	1.2	D 3.0, 4.0
3.4			2-4, 2-5	05-19, 06-19	30	1.2	1.2	D 3.3, 4.3
3.5			2-4	05-08, 06-08	100[4]	4	.6	D 3.4, 4.4
3.6			2-5	05-18, 06-18	100	1.2	.6	D 3.4, 4.4
3.7		MAXIMUM WIDTH	2-1, 2-4, 2-5	05-05, 06-05	10	8	1.8	D 3.0, 4.0
3.8			2-1, 2-4, 2-5	05-04, 06-04	30	8	1.8	D 3.7, 4.7
3.9			2-4, 2-5	05-03, 06-03	100[4]	8	1.8	D 3.8, 4.8
4.0	II C3, 4,	REFERENCE STRUCTURES	2-1	01-20	10	2	.6	I
4.1	5, 6, III C2		2-1	01-14	30	4	.6	I
4.2			2-1	01-08	100[4]	8	.6	I
4.3			2-4, 2-5	01-25	10	1.2	1.2	I
4.4			2-4, 2-5	01-24	30	1.2	1.2	I
4.5			2-4	01-13	100[4]	4	.6	I
4.6			2-5	01-23	100	1.2	.6	I
4.7			2-1, 2-4, 2-5	01-10	10	8	1.8	I
4.8			2-1, 2-4, 2-5	01-09	30	8	1.8	I
4.9			2-4, 2-5	01-08	100[4]	8	1.8	I
5.0	III C3	RADIUS OF CURVATURE: MIN (5µm)	2-1	11-03	10	-	.3	I
5.1		MAX (30µm)	2-1	11-09	10	-	.3	I
5.2		MID (10µm)	2-1	11-06	10	-	.3	D 5.1, 5.2
6.0	II C3, 5	REFERENCE STRUCTURES: FORWARD	2-1	01-13	100[4]	4	.3	D 2.0

---

1 - MINIMUM WIDTH LIMITED IN SOME CASES BY RISETIME CONSIDERATIONS SEE IV B4.
2 - BASED ON 2 DIODES PER HOUR OR 16 DIODES PER DAY.
3 - I=CONDUCTED INDEPENDENT OF RESULTS FOR OTHER TESTS, D# = DEPENDENT ON RESULTS OF TEST #.
4 - MAY REQUIRE 100µs PULSE WIDTH DUE TO MAXIMUM VOLTAGE AVAILABLE.

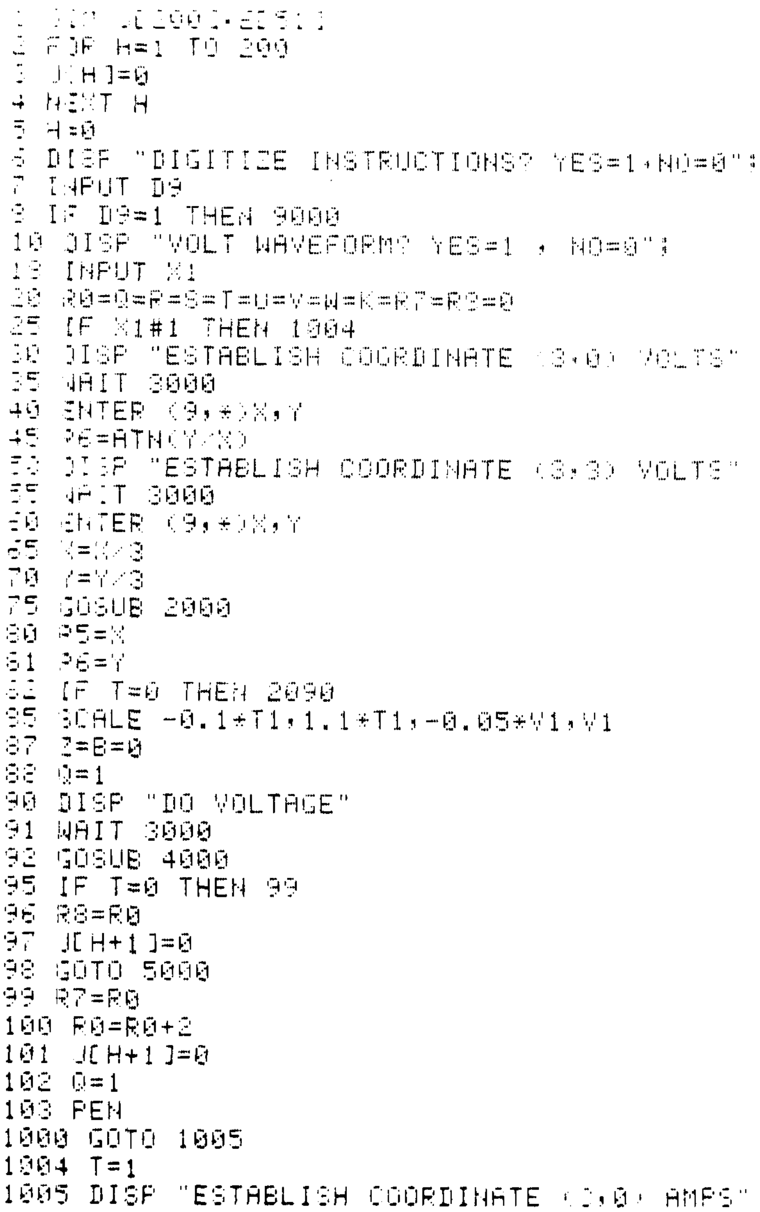
CHAPTER V
DATA REDUCTION

In the testing of the silicon-on-sapphire devices, oscilloscope photographs were taken of the voltage and current waveforms. These photographs are necessary to calculate average power which is used to calculate a damage constant using the formula

$$K = PF \cdot TF^{\frac{1}{2}}$$

where PF = average power
and TF = failure time.

A program written by BDM prior to this contract was edited to produce a good data reduction program. A printout of this program is in figure 19. The program digitizes and plots voltage and current waveforms using a Hewlett Packard 9830 computer system. From the digitized points, the power curve is calculated and plotted. Energy is calculated and plotted from power by a numerical integration routine in the program. Taking the energy at the time when the device failed (TF), the average power is figured and printed by the plotter. Also calculated and printed are the voltage at failure (VF) and the current at failure (IF). The breakdown voltage (VBD), which is entered by the user and printed on the digitized plot, is calculated from a curve tracer photograph taken before testing. VBD is used in estimating and comparing doping levels in the N-regions of the devices.



```
1 DIM J[200],E[5]
2 FOR H=1 TO 200
3 J[H]=0
4 NEXT H
5 H=0
6 DISP "DIGITIZE INSTRUCTIONS? YES=1,NO=0";
7 INPUT D9
8 IF D9=1 THEN 9000
10 DISP "VOLT WAVEFORM? YES=1 , NO=0";
15 INPUT X1
20 R0=Q=R=S=T=U=V=W=K=R7=R9=0
25 IF X1#1 THEN 1004
30 DISP "ESTABLISH COORDINATE (3,0) VOLTS"
35 WAIT 3000
40 ENTER (9,*)X,Y
45 P6=ATN(Y/X)
50 DISP "ESTABLISH COORDINATE (3,3) VOLTS"
55 WAIT 3000
60 ENTER (9,*)X,Y
65 X=X/3
70 Y=Y/3
75 GOSUB 2000
80 P5=X
81 P6=Y
82 IF T=0 THEN 2090
85 SCALE -0.1*T1,1.1*T1,-0.05*V1,V1
87 Z=B=0
88 Q=1
90 DISP "DO VOLTAGE"
91 WAIT 3000
92 GOSUB 4000
95 IF T=0 THEN 99
96 R8=R0
97 J[H+1]=0
98 GOTO 5000
99 R7=R0
100 R0=R0+2
101 J[H+1]=0
102 Q=1
103 PEN
1000 GOTO 1005
1004 T=1
1005 DISP "ESTABLISH COORDINATE (0,0) AMPS"
```

Figure 19. Listing of Program to Digitize Voltage/Current and Calculate Average Power, TF, VF, IF

```
1010 WAIT 3000
1015 ENTER (9,*)X,Y
1020 R6=ATN(Y/X)
1025 DISP "ESTABLISH COORDINATE (3,3) AMPS"
1026 WAIT 1500
1027 ENTER (9,*)X,Y
1028 X=X/3
1029 Y=Y/3
1030 GOSUB 2000
1035 P5=X
1040 P6=Y
1050 IF T=1 THEN 2095
1055 SCALE -0.1*T1,1.1*T1,-0.05*I1,I1
1060 IF T=1 THEN 1070
1061 DISP "DO CURRENT"
1062 WAIT 3000
1063 GOSUB 4000
1064 GOTO 1075
1070 B=Z=0
1071 Q=1
1072 GOTO 1061
1075 IF T=1 THEN 1100
1076 R8=R0
1077 J[H+1]=0
1080 GOTO 5000
1100 J[H+1]=0
1105 R7=R0
1106 R0=R0+2
1115 Q=1
1121 GOTO 30
2000 X=((X*COSR6)+(Y*SINR6))
2001 Y=((Y*COSR6)-(X*SINR6))
2002 RETURN
2090 K=1
2095 DISP "MAXIMUM TIME IN USEC=?";
2096 INPUT T1
2097 PRINT "MAX TIME IN USEC="T1
2098 R1=T1/50
3000 PRINT
3001 PRINT "INTEGRATING INTERVAL IN USEC ="R1
3002 PRINT
3004 DISP "US/DIV =?";
3005 INPUT U1
3006 PRINT "US/DIV="U1
```

Figure 19. Listing of Program to Digitize Voltage/Current and Calculate Average Power, TF, VF, IF (Continued)

```
3007 PRINT
3008 DISP "VOLTS/DIV =? NOTE POS. OF  EG.";
3009 INPUT V2
3010 PRINT "VOLTS/DIV="V2
3011 PRINT
3012 DISP " AMPS/DIV=?";
3013 INPUT A1
3014 PRINT "AMPS/DIV="A1
3015 PRINT
3020 DISP "MAXIMUM VOLTAGE=?";
3021 INPUT V1
3022 PRINT "MAXIMUM VOLTS="V1
3023 PRINT
3024 DISP "MAXIMUM CURRENT=?";
3025 INPUT I1
3026 PRINT "MAXIMUM CURRENT="I1
3027 PRINT
3028 DISP "BREAKDOWN VOLTAGE=?";
3029 INPUT V3
3030 PRINT "BREAKDOWN VOLTAGE="V3
3031 PRINT
3032 SCALE 0,10,0,10
3033 FLOAT 2
3034 PLOT 7,0.1,-2
3035 LABEL (*,1.5,1.7,0,1)T1/20
3036 PLOT 8.5,0.1,-3
3037 LABEL (*,1.5,1.7,0,1)"US/DIV"
3038 SCALE -0.1*T1,1.1*T1,-0.05*V1,V1
3039 XAXIS 0,T1/20,0,T1
3040 YAXIS 0,V1/20,0,V1
3041 IF K=1 THEN 85
3042 GOTO 1055
4000 H=R0+20
4001 ENTER (S,*)X,Y
4002 GOSUB 2000
4003 J[H]=X
4004 J[H+1]=Y
4005 IF T=1 THEN 4007
4006 GOTO 4010
4007 B=A1
4008 C=V2
4009 GOTO 4012
4010 B=V2
```

Figure 19. Listing of Program to Digitize Voltage/Current and Calculate Average Power, TF, VF, IF (Continued)

```
4011 I=A1
4012 J[H]=(U1+J[H])/P5
4013 J[H+1]=((B+(1-Q)*I+[illegible])+J[H+1])/P6
4015 PLOT J[H],J[H+1]
4016 IF Q#0 THEN 4020
4017 IF J[H] <= J[H-2] THEN 4019
4018 GOTO 4020
4019 IF J[H+1] <= J[H-1] THEN 4026
4020 Q=0
4021 R0=R0+2
4022 GOTO 4000
4026 PEN
4027 IF U=0 THEN 4013
4028 RETURN
4029 DISP "WHERE IS BREAK POINT?"
4030 WAIT 3000
4031 ENTER (9,*)X,Y
4032 U=1
4033 GOSUB 2000
4035 P8=(X+U1)/P5
4036 R2=(Y+B)/P6
4037 RETURN
5000 SCALE -0.1*T1,1.1*T1,-0.05*(V1*I1),(V1*I1)
5001 Q=1
5002 S=C=R4=B=0
5003 C=X=0
5005 GOSUB 6000
5010 Z=X*Y
5011 R4=Z*R1+R4
5012 PLOT B,Z
5014 E[1+B/R1]=R4
5017 B=B+R1
5018 IF B <= T1 THEN 5003
5021 SCALE -0.1*T1,1.1*T1,-0.05*R4,R4
5022 PEN
5023 FOR B=0 TO T1 STEP R1
5024 PLOT B,E[1+B/R1]
5025 IF B<P8-R1 OR P8<B THEN 5027
5026 P7=E[1+B/R1]/B
5027 NEXT B
5028 PEN
5029 PLOT P8,0
5050 PLOT P8,R4
```

Figure 19. Listing of Program to Digitize Voltage/Current and Calculate Average Power, TF, VF, IF (Continued)

```
5051 PEN
5052 DEG
5053 FLOAT 2
5054 SCALE -1,10,0,10
5056 PLOT 9.5,0.5,-3
5058 LABEL (*,1.5,1.7,90,1)"AVE POWER"
5060 PLOT 9.5,2.1,-3
5062 LABEL (*,1.5,1.7,90,1)P7
5064 PLOT 9.5,3.7,-3
5066 LABEL (*,1.5,1.7,90,1)"WATTS"
5068 PLOT 9.5,6.5,-3
5069 LABEL (*,1.5,1.7,90,1)"VBD"
5070 PLOT 9.5,7.3,-3
5071 LABEL (*,1.5,1.7,90,1)V3
5074 IF T=1 THEN 5080
5075 X=R2
5077 Y=R3
5078 GOTO 5082
5080 X=R3
5081 Y=R2
5082 PLOT 9.9,0.5,-3
5083 LABEL (*,1.7,1.5,90,1)"TF"
5085 PLOT 9.9,1.1,-3
5088 LABEL (*,1.5,1.7,90,1)P8
5089 PLOT 9.9,4,-3
5090 LABEL (*,1.5,1.7,90,1)"VF"
5091 PLOT 9.9,4.5,-3
5092 LABEL (*,1.5,1.7,90,1)X
5093 PLOT 9.9,7,-3
5094 LABEL (*,1.5,1.7,90,1)"IF"
5095 PLOT 9.9,7.6,-3
5096 LABEL (*,1.5,1.7,90,1)Y
5097 PLOT -0.2,0.15,-3
5098 LABEL (*,1.5,1.7,90,1)"VOLTS"
5099 PLOT -0.2,1.4,-3
5100 LABEL (*,1.5,1.7,90,1)V1/20
5101 PLOT -0.2,3,-3
5102 LABEL (*,1.5,1.7,90,1)"V/DIV"
5103 PLOT -0.2,5.5,-3
5104 LABEL (*,1.5,1.7,90,1)"POWER"
5105 PLOT -0.2,6.7,-3
5106 LABEL (*,1.5,1.7,90,1)(V1*I1)/20
5107 PLOT -0.2,8.4,-3
5108 LABEL (*,1.5,1.7,90,1)"VA/DIV"
5109 PLOT -0.6,0.15,-3
5110 LABEL (*,1.5,1.7,90,1)"AMPS"
5111 PLOT -0.6,1.4,-3
5112 LABEL (*,1.5,1.7,90,1)I1/20
5113 PLOT -0.6,3,-3
```

Figure 19. Listing of Program to Digitize Voltage/Current and Calculate Average Power, TF, VF, IF (Continued)

```
5114 LABEL (*,1.5,1.7,90,1)"A/DIV"
5115 PLOT -0.6,5.5,-3
5116 LABEL (*,1.5,1.7,90,1)"ENRGY"
5117 PLOT -0.6,6.7,-3
5118 LABEL (*,1.5,1.7,90,1)R4/20
5119 PLOT -0.6,8.4,-3
5120 LABEL (*,1.5,1.7,90,1)"VAUS/DIV"
5170 GOTO 8000
6000 IF J[C+R7*V+20+2*V] <= B THEN 6002
6001 GOTO 6005
6002 IF J[C+R7*V+22+2*V] >= B THEN 7000
6005 C=C+2
6008 IF C+R7*V+22+2*V>124 THEN 6012
6010 IF C <= (R7*(1-V)+R8*V) THEN 6000
6012 IF V=0 THEN 6015
6013 GOTO 6020
6015 Y=X=C=0
6018 V=1
6019 GOTO 6000
6020 Y=0
6021 RETURN
7000 Y=J[C+R7*V+23+2*V]-J[C+R7*V+21+2*V]
7005 Y=Y/(J[C+R7*V+22+2*V]-J[C+R7*V+20+2*V])
7010 Y=(Y*B)+J[C+R7*V+21+2*V]-(Y*J[C+R7*V+20+2*V])
7015 IF V=0 THEN 7020
7016 IF W=1 THEN 7025
7017 GOTO 7030
7020 X=Y
7021 C=0
7022 V=1
7023 GOTO 6000
7025 V=0
7026 RETURN
7030 IF P8 <= B THEN 7040
7031 V=0
7032 RETURN
7040 R3=Y
7041 W=1
7042 V=0
7043 RETURN
8000 PLOT 2,9,-3
8002 LABEL (*,1.5,1.7,0,1)"DEVICE NR.    "
8003 PLOT 3.8,9,-3
8004 DISP "ENTER NO.SLOWLY THEN PRESS STOP"
8005 WAIT 3000
8006 LETTER
8010 END
```

Figure 19. Listing of Program to Digitize Voltage/Current and Calculate Average Power, TF, VF, IF (Continued)

```
9000 PRINT "TO INITIALIZE THE COORDINATES DO FOLLOWING:"
9005 PRINT
9010 PRINT "A   PICK ANY COORDINATE-PLACE CURSOR AND PRESS ORIGIN (O)"
9015 PRINT "B   NEVER LIFT CURSOR AFTER ORIGIN (O) IS SET"
9020 PRINT "C   MOVE CURSOR TO COORDINATE (3,0) AT REQUEST AND PRESS SAMPLE(S)"
9025 PRINT "D   MOVE CURSOR TO COORDINATE (3,3) AT REQUEST AND PRESS SAMPLE(S)"
9030 PRINT "E   ANSWER ALL QUESTIONS WITH A NUMBER-EXECUTE RESPONSE"
9035 PRINT "F   FOR PHOTOS WITH NEG. GOING VOLT SIGNAL-ENTER NEG. V/DIV VALUE"
9040 PRINT "G   MOVE CURSOR TO WAVEFORM ORIGINS WHEN REQUESTED"
9045 PRINT "H   PRESS ORIGIN(O) AND SAMPLE(S) WITHOUT MOVING CURSOR"
9050 PRINT "I   MOVE ALONG WAVEFORM PRESSING SAMPLE(S) AT DESIRED POINTS"
9055 PRINT "J   NEVER MOVE CURSOR MINUS FROM THE ORIGIN-PEN WILL LIFT"
9060 PRINT "K   PEN WILL LIFT WHEN MAX. TIME SCALE IS EXCEEDED"
9065 PRINT "L   END DIGITIZING BY PRESSING SAMPLE TWICE WITHOUT MOVING CURSOR"
9070 PRINT "M   ENTER STOP-EXECUTE TO STOP PROGRAM"
9075 PRINT "N   ENTER RUN-EXECUTE TO START PRORAM OVER"
9080 PRINT "O   ENTER CONT-EXECUTE TO START PROGRAM AT STOP LOCATION"
9085 GOTO 10
9090 END
```

Figure 19. Listing of Program to Digitize Voltage/Current and Calculate Average Power, TF, VF, IF (Concluded)

CHAPTER VI

VOLTAGE, CURRENT, POWER AND ENERGY WAVEFORMS

The oscilloscope photographs of the voltage and current waveforms for the Auburn data were analyzed for specific repeating patterns. If the impedance of the device under test is less than 25 kΩ, the pulser produces a rectangular current pulse. If the impedance of the device under test remains constant, the rectangular current pulse produces a rectangular voltage pulse. The rectangular pattern is the most common type of waveform. Another kind of waveform, an oscillating pattern, is when the curve fluctuates from high to low values on the graphs. The oscillations are produced by a combination of the parasitic capacitance and inductance in the pulser circuit and some instability of the impedance in the device under test. The final type of waveforms is a sloping pattern which can be positive or can peak and then slope negative. These waveforms are produced by stable variations in the impedance of the device under test. The impedance of the device under test varies as the device heats and hot spots form during the pulse. Both the avalanche voltage associated with the depletion region and the impedance associated with the bulk silicon vary with temperature.

Rectangular waveforms, oscillating waveforms and sloping waveforms combined to form twelve different patterns which fit all of the devices tested. These patterns are summarized in table 3 and illustrated in the following twelve figures (20 through 31). Every device tested cross referenced to its corresponding pattern in table 4. The last column in table 3 is a "no data" column for devices that burned out during setup, or for some other reason no data was received.

TABLE 3. WAVEFORM PATTERN SUMMARY

PATTERN	FIGURE	VOLTAGE WAVEFORM	CURRENT WAVEFORMS
1	6-1	RECTANGULAR	RECTANGULAR
2	6-2	RECTANGULAR	SLOPING POSITIVE
3	6-3	RECTANGULAR	OSCILLATING
4	6-4	OSCILLATING	OSCILLATING
5	6-5	SLOPING POSITIVE	SLOPING POSITIVE
6	6-6	SLOPING POSITIVE	RECTANGULAR
7	6-7	OSC. THEN RECT.	OSC. THEN RECT.
8	6-8	RECT. THEN OSC. THEN RECT.	RECT. THEN OSC. THEN RECT.
9	6-9	RECT. THEN OSC.	RECT. THEN OSC.
10	6-10	PEAKING THEN SLOPING NEGATIVE	RECTANGULAR
11	6-11	DEVICE FAILED EARLY IN PULSE	DEVICE FAILED EARLY IN PULSE
12	6-12	SLOPING POSITIVE THEN NEGATIVE THEN RECT.	RECTANGULAR
13		NO DATA	

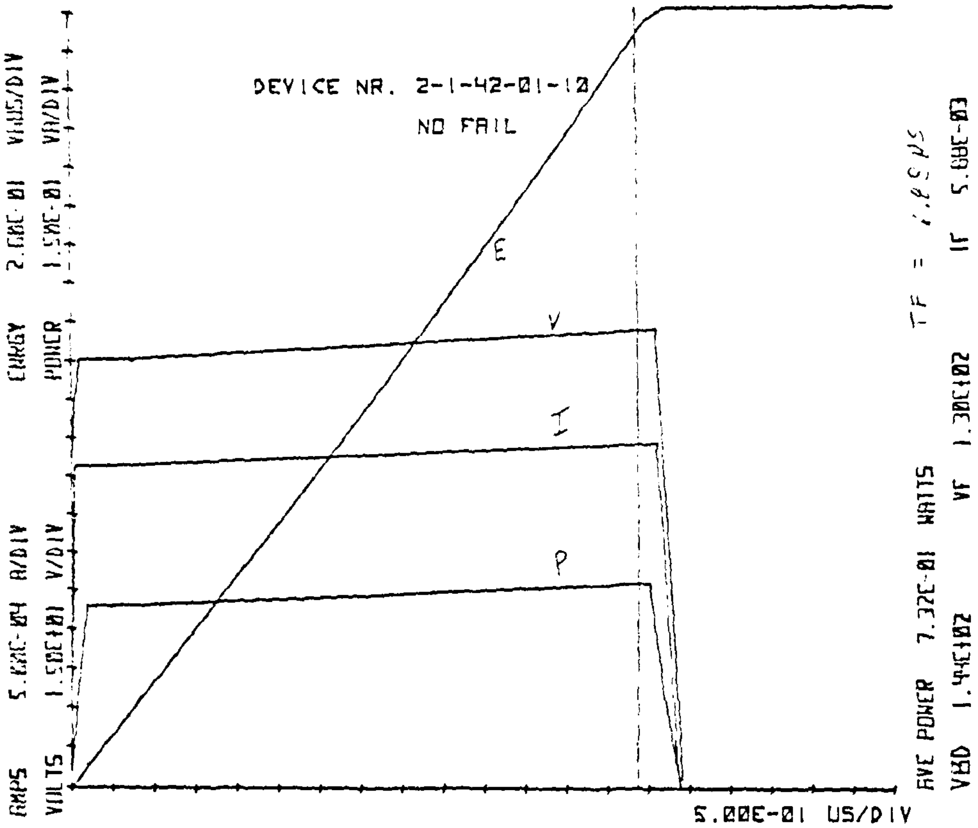


Figure 20. Pattern 1 - Rectangular Voltage and Current

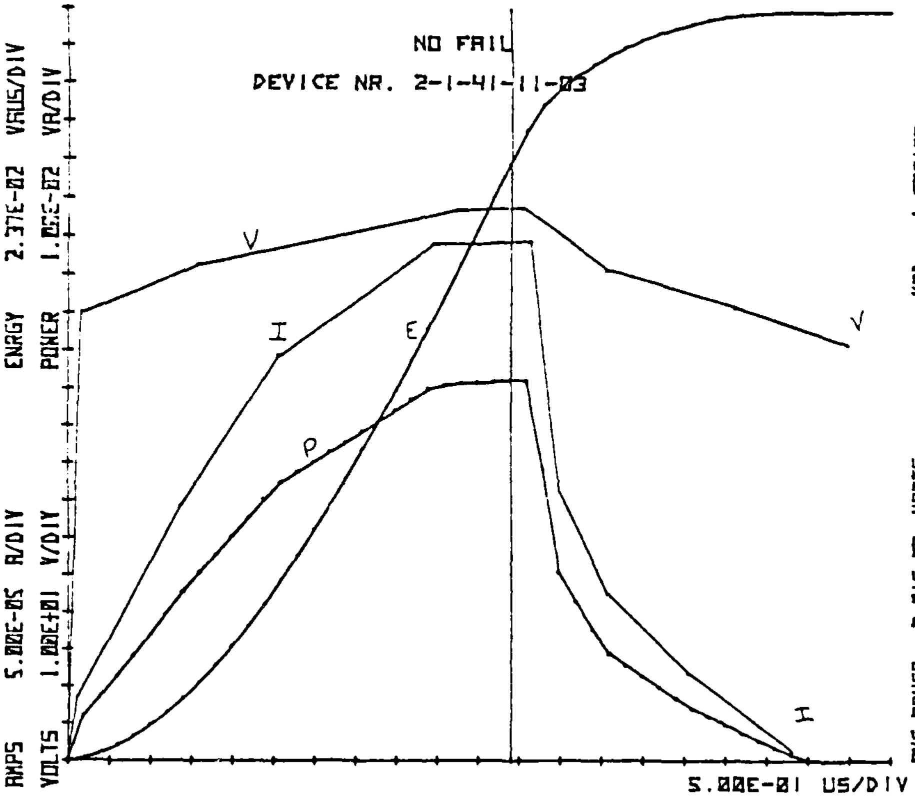


Figure 21. Pattern 2 - Rectangular Voltage and Sloping Current

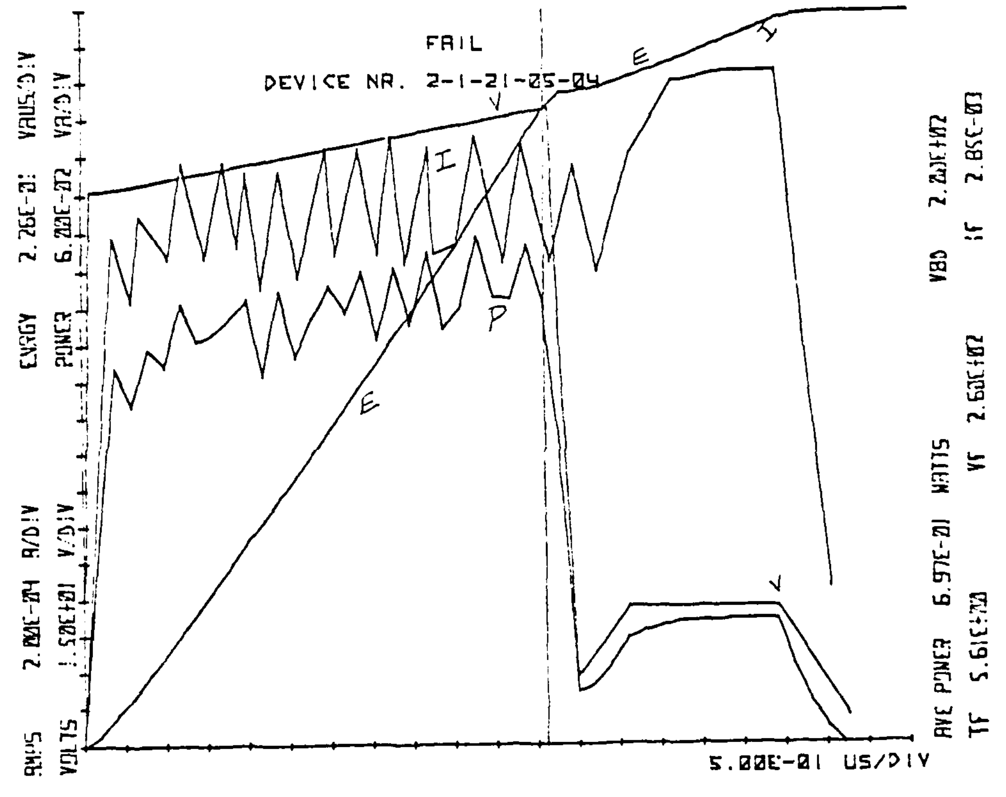


Figure 22. Pattern 3 - Rectangular Voltage and Oscillating Current

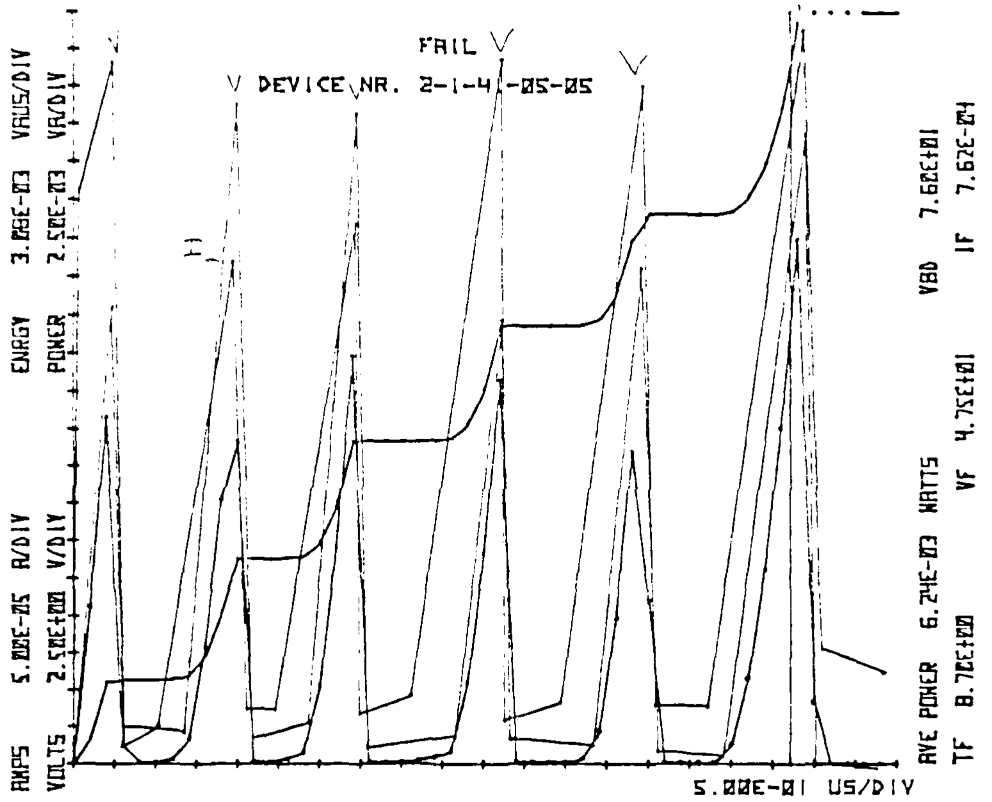


Figure 23. Pattern 4 - Oscillating Voltage and Current

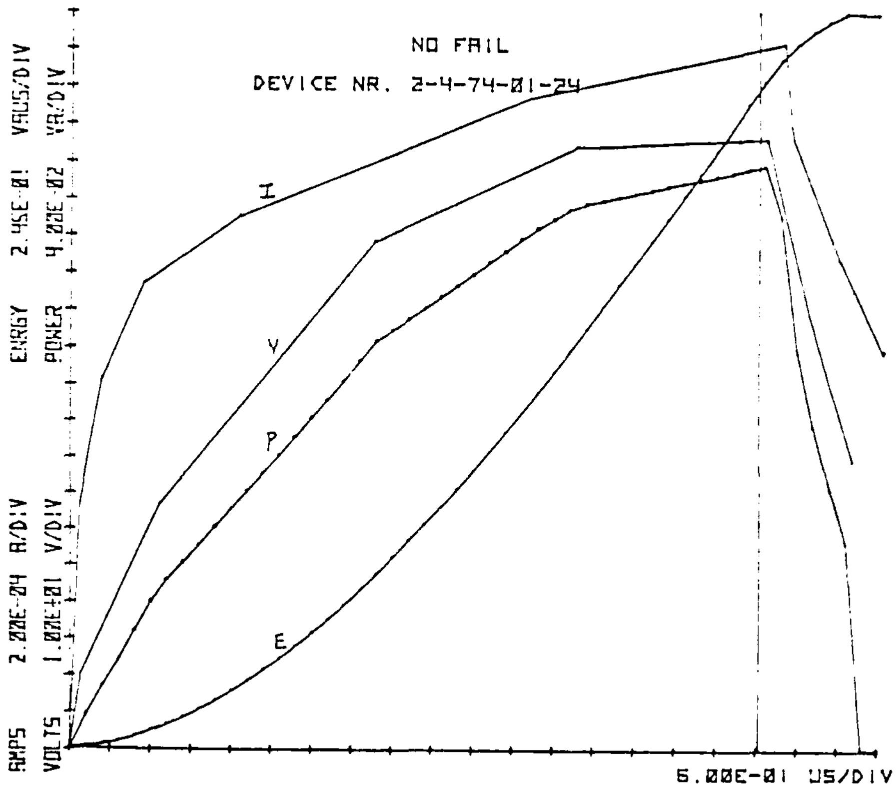


Figure 24. Pattern 5 - Sloping Voltage and Current

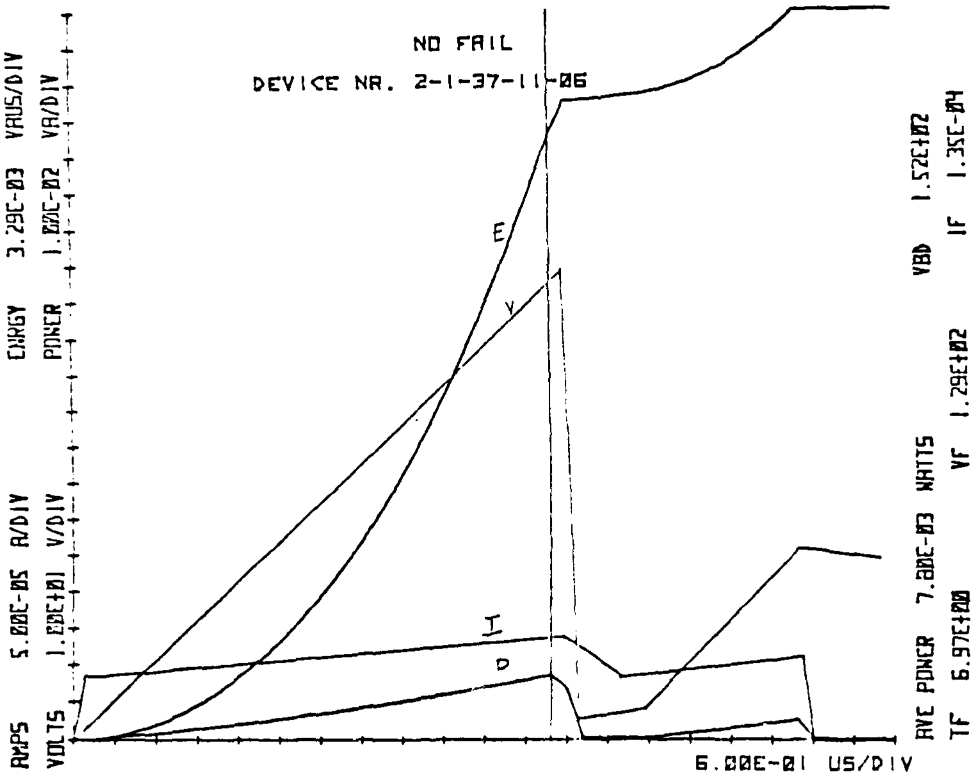


Figure 25. Pattern 6 - Sloping Voltage and Rectangular Current

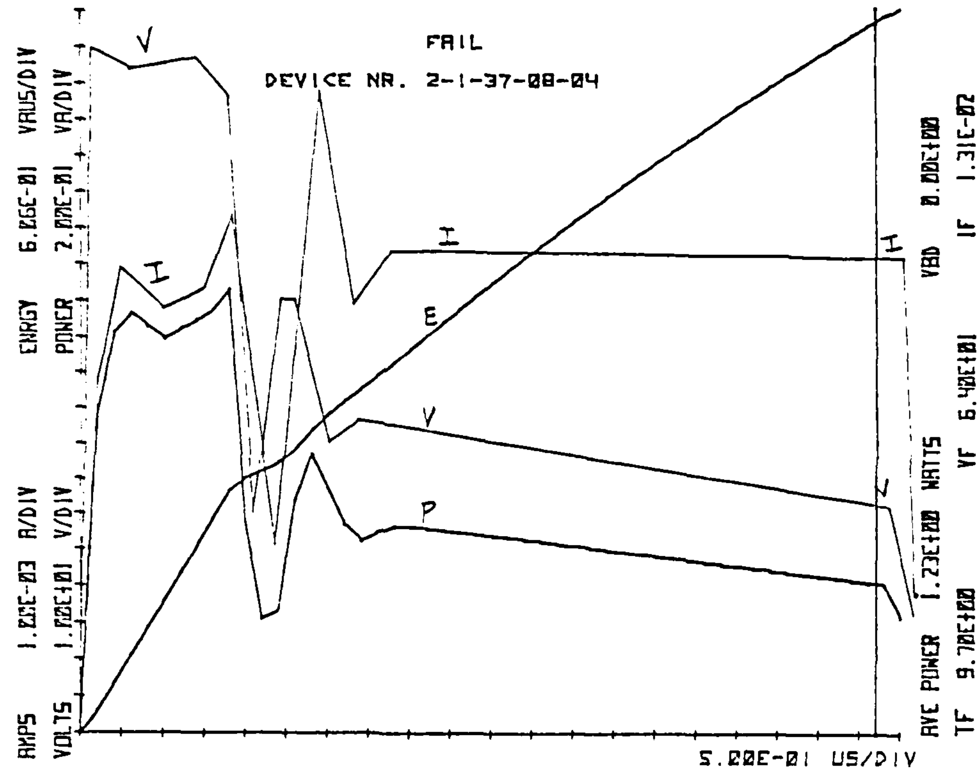


Figure 26. Pattern 7 - Oscillating, Then Rectangular

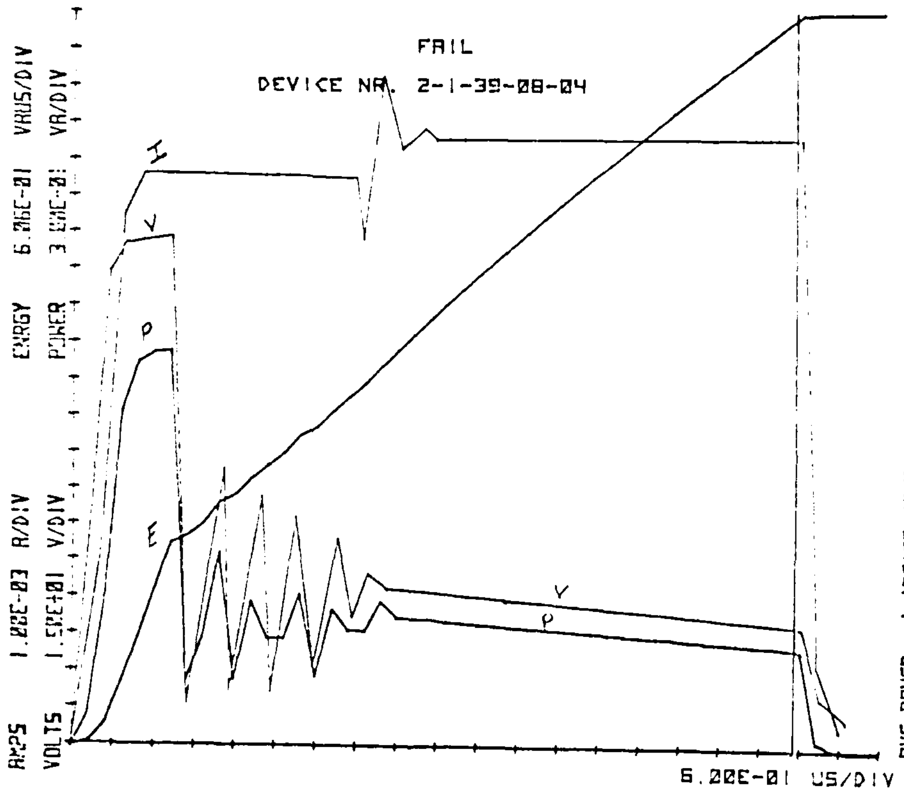


Figure 27. Pattern 8 - Rectangular, Then Oscillating, Then Rectangular

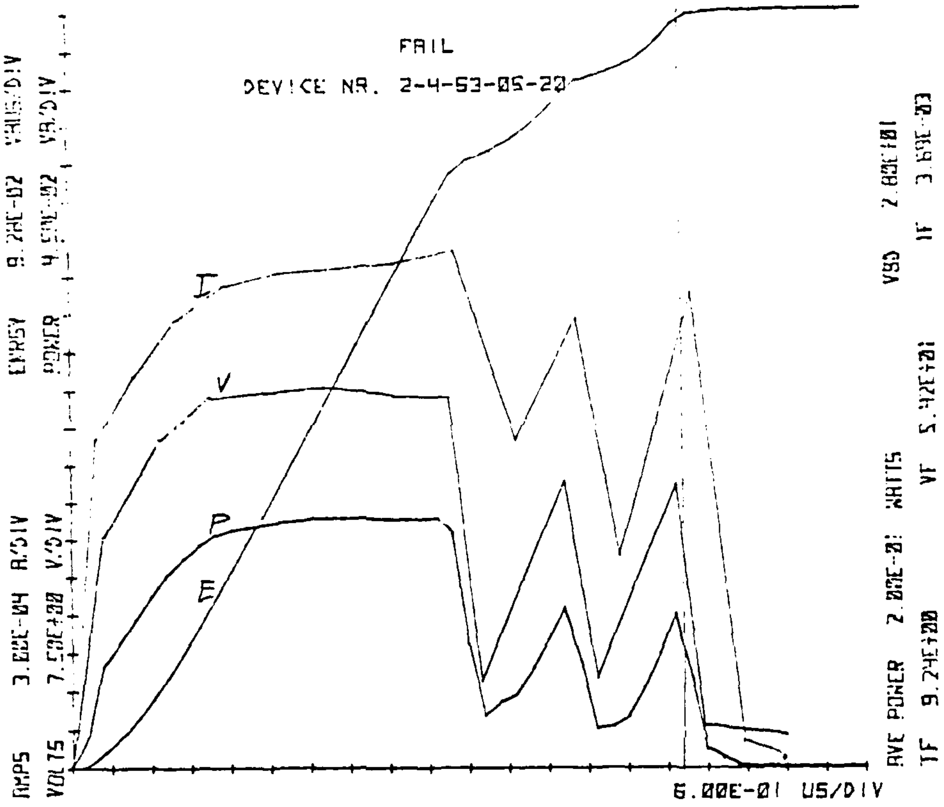


Figure 28. Pattern 9 - Rectangular, Then Oscillating

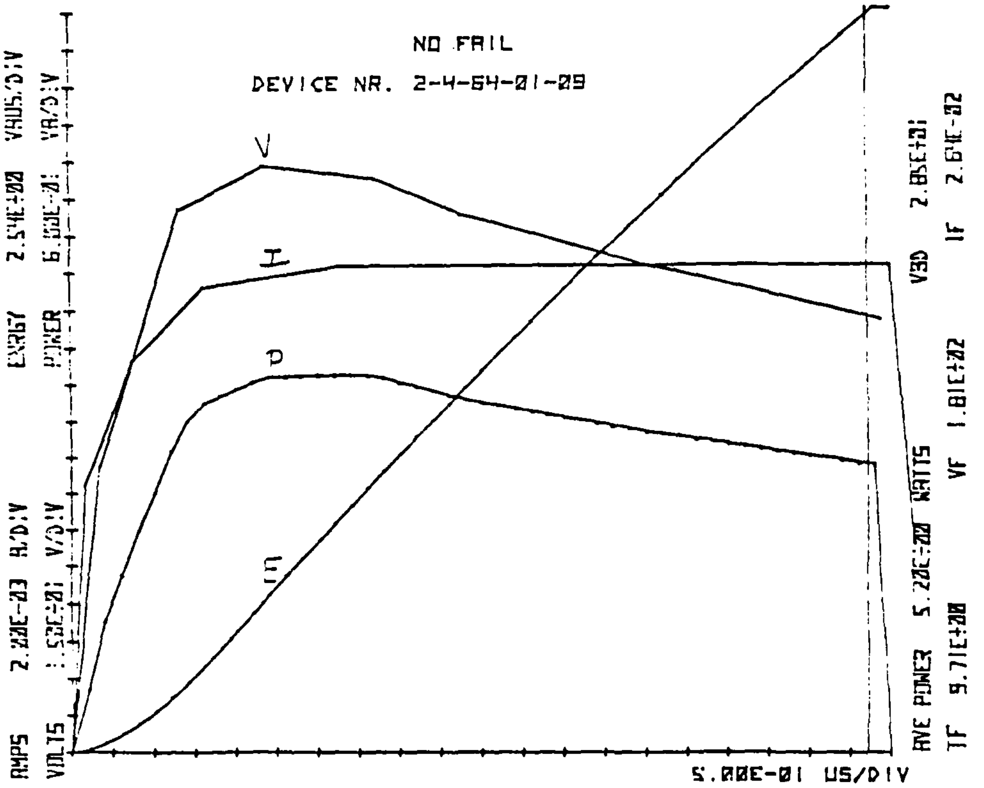


Figure 29. Pattern 10 - Peaking Voltage and Rectangular Current

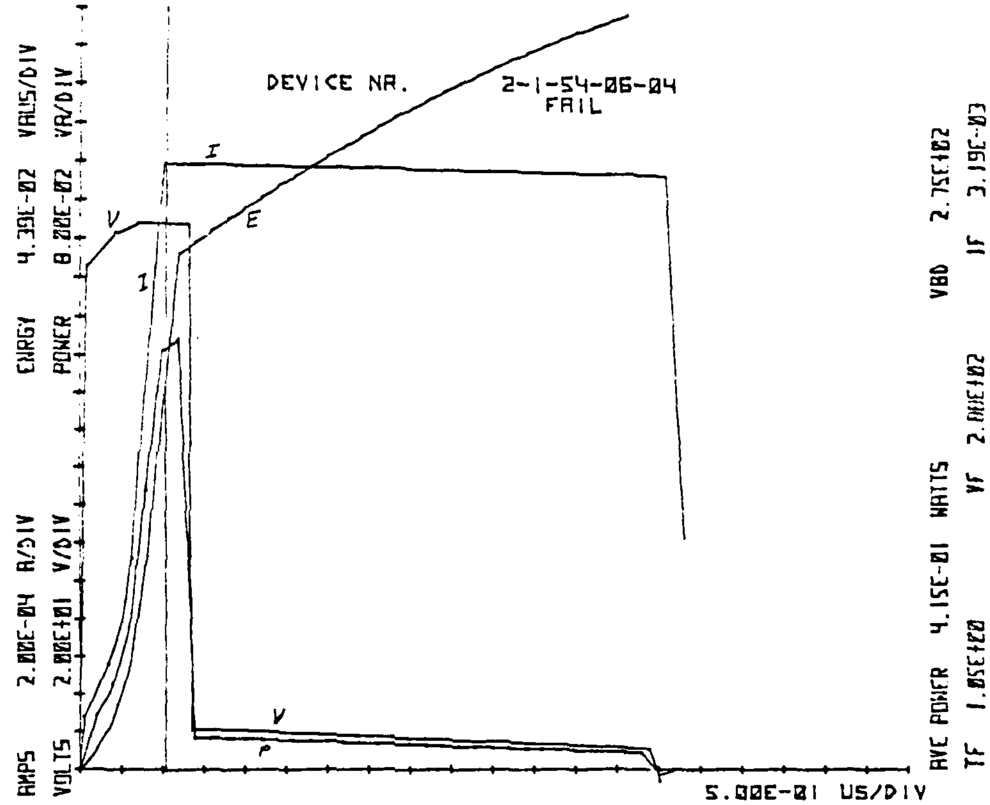


Figure 30 . Pattern 11 - Device Failed Early in Pulse

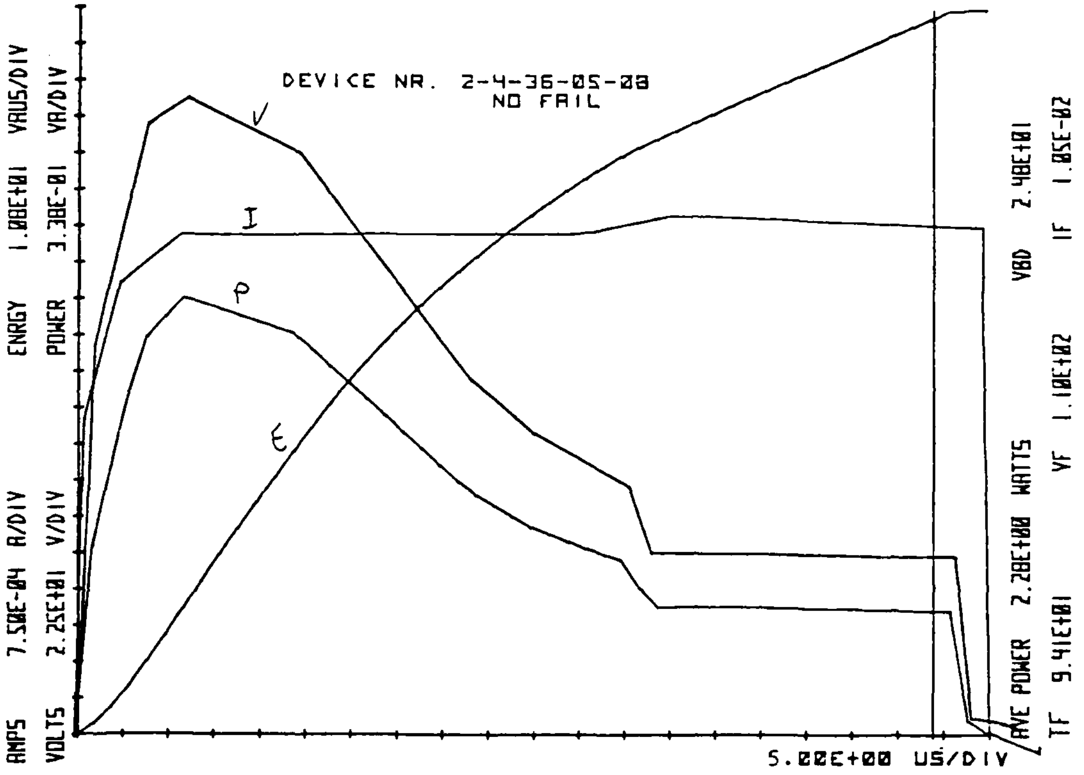


Figure 31. Pattern 12 - Peaking the Rectangular Voltage and Rectangular Current

TABLE 4. CROSS REFERENCE BETWEEN
VOLTAGE AND CURRENT WAVEFORMS AND DEVICES

DEVICE	FAIL OR NO FAIL	PATTERN 1	2	3	4	5	6	7	8	9	10	11	12	NO DATA
2-1-20-01-04	NF	X												
	F											X		
2-1-21-01-04	NF					X								
	F			X										
2-1-34-01-04	NF	X												
	F											X		
2-1-36-01-04	NF	X												
	F													X
2-1-38-01-04				X										
2-1-40-01-04		X												
2-1-41-01-04		X												
2-1-42-01-04	NF	X												
	F											X		
2-1-53-01-04														X
2-1-56-01-04	NF													X
	F			X										
2-1-20-01-05		X												
2-1-21-01-05		X												
2-1-38-01-05				X										
2-1-41-01-05		X												
2-1-53-01-05		X												
2-1-54-01-05		X												
2-1-56-01-05		X												

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN 1	2	3	4	5	6	7	8	9	10	11	12	NO DATA
2-1-20-01-09	NF							X						
	F			X										
2-1-21-01-09	NF			X										
	F		X											
2-1-34-01-09		X												
2-1-40-01-09		X												
2-1-41-01-09		X												
2-1-46-01-09		X												
2-1-53-01-09	NF	X												
	F													X
2-1-54-01-09		X												
2-1-20-01-10				X										
2-1-34-01-10		X												
2-1-38-01-10	NF	X												
	F			X										
2-1-40-01-10		X												
2-1-41-01-10		X												
2-1-42-01-10		X												
2-1-53-01-10		X												
2-1-54-01-10		X												
2-1-20-04-05	NF													X
	F											X		
2-1-21-04-05				X										
2-1-34-04-05		X												
2-1-38-04-05	NF			X										
	F											X		

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN												NO DATA
		1	2	3	4	5	6	7	8	9	10	11	12	
2-1-40-04-05	NF	X												
	F			X										
2-1-41-04-05		X												
2-1-54-04-05		X												
2-1-56-04-05	NF			X										
	F											X		
2-1-20-05-04	NF			X										
	F		X											
2-1-21-05-04				X										
2-1-38-05-04	NF		X											
	F											X		
2-1-41-05-04	NF	X												
	F											X		
2-1-53-05-04		X												
2-1-20-05-05	NF													X
	F											X		
2-1-21-05-05					X									
2-1-38-05-05					X									
2-1-40-05-05					X									
2-1-41-05-05					X									
2-1-56-05-05					X									
2-1-20-06-04				X										
2-1-38-06-04				X										
2-1-39-06-04					X									
2-1-40-06-04	NF	X												
	F				X									

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN 1	2	3	4	5	6	7	8	9	10	11	12	NO DATA
2-1-53-06-04	NF													X
	F				X									
2-1-54-06-04	NF				X									
	F											X		
2-1-38-06-05					X									
2-1-39-06-05					X									
2-1-40-06-05					X									
2-1-34-08-03	NF													X
	F				X									
2-1-35-08-03	NF													X
	F				X									
2-1-36-08-03	NF				X									
	F													X
2-1-37-08-03	NF							X						
	F				X									
2-1-39-08-03					X									
2-1-40-08-03		X												
2-1-41-08-03	NF	X												
	F													X
2-1-43-08-03		X												
2-1-54-08-03					X									
2-1-56-08-03		X												
2-1-17-08-04	NF							X						
	F													X
2-1-34-08-04	NF									X				
	F								X					

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN 1	2	3	4	5	6	7	8	9	10	11	12	NO DATA
2-1-35-08-04									X					
2-1-36-08-04	NF													X
	F									X				
2-1-37-08-04	NF							X						
	F								X					
2-1-39-08-04									X					
2-1-38-11-03					X									
2-1-40-11-03	NF		X											
	F				X									
2-1-41-11-03	NF		X											
	F				X									
2-1-54-11-03	NF					X								
	F											X		
2-1-17-11-06	NF		X											
	F				X									
2-1-37-11-06	NF						X							
	F				X									
2-1-40-11-06	NF		X											
	F				X									
2-1-41-11-06	NF		X											
	F											X		
2-1-54-11-06						X								
2-1-21-11-09					X									
2-1-38-11-09					X									
2-1-40-11-09	NF		X											
	F				X									

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN												
		1	2	3	4	5	6	7	8	9	10	11	12	NO DATA
2-1-41-11-09	NF	X												
	F				X									
2-1-54-11-09			X											

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN												
		1	2	3	4	5	6	7	8	9	10	11	12	NO DATA
2-4-24-01-08	NF										X			
	F												X	
2-4-34-01-08													X	
2-4-35-01-08													X	
2-4-36-01-08	NF										X			
	F												X	
2-4-55-01-08													X	
2-4-74-01-08	NF	X												
	F										X			
2-4-63-01-09											X			
2-4-64-01-09											X			
2-4-65-01-09											X			
2-4-73-01-09											X			
2-4-74-01-09	NF										X			
	F	X												
2-4-63-01-10											X			
2-4-64-01-10											X			
2-4-65-01-10	NF	X												
	F										X			
2-4-73-01-10											X			
2-4-74-01-10											X			
2-4-24-01-13													X	
2-4-35-01-13													X	

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN												
		1	2	3	4	5	6	7	8	9	10	11	12	NO DATA
2-4-41-01-13	NF												X	
	F													X
2-4-42-01-13	NF										X			
	F												X	
2-4-55-01-13	NF										X			
	F												X	
2-4-74-01-13	NF										X			
	F		X											
2-4-63-01-24						X								
2-4-64-01-24						X								
2-4-65-01-24						X								
2-4-73-01-24						X								
2-4-74-01-24						X								
2-4-63-01-25	NF	X												
	F										X			
2-4-64-01-25	NF	X												
	F										X			
2-4-65-01-25	NF	X												
	F										X			
2-4-73-01-25	NF	X												
	F										X			
2-4-74-01-25	NF	X												
	F										X			
2-4-34-05-03													X	
2-4-35-05-03													X	

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN												NO DATA
		1	2	3	4	5	6	7	8	9	10	11	12	
2-4-38-05-03	NF	X												
	F										X			
2-4-41-05-03	NF	X												
	F												X	
2-1-55-05-03													X	
2-4-63-05-04											X			
2-4-64-05-04	NF	X												
	F										X			
2-4-65-05-04											X			
2-4-73-05-04	NF													X
	F										X			
2-4-74-05-04	NF	X												
	F										X			
2-4-75-05-04											X			
2-4-63-05-05		X												
2-4-64-05-05		X												
2-4-65-05-05		X												
2-4-74-05-05		X												
2-4-75-05-05		X												
2-4-34-05-08													X	
2-4-35-05-08													X	
2-4-36-05-08													X	
2-4-38-05-08													X	
2-4-55-05-08													X	

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN 1	2	3	4	5	6	7	8	9	10	11	12	NO DATA
2-4-74-05-08	NF										X			
	F													X
2-4-63-05-19						X								
2-4-64-05-19						X								
2-4-65-05-19						X								
2-4-73-05-19						X								
2-4-74-05-19						X								
2-4-63-05-20	NF	X												
	F									X				
2-4-64-05-20	NF	X												
	F									X				
2-4-65-05-20	NF	X												
	F									X				
2-4-73-05-20	NF	X												
	F									X				
2-4-74-05-20	NF	X												
	F									X				
2-4-24-06-03												X		
2-4-34-06-03												X		
2-4-35-06-03												X		
2-4-36-06-03												X		
2-4-42-06-03												X		
2-4-43-06-03	NF									X				
	F													X
2-4-55-06-03												X		
2-4-74-06-03										X				

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN												NO DATA
		1	2	3	4	5	6	7	8	9	10	11	12	
2-4-63-06-04	NF										X			
	F											X		
2-4-64-06-04		X												
2-4-65-06-04		X												
2-4-73-06-04	NF	X												
	F										X			
2-4-74-06-04	NF	X												
	F											X		
2-4-63-06-05		X												
2-4-64-06-05	NF	X												
	F											X		
2-4-65-06-05	NF	X												
	F											X		
2-4-73-06-05		X												
2-4-74-06-05		X												
2-4-24-06-08	NF										X			
	F												X	
2-4-35-06-08	NF										X			
	F												X	
2-4-36-06-08													X	
2-4-41-06-08													X	
2-4-42-06-08													X	
2-4-55-06-08													X	
2-4-74-06-08	NF										X			
	F	X												

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN												NO DATA
		1	2	3	4	5	6	7	8	9	10	11	12	
2-4-64-06-19	NF					X								
	F								X					
2-4-65-06-19						X								
2-4-73-06-19						X								
2-4-74-06-19	NF													X
	F					X								
2-4-75-06-19						X								
2-4-76-06-19						X								
2-4-63-06-20	NF													X
	F									X				
2-4-64-06-20	NF	X												
	F				X									
2-4-65-06-20	NF	X												
	F									X				
2-4-73-06-20	NF	X												
	F									X				
2-4-74-06-20		X												
2-4-75-06-20	NF	X												
	F									X				

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN												NO DATA
		1	2	3	4	5	6	7	8	9	10	11	12	
2-5-36-01-08											X			
2-5-64-01-08	NF						X							
	F												X	
2-5-65-01-08	NF										X			
	F												X	
2-5-66-01-08	NF						X							
	F												X	
2-5-72-01-08	NF						X							
	F													X
2-5-73-01-08	NF						X							
	F												X	
2-5-62-01-09	NF										X			
	F												X	
2-5-64-01-09	NF						X							
	F												X	
2-5-66-14-02	NF										X			
(2-5-66-01-09)	F												X	
2-5-72-01-09	NF										X			
	F													X
2-5-72-14-02	NF						X							
(2-5-72-01-09)	F												X	
2-5-73-01-09	NF										X			
	F													X
2-5-73-14-02	NF										X			
(2-5-73-01-09)	F												X	
2-5-75-01-09	NF										X			
	F												X	

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN 1	2	3	4	5	6	7	8	9	10	11	12	NO DATA
2-5-53-01-10														X
2-5-64-01-10	NF						X							
	F												X	
2-5-66-01-10	NF						X							
	F												X	
2-5-72-01-10	NF						X							
	F												X	
2-5-73-01-10	NF						X							
	F												X	
2-5-74-01-10	NF						X							
	F													X
2-5-36-01-13											X			
2-5-64-01-13	NF										X			
	F												X	
2-5-65-01-13	NF										X			
	F												X	
2-5-66-01-13	NF										X			
	F												X	
2-5-72-01-13	NF										X			
	F													X
2-5-73-10-13	NF										X			
	F												X	
2-5-53-01-24	NF												X	
	F													X
2-5-66-01-24	NF												X	
	F													X
2-5-72-01-24	NF										X			
	F												X	

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN												NO DATA
		1	2	3	4	5	6	7	8	9	10	11	12	
2-5-73-01-24	NF												X	
	F													X
2-5-75-01-24	NF												X	
2-5-75-01-24	F													X
2-5-53-01-25	NF												X	
	F													X
2-5-66-01-25	NF												X	
	F													X
2-5-72-01-25	NF													X
	F						X							
2-5-73-01-25	NF												X	
	F													X
2-5-74-01-25	NF												X	
	F													X
2-5-36-05-03	NF						X							
	F													X
2-5-64-05-03	NF													X
	F						X							
2-5-65-05-03	NF						X							
	F										X			
2-5-66-05-03	NF						X							
	F												X	
2-5-72-05-03	NF						X							
	F										X			
2-5-73-05-03	NF						X							
	F										X			
2-5-74-05-03	NF										X			
	F												X	

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN												NO DATA
		1	2	3	4	5	6	7	8	9	10	11	12	
2-5-53-05-04	NF						X							
	F												X	
2-5-66-05-04	NF						X							
	F												X	
2-5-72-05-04	NF						X							
	F												X	
2-5-73-05-04	NF						X							
	F												X	
2-5-75-05-04	NF						X							
	F												X	
2-5-61-05-05	NF						X							
	F													X
2-5-72-05-05	NF						X							
	F												X	
2-5-73-05-05	NF						X							
	F												X	
2-5-74-05-05	NF						X							
	F												X	
2-5-75-05-05	NF						X							
	F												X	
2-5-36-05-08	NF										X			
	F													X
2-5-64-05-08	NF						X							
	F													X
2-5-65-05-08	NF										X			
	F												X	
2-5-66-05-08	NF						X							
	F													X

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN 1	2	3	4	5	6	7	8	9	10	11	12	NO DATA
2-5-72-05-08	NF										X			
	F												X	
2-5-73-05-08	NF										X			
	F												X	
2-5-53-05-19	NF												X	
	F													X
2-5-66-05-19													X	
2-5-72-05-19	NF												X	
	F													X
2-5-73-05-19	NF												X	
	F													X
2-5-75-05-19	NF												X	
	F													X
2-5-53-05-20	NF												X	
	F													X
2-5-66-05-20	NF												X	
	F													X
2-5-72-05-20	NF												X	
	F													X
2-5-73-05-20	NF												X	
	F													X
2-5-74-05-20	NF												X	
	F													X
2-5-36-06-03	NF						X							
	F												X	
2-5-64-06-03	NF										X			
	F												X	
2-5-66-06-03	NF										X			
	F												X	

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN 1	2	3	4	5	6	7	8	9	10	11	12	NO DATA
2-5-36-06-08	NF										X			
	F												X	
2-5-64-06-08	NF						X							
	F												X	
2-5-65-06-08	NF						X							
	F												X	
2-5-66-06-08	NF						X							
	F													X
2-5-72-06-08	NF						X							
	F												X	
2-5-73-06-08	NF						X							
	F												X	
2-5-53-06-19	NF												X	
	F													X
2-5-66-06-19	NF										X			
	F													X
2-5-72-06-19	NF												X	
	F													X
2-5-73-06-19	NF												X	
	F													X
2-5-75-06-19	NF												X	
	F													X
2-5-53-06-20	NF						X							
	F												X	
2-5-66-06-20														X
2-5-72-06-20	NF												X	
	F													X

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Continued)

DEVICE	FAIL OR NO FAIL	PATTERN												
		1	2	3	4	5	6	7	8	9	10	11	12	NO DATA
2-5-72-06-03	NF						X							
	F												X	
2-5-73-06-03	NF						X							
	F												X	
2-5-46-06-04	NF										X			
	F												X	
2-5-53-06-04														X
2-5-62-06-04	NF						X							
	F												X	
2-5-64-06-04	NF						X							
	F												X	
2-5-72-06-04	NF						X							
	F												X	
2-5-73-06-04	NF						X							
	F												X	
2-5-74-06-04	NF						X							
	F													X
2-5-53-06-05														X
2-5-64-06-05	NF						X							
	F												X	
2-5-66-06-05	NF						X							
	F												X	
2-5-72-06-05	NF						X							
	F												X	
2-5-74-06-05	NF						X							
	F												X	
2-5-75-06-05	NF						X							
	F												X	

TABLE 4. CROSS REFERENCE BETWEEN VOLTAGE AND CURRENT WAVEFORMS AND DEVICES (Concluded)

DEVICE	FAIL OR NO FAIL	PATTERN 1	2	3	4	5	6	7	8	9	10	11	12	NO DATA
2-5-73-06-20	NF												X	
	F													X
2-5-74-06-20	NF												X	
	F													X
2-5-75-06-20	NF						X							
	F													X

AD-A105 558 BDM CORP ALBUQUERQUE NM F/G 20/12
DNA ELECTRICAL OVERSTRESS - HARDNESS ASSURANCE DATA VOLUME.(U)
JUL 80 R TURFLER, D C WUNSCH DNA001-79-C-0138
UNCLASSIFIED BDM/TAC-80-373-TR DNA-5377T NL

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CHAPTER VII

PULSE TEST DATA

This chapter contains the data resulting from the pulse testing of the silicon-on-sapphire diodes. All the parameters that were included in the computer data base are defined in table 5 and cross referenced to other chapters of this volume for further explanation. A complete printout of the data base is contained in table 6.

The first 5 parameters in the data base provide a unique identification of each device fabricated. The parameter length is measured in the direction of current flow, and width is measured perpendicular to the current flow. The date, page, shot number, bias, and fail are all taken from the oscilloscope photographs.

Table 7 describes the parameter data quality. Five is the maximum on the scale, and points are taken off for various limitations of the oscilloscope photographs. If a device is not listed in the table, the data quality is five. One point was taken off for each of the following: (1) current or voltage less than one vertical division on the original photograph, (2) oscillations in the voltage or current waveforms, and (3) failure pulse less than one horizontal division on the photograph. Points were also deducted for poor waveform traces (trace too faint) devices that were not tested to failure and devices that failed, but no conclusion could be made concerning which test caused failure. Most of the devices in the last category were in test sequences with optical photographs and are labeled "optical photo fail?" The optical photographs require several hundred repetitive pulses. Thus, any drift in the pulser could cause failure at a much higher power level than the waveforms photographed. Therefore, several points were then off if a device did not receive a posttest I-V check to insure that it was still good before the next pulse test.

TABLE 5. DATA BASE PARAMETERS

PARAMETER	DEFINITION	REFERENCES
LOT	PRODUCTION LOT NUMBER (ALL LOT 2)	CHAPTER 2
WAFER	WAFER NUMBER RELATED TO DIFFERENT DOPING LEVELS (1, 4 OR 5)	CHAPTER 2
DIE	COMPLETE GROUP OF STRUCTURES	CHAPTER 2
STRUCT(URE)	INDICATES TYPE OF JUNCTION	CHAPTER 2
DIODE	INDICATES DIMENSIONS	CHAPTER 2
LENGTH	LENGTH OF LIGHTLY DOPED REGION	CHAPTER 2
WIDTH	WIDTH OF LIGHTLY DOPED REGION	CHAPTER 2
DATE	DATE TESTED	-
PAGE	OSCILLOSCOPE PHOTOGRAPH PAGE	-
SHOT #	OSCILLOSCOPE PHOTOGRAPH NUMBER IN TEST SEQUENCE	-
BIAS	0 = REVERSE; 1 = FORWARD; 11 = LATERAL WITH P AND N OPEN; 12 = LATERAL AND P TO N	CHAPTER 4
FAIL	0 = NO FAIL TEST; 2 = FAIL TEST	-
TF	FAILURE TIME	CHAPTER 5
VF	VOLTAGE AT FAILURE	CHAPTER 5
IF	CURRENT FAILURE	CHAPTER 5
PF	AVERAGE POWER	CHAPTER 5
VBD	BREAKDOWN VOLTAGE	CHAPTER 5
RADIUS	RADIUS OF JUNCTION CURVATURE (STRUCTURE 11)	CHAPTER 2
DATA Q	DATA QUALITY - TABLE VII-3	CHAPTER 7
K	DAMAGE CONSTANT	
K/WIDTH	NORMALIZED DAMAGE CONSTANT	

TABLE 6. PRINTOUT OF DATA BASE

WAFER 1 & 4

ELEMNT	LOT	WAFER	DIE	STRUCT	DIODE
1	2.00000E+00	1.00000E+00	4.20000E+01	1.00000E+00	1.00000E+01
2	2.00000E+00	1.00000E+00	4.20000E+01	1.00000E+00	1.00000E+01
3	2.00000E+00	1.00000E+00	4.20000E+01	1.00000E+00	4.00000E+00
4	2.00000E+00	1.00000E+00	4.20000E+01	1.00000E+00	4.00000E+00
5	2.00000E+00	1.00000E+00	4.60000E+01	1.00000E+00	9.00000E+00
6	2.00000E+00	1.00000E+00	4.50000E+01	1.00000E+00	9.00000E+00
7	2.00000E+00	1.00000E+00	3.40000E+01	1.00000E+00	1.00000E+01
8					
9	2.00000E+00	1.00000E+00	3.40000E+01	1.00000E+00	4.00000E+00
10	2.00000E+00	1.00000E+00	3.40000E+01	1.00000E+00	4.00000E+00
11	2.00000E+00	1.00000E+00	3.40000E+01	1.00000E+00	9.00000E+00
12	2.00000E+00	1.00000E+00	3.40000E+01	4.00000E+00	5.00000E+00
13	2.00000E+00	1.00000E+00	3.40000E+01	4.00000E+00	5.00000E+00
14	2.00000E+00	1.00000E+00	3.60000E+01	1.00000E+00	4.00000E+00
15	2.00000E+00	1.00000E+00	5.30000E+01	1.00000E+00	9.00000E+00
16	2.00000E+00	1.00000E+00	5.30000E+01	1.00000E+00	1.00000E+01
17	2.00000E+00	1.00000E+00	5.30000E+01	1.00000E+00	1.00000E+01
18	2.00000E+00	1.00000E+00	5.30000E+01	1.00000E+00	5.00000E+00
19	2.00000E+00	1.00000E+00	5.30000E+01	1.00000E+00	5.00000E+00
20	2.00000E+00	1.00000E+00	5.30000E+01	5.00000E+00	4.00000E+00
21	2.00000E+00	1.00000E+00	5.30000E+01	5.00000E+00	4.00000E+00
22	2.00000E+00	1.00000E+00	5.30000E+01	6.00000E+00	4.00000E+00
23	2.00000E+00	1.00000E+00	5.40000E+01	1.00000E+00	5.00000E+00
24	2.00000E+00	1.00000E+00	5.40000E+01	1.00000E+00	5.00000E+00
25	2.00000E+00	1.00000E+00	5.40000E+01	1.00000E+00	9.00000E+00
26	2.00000E+00	1.00000E+00	5.40000E+01	1.00000E+00	9.00000E+00
27	2.00000E+00	1.00000E+00	5.40000E+01	1.00000E+00	1.00000E+01
28	2.00000E+00	1.00000E+00	5.40000E+01	1.00000E+00	1.00000E+01
29	2.00000E+00	1.00000E+00	5.40000E+01	4.00000E+00	5.00000E+00
30	2.00000E+00	1.00000E+00	5.40000E+01	4.00000E+00	5.00000E+00
31	2.00000E+00	1.00000E+00	5.40000E+01	6.00000E+00	4.00000E+00
32	2.00000E+00	1.00000E+00	5.40000E+01	1.10000E+01	3.00000E+00
33	2.00000E+00	1.00000E+00	5.40000E+01	1.10000E+01	3.00000E+00
34	2.00000E+00	1.00000E+00	5.40000E+01	1.10000E+01	6.00000E+00
35	2.00000E+00	1.00000E+00	5.40000E+01	1.10000E+01	6.00000E+00
36	2.00000E+00	1.00000E+00	5.40000E+01	1.10000E+01	9.00000E+00
37	2.00000E+00	1.00000E+00	5.40000E+01	1.10000E+01	9.00000E+00
38	2.00000E+00	1.00000E+00	2.00000E+01	1.00000E+00	5.00000E+00
39	2.00000E+00	1.00000E+00	2.00000E+01	1.00000E+00	1.00000E+01
40	2.00000E+00	1.00000E+00	2.00000E+01	1.00000E+00	9.00000E+00
41	2.00000E+00	1.00000E+00	2.00000E+01	1.00000E+00	9.00000E+00
42	2.00000E+00	1.00000E+00	2.00000E+01	4.00000E+00	5.00000E+00
43	2.00000E+00	1.00000E+00	2.00000E+01	5.00000E+00	5.00000E+00
44	2.00000E+00	1.00000E+00	3.40000E+01	1.00000E+00	9.00000E+00
45					
46	2.00000E+00	1.00000E+00	2.00000E+01	1.00000E+00	5.00000E+00
47	2.00000E+00	1.00000E+00	2.00000E+01	1.00000E+00	1.00000E+01
48	2.00000E+00	1.00000E+00	2.00000E+01	1.00000E+00	4.00000E+00
49	2.00000E+00	1.00000E+00	2.00000E+01	1.00000E+00	4.00000E+00
50	2.00000E+00	1.00000E+00	2.00000E+01	5.00000E+00	4.00000E+00
51	2.00000E+00	1.00000E+00	2.00000E+01	5.00000E+00	4.00000E+00
52	2.00000E+00	1.00000E+00	2.00000E+01	6.00000E+00	4.00000E+00
53	2.00000E+00	1.00000E+00	2.00000E+01	6.00000E+00	4.00000E+00
54	2.00000E+00	1.00000E+00	2.10000E+01	1.00000E+00	5.00000E+00
55	2.00000E+00	1.00000E+00	2.10000E+01	1.00000E+00	5.00000E+00
56	2.00000E+00	1.00000E+00	2.10000E+01	1.00000E+00	9.00000E+00
57	2.00000E+00	1.00000E+00	2.10000E+01	1.00000E+00	9.00000E+00
58	2.00000E+00	1.00000E+00	2.10000E+01	1.00000E+00	4.00000E+00
59	2.00000E+00	1.00000E+00	2.10000E+01	1.00000E+00	4.00000E+00
60	2.00000E+00	1.00000E+00	2.10000E+01	4.00000E+00	5.00000E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

EVENT	LENGTH	WIDTH	DATE	PASS	SHOT#
1	1.00000E+01	1.00000E+00	6.23000E+02	1.40000E+01	3.00000E+00
2	1.00000E+01	3.00000E+00	6.23000E+02	1.40000E+01	5.00000E+00
3	3.00000E+01	2.00000E+01	6.23000E+02	1.60000E+01	5.00000E+00
4	3.00000E+01	1.00000E+01	6.23000E+02	2.10000E+01	3.00000E+00
5	3.00000E+01	1.00000E+00	6.23000E+02	2.70000E+01	1.00000E+00
6	3.00000E+01	3.00000E+00	6.23000E+02	2.70000E+01	3.00000E+00
7	1.00000E+01	3.00000E+00	6.23000E+02	5.00000E+00	2.00000E+00
8					
9	3.00000E+01	1.00000E+01	6.23000E+02	3.00000E+00	1.00000E+00
10	3.00000E+01	1.00000E+01	6.23000E+02	6.00000E+00	4.00000E+00
11	3.00000E+01	3.00000E+00	6.23000E+02	1.10000E+01	1.00000E+00
12	1.00000E+01	1.00000E+00	6.23000E+02	1.20000E+01	1.00000E+00
13	1.00000E+01	1.00000E+00	6.29000E+02	1.30000E+01	2.00000E+00
14	3.00000E+01	1.00000E+01	7.03000E+02	1.70000E+01	7.00000E+00
15	3.00000E+01	3.00000E+00	7.03000E+02	2.30000E+01	4.00000E+00
16	1.00000E+01	3.00000E+00	7.03000E+02	2.50000E+01	1.00000E+00
17	1.00000E+01	3.00000E+00	7.03000E+02	2.80000E+01	2.00000E+00
18	1.00000E+01	1.00000E+01	7.03000E+02	3.10000E+01	5.00000E+00
19	1.00000E+01	1.00000E+01	7.04000E+02	4.40000E+01	6.00000E+00
20	3.00000E+01	3.00000E+00	7.04000E+02	4.50000E+01	2.00000E+00
21	3.00000E+01	3.00000E+00	7.04000E+02	4.70000E+01	1.00000E+00
22	3.00000E+01	3.00000E+00	7.04000E+02	4.80000E+01	1.00000E+00
23	1.00000E+01	1.00000E+01	7.04000E+02	5.10000E+01	1.00000E+00
24	1.00000E+01	1.00000E+01	7.04000E+02	5.20000E+01	2.00000E+00
25	3.00000E+01	3.00000E+00	7.04000E+02	5.50000E+01	3.00000E+00
26	3.00000E+01	3.00000E+00	7.04000E+02	5.60000E+01	7.00000E+00
27	1.00000E+01	3.00000E+00	7.04000E+02	5.80000E+01	2.00000E+00
28	1.00000E+01	3.00000E+00	7.04000E+02	5.90000E+01	3.00000E+00
29	1.00000E+01	3.00000E+00	7.04000E+02	6.20000E+01	4.00000E+00
30	1.00000E+01	3.00000E+00	7.04000E+02	6.30000E+01	5.00000E+00
31	3.00000E+01	3.00000E+00	7.05000E+02	6.60000E+01	1.00000E+00
32	1.00000E+01	0.00000E+00	7.05000E+02	7.20000E+01	1.00000E+00
33	1.00000E+01	0.00000E+00	7.05000E+02	7.30000E+01	2.00000E+00
34	1.00000E+01	0.00000E+00	7.05000E+02	7.40000E+01	1.00000E+00
35	1.00000E+01	0.00000E+00	7.05000E+02	7.40000E+01	2.00000E+00
36	1.00000E+01	0.00000E+00	7.05000E+02	7.60000E+01	1.00000E+00
37	1.00000E+01	0.00000E+00	7.05000E+02	7.60000E+01	2.00000E+00
38	1.00000E+01	2.00000E+01	7.05000E+02	7.90000E+01	1.00000E+00
39	1.00000E+01	3.00000E+00	7.05000E+02	8.10000E+01	1.00000E+00
40	3.00000E+01	3.00000E+00	7.05000E+02	8.90000E+01	1.00000E+00
41	3.00000E+01	3.00000E+00	7.05000E+02	8.90000E+01	4.00000E+00
42	1.00000E+01	3.00000E+00	7.05000E+02	9.10000E+01	1.00000E+00
43	1.00000E+01	3.00000E+00	7.05000E+02	9.10000E+01	1.00000E+00
44	3.00000E+01	3.00000E+00	6.29000E+02	1.30000E+01	1.00000E+00
45					
46	1.00000E+01	1.00000E+01	7.05000E+02	8.00000E+01	2.00000E+00
47	1.00000E+01	3.00000E+00	7.05000E+02	8.10000E+01	4.00000E+00
48	3.00000E+01	1.00000E+01	7.05000E+02	8.60000E+01	4.00000E+00
49	3.00000E+01	1.00000E+01	7.05000E+02	8.60000E+01	5.00000E+00
50	1.00000E+01	3.00000E+00	7.06000E+02	9.10000E+01	1.00000E+00
51	3.00000E+01	3.00000E+00	7.06000E+02	9.70000E+01	1.00000E+00
52	3.00000E+01	3.00000E+00	7.06000E+02	1.01000E+02	5.00000E+00
53	3.00000E+01	3.00000E+00	7.06000E+02	1.02000E+02	7.00000E+00
54	1.00000E+01	1.00000E+01	7.06000E+02	1.05000E+02	3.00000E+00
55	1.00000E+01	1.00000E+01	7.06000E+02	1.05000E+02	4.00000E+00
56	3.00000E+01	3.00000E+00	7.09000E+02	1.08000E+02	1.00000E+00
57	3.00000E+01	3.00000E+00	7.09000E+02	1.09000E+02	1.00000E+00
58	3.00000E+01	1.00000E+01	7.09000E+02	1.10000E+02	1.00000E+00
59	3.00000E+01	2.00000E+01	7.09000E+02	1.11000E+02	2.00000E+00
60	1.00000E+01	3.00000E+00	7.09000E+02	1.13000E+02	1.00000E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

[illegible]	BIAS	FAIL	TF	VF	IF
1	0.00000E+00	0.00000E+00	5.11000E+00	1.10000E+01	5.38000E-01
2	0.00000E+00	1.00000E+00	1.59000E+00	1.12000E+01	7.44000E-01
3	0.00000E+00	0.00000E+00	5.14000E+00	1.17000E+01	1.13000E-01
4	0.00000E+00	1.00000E+00	1.09000E+00	1.25000E+01	1.19000E-01
5	0.00000E+00	0.00000E+00	7.75000E+00	1.95000E+01	1.53000E-01
6	0.00000E+00	1.00000E+00	4.79000E+00	1.31000E+01	1.36000E-01
7	0.00000E+00	0.00000E+00	9.17000E+00	1.16000E+01	5.38000E-01
8					
9	0.00000E+00	0.00000E+00	5.65000E+00	1.16000E+01	5.57000E-01
10	0.00000E+00	1.00000E+00	1.11000E+00	1.33000E+01	1.59000E-01
11	0.00000E+00	1.00000E+00	9.12000E-01	1.44000E+01	7.11000E-01
12	0.00000E+00	0.00000E+00	5.54000E+00	1.11000E+01	4.51000E-01
13	0.00000E+00	1.00000E+00	1.54000E+00	1.13000E+01	5.13000E-01
14	0.00000E+00	0.00000E+00	9.71000E+00	1.11000E+01	1.19000E-01
15	0.00000E+00	0.00000E+00	5.11000E+00	1.33000E+01	5.23000E-01
16	0.00000E+00	0.00000E+00	3.31000E+00	1.29000E+01	5.55000E-01
17	0.00000E+00	1.00000E+00	1.11000E+00	1.13000E+01	3.00000E-01
18	0.00000E+00	0.00000E+00	9.81000E+00	1.23000E+01	1.55000E-01
19	0.00000E+00	1.00000E+00	5.43000E+00	1.22000E+01	1.31000E-01
20	0.00000E+00	0.00000E+00	7.90000E+00	1.30000E+01	4.30000E-01
21	0.00000E+00	1.00000E+00	4.59000E+00	1.25000E+01	5.91000E-01
22	0.00000E+00	1.00000E+00	3.55000E+00	1.11000E+01	1.12000E-01
23	0.00000E+00	0.00000E+00	9.71000E+00	1.19000E+01	9.40000E-01
24	0.00000E+00	1.00000E+00	9.17000E+00	1.43000E+01	1.39000E-01
25	0.00000E+00	0.00000E+00	3.20000E+00	3.10000E+01	5.34000E-01
26	0.00000E+00	1.00000E+00	5.51000E+00	2.56000E+01	3.16000E-01
27	0.00000E+00	0.00000E+00	9.45000E+00	1.15000E+01	3.10000E-01
28	0.00000E+00	1.00000E+00	5.73000E+00	1.16000E+01	7.73000E-01
29	0.00000E+00	0.00000E+00	9.59000E+00	1.19000E+01	5.15000E-01
30	0.00000E+00	1.00000E+00	5.74000E+00	1.24000E+01	7.74000E-01
31	0.00000E+00	0.00000E+00	1.17000E+00	1.73000E+01	3.91000E-04
32	0.00000E+00	0.00000E+00	4.34000E+00	1.45000E+01	3.21000E-04
33	0.00000E+00	1.00000E+00	1.12000E+00	1.25000E+01	7.51000E-04
34	0.00000E+00	0.00000E+00	5.19000E+00	1.20000E+01	5.15000E-04
35	0.00000E+00	1.00000E+00	4.27000E+00	1.73000E+01	3.38000E-04
36	0.00000E+00	0.00000E+00	4.10000E+00	1.35000E+01	3.16000E-04
37	0.00000E+00	1.00000E+00	2.21000E+00	1.71000E+01	9.01000E-04
38	0.00000E+00	0.00000E+00	9.53000E+00	1.17000E+01	5.10000E-01
39	0.00000E+00	0.00000E+00	1.32000E+00	1.06000E+01	1.23000E-01
40	0.00000E+00	0.00000E+00	5.93000E+00	3.32000E+01	1.15000E-01
41	0.00000E+00	1.00000E+00	2.35000E+00	3.14000E+01	1.41000E-01
42	0.00000E+00	1.00000E+00	1.17000E+00	9.26000E+01	5.46000E-04
43	0.00000E+00	1.00000E+00	1.41000E+00	4.19000E+01	4.57000E-04
44	0.00000E+00	0.00000E+00	3.17000E+00	3.13000E+01	4.29000E-01
45					
46	0.00000E+00	1.00000E+00	9.41000E+00	1.15000E+01	1.34000E-01
47	0.00000E+00	1.00000E+00	1.25000E+00	1.11000E+01	1.51000E-01
48	0.00000E+00	0.00000E+00	3.59000E+00	1.94000E+01	7.11000E-01
49	0.00000E+00	1.00000E+00	1.36000E+00	1.14000E+01	3.53000E-01
50	0.00000E+00	0.00000E+00	5.75000E+00	1.13000E+01	1.13000E-01
51	0.00000E+00	1.00000E+00	3.19000E+00	1.14000E+01	1.45000E-01
52	0.00000E+00	0.00000E+00	3.20000E+00	1.11000E+01	4.49000E-01
53	0.00000E+00	1.00000E+00	1.53000E+00	1.10000E+01	5.13000E-01
54	0.00000E+00	0.00000E+00	9.13000E+00	9.14000E+01	1.91000E-01
55	0.00000E+00	1.00000E+00	5.19000E+00	1.25000E+01	4.31000E-01
56	0.00000E+00	0.00000E+00	4.11000E+00	1.39000E+01	1.17000E-01
57	0.00000E+00	1.00000E+00	1.17000E+00	1.51000E+01	1.51000E-01
58	0.00000E+00	0.00000E+00	1.13000E+01	1.41000E+01	1.17000E-01
59	0.00000E+00	1.00000E+00	1.13000E+00	1.79000E+01	1.12000E-01
60	0.00000E+00	0.00000E+00	1.62000E+00	1.31000E+01	1.41000E-01

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

EVENT	PF	VBD	RADIUS	DATA 1	
1	7.32000E-01	1.44000E+02	0.00000E+00	5.00000E+00	1.51300E+00
2	9.29000E-01	1.44000E+02	0.00000E+00	5.00000E+00	1.51167E+00
3	6.56000E-01	2.10000E+02	0.00000E+00	4.00000E+00	1.32550E+00
4	7.14000E-01	2.10000E+02	0.00000E+00	4.00000E+00	7.45437E-01
5	4.40000E-01	1.70000E+02	0.00000E+00	5.00000E+00	1.12430E+00
6	5.65000E-01	1.80000E+02	0.00000E+00	5.00000E+00	1.22556E+00
7	5.94000E-01	1.10000E+02	0.00000E+00	4.00000E+00	1.11200E+00
8					
9	1.79000E+00	2.00000E+02	0.00000E+00	5.00000E+00	5.16759E+00
10	2.54000E+00	2.00000E+02	0.00000E+00	4.00000E+00	1.31699E+00
11	2.00000E+00	2.10000E+02	0.00000E+00	4.00000E+00	1.37515E+00
12	4.73000E-01	1.13000E+02	0.00000E+00	5.00000E+00	1.48411E+00
13	5.92000E-01	1.19000E+02	0.00000E+00	5.00000E+00	1.10286E+00
14	2.36000E+00	2.50000E+02	0.00000E+00	5.00000E+00	1.13015E+01
15	1.72000E+00	2.60000E+02	0.00000E+00	5.00000E+00	4.51311E+00
16	6.91000E-01	1.40000E+02	0.00000E+00	4.00000E+00	1.25120E+00
17	5.22000E-01	1.40000E+02	0.00000E+00	5.00000E+00	5.01507E-01
18	1.95000E+00	1.30000E+02	0.00000E+00	5.00000E+00	5.11862E+00
19	2.12000E+00	1.70000E+02	0.00000E+00	5.00000E+00	5.15111E+00
20	1.33000E+00	1.30000E+02	0.00000E+00	5.00000E+00	1.17379E+00
21	1.66000E+00	2.30000E+02	0.00000E+00	5.00000E+00	1.55641E+00
22	6.95000E-01	2.10000E+02	0.00000E+00	3.00000E+00	1.10343E+00
23	1.06000E+00	1.24000E+02	0.00000E+00	5.00000E+00	1.10105E+00
24	1.93000E+00	1.24000E+02	0.00000E+00	5.00000E+00	5.90711E+00
25	2.02000E+00	2.10000E+02	0.00000E+00	5.00000E+00	5.00143E+00
26	2.76000E+00	2.10000E+02	0.00000E+00	5.00000E+00	7.16666E+00
27	7.04000E-01	1.08000E+02	0.00000E+00	5.00000E+00	1.16415E+00
28	9.07000E-01	1.08000E+02	0.00000E+00	5.00000E+00	2.16159E+00
29	7.03000E-01	1.12000E+02	0.00000E+00	5.00000E+00	1.17711E+00
30	9.21000E-01	1.12000E+02	0.00000E+00	5.00000E+00	2.39105E+00
31	8.66000E-02	2.75000E+02	0.00000E+00	2.00000E+00	1.58375E-01
32	5.89000E-02	1.52000E+02	5.00000E+00	4.00000E+00	1.25574E-01
33	3.09000E-02	1.52000E+02	5.00000E+00	3.00000E+00	1.27014E-02
34	5.05000E-02	1.43000E+02	1.00000E+01	4.00000E+00	1.13530E-01
35	1.18000E-01	1.49000E+02	1.00000E+01	5.00000E+00	2.50403E-01
36	5.09000E-02	1.56000E+02	3.00000E+01	4.00000E+00	1.04311E-01
37	9.47000E-02	1.56000E+02	3.00000E+01	5.00000E+00	1.41417E-01
38	1.12000E+00	1.40000E+02	0.00000E+00	5.00000E+00	3.47551E+00
39	2.39000E-01	1.32000E+02	0.00000E+00	4.00000E+00	7.01700E-01
40	7.97000E-01	2.40000E+02	0.00000E+00	5.00000E+00	2.39657E+00
41	9.44000E-01	2.40000E+02	0.00000E+00	4.00000E+00	1.62411E+00
42	4.64000E-02	1.32000E+02	0.00000E+00	2.00000E+00	5.22901E-02
43	2.15000E-02	3.00000E+01	0.00000E+00	1.00000E+00	2.77101E-02
44	1.22000E+00	2.10000E+02	0.00000E+00	3.00000E+00	3.50341E+00
45					
46	1.27000E+00	1.40000E+02	0.00000E+00	4.00000E+00	1.38716E+00
47	2.75000E-01	1.32000E+02	0.00000E+00	3.00000E+00	4.13415E-01
48	1.92000E+00	2.30000E+02	0.00000E+00	5.00000E+00	5.55991E+00
49	2.02000E+00	2.30000E+02	0.00000E+00	4.00000E+00	1.09914E+00
50	2.66000E-01	1.60000E+02	0.00000E+00	4.00000E+00	5.46254E-01
51	4.24000E-01	1.60000E+02	0.00000E+00	4.00000E+00	5.55411E-01
52	7.12000E-01	1.90000E+02	0.00000E+00	2.00000E+00	1.10004E+00
53	1.08000E+00	1.90000E+02	0.00000E+00	3.00000E+00	1.71109E+00
54	2.46000E-01	1.12000E+02	0.00000E+00	5.00000E+00	7.45749E-01
55	4.09000E-01	1.12000E+02	0.00000E+00	5.00000E+00	9.16023E-01
56	2.92000E-01	1.70000E+02	0.00000E+00	5.00000E+00	5.91975E-01
57	5.42000E-01	1.70000E+02	0.00000E+00	5.00000E+00	3.35317E-01
58	1.70000E-01	2.25000E+02	0.00000E+00	3.00000E+00	5.42916E-01
59	6.61000E-01	2.25000E+02	0.00000E+00	3.00000E+00	1.10131E+00
60	2.31000E-01	1.20000E+02	0.00000E+00	3.00000E+00	5.79112E-01

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

E ENT	WIDT				
1	1.40000E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
2	1.30458E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
3	8.11750E-02	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
4	3.72718E-02	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
5	1.53111E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
6	1.54570E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
7	1.63750E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
8					
9	2.62379E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
10	1.40349E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
11	2.34786E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
12	1.65511E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
13	1.37857E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
14	5.35175E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
15	6.16041E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
16	2.56375E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
17	1.12938E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
18	3.06931E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
19	2.68151E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
20	4.34841E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
21	4.44553E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
22	1.52685E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
23	1.65153E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
24	2.95390E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
25	7.50311E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
26	8.88372E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
27	2.70518E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
28	2.95210E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
29	2.72128E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
30	2.98881E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
31	1.96719E-02	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
32	1.25874E+09	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
33	3.27014E+08	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
34	1.23510E+09	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
35	2.60403E+09	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
36	1.04313E+09	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
37	1.41417E+09	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
38	1.73780E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
39	8.77124E-02	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
40	1.53071E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
41	2.03013E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
42	6.53626E-03	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
43	3.31377E-03	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
44	4.36553E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
45					
46	1.94893E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
47	5.16768E-02	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
48	2.82996E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
49	1.04961E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
50	8.70354E-02	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
51	8.19159E-02	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
52	1.62511E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
53	1.17261E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
54	3.72874E-02	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
55	4.69013E-02	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
56	7.39968E-02	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
57	1.04492E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
58	2.71467E-02	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
59	5.51004E-03	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
60	5.47764E-02	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

[illegible]	[illegible]	WAFER	DIE	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	1.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

EVENT	LENGTH	WIDTH	DATE	PAGE	SHOT#
61	1.00000E+01	1.00000E+00	7.04000E+02	1.14000E+02	4.00000E+00
62	1.00000E+01	1.00000E+00	7.04000E+02	1.15000E+02	1.00000E+00
63	1.00000E+01	1.00000E+00	7.08000E+02	1.16000E+02	1.00000E+00
64	1.00000E+01	1.00000E+00	7.08000E+02	1.21000E+02	1.00000E+00
65	1.00000E+01	1.00000E+00	7.08000E+02	1.21000E+02	4.00000E+00
66	1.00000E+01	0.00000E+00	7.08000E+02	1.23000E+02	1.00000E+00
67	1.00000E+01	0.00000E+00	7.08000E+02	1.30000E+02	1.00000E+00
68	1.00000E+01	1.00000E+01	7.08000E+02	1.36000E+02	1.00000E+00
69	1.00000E+01	1.00000E+01	7.09000E+02	1.34000E+02	1.00000E+00
70	1.00000E+01	1.00000E+00	7.09000E+02	1.35000E+02	1.00000E+00
71	1.00000E+01	1.00000E+00	7.09000E+02	1.35000E+02	1.00000E+00
72	1.00000E+01	2.00000E+01	7.10000E+02	1.41000E+02	1.00000E+00
73	1.00000E+01	2.00000E+01	7.10000E+02	1.41000E+02	4.00000E+00
74	1.00000E+01	3.00000E+00	7.10000E+02	1.41000E+02	1.00000E+00
75	1.00000E+01	1.00000E+00	7.10000E+02	1.44000E+02	1.00000E+00
76	1.00000E+01	1.00000E+00	7.10000E+02	1.45000E+02	1.00000E+00
77	1.00000E+01	3.00000E+00	7.10000E+02	1.46000E+02	1.00000E+00
78	1.00000E+01	1.00000E+00	7.10000E+02	1.50000E+02	1.00000E+00
79	1.00000E+01	1.00000E+00	7.10000E+02	1.50000E+02	1.00000E+00
80	1.00000E+01	1.00000E+00	7.10000E+02	1.51000E+02	1.00000E+00
81	1.00000E+01	3.00000E+00	7.10000E+02	1.51000E+02	1.00000E+00
82	1.00000E+01	3.00000E+00	7.10000E+02	1.51000E+02	1.00000E+00
83	1.00000E+01	1.00000E+00	7.10000E+02	1.53000E+02	4.00000E+00
84	1.00000E+01	0.00000E+00	7.10000E+02	1.61000E+02	1.00000E+00
85	1.00000E+01	0.00000E+00	7.10000E+02	1.61000E+02	4.00000E+00
86	1.00000E+01	0.00000E+00	7.10000E+02	1.67000E+02	1.00000E+00
87	1.00000E+01	0.00000E+00	7.10000E+02	1.68000E+02	1.00000E+00
88	1.00000E+01	2.00000E-01	7.11000E+02	1.72000E+02	1.00000E+00
89	1.00000E+01	2.00000E+01	7.11000E+02	1.73000E+02	1.00000E+00
90	1.00000E+01	2.00000E-01	7.11000E+02	1.74000E+02	1.00000E+00
91	1.00000E+01	3.00000E+00	7.11000E+02	1.75000E+02	1.00000E+00
92	1.00000E+01	3.00000E+00	7.11000E+02	1.77000E+02	1.00000E+00
93	1.00000E+01	1.00000E+00	7.11000E+02	1.79000E+02	2.00000E+00
94	1.00000E+01	1.00000E+01	7.11000E+02	1.81000E+02	5.00000E+00
95	1.00000E+01	1.00000E+01	7.11000E+02	1.81000E+02	7.00000E+00
96	1.00000E+01	2.00000E-01	7.11000E+02	1.86000E+02	1.00000E+00
97	1.00000E+01	2.00000E+01	7.11000E+02	1.86000E+02	4.00000E+00
98	1.00000E+01	3.00000E+00	7.11000E+02	1.90000E+02	5.00000E+00
99	1.00000E+01	3.00000E+00	7.11000E+02	1.90000E+02	5.00000E+00
100	1.00000E+01	1.00000E+00	7.12000E+02	1.94000E+02	5.00000E+00
101	1.00000E+01	3.00000E+00	7.12000E+02	1.94000E+02	5.00000E+00
102	1.00000E+01	3.00000E+00	7.12000E+02	1.97000E+02	5.00000E+00
103	1.00000E+01	3.00000E+00	7.12000E+02	1.98000E+02	5.00000E+00
104	1.00000E+01	3.00000E+00	7.12000E+02	2.00000E+02	1.00000E+00
105	1.00000E+01	3.00000E+00	7.12000E+02	2.01000E+02	1.00000E+00
106	3.00000E+01	1.00000E+00	7.12000E+02	2.01000E+02	1.00000E+00
107	1.00000E+01	3.00000E+00	7.13000E+02	2.04000E+02	4.00000E+00
108	1.00000E+01	0.00000E+00	7.13000E+02	2.05000E+02	1.00000E+00
109	1.00000E+01	0.00000E+00	7.13000E+02	2.06000E+02	1.00000E+00
110	1.00000E+01	0.00000E+00	7.13000E+02	2.08000E+02	1.00000E+00
111	1.00000E+01	0.00000E+00	7.13000E+02	2.11000E+02	1.00000E+00
112	1.00000E+01	0.00000E+00	7.13000E+02	2.11000E+02	1.00000E+00
113	1.00000E+01	3.00000E+00	7.13000E+02	2.15000E+02	4.00000E+00
114	1.00000E+01	3.00000E+00	7.15000E+02	2.17000E+02	5.00000E+00
115	3.00000E+01	2.00000E-01	7.15000E+02	2.21000E+02	3.00000E+00
116	3.00000E+01	1.00000E+01	7.15000E+02	2.21000E+02	7.00000E+00
117	1.00000E+01	3.00000E+00	7.16000E+02	2.24000E+02	1.00000E+00
118	1.00000E+01	3.00000E+00	7.16000E+02	2.25000E+02	5.00000E+00
119	1.00000E+01	3.00000E+00	7.16000E+02	2.27000E+02	2.00000E+00
120	1.00000E+01	3.00000E+00	7.16000E+02	2.27000E+02	1.00000E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

```
 EVENT      BIAS         FAIL          TF            F             IF

  61    0.00000E+00  1.00000E+00  6.37000E+00  1.13000E+01  1.14000E-03
  62    0.00000E+00  0.00000E+00  7.01000E+00  1.14000E+01  7.25000E-04
  63    0.00000E+00  1.00000E+00  9.71000E+00  1.51000E+01  1.71000E-04
  64    0.00000E+00  0.00000E+00  7.52000E+00  2.21000E+01  1.54000E-03
  65    0.00000E+00  1.00000E+00  9.41000E+00  2.60000E+01  1.35000E-03
  66    0.00000E+00  0.00000E+00  9.17000E+00  1.21000E+01  7.35000E-04
  67    0.00000E+00  1.00000E+00  3.51000E+00  1.11000E+01  1.81000E-03
  68    0.00000E+00  0.00000E+00  6.13000E+00  1.35000E+01  1.54000E-03
  69    0.00000E+00  1.00000E+00  5.16000E+00  1.29000E+01  1.17000E-03
  70    0.00000E+00  0.00000E+00  5.35000E+00  1.24000E+01  3.51000E-04
  71    0.00000E+00  1.00000E+00  1.77000E+00  1.26000E+01  1.17000E-03
  72    0.00000E+00  0.00000E+00  9.11000E+00  2.42000E+01  4.55000E-03
  73    0.00000E+00  1.00000E+00  5.31000E+00  2.71000E+01  3.38000E-03
  74    0.00000E+00  0.00000E+00  6.46000E+00  1.16000E+01  1.74000E-03
  75    0.00000E+00  1.00000E+00  9.14000E-01  1.08000E+01  1.25000E-03
  76    0.00000E+00  0.00000E+00  3.76000E+00  2.19000E+01  1.37000E-04
  77    0.00000E+00  1.00000E+00  8.70000E+00  7.91000E-01  3.35000E-04
  78    0.00000E+00  0.00000E+00  9.51000E+00  2.61000E+01  1.56000E-03
  79    0.00000E+00  1.00000E+00  1.41000E+00  3.22000E+01  1.10000E-03
  80    0.00000E+00  0.00000E+00  5.53000E+00  5.51000E-01  1.77000E-04
  81    0.00000E+00  1.00000E+00  5.17000E+00  3.37000E-01  1.10000E-04
  82    0.00000E+00  0.00000E+00  7.31000E+00  1.37000E+01  1.13000E-03
  83    0.00000E+00  1.00000E+00  7.39000E+00  2.15000E+01  3.41000E-03
  84    0.00000E+00  0.00000E+00  9.50000E+00  1.11000E+01  1.73000E-03
  85    0.00000E+00  1.00000E+00  1.01000E+01  9.72000E+01  3.31000E-03
  86    0.00000E+00  0.00000E+00  1.05000E+01  9.37000E+01  5.75000E-04
  87    0.00000E+00  1.00000E+00  9.13000E+00  1.35000E+01  1.74000E-03
  88    0.00000E+00  0.00000E+00  3.74000E+00  1.38000E+01  1.27000E-03
  89    0.00000E+00  1.00000E+00  7.72000E-01  1.16000E+01  4.10000E-03
  90    0.00000E+00  1.00000E+00  5.31000E+00  2.30000E+01  1.99000E-03
  91    0.00000E+00  1.00000E+00  3.76000E+00  1.01000E+01  3.59000E-04
  92    0.00000E+00  0.00000E+00  6.61000E+00  5.54000E-01  3.65000E-04
  93    0.00000E+00  1.00000E+00  8.46000E+00  3.91000E-01  3.17000E-04
  94    0.00000E+00  0.00000E+00  1.00000E+01  1.16000E+01  1.57000E-03
  95    0.00000E+00  1.00000E+00  3.36000E+00  1.13000E+01  1.79000E-03
  96    0.00000E+00  0.00000E+00  8.36000E+00  2.14000E+01  7.13000E-03
  97    0.00000E+00  1.00000E+00  6.57000E+00  3.51000E+01  1.31000E-03
  98    0.00000E+00  0.00000E+00  3.33000E+00  1.14000E+01  4.35000E-03
  99    0.00000E+00  1.00000E+00  1.15000E+00  1.57000E+01  7.25000E-03
 100    0.00000E+00  0.00000E+00  9.40000E+00  1.19000E+01  4.36000E-03
 101    0.00000E+00  1.00000E+00  7.69000E+00  1.37000E+01  3.60000E-03
 102    0.00000E+00  0.00000E+00  9.40000E+00  1.17000E+01  4.61000E-03
 103    0.00000E+00  1.00000E+00  7.10000E+00  1.17000E+01  5.10000E-03
 104    0.00000E+00  0.00000E+00  5.36000E+00  5.10000E-01  7.27000E-04
 105    0.00000E+00  1.00000E+00  3.79000E+00  4.75000E+01  7.82000E-04
 106    0.00000E+00  0.00000E+00  5.76000E+00  1.39000E+01  1.49000E-03
 107    0.00000E+00  1.00000E+00  1.55000E+00  1.20000E+01  3.11000E-03
 108    0.00000E+00  0.00000E+00  5.41000E+00  1.43000E+01  5.37000E-04
 109    0.00000E+00  1.00000E+00  5.31000E+00  1.43000E+01  3.11000E-04
 110    0.00000E+00  1.00000E+00  1.13000E+00  1.45000E+01  3.44000E-04
 111    0.00000E+00  0.00000E+00  4.35000E+00  1.41000E+01  7.14000E-04
 112    0.00000E+00  1.00000E+00  7.51000E+00  1.15000E+01  3.51000E-04
 113    0.00000E+00  0.00000E+00  6.42000E+00  1.11000E+01  1.59000E-03
 114    0.00000E+00  1.00000E+00  3.05000E+00  1.25000E+01  4.45000E-03
 115    0.00000E+00  0.00000E+00  9.34000E+00  3.13000E+01  1.19000E-02
 116    0.00000E+00  1.00000E+00  5.19000E+00  1.30000E+01  1.70000E-02
 117    0.00000E+00  0.00000E+00  3.39000E+00  3.17000E+01  4.51000E-03
 118    0.00000E+00  1.00000E+00  7.15000E+00  1.27000E+01  1.25000E-02
 119    0.00000E+00  0.00000E+00  9.51000E+00  1.13000E+01  1.39000E-03
 120    0.00000E+00  1.00000E+00  3.75000E+00  1.17000E+01  1.52000E-03
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TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

EVENT	[illegible]	VSD	RADIUS	DATA 2	
61	3.87000E-01	1.20000E+02	0.00000E+00	3.00000E+00	5.04151E-01
62	1.44000E-02	8.40000E+01	0.70000E+00	1.00000E+00	1.11101E-02
63	3.00000E-03	8.40000E+01	0.00000E+00	1.00000E+00	1.44216E-02
64	3.21000E-01	2.00000E+02	0.00000E+00	1.00000E+00	5.33756E-01
65	6.37000E-01	1.00000E+02	0.00000E+00	4.00000E+00	1.05267E+00
66	3.74000E-02	1.52000E+02	1.00000E+01	1.00000E+00	1.11170E-01
67	8.63000E-02	1.52000E+02	1.00000E+01	1.00000E+00	1.51528E-01
68	1.31000E-01	1.46000E+02	0.00000E+00	4.00000E+00	5.71111E-01
69	4.42000E-01	1.46000E+02	0.00000E+00	4.00000E+00	1.06555E+00
70	5.36000E-02	1.16000E+02	0.00000E+00	4.00000E+00	1.40514E-01
71	3.98000E-01	1.20000E+02	0.00000E+00	5.00000E+00	4.55770E-01
72	1.02000E+00	2.00000E+02	0.00000E+00	5.00000E+00	1.07164E+00
73	1.87000E+00	2.10000E+02	0.00000E+00	4.00000E+00	4.50741E+00
74	1.98000E-01	1.42000E+02	0.00000E+00	3.00000E+00	5.75604E-01
75	2.41000E-01	1.42000E+02	0.00000E+00	1.00000E+00	1.30404E-01
76	7.12000E-02	8.00000E+01	0.00000E+00	1.00000E+00	1.11521E-01
77	5.30000E-02	6.93000E+01	0.00000E+00	1.00000E+00	1.71275E-01
78	1.79000E-01	1.30000E+02	0.00000E+00	5.00000E+00	6.71151E-01
79	5.12000E-01	2.30000E+02	0.00000E+00	5.00000E+00	5.49113E-01
80	6.23000E-02	1.11000E+02	0.00000E+00	1.00000E+00	1.55120E-01
81	9.08000E-03	5.40000E+01	0.00000E+00	1.00000E+00	1.75455E-02
82	4.45000E-01	2.10000E+02	0.00000E+00	2.00000E+00	1.14061E+00
83	6.31000E-01	2.10000E+02	0.00000E+00	2.00000E+00	1.95604E+00
84	5.77000E-02	1.12000E+02	5.00000E+00	1.00000E+00	1.77841E-01
85	7.46000E-02	1.12000E+02	5.00000E+00	1.00000E+00	1.17011E-01
86	1.64000E-02	1.50000E+02	3.00000E+01	2.00000E+00	5.66211E-02
87	1.12000E-01	1.10000E+02	3.00000E+01	3.00000E+00	1.38417E-01
88	2.40000E-01	1.20000E+02	0.00000E+00	5.00000E+00	7.09520E-01
89	1.60000E-01	1.10000E+02	0.00000E+00	1.00000E+00	3.16108E-01
90	4.44000E-01	1.50000E+02	0.00000E+00	1.00000E+00	1.07011E+00
91	5.60000E-02	1.15000E+02	0.00000E+00	1.00000E+00	1.05650E-01
92	1.32000E-02	9.00000E+01	0.00000E+00	4.00000E+00	4.67910E-02
93	1.30000E-02	8.00000E+01	0.00000E+00	1.00000E+00	1.76119E-02
94	1.72000E+00	9.00000E+01	0.00000E+00	5.00000E+00	5.43911E+00
95	2.01000E+00	9.00000E+01	0.00000E+00	5.00000E+00	1.99664E+00
96	2.10000E+00	1.15000E+02	0.00000E+00	5.00000E+00	6.25080E+00
97	2.26000E+00	2.15000E+02	0.00000E+00	5.00000E+00	1.95501E+00
98	1.36000E+00	1.30000E+02	0.00000E+00	5.00000E+00	1.31637E+00
99	2.27000E+00	1.30000E+02	0.00000E+00	5.00000E+00	4.09954E+00
100	5.50000E-01	1.25000E+02	0.00000E+00	5.00000E+00	1.39545E+00
101	3.14000E-01	1.25000E+02	0.00000E+00	5.00000E+00	9.22210E-01
102	5.17000E-01	1.34000E+02	0.00000E+00	4.00000E+00	1.21575E+00
103	6.29000E-01	1.34000E+02	0.00000E+00	4.00000E+00	1.79511E+00
104	1.11000E-02	8.40000E+01	0.00000E+00	1.00000E+00	1.30169E-02
105	5.14000E-02	7.60000E+01	0.00000E+00	1.00000E+00	1.14951E-01
106	6.71000E-01	1.53000E+02	0.00000E+00	5.00000E+00	1.74710E+00
107	5.44000E-01	1.53000E+02	0.00000E+00	2.00000E+00	1.66105E-01
108	7.31000E-02	1.60000E+02	5.00000E+00	1.00000E+00	1.51041E-01
109	1.44000E-02	1.60000E+02	5.00000E+00	1.00000E+00	1.11148E-02
110	7.51000E-02	1.70000E+02	1.00000E+01	1.00000E+00	7.95141E-02
111	1.55000E-02	1.50000E+02	1.00000E+01	4.00000E+00	1.93011E-01
112	3.00000E-02	1.50000E+02	1.00000E+01	1.00000E+00	3.18191E-02
113	4.15000E-01	1.40000E+02	0.00000E+00	5.00000E+00	1.27171E+00
114	5.57000E-01	1.40000E+02	0.00000E+00	5.00000E+00	1.27561E+00
115	4.40000E+00	1.45000E+02	0.00000E+00	5.00000E+00	1.13711E+01
116	5.17000E+00	1.46000E+02	0.00000E+00	5.00000E+00	1.10410E+01
117	1.39000E+00	1.30000E+02	0.00000E+00	5.00000E+00	1.14527E+00
118	1.41000E+00	1.30000E+02	0.00000E+00	5.00000E+00	1.32216E+00
119	1.13000E-01	1.00000E+02	0.00000E+00	5.00000E+00	3.35111E-01
120	1.45000E-01	1.00000E+02	0.00000E+00	1.00000E+00	7.26150E-01

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

```
ELEMENT      WIDTH

  61     1.10213E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  62     4.77151E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  63     1.11507E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  64     1.12744E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  65     1.05151E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  66     1.11170E-04    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  67     1.51501E-04    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  68     1.75515E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  69     5.14574E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  70     1.75570E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  71     2.14421E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  72     1.51112E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  73     1.15171E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  74     7.13174E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  75     1.11504E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  76     1.57114E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  77     1.11141E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  78     1.47127E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  79     1.11714E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  80     1.15555E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  81     1.45551E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  82     1.55451E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  83     1.44504E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  84     1.77141E-04    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  85     1.17011E-04    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  86     5.46211E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  87     1.35417E+04    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  88     1.54751E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  89     1.51151E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  90     5.15104E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  91     1.11074E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  92     5.14114E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  93     4.71541E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  94     1.71555E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  95     1.55511E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  96     1.15155E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  97     4.17501E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  98     4.51111E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
  99     5.11111E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 100     1.11115E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 101     1.15774E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 102     1.01551E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 103     1.14111E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 104     4.11511E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 105     1.10556E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 106     1.11144E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 107     1.51150E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 108     1.41041E-04    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 109     1.13546E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 110     7.55141E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 111     1.45012E-04    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 112     1.11141E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 113     1.54111E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 114     1.04451E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 115     5.11504E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 116     4.51045E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 117     4.10711E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 118     1.11771E+00    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 119     1.11554E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
 120     5.71511E-01    0.00000E+00    0.00000E+00    0.00000E+00    0.00000E+00
```

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

[illegible]

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

EVENT	LENGTH	WIDTH	DATE	PAGE	UNIT#
121	1.00000E+01	3.00000E+00	7.16000E+02	1.10000E+02	1.00000E+00
122	1.00000E+01	3.00000E+00	7.16000E+02	1.10000E+02	1.00000E+00
123	1.00000E+01	3.00000E+00	7.16000E+02	1.11000E+02	1.00000E+00
124	1.00000E+01	3.00000E+00	7.16000E+02	1.12000E+02	1.00000E+00
125	1.00000E+01	3.00000E+00	7.16000E+02	1.14000E+02	1.00000E+00
126	1.00000E+01	3.00000E+00	7.16000E+02	1.14000E+02	1.00000E+00
127	1.00000E+01	3.00000E+00	7.16000E+02	1.16000E+02	1.00000E+00
128	1.00000E+01	3.00000E+00	7.16000E+02	1.16000E+02	1.00000E+00
129	1.00000E+01	3.00000E+00	7.16000E+02	1.18000E+02	1.00000E+00
130	1.00000E+01	3.00000E+00	7.16000E+02	1.19000E+02	1.00000E+00
131	1.00000E+01	3.00000E+00	7.17000E+02	1.40000E+02	1.00000E+00
132	1.00000E+01	3.00000E+00	7.17000E+02	1.40000E+02	1.00000E+00
133	1.00000E+01	3.00000E+00	7.17000E+02	1.42000E+02	1.00000E+00
134	1.00000E+01	3.00000E+00	7.17000E+02	1.41000E+02	1.00000E+00
135	1.00000E+01	3.00000E+00	7.17000E+02	1.45000E+02	1.00000E+00
136	1.00000E+01	3.00000E+00	7.17000E+02	1.46000E+02	1.00000E+00
137	1.00000E+01	3.00000E+00	7.17000E+02	1.48000E+02	1.00000E+00
138	1.00000E+01	3.00000E+00	7.17000E+02	1.48000E+02	1.00000E+00
139	1.00000E+01	3.00000E+00	7.17000E+02	1.50000E+02	1.00000E+00
140	1.00000E+01	3.00000E+00	7.17000E+02	1.51000E+02	1.00000E+00
141	3.00000E+02	1.20000E+00	7.17000E+02	1.51000E+02	1.00000E+00
142	3.00000E+02	1.20000E+00	7.17000E+02	1.53000E+02	5.00000E+00
143	3.20000E+02	1.20000E+00	7.17000E+02	1.57000E+02	5.00000E+00
144	3.00000E+01	4.00000E+00	7.18000E+02	1.61000E+02	4.00000E+00
145	3.00000E+01	4.00000E+00	7.18000E+02	1.62000E+02	5.00000E+00
146	3.00000E+02	1.20000E+00	7.18000E+02	1.64000E+02	1.00000E+00
147	3.00000E+01	4.00000E+00	7.18000E+02	1.66000E+02	1.00000E+00
148	3.00000E+02	1.20000E+00	7.18000E+02	1.68000E+02	1.00000E+00
149	3.00000E+02	1.10000E+00	7.18000E+02	1.69000E+02	4.00000E+00
150	3.00000E+01	4.00000E+00	7.18000E+02	1.70000E+02	1.00000E+00
151	3.00000E+02	1.20000E+00	7.18000E+02	1.71000E+02	1.00000E+00
152	3.00000E+02	1.20000E+00	7.18000E+02	1.72000E+02	4.00000E+00
153	3.00000E+01	4.00000E+00	7.18000E+02	1.75000E+02	1.00000E+00
154	3.00000E+02	4.00000E+00	7.18000E+02	1.79000E+02	1.00000E+00
155	3.00000E+02	1.20000E+00	7.18000E+02	1.73000E+02	4.00000E+00
156	3.00000E+01	4.00000E+00	7.19000E+02	1.80000E+02	1.00000E+00
157	3.00000E+01	4.00000E+00	7.19000E+02	1.81000E+02	1.00000E+00
158	3.00000E+01	4.00000E+00	7.19000E+02	1.84000E+02	1.00000E+00
159	3.00000E+01	4.00000E+00	7.19000E+02	1.84000E+02	1.00000E+00
160	3.00000E+01	4.00000E+00	7.19000E+02	1.86000E+02	1.00000E+00
161	3.00000E+01	4.00000E+00	7.19000E+02	1.87000E+02	1.00000E+00
162	3.00000E+01	4.00000E+00	7.20000E+02	1.90000E+02	1.00000E+00
163	3.00000E+01	4.00000E+00	7.20000E+02	1.90000E+02	1.00000E+00
164	3.00000E+01	4.00000E+00	7.20000E+02	1.93000E+02	1.00000E+00
165	3.00000E+01	4.00000E+00	7.20000E+02	1.93000E+02	1.00000E+00
166	3.00000E+01	4.00000E+00	7.20000E+02	1.95000E+02	1.00000E+00
167	3.00000E+01	4.00000E+00	7.20000E+02	1.96000E+02	1.00000E+00
168	3.00000E+01	8.00000E+00	7.24000E+02	1.99000E+02	4.00000E+00
169	3.00000E+01	1.00000E+00	7.24000E+02	1.99000E+02	5.00000E+00
170	3.00000E+01	1.20000E+00	7.24000E+02	2.01000E+02	1.00000E+00
171	3.00000E+01	1.20000E+00	7.24000E+02	2.02000E+02	1.00000E+00
172	1.00000E+01	1.20000E+00	7.24000E+02	2.03000E+02	1.00000E+00
173	1.00000E+01	1.20000E+00	7.24000E+02	2.04000E+02	1.00000E+00
174	1.00000E+01	3.00000E+00	7.24000E+02	2.06000E+02	1.00000E+00
175	1.00000E+01	3.00000E+00	7.24000E+02	2.05000E+02	1.00000E+00
176	1.00000E+02	3.00000E+00	7.24000E+02	2.08000E+02	1.00000E+00
177	1.00000E+02	3.00000E+00	7.24000E+02	2.09000E+02	1.00000E+00
178	1.00000E+02	4.00000E+00	7.24000E+02	2.11000E+02	1.00000E+00
179	1.00000E+02	4.00000E+00	7.24000E+02	2.12000E+02	4.00000E+00
180	3.00000E+01	3.00000E+00	7.24000E+02	2.17000E+02	4.00000E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

[illegible]	BIAS	FAIL	VF	[illegible]	[illegible]
121	0.00000E+00	0.00000E+00	9.15000E+00	[illegible]	[illegible]
122	0.00000E+00	1.00000E+00	9.21000E+00	[illegible]	[illegible]
123	0.00000E+00	0.00000E+00	9.14000E+00	[illegible]	[illegible]
124	0.00000E+00	1.00000E+00	9.42000E+00	[illegible]	[illegible]
125	0.00000E+00	0.00000E+00	9.15000E+00	[illegible]	[illegible]
126	0.00000E+00	1.00000E+00	9.73000E+00	[illegible]	[illegible]
127	0.00000E+00	0.00000E+00	9.14000E+00	[illegible]	[illegible]
128	0.00000E+00	1.00000E+00	9.11000E+00	[illegible]	[illegible]
129	0.00000E+00	0.00000E+00	9.13000E+00	[illegible]	[illegible]
130	0.00000E+00	1.00000E+00	9.12000E+00	[illegible]	[illegible]
131	0.00000E+00	0.00000E+00	9.77000E+00	[illegible]	[illegible]
132	0.00000E+00	1.00000E+00	9.77000E+00	[illegible]	[illegible]
133	0.00000E+00	0.00000E+00	1.01000E+01	[illegible]	[illegible]
134	0.00000E+00	1.00000E+00	9.54000E+00	[illegible]	[illegible]
135	0.00000E+00	0.00000E+00	9.11000E+00	[illegible]	[illegible]
136	0.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
137	0.00000E+00	0.00000E+00	9.37000E+00	[illegible]	[illegible]
138	0.00000E+00	1.00000E+00	9.81000E+00	[illegible]	[illegible]
139	0.00000E+00	0.00000E+00	9.11000E+00	[illegible]	[illegible]
140	0.00000E+00	1.00000E+00	9.41000E+00	[illegible]	[illegible]
141	1.10000E+01	0.00000E+00	9.02000E+00	[illegible]	[illegible]
142	1.10000E+01	1.00000E+00	9.74000E+00	[illegible]	[illegible]
143	1.10000E+01	1.00000E+00	9.70000E+00	[illegible]	[illegible]
144	1.10000E+01	0.00000E+00	1.03000E+01	[illegible]	[illegible]
145	1.10000E+01	1.00000E+00	9.82000E+00	[illegible]	[illegible]
146	1.10000E+01	1.00000E+00	9.37000E+00	[illegible]	[illegible]
147	1.10000E+01	0.00000E+00	9.55000E+00	[illegible]	[illegible]
148	1.10000E+01	0.00000E+00	1.04000E+01	[illegible]	[illegible]
149	1.10000E+01	1.00000E+00	1.06000E+01	[illegible]	[illegible]
150	1.10000E+01	1.00000E+00	1.02000E+01	[illegible]	[illegible]
151	1.10000E+01	0.00000E+00	1.03000E+01	[illegible]	[illegible]
152	1.10000E+01	1.00000E+00	1.05000E+01	[illegible]	[illegible]
153	1.10000E+01	1.00000E+00	9.99000E+00	[illegible]	[illegible]
154	1.10000E+01	0.00000E+00	1.10000E+01	[illegible]	[illegible]
155	1.10000E+01	1.00000E+00	1.07000E+01	[illegible]	[illegible]
156	1.10000E+01	0.00000E+00	9.75000E+00	[illegible]	[illegible]
157	1.10000E+01	1.00000E+00	9.55000E+00	[illegible]	[illegible]
158	1.20000E+01	0.00000E+00	9.11000E+00	[illegible]	[illegible]
159	1.20000E+01	1.00000E+00	9.94000E+00	[illegible]	[illegible]
160	1.20000E+01	0.00000E+00	9.31000E+00	[illegible]	[illegible]
161	1.20000E+01	1.00000E+00	[illegible]	[illegible]	[illegible]
162	1.20000E+01	0.00000E+00	1.01000E+01	[illegible]	[illegible]
163	1.20000E+01	1.00000E+00	[illegible]	[illegible]	[illegible]
164	1.20000E+01	0.00000E+00	9.41000E+00	[illegible]	[illegible]
165	1.20000E+01	1.00000E+00	1.04000E+01	[illegible]	[illegible]
166	1.20000E+01	0.00000E+00	9.12000E+00	[illegible]	[illegible]
167	1.20000E+01	1.00000E+00	9.72000E+00	[illegible]	[illegible]
168	0.00000E+00	0.00000E+00	1.05000E+01	[illegible]	[illegible]
169	0.00000E+00	1.00000E+00	1.00000E+01	[illegible]	[illegible]
170	0.00000E+00	0.00000E+00	1.02000E+01	[illegible]	[illegible]
171	0.00000E+00	1.00000E+00	1.05000E+01	[illegible]	[illegible]
172	0.00000E+00	0.00000E+00	1.04000E+01	[illegible]	[illegible]
173	0.00000E+00	1.00000E+00	9.11000E+00	[illegible]	[illegible]
174	0.00000E+00	0.00000E+00	1.04000E+01	[illegible]	[illegible]
175	0.00000E+00	1.00000E+00	9.41000E+00	[illegible]	[illegible]
176	0.00000E+00	0.00000E+00	1.01000E+01	[illegible]	[illegible]
177	0.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
178	0.00000E+00	0.00000E+00	1.01000E+01	[illegible]	[illegible]
179	0.00000E+00	1.00000E+00	9.75000E+00	[illegible]	[illegible]
180	0.00000E+00	0.00000E+00	9.57000E+00	[illegible]	[illegible]

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

EVENT	FF	VBD	RADIUS	DATA 1	
121	1.15000E-01	5.40000E+01	0.00000E+00	1.00000E+00	[illegible]
122	1.93000E-03	5.40000E+01	0.00000E+00	1.00000E+00	[illegible]
123	7.57000E-03	3.10000E+01	0.00000E+00	1.00000E+00	[illegible]
124	3.81000E-03	3.10000E+01	0.00000E+00	1.00000E+00	[illegible]
125	1.32000E-01	1.25000E+01	0.00000E+00	5.00000E+00	[illegible]
126	3.37000E-01	1.15000E+01	0.00000E+00	1.00000E+00	[illegible]
127	5.71000E-01	1.56000E+01	5.00000E+00	4.00000E+00	[illegible]
128	4.39000E-01	1.56000E+01	5.00000E+00	1.00000E+00	[illegible]
129	7.10000E-01	1.60000E+01	1.00000E+01	4.00000E+00	[illegible]
130	1.57000E-01	1.60000E+01	1.00000E+01	1.00000E+00	[illegible]
131	7.70000E-01	1.60000E+01	1.00000E+01	4.00000E+00	[illegible]
132	5.13000E-01	1.60000E+01	1.00000E+01	1.00000E+00	[illegible]
133	6.98000E-01	1.20000E+01	0.00000E+00	1.00000E+00	[illegible]
134	1.70000E-01	1.30000E+01	0.00000E+00	1.00000E+00	[illegible]
135	1.44000E-01	1.10000E+01	0.00000E+00	1.00000E+00	[illegible]
136	1.47000E-01	1.10000E+01	0.00000E+00	1.00000E+00	[illegible]
137	7.30000E-01	1.51000E+01	1.00000E+01	1.00000E+00	[illegible]
138	1.96000E-01	1.51000E+01	1.00000E+01	1.00000E+00	[illegible]
139	7.46000E-01	1.60000E+01	1.00000E+01	4.00000E+00	[illegible]
140	4.34000E-01	1.60000E+01	1.00000E+01	1.00000E+00	[illegible]
141	1.79000E-01	0.00000E+00	0.00000E+00	-5.00000E+00	[illegible]
142	1.15000E+00	0.00000E+00	0.00000E+00	5.00000E+00	[illegible]
143	1.10000E+00	0.00000E+00	0.00000E+00	4.00000E+00	[illegible]
144	5.04000E-01	0.00000E+00	0.00000E+00	5.00000E+00	1.54050E+00
145	3.01000E-01	0.00000E+00	0.00000E+00	1.00000E+00	[illegible]
146	5.10000E-01	0.00000E+00	0.00000E+00	1.00000E+00	[illegible]
147	3.17000E-01	0.00000E+00	0.00000E+00	-5.00000E+00	[illegible]
148	1.09000E+00	0.00000E+00	0.00000E+00	5.00000E+00	1.51514E+00
149	1.01000E+00	0.00000E+00	0.00000E+00	1.00000E+00	[illegible]
150	1.10000E-01	0.00000E+00	0.00000E+00	-5.00000E+00	[illegible]
151	1.16000E+00	0.00000E+00	0.00000E+00	4.00000E+00	[illegible]
152	1.06000E+00	0.00000E+00	0.00000E+00	1.00000E+00	[illegible]
153	1.57000E-01	0.00000E+00	0.00000E+00	1.00000E+00	[illegible]
154	1.13000E+00	0.00000E+00	0.00000E+00	1.00000E+00	[illegible]
155	1.13000E+00	0.00000E+00	0.00000E+00	1.00000E+00	[illegible]
156	1.01000E-01	0.00000E+00	0.00000E+00	1.00000E+00	5.10744E-01
157	1.12000E-01	0.00000E+00	0.00000E+00	0.00000E+00	1.77217E-01
158	1.59000E-01	1.00000E+01	0.00000E+00	5.00000E+00	7.11744E-01
159	1.28000E-01	1.00000E+01	0.00000E+00	5.00000E+00	[illegible]
160	1.99000E-01	1.14000E+01	0.00000E+00	5.00000E+00	[illegible]
161	1.19000E-01	1.14000E+01	0.00000E+00	4.00000E+00	[illegible]
162	1.59000E-01	1.00000E+01	0.00000E+00	5.00000E+00	[illegible]
163	3.11000E-01	1.00000E+01	0.00000E+00	5.00000E+00	[illegible]
164	1.16000E-01	1.00000E+01	0.00000E+00	1.00000E+00	[illegible]
165	1.10000E-01	1.00000E+01	0.00000E+00	1.00000E+00	[illegible]
166	1.61000E-01	1.11000E+01	0.00000E+00	4.00000E+00	[illegible]
167	1.53000E-01	1.12000E+01	0.00000E+00	5.00000E+00	[illegible]
168	4.51000E+00	1.35000E+01	0.00000E+00	5.00000E+00	[illegible]
169	5.37000E+00	1.15000E+01	0.00000E+00	5.00000E+00	[illegible]
170	4.26000E-01	1.10000E+01	0.00000E+00	5.00000E+00	[illegible]
171	7.00000E-01	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
172	1.37000E-01	1.35000E+01	0.00000E+00	3.00000E+00	[illegible]
173	5.11000E-01	1.35000E+01	0.00000E+00	5.00000E+00	1.17240E+00
174	1.36000E+00	1.75000E+01	0.00000E+00	5.00000E+00	[illegible]
175	1.31000E+00	1.75000E+01	0.00000E+00	5.00000E+00	1.31590E-01
176	1.96000E+00	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
177	7.70000E+00	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
178	1.10000E+00	1.90000E+01	0.00000E+00	5.00000E+00	[illegible]
179	5.12000E+00	1.90000E+01	0.00000E+00	5.00000E+00	[illegible]
180	1.96000E+00	1.40000E+01	0.00000E+00	5.00000E+00	[illegible]

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

```
ELEMENT     WIDTH
 121    4.19954E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 122    1.14125E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 123    1.13660E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 124    1.57038E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 125    1.14133E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 126    3.40513E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 127    1.25454E+03   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 128    1.12561E+03   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 129    1.47111E+03   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 130    3.78611E+03   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 131    1.14157E+03   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 132    1.41997E+03   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 133    1.30016E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 134    1.05369E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 135    4.14731E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 136    7.75914E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 137    1.05815E+03   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 138    1.11444E+03   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 139    1.60510E+03   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 140    1.11110E+03   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 141    1.10714E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 142    1.95035E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 143    1.19114E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 144    4.10114E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 145    1.13900E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 146    1.11395E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 147    1.54144E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 148    1.30911E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 149    1.74016E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 150    1.73059E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 151    1.10117E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 152    1.56111E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 153    1.14057E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 154    3.16944E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 155    1.08015E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 156    1.57115E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 157    3.42541E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 158    1.13010E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 159    3.04011E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 160    1.47030E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 161    1.16961E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 162    1.14171E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 163    1.45410E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 164    9.95119E-02   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 165    4.15117E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 166    1.12511E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 167    1.19114E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 168    1.37516E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 169    2.11366E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 170    1.13377E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 171    1.39913E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 172    7.91615E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 173    1.14366E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 174    1.16096E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 175    1.26937E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 176    5.14418E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 177    8.23484E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 178    1.05401E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 179    5.38711E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 180    1.14460E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
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TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

EVENT	LOT	WAFER	DIE	STRUCT	OXIDE
131	1.00000E+00	4.00000E+00	7.40000E+01	5.10000E+00	4.00000E+00
132	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	1.00000E+01
133	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	1.00000E+01
134	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	5.10000E+00
135	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	5.40000E+00
136	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	1.50000E+01
137	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	1.50000E+01
138	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	4.00000E+00
139	1.00000E+00	4.00000E+00	7.40000E+01	5.30000E+00	4.00000E+00
140	1.00000E+00	4.00000E+00	7.40000E+01	5.30000E+00	1.50000E+01
141	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	1.00000E+01
142	1.00000E+00	4.00000E+00	7.40000E+01	5.10000E+00	1.00000E+01
143	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	5.00000E+00
144	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	5.10000E+00
145	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	1.00000E+01
146	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	1.00000E+01
147	1.00000E+00	4.00000E+00	7.40000E+01	5.30000E+00	1.00000E+00
148	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	1.00000E+00
149	1.00000E+00	4.00000E+00	7.40000E+01	5.00000E+00	1.10000E+00
150	1.00000E+00	4.00000E+00	8.40000E+01	1.00000E+00	5.00000E+00
151	1.00000E+00	4.00000E+00	8.40000E+01	1.00000E+00	1.00000E+00
152	1.00000E+00	4.00000E+00	8.40000E+01	1.00000E+00	2.40000E+01
153	1.00000E+00	4.00000E+00	8.40000E+01	1.00000E+00	1.40000E+01
154	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	4.00000E+00
155	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	4.00000E+00
156	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	1.50000E+01
157	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	4.00000E+00
158	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	4.00000E+00
159	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	1.50000E+01
160	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	1.50000E+01
161	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	1.50000E+01
162	1.00000E+00	4.00000E+00	8.40000E+01	5.10000E+00	1.50000E+01
163	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	1.00000E+01
164	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	5.10000E+00
165	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	5.00000E+00
166	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	1.10000E+01
167	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	1.00000E+01
168	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	5.00000E+00
169	1.00000E+00	4.00000E+00	8.40000E+01	5.00000E+00	5.00000E+00
170	1.00000E+00	4.00000E+00	8.40000E+01	1.00000E+00	1.00000E+01
171	1.00000E+00	4.00000E+00	8.40000E+01	1.00000E+00	1.00000E+01
172	1.00000E+00	4.00000E+00	8.40000E+01	1.00000E+00	1.50000E+01
173	1.00000E+00	4.00000E+00	8.40000E+01	1.00000E+00	1.50000E+01
174	1.00000E+00	4.00000E+00	8.50000E+01	1.00000E+00	1.00000E+01
175	1.00000E+00	4.00000E+00	8.50000E+01	1.00000E+00	1.00000E+01
176	1.00000E+00	4.00000E+00	8.50000E+01	1.00000E+00	1.50000E+01
177	1.00000E+00	4.00000E+00	8.50000E+01	1.00000E+00	1.50000E+01
178	1.00000E+00	4.00000E+00	8.50000E+01	5.00000E+00	5.00000E+00
179	1.00000E+00	4.00000E+00	8.50000E+01	5.00000E+00	5.00000E+00
180	1.00000E+00	4.00000E+00	8.50000E+01	5.00000E+00	1.00000E+01
181	1.00000E+00	4.00000E+00	8.50000E+01	5.00000E+00	1.00000E+01
182	1.00000E+00	4.00000E+00	8.50000E+01	5.00000E+00	5.10000E+00
183	1.00000E+00	4.00000E+00	8.50000E+01	5.00000E+00	5.00000E+00
184	1.00000E+00	4.00000E+00	8.50000E+01	5.00000E+00	1.00000E+01
185	1.00000E+00	4.00000E+00	8.50000E+01	5.00000E+00	1.00000E+01
186	1.00000E+00	4.00000E+00	8.50000E+01	5.00000E+00	1.40000E+01
187	1.00000E+00	4.00000E+00	8.50000E+01	5.00000E+00	1.40000E+01
188	1.00000E+00	4.00000E+00	8.50000E+01	5.00000E+00	4.00000E+00
189	1.00000E+00	4.00000E+00	8.50000E+01	5.00000E+00	4.10000E+00
190	1.00000E+00	4.00000E+00	8.50000E+01	5.00000E+00	1.40000E+01

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

EVENT	LENGTH	WIDTH	DATE	PAGE	SHOT#
181	1.00000E+01	1.00000E+00	7.24000E+02	1.15000E+02	5.00000E+00
182	1.00000E+01	1.20000E+00	7.24000E+02	1.17000E+02	1.00000E+00
183	1.00000E+01	1.10000E+00	7.24000E+02	1.18000E+02	1.00000E+00
184	1.00000E+01	1.20000E+00	7.24000E+02	1.19000E+02	1.00000E+00
185	1.00000E+01	3.00000E+00	7.24000E+02	1.20000E+02	1.00000E+00
186	2.00000E+01	1.20000E+00	7.24000E+02	1.21000E+02	1.00000E+00
187	2.00000E+01	1.20000E+00	7.24000E+02	1.22000E+02	1.00000E+00
188	1.00000E+01	1.00000E+00	7.25000E+02	1.25000E+02	1.00000E+00
189	3.00000E+01	1.30000E+00	7.25000E+02	1.25000E+02	4.00000E+00
190	1.00000E+01	1.10000E+00	7.25000E+02	1.27000E+02	1.00000E+00
191	1.00000E+01	1.20000E+00	7.25000E+02	1.28000E+02	1.00000E+00
192	1.00000E+01	1.20000E+00	7.25000E+02	1.29000E+02	1.00000E+00
193	1.00000E+01	2.00000E+00	7.25000E+02	1.31000E+02	1.00000E+00
194	1.00000E+01	1.00000E+00	7.25000E+02	1.31000E+02	1.00000E+00
195	1.00000E+01	1.00000E+00	7.25000E+02	1.34000E+02	1.00000E+00
196	1.00000E+02	3.00000E+00	7.25000E+02	1.35000E+02	4.00000E+00
197	1.00000E+01	4.00000E+00	7.25000E+02	1.36000E+02	1.00000E+00
198	1.00000E+02	4.00000E+00	7.25000E+02	1.37000E+02	1.00000E+00
199	1.00000E+02	4.00000E+00	7.25000E+02	1.40000E+02	4.00000E+00
200	1.00000E+01	1.00000E+00	7.25000E+02	1.42000E+02	1.00000E+00
201	1.00000E+01	3.00000E+00	7.25000E+02	1.41000E+02	1.00000E+00
202	3.00000E+01	1.20000E+00	7.25000E+02	1.44000E+02	1.00000E+00
203	2.00000E+01	1.20000E+00	7.25000E+02	1.45000E+02	1.00000E+00
204	1.00000E+01	1.00000E+00	7.25000E+02	1.47000E+02	1.00000E+00
205	1.00000E+01	3.00000E+00	7.25000E+02	1.47000E+02	1.00000E+00
206	1.00000E+01	1.20000E+00	7.25000E+02	1.49000E+02	1.00000E+00
207	1.00000E+01	1.20000E+00	7.25000E+02	1.49000E+02	1.00000E+00
208	1.00000E+01	2.00000E+00	7.26000E+02	1.51000E+02	1.00000E+00
209	2.00000E+01	1.00000E+00	7.26000E+02	1.51000E+02	1.00000E+00
210	1.00000E+01	1.20000E+00	7.26000E+02	1.55000E+02	1.00000E+00
211	1.00000E+01	1.20000E+00	7.26000E+02	1.55000E+02	4.00000E+00
212	1.00000E+01	1.20000E+00	7.26000E+02	1.57000E+02	1.00000E+00
213	1.00000E+01	1.20000E+00	7.26000E+02	1.59000E+02	1.00000E+00
214	1.00000E+01	1.00000E+00	7.26000E+02	1.61000E+02	1.00000E+00
215	1.00000E+01	1.00000E+00	7.26000E+02	1.61000E+02	1.00000E+00
216	1.00000E+01	1.20000E+00	7.26000E+02	1.61000E+02	1.00000E+00
217	1.00000E+01	1.10000E+00	7.26000E+02	1.61000E+02	1.00000E+00
218	1.00000E+01	1.00000E+00	7.26000E+02	1.65000E+02	1.00000E+00
219	1.00000E+01	1.00000E+00	7.26000E+02	1.66000E+02	1.00000E+00
220	1.00000E+01	1.00000E+00	7.26000E+02	1.67000E+02	1.00000E+00
221	1.00000E+01	2.00000E+00	7.26000E+02	1.67000E+02	1.00000E+00
222	1.00000E+01	1.20000E+00	7.26000E+02	1.71000E+02	1.00000E+00
223	1.00000E+01	1.20000E+00	7.26000E+02	1.71000E+02	1.00000E+00
224	1.00000E+01	1.00000E+00	7.26000E+02	1.73000E+02	1.00000E+00
225	1.00000E+01	1.00000E+00	7.26000E+02	1.73000E+02	1.00000E+00
226	1.00000E+01	1.20000E+00	7.26000E+02	1.75000E+02	1.00000E+00
227	1.00000E+01	1.20000E+00	7.26000E+02	1.75000E+02	1.00000E+00
228	1.00000E+01	1.00000E+00	7.26000E+02	1.77000E+02	1.00000E+00
229	1.00000E+01	3.00000E+00	7.26000E+02	1.77000E+02	1.00000E+00
230	1.00000E+01	1.20000E+00	7.27000E+02	1.79000E+02	1.00000E+00
231	1.00000E+01	1.20000E+00	7.27000E+02	1.79000E+02	1.00000E+00
232	1.00000E+01	1.00000E+00	7.27000E+02	1.81000E+02	1.00000E+00
233	1.00000E+01	3.00000E+00	7.27000E+02	1.81000E+02	1.00000E+00
234	1.00000E+01	1.20000E+00	7.27000E+02	1.83000E+02	1.00000E+00
235	1.00000E+01	1.20000E+00	7.27000E+02	1.83000E+02	1.00000E+00
236	1.00000E+01	1.20000E+00	7.27000E+02	1.86000E+02	1.00000E+00
237	3.00000E+01	1.20000E+00	7.27000E+02	1.86000E+02	1.00000E+00
238	3.00000E+01	3.00000E+00	7.27000E+02	1.88000E+02	1.00000E+00
239	1.00000E+01	1.00000E+00	7.27000E+02	1.89000E+02	1.00000E+00
240	1.00000E+01	1.20000E+00	7.27000E+02	1.90000E+02	1.00000E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

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EVENT      BIAS          FAIL          TF            F             IF

 181   0.00000E+00   1.00000E+00   3.11000E+00   1.34000E-01   1.7600 E-01
 182   0.00000E+00   0.00000E+00   3.13000E+00   5.35000E-01   2.17000E-01
 183   0.00000E+00   1.00000E+00   3.39000E+00   3.50000E-01   1.40000E-01
 184   0.00000E+00   0.00000E+00   3.42000E+00   5.71000E-01   1.11000E-01
 185   0.00000E+00   1.00000E+00   6.71000E+00   3.37000E-01   2.11000E-01
 186   0.00000E+00   0.00000E+00   3.41000E+00   1.73000E-01   1.55000E-01
 187   0.00000E+00   1.00000E+00   7.57000E+00   2.16000E-01   5.15000E-01
 188   0.00000E+00   0.00000E+00   3.51000E+00   1.51000E-01   2.11000E-01
 189   0.00000E+00   1.00000E+00   1.13000E+01   1.51000E-01   2.35000E-01
 190   0.00000E+00   1.00000E+00   7.14000E+00   2.33000E-01   4.14000E-01
 191   0.00000E+00   0.00000E+00   3.59000E+00   5.51000E-01   2.35000E-01
 192   0.00000E+00   1.00000E+00   4.71000E+00   2.14000E-01   4.12000E-01
 193   0.00000E+00   0.00000E+00   3.61000E+00   5.35000E-01   1.51000E-01
 194   0.00000E+00   1.00000E+00   4.17000E+00   7.15000E-01   2.10000E-01
 195   0.00000E+00   0.00000E+00   3.55000E+01   1.44000E-01   2.14000E-01
 196   0.00000E+00   1.00000E+00   4.15000E+01   1.54000E-01   1.15000E-01
 197   0.00000E+00   0.00000E+00   1.31000E+01   1.17000E-01   3.15000E-01
 198   0.00000E+00   1.00000E+00   1.50000E+01   4.77000E-01   1.41000E-01
 199   0.00000E+00   0.00000E+00   3.12000E+01   1.12000E-01   1.04000E-01
 200   0.00000E+00   0.00000E+00   3.71000E+00   1.31000E-01   1.34000E-01
 201   0.00000E+00   1.00000E+00   7.57000E+00   1.35000E-01   1.31000E-01
 202   0.00000E+00   0.00000E+00   3.74000E+00   1.75000E-01   1.46000E-01
 203   0.00000E+00   1.00000E+00   3.46000E+00   1.17000E-01   5.51000E-01
 204   0.00000E+00   0.00000E+00   3.60000E+00   1.11000E-01   1.35000E-01
 205   0.00000E+00   1.00000E+00   3.12000E+00   1.47000E-01   1.41000E-01
 206   0.00000E+00   0.00000E+00   3.43000E+00   1.57000E-01   1.60000E-01
 207   0.00000E+00   1.00000E+00   1.55000E+00   1.37000E-01   4.31000E-01
 208   0.00000E+00   0.00000E+00   3.53000E+00   1.40000E-01   1.34000E-01
 209   0.00000E+00   1.00000E+00   1.39000E+00   1.55000E-01   1.11000E-01
 210   0.00000E+00   0.00000E+00   3.45000E+00   1.57000E-01   1.77000E-01
 211   0.00000E+00   1.00000E+00   3.71000E+00   6.33000E-01   4.31000E-01
 212   0.00000E+00   0.00000E+00   3.55000E+00   5.59000E-01   1.31000E-01
 213   0.00000E+00   1.00000E+00   3.41000E+00   4.35000E-01   1.41000E-01
 214   0.00000E+00   0.00000E+00   3.36000E+00   5.11000E-01   1.11000E-01
 215   0.00000E+00   1.00000E+00   4.35000E-01   7.15000E-01   1.46000E-01
 216   0.00000E+00   0.00000E+00   3.51000E+00   5.00000E-01   1.55000E-01
 217   0.00000E+00   1.00000E+00   3.45000E+00   6.06000E-01   1.47000E-01
 218   0.00000E+00   0.00000E+00   3.71000E+00   5.05000E-01   1.13000E-01
 219   0.00000E+00   1.00000E+00   3.53000E+00   4.31000E-01   1.11000E-01
 220   0.00000E+00   0.00000E+00   3.71000E+00   3.77000E-01   1.37000E-01
 221   0.00000E+00   1.00000E+00   5.41000E+00   1.37000E-01   1.31000E-01
 222   0.00000E+00   0.00000E+00   3.45000E+00   3.06000E-01   1.31000E-01
 223   0.00000E+00   1.00000E+00   3.13000E+00   3.11000E-01   4.56000E-01
 224   0.00000E+00   0.00000E+00   3.57000E+00   5.11000E-01   1.51000E-01
 225   0.00000E+00   1.00000E+00   7.31000E+00   3.76000E-01   1.37000E-01
 226   0.00000E+00   0.00000E+00   3.51000E+00   3.17000E-01   1.71000E-01
 227   0.00000E+00   1.00000E+00   3.51000E+00   1.36000E-01   4.31000E-01
 228   0.00000E+00   0.00000E+00   3.55000E+00   5.40000E-01   1.77000E-01
 229   0.00000E+00   1.00000E+00   5.11000E+00   3.46000E-01   3.10000E-01
 230   0.00000E+00   0.00000E+00   3.13000E+00   6.41000E-01   1.55000E-01
 231   0.00000E+00   1.00000E+00   3.37000E+00   5.00000E-01   1.06000E-01
 232   0.00000E+00   0.00000E+00   3.55000E+00   6.06000E-01   1.31000E-01
 233   0.00000E+00   1.00000E+00   1.71000E+00   3.29000E-01   1.27000E-01
 234   0.00000E+00   0.00000E+00   3.71000E+00   5.30000E-01   1.12000E-01
 235   0.00000E+00   1.00000E+00   3.53000E+00   4.45000E-01   1.15000E-01
 236   0.00000E+00   0.00000E+00   3.55000E+00   1.15000E-01   1.35000E-01
 237   0.00000E+00   1.00000E+00   3.11000E+00   1.55000E-01   4.01000E-01
 238   0.00000E+00   0.00000E+00   3.56000E+00   5.34000E-01   1.31000E-01
 239   0.00000E+00   1.00000E+00   2.40000E+00   1.17000E-01   1.44000E-01
 240   0.00000E+00   0.00000E+00   3.77000E+00   1.56000E-01   3.71000E-01
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TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

EVENT	PF	ED	RADIUS	DATA 1	
181	4.31000E+00	2.40000E+01	0.00000E+00	5.00000E+00	[illegible]
182	1.51000E-01	2.75000E+01	0.00000E+00	5.00000E+00	[illegible]
183	1.53000E-01	2.75000E+01	0.00000E+00	5.00000E+00	[illegible]
184	1.05000E+00	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
185	1.75000E+00	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
186	4.25000E-01	3.05000E+01	1.00000E+00	5.00000E+00	[illegible]
187	7.01000E-01	3.05000E+01	0.00000E+00	5.00000E+00	[illegible]
188	1.46000E+00	2.75000E+01	0.00000E+00	5.00000E+00	[illegible]
189	4.11000E+00	2.75000E+01	0.00000E+00	4.00000E+00	[illegible]
190	5.61000E-01	3.00000E+01	0.00000E+00	5.00000E+00	[illegible]
191	1.53000E-01	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
192	2.34000E-01	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
193	1.11000E+00	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
194	1.47000E+00	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
195	6.48000E+00	2.55000E+01	0.00000E+00	5.00000E+00	[illegible]
196	5.12000E+00	2.55000E+01	0.00000E+00	5.00000E+00	[illegible]
197	1.04000E+00	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
198	4.50000E+00	2.90000E+01	0.00000E+00	5.00000E+00	[illegible]
199	1.51000E+00	2.90000E+01	0.00000E+00	5.00000E+00	[illegible]
200	5.10000E+00	2.35000E+01	0.00000E+00	5.00000E+00	[illegible]
201	5.94000E+00	2.35000E+01	0.00000E+00	5.00000E+00	[illegible]
202	4.13000E-01	2.90000E+01	0.00000E+00	5.00000E+00	[illegible]
203	3.11000E-01	2.90000E+01	0.00000E+00	5.00000E+00	[illegible]
204	2.48000E+00	2.30000E+01	0.00000E+00	5.00000E+00	[illegible]
205	3.98000E+00	2.30000E+01	0.00000E+00	5.00000E+00	[illegible]
206	1.55000E-01	2.35000E+01	0.00000E+00	5.00000E+00	[illegible]
207	5.35000E-01	2.35000E+01	0.00000E+00	5.00000E+00	[illegible]
208	2.30000E+00	2.50000E+01	0.00000E+00	5.00000E+00	[illegible]
209	1.17000E+00	2.30000E+01	0.00000E+00	4.00000E+00	[illegible]
210	4.26000E-01	2.75000E+01	0.00000E+00	5.00000E+00	[illegible]
211	3.31000E-01	2.75000E+01	0.00000E+00	5.00000E+00	[illegible]
212	1.13000E-01	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
213	1.56000E-01	2.70000E+01	0.00000E+00	1.00000E+00	[illegible]
214	1.29000E+00	2.55000E+01	0.00000E+00	5.00000E+00	[illegible]
215	1.10000E+00	2.35000E+01	0.00000E+00	1.00000E+00	[illegible]
216	1.15000E-01	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
217	2.26000E-01	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
218	9.16000E-01	2.50000E+01	0.00000E+00	5.00000E+00	[illegible]
219	1.48000E+00	2.50000E+01	0.00000E+00	5.00000E+00	[illegible]
220	1.91000E+00	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
221	2.93000E+00	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
222	3.15000E-01	2.90000E+01	0.00000E+00	5.00000E+00	[illegible]
223	4.64000E-01	2.90000E+01	0.00000E+00	5.00000E+00	[illegible]
224	3.13000E-01	2.60000E+01	0.00000E+00	5.00000E+00	[illegible]
225	1.21000E+00	2.60000E+01	0.00000E+00	5.00000E+00	[illegible]
226	2.77000E-01	2.35000E+01	0.00000E+00	5.00000E+00	[illegible]
227	4.15000E-01	2.35000E+01	0.00000E+00	5.00000E+00	[illegible]
228	9.71000E-01	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
229	1.38000E+00	2.70000E+01	0.00000E+00	5.00000E+00	[illegible]
230	2.12000E-01	2.30000E+01	0.00000E+00	5.00000E+00	[illegible]
231	2.05000E-01	2.30000E+01	0.00000E+00	3.00000E+00	[illegible]
232	1.21000E+00	2.65000E+01	0.00000E+00	5.00000E+00	[illegible]
233	1.73000E+00	2.65000E+01	0.00000E+00	4.00000E+00	[illegible]
234	1.71000E-01	2.65000E+01	0.00000E+00	5.00000E+00	[illegible]
235	1.71000E-01	2.65000E+01	0.00000E+00	1.00000E+00	[illegible]
236	2.34000E-01	3.10000E+01	0.00000E+00	5.00000E+00	[illegible]
237	5.14000E-01	3.10000E+01	0.00000E+00	5.00000E+00	[illegible]
238	1.19000E+00	2.30000E+01	0.00000E+00	5.00000E+00	[illegible]
239	3.11000E+00	2.30000E+01	0.00000E+00	5.00000E+00	[illegible]
240	4.14000E-01	2.35000E+01	0.00000E+00	5.00000E+00	[illegible]

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

EVENT	WIDTH				
181	1.54734E-02	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
182	4.11133E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
183	3.23622E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
184	4.02332E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
185	5.30457E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
186	1.09014E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
187	1.62144E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
188	1.14141E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
189	5.55754E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
190	1.27103E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
191	4.07741E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
192	5.14173E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
193	4.10571E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
194	1.14113E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
195	7.36103E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
196	7.41113E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
197	7.51735E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
198	5.35123E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
199	5.49077E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
200	1.02544E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
201	1.13579E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
202	1.05710E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
203	1.45104E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
204	9.60495E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
205	1.41439E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
206	9.10853E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
207	1.66311E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
208	1.03950E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
209	5.55373E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
210	1.09123E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
211	9.13356E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
212	5.55505E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
213	4.24347E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
214	5.06114E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
215	3.57576E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
216	1.51515E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
217	5.73352E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
218	3.64596E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
219	5.55311E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
220	1.11347E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
221	1.13627E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
222	3.06346E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
223	1.10656E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
224	3.22114E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
225	1.15111E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
226	7.11114E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
227	1.01004E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
228	3.75034E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
229	3.37498E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
230	5.55575E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
231	5.44551E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
232	4.63343E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
233	3.32712E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
234	4.44041E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
235	4.41137E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
236	6.02203E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
237	1.14111E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
238	4.32112E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
239	5.02143E-01	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00
240	1.10446E+00	0.00000E+00	0.00000E+00	0.00000E+00	0.00000E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

EVENT	LOT	WAFER	DIE	CIRCUIT	[illegible]
141	1.00000E+00	4.00000E+00	6.50000E+01	5.10000E+00	1.40000E-01
142	1.00000E+00	4.00000E+00	6.50000E+01	5.00000E+00	4.10000E+00
143	1.00000E+00	4.00000E+00	6.50000E+01	5.10000E+00	4.10000E+00
144	1.00000E+00	4.00000E+00	6.50000E+01	1.00000E+00	1.40000E-01
145	1.00000E+00	4.00000E+00	6.50000E+01	1.00000E+00	1.40000E-01
146	1.00000E+00	4.00000E+00	6.50000E+01	1.00000E+00	5.00000E+00
147	1.00000E+00	4.00000E+00	6.50000E+01	1.00000E+00	5.10000E-01
148	1.00000E+00	4.00000E+00	7.10000E-01	1.10000E+00	5.10000E+00
149	1.00000E+00	4.00000E+00	7.10000E+01	1.10000E+00	5.00000E-01
150	1.00000E+00	4.00000E+00	7.10000E+01	1.10000E+00	1.40000E-01
151	1.00000E+00	4.00000E+00	7.10000E+01	1.10000E+00	1.40000E-01
152	1.00000E+00	4.00000E+00	7.10000E+01	5.10000E+00	4.10000E+00
153	1.00000E+00	4.00000E+00	7.10000E+01	5.00000E+00	1.10000E-01
154	1.00000E+00	4.00000E+00	7.10000E+01	5.10000E+00	1.50000E-01
155	1.00000E+00	4.00000E+00	7.10000E+01	5.00000E+00	4.10000E+00
156	1.00000E+00	4.00000E+00	7.10000E+01	5.10000E+00	4.10000E+00
157	1.00000E+00	4.00000E+00	7.10000E+01	5.10000E+00	1.50000E-01
158	1.00000E+00	4.00000E+00	7.10000E+01	5.20000E+00	1.50000E-01
159	1.00000E+00	4.00000E+00	7.10000E+01	5.10000E+00	1.00000E-01
160	1.00000E+00	4.00000E+00	7.10000E+01	5.10000E+00	1.00000E+01
161	1.00000E+00	4.00000E+00	7.10000E+01	5.00000E+00	5.00000E+00
162	1.00000E+00	4.00000E+00	7.10000E+01	5.10000E+00	5.00000E+00
163	1.00000E+00	4.00000E+00	7.10000E+01	5.00000E+00	1.00000E+01
164	1.00000E+00	4.00000E+00	7.10000E+01	5.00000E+00	1.10000E+01
165	1.00000E+00	4.00000E+00	7.10000E+01	1.00000E+00	1.50000E-01
166	1.00000E+00	4.00000E+00	7.10000E+01	1.00000E+00	1.50000E-01
167	1.00000E+00	4.00000E+00	7.10000E+01	1.10000E+00	1.00000E+01
168	1.00000E+00	4.00000E+00	7.10000E+01	1.00000E+00	1.00000E-01
169	1.00000E+00	4.00000E+00	6.10000E+01	1.00000E+00	1.00000E-01
170	1.00000E+00	4.00000E+00	6.10000E+01	1.00000E+00	1.00000E+01
171	1.00000E+00	4.00000E+00	6.10000E+01	1.00000E+00	1.50000E-01
172	1.00000E+00	4.00000E+00	6.10000E+01	1.00000E+00	1.50000E-01
173	1.00000E+00	4.00000E+00	6.10000E+01	5.00000E+00	5.00000E+00
174	1.00000E+00	4.00000E+00	6.10000E+01	5.10000E+00	5.00000E+00
175	1.00000E+00	4.00000E+00	6.10000E+01	5.10000E+00	1.00000E+01
176	1.00000E+00	4.00000E+00	6.30000E+01	5.00000E+00	1.00000E+01
177	1.00000E+00	4.00000E+00	6.10000E+01	5.10000E+00	5.00000E+00
178	1.00000E+00	4.00000E+00	6.10000E+01	5.00000E+00	5.00000E+00
179	1.00000E+00	4.00000E+00	6.10000E+01	5.10000E+00	1.00000E+01
180	1.00000E+00	4.00000E+00	6.10000E+01	5.00000E+00	4.00000E+00
181	1.00000E+00	4.00000E+00	6.10000E+01	5.00000E+00	4.00000E+00
182	1.00000E+00	4.00000E+00	6.10000E+01	5.00000E+00	1.50000E-01
183	1.00000E+00	4.00000E+00	6.10000E+01	5.00000E+00	1.50000E-01
184	1.00000E+00	4.00000E+00	6.10000E+01	5.00000E+00	4.00000E+00
185	1.00000E+00	4.00000E+00	6.10000E+01	5.00000E+00	4.00000E+00
186	1.00000E+00	4.00000E+00	6.10000E+01	1.00000E+00	1.40000E-01
187	1.00000E+00	4.00000E+00	6.10000E+01	1.00000E+00	1.40000E-01
188	1.00000E+00	4.00000E+00	6.10000E+01	1.00000E+00	5.00000E+00
189	1.00000E+00	4.00000E+00	6.10000E+01	1.00000E+00	5.00000E+00
190	1.00000E+00	4.00000E+00	7.50000E+01	5.00000E+00	1.50000E+01
191	1.00000E+00	4.00000E+00	7.50000E+01	5.00000E+00	1.50000E-01
192	1.00000E+00	4.00000E+00	7.50000E+01	5.00000E+00	4.00000E+00
193	1.00000E+00	4.00000E+00	7.50000E+01	5.00000E+00	4.00000E+00
194	1.00000E+00	4.00000E+00	7.50000E+01	5.00000E+00	5.00000E+00
195	1.00000E+00	4.00000E+00	7.50000E+01	5.00000E+00	5.00000E+00
196	1.00000E+00	4.00000E+00	7.50000E+01	5.00000E+00	1.00000E+01
197	1.00000E+00	4.00000E+00	7.50000E+01	5.00000E+00	1.00000E+01
198	1.00000E+00	4.00000E+00	7.50000E+01	5.00000E+00	1.10000E+01
199	1.00000E+00	4.00000E+00	7.50000E+01	5.00000E+00	1.50000E+01
200					

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

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EVENT      LENGTH          WIDTH          DATE           PAGE           SHOT#

 141    1.00000E+01    1.20000E+00    7.27000E+02    3.81000E+02    1.00000E+00
 142    1.00000E+01    3.00000E+00    7.27000E+02    3.82000E+02    1.00000E+00
 143    1.00000E+01    8.00000E+00    7.27000E+02    3.81000E+02    1.00000E+00
 144    1.00000E+01    1.20000E+00    7.27000E+02    3.84000E+02    1.00000E+00
 145    1.00000E+01    1.20000E+00    7.27000E+02    3.85000E+02    1.00000E+00
 146    1.00000E+01    3.00000E+00    7.27000E+02    3.86000E+02    1.00000E+00
 147    1.00000E+01    3.00000E+00    7.27000E+02    3.87000E+02    1.00000E+00
 148    1.00000E+01    3.00000E+00    7.27000E+02    4.00000E+02    4.00000E+00
 149    1.00000E+01    3.20000E+00    7.27000E+02    4.00000E+02    5.00000E+00
 150    1.00000E+01    1.20000E+00    7.28000E+02    4.02000E+02    1.00000E+00
 151    3.00000E+01    1.20000E+00    7.28000E+02    4.02000E+02    1.00000E+00
 152    1.00000E+01    8.00000E+00    7.28000E+02    4.04000E+02    1.00000E+00
 153    3.00000E+01    1.20000E+00    7.28000E+02    4.05000E+02    1.00000E+00
 154    1.00000E+01    1.20000E+00    7.28000E+02    4.06000E+02    1.00000E+00
 155    1.00000E+01    3.00000E+00    7.28000E+02    4.08000E+02    1.00000E+00
 156    1.00000E+01    8.00000E+00    7.28000E+02    4.08000E+02    1.00000E+00
 157    1.00000E+01    1.20000E+00    7.28000E+02    4.10000E+02    1.00000E+00
 158    1.00000E+01    1.20000E+00    7.28000E+02    4.10000E+02    1.00000E+00
 159    1.00000E+01    1.20000E+00    7.30000E+02    4.12000E+02    1.00000E+00
 160    1.00000E+01    1.20000E+00    7.30000E+02    4.12000E+02    1.00000E+00
 161    1.00000E+01    3.00000E+00    7.30000E+02    4.14000E+02    1.00000E+00
 162    1.00000E+01    3.00000E+00    7.30000E+02    4.15000E+02    1.00000E+00
 163    1.00000E+01    1.20000E+00    7.30000E+02    4.17000E+02    1.00000E+00
 164    1.00000E+01    1.20000E+00    7.30000E+02    4.17000E+02    1.00000E+00
 165    1.00000E+01    1.20000E+00    7.30000E+02    4.19000E+02    1.00000E+00
 166    1.00000E+01    1.20000E+00    7.30000E+02    4.20000E+02    1.00000E+00
 167    1.00000E+01    3.00000E+00    7.30000E+02    4.22000E+02    1.00000E+00
 168    1.00000E+01    3.00000E+00    7.30000E+02    4.23000E+02    4.00000E+00
 169    1.00000E+01    8.00000E+00    7.30000E+02    4.24000E+02    1.00000E+00
 170    1.00000E+01    8.00000E+00    7.30000E+02    4.25000E+02    1.00000E+00
 171    1.00000E+01    1.20000E+00    7.30000E+02    4.27000E+02    1.00000E+00
 172    1.00000E+01    1.20000E+00    7.30000E+02    4.27000E+02    1.00000E+00
 173    1.00000E+01    8.00000E+00    7.30000E+02    4.29000E+02    1.00000E+00
 174    1.00000E+01    8.00000E+00    7.30000E+02    4.30000E+02    1.00000E+00
 175    1.00000E+01    1.20000E+00    7.30000E+02    4.31000E+02    1.00000E+00
 176    1.00000E+01    1.20000E+00    7.30000E+02    4.32000E+02    1.00000E+00
 177    1.00000E+01    8.00000E+00    7.30000E+02    4.34000E+02    1.00000E+00
 178    1.00000E+01    8.20000E+00    7.30000E+02    4.34000E+02    1.00000E+00
 179    1.00000E+01    1.20000E+00    7.30000E+02    4.36000E+02    1.00000E+00
 180    3.00000E+01    3.00000E+00    7.30000E+02    4.38000E+02    1.00000E+00
 181    3.00000E+01    3.00000E+00    7.30000E+02    4.39000E+02    4.00000E+00
 182    1.00000E+01    1.20000E+00    7.30000E+02    4.42000E+02    4.00000E+00
 183    3.00000E+01    1.20000E+00    7.30000E+02    4.43000E+02    5.00000E+00
 184    3.00000E+01    3.00000E+00    7.30000E+02    4.44000E+02    1.00000E+00
 185    1.00000E+01    3.00000E+00    7.30000E+02    4.45000E+02    1.00000E+00
 186    1.00000E+01    1.20000E+00    7.30000E+02    4.47000E+02    1.00000E+00
 187    3.00000E+01    1.20000E+00    7.30000E+02    4.47000E+02    1.00000E+00
 188    2.00000E+01    3.20000E+00    7.31000E+02    4.49000E+02    1.20000E+00
 189    1.00000E+01    3.20000E+00    7.31000E+02    4.49000E+02    1.00000E+00
 190    3.00000E+01    1.20000E+00    7.31000E+02    4.51000E+02    1.00000E+00
 191    3.00000E+01    1.20000E+00    7.31000E+02    4.52000E+02    4.00000E+00
 192    3.00000E+01    8.00000E+00    7.31000E+02    4.54000E+02    1.00000E+00
 193    3.00000E+01    3.00000E+00    7.31000E+02    4.54000E+02    1.00000E+00
 194    1.00000E+01    8.00000E+00    7.31000E+02    4.56000E+02    1.00000E+00
 195    1.00000E+01    8.20000E+00    7.31000E+02    4.57000E+02    1.00000E+00
 196    1.00000E+01    1.20000E+00    7.31000E+02    4.59000E+02    1.00000E+00
 197    1.00000E+01    1.20000E+00    7.31000E+02    4.59000E+02    1.00000E+00
 198    3.00000E+01    1.20000E+00    7.31000E+02    4.61000E+02    1.00000E+00
 199    1.00000E+01    1.20000E+00    7.31000E+02    4.62000E+02    1.00000E+00
 200
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TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

EVENT	BIAS	FAIL	TF	VF	IF
241	0.00000E+00	1.00000E+00	5.30000E+00	1.14000E-02	5.33000E-01
242	0.00000E+00	0.00000E+00	9.67000E+00	1.16000E+02	3.14000E-02
243	0.00000E+00	1.00000E+00	7.71000E+00	1.62000E+02	3.42000E-01
244	0.00000E+00	0.00000E+00	9.57000E+00	1.36000E+02	3.13000E-01
245	0.00000E+00	1.00000E+00	3.40000E+00	2.27000E-02	5.21000E-01
246	0.00000E+00	0.00000E+00	9.45000E+00	1.53000E+02	3.57000E-02
247	0.00000E+00	1.00000E+00	7.70000E+00	1.37000E+02	2.90000E-02
248	0.00000E+00	0.00000E+00	9.71000E+00	1.53000E+02	2.71000E-02
249	0.00000E+00	1.00000E+00	7.73000E+00	1.75000E+02	3.23000E-01
250	0.00000E+00	0.00000E+00	9.34000E+00	2.01000E+02	3.57000E-01
251	0.00000E+00	1.00000E+00	6.14000E+00	2.39000E+02	5.21000E-01
252	0.00000E+00	1.00000E+00	5.36000E+00	1.75000E+02	3.14000E-02
253	0.00000E+00	0.00000E+00	9.51000E+00	1.57000E+02	3.90000E-01
254	0.00000E+00	1.00000E+00	6.55000E+00	1.37000E+01	4.26000E-01
255	0.00000E+00	0.00000E+00	9.37000E+00	1.10000E+02	1.53000E-02
256	0.00000E+00	1.00000E+00	7.22000E+00	1.25000E+02	3.26000E-02
257	0.00000E+00	0.00000E+00	9.34000E+00	1.39000E+02	3.96000E-01
258	0.00000E+00	1.00000E+00	6.14000E+00	1.97000E+02	4.09000E-01
259	0.00000E+00	0.00000E+00	9.67000E+00	5.66000E+01	3.13000E-01
260	0.00000E+00	1.00000E+00	4.60000E+00	7.46000E+01	4.37000E-01
261	0.00000E+00	0.00000E+00	9.67000E+00	6.62000E+01	3.33000E-02
262	0.00000E+00	1.00000E+00	2.45000E+00	9.09000E+01	3.27000E-02
263	0.00000E+00	0.00000E+00	9.33000E+00	6.55000E+01	3.53000E-01
264	0.00000E+00	1.00000E+00	9.70000E+00	5.13000E+01	3.24000E-01
265	0.00000E+00	0.00000E+00	9.79000E+00	9.52000E+01	4.41000E-01
266	0.00000E+00	1.00000E+00	7.37000E+00	1.03000E+02	4.38000E-01
267	0.00000E+00	0.00000E+00	9.36000E+00	9.75000E+01	3.35000E-02
268	0.00000E+00	1.00000E+00	7.04000E+00	1.20000E+02	3.15000E-02
269	0.00000E+00	0.00000E+00	9.66000E+00	8.24000E+01	2.74000E-02
270	0.00000E+00	1.00000E+00	9.64000E+00	9.40000E+01	3.36000E-02
271	0.00000E+00	0.00000E+00	9.69000E+00	8.32000E+01	4.42000E-01
272	0.00000E+00	1.00000E+00	6.77000E+00	1.03000E+02	4.93000E-01
273	0.00000E+00	0.00000E+00	9.08000E+00	6.38000E+01	3.01000E-02
274	0.00000E+00	1.00000E+00	9.51000E+00	7.35000E+01	2.31000E-02
275	0.00000E+00	0.00000E+00	9.67000E+00	5.77000E+01	3.53000E-01
276	0.00000E+00	1.00000E+00	5.38000E+00	7.25000E+01	4.03000E-01
277	0.00000E+00	0.00000E+00	9.76000E+00	5.74000E+01	3.03000E-02
278	0.00000E+00	1.00000E+00	4.51000E+00	7.14000E+01	3.16000E-02
279	0.00000E+00	1.00000E+00	9.61000E+00	4.17000E+01	3.95000E-01
280	0.00000E+00	0.00000E+00	9.74000E+00	1.41000E+02	3.25000E-02
281	0.00000E+00	1.00000E+00	1.39000E+00	1.49000E+02	2.57000E-01
282	0.00000E+00	0.00000E+00	9.80000E+00	1.60000E+02	5.09000E-03
283	0.00000E+00	1.00000E+00	7.06000E+00	2.04000E+02	5.08000E-01
284	0.00000E+00	0.00000E+00	9.71000E+00	1.35000E+02	3.10000E-02
285	0.00000E+00	1.00000E+00	6.73000E+00	1.74000E+02	2.51000E-01
286	0.00000E+00	0.00000E+00	9.79000E+00	1.96000E+02	4.13000E-01
287	0.00000E+00	1.00000E+00	9.17000E+00	2.29000E+02	4.39000E-01
288	0.00000E+00	0.00000E+00	9.92000E+00	1.65000E+02	2.74000E-01
289	0.00000E+00	1.00000E+00	9.46000E+00	1.65000E+02	3.11000E-02
290	0.00000E+00	0.00000E+00	9.89000E+00	1.62000E+02	3.97000E-01
291	0.00000E+00	1.00000E+00	5.62000E+00	1.94000E+02	4.47000E-01
292	0.00000E+00	0.00000E+00	9.56000E+00	1.21000E+02	2.03000E-02
293	0.00000E+00	1.00000E+00	6.17000E+00	1.56000E+02	3.37000E-02
294	0.00000E+00	0.00000E+00	9.55000E+00	6.11000E+01	3.03000E-02
295	0.00000E+00	1.00000E+00	4.67000E+00	8.60000E+01	3.30000E-02
296	0.00000E+00	0.00000E+00	9.45000E+00	6.43000E+01	3.55000E-01
297	0.00000E+00	1.00000E+00	4.25000E+00	8.04000E+01	4.07000E-01
298	0.00000E+00	0.00000E+00	9.48000E+00	1.63000E+02	3.92000E-01
299	0.00000E+00	1.00000E+00	7.17000E+00	1.95000E+02	4.36000E-01
300					

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

EVENT	[illegible]	[illegible]	RADIUS	DATA [illegible]	
141	3.42000E-01	2.15000E+01	0.00000E+00	5.00000E+00	[illegible]
142	1.96000E+00	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
143	4.19000E+00	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
144	4.58000E-01	3.05000E+01	0.00000E+00	5.00000E+00	[illegible]
145	7.35000E-01	2.05000E+01	0.00000E+00	5.00000E+00	[illegible]
146	4.91000E+00	1.15000E+01	0.00000E+00	5.00000E+00	[illegible]
147	3.21000E+00	1.15000E+01	0.00000E+00	5.00000E+00	[illegible]
148	5.76000E+00	1.90000E+01	0.00000E+00	5.00000E+00	[illegible]
149	3.54000E+00	1.90000E+01	0.00000E+00	5.00000E+00	[illegible]
150	5.97000E-01	1.[illegible]5000E+01	0.00000E+00	5.00000E+00	[illegible]
151	3.16000E-01	1.15000E+01	0.00000E+00	5.00000E+00	[illegible]
152	1.33000E+00	1.60000E+01	0.00000E+00	5.00000E+00	[illegible]
153	1.23000E-01	3.00000E+01	0.00000E+00	5.00000E+00	[illegible]
154	5.70000E-01	3.00000E+01	0.00000E+00	5.00000E+00	[illegible]
155	1.45000E+00	2.35000E+01	0.00000E+00	5.00000E+00	[illegible]
156	4.15000E+00	2.35000E+01	0.00000E+00	5.00000E+00	[illegible]
157	1.39000E-01	2.15000E+01	0.00000E+00	5.00000E+00	[illegible]
158	5.02000E-01	1.15000E+01	0.00000E+00	5.00000E+00	[illegible]
159	1.66000E-01	1.75000E+01	0.00000E+00	5.00000E+00	[illegible]
160	1.41000E-01	1.75000E+01	0.00000E+00	5.00000E+00	[illegible]
161	1.15000E+00	2.65000E+01	0.00000E+00	5.00000E+00	[illegible]
162	1.37000E+00	2.65000E+01	0.00000E+00	5.00000E+00	[illegible]
163	2.20000E-01	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
164	1.39000E-01	1.30000E+01	0.00000E+00	4.00000E+00	[illegible]
165	3.38000E-01	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
166	4.71000E-01	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
167	1.90000E+00	1.75000E+01	0.00000E+00	5.00000E+00	[illegible]
168	1.55000E+00	1.75000E+01	0.00000E+00	5.00000E+00	[illegible]
169	1.51000E+00	1.75000E+01	0.00000E+00	5.00000E+00	[illegible]
170	1.14000E+00	1.75000E+01	0.00000E+00	5.00000E+00	[illegible]
171	1.66000E-01	1.70000E+01	0.00000E+00	5.00000E+00	[illegible]
172	4.47000E-01	1.70000E+01	0.00000E+00	5.00000E+00	[illegible]
173	1.13000E+00	1.70000E+01	0.00000E+00	5.00000E+00	[illegible]
174	1.52000E+00	1.70000E+01	0.00000E+00	5.00000E+00	[illegible]
175	1.35000E-01	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
176	1.50000E-01	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
177	1.14000E+00	1.70000E+01	0.00000E+00	5.00000E+00	[illegible]
178	1.57000E+00	1.70000E+01	0.00000E+00	5.00000E+00	[illegible]
179	3.14000E-01	1.30000E+01	0.00000E+00	4.00000E+00	[illegible]
180	1.11000E+00	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
181	1.41000E+00	1.30000E+01	0.00000E+00	4.00000E+00	[illegible]
182	5.91000E-01	1.15000E+01	0.00000E+00	5.00000E+00	[illegible]
183	7.07000E-01	1.15000E+01	0.00000E+00	5.00000E+00	[illegible]
184	1.05000E+00	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
185	4.55000E+00	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
186	5.63000E-01	1.95000E+01	0.00000E+00	5.00000E+00	[illegible]
187	7.70000E-01	1.95000E+01	0.00000E+00	5.00000E+00	[illegible]
188	5.34000E+00	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
189	3.10000E+00	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
190	4.12000E-01	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
191	5.30000E-01	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
192	1.21000E+00	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
193	3.37000E+00	1.30000E+01	0.00000E+00	5.00000E+00	[illegible]
194	1.26000E+00	1.55000E+01	0.00000E+00	5.00000E+00	[illegible]
195	1.32000E+00	1.55000E+01	0.00000E+00	5.00000E+00	[illegible]
196	1.05000E-01	1.15000E+01	0.00000E+00	5.00000E+00	[illegible]
197	1.53000E-01	1.15000E+01	0.00000E+00	5.00000E+00	[illegible]
198	4.30000E-01	2.95000E+01	0.00000E+00	5.00000E+00	[illegible]
199	5.44000E-01	2.95000E+01	0.00000E+00	5.00000E+00	[illegible]
200					

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 1 & 4

```
ELEMENT      WIDTH
 141   7.48611E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 142   1.11176E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 143   1.45317E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 144   1.20647E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 145   1.29534E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 146   1.28671E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 147   2.15139E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 148   2.14357E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 149   1.11503E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 150   1.56249E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 151   1.75415E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 152   1.15341E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 153   1.30061E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 154   1.15915E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 155   8.82111E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 156   1.13187E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 157   7.59193E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 158   1.35111E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 159   4.16791E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 160   4.11513E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 161   5.10151E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 162   1.55176E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 163   5.74601E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 164   4.80530E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 165   1.31167E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 166   1.37006E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 167   1.14431E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 168   1.17740E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 169   9.75151E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 170   1.25744E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 171   9.49414E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 172   9.63203E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 173   5.35457E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 174   5.35326E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 175   4.73405E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 176   5.35110E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 177   4.45133E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 178   4.15771E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 179   5.50111E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 180   1.29516E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 181   5.02541E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 182   1.54175E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 183   1.55544E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 184   1.19132E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 185   1.47546E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 186   1.47373E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 187   1.34109E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 188   2.10214E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 189   1.42111E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 190   1.18317E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 191   1.24701E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 192   1.03601E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 193   1.20160E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 194   4.39164E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 195   5.12643E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 196   5.25155E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 197   4.35154E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 198   1.10339E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 199   1.21188E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 200
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TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

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EVENT      LOT            WAFER           DIE            STRUCT          DIODE

  1    2.00000E+00    5.00000E+00    5.30000E+01    1.00000E+00    2.50000E+01
  2    2.00000E+00    5.00000E+00    5.30000E+01    5.00000E+00    2.00000E+01
  3    2.00000E+00    5.00000E+00    5.30000E+01    6.00000E+00    2.00000E+01
  4    2.00000E+00    5.00000E+00    5.30000E+01    6.00000E+00    2.00000E+01
  5    2.00000E+00    5.00000E+00    5.30000E+01    6.00000E+00    1.90000E+01
  6    2.00000E+00    5.00000E+00    5.30000E+01    5.00000E+00    1.90000E+01
  7    2.00000E+00    5.00000E+00    5.30000E+01    5.00000E+00    4.00000E+00
  8    2.00000E+00    5.00000E+00    5.30000E+01    5.00000E+00    4.00000E+00
  9    2.00000E+00    5.00000E+00    5.30000E+01    1.00000E+00    2.40000E+01
 10    2.00000E+00    5.00000E+00    6.60000E+01    6.00000E+00    1.90000E+01
 11    2.00000E+00    5.00000E+00    6.60000E+01    5.00000E+00    1.90000E+01
 12    2.00000E+00    5.00000E+00    6.60000E+01    5.00000E+00    4.00000E+00
 13    2.00000E+00    5.00000E+00    6.60000E+01    5.00000E+00    4.00000E+00
 14    2.00000E+00    5.00000E+00    6.60000E+01    1.00000E+00    2.40000E+01
 15    2.00000E+00    5.00000E+00    6.60000E+01    1.00000E+00    1.00000E+01
 16    2.00000E+00    5.00000E+00    6.60000E+01    1.00000E+00    1.90000E+01
 17    2.00000E+00    5.00000E+00    6.60000E+01    1.00000E+00    2.50000E+01
 18    2.00000E+00    5.00000E+00    6.60000E+01    5.00000E+00    2.00000E+01
 19    2.00000E+00    5.00000E+00    6.60000E+01    6.00000E+00    5.00000E+00
 20    2.00000E+00    5.00000E+00    6.60000E+01    6.00000E+00    5.00000E+00
 21    2.00000E+00    5.00000E+00    7.20000E+01    1.00000E+00    2.50000E+01
 22    2.00000E+00    5.00000E+00    7.20000E+01    1.00000E+00    1.00000E+01
 23    2.00000E+00    5.00000E+00    7.20000E+01    1.00000E+00    1.90000E+01
 24    2.00000E+00    5.00000E+00    7.20000E+01    5.00000E+00    5.00000E+00
 25    2.00000E+00    5.00000E+00    7.20000E+01    5.00000E+00    5.00000E+00
 26    2.00000E+00    5.00000E+00    7.20000E+01    5.00000E+00    2.00000E+01
 27    2.00000E+00    5.00000E+00    7.20000E+01    6.00000E+00    5.00000E+00
 28    2.00000E+00    5.00000E+00    7.20000E+01    6.00000E+00    5.00000E+00
 29    2.00000E+00    5.00000E+00    7.20000E+01    6.00000E+00    2.00000E+01
 30    2.00000E+00    5.00000E+00    7.20000E+01    6.00000E+00    1.90000E+01
 31    2.00000E+00    5.00000E+00    7.20000E+01    6.00000E+00    4.00000E+00
 32    2.00000E+00    5.00000E+00    7.20000E+01    6.00000E+00    4.00000E+00
 33    2.00000E+00    5.00000E+00    7.20000E+01    5.00000E+00    1.90000E+01
 34    2.00000E+00    5.00000E+00    7.20000E+01    5.00000E+00    4.00000E+00
 35    2.00000E+00    5.00000E+00    7.20000E+01    5.00000E+00    4.00000E+00
 36    2.00000E+00    5.00000E+00    7.20000E+01    1.00000E+00    2.40000E+01
 37    2.00000E+00    5.00000E+00    7.20000E+01    1.00000E+00    2.40000E+01
 38    2.00000E+00    5.00000E+00    7.20000E+01    1.00000E+00    9.00000E+00
 39    2.00000E+00    5.00000E+00    7.30000E+01    1.00000E+00    9.00000E+00
 40    2.00000E+00    5.00000E+00    7.30000E+01    1.00000E+00    2.40000E+01
 41    2.00000E+00    5.00000E+00    7.30000E+01    5.00000E+00    4.00000E+00
 42    2.00000E+00    5.00000E+00    7.30000E+01    5.00000E+00    4.00000E+00
 43    2.00000E+00    5.00000E+00    7.30000E+01    5.00000E+00    1.90000E+01
 44    2.00000E+00    5.00000E+00    7.30000E+01    6.00000E+00    4.00000E+00
 45    2.00000E+00    5.00000E+00    7.30000E+01    6.00000E+00    4.00000E+00
 46    2.00000E+00    5.00000E+00    7.30000E+01    6.00000E+00    1.90000E+01
 47    2.00000E+00    5.00000E+00    7.30000E+01    6.00000E+00    2.00000E+01
 48    2.00000E+00    5.00000E+00    7.30000E+01    5.00000E+00    2.00000E+01
 49    2.00000E+00    5.00000E+00    7.30000E+01    5.00000E+00    5.00000E+00
 50    2.00000E+00    5.00000E+00    7.30000E+01    5.00000E+00    5.00000E+00
 51    2.00000E+00    5.00000E+00    7.30000E+01    1.00000E+00    2.50000E+01
 52    2.00000E+00    5.00000E+00    7.30000E+01    1.00000E+00    1.00000E+01
 53    2.00000E+00    5.00000E+00    7.30000E+01    1.00000E+00    1.00000E+01
 54    2.00000E+00    5.00000E+00    7.40000E+01    1.00000E+00    1.00000E+01
 55    2.00000E+00    5.00000E+00    7.40000E+01    1.00000E+00    2.50000E+01
 56    2.00000E+00    5.00000E+00    7.40000E+01    5.00000E+00    5.00000E+00
 57    2.00000E+00    5.00000E+00    7.40000E+01    5.00000E+00    5.00000E+00
 58    2.00000E+00    5.00000E+00    7.40000E+01    5.00000E+00    2.00000E+01
 59    2.00000E+00    5.00000E+00    7.40000E+01    6.00000E+00    5.00000E+00
 60    2.00000E+00    5.00000E+00    7.40000E+01    6.00000E+00    5.00000E+00
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TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

EVENT	LENGTH	WIDTH	DATE	PAGE	SHOT#
1	1.00000E+01	1.20000E+00	8.01000E+02	4.70000E+02	2.00000E+00
2	1.00000E+01	1.20000E+00	8.02000E+02	4.75000E+02	3.00000E+00
3	1.00000E+01	1.20000E+00	8.02000E+02	4.79000E+02	2.00000E+00
4	1.00000E+01	1.20000E+00	8.02000E+02	4.80000E+02	3.00000E+00
5	3.00000E+01	1.20000E+00	8.02000E+02	4.84000E+02	4.00000E+00
6	3.00000E+01	1.20000E+00	8.02000E+02	4.90000E+02	3.00000E+00
7	3.00000E+01	8.00000E+00	8.02000E+02	4.93000E+02	2.00000E+00
8	3.00000E+01	8.00000E+00	8.02000E+02	4.94000E+02	3.00000E+00
9	3.00000E+01	1.20000E+00	8.02000E+02	4.98000E+02	3.00000E+00
10	3.00000E+01	1.20000E+00	8.02000E+02	5.00000E+02	1.00000E+00
11	3.00000E+01	1.20000E+00	8.03000E+02	5.05000E+02	3.00000E+00
12	3.00000E+01	8.00000E+00	8.03000E+02	5.07000E+02	1.00000E+00
13	3.00000E+01	8.00000E+00	8.03000E+02	5.07000E+02	2.00000E+00
14	3.00000E+01	1.20000E+00	8.03000E+02	5.11000E+02	3.00000E+00
15	1.00000E+01	8.00000E+00	8.03000E+02	5.13000E+02	1.00000E+00
16	1.00000E+01	8.00000E+00	8.03000E+02	5.14000E+02	3.00000E+00
17	1.00000E+01	1.20000E+00	8.03000E+02	5.16000E+02	2.00000E+00
18	1.00000E+01	1.20000E+00	8.03000E+02	5.19000E+02	2.00000E+00
19	1.00000E+01	8.00000E+00	8.03000E+02	5.21000E+02	2.00000E+00
20	1.00000E+01	8.00000E+00	8.03000E+02	5.22000E+02	3.00000E+00
21	1.00000E+01	1.20000E+00	8.06000E+02	5.25000E+02	1.00000E+00
22	1.00000E+01	8.00000E+00	8.06000E+02	5.29000E+02	1.00000E+00
23	1.00000E+01	8.00000E+00	8.06000E+02	5.30000E+02	2.00000E+00
24	1.00000E+01	8.00000E+00	8.06000E+02	5.32000E+02	2.00000E+00
25	1.00000E+01	8.00000E+00	8.06000E+02	5.33000E+02	3.00000E+00
26	1.00000E+01	1.20000E+00	8.06000E+02	5.35000E+02	1.00000E+00
27	1.00000E+01	8.00000E+00	8.22000E+02	5.37000E+02	1.00000E+00
28	1.00000E+01	8.00000E+00	8.22000E+02	5.39000E+02	2.00000E+00
29	1.00000E+01	1.20000E+00	8.22000E+02	5.41000E+02	2.00000E+00
30	3.00000E+01	1.20000E+00	8.22000E+02	5.43000E+02	2.00000E+00
31	3.00000E+01	8.00000E+00	8.22000E+02	5.47000E+02	3.00000E+00
32	3.00000E+01	8.00000E+00	8.22000E+02	5.48000E+02	4.00000E+00
33	3.00000E+01	1.20000E+00	8.22000E+02	5.51000E+02	2.00000E+00
34	3.00000E+01	8.00000E+00	8.22000E+02	5.53000E+02	2.00000E+00
35	3.00000E+01	8.00000E+00	8.22000E+02	5.54100E+02	3.00000E+00
36	3.00000E+01	1.20000E+00	8.22000E+02	5.55000E+02	1.00000E+00
37	3.00000E+01	1.20000E+00	8.22000E+02	5.56000E+02	2.00000E+00
38	3.00000E+01	8.00000E+00	8.22000E+02	5.59000E+02	2.00000E+00
39	3.00000E+01	8.00000E+00	8.22000E+02	5.61000E+02	2.00000E+00
40	3.00000E+01	1.20000E+00	8.22000E+02	5.64000E+02	2.00000E+00
41	3.00000E+01	8.00000E+00	8.22000E+02	5.65000E+02	1.00000E+00
42	3.00000E+01	8.00000E+00	8.22000E+02	5.66000E+02	2.00000E+00
43	3.00000E+01	1.20000E+00	8.22000E+02	5.70000E+02	3.00000E+00
44	3.00000E+01	8.00000E+00	8.23000E+02	5.71000E+02	1.00000E+00
45	3.00000E+01	8.00000E+00	8.23000E+02	5.72100E+02	2.00000E+00
46	3.00000E+01	1.20000E+00	8.23000E+02	5.74000E+02	2.00000E+00
47	1.00000E+01	1.20000E+00	8.24000E+02	5.75000E+02	1.00000E+00
48	1.00000E+01	1.20000E+00	8.24000E+02	5.77000E+02	1.00000E+00
49	1.00000E+01	8.00000E+00	8.24000E+02	5.80000E+02	2.00000E+00
50	1.00000E+01	8.00000E+00	8.24000E+02	5.81000E+02	3.00000E+00
51	1.00000E+01	1.20000E+00	8.24000E+02	5.85000E+02	4.00000E+00
52	1.00000E+01	8.00000E+00	8.24000E+02	5.88000E+02	4.00000E+00
53	1.00000E+01	8.00000E+00	8.24000E+02	5.89000E+02	5.00000E+00
54	1.00000E+01	8.00000E+00	8.24000E+02	5.91000E+02	2.00000E+00
55	1.00000E+01	1.20000E+00	8.24000E+02	5.95000E+02	3.00000E+00
56	1.00000E+01	8.00000E+00	8.24000E+02	5.97000E+02	2.00000E+00
57	1.00000E+01	8.00000E+00	8.24000E+02	5.98000E+02	3.00000E+00
58	1.00000E+01	1.20000E+00	8.24000E+02	6.01000E+02	2.00000E+00
59	1.00000E+01	8.00000E+00	8.24000E+02	6.04000E+02	3.00000E+00
60	1.00000E+01	8.00000E+00	8.24000E+02	6.05000E+02	4.00000E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

EVENT	BIAS	FAIL	TF	VF	IF
1	0.00000E+00	0.00000E+00	1.04000E+01	1.37000E+01	1.43000E-02
2	0.00000E+00	0.00000E+00	5.97000E+00	2.11000E+01	1.43000E-02
3	0.00000E+00	0.00000E+00	1.04000E+01	2.58000E+01	1.31000E-02
4	0.00000E+00	1.00000E+00	5.77000E+00	2.39000E+01	1.54000E-02
5	0.00000E+00	0.00000E+00	1.04000E+01	3.57000E+01	1.34000E-02
6	0.00000E+00	0.00000E+00	1.03000E+01	2.67000E+01	1.47000E-02
7	0.00000E+00	0.00000E+00	1.03000E+01	5.20000E+01	3.41000E-02
8	0.00000E+00	1.00000E+00	7.25000E+00	7.75000E+01	5.24000E-02
9	0.00000E+00	0.00000E+00	1.03000E+01	4.10000E+01	1.59000E-02
10	0.00000E+00	0.00000E+00	1.03000E+01	6.23000E+01	1.35000E-02
11	0.00000E+00	0.00000E+00	1.06000E+01	3.40000E+01	1.75000E-02
12	0.00000E+00	0.00000E+00	1.04000E+01	5.71000E+01	5.62000E-02
13	0.00000E+00	1.00000E+00	9.73000E+00	7.01000E+01	3.33000E-02
14	0.00000E+00	0.00000E+00	1.05000E+01	3.50000E+01	1.58000E-02
15	0.00000E+00	0.00000E+00	1.03000E+01	2.87000E+01	3.60000E-02
16	0.00000E+00	1.00000E+00	1.02000E+01	3.12000E+01	3.35000E-02
17	0.00000E+00	0.00000E+00	1.04000E+01	1.43000E+01	1.54000E-02
18	0.00000E+00	0.00000E+00	1.02000E+01	8.73000E+00	1.49000E-02
19	0.00000E+00	0.00000E+00	1.05000E+01	1.95000E+01	7.72000E-02
20	0.00000E+00	1.00000E+00	9.23000E+00	2.59000E+01	8.26000E-02
21	0.00000E+00	1.00000E+00	1.06000E+01	3.67000E+01	1.31000E-02
22	0.00000E+00	0.00000E+00	1.06000E+01	3.46000E+01	3.66000E-02
23	0.00000E+00	1.00000E+00	9.37000E+00	3.31000E+01	5.03000E-02
24	0.00000E+00	0.00000E+00	1.05000E+01	1.90000E+01	7.29000E-02
25	0.00000E+00	1.00000E+00	6.58000E+00	2.31000E+01	3.24000E-02
26	0.00000E+00	0.00000E+00	1.05000E+01	3.11000E+01	1.25000E-02
27	0.00000E+00	0.00000E+00	1.04000E+01	2.03000E+01	7.09000E-02
28	0.00000E+00	1.00000E+00	9.74000E+00	2.73000E+01	7.34000E-02
29	0.00000E+00	0.00000E+00	1.06000E+01	8.36000E+00	1.26000E-02
30	0.00000E+00	0.00000E+00	1.04000E+01	2.90000E+01	1.24000E-02
31	0.00000E+00	0.00000E+00	1.06000E+01	7.36000E+01	7.36000E-02
32	0.00000E+00	1.00000E+00	8.74000E+00	5.41000E+01	9.32000E-02
33	0.00000E+00	0.00000E+00	1.04000E+01	2.83000E+01	1.55000E-02
34	0.00000E+00	0.00000E+00	1.06000E+01	6.58000E+01	7.61000E-02
35	0.00000E+00	1.00000E+00	7.36000E+00	5.38000E+01	9.51000E-02
36	0.00000E+00	0.00000E+00	1.09000E+01	5.54000E+01	1.43000E-02
37	0.00000E+00	1.00000E+00	1.07000E+01	3.05000E+01	1.58000E-02
38	0.00000E+00	0.00000E+00	1.06000E+01	7.57000E+01	5.27000E-02
39	0.00000E+00	0.00000E+00	1.07000E+01	6.57000E+01	5.48000E-02
40	0.00000E+00	0.00000E+00	1.04000E+01	3.60000E+01	1.58000E-02
41	0.00000E+00	0.00000E+00	1.07000E+01	5.48000E+01	7.35000E-02
42	0.00000E+00	1.00000E+00	1.00000E+01	6.50000E+01	7.85000E-02
43	0.00000E+00	0.00000E+00	1.05000E+01	4.11000E+01	1.42000E-02
44	0.00000E+00	0.00000E+00	1.05000E+01	7.13000E+01	3.08000E-02
45	0.00000E+00	1.00000E+00	9.29000E+00	8.39000E+01	3.58000E-02
46	0.00000E+00	0.00000E+00	1.07000E+01	3.72000E+01	1.18000E-02
47	0.00000E+00	0.00000E+00	8.25000E+00	3.16000E+01	1.23000E-02
48	0.00000E+00	0.00000E+00	1.01000E+01	6.52000E+00	1.29000E-02
49	0.00000E+00	0.00000E+00	1.02000E+01	2.20000E+01	7.65000E-02
50	0.00000E+00	1.00000E+00	6.18000E+00	2.54000E+01	5.29000E-02
51	0.00000E+00	0.00000E+00	1.01000E+01	1.35000E+01	1.49000E-02
52	0.00000E+00	0.00000E+00	9.94000E+00	3.19000E+01	8.92000E-02
53	0.00000E+00	1.00000E+00	9.05000E+00	3.23000E+01	9.37000E-02
54	0.00000E+00	0.00000E+00	1.01000E+01	3.38000E+01	8.86000E-02
55	0.00000E+00	0.00000E+00	1.01000E+01	1.48000E+01	1.53000E-02
56	0.00000E+00	0.00000E+00	1.01000E+01	2.34000E+01	7.33000E-02
57	0.00000E+00	1.00000E+00	6.08000E+00	2.67000E+01	9.08000E-02
58	0.00000E+00	0.00000E+00	1.00000E+01	9.91000E+00	1.40400E-02
59	0.00000E+00	0.00000E+00	1.00000E+01	2.91000E+01	5.13000E-02
60	0.00000E+00	1.00000E+00	9.90000E+00	1.43000E+01	8.91000E-02

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

EVENT	PF	VBD	RADIUS	DATA C	
1	3.81000E-01	1.25000E+01	0.00000E+00	2.00000E+00	1.22866E+00
2	2.39000E-01	1.21000E+01	0.00000E+00	5.00000E+00	7.06110E-01
3	2.75000E-01	1.24000E+01	0.00000E+00	5.00000E+00	3.36843E-01
4	3.45000E-01	1.24000E+01	0.00000E+00	2.00000E+00	3.23713E-01
5	9.05000E-01	1.26000E+01	0.00000E+00	2.00000E+00	2.91153E+00
6	8.70000E-01	1.28000E+01	0.00000E+00	1.00000E+00	2.79214E+00
7	4.17000E+00	1.20000E+01	0.00000E+00	5.00000E+00	1.33830E+01
8	6.24000E+00	1.20000E+01	0.00000E+00	5.00000E+00	1.68017E+01
9	1.01000E+00	1.21000E+01	0.00000E+00	4.00000E+00	3.24145E+00
10	8.37000E-01	1.28000E+01	0.00000E+00	5.00000E+00	2.34670E+00
11	9.48000E-01	1.26000E+01	0.00000E+00	1.00000E+00	3.05646E+00
12	3.33000E+00	1.23000E+01	0.00000E+00	5.00000E+00	1.22513E+01
13	5.21000E+00	1.23000E+01	0.00000E+00	2.00000E+00	1.62972E+01
14	9.75000E-01	1.24000E+01	0.00000E+00	1.00000E+00	3.15936E+00
15	1.97000E+00	1.24000E+01	0.00000E+00	5.00000E+00	6.12244E+00
16	2.57000E+00	1.24000E+01	0.00000E+00	5.00000E+00	8.20792E+00
17	4.12000E-01	1.25000E+01	0.00000E+00	2.00000E+00	1.32866E+00
18	2.50000E-01	1.24000E+01	0.00000E+00	2.00000E+00	7.98415E-01
19	1.28000E+00	1.25000E+01	0.00000E+00	4.00000E+00	4.14767E+00
20	1.70000E+00	1.25000E+01	0.00000E+00	5.00000E+00	5.16475E+00
21	3.94000E-01	1.26000E+01	0.00000E+00	2.00000E+00	1.25021E+00
22	2.24000E+00	1.21000E+01	0.00000E+00	5.00000E+00	7.29291E+00
23	2.78000E+00	1.21000E+01	0.00000E+00	5.00000E+00	8.50970E+00
24	1.18000E+00	1.24000E+01	0.00000E+00	4.00000E+00	3.82063E+00
25	1.61000E+00	1.24000E+01	0.00000E+00	2.00000E+00	4.12959E+00
26	2.55000E-01	1.26000E+01	0.00000E+00	2.00000E+00	8.22294E-01
27	1.27000E+00	1.23000E+01	0.00000E+00	4.00000E+00	4.09552E+00
28	1.86000E+00	1.23000E+01	0.00000E+00	5.00000E+00	5.20486E+00
29	2.50000E-01	1.27000E+01	0.00000E+00	2.00000E+00	8.13941E-01
30	8.59000E-01	1.26000E+01	0.00000E+00	2.00000E+00	2.80244E+00
31	4.37000E+00	1.17000E+01	0.00000E+00	2.00000E+00	1.42276E+01
32	6.86000E+00	1.17000E+01	0.00000E+00	2.00000E+00	2.02905E+01
33	8.23000E-01	1.24000E+01	0.00000E+00	1.00000E+00	2.65409E+00
34	4.58000E+00	1.20000E+01	0.00000E+00	5.00000E+00	1.49112E+01
35	4.94000E+00	1.20000E+01	0.00000E+00	2.00000E+00	1.34018E+01
36	8.72000E-01	1.25000E+01	0.00000E+00	5.00000E+00	2.87392E+00
37	9.02000E-01	1.25000E+01	0.00000E+00	1.00000E+00	2.95051E+00
38	5.44000E+00	1.20000E+01	0.00000E+00	5.00000E+00	1.77112E+01
39	6.29000E+00	1.20000E+01	0.00000E+00	5.00000E+00	2.05751E+01
40	1.02000E+00	1.24000E+01	0.00000E+00	1.00000E+00	3.28940E+00
41	3.41000E+00	1.24000E+01	0.00000E+00	5.00000E+00	1.11544E+01
42	4.77000E+00	1.24000E+01	0.00000E+00	2.00000E+00	1.50840E+01
43	6.90000E-01	1.28000E+01	0.00000E+00	1.00000E+00	2.38392E+00
44	4.44000E+00	1.23000E+01	0.00000E+00	5.00000E+00	1.43372E+01
45	6.45000E+00	1.23000E+01	0.00000E+00	2.00000E+00	1.96592E+01
46	8.57000E-01	1.29000E+01	0.00000E+00	1.00000E+00	2.80332E+00
47	3.17000E-01	1.27000E+01	0.00000E+00	5.00000E+00	9.10513E-01
48	2.42000E-01	1.26000E+01	0.00000E+00	2.00000E+00	7.88156E-01
49	1.37000E+00	1.24000E+01	0.00000E+00	5.00000E+00	4.37542E+00
50	1.60000E+00	1.24000E+01	0.00000E+00	2.00000E+00	4.47472E+00
51	3.96000E-01	1.24000E+01	0.00000E+00	2.00000E+00	1.25850E+00
52	2.62000E+00	1.22000E+01	0.00000E+00	5.00000E+00	8.26027E+00
53	2.86000E+00	1.22000E+01	0.00000E+00	5.00000E+00	8.60360E+00
54	2.49000E+00	1.22000E+01	0.00000E+00	5.00000E+00	7.91334E+00
55	4.17000E-01	1.25000E+01	0.00000E+00	2.00000E+00	1.32524E+00
56	1.38000E+00	1.21000E+01	0.00000E+00	5.00000E+00	4.38570E+00
57	1.94000E+00	1.21000E+01	0.00000E+00	2.00000E+00	5.22026E+00
58	2.94000E-01	1.26000E+01	0.00000E+00	2.00000E+00	9.29080E-01
59	1.96000E+00	1.24000E+01	0.00000E+00	5.00000E+00	6.19906E+00
60	1.54000E+00	1.24000E+01	0.00000E+00	1.00000E+00	4.34543E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

```
ELEMENT        WIDTH

   1       1.02190E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
   2       5.16441E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
   3       7.19040E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
   4       6.40558E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
   5       1.41210E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
   6       1.12671E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
   7       1.67137E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
   8       2.10021E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
   9       1.78120E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  10       1.17125E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  11       1.57205E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  12       1.54141E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  13       [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  14       [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  15       [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
[illegible]
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[illegible]
  50       [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  51       1.04175E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  52       1.01151E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  53       1.07547E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  54       4.31617E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  55       1.10416E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  56       5.41211E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  57       6.51711E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  58       7.74756E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  59       7.74757E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  60       1.05566E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
```

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

```
EVENT      LOT          WAFER         DIE          STRUCT        DIODE

  61   2.00000E+00  5.00000E+00  7.40000E+01  6.00000E+00  2.00000E-01
  62   2.00000E+00  5.00000E+00  7.50000E+01  6.00000E+00  2.00000E-01
  63   2.00000E+00  5.00000E+00  7.50000E+01  6.00000E+00  2.00000E-01
  64   2.00000E+00  5.00000E+00  7.50000E+01  6.00000E+00  5.00000E+00
  65   2.00000E+00  5.00000E+00  7.50000E+01  6.00000E+00  5.00000E+00
  66   2.00000E+00  5.00000E+00  7.50000E+01  5.00000E+00  5.00000E+00
  67   2.00000E+00  5.00000E+00  7.50000E+01  5.00000E+00  5.00000E+00
  68   2.00000E+00  5.00000E+00  7.50000E+01  1.00000E+00  9.00000E+00
  69   2.00000E+00  5.00000E+00  7.50000E+01  1.00000E+00  9.00000E+00
  70   2.00000E+00  5.00000E+00  7.50000E+01  1.00000E+00  3.40000E+01
  71   2.00000E+00  5.00000E+00  7.50000E+01  5.00000E+00  4.00000E+00
  72   2.00000E+00  5.00000E+00  7.50000E+01  5.00000E+00  4.00000E+00
  73   2.00000E+00  5.00000E+00  7.50000E+01  5.00000E+00  1.90000E+01
  74   2.00000E+00  5.00000E+00  7.50000E+01  6.00000E+00  1.90000E+01
  75   2.00000E+00  5.00000E+00  7.40000E+01  6.00000E+00  4.00000E+00
  76   2.00000E+00  5.00000E+00  6.40000E+01  1.00000E+00  9.00000E+00
  77   2.00000E+00  5.00000E+00  6.40000E+01  1.00000E+00  9.00000E+00
  78   2.00000E+00  5.00000E+00  6.40000E+01  5.00000E+00  4.00000E+00
  79   2.00000E+00  5.00000E+00  6.40000E+01  6.00000E+00  4.00000E+00
  80   2.00000E+00  5.00000E+00  6.40000E+01  6.00000E+00  5.00000E+00
  81   2.00000E+00  5.00000E+00  6.40000E+01  6.00000E+00  5.00000E+00
  82   2.00000E+00  5.00000E+00  6.40000E+01  1.00000E+00  1.00000E+01
  83   2.00000E+00  5.00000E+00  6.40000E+01  1.00000E+00  1.00000E+01
  84   2.00000E+00  5.00000E+00  6.20000E+01  1.00000E+00  9.00000E+00
  85   2.00000E+00  5.00000E+00  6.20000E+01  1.00000E+00  9.00000E+00
  86   2.00000E+00  5.00000E+00  6.20000E+01  6.00000E+00  4.00000E+00
  87   2.00000E+00  5.00000E+00  6.20000E+01  6.00000E+00  4.00000E+00
  88   2.00000E+00  5.00000E+00  6.10000E+01  5.00000E+00  5.00000E+00
  89   2.00000E+00  5.00000E+00  7.20000E+01  1.00000E+00  8.00000E+00
  90   2.00000E+00  5.00000E+00  7.20000E+01  1.00000E+00  1.30000E+01
  91   2.00000E+00  5.00000E+00  3.60000E+01  1.00000E+00  8.00000E+00
  92   2.00000E+00  5.00000E+00  3.60000E+01  1.00000E+00  8.00000E+00
  93   2.00000E+00  5.00000E+00  3.60000E+01  1.00000E+00  1.30000E+01
  94   2.00000E+00  5.00000E+00  3.60000E+01  1.00000E+00  1.30000E+01
  95   2.00000E+00  5.00000E+00  3.60000E+01  5.00000E+00  8.00000E+00
  96   2.00000E+00  5.00000E+00  3.60000E+01  5.00000E+00  3.00000E+00
  97   2.00000E+00  5.00000E+00  3.60000E+01  6.00000E+00  3.00000E+00
  98   2.00000E+00  5.00000E+00  3.60000E+01  6.00000E+00  3.00000E+00
  99   2.00000E+00  5.00000E+00  3.60000E+01  6.00000E+00  3.00000E+00
 100   2.00000E+00  5.00000E+00  3.60000E+01  6.00000E+00  8.00000E+00
 101   2.00000E+00  5.00000E+00  6.40000E+01  1.00000E+00  8.00000E+00
 102   2.00000E+00  5.00000E+00  6.40000E+01  1.00000E+00  8.00000E+00
 103   2.00000E+00  5.00000E+00  6.40000E+01  1.00000E+00  1.30000E+01
 104   2.00000E+00  5.00000E+00  6.40000E+01  1.00000E+00  1.30000E+01
 105   2.00000E+00  5.00000E+00  6.40000E+01  5.00000E+00  3.00000E+00
 106   2.00000E+00  5.00000E+00  6.40000E+01  5.00000E+00  8.00000E+00
 107   2.00000E+00  5.00000E+00  6.40000E+01  6.00000E+00  8.00000E+00
 108   2.00000E+00  5.00000E+00  6.40000E+01  6.00000E+00  3.00000E+00
 109   2.00000E+00  5.00000E+00  6.40000E+01  6.00000E+00  3.00000E+00
 110   2.00000E+00  5.00000E+00  6.40000E+01  6.00000E+00  3.00000E+00
 111   2.00000E+00  5.00000E+00  6.50000E+01  6.00000E+00  8.00000E+00
 112   2.00000E+00  5.00000E+00  6.50000E+01  6.00000E+00  8.00000E+00
 113   2.00000E+00  5.00000E+00  6.50000E+01  5.00000E+00  8.00000E+00
 114   2.00000E+00  5.00000E+00  6.50000E+01  5.00000E+00  8.00000E+00
 115   2.00000E+00  5.00000E+00  6.50000E+01  5.00000E+00  3.00000E+00
 116   2.00000E+00  5.00000E+00  6.50000E+01  5.00000E+00  3.00000E+00
 117   2.00000E+00  5.00000E+00  6.50000E+01  1.00000E+00  8.00000E+00
 118   2.00000E+00  5.00000E+00  6.50000E+01  1.00000E+00  8.00000E+00
 119   2.00000E+00  5.00000E+00  6.50000E+01  1.00000E+00  1.30000E+01
 120   2.00000E+00  5.00000E+00  6.50000E+01  1.00000E+00  1.30000E+01
```

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

EVENT	LENGTH	WIDTH	DATE	PAGE	SHOT#
61	1.00000E+01	1.20000E+00	8.24000E+02	6.08000E+02	3.00000E+00
62	1.00000E+01	1.20000E+00	8.27000E+02	6.10000E+02	1.00000E+00
63	1.00000E+01	1.20000E+00	8.27000E+02	6.11000E+02	2.00000E+00
64	1.00000E+01	5.00000E+00	8.27000E+02	6.13200E+02	2.00000E+00
65	1.00000E+01	8.00000E+00	8.27000E+02	6.14000E+02	2.00000E+00
66	1.00000E+01	8.00000E+00	8.27000E+02	6.15000E+02	1.00000E+00
67	1.00000E+01	8.00000E+00	8.27000E+02	6.16000E+02	2.00000E+00
68	3.00000E+01	8.00000E+00	8.27000E+02	6.21100E+02	6.00000E+00
69	3.00000E+01	8.00000E+00	8.27000E+02	6.21100E+02	7.00000E+00
70	3.00000E+01	1.20000E+00	8.27000E+02	6.23000E+02	1.00000E+00
71	3.00000E+01	8.00000E+00	8.27000E+02	6.25000E+02	1.00000E+00
72	3.00000E+01	8.00000E+00	8.27000E+02	6.26000E+02	2.00000E+00
73	3.00000E+01	1.20000E+00	8.27000E+02	6.28000E+02	2.00000E+00
74	3.00000E+01	1.20000E+00	8.27000E+02	6.31000E+02	2.00000E+00
75	3.00000E+01	8.00000E+00	8.27000E+02	6.34000E+02	3.00000E+00
76	3.00000E+01	8.00000E+00	8.28000E+02	6.37000E+02	1.00000E+00
77	3.00000E+01	8.00000E+00	8.29000E+02	6.39100E+02	2.00000E+00
78	3.00000E+01	8.00000E+00	8.28000E+02	6.40000E+02	2.00000E+00
79	3.00000E+01	8.00000E+00	8.29000E+02	6.41000E+02	3.00000E+00
80	1.00000E+01	8.00000E+00	8.28000E+02	6.42000E+02	1.00000E+00
81	1.00000E+01	8.00000E+00	8.28000E+02	6.43000E+02	2.00000E+00
82	1.00000E+01	8.00000E+00	8.28000E+02	6.46000E+02	3.00000E+00
83	1.00000E+01	8.00000E+00	8.28000E+02	6.47000E+02	4.00000E+00
84	3.00000E+01	8.00000E+00	8.28000E+02	6.49000E+02	2.00000E+00
85	3.00000E+01	8.00000E+00	8.28000E+02	6.50000E+02	3.00000E+00
86	3.00000E+01	8.00000E+00	8.29000E+02	6.52000E+02	2.00000E+00
87	3.00000E+01	8.00000E+00	8.28000E+02	6.53000E+02	3.00000E+00
88	1.00000E+01	8.00000E+00	8.28000E+02	6.57000E+02	2.00000E+00
89	1.00000E+02	6.00000E+00	8.28000E+02	6.59000E+02	1.00000E+00
90	1.00000E+02	4.00000E+00	8.28000E+02	6.61000E+02	2.00000E+00
91	1.00000E+02	8.00000E+00	1.00900E+03	6.65000E+02	4.00000E+00
92	1.00000E+02	8.00000E+00	1.00900E+03	6.65000E+02	5.00000E+00
93	1.00000E+02	4.00000E+00	1.00900E+03	6.68000E+02	2.00000E+00
94	1.00000E+02	4.00000E+00	1.00900E+03	6.69000E+02	3.00000E+00
95	1.00000E+02	4.00000E+00	1.00900E+03	6.72000E+02	2.00000E+00
96	1.00000E+02	8.00000E+00	1.01000E+03	6.76000E+02	2.00000E+00
97	1.00000E+02	8.00000E+00	1.01000E+03	6.79000E+02	3.00000E+00
98	1.00000E+02	8.00000E+00	1.01000E+03	6.80000E+02	4.00000E+00
99	1.00000E+02	4.00000E+00	1.01000E+03	6.82000E+02	2.00000E+00
100	1.00000E+02	4.00000E+00	1.01000E+03	6.83000E+02	3.00000E+00
101	1.00000E+02	8.00000E+00	1.01000E+03	6.85000E+02	2.00000E+00
102	1.00000E+02	8.00000E+00	1.01000E+03	6.86000E+02	3.00000E+00
103	1.00000E+02	4.00000E+00	1.01000E+03	6.89000E+02	2.00000E+00
104	1.00000E+02	4.00000E+00	1.01000E+03	6.89000E+02	3.00000E+00
105	1.00000E+02	8.00000E+00	1.01000E+03	6.91000E+02	1.00000E+00
106	1.00000E+02	4.00000E+00	1.01000E+03	6.92000E+02	1.00000E+00
107	1.00000E+02	4.00000E+00	1.01000E+03	6.93000E+02	1.00000E+00
108	1.00000E+02	4.00000E+00	1.01000E+03	6.94000E+02	2.00000E+00
109	1.00000E+02	6.00000E+00	1.01000E+03	6.97000E+02	2.00000E+00
110	1.00000E+02	8.00000E+00	1.01000E+03	6.97000E+02	3.00000E+00
111	1.00000E+02	4.00000E+00	1.01000E+03	6.99000E+02	1.00000E+00
112	1.00000E+02	4.00000E+00	1.01000E+03	7.00000E+02	2.00000E+00
113	1.00000E+02	4.00000E+00	1.01000E+03	7.02000E+02	2.00000E+00
114	1.00000E+02	4.00000E+00	1.01000E+03	7.03000E+02	3.00000E+00
115	1.00000E+02	8.00000E+00	1.01000E+03	7.04000E+02	1.00000E+00
116	1.00000E+02	6.00000E+00	1.01000E+03	7.05000E+02	2.00000E+00
117	1.00000E+02	8.00000E+00	1.01000E+03	7.06000E+02	2.00000E+00
118	1.00000E+02	8.00000E+00	1.01000E+03	7.09000E+02	3.00000E+00
119	1.00000E+02	4.00000E+00	1.01100E+03	7.12000E+02	3.00000E+00
120	1.00000E+02	4.00000E+00	1.01100E+03	7.12000E+02	4.00000E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

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EVENT      BIAS          FAIL          TF            VF            IF

  61   0.00000E+00   0.00000E+00   9.84000E+00   8.69000E+00   1.43000E-02
  62   0.00000E+00   0.00000E+00   1.02000E+01   2.80000E+01   1.39000E-02
  63   0.00000E+00   1.00000E+00   4.59000E+00   3.11000E+01   1.56000E-02
  64   0.00000E+00   0.00000E+00   1.02000E+01   2.71000E+01   7.84000E-02
  65   0.00000E+00   1.00000E+00   1.02000E+01   1.45000E+01   3.25000E-02
  66   0.00000E+00   0.00000E+00   1.01000E+01   1.85000E+01   7.30000E-02
  67   0.00000E+00   1.00000E+00   7.79000E+00   2.30000E+01   3.14000E-02
  68   0.00000E+00   0.00000E+00   9.86000E+00   6.53000E+01   3.49000E-02
  69   0.00000E+00   1.00000E+00   6.59000E+00   8.75000E+01   9.22000E-02
  70   0.00000E+00   0.00000E+00   9.93000E+00   3.27000E+01   1.56000E-02
  71   0.00000E+00   0.00000E+00   1.00000E+01   5.38000E+01   7.35000E-02
  72   0.00000E+00   1.00000E+00   8.60000E+00   5.41000E+01   9.20000E-02
  73   0.00000E+00   0.00000E+00   1.01000E+01   2.91000E+01   1.34000E-02
  74   0.00000E+00   0.00000E+00   1.00000E+01   3.32000E+01   1.47000E-02
  75   0.00000E+00   0.00000E+00   1.01000E+01   7.91000E+01   3.38000E-02
  76   0.00000E+00   0.00000E+00   1.00000E+01   7.23000E+01   3.10000E-02
  77   0.00000E+00   1.00000E+00   7.86000E+00   7.95000E+01   8.70000E-02
  78   0.00000E+00   0.00000E+00   1.01000E+01   7.25000E+01   3.27000E-02
  79   0.00000E+00   1.00000E+00   8.96000E+00   8.45000E+01   9.01000E-02
  80   0.00000E+00   0.00000E+00   1.00000E+01   2.51000E+01   3.09000E-02
  81   0.00000E+00   1.00000E+00   9.42000E+00   2.94000E+01   7.37000E-02
  82   0.00000E+00   0.00000E+00   1.01000E+01   3.64000E+01   9.23000E-02
  83   0.00000E+00   1.00000E+00   8.40000E+00   3.48000E+01   9.16000E-02
  84   0.00000E+00   0.00000E+00   1.01000E+01   7.71000E+01   8.60000E-02
  85   0.00000E+00   1.00000E+00   9.03000E+00   7.72000E-01   9.11000E-02
  86   0.00000E+00   0.00000E+00   1.32000E+01   3.00000E+01   7.84000E-02
  87   0.00000E+00   1.00000E+00   9.57000E+00   3.36000E+01   8.72000E-02
  88   0.00000E+00   0.00000E+00   1.00000E+01   2.02000E+01   7.88000E-02
  89   0.00000E+00   0.00000E+00   9.35000E+00   2.59000E+02   7.90000E-02
  90   0.00000E+00   0.00000E+00   1.00000E+01   2.56000E+02   4.24000E-02
  91   0.00000E+00   0.00000E+00   9.57000E+00   2.36000E+02   8.70000E-02
  92   0.00000E+00   1.00000E+00   9.37000E+00   1.83000E+02   9.32000E-02
  93   0.00000E+00   0.00000E+00   9.32000E+00   2.61000E+02   4.45000E-02
  94   0.00000E+00   1.00000E+00   9.31000E+00   9.55000E+01   4.89000E-02
  95   0.00000E+00   0.00000E+00   9.48000E+00   2.07000E+02   4.62000E-02
  96   0.00000E+00   0.00000E+00   9.46000E+00   2.22000E+02   3.51000E-02
  97   0.00000E+00   0.00000E+00   9.56000E+00   2.67000E+02   9.13000E-02
  98   0.00000E+00   1.00000E+00   7.68000E+00   2.70000E+02   9.94000E-02
  99   0.00000E+00   0.00000E+00   9.04000E+00   2.33000E+02   5.07000E-02
 100   0.00000E+00   1.00000E+00   8.56000E+00   2.45000E+02   5.04000E-02
 101   0.00000E+00   0.00000E+00   9.40000E+00   2.76000E+02   5.75000E-02
 102   0.00000E+00   1.00000E+00   9.71000E+00   2.11000E+02   1.01000E-01
 103   0.00000E+00   0.00000E+00   8.99000E+00   1.76000E+02   5.04000E-02
 104   0.00000E+00   1.00000E+00   6.75000E+00   2.40000E+02   5.51000E-02
 105   0.00000E+00   1.00000E+00   9.52000E+00   2.82000E+02   8.70000E-02
 106   0.00000E+00   0.00000E+00   9.10000E+00   2.39000E+02   4.05000E-02
 107   0.00000E+00   0.00000E+00   9.25000E+00   2.63000E+02   4.36000E-02
 108   0.00000E+00   1.00000E+00   8.36000E+00   2.65000E+02   4.31000E-02
 109   0.00000E-00   0.00000E+00   9.24000E+00   2.39000E+02   6.67000E-02
 110   0.00000E+00   1.00000E+00   6.29000E+00   2.94000E+02   9.71000E-02
 111   0.00000E+00   0.00000E+00   9.19000E+00   2.71000E+02   4.34000E-02
 112   0.00000E+00   1.00000E+00   7.54000E+00   2.74000E+02   4.88000E-02
 113   0.00000E-00   0.00000E+00   9.35000E+00   2.00000E+02   4.69000E-02
 114   0.00000E+00   1.00000E+00   7.58000E+00   1.72000E+02   5.05000E-02
 115   0.00000E+00   0.00000E+00   9.19000E+00   2.13000E+02   8.22000E-02
 116   0.00000E+00   1.00000E+00   9.24000E+00   2.03000E+02   9.04000E-02
 117   0.00000E+00   0.00000E+00   9.22000E+00   2.16000E+02   9.54000E-02
 118   0.00000E+00   1.00000E+00   8.34000E+00   2.25000E+02   9.69000E-02
 119   0.00000E+00   0.00000E+00   9.23000E+00   2.28000E+02   4.94000E-02
 120   0.00000E+00   1.00000E+00   7.85000E+00   1.99000E+02   5.32000E-02
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TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

EVENT	PF	VBD	RADIUS	DATA Q	
61	3.25000E-01	1.24000E+01	0.00000E+00	2.00000E+00	1.05085E+00
62	3.09000E-01	1.22000E+01	0.00000E+00	5.00000E+00	5.36566E-01
63	4.00000E-01	1.22000E+01	0.00000E+00	2.00000E+00	3.56871E-01
64	1.70000E+00	1.24000E+01	0.00000E+00	5.00000E+00	5.42913E+00
65	1.29000E+00	1.24000E+01	0.00000E+00	1.00000E+00	4.11352E+00
66	1.22000E+00	1.24000E+01	0.00000E+00	4.00000E+00	1.17711E+00
67	1.71000E+00	1.24000E+01	0.00000E+00	2.00000E+00	4.77270E+00
68	5.54000E+00	1.23000E+01	0.00000E+00	5.00000E+00	2.05160E+01
69	6.95000E+00	1.23000E+01	0.00000E+00	5.00000E+00	1.73411E+01
70	1.12000E+00	1.27000E+01	0.00000E+00	2.00000E+00	1.52913E+00
71	3.59000E+00	1.24000E+01	0.00000E+00	5.00000E+00	1.13525E+01
72	5.48000E+00	1.24000E+01	0.00000E+00	2.00000E+00	1.60705E+01
73	3.11000E-01	1.20000E+01	0.00000E+00	1.00000E+00	2.57739E+00
74	3.67000E-01	1.27000E+01	0.00000E+00	2.00000E+00	2.74163E+00
75	5.20000E+00	1.17000E+01	0.00000E+00	2.00000E+00	1.35253E+01
76	4.89000E+00	1.25000E+01	0.00000E+00	5.00000E+00	1.54615E+01
77	5.11000E+00	1.25000E+01	0.00000E+00	2.00000E+00	1.71235E+01
78	4.94000E+00	1.19000E+01	0.00000E+00	5.00000E+00	1.56395E+01
79	6.88000E+00	1.18000E+01	0.00000E+00	5.00000E+00	2.05340E+01
80	1.79000E+00	1.23000E+01	0.00000E+00	5.00000E+00	5.62385E+00
81	1.34000E+00	1.23000E+01	0.00000E+00	2.00000E+00	5.65032E+00
82	2.89000E+00	1.23000E+01	0.00000E+00	5.00000E+00	3.13456E+00
83	3.01000E+00	1.23000E+01	0.00000E+00	5.00000E+00	3.72380E+00
84	5.56000E+00	1.23000E+01	0.00000E+00	5.00000E+00	2.08480E+01
85	7.22000E+00	1.23000E+01	0.00000E+00	5.00000E+00	2.16360E+01
86	5.51000E+00	1.22000E+01	0.00000E+00	5.00000E+00	1.75375E+01
87	2.59000E+00	1.22000E+01	0.00000E+00	5.00000E+00	9.01227E+00
88	1.44000E+00	1.22000E+01	0.00000E+00	5.00000E+00	4.55367E+00
89	1.58000E+01	1.23000E+01	0.00000E+00	2.00000E+00	4.38359E+01
90	9.00000E+00	1.23000E+01	0.00000E+00	5.00000E+00	2.34604E+01
91	1.89000E+01	1.22000E+01	0.00000E+00	5.00000E+00	5.34679E+01
92	2.11000E+01	1.22000E+01	0.00000E+00	5.00000E+00	6.45860E+01
93	8.45000E+00	1.25000E+01	0.00000E+00	5.00000E+00	2.57967E+01
94	9.77000E+00	1.25000E+01	0.00000E+00	5.00000E+00	2.98105E+01
95	8.18000E+00	1.24000E+01	0.00000E+00	5.00000E+00	2.51358E+01
96	1.44000E+01	1.20000E+01	0.00000E+00	5.00000E+00	4.42902E+01
97	1.71000E+01	1.24000E+01	0.00000E+00	5.00000E+00	5.28719E+01
98	2.21000E+01	1.24000E+01	0 00000E+00	5.00000E+00	5.13453E+01
99	9.63000E+00	1.25000E+01	0.00000E+00	5.00000E+00	2.69541E+01
100	9.74000E+00	1.25000E+01	0.00000E+00	5.00000E+00	2.54967E+01
101	1.74000E+01	1.24000E+01	0.00000E+00	5.00000E+00	5.33472E+01
102	2.18000E+01	1.24000E+01	0.00000E+00	2.00000E+00	6.43377E+01
103	1.05000E+01	1.23000E+01	0.00000E+00	5.00000E+00	3.14824E+01
104	1.12000E+01	1.23000E+01	0.00000E+00	5.00000E+00	2.90994E+01
105	1.57000E+01	1.23000E+01	0.00000E+00	5.00000E+00	4.34415E+01
106	7.13000E+00	1.25000E+01	0.00000E+00	2.00000E+00	2.15085E+01
107	7.37000E+00	1.20000E+01	0.00000E+00	5.00000E+00	2.42198E+01
108	1.02000E+01	1.20000E+01	0.00000E+00	2.00000E+00	2.31150E+01
109	1.94000E+01	1.25000E+01	0.00000E+00	5.00000E+00	5.39708E+01
110	2.26000E+01	1.25000E+01	0.00000E+00	5.00000E+00	5.56805E+01
111	8.36000E+00	1.26000E+01	0.00000E+00	5.00000E+00	2.53433E+01
112	1.04000E+01	1.26000E+01	0.00000E+00	5.00000E+00	2.85574E+01
113	8.90000E+00	1.25000E+01	0.00000E+00	5.00000E+00	2.72142E+01
114	1.02000E+01	1.25000E+01	0.00000E+00	5.00000E+00	2.80824E+01
115	1.32000E+01	1.25000E+01	0.00000E+00	5.00000E+00	4.00158E+01
116	1.68000E+01	1.25000E+01	0.00000E+00	2.00000E+00	5.10675E+01
117	2.03000E+01	1.24000E+01	0.00000E+00	5.00000E+00	6.15398E+01
118	2.11000E+01	1.24000E+01	0.00000E+00	5.00000E+00	6.09348E+01
119	1.06000E+01	1.24000E+01	0.00000E+00	5.00000E+00	3.22037E+01
120	1.17000E+01	1.24000E+01	0.00000E+00	5.00000E+00	3.27308E+01

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

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EVENT       K WIDT
  61     1.75708E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  62     1.22189E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  63     7.14141E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  64     5.75570E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  65     5.14990E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  66     4.14651E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  67     5.46537E-01   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  68     1.56700E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  69     1.21016E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  70     1.41110E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  71     1.41406E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  72     [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  73     [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  74     [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  75     [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
  76     [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
[illegible]  [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
[illegible]  [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
[illegible]  [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
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[illegible]  [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
[illegible]  [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
[illegible]  [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
[illegible]  [illegible]   [illegible]   [illegible]   [illegible]   [illegible]
[illegible]  [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   [illegible]
[illegible]  [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   [illegible]
[illegible]  [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
[illegible]  [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 110     [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 111     [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 112     [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 113     5.10155E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 114     [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 115     5.00147E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 116     [illegible]   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 117     7.70497E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 118     7.51405E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 119     1.05041E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 120     1.14520E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
```

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

EVENT	LOT	WAFER	DIE	STRUCT	DIODE
121	2.00000E+00	5.00000E+00	6.60000E+01	1.00000E+00	1.30000E+01
122	2.00000E+00	5.00000E+00	6.60000E+01	1.00000E+00	1.30000E+01
123	2.00000E+00	5.00000E+00	6.50000E+01	1.00000E+00	3.00000E+00
124	2.00000E+00	5.00000E+00	6.50000E+01	1.00000E+00	3.00000E+00
125	2.00000E+00	5.00000E+00	6.50000E+01	5.00000E+00	3.00000E+00
126	2.00000E+00	5.00000E+00	6.50000E+01	5.00000E+00	3.00000E+00
127	2.00000E+00	5.00000E+00	6.60000E+01	5.00000E+00	3.00000E+00
128	2.00000E+00	5.00000E+00	6.60000E+01	6.00000E+00	3.00000E+00
129	2.00000E+00	5.00000E+00	6.60000E+01	6.00000E+00	3.00000E+00
130	2.00000E+00	5.00000E+00	6.60000E+01	6.00000E+00	8.00000E+00
131	2.00000E+00	5.00000E+00	7.20000E+01	6.00000E+00	6.00000E+00
132	2.00000E+00	5.00000E+00	7.20000E+01	6.00000E+00	3.00000E+00
133	2.00000E+00	5.00000E+00	7.20000E+01	6.00000E+00	3.00000E+00
134	2.00000E+00	5.00000E+00	7.20000E+01	6.00000E+00	3.00000E+00
135	2.00000E+00	5.00000E+00	7.20000E+01	5.00000E+00	3.00000E+00
136	2.00000E+00	5.00000E+00	7.20000E+01	5.00000E+00	3.00000E+00
137	2.00000E+00	5.00000E+00	7.20000E+01	5.00000E+00	3.00000E+00
138	2.00000E+00	5.00000E+00	7.20000E+01	5.00000E+00	8.00000E+00
139	2.00000E+00	5.00000E+00	7.30000E+01	1.00000E+00	8.00000E+00
140	2.00000E+00	5.00000E+00	7.30000E+01	1.00000E+00	8.00000E+00
141	2.00000E+00	5.00000E+00	7.30000E+01	1.00000E+00	1.30000E+01
142	2.00000E+00	5.00000E+00	7.30000E+01	1.00000E+00	1.30000E+01
143	2.00000E+00	5.00000E+00	7.30000E+01	5.00000E+00	8.00000E+00
144	2.00000E+00	5.00000E+00	7.30000E+01	5.00000E+00	3.00000E+00
145	2.00000E+00	5.00000E+00	7.30000E+01	5.00000E+00	3.00000E+00
146	2.00000E+00	5.00000E+00	7.30000E+01	5.00000E+00	3.00000E+00
147	2.00000E+00	5.00000E+00	7.30000E+01	6.00000E+00	3.00000E+00
148	2.00000E+00	5.00000E+00	7.30000E+01	6.00000E+00	3.00000E+00
149	2.00000E+00	5.00000E+00	7.30000E+01	6.00000E+00	8.00000E+00
150	2.00000E+00	5.00000E+00	7.30000E+01	6.00000E+00	8.00000E+00
151	2.00000E+00	5.00000E+00	7.40000E+01	5.00000E+00	3.00000E+00
152	2.00000E+00	5.00000E+00	7.40000E+01	5.00000E+00	3.00000E+00
153	2.00000E+00	5.00000E+00	7.30000E+01	1.00000E+00	9.00000E+00
154	2.00000E+00	5.00000E+00	7.30000E+01	1.00000E+00	9.00000E+00
155	2.00000E+00	5.00000E+00	7.20000E+01	1.00000E+00	9.00000E+00
156	2.00000E+00	5.00000E+00	7.20000E+01	1.00000E+00	9.00000E+00
157	2.00000E+00	5.00000E+00	6.60000E+01	1.00000E+00	9.00000E+00
158	2.00000E+00	5.00000E+00	6.60000E+01	1.00000E+00	9.00000E+00
159	2.00000E+00	5.00000E+00	4.60000E+01	6.00000E+00	4.00000E+00
160	2.00000E+00	5.00000E+00	4.60000E+01	6.00000E+00	4.00000E+00
161	2.00000E+00	4.00000E+00	4.30000E+01	6.00000E+00	3.00000E+00
162	2.00000E+00	4.00000E+00	3.60000E+01	1.00000E+00	3.00000E+00
163	2.00000E+00	4.00000E+00	3.60000E+01	1.00000E+00	8.00000E+00
164	2.00000E+00	4.00000E+00	3.60000E+01	5.00000E+00	8.00000E+00
165	2.00000E+00	4.00000E+00	3.60000E+01	5.00000E+00	8.00000E+00
166	2.00000E+00	4.00000E+00	3.60000E+01	6.00000E+00	3.00000E+00
167	2.00000E+00	4.00000E+00	3.60000E+01	6.00000E+00	3.00000E+00
168	2.00000E+00	4.00000E+00	3.60000E+01	6.00000E+00	3.00000E+00
169	2.00000E+00	4.00000E+00	3.60000E+01	6.00000E+00	3.00000E+00
170	2.00000E+00	4.00000E+00	3.50000E+01	1.00000E+00	8.00000E+00
171	2.00000E+00	4.00000E+00	3.50000E+01	1.00000E+00	8.00000E+00
172	2.00000E+00	4.00000E+00	3.50000E+01	1.00000E+00	1.30000E+01
173	2.00000E+00	4.00000E+00	3.50000E+01	1.00000E+00	1.30000E+01
174	2.00000E+00	4.00000E+00	3.50000E+01	5.00000E+00	3.00000E+00
175	2.00000E+00	4.00000E+00	3.50000E+01	5.00000E+00	3.00000E+00
176	2.00000E+00	4.00000E+00	3.50000E+01	5.00000E+00	8.00000E+00
177	2.00000E+00	4.00000E+00	3.50000E+01	5.00000E+00	8.00000E+00
178	2.00000E+00	4.00000E+00	3.50000E+01	6.00000E+00	3.00000E+00
179	2.00000E+00	4.00000E+00	3.50000E+01	6.00000E+00	3.00000E+00
180	2.00000E+00	4.00000E+00	3.50000E+01	6.00000E+00	3.00000E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

EVENT	LENGTH	WIDTH	DATE	PAGE	SHOT#
121	1.00000E+02	4.00000E+00	1.01100E+03	7.16100E+02	3.00000E+00
122	1.00000E+02	4.00000E+00	1.01100E+03	7.16100E+02	4.00000E+00
123	1.00000E+02	8.00000E+00	1.01100E+03	7.17000E+02	1.00000E+00
124	1.00000E+02	8.00000E+00	1.01100E+03	7.18000E+02	2.00000E+00
125	1.00000E+02	8.00000E+00	1.01200E+03	7.20000E+02	1.00000E+00
126	1.00000E+02	8.00000E+00	1.01200E+03	7.21000E+02	2.00000E+00
127	1.00000E+02	4.00000E+00	1.01200E+03	7.23000E+02	1.00000E+00
128	1.00000E+02	8.00000E+00	1.01200E+03	7.28000E+02	2.00000E+00
129	1.00000E+02	8.00000E+00	1.01200E+03	7.29000E+02	3.00000E+00
130	1.00000E+02	4.00000E+00	1.01500E+03	7.30000E+02	1.00000E+00
131	1.00000E+02	4.00000E+00	1.01500E+03	7.31000E+02	1.00000E+00
132	1.00000E+02	4.00000E+00	1.01500E+03	7.32000E+02	2.00000E+00
133	1.00000E+02	8.00000E+00	1.01500E+03	7.34000E+02	1.00000E+00
134	1.00000E+02	8.00000E+00	1.01500E+03	7.35000E+02	2.00000E+00
135	1.00000E+02	8.00000E+00	1.01500E+03	7.36000E+02	1.00000E+00
136	1.00000E+02	8.00000E+00	1.01500E+03	7.37000E+02	2.00000E+00
137	1.00000E+02	4.00000E+00	1.01500E+03	7.40000E+02	2.00000E+00
138	1.00000E+02	4.00000E+00	1.01500E+03	7.40000E+02	3.00000E+00
139	1.00000E+02	8.00000E+00	1.01500E+03	7.42000E+02	1.00000E+00
140	1.00000E+02	8.00000E+00	1.01500E+03	7.43000E+02	2.00000E+00
141	1.00000E+02	4.00000E+00	1.01500E+03	7.45000E+02	2.00000E+00
142	1.00000E+02	4.00000E+00	1.01500E+03	7.46000E+02	3.00000E+00
143	1.00000E+02	4.00000E+00	1.01500E+03	7.48000E+02	2.00000E+00
144	1.00000E+02	4.00000E+00	1.01500E+03	7.49000E+02	3.00000E+00
145	1.00000E+02	8.00000E+00	1.01500E+03	7.50000E+02	1.00000E+00
146	1.00000E+02	8.00000E+00	1.01500E+03	7.51000E+02	2.00000E+00
147	1.00000E+02	8.00000E+00	1.01500E+03	7.53000E+02	1.00000E+00
148	1.00000E+02	8.00000E+00	1.01500E+03	7.54000E+02	2.00000E+00
149	1.00000E+02	4.00000E+00	1.01500E+03	7.55000E+02	1.00000E+00
150	1.00000E+02	4.00000E+00	1.01500E+03	7.56000E+02	2.00000E+00
151	1.00000E+02	8.00000E+00	1.01500E+03	7.59000E+02	2.00000E+00
152	1.00000E+02	8.00000E+00	1.01500E+03	7.60000E+02	3.00000E+00
153	3.00000E+01	8.00000E+00	1.01500E+03	7.62000E+02	1.00000E+00
154	3.00000E+01	8.00000E+00	1.01500E+03	7.62000E+02	2.00000E+00
155	3.00000E+01	8.00000E+00	1.01600E+03	7.64000E+02	1.00000E+00
156	3.00000E+01	8.00000E+00	1.01600E+03	7.65000E+02	2.00000E+00
157	3.00000E+01	8.00000E+00	1.01600E+03	7.67000E+02	3.00000E+00
158	3.00000E+01	8.00000E+00	1.01600E+03	7.68000E+02	4.00000E+00
159	3.00000E+01	8.00000E+00	1.01600E+03	7.70000E+02	3.00000E+00
160	3.00000E+01	8.00000E+00	1.01600E+03	7.71000E+02	4.00000E+00
161	1.00000E+02	8.00000E+00	3.28000E+02	7.82000E+02	6.00000E+00
162	1.00000E+02	8.00000E+00	3.28000E+02	7.85000E+02	2.00000E+00
163	1.00000E+02	8.00000E+00	3.28000E+02	7.85000E+02	3.00000E+00
164	1.00000E+02	4.00000E+00	3.29000E+02	7.89000E+02	4.00000E+00
165	1.00000E+02	4.00000E+00	3.29000E+02	7.90000E+02	5.00000E+00
166	1.00000E+02	8.00000E+00	3.29000E+02	7.92000E+02	2.00000E+00
167	1.00000E+02	8.00000E+00	3.29000E+02	7.93000E+02	3.00000E+00
168	1.00000E+02	4.00000E+00	3.29000E+02	7.95000E+02	2.00000E+00
169	1.00000E+02	4.00000E+00	3.29000E+02	7.95000E+02	3.00000E+00
170	1.00000E+02	8.00000E+00	3.29000E+02	7.96000E+02	3.00000E+00
171	1.00000E+02	8.00000E+00	3.29000E+02	7.97000E+02	4.00000E+00
172	1.00000E+02	4.00000E+00	3.29000E+02	8.00000E+02	3.00000E+00
173	1.00000E+02	4.00000E+00	3.29000E+02	8.00000E+02	4.00000E+00
174	1.00000E+02	8.00000E+00	3.29000E+02	8.02000E+02	2.00000E+00
175	1.00000E+02	8.00000E+00	3.29000E+02	8.03000E+02	3.00000E+00
176	1.00000E+02	4.00000E+00	3.29000E+02	8.06000E+02	2.00000E+00
177	1.00000E+02	4.00000E+00	3.29000E+02	8.06000E+02	3.00000E+00
178	1.00000E+02	8.00000E+00	3.29000E+02	8.08000E+02	2.00000E+00
179	1.00000E+02	8.00000E+00	3.29000E+02	8.09000E+02	3.00000E+00
180	1.00000E+02	4.00000E+00	3.29000E+02	8.11000E+02	1.00000E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

[illegible]	BIAS	FAIL	TF	[illegible]	[illegible]
[illegible]	0.00000E+00	0.00000E+00	3.21000E+00	1.11000E+01	4.55000E-01
[illegible]	0.00000E+00	1.00000E+00	3.25000E+00	1.55000E+01	5.11000E-01
[illegible]	0.00000E+00	0.00000E+00	3.40000E+00	1.45000E+01	[illegible]
[illegible]	0.00000E+00	1.00000E+00	3.65000E+00	1.40000E+01	[illegible]
[illegible]	0.00000E+00	0.00000E+00	3.75000E+00	1.15000E+01	[illegible]
[illegible]	0.00000E+00	1.00000E+00	3.36000E+00	[illegible]	[illegible]
[illegible]	0.00000E+00	0.00000E+00	3.21000E+00	[illegible]	[illegible]
[illegible]	0.00000E+00	0.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	1.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	0.00000E+00	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

EVENT	FF	VBD	RADIUS	DATA 2	
121	1.07000E+01	1.26000E+01	0.00000E+00	5.00000E+00	3.34723E+01
122	1.19000E+01	1.26000E+01	0.00000E+00	5.00000E+00	3.41301E+01
123	1.53000E+01	1.24000E+01	0.00000E+00	5.00000E+00	4.69069E+01
124	2.11000E+01	1.24000E+01	0.00000E+00	5.00000E+00	5.31644E+01
125	1.39000E+01	1.30000E+01	0.00000E+00	5.00000E+00	4.74916E+01
126	1.74000E+01	1.20000E+01	0.00000E+00	5.00000E+00	5.21419E+01
127	7.34000E+00	1.24000E+01	0.00000E+00	5.00000E+00	3.22995E+01
128	1.79000E+01	1.24000E+01	0.00000E+00	5.00000E+00	5.51424E+01
129	2.14000E+01	1.24000E+01	0.00000E+00	5.00000E+00	5.72224E+01
130	9.02000E+00	1.26000E+01	0.00000E+00	5.00000E+00	3.74925E+01
131	7.75000E+00	1.26000E+01	0.00000E+00	5.00000E+00	3.37256E+01
132	1.06000E+01	1.25000E+01	0.00000E+00	5.00000E+00	3.00374E+01
133	1.72000E+01	1.25000E+01	0.00000E+00	5.00000E+00	5.39022E+01
134	2.08000E+01	1.25000E+01	0.00000E+00	5.00000E+00	6.03200E+01
135	1.50000E+01	1.24000E+01	0.00000E+00	5.00000E+00	4.56911E+01
136	1.73000E+01	1.24000E+01	0.00000E+00	5.00000E+00	5.21014E+01
137	8.70000E+00	1.24000E+01	0.00000E+00	5.00000E+00	3.65114E+01
138	9.46000E+00	1.24000E+01	0.00000E+00	5.00000E+00	3.73566E+01
139	1.77000E+01	1.24000E+01	0.00000E+00	5.00000E+00	5.46134E+01
140	2.13000E+01	1.24000E+01	0.00000E+00	5.00000E+00	6.36519E+01
141	1.00000E+01	1.24000E+01	0.00000E+00	5.00000E+00	3.27408E+01
142	1.10000E+01	1.24000E+01	0.00000E+00	5.00000E+00	3.11515E+01
143	9.10000E+00	1.25000E+01	0.00000E+00	5.00000E+00	3.79000E+01
144	9.72000E+00	1.25000E+01	0.00000E+00	5.00000E+00	3.79354E+01
145	1.43000E+01	1.24000E+01	0.00000E+00	5.00000E+00	4.38196E+01
146	1.72000E+01	1.24000E+01	0.00000E+00	5.00000E+00	5.24811E+01
147	1.30000E+01	1.24000E+01	0.00000E+00	5.00000E+00	5.52749E+01
148	2.19000E+01	1.24000E+01	0.00000E+00	2.00000E+00	6.13200E+01
149	8.53000E+00	1.25000E+01	0.00000E+00	5.00000E+00	3.62219E+01
150	1.04000E+01	1.26000E+01	0.00000E+00	5.00000E+00	3.00702E+01
151	1.59000E+01	1.21000E+01	0.00000E+00	5.00000E+00	5.22261E+01
152	2.00000E+01	1.21000E+01	0.00000E+00	5.00000E+00	5.52449E+01
153	6.09000E+00	1.20000E+01	0.00000E+00	2.00000E+00	1.37902E+01
154	7.33000E+00	1.20000E+01	0.00000E+00	2.00000E+00	3.13416E+01
155	5.00000E+00	1.20000E+01	0.00000E+00	5.00000E+00	1.54029E+01
156	6.55000E+00	1.20000E+01	0.00000E+00	5.00000E+00	1.79737E+01
157	6.24000E+00	1.20000E+01	0.00000E+00	5.00000E+00	1.92532E+01
158	6.75000E+00	1.20000E+01	0.00000E+00	5.00000E+00	1.81749E+01
159	6.27000E+00	1.22000E+01	0.00000E+00	5.00000E+00	1.92541E+01
160	5.13000E+00	1.22000E+01	0.00000E+00	5.00000E+00	1.55078E+01
161	5.22000E+00	2.60000E+01	0.00000E+00	5.00000E+00	0.00000E+00
162	5.19000E+00	2.45000E+01	0.00000E+00	5.00000E+00	0.00000E+00
163	4.17000E+00	2.45000E+01	0.00000E+00	5.00000E+00	0.00000E+00
164	2.23000E+00	2.48000E+01	0.00000E+00	5.00000E+00	0.00000E+00
165	4.07000E+00	2.48000E+01	0.00000E+00	5.00000E+00	0.00000E+00
166	5.05000E+00	2.70000E+01	0.00000E+00	5.00000E+00	0.00000E+00
167	7.23000E+00	2.70000E+01	0.00000E+00	5.00000E+00	0.00000E+00
168	2.23000E+00	2.50000E+01	0.00000E+00	5.00000E+00	0.00000E+00
169	4.03000E+00	2.50000E+01	0.00000E+00	5.00000E+00	0.00000E+00
170	4.00000E+00	2.55000E+01	0.00000E+00	5.00000E+00	0.00000E+00
171	7.62000E+00	2.55000E+01	0.00000E+00	5.00000E+00	0.00000E+00
172	2.08000E+00	2.50000E+01	0.00000E+00	5.00000E+00	0.00000E+00
173	4.39000E+00	2.50000E+01	0.00000E+00	5.00000E+00	0.00000E+00
174	3.50000E+00	2.50000E+01	0.00000E+00	5.00000E+00	0.00000E+00
175	6.75000E+00	2.50000E+01	0.00000E+00	5.00000E+00	0.00000E+00
176	2.10000E+01	2.59000E+01	0.00000E+00	5.00000E+00	0.00000E+00
177	3.75000E+00	2.59000E+01	0.00000E+00	5.00000E+00	0.00000E+00
178	5.08000E+00	2.50000E+01	0.00000E+00	5.00000E+00	0.00000E+00
179	6.37000E+00	2.50000E+01	0.00000E+00	5.00000E+00	0.00000E+00
180	2.59000E+00	2.65000E+01	0.00000E+00	5.00000E+00	0.00000E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

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EVENT       K WIDT

 121     8.11907E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 122     8.54502E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 123     5.86361E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 124     7.77055E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 125     5.43645E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 126     6.51773E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 127     5.57437E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 128     6.89230E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 129     7.15230E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 130     6.37312E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 131     5.93145E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 132     7.50935E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 133     6.61277E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 134     7.54000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 135     5.73638E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 136     6.51257E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 137     6.63235E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 138     6.84215E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 139     5.82655E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 140     7.95637E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 141     7.68520E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 142     7.78787E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 143     5.97500E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 144     6.98385E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 145     5.47715E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 146     6.56013E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 147     6.90936E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 148     7.66500E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 149     6.55547E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 150     7.51755E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 151     6.52926E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 152     5.90561E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 153     2.34873E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 154     2.66770E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 155     1.92536E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 156     2.24671E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 157     2.40665E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 158     2.27136E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 159     2.40675E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 160     1.93247E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 161     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 162     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 163     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 164     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 165     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 166     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 167     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 168     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 169     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 170     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 171     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 172     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 173     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 174     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 175     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 176     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 177     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 178     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 179     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
 180     0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
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TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

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EVENT      LOT            WAFER          DIE            STRUCT         DIODE

 181   2.00000E+00    4.00000E+00    3.50000E+01    6.00000E+00    8.00000E+00
 182   2.00000E+00    4.00000E+00    2.40000E+01    1.00000E+00    3.00000E+00
 183   2.00000E+00    4.00000E+00    2.40000E+01    1.00000E+00    3.00000E+00
 184   2.00000E+00    4.00000E+00    2.40000E+01    1.00000E+00    1.30000E+01
 185   2.00000E+00    4.00000E+00    2.40000E+01    1.00000E+00    3.00000E+00
 186   2.00000E+00    4.00000E+00    2.40000E+01    6.00000E+00    3.00000E+00
 187   2.00000E+00    4.00000E+00    2.40000E+01    6.00000E+00    3.00000E+00
 188   2.00000E+00    4.00000E+00    2.40000E+01    6.00000E+00    8.00000E+00
 189   2.00000E+00    4.00000E+00    2.40000E+01    6.00000E+00    8.00000E+00
 190   2.00000E+00    4.00000E+00    3.40000E+01    1.00000E+00    3.00000E+00
 191   2.00000E+00    4.00000E+00    3.40000E+01    1.00000E+00    8.00000E+00
 192   2.00000E+00    4.00000E+00    3.40000E+01    5.00000E+00    3.00000E+00
 193   2.00000E+00    4.00000E+00    3.40000E+01    5.00000E+00    3.00000E+00
 194   2.00000E+00    4.00000E+00    3.40000E+01    5.00000E+00    8.00000E+00
 195   2.00000E+00    4.00000E+00    3.40000E+01    6.00000E+00    3.00000E+00
 196   2.00000E+00    4.00000E+00    3.40000E+01    6.00000E+00    3.00000E+00
 197   2.00000E+00    4.00000E+00    5.50000E+01    1.00000E+00    8.00000E+00
 198   2.00000E+00    4.00000E+00    5.50000E+01    1.00000E+00    8.00000E+00
 199   2.00000E+00    4.00000E+00    5.50000E+01    1.00000E+00    1.30000E+01
 200   2.00000E+00    4.00000E+00    5.50000E+01    1.00000E+00    1.30000E+01
 201   2.00000E+00    4.00000E+00    5.50000E+01    5.00000E+00    3.00000E+00
 202   2.00000E+00    4.00000E+00    5.50000E+01    5.00000E+00    3.00000E+00
 203   2.00000E+00    4.00000E+00    5.50000E+01    5.00000E+00    8.00000E+00
 204   2.00000E+00    4.00000E+00    5.50000E+01    5.00000E+00    8.00000E+00
 205   2.00000E+00    4.00000E+00    5.50000E+01    6.00000E+00    3.00000E+00
 206   2.00000E+00    4.00000E+00    5.50000E+01    6.00000E+00    3.00000E+00
 207   2.00000E+00    4.00000E+00    5.50000E+01    6.00000E+00    8.00000E+00
 208   2.00000E+00    4.00000E+00    5.50000E+01    6.00000E+00    8.00000E+00
 209   2.00000E+00    4.00000E+00    4.20000E+01    6.00000E+00    8.00000E+00
 210   2.00000E+00    4.00000E+00    4.20000E+01    6.00000E+00    8.00000E+00
 211   2.00000E+00    4.00000E+00    4.20000E+01    6.00000E+00    3.00000E+00
 212   2.00000E+00    4.00000E+00    4.20000E+01    6.00000E+00    3.00000E+00
 213   2.00000E+00    4.00000E+00    4.20000E+01    1.00000E+00    1.30000E+01
 214   2.00000E+00    4.00000E+00    4.20000E+01    1.00000E+00    1.30000E+01
 215   2.00000E+00    4.00000E+00    4.10000E+01    5.00000E+00    3.00000E+00
 216   2.00000E+00    4.00000E+00    4.10000E+01    5.00000E+00    3.00000E+00
 217   2.00000E+00    4.00000E+00    4.10000E+01    6.00000E+00    8.00000E+00
 218   2.00000E+00    4.00000E+00    4.10000E+01    6.00000E+00    8.00000E+00
 219   2.00000E+00    4.00000E+00    4.10000E+01    1.00000E+00    1.30000E+01
 220   2.00000E+00    4.00000E+00    3.80000E+01    5.00000E+00    3.00000E+00
 221   2.00000E+00    4.00000E+00    3.80000E+01    5.00000E+00    3.00000E+00
 222   2.00000E+00    4.00000E+00    3.80000E+01    5.00000E+00    8.00000E+00
 223   2.00000E+00    4.00000E+00    3.80000E+01    5.00000E+00    8.00000E+00
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TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

EVENT	LENGTH	WIDTH	DATE	PAGE	SHOT#
181	1.00000E+02	4.00000E+00	3.29000E+02	8.11000E+02	2.00000E+00
182	1.00000E+02	3.00000E+00	3.29000E+02	8.15000E+02	2.00000E+00
183	1.00000E+02	5.00000E+00	3.29000E+02	8.15000E+02	2.00000E+00
184	1.00000E+02	4.00000E+00	3.29000E+02	8.19000E+02	3.00000E+00
185	1.00000E+02	4.00000E+00	3.29000E+02	8.20000E+02	4.00000E+00
186	1.00000E+02	5.00000E+00	3.29000E+02	8.21000E+02	1.00000E+00
187	1.00000E+02	3.00000E+00	3.29000E+02	8.22000E+02	2.00000E+00
188	1.00000E+02	4.00000E+00	3.29000E+02	8.24000E+02	1.00000E+00
189	1.00000E+02	4.00000E+00	3.29000E+02	8.24000E+02	2.00000E+00
190	1.00000E+02	3.00000E+00	3.29000E+02	8.29000E+02	2.00000E+00
191	1.00000E+02	3.00000E+00	3.29000E+02	8.30000E+02	3.00000E+00
192	1.00000E+02	3.00000E+00	3.29000E+02	8.32000E+02	2.00000E+00
193	1.00000E+02	5.00000E+00	3.29000E+02	8.33000E+02	3.00000E+00
194	1.00000E+02	4.00000E+00	3.29000E+02	8.34000E+02	1.00000E+00
195	1.00000E+02	5.00000E+00	3.30000E+02	8.37000E+02	1.00000E+00
196	1.00000E+02	3.00000E+00	3.30000E+02	8.38000E+02	2.00000E+00
197	1.00000E+02	3.00000E+00	3.30000E+02	8.40000E+02	2.00000E+00
198	1.00000E+02	3.00000E+00	3.30000E+02	8.41000E+02	3.00000E+00
199	1.00000E+02	4.00000E+00	3.30000E+02	8.42000E+02	1.00000E+00
200	1.00000E+02	4.00000E+00	3.30000E+02	8.43000E+02	2.00000E+00
201	1.00000E+02	3.00000E+00	3.30000E+02	8.46000E+02	2.00000E+00
202	1.00000E+02	3.00000E+00	3.30000E+02	8.47000E+02	3.00000E+00
203	1.00000E+02	4.00000E+00	3.30000E+02	8.50000E+02	3.00000E+00
204	1.00000E+02	4.00000E+00	3.30000E+02	8.51000E+02	4.00000E+00
205	1.00000E+02	3.00000E+00	3.30000E+02	8.53000E+02	3.00000E+00
206	1.00000E+02	3.00000E+00	3.30000E+02	8.54000E+02	4.00000E+00
207	1.00000E+02	4.00000E+00	3.30000E+02	8.56000E+02	2.00000E+00
208	1.00000E+02	4.00000E+00	3.30000E+02	8.57000E+02	3.00000E+00
209	1.00000E+02	4.00000E+00	3.30000E+02	8.59000E+02	1.00000E+00
210	1.00000E+02	4.00000E+00	3.30000E+02	8.60000E+02	2.00000E+00
211	1.00000E+02	3.00000E+00	3.30000E+02	8.62000E+02	4.00000E+00
212	1.00000E+02	3.00000E+00	3.30000E+02	8.64000E+02	5.00000E+00
213	1.00000E+02	4.00000E+00	3.30000E+02	8.65000E+02	1.00000E+00
214	1.00000E+02	4.00000E+00	3.30000E+02	8.66000E+02	2.00000E+00
215	1.00000E+02	3.00000E+00	3.30000E+02	8.69000E+02	2.00000E+00
216	1.00000E+02	3.00000E+00	3.30000E+02	8.70000E+02	3.00000E+00
217	1.00000E+02	4.00000E+00	3.30000E+02	8.73000E+02	1.00000E+00
218	1.00000E+02	4.00000E+00	3.30000E+02	8.74000E+02	2.00000E+00
219	1.00000E+02	4.00000E+00	3.30000E+02	8.77000E+02	3.00000E+00
220	1.00000E+02	3.00000E+00	3.30000E+02	8.80000E+02	2.00000E+00
221	1.00000E+02	3.00000E+00	3.30000E+02	8.81000E+02	3.00000E+00
222	1.00000E+02	4.00000E+00	3.30000E+02	8.87000E+02	4.00000E+00
223	1.00000E+02	4.00000E+00	3.30000E+02	8.88000E+02	5.00000E+00

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

ELEMENT	BIAS	FAIL	TF	[illegible]	[illegible]
101	0.00000E+00	1.00000E+00	4.11000E-01	[illegible]	[illegible]
102	0.00000E+00	0.00000E+00	[illegible]	[illegible]	[illegible]
103	0.00000E+00	1.00000E+00	[illegible]	[illegible]	[illegible]
104	0.00000E+00	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	0.00000E+00	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
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[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]

TABLE 6. PRINTOUT OF DATA BASE (Continued)

WAFER 5 & 4

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EVENT        PE            VBD          RADIUS          DATA 3

 181   3.58000E+00   2.65000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 182   5.08000E+00   2.59000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 183   6.65000E+00   2.56000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 184   2.23000E+00   2.51000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 185   4.01000E+00   2.51000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 186   4.34000E+00   2.70000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 187   6.15000E+00   2.70000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 188   2.47000E+00   2.62000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 189   3.36000E+00   2.62000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 190   4.49000E+00   2.50000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 191   7.70000E+00   2.50000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 192   3.74000E+00   2.68000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 193   5.00000E+00   2.68000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 194   2.32000E+00   2.65000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 195   5.02000E+00   2.65000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 196   6.37000E+00   2.65000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 197   4.66000E+00   2.61000E+01   0.00000E+00   4.00000E+00   0.00000E+00
 198   3.61000E+00   2.61000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 199   2.46000E+00   2.74000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 200   2.77000E+00   2.74000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 201   4.24000E+00   2.59000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 202   6.00000E+00   2.59000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 203   2.05000E+00   2.65000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 204   3.92000E+00   2.65000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 205   4.91000E+00   2.59000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 206   7.41000E+00   2.59000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 207   2.45000E+00   2.68000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 208   3.74000E+00   2.68000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 209   2.12000E+00   2.59000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 210   3.53000E+00   2.59000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 211   4.39000E+00   2.50000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 212   6.83000E+00   2.50000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 213   2.50000E+00   2.75000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 214   2.74000E+00   2.75000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 215   3.57000E+00   2.62000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 216   4.37000E+00   2.62000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 217   2.34000E+00   2.68000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 218   3.20000E+00   2.63000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 219   1.96000E+00   2.38000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 220   3.67000E+00   2.50000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 221   4.29000E+00   2.50000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 222   2.26000E+00   2.53000E+01   0.00000E+00   5.00000E+00   0.00000E+00
 223   4.25000E+00   2.53000E+01   0.00000E+00   5.00000E+00   0.00000E+00
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TABLE 6. PRINTOUT OF DATA BASE (Concluded)

WAFER 5 & 4

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ENT          WIDT

181   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
182   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
183   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
184   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
185   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
186   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
187   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
188   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
189   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
190   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
191   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
192   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
193   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
194   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
195   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
196   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
197   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
198   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
199   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
200   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
201   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
202   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
203   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
204   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
205   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
206   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
207   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
208   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
209   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
210   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
211   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
212   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
213   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
214   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
215   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
216   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
217   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
218   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
219   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
220   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
221   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
222   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
223   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00   0.00000E+00
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TABLE 7. EXPLANATION OF DATA QUALITY

DEVICE NO.	NO FAIL OR FAIL	DATA QUALITY	VOLTAGE < 1 DIVISION	CURRENT < 1 DIVISION	VOLTAGE OSCILLATION	CURRENT OSCILLATION	PULSE < 1 DIVISION	COMMENTS
2-1-20-01-04	F	4					X	
2-1-21-01-04	NF	3	X	X				
2-1-21-01-04	F			X		X		
2-1-34-01-04	F	4					X	
2-1-38-01-04	F	4				X		
2-1-42-01-04	NF	4						Possible high probe contact resistance
2-1-42-01-04	F	4					X	
2-1-56-01-04	F	3		X		X		
2-1-20-01-05	F	4		X				
2-1-38-01-05	NF	4		X				
2-1-38-01-05	F	4		X				
2-1-56-01-05	F	2	X	X			X	
2-1-20-01-09	F	4				X		
2-1-34-01-09	NF	3						Bad Photograph; hardly traceable
2-1-34-01-09	F	4					X	
2-1-20-01-10	NF	4				X		
2-1-20-01-10	F	3				X		I trace poor
2-1-34-01-10	NF	4	X					
2-1-38-01-10	NF	4		X				
2-1-53-01-10	NF	4		X				

TABLE 7. EXPLANATION OF DATA QUALITY (Continued)

DEVICE NO.	NO FAIL OR FAIL	DATA QUALITY	VOLTAGE < 1 DIVISION	CURRENT < 1 DIVISION	VOLTAGE OSCILLATION	CURRENT OSCILLATION	PULSE < 1 DIVISION	
2-1-20-04-05	F	2		X			X	Possible Overkill
2-1-21-04-05	NF	3				X		I trace poor
2-1-21-04-05	F	3			X			I trace poor
2-1-38-04-05	NF	3				X		I trace poor
2-1-38-04-05	F	2		X		X	X	
2-1-40-04-05	F	3			X	X		
2-1-41-04-05	NF	4		X				
2-1-41-04-05	F	4		X				
2-1-56-04-05	F	3		X		X		
2-1-20-05-04	NF	4				X		
2-1-20-05-04	F	4				X		
2-1-21-05-04	NF	3	X			X		
2-1-21-05-04	F	4				X		
2-1-41-05-04	F	2				X	X	I trace poor
2-1-20-05-05	F	1	X	X		X	X	
2-1-21-05-05	NF	2	X	X		X		
2-1-21-05-05	F	1	X	X	X	X		
2-1-38-05-05	NF	3	X	X				
2-1-38-05-05	F	1	X	X	X	X		
2-1-40-05-05	NF	3	X	X				
2-1-40-05-05	F	1	X	X	X	X		
2-1-41-05-05	NF	2	X	X		X		
2-1-41-05-05	F	1	X	X	X	X		

TABLE 7. EXPLANATION OF DATA QUALITY (Continued)

DEVICE NO.	NO FAIL OR FAIL	DATA QUALITY	VOLTAGE < 1 DIVISION	CURRENT < 1 DIVISION	VOLTAGE OSCILLATION	CURRENT OSCILLATION	PULSE < 1 DIVISION	
2-1-56-05-05	NF	4		X				
2-1-56-05-05	F	3			X	X		
2-1-20-06-04	NF	2		X		X		I trace poor
2-1-20-06-04	F	3				X		I trace poor
2-1-38-06-04	NF	2	X			X		I trace poor
2-1-38-06-04	F	2	X			X		I trace poor
2-1-39-06-04	NF	3			X	X		
2-1-39-06-04	F	3			X	X		
2-1-40-06-04	F	3			X	X		
2-1-53-06-04	NF	3		X		X		
2-1-54-06-04	F	2		X		X	X	
2-1-38-06-05	NF	3	X	X				
2-1-38-06-05	F	1	X	X	X	X		
2-1-39-06-05	NF	1	X	X		X		I trace poor
2-1-39-06-05	F	1	X		X	X		I trace poor
2-1-40-06-05	NF	1	X	X	X	X		
2-1-40-06-05	F	0	X	X	X	X		I trace poor
2-1-34-08-03	F	1		X	X	X		I trace poor
2-1-35-08-03	F	-5		X	X	X		I trace poor; possible overkill
2-1-36-08-03	NF	-5			X	X		I trace poor; Did not fail
2-1-37-08-03	F	1			X	X		I trace poor; V trace poor
2-1-39-08-03	NF	1		X	X	X		I trace poor

TABLE 7. EXPLANATION OF DATA QUALITY (Continued)

DEVICE NO.	NO FAIL OR FAIL	DATA QUALITY	VOLTAGE < 1 DIVISION	CURRENT < 1 DIVISION	VOLTAGE OSCILLATION	CURRENT OSCILLATION	PULSE < 1 DIVISION	
2-1-39-08-03	F	0		X	X	x		I trace poor; V trace poor
2-1-41-08-03	F	4					X	
2-1-54-08-03	NF	4		X				
2-1-56-08-03	NF	2		X	X	X		
2-1-56-08-03	F	1		X	X	X		I trace poor
2-1-17-08-04	NF	-5						Did not fail
2-1-34-08-04	NF	4				X		
2-1-34-08-04	F	2			X	X		I trace poor
2-1-35-08-04	F	2			X	X		I trace poor
2-1-36-08-04	F	3			X	X		
2-1-37-08-04	F	4				X		
2-1-39-08-04	NF	2			X	X		I trace poor
2-1-39-08-04	F	2			X	X		I trace poor
2-1-38-11-03	NF	2		X		X		I trace poor
2-1-38-11-03	F	1			X	X		I trace poor; V trace poor
2-1-40-11-03	NF	4		X	X	X		
2-1-40-11-03	F	3			X	X		
2-1-41-11-03	NF	3	X	X				
2-1-41-11-03	F	1		X	X	X		I trace poor
2-1-54-11-03	NF	4		X				
2-1-54-11-03	F	3		X			X	
2-1-17-11-06	NF	4		X				
2-1-17-11-06	F	2		X		X		I trace poor

TABLE 7. EXPLANATION OF DATA QUALITY (Continued)

DEVICE NO.	NO FAIL OR FAIL	DATA QUALITY	VOLTAGE < 1 DIVISION	CURRENT < 1 DIVISION	VOLTAGE OSCILLATION	CURRENT OSCILLATION	PULSE < 1 DIVISION	
2-1-37-11-06	NF	2		X	X	X		
2-1-37-11-06	F	2		X		X		I trace poor
2-1-40-11-06	NF	4		X				
2-1-40-11-06	F	3			X	X		
2-1-41-11-06	F	2		X		X	X	
2-1-54-11-06	NF	4		X				
2-1-21-11-09	NF	2		X		X		I trace poor
2-1-21-11-09	F	2		X		X		I trace poor
2-1-38-11-09	NF	2		X		X		I trace poor
2-1-38-11-09	F	3		X		X		
2-1-40-11-09	NF	4		X				
2-1-40-11-09	F	3			X	X		
2-1-41-11-09	NF	4		X				
2-1-41-11-09	F	3			X	X		
2-1-54-11-09	NF	4		X				
2-4-55-01-08	F	4						V trace poor
2-4-74-01-25	NF	3	X	X				
2-4-65-05-20	F	3			X	X		
2-4-73-05-20	F	4				X		
2-4-63-06-04	F	4					X	
2-4-64-06-04	F	4					X	
2-4-74-06-04	F	4					X	
2-4-64-06-05	F	3					X	Poor trace
2-4-65-06-05	F	4					X	

TABLE 7. EXPLANATION OF DATA QUALITY (Continued)

DEVICE NO.	NO FAIL OR FAIL	DATA QUALITY	VOLTAGE < 1 DIVISION	CURRENT < 1 DIVISION	VOLTAGE OSCILLATION	CURRENT OSCILLATION	PULSE < 1 DIVISION	
2-4-63-06-20	F	4				X		
2-4-64-06-20	F	3			X	X		
2-4-65-06-20	F	3			X	X		
2-5-64-01-08	F	2						Optical photo fail?
2-5-64-01-09	F	2						Optical photo fail?
2-5-73-01-09	NF	2						Optical photo fail?
2-5-73-01-09	F	2						Optical photo fail?
2-5-72-01-13	NF	2						Did not fail
2-5-53-01-24	NF	4				X		
2-5-66-01-24	NF	1						Did not fail
2-5-72-01-24	F	1			X	X		Optical photo fail?
2-5-73-01-24	NF	1			X	X		Did not fail
2-5-75-01-24	NF	2			X	X		Did not fail
2-5-53-01-25	NF	2						Did not fail
2-5-66-01-25	NF	2						Did not fail
2-5-72-01-25	F	2						Optical photo fail?
2-5-73-01-25	NF	2						Did not fail
2-5-74-01-25	NF	2						Did not fail
2-5-65-05-03	F	2						Optical photo fail?
2-5-66-05-04	F	2						Optical photo fail?
2-5-72-05-04	F	2						Optical photo fail?
2-5-73-05-04	F	2						Optical photo fail?
2-5-75-05-04	F	2						Optical photo fail?

TABLE 7. EXPLANATION OF DATA QUALITY (Continued)

DEVICE NO.	NO FAIL OR FAIL	DATA QUALITY	VOLTAGE < 1 DIVISION	CURRENT < 1 DIVISION	VOLTAGE OSCILLATION	CURRENT OSCILLATION	PULSE < 1 DIVISION	
2-5-72-05-05	NF	4	X					
2-5-72-05-05	F	2						Optical photo fail?
2-4-55-01-08	F	4						V trace poor
2-5-73-05-05	F	2						Optical photo fail?
2-5-74-05-05	F	2						Optical photo fail?
2-5-75-05-05	NF	4	X					
2-5-75-05-05	F	2						Optical photo fail?
2-5-64-05-08	NF	2						Did not fail
2-5-53-05-19	NF	1						Did not fail
2-5-66-05-19	NF	1						Did not fail
2-5-72-05-19	NF	1			X	X		Did not fail
2-5-73-05-19	NF	1			X	X		Did not fail
2-5-75-05-19	NF	1			X	X		Did not fail
2-5-66-05-20	NF	2						Did not fail
2-5-72-05-20	NF	2						Did not fail
2-5-73-05-20	NF	2						Did not fail
2-5-74-05-20	NF	2						Did not fail
2-5-73-06-03	F	2						Optical photo fail?
2-5-72-06-04	NF	2						Optical photo fail?
2-5-72-06-04	F	2						Optical photo fail?
2-5-73-06-04	F	2						Optical photo fail?
2-5-74-06-04	NF	2						Optical photo fail?
2-5-64-06-05	F	2						Optical photo fail?

TABLE 7. EXPLANATION OF DATA QUALITY (Concluded)

DEVICE NO.	NO FAIL OR FAIL	DATA QUALITY	VOLTAGE < 1 DIVISION	CURRENT < 1 DIVISION	VOLTAGE OSCILLATION	CURRENT OSCILLATION	PULSE < 1 DIVISION	
2-5-66-06-05	NF	4	X					
2-5-72-06-05	NF	4	X					
2-5-74-06-05	F	1				X		Optical photo fail?
2-5-75-06-05	F	1	X					Optical photo fail?
2-5-64-06-08	F	2						Optical photo fail?
2-5-53-06-19	NF	2						Did not fail
2-5-72-06-19	NF	2						Did not fail
2-5-73-06-19	NF	1			X	X		Did not fail
2-5-75-06-19	NF	2						Did not fail
2-5-53-06-20	F	2						Optical photo fail?
2-5-72-06-20	NF	2						Did not fail
2-5-74-06-20	NF	2						Did not fail
2-5-75-06-20	F	2						Optical photo fail?

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