

Clarion

Service Manual



2/1 Channel Power Amplifier Model APX1000.2

■ SPECIFICATIONS

Maximum Output Power (RMS)

Stereo @4 Ohms	2x 270 Watts
Stereo @2 Ohms	2x 525 Watts
Bridged @4 Ohms	1x 1050 Watts

Distortion T.H.D.

160 Watts	<.05% @ 4 Ohm
400 Watts	<.05% @ 2 Ohm
100 Watts	<.005% @4 Ohms

Frequency Response (+/- 1dB)

20Hz- 20kHz

S/N Ratio (A wtg.)

>105dB

Separation @1 kHz

>65dB

Power Supply

14.4V (10.8V to 15.6V) negative ground

Input Sensitivity @ rated output

250mV - 2.5V

Bass Boost

0 - 18dB @45Hz

Crossover (Butterworth)

12/24dB Stereo 50Hz - 5.5kHz

Input Impedance

33K Ohms

Maximum Current

135A @1100W

Idle Current

2.42A

Slew Rate

60VuS

Damping Factor

>2,000 @1kHz

Dimensions (L x W x H)

18" x 8" x 2.35"

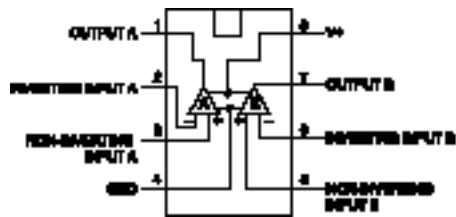
■ COMPONENTS

- 1 - APX1000.2 Amplifier
- 1 - Owners/Installation Manual
- 1 - Warranty Card

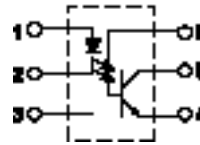
FOR FURTHER IMPROVEMENT, SPECIFICATIONS AND DESIGN ARE SUBJECT TO CHANGE WITHOUT NOTICE

EXPLANATION OF IC

LM393N Dual Op Amp DIP 8 Pin



QTC 4N25 Single Opto-Coupler



LM317 Adjustable Output Positive Voltage Regulator



Heatsink Surface connected to Pin 2.

- Pin 1. Adjust
2. V_{out}
3. V_{in}

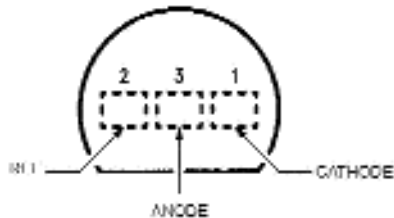
LM337 Adjustable Output Negative Voltage Regulator



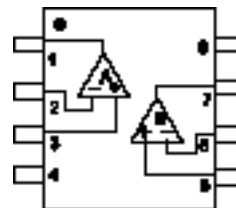
Heatsink Surface connected to Pin 2.

- Pin 1. Adjust
2. V_{out}
3. V_{in}

LMC431ACZ Adjustable Precision Zener Shunt Regulator



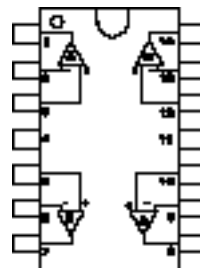
NJM5532D Low Noise Dual Op Amplifier NJM072D Dual J-FET Input Op Amplifier



PIN FUNCTION

- | | |
|-------------|-------------|
| 1. A Output | 5. B+ Input |
| 2. A- Input | 6. B- Input |
| 3. A+ Input | 7. B Output |
| 4. V- | 8. V+ |

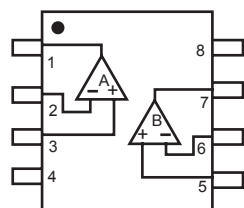
NJM074D Quad J-FET Input Op Amplifier



PIN FUNCTION

- | | |
|-------------|--------------|
| 1. A Output | 8. C Output |
| 2. A- Input | 9. C- Input |
| 3. A+ Input | 10. C+ Input |
| 4. V+ | 11. V- |
| 5. B+ Input | 12. D+ Input |
| 6. B- Input | 13. D- Input |
| 7. B Output | 14. D Output |

NJM4560D Dual Op Amplifier DIP 8 Pin



PIN FUNCTION

- | | |
|-------------|-------------|
| 1. A Output | 5. B+ Input |
| 2. A- Input | 6. B- Input |
| 3. A+ Input | 7. B Output |
| 4. V- | 8. V+ |

SG3525 16-Pin Plastic Dip N-Package



■ ELECTRICAL PARTS LIST

Qty	Reference	Part No.	Description
31	D5-17 D19-21 D23-33 D36-39	1N4148	1N4148 Axial DO-35
4	D18 D22 D34-35	1N4934	General Instrument 1N4934 Axial DO-41
1	DZ1	1N759A	1N759A or 1N5242B 12V ZENER
1	DZ2	1N961B	1N961B or 1N5240B 10V ZENER
2	DZ4-5	1N966A	1N966A or 1N5246B 16V ZENER
1	DZ3	1N967A	1N967B or 1N5248B 18V ZENER
3	DZ6-8	1N975A	1N975A or 1N5259B 39V ZENER
3	Q37 Q43-44	2N6715	Central Semi 2N6715 NPN 2A 50V TO-237
2	Q40-41	2N6726	Central Semi 2N6726 PNP 2A 50V TO-237
1	J10	BAR3P\BIGUP	VIMEX STO35767SG barrier 1x3 au rt ang up big
4	L1-2 L6-7	BEAD Panasonic EXC-ELSA35	FERRITE BEAD 80 OHM @ 100MHz
2	C23 C51	CAP-.12U-MMYL	Panasonic ECQ-V1H124JL CAP MMYL .15U 50V 5% 5mm LS
23	C1 C3-4 C8 C11 C47-48 C50 C53 C55 C58 C60-62 C70-73 C82 C86 C92 C97 C101 C104 C120	CAP-.1U-CER-MONO	Panasonic ECU-S1H104KBB CAP MONO U150V RAD 5mm LS
11	C6 C16 C40 C52 C87 C90 C95 C100 C108 C111 C118 C91	CAP-.1U-MMYL	Panasonic ECQ-V1H104JL CAP MMYL .1U 50V 5% 5mm LS
1	C91	CAP-.22U-MMYL	Panasonic ECQ-V1H224JL CAP MMYL .22U 50V 5% 5mm LS
2	C123 C126	CAP-.47U-MMYL	Panasonic ECQ-V1H474JL CAP MMYL U47 50V 5%
12	C31-32 C39 C43 C46 C54 C88 C99 C102 C106 C109-110	CAP-1000U-50	Panasonic ECA-1HFQ102 CAP ALECT 1000U 50V RAD105C LOW ESR 16Dx25Hx7.5LS
2	C59 C83	CAP-100U-100	Panasonic ECA-2AHG101 CAP ALECT 100U 100V 20% RAD 105C 10Dx20Hx5 LS
1	C89	CAP-100U-16-NP	Panasonic ECE-A1CN101U CAP ALECT 100U 16V 20% RAD 105C 8Dx11.5Hx3.5LS NON POL
2	C38 C96	CAP-10P-CER	Panasonic ECC-F1H100D CAP CERAMIC DISC 10P 50V 2.5 LS
5	C17 C33 C37 C69 C76	CAP-10U-50	Panasonic ECA-1HFG100 CAP RAD 105C 5Dx11Hx2LS 10UF 50V
2	C80-81	CAP-150P-MMYL	Panasonic ECQ-B1H151KF CAP MMYL 150P 50V 5mm LS
1	C30	CAP-1U-50	Panasonic NHG series ECA-1HHG010 CAP ALECT 1U 50V 20% 5Dx11Hx2LS
2	C34 C105	CAP-2.2N-MMYL	Panasonic ECQ-V1H222JF CAP MMYL 2N2 50V 5% 5mm LS
3	C21 C45 C116	CAP-2.2U-50	Panasonic ECA-1HFG2R2 CAP RAD105C 5Dx11Hx2LS 2.2UF 50V
2	C98 C107	CAP-2.7N-MMYL	Panasonic ECQ-B1H272JF CAP MMYL 2N7 50V 5% 5mm LS
2	C26 C112	CAP-220U-25-ESR	Panasonic ECA-1EFQ221 CAP ALECT 220U 25V 20% RAD 105C 10Dx12.5Hx.5LS
1	C5	CAP-3.3N-MMYL	Panasonic ECQ-B1H332JF CAP MMYL 3.3N 50V
6	C64 C77 C93-94 C103 C114	CAP-3300U-25	Panasonic ECA-1EFQ332 CAP ALECT 3300U 25V LOW ESR RAD 105C 20% 18X31.5X7.5
2	C124-125	CAP-39N-MMYL	Panasonic ECQ-B1H393JF CAP MMYL 33N 50V 5% 5mm LS
4	C2 C9 C44 C63	CAP-47U-50	Panasonic EEU-FC1H470 CAP ALECT 47U 50V 20% RAD 105C 6.3Dx11.2Hx2.5 LS
8	C18-19 C35-36 C65-66 C78-79	CAP-5.6N-MMYL	Panasonic ECQ-B1H562JF CAP MMYL 5N6 50V 5% 5mm LS
8	C12-13 C41-42 C56-57 C84-85	CAP-56N-MMYL	Panasonic ECQ-B1H563JF CAP MMYL 56N 50V 5% 5mm LS
2	C15 C119	CAP-680P-MMYL	Panasonic ECQ-B1H1681JF CAP MMYL 680P 50V 5% 5mm LS

Qty	Reference	Part No.	Description
14	C7 C10 C14 C24-25 27-29 C49 C67-68 C74-75 C115	CAP-68P-CER	Panasonic ECC-F1H680JC CAP CER DISC 68P 50V 5mm LS
2	C121-122	CAP-OMIT-MMYL	CAP MMYL OMIT 50V 5% 5mm LS
4	C20 C22 C113 C117	CAP.1U-MONO-100V	Panasonic ECU-S2A104KBA CAP MONO U1 100V RAD 5mm LS
2	L3-4	CHOKE-ZIB-LARGE	LARGE ZIBBLE COIL
1	L5	CHOKE_ARC2500	ARC2500 OUTPUT CHOKE
1	J9	CONN_2P_2.5MM	Fairland JS-1135-2 2.5mm 2 pos header stright
1	J7	EMU\BAR4PL Dinkle Enterprise	EM-1104 CONN BARRIER 1x4 AU RT ANGLE
4	D1-4	FES16DT General Instrument	FES16DT RECT ULTRAFast 16A200V35nS
3	F1-3	FUSEATO	Keystone #3522-2 ATO blade fuse holder
1	LED1	LED-TRI-LEVEL LEDTRONICS	31PCT170T5R/Y/G LED TRI-LEVEL R/Y/G
3	U12 U16 U21	LM393 National	LM393N Dual Op Amp DIP 8 pin
1	U1	LM317T	Motorola LM317T Adjustable pos. regulator
1	U2	LM337T	Motorola LM337T Adjustable neg. regulator
4	Q8 Q10 Q51 Q53	MJE340	Motorola MJE340 NPN .5 AMP 300 VOLT TRANSISTOR
4	Q7 Q9 Q52 Q54	MJE350 Motorola	MJE350 PNP .5 AMP 300 VOLT TRANSISTOR
13	Q13 Q18 Q21-22 Q27-30 Q32-34 Q42 Q57	MPSA06	MPSA06 EBC TO-92 NPN Small signal Transistor
11	Q19-20 Q23-26 Q31 Q35-36 Q38-39	MPSA56	MPSA56 EBC TO-92 NPN Small signal Transistor
1	U19	NE5532 JRC (NJR)	NJM5532D Lo Noise Dual Op Amp DIP 8
5	U3-4 U7 U9-10	NJM4560D JRC	NJM4560D Dual Op Amp DIP 8 pin
4	U11 U13 U15 U17	OPTO-4N25 QT	Opto. # QTC 4N25 SINGLE OPTO-COUPLER
4	VR1 VR3 VR13-14	PIHERRT-20K Vimex	CA9MH2.5 20k lin 10% Pot trim 20K ohm hex
8	VR4-11	PIHERRT-50K Vimex	CA9MH2.5 50k lin 10% Pot trim 50K ohm hex
4	R57 R117 R232 R235	R1/2W-1.1	1.1 OHM .5 Watt 10%
2	R136 R156	R1/4W-10	RESISTOR 1/4W 1%
2	R227-228	R1/4W-10	RESISTOR 1/4W 1%
1	R80	R1/4W-15	RESISTOR 1/4W 1%
6	R70 R88 R94 R110 R179 R185	R1/4W-10K	RESISTOR 1/4W 1%
2	R52 R112	R1/4W-2.2	RESISTOR 1/4W 1%
2	R66 R73	R1/4W-20K	RESISTOR 1/4W 1%
4	R44-45 R257-258	R1/4W-22.1	RESISTOR 1/4W 1%
1	R261	R1/4W-2K	RESISTOR 1/4W 1%
2	R92 R98	R1/4W-56.2	RESISTOR 1/4W 1%
10	R47 R54 R59-60 R74 R176 R205-206 R210 R220	R1/4W-8.25K	RESISTOR 1/4W 1%
2	R37 R243	R1/8W1%-93	RESISTOR 1/8W 1% 93
4	R81-82 R151-152	R1/8W1%-100	RESISTOR 1/8W 1% 100
2	R222 R256	R1/8W1%-110	RESISTOR 1/8W 1% 110
2	R36 R244	R1/8W1%-120	RESISTOR 1/8W 1% 120
7	R17 R63 R67 R139 R146 R233-234	R1/8W1%-221	RESISTOR 1/8W 1% 221
2	R5-6	R1/8W1%-274	RESISTOR 1/8W 1% 274
4	R76 R125 R191 R197	R1/8W1%-332	RESISTOR 1/8W 1% 332
3	R53 R68 R71	R1/8W1%-475	RESISTOR 1/8W 1% 475
6	R30 R38 R201 R215 R242 R250	R1/8W1%-511	RESISTOR 1/8W 1% 511
4	R50 R69 R184 R217	R1/8W1%-681	RESISTOR 1/8W 1% 681
4	R171 R231 R236 R260	R1/8W1%-750	RESISTOR 1/8W 1% 750
2	R46 R64	R1/8W1%-887	RESISTOR 1/8W 1% 887
2	R137-138	R1/8W1%-1.1K	RESISTOR 1/8W 1% 1.1K
4	R33 R43 R61 R247	R1/8W1%-1.43K	RESISTOR 1/8W 1% 1.43K
4	R130-133	R1/8W1%-1.62K	RESISTOR 1/8W 1% 1.62K
6	R3 R7 R13 R16 R203 R221	R1/8W1%-100K	RESISTOR 1/8W 1% 100K

Qty	Reference	Part No.	Description
17	R58 R62 R72 R115 R129 R134 R148-149 R154 R159 R168 R173-174 R178 R186-187 R204	R1/8W1%-10K	RESISTOR 1/8W 1% 10K
6	R26-27 R83 R89 R161-162	R1/8W1%-18.2K	RESISTOR 1/8W 1% 18.2K
9	R65 R75 R93 R124 R145 R158 R189 R192 R198	R1/8W1%-1K	RESISTOR 1/8W 1% 1K
1	R95	R1/8W1%-1M	RESISTOR 1/8W 1% 1M
1	R259	R1/8W1%-2.15K	RESISTOR 1/8W 1% 2.15K
2	R8 R14	R1/8W1%-2.26K	RESISTOR 1/8W 1% 2.26K
8	R120 R140 R153 R169 R180 R188 R229-230	R1/8W1%-20K	RESISTOR 1/8W 1% 20K
20	R34 R77 R79 R123 R126 R190 R193 R196 R199 R246 R262-271	R1/8W1%-22.1	RESISTOR 1/8W 1% 22.1
2	R142-143	R1/8W1%-243K	RESISTOR 1/8W 1% 243K
24	R31 R78 R84-87 R90-91 R96-97 R99 R101-108 R121 R175 R195 R200 R249	R1/8W1%-2K	RESISTOR 1/8W 1% 2K
8	R10-11 R49 R113-114 R118-119 R218	R1/8W1%-3.48K	RESISTOR 1/8W 1% 3.48K
1	R181	R1/8W1%-33.2K	RESISTOR 1/8W 1% 33.2K
2	R12 R111	R1/8W1%-332K	RESISTOR 1/8W 1% 332K
8	R32 R35 R48 R51 R216 R219 R245 R248	R1/8W1%-36.5	RESISTOR 1/8W 1% 36.5
20	R1 R4 R9 R15 R109 R127 R155 R157 R160 R165-167 R172 R182-183 R207 R211-214	R1/8W1%-4.75K	RESISTOR 1/8W 1% 4.75K
6	R128 R135 R144 R147 R150 R170	R1/8W1%-47.5K	RESISTOR 1/8W 1% 47.5K
4	R100 R116 R163-164	R1/8W1%-475K	RESISTOR 1/8W 1% 475K
4	R39 R42 R241 R251	R1/8W1%-5.11	RESISTOR 1/8W 1% 5.11
1	R202	R1/8W1%-56.2	RESISTOR 1/8W 1% 56.2
4	R55-56 R208-209	R1/8W1%-6.81	RESISTOR 1/8W 1% 6.81
1	R141	R1/8W1%-6.81K	RESISTOR 1/8W 1% 6.81K
3	R122 R177 R194	R1/8W1%-8.25K	RESISTOR 1/8W 1% 8.25K
1	R2	R2W-30	30 OHM 2 Watt 5%
4	R29 R40 R224-225	R2W-.1	SEI type RS metal oxide Metal Oxide 2 watt +-5%
20	R18-25 R28 R41 R223 R226 R237-240 R252-255	R2W-.2	SEI type RS metal oxide Metal Oxide 2 watt +-5%
10	M1-10	RFP50N06 Harris RFP50N06	RFP50N06 FET 50A 60V .022R
1	U20	SG3525 Linfinity SG3525AN	SG3525AN DIP-16 reg PWM
1	S1	SW-2P2T AD ELECT	JFPB-21S-A(N) 2 POLE PUSH PUSH SWITCH
2	SW3-4	SW-4P2T AD Electronics	JFPB-41S-A(N) 4 POLE PUSH PUSH SWITCH
1	SW5	SW-8P2T-PUSH E-SWITCH	TA8UEE C AG P N TAG BLK 8 POLE PUSH PUSH SWITCH
1	SW2	SW-EG2211	SWITCH 2P2T SLIDE RT ANGLE
1	SW1	SW-EG2315	E-Switch EG2315A SWITCH 2P3T RIGHT ANGLE
2	_M1-2	TEENUT	
1	TH1	THERMISTOR-100K	Thermistor 100K NTC 6mm dia.
2	Q11 Q50	TIP31C	Motorola TIP31C NPN 4A 100V TRANSISTOR
2	Q6 Q55	TIP32C	Motorola TIP32C PNP 4A 100V TRANSISTOR
10	Q12 Q14-17 Q45-49	TIP35C Motorola	TIP35C NPN 25 AMP 100 VOLT TRANSISTOR
10	Q1-5 Q56 Q58-61	TIP36C Motorola	TIP36C PNP 25 AMP 100 VOLT TRANSISTOR
3	U5 U14 U18	TL074 JRC (NJR) NJM074D	Quad J-FET OP Amp DIP 14
3	U6 U8 U22	TL431-TO92	National LM431ACZ Precision Reference
3	P1 VR2 VR12	TRIM-6-VERT-500	VIMEX #CA6V 500ohm lin. POT TRIM 500 OHM VERT SMALL
1	X1	XFMRARC2500	CORE - MAGNETICS Transformer Toroid 1000W

■ MECHANICAL PARTS LIST

Ref. No.	Part No.	Qty	Description
1	77-00235-GK	1	HEATSINK Cable 457.2mm
2	YH-00007-00	2	PCB Retaining Nuts A+B+C+D
3	76-00276-00	3	FUSE 40A
4	78-00284-00	40	Silicone Fiber Tube 2mm*6mm
4	78-00292-00	56	Silicone Fiber Tube 2mm*8mm
5	75-00151-00	2	A06 Transistor Clip White Iron
6	78-00285-00	1	KAPTON 25*400mm
6	78-00286-00	1	KAPTON 25*350mm
7	74-00153-00	44	Clips Black
8	NM-OH330-01	4	Stud (Male and Female) M3.0*P0.5+W
9	75-00001-00	1	Fan D6015B12M Wire150mm+2P (XH)
10	72-00299-00	1	Bottom Panel APX1000.2
11	ST-RP430-08	6	Self-Tap Screw T/R Black 3*8
12	SM-RP430-20	4	Mechanical Screw Flat and Black 3*20
13	ST-IH430-08	8	Internal-Hex Self-Tap Black 3*8
13	ST-IH430-12	4	Self-Tap Screw Black and Internal-Hex 3*12
14	32-00646-00	2	RCA JACK (Red) RJ-126HG-TEF-RD
15	32-00646-01	2	RCK JACK (Black) RJ-126HG-TEF-BK
16	71-00413-00	1	Front Panel APX1000.2
17	71-00414-00	1	Rear Panel APX1000.2 APX1000.2
	75-00002-00	1	Dimond-Cut Badges CLARION POWER-
18	BAR3P\BIG\UP	1	VIMEX STO35767SG Connector BARRIER 1x3 AU RT ANG UP BIG
19	EMU\BAR4PL	1	Dinkle Enterprise EM-1104 CONN BARRIER 1x4 AU RT ANGLE

EXPLODED VIEW

