HX321LS11IB2/4

4GB 512M x 64-Bit DDR3L-2133
CL11 204-Pin SODIMM

SPECIFICATIONS

CL(IDD)	11 cycles
Row Cycle Time (tRCmin)	44.22ns (min.)
Refresh to Active/Refresh Command Time (tRFCmin)	260ns (min.)
Row Active Time (tRASmin)	31.875ns (min.)
Maximum Operating Power	TBD W* @1.35V
UL Rating	94 V - 0
Operating Temperature	0° C to 85° C
Storage Temperature	-55° C to $+100^{o}$ C

*Power will vary depending on the SDRAM used.

DESCRIPTION

HyperX HX321LS11IB2/4 is a 512M x 64-bit (4GB) DDR3L-2133 CL11 SDRAM (Synchronous DRAM) 1Rx8, low voltage, memory modules, based on eight 512M x 8-bit DDR3 FBGA components. This module has been tested to run at DDR3L-2133 at a low latency timing of 11-12-13 at 1.35V or 1.5V. Additional timing parameters are shown in the PnP Timing Parameters section below. The JEDEC standard electrical and mechanical specifications are as follows:

Note: The PnP feature offers a range of speed and timing options to support the widest variety of processors and chipsets. Your maximum speed will be determined by your BIOS.

PnP JEDEC TIMING PARAMETERS:

- DDR3-2133 CL11-12-13 @1.35V or 1.5V
- DDR3-1866 CL10-11-12 @1.35V or 1.5V
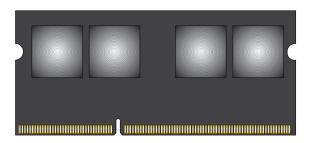- DDR3-1600 CL9-9-10 @1.35V or 1.5V

FEATURES

- JEDEC standard 1.35V and 1.5V

- VDDQ = 1.35V and 1.5V

- 1066MHz fCK for 2133Mb/sec/pin

- 8 independent internal bank

- Programmable CAS Latency: 15, 14, 13, 12, 11, 10, 9, 8, 7, 6

- Programmable Additive Latency: 0, CL - 2, or CL - 1 clock

- 8-bit pre-fetch

- Burst Length: 8 (Interleave without any limit, sequential with starting address "000" only), 4 with tCCD = 4 which does not allow seamless read or write [either on the fly using A12 or MRS]

- Bi-directional Differential Data Strobe

- Internal(self) calibration : Internal self calibration through ZQ pin (RZQ : 240 ohm ± 1%)

- On Die Termination using ODT pin

- Average Refresh Period 7.8us at lower than TCASE 85°C, 3.9us at 85°C < TCASE ≤ 95°C

- Asynchronous Reset

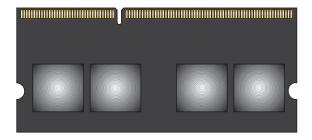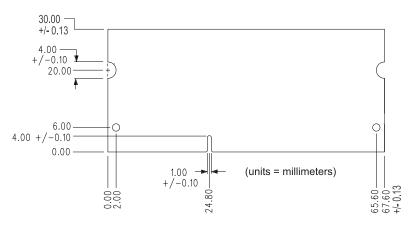- PCB : Height 1.180" (30.00mm), double sided component

MODULE DIMENSIONS

FOR MORE INFORMATION, GO TO WWW.KINGSTON.COM/HYPERX