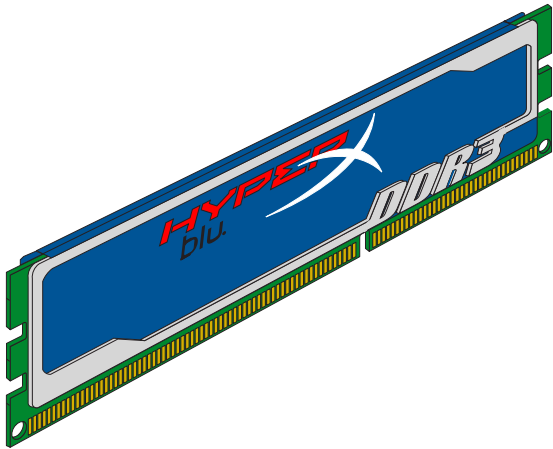


# Memory Module Specifications

## KHX1333C9D3B1/4G

4GB 512M x 64-Bit DDR3-1333MHz

CL9 240-Pin DIMM



### DESCRIPTION

This document describes Kingston's 512M x 64-bit (4GB) DDR3-1333MHz CL9 SDRAM (Synchronous DRAM) memory module, based on sixteen 256M x 8-bit DDR3 FBGA components. The SPD is programmed to JEDEC standard latency DDR3-1333MHz timing of 9-9-9 at 1.5V. This 240-pin DIMM uses gold contact fingers and requires +1.5V. The JEDEC standard electrical and mechanical specifications are as follows:

### SPECIFICATIONS

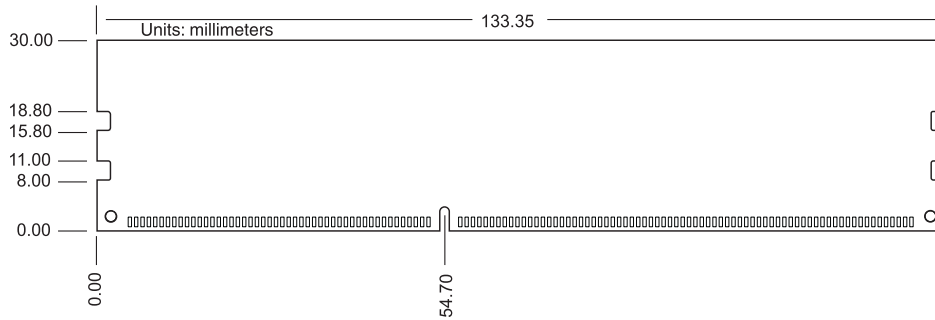
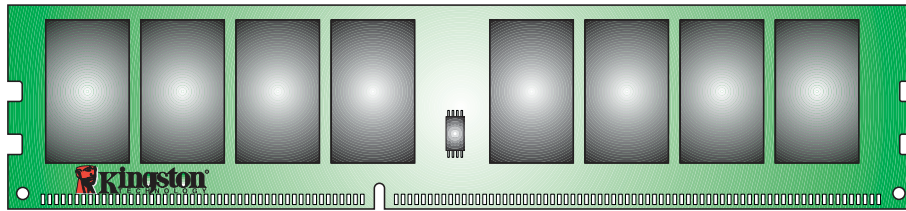
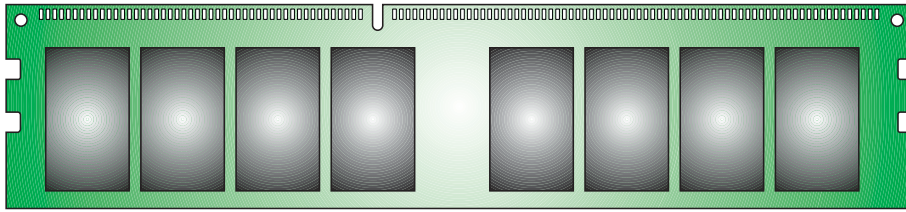
CL(IDD)	9 cycles
Row Cycle Time (tRCmin)	49.5ns (min.)
Refresh to Active/Refresh Command Time (tRFCmin)	160ns
Row Active Time (tRASmin)	36ns (min.)
Power	2.225 W (operating)
UL Rating	94 V - 0
Operating Temperature	0° C to 85° C
Storage Temperature	-55° C to +100° C

### FEATURES

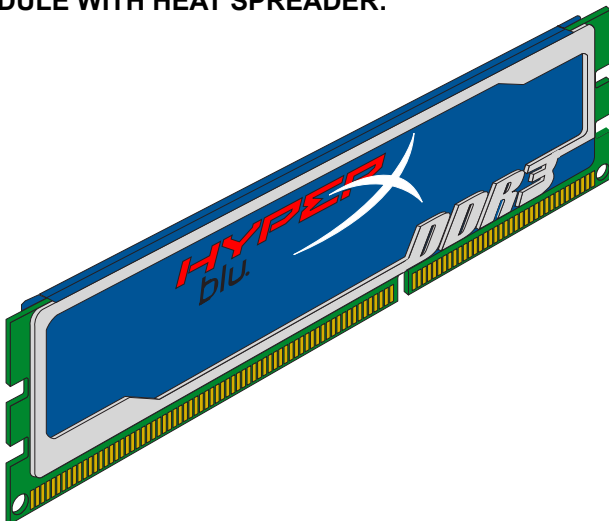
- JEDEC standard 1.5V ± 0.075V Power Supply
- VDDQ = 1.5V ± 0.075V
- 667MHz fCK for 1333Mb/sec/pin
- 8 independent internal bank
- Programmable CAS Latency: 6,7,8,9,10
- Posted CAS
- Programmable Additive Latency: 0, CL - 2, or CL - 1 clock
- Programmable CAS Write Latency(CWL) = 7 (DDR3-1333)
- 8-bit 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

Continued >>

**MODULE DIMENSIONS:**



**MODULE WITH HEAT SPREADER:**



FOR MORE INFORMATION, GO TO [WWW.KINGSTON.COM](http://WWW.KINGSTON.COM)

All Kingston products are tested to meet our published specifications. Some motherboards or system configurations may not operate at the published HyperX memory speeds and timing settings. Kingston does not recommend that any user attempt to run their computers faster than the published speed. Overclocking or modifying your system timing may result in damage to computer components.