

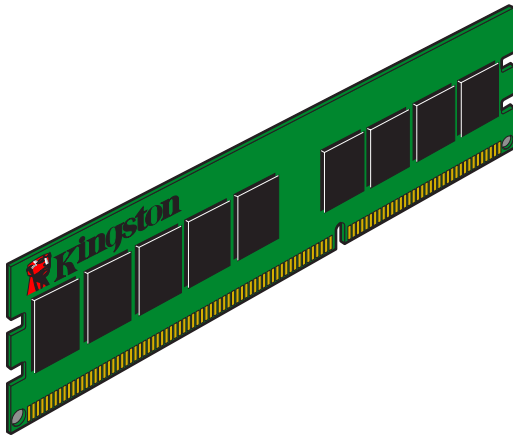
## KVR1333D3E9S/4GHB

4GB 2Rx8 512M x 72-Bit DDR3-1333

CL9 ECC 240-Pin DIMM

### DRAM SUPPORTED

Hynix B-Die



### DESCRIPTION

This document describes ValueRAM's 512M x 72-bit (4GB) 2Rx8 DDR3-1333 CL9 SDRAM (Synchronous DRAM) ECC memory module, based on eighteen 256Mx 8-bit DDR3-1333 FBGA components. The SPD is programmed to JEDEC standard latency DDR3-1333 timing of 9-9-9 at 1.5V. This 240-pin DIMM uses gold contact fingers and requires +1.5V. The 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  | 2.338 W (operating per module) |
| 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
- 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
- Thermal Sensor Grade B
- PCB : Height 1.18" (30.00mm) double-sided component
- RoHS Compliant

Continued >>

MODULE DIMENSIONS:

