

KVR1333D3D4R9S/4GEA

4GB 512M x 72-Bit PC3-10600

CL9 Registered w/Parity 240-Pin DIMM

DESCRIPTION:

This document describes ValueRAM's 512M x 72-bit 4GB (4096MB) DDR3-1333MHz CL9 SDRAM (Synchronous DRAM) registered w/parity, dual-rank memory module, based on thirty-six 256M x 4-bit DDR3-1333MHz FBGA components. The SPD is programmed to JEDEC standard latency 1333MHz 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:

FEATURES:

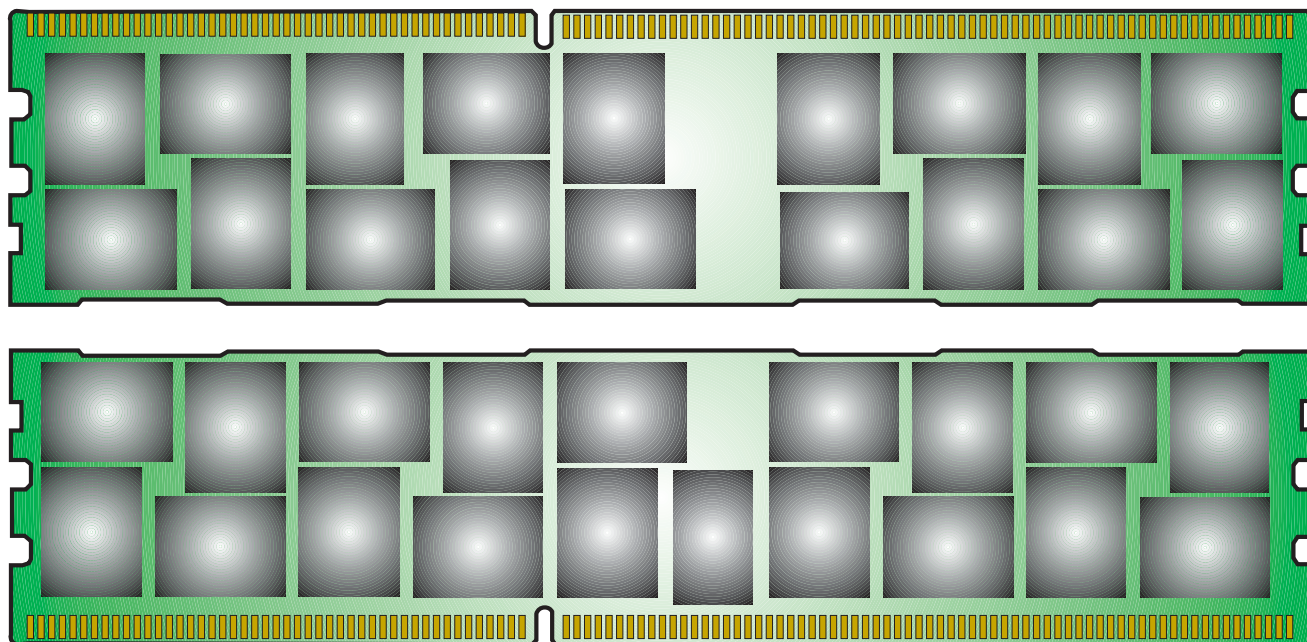
- ✓ JEDEC standard 1.5V $\pm$ 0.075V Power Supply
- ✓ VDDQ = 1.5V $\pm$ 0.075V
- ✓ 667MHz fCK for 1333Mb/sec/pin
- ✓ 8 independent internal bank
- ✓ Programmable CAS Latency: 6,7,8,9,10
- ✓ Programmable Additive Latency: 0, CL - 2, or CL - 1 clock
- ✓ Programmable CAS Write Latency(CWL) = 7(DDR3-1333)
- ✓ 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 $\pm$ 1%)
- ✓ On Die Termination using ODT pin
- ✓ On-DIMM thermal sensor (Grade B)
- ✓ Average Refresh Period 7.8us at lower then TCASE 85°C, 3.9us at 85°C < TCASE . 95°C
- ✓ Asynchronous Reset
- ✓ PCB : Height 18.75mm, double sided component

DRAM Supported:

Elpida A-Die

PERFORMANCE:

- | | |
|--|---------------------|
| ✓ CL(IDD) | 9 cycles |
| ✓ Row Cycle Time (tRCmin) | 49.5ns (min.) |
| ✓ Refresh to Active/Refresh Command Time (tRFCmin) | 110ns (min.) |
| ✓ Row Active Time (tRASmin) | 36ns (min.) |
| ✓ Power | 3.960 W (operating) |
| ✓ UL Rating | 94 V - 0 |
| ✓ Operating Temperature | 0° C to 85° C |
| ✓ Storage Temperature | -55° C to +100° C |

MODULE DIMENSIONS:

(Units = millimeters)

