

## KVR13R9D4K2/32

32GB (16GB 2G x 72-Bit x 2 pcs.) PC3-10600  
CL9 Registered w/Parity 240-Pin DIMM Kit

### DESCRIPTION

ValueRAM's KVR13R9D4K2/32 is a kit of two 2G x 72-bit (16GB) DDR3-1333 CL9 SDRAM (Synchronous DRAM), registered w/parity, 2Rx4 ECC memory modules, based on thirty-six 1G x 4-bit FBGA components per module. Total kit capacity is 32GB. The SPDs are programmed to JEDEC standard latency DDR3-1333 timing of 9-9-9 at 1.5V. Each 240-pin DIMM uses gold contact fingers. The electrical and mechanical specifications are as follows:

### FEATURES

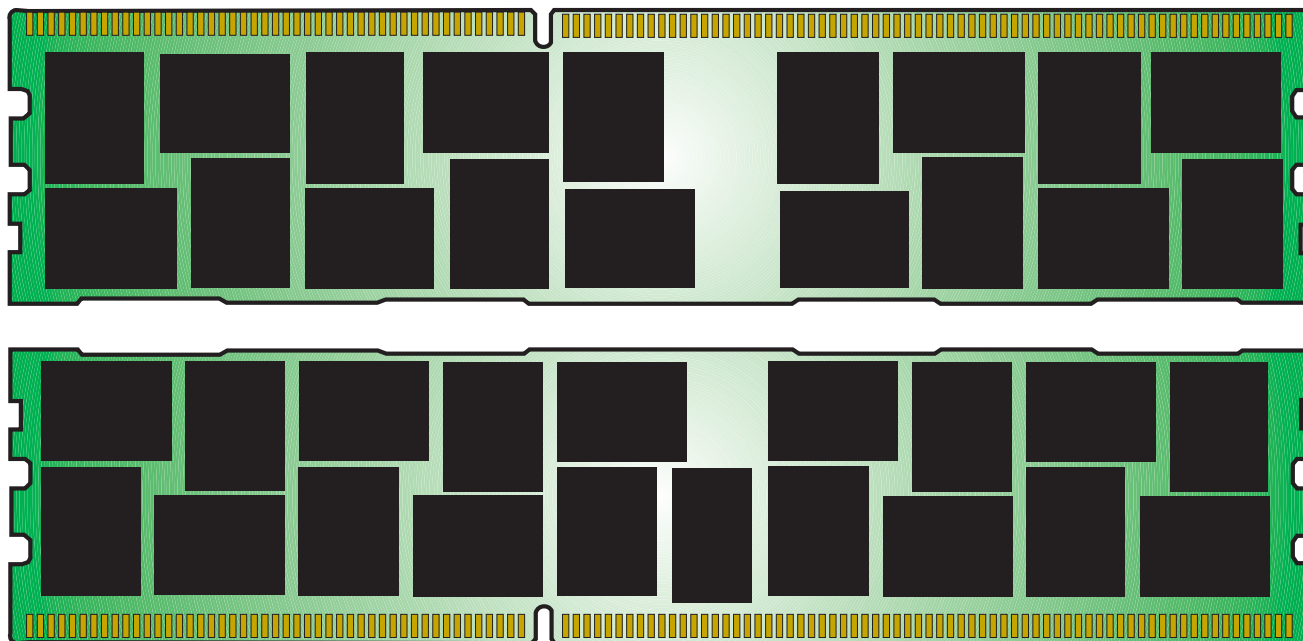
- JEDEC standard 1.5V (1.425V ~1.575V) Power Supply
- VDDQ = 1.5V (1.425V ~ 1.575V)
- 667MHz fCK for 1333Mb/sec/pin
- 8 independent internal bank
- Programmable CAS Latency: 9, 8, 7, 6
- Programmable Additive Latency: 0, CL - 2, or CL - 1 clock
- Programmable CAS Write Latency(CWL) = 7 (DDR3-1333)
- 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 than TCASE 85°C, 3.9us at 85°C < TCASE  $\leq$  95°C
- Asynchronous Reset
- PCB : Height 1.180" (30.00mm), double sided component

### SPECIFICATIONS

|                                                  |                       |
|--------------------------------------------------|-----------------------|
| CL(IDD)                                          | 9 cycles              |
| Row Cycle Time (tRCmin)                          | 49.5ns (min.)         |
| Refresh to Active/Refresh Command Time (tRFCmin) | 260ns (min.)          |
| Row Active Time (tRASmin)                        | 36ns (min.)           |
| Maximum Operating Power                          | 6.411 W* (per module) |
| UL Rating                                        | 94 V - 0              |
| Operating Temperature                            | 0° C to 85° C         |
| Storage Temperature                              | -55° C to +100° C     |

\*Power will vary depending on the SDRAM and Register/PLL used.

Continued >>

**MODULE DIMENSIONS:**

(Units = millimeters)

