## KVR1333D3N9/8G

8GB 2Rx8 1G x 64-Bit PC3-10600
CL9 240-Pin DIMM

## DESCRIPTION

This document describes ValueRAM's 1G x 64-bit (8GB) DDR3-1333 CL9 SDRAM (Synchronous DRAM), 2Rx8, memory module, based on sixteen 512M x 8-bit FBGA components. The SPD is programmed to JEDEC standard latency DDR3-1333 timing of 9-9-9 at 1.5 V . This 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
- $\mathrm{VDDQ}=1.5 \mathrm{~V}(1.425 \mathrm{~V} \sim 1.575 \mathrm{~V})$
- 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
- Average Refresh Period 7.8 us at lower than TCASE $85^{\circ} \mathrm{C}$, 3.9us at $85^{\circ} \mathrm{C}<$ TCASE $\leq 95^{\circ} \mathrm{C}$
- Asynchronous Reset
- PCB: Height 0.740 " ( 18.75 mm ) or 1.180 " $(30.00 \mathrm{~mm})$


## SPECIFICATIONS

| CL(IDD) | 9 cycles |
| :--- | :--- |
| Row Cycle Time (tRCmin) | 49.125 ns (min.) |
| Refresh to Active/Refresh <br> Command Time (tRFCmin) | 260 ns (min.) |
| Row Active Time (tRASmin) | $36 \mathrm{~ns} \mathrm{(min)}$. |
| Maximum Operating Power | TBD W* |
| UL Rating | $94 \mathrm{~V} \mathrm{-} 0$ |
| Operating Temperature | $0^{\circ} \mathrm{C}$ to $85^{\circ} \mathrm{C}$ |
| Storage Temperature | $-55^{\circ} \mathrm{C}$ to $+100^{\circ} \mathrm{C}$ |

*Power will vary depending on the SDRAM used.

Important Information: The module defined in this data sheet is one of several configurations available under this part number. While all configurations are compatible, the DRAM combination and/or the module height may vary from what is described here.

## MODULE DIMENSIONS:



