# **Memory Module Specifications**



## KVR1333D3S8R9SK2/4G

4G (2GB 256M x 72-Bit x 2 pcs.) PC3-10600 CL9 Registered w/Parity 240-Pin DIMM Kit

#### **DESCRIPTION**

ValueRAM's KVR1333D3S8R9SK2/4G is a kit of two 256M x 72-bit (2GB) DDR3-1333MHz CL9 SDRAM (Synchronous DRAM) registered w/parity, single-rank memory modules, based on nine 256M x 8-bit DDR3-1333MHz FBGA components per module. Total kit capacity is 4GB. The SPDs are programmed to JEDEC standard latency 1333MHz timing of 9-9-9 at 1.5V. Each 240-pin DIMM uses gold contact fingers and requires +1.5V. The electrical and mechanical specifications are as follows:

### **FEATURES**

- JEDEC standard 1.5V ± 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 ± 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 ≤ 95°C</li>
- · Asynchronous Reset
- PCB: Height 1.180" (30.00mm), double sided component

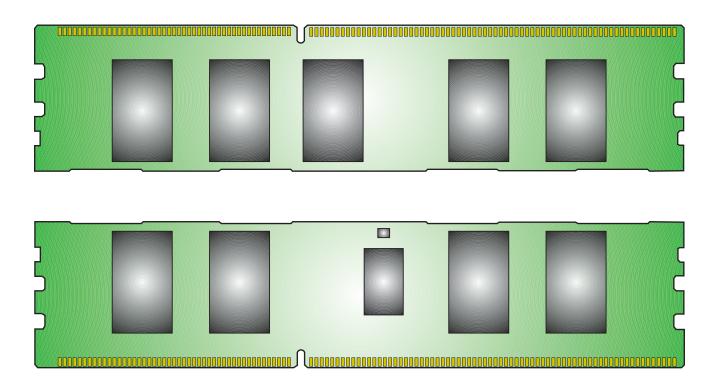
### **SPECIFICATIONS**

CL(IDD)	9 cycles
Row Cycle Time (tRCmin)	49.5ns (min.)
Refresh to Active/Refresh Command Time (tRFCmin)	110ns (min.)
Row Active Time (tRASmin)	36ns (min.)
Power	1.545 W (operating per module)
UL Rating	94 V - 0
Operating Temperature	0° C to 85° C
Storage Temperature	-55° C to +100° C

Continued >>

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## **MODULE DIMENSIONS:**



(units = millimeters)

