

# Memory Module Specifications

## KVR13N9K3/24

24GB (8GB 2Rx8 1G x 64-Bit x 3 pcs.)  
PC3-10600 CL9 240-Pin DIMM Kit

### DESCRIPTION

ValueRAM's KVR13N9K3/24 is a kit of three 1G x 64-bit (8GB) DDR3-1333 CL9 SDRAM (Synchronous DRAM), 2Rx8, memory modules, based on sixteen 512M x 8-bit FBGA components per module. Total kit capacity is 24GB. 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 ± 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
- PCB: Height 0.740" (18.75mm) or 1.180" (30.00mm)

### SPECIFICATIONS

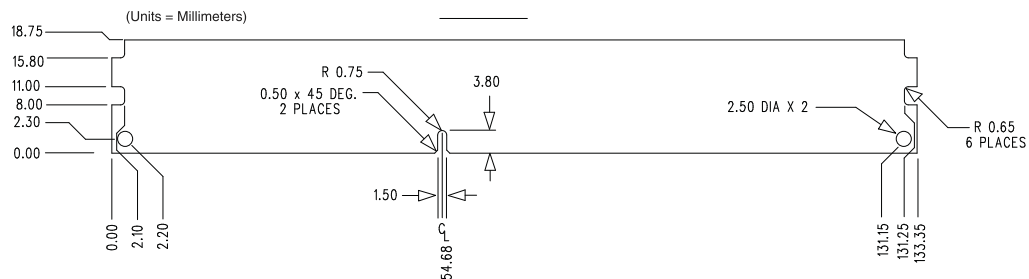
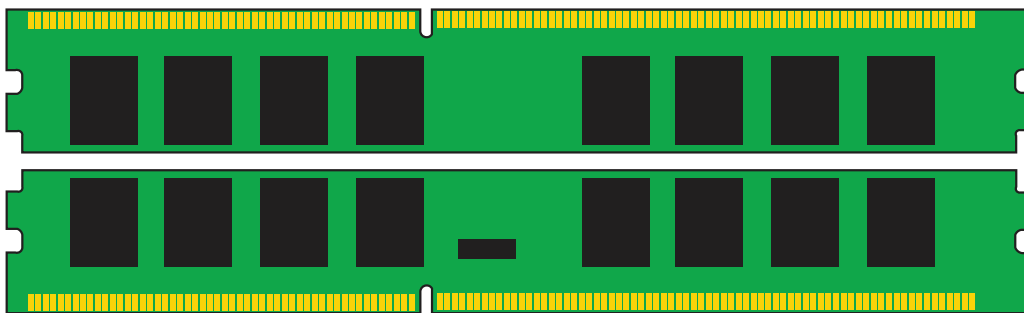
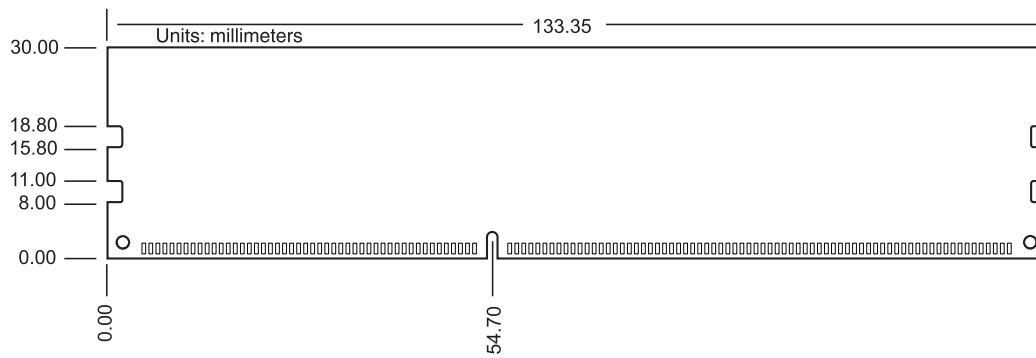
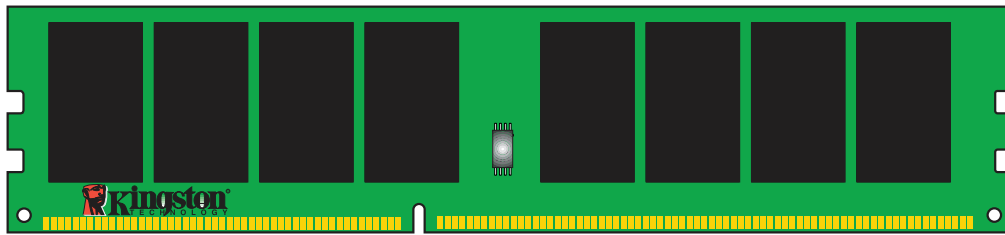
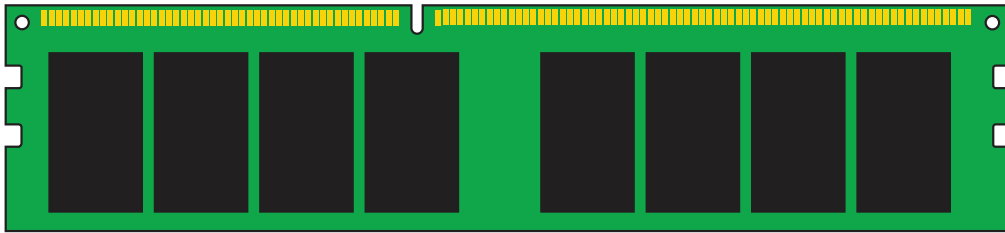
CL(IDD)	9 cycles
Row Cycle Time (tRCmin)	49.125ns (min.)
Refresh to Active/Refresh Command Time (tRFCmin)	260ns (min.)
Row Active Time (tRASmin)	36ns (min.)
Maximum Operating Power	TBD W* (per module)
UL Rating	94 V - 0
Operating Temperature	0° C to 85° C
Storage Temperature	-55° C to +100° C

\*Power will vary depending on the SDRAM 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.

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### MODULE DIMENSIONS:



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