

## KVR21N15S8/4

4GB 1Rx8 512M x 64-Bit PC4-2133

CL15 288-Pin DIMM

### DESCRIPTION

This document describes ValueRAM's 512M x 64-bit (4GB) DDR4-2133 CL15 SDRAM (Synchronous DRAM), 1Rx8, memory module, based on eight 512M x 8-bit FBGA components. The SPD is programmed to JEDEC standard latency DDR4-2133 timing of 15-15-15 at 1.2V. Each 288-pin DIMM uses gold contact fingers. The electrical and mechanical specifications are as follows:

### FEATURES

- Power Supply: VDD=1.2V Typical
- VDDQ = 1.2V Typical
- VPP - 2.5V Typical
- VDDSPD=2.2V to 3.6V
- Nominal and dynamic on-die termination (ODT) for data, strobe, and mask signals
- Low-power auto self refresh (LPASR)
- Data bus inversion (DBI) for data bus
- On-die VREFDQ generation and calibration
- Single-rank
- On-board I2 serial presence-detect (SPD) EEPROM
- 16 internal banks; 4 groups of 4 banks each
- Fixed burst chop (BC) of 4 and burst length (BL) of 8 via the mode register set (MRS)
- Selectable BC4 or BL8 on-the-fly (OTF)
- Fly-by topology
- Terminated control command and address bus
- PCB: Height 1.23" (31.25mm)

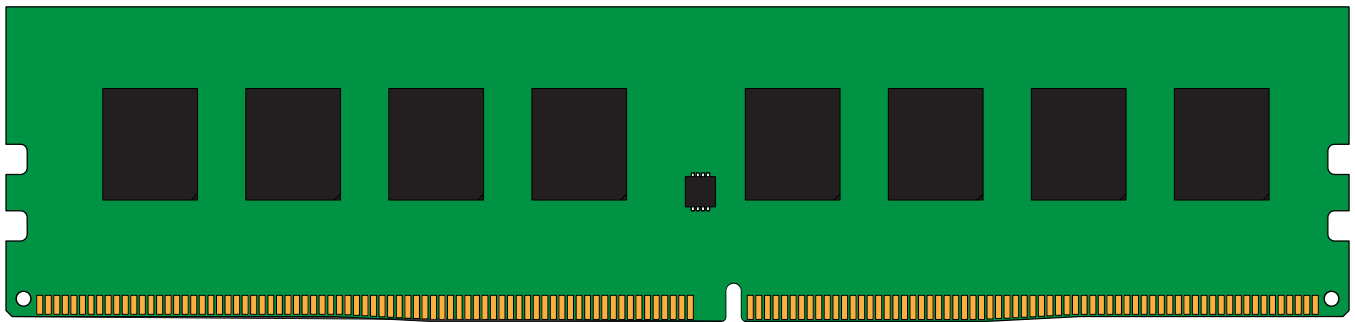
### SPECIFICATIONS

|  |                   |
|--|-------------------|
| CL(IDD)  | 15 cycles         |
| Row Cycle Time (tRCmin)                          | 46.5ns(min.)      |
| Refresh to Active/Refresh Command Time (tRFCmin) | 260ns(min.)       |
| Row Active Time (tRASmin)                        | 33ns(min.)        |
| Maximum Operating Power                          | TBD W*            |
| UL Rating  | 94 V - 0          |
| Operating Temperature                            | 0° C to +85° C    |
| Storage Temperature                              | -55° C to +100° C |

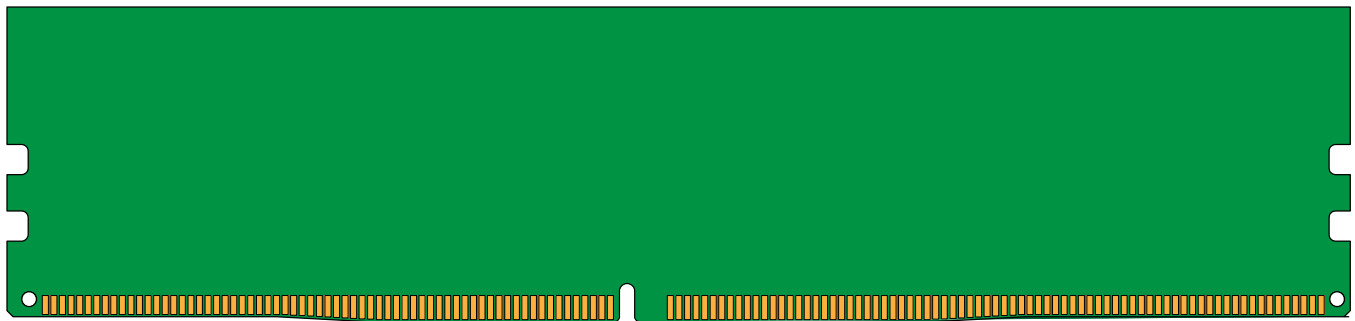
\*Power will vary depending on the SDRAM used.

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### MODULE DIMENSIONS



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