# Memory Module Specifications



### KVR21R15S4K4/32I

32GB (8GB 1Rx4 1G x 72-Bit x 4 pcs.) PC4-2133 CL15 Registered w/Parity 288-Pin DIMM Kit

#### DESCRIPTION

This document describes ValueRAM's KVR21R15S4K4/32I is a kit of four 1G x 72-bit (8GB) DDR4-2133 CL15 SDRAM (Synchronous DRAM) registered w/ parity, 1Rx4, ECC, Intel® Compatibility Tested, memory module, based on eighteen 1G x 4-bit FBGA components per module. Total kit capacity is 32GB. 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 (1.14V to 1.26V)
- VDDQ = 1.2V (1.14V to 1.26V)
- VPP 2.5V (2.375V to 2.75V)
- VDDSPD=2.25V to 2.75V
- · Functionality and operations comply with the DDR4 SDRAM datasheet
- 16 internal banks
- Bank Grouping is applied, and CAS to CAS latency (tCCD\_L, tCCD\_S) for the banks in the same or different bank group accesses are available
- Data transfer rates: PC4-2133, PC4-1866, PC4-1600
- · Bi-Directional Differential Data Strobe
- · 8 bit pre-fetch
- Burst Length (BL) switch on-the-fly BL8 or BC4(Burst Chop)
- Supports ECC error correction and detection
- On-Die Termination (ODT)
- Temperature sensor with integrated SPD
- This product is in compliance with the RoHS directive.
- · Per DRAM Addressability is supported
- · Internal Vref DQ level generation is available
- · Write CRC is supported at all speed grades
- · CA parity (Command/Address Parity) mode is supported

#### **SPECIFICATIONS**

| CL(IDD)  | 15 cycles          |
|--|--------------------|
| Row Cycle Time (tRCmin)                                  | 47.05ns(min.)      |
| Refresh to Active/Refresh Command Time 1x mode (tRFCmin) | 260ns(min.)        |
| Row Active Time (tRASmin)                                | 33.00ns(min.)      |
| Maximum Operating Power                                  | 2.90 W* per module |
| UL Rating  | 94 V - 0           |
| Operating Temperature                                    | 0° C to +85° C     |
| Storage Temperature                                      | -55° C to +100° C  |

<sup>\*</sup>Power will vary depending on the SDRAM used.

## **MODULE DIMENSIONS**



