

Memory Module Specifications

KSM29SED8/16HD

16GB 2Rx8 2G x 72-Bit PC4-2933

CL21 260-Pin ECC SODIMM

DESCRIPTION

Kingston's KSM29SED8/16HD is a 2G x 72-bit (16GB) DDR4-2933 CL21 SDRAM (Synchronous DRAM) w/ parity, 2Rx8, ECC, memory module, based on eighteen 1G x 8-bit FBGA components. The SPD is programmed to JEDEC standard latency DDR4-2933 timing of 21-21-21 at 1.2V. Each 260-pin SODIMM uses gold contact fingers. The electrical and mechanical specifications are as follows:

FEATURES

- Power Supply: VDD = 1.2V
- VDDQ = 1.2V
- VPP = 2.5V
- VDDSPD = 2.20V to 3.60V
- 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: PC4-2666, PC4-2400, 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
- RoHS Compliant and Halogen-Free

SPECIFICATIONS

| | |
|--|-------------------|
| CL(IDD) | 21 cycles |
| Row Cycle Time (tRCmin) | 45.75ns(min.) |
| Refresh to Active/Refresh Command Time (tRFCmin) | 350ns(min.) |
| Row Active Time (tRASmin) | 32ns(min.) |
| Maximum Operating Power | * |
| UL Rating | 94 V - 0 |
| Operating Temperature | 0° C to +85° C |
| Storage Temperature | -55° C to +100° C |

*See IDD Specifications (page 2)

Module Assembly

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|---------------------|
| DRAM: HYNIX (D-DIE) |
|---------------------|

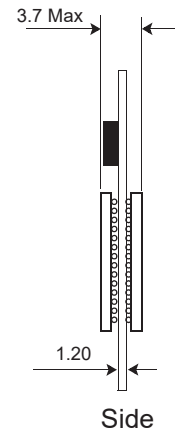
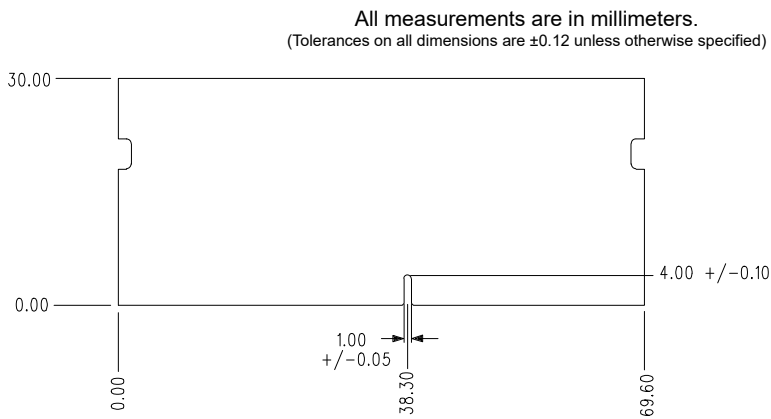
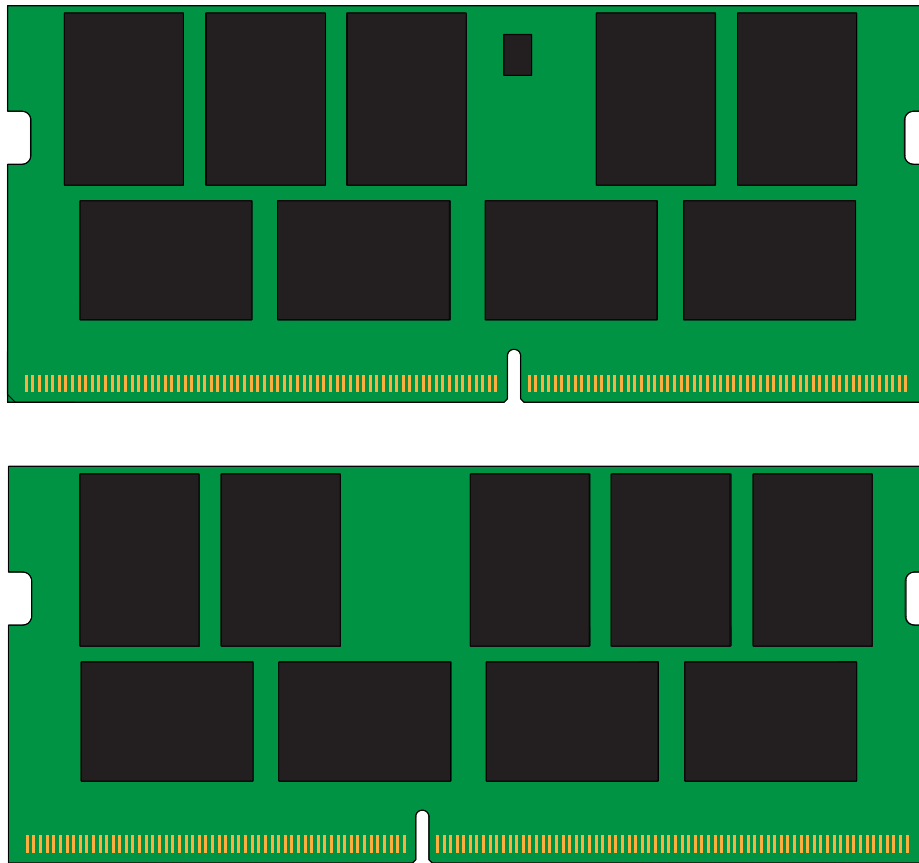
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IDD Specifications

| IDD | | unit |
|--------|------|------|
| Symbol | 2933 | |
| IDD0 | 540 | mA |
| IDD0A | 542 | mA |
| IDD1 | 608 | mA |
| IDD1A | 632 | mA |
| IDD2N | 480 | mA |
| IDD2NA | 483 | mA |
| IDD2NT | 569 | mA |
| IDD2NL | 331 | mA |
| IDD2NG | 479 | mA |
| IDD2ND | 460 | mA |
| IDD2NP | 489 | mA |
| IDD2P | 320 | mA |
| IDD2Q | 423 | mA |
| IDD3N | 518 | mA |
| IDD3NA | 518 | mA |
| IDD3P | 392 | mA |
| IDD4R | 1212 | mA |
| IDD4RA | 1238 | mA |
| IDD4RB | 1226 | mA |
| IDD4W | 1209 | mA |
| IDD4WA | 1237 | mA |
| IDD4WB | 1124 | mA |
| IDD4WC | 1170 | mA |
| IDD4WP | 1352 | mA |
| IDD5B | 1990 | mA |
| IDD5F2 | 1496 | mA |
| IDD5F4 | 1347 | mA |
| IDD6N | 338 | mA |
| IDD6E | 466 | mA |
| IDD6R | 218 | mA |
| IDD6A | 466 | mA |
| IDD7 | 1398 | mA |
| IDD8 | 176 | mA |

| IPP | | unit |
|--------|------|------|
| Symbol | 2933 | |
| IPP0 | 76 | mA |
| IPP1 | 84 | mA |
| IPP2N | 61 | mA |
| IPP2P | 56 | mA |
| IPP3N | 243 | mA |
| IPP3P | 241 | mA |
| IPP4R | 180 | mA |
| IPP4W | 180 | mA |
| IPP5B | 503 | mA |
| IPP5F2 | 339 | mA |
| IPP5F4 | 296 | mA |
| IPP6N | 93 | mA |
| IPP6E | 125 | mA |
| IPP6R | 74 | mA |
| IPP6A | 125 | mA |
| IPP7 | 175 | mA |
| IPP8 | 59 | mA |

MODULE DIMENSIONS



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