

Memory Module Specifications

KSM29SES8/16ME

16GB 1Rx8 2G x 72-Bit PC4-2933

CL21 260-Pin ECC SODIMM

DESCRIPTION

Kingston's KSM29SES8/16ME is a 2G x 72-bit (16GB) DDR4-2933 CL21 SDRAM (Synchronous DRAM) w/ parity, 1Rx8, ECC, memory module, based on nine 2G 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: PC4-2933, 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

DRAM: MICRON (E-DIE)

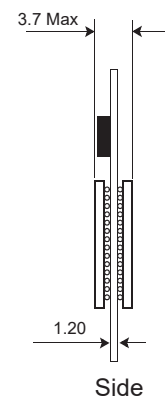
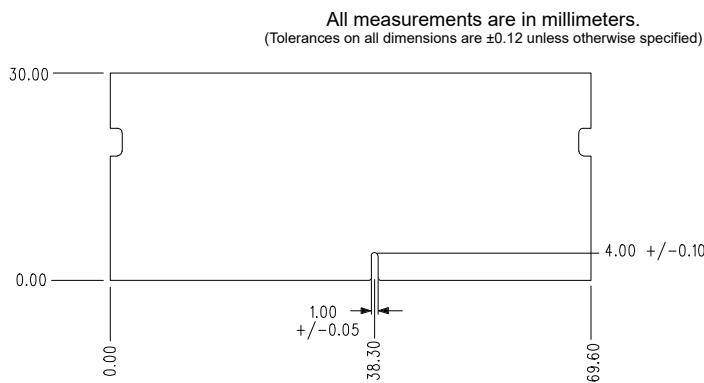
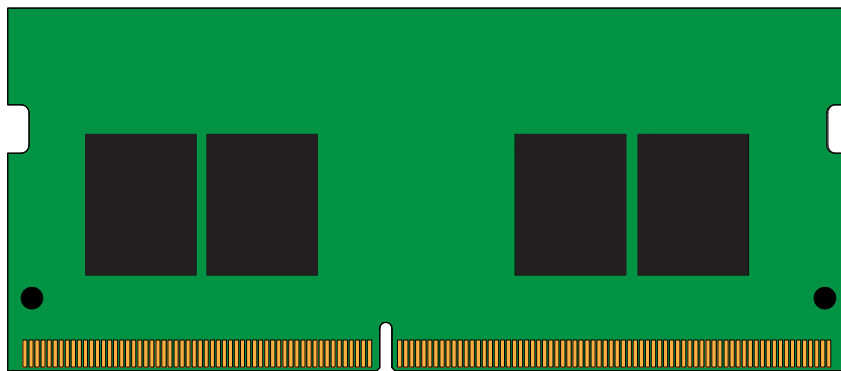
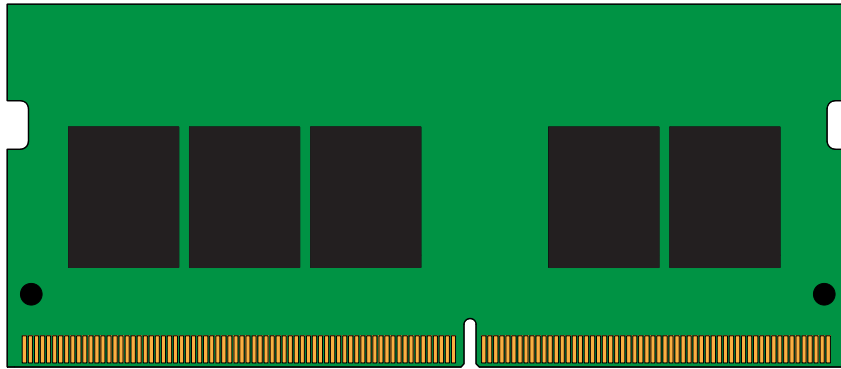
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IDD Specifications

| Symbol | 2933 | Units |
|--------------------------|------|-------|
| I _{DD0} | 531 | mA |
| I _{PP0} | 27 | mA |
| I _{DD1} | 630 | mA |
| I _{DD2N} | 396 | mA |
| I _{DD2NT} | 450 | mA |
| I _{DD2P} | 342 | mA |
| I _{DD2Q} | 378 | mA |
| I _{DD3N} | 540 | mA |
| I _{PP3N} | 18 | mA |
| I _{DD3P} | 441 | mA |
| I _{DD4R} | 1386 | mA |
| I _{DD4W} | 1107 | mA |
| I _{DD5R} | 612 | mA |
| I _{PP5R} | 36 | mA |
| I _{DD6N} | 477 | mA |
| I _{DD6E} | 1017 | mA |
| I _{DD6R} | 180 | mA |
| I _{DD6A (25°C)} | 99 | mA |
| I _{DD6A (45°C)} | 180 | mA |
| I _{DD6A (75°C)} | 459 | mA |
| I _{DD6A (95°C)} | 1017 | mA |
| I _{PP6X} | 54 | mA |
| I _{DD7} | 1647 | mA |
| I _{PP7} | 72 | mA |
| I _{DD8} | 324 | mA |

continued

MODULE DIMENSIONS



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