

# Memory Module Specifications

## KSM32SED8/16MR

16GB 2Rx8 2G x 72-Bit PC4-3200

CL22 260-Pin ECC SODIMM

### DESCRIPTION

Kingston's KSM32SED8/16MR is a 2G x 72-bit (16GB) DDR4-3200 CL22 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 DDR4-3200 timing of 22-22-22 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: PC4-3200, 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)	22 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 (R-DIE)
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## IDD Specifications

Symbol	3200	Units
I <sub>DD0</sub>	774	mA
I <sub>PP0</sub>	54	mA
I <sub>DD1</sub>	837	mA
I <sub>DD2N</sub>	684	mA
I <sub>DD2NT</sub>	711	mA
I <sub>DD2P</sub>	540	mA
I <sub>DD2Q</sub>	612	mA
I <sub>DD3N</sub>	774	mA
I <sub>PP3N</sub>	54	mA
I <sub>DD3P</sub>	594	mA
I <sub>DD4R</sub>	1449	mA
I <sub>DD4W</sub>	1296	mA
I <sub>DD5R</sub>	765	mA
I <sub>PP5R</sub>	63	mA
I <sub>DD6N</sub>	576	mA
I <sub>DD6E</sub>	936	mA
I <sub>DD6R</sub>	342	mA
I <sub>DD6A</sub>	144	mA
I <sub>DD6A</sub>	342	mA
I <sub>DD6A</sub>	522	mA
I <sub>DD6A</sub>	90	mA
I <sub>PP6X</sub>	1737	mA
I <sub>DD7</sub>	144	mA
I <sub>PP7</sub>	432	mA
I <sub>DD8</sub>	864	mA