

# Memory Module Specifications

## KSM32SED8/16HE

16GB 2Rx8 2G x 72-Bit PC4-3200  
CL22 260-Pin ECC SODIMM

### DESCRIPTION

Kingston's KSM32SED8/16HE 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: Hynix (E-DIE)
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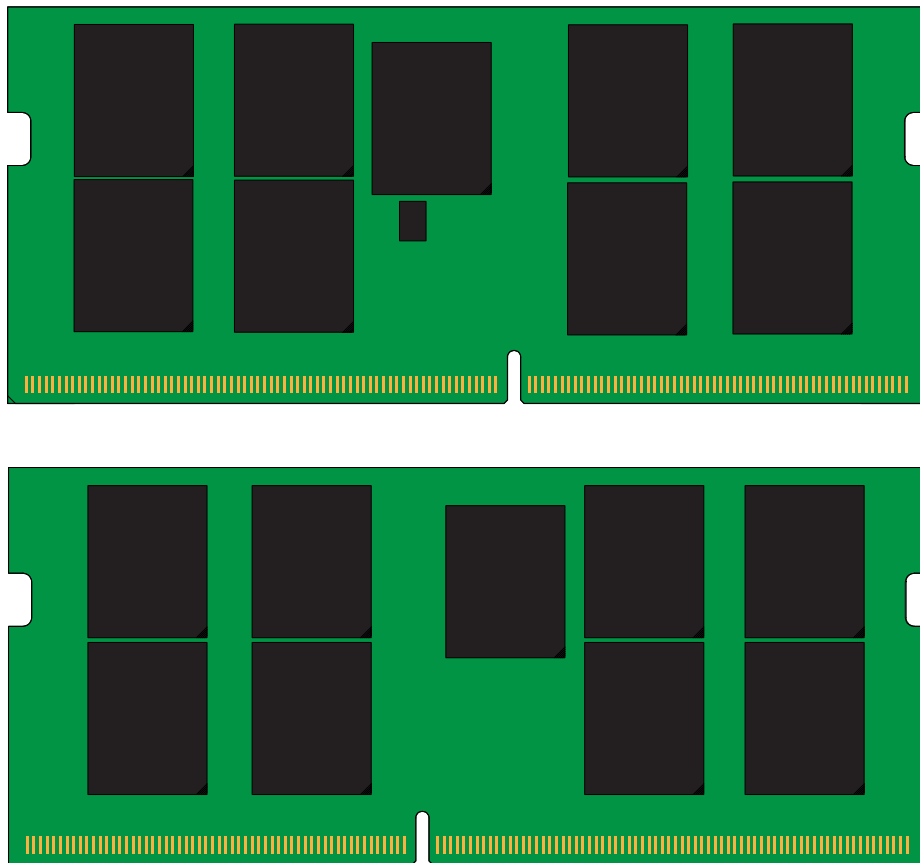
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## IDD Specifications

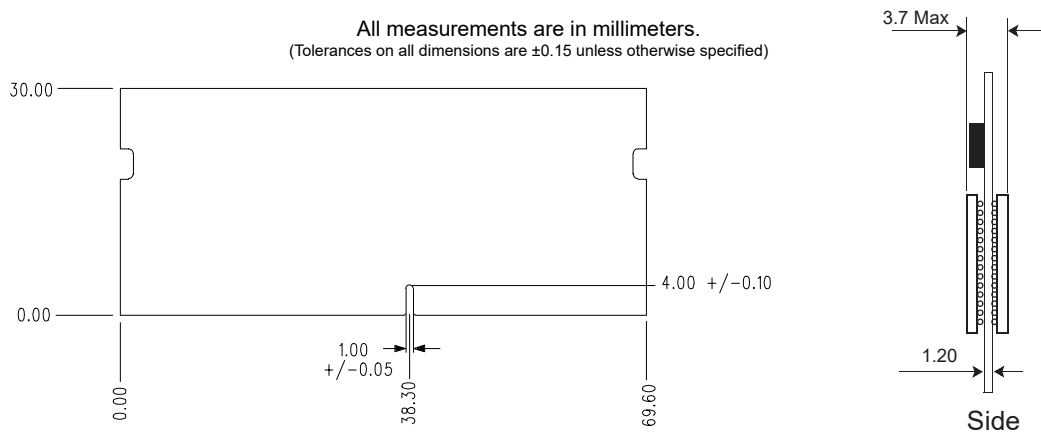
IDD		unit
Symbol	3200	
IDD0	648	mA
IDD0A	648	mA
IDD1	729	mA
IDD1A	756	mA
IDD2N	540	mA
IDD2NA	540	mA
IDD2NT	630	mA
IDD2NL	342	mA
IDD2NG	540	mA
IDD2ND	504	mA
IDD2NP	540	mA
IDD2P	324	mA
IDD2Q	540	mA
IDD3N	1026	mA
IDD3NA	1026	mA
IDD3P	684	mA
IDD4R	1467	mA
IDD4RA	1503	mA
IDD4RB	1494	mA
IDD4W	1386	mA
IDD4WA	1449	mA
IDD4WB	1341	mA
IDD4WC	1386	mA
IDD4WP	1485	mA
IDD5B	2709	mA
IDD5F2	2007	mA
IDD5F4	1737	mA
IDD6N	378	mA
IDD6E	594	mA
IDD6R	198	mA
IDD6A	594	mA
IDD7	1584	mA
IDD8	144	mA

IPP		unit
Symbol	3200	
IPP0	36	mA
IPP1	36	mA
IPP2N	18	mA
IPP2P	18	mA
IPP3N	36	mA
IPP3P	36	mA
IPP4R	54	mA
IPP4W	54	mA
IPP5B	324	mA
IPP5F2	225	mA
IPP5F4	189	mA
IPP6N	54	mA
IPP6E	90	mA
IPP6R	36	mA
IPP6A	72	mA
IPP7	144	mA
IPP8	18	mA

## MODULE DIMENSIONS



All measurements are in millimeters.  
(Tolerances on all dimensions are  $\pm 0.15$  unless otherwise specified)



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