

# Memory Module Specifications

## KSM29RS8/16HAR

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

CL21 Registered w/Parity 288-Pin DIMM

### DESCRIPTION

Kingston's KSM29RS8/16HAR is a 2G x 72-bit (16GB) DDR4-2933 CL21 SDRAM (Synchronous DRAM) registered 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 288-pin DIMM 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 = 2.41V 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: PC4-2933, 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

### SPECIFICATIONS

CL(IDD)	21 cycles
Row Cycle Time (tRCmin)	46.32ns(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 (A-DIE)

**RCD:** Rambus

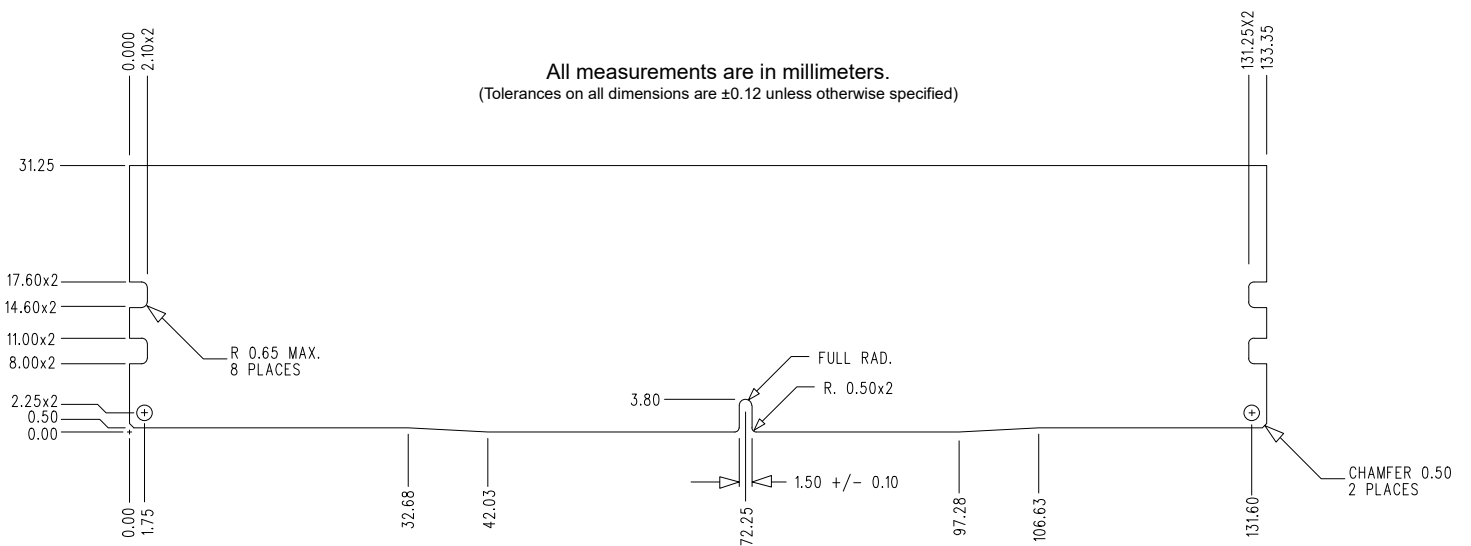
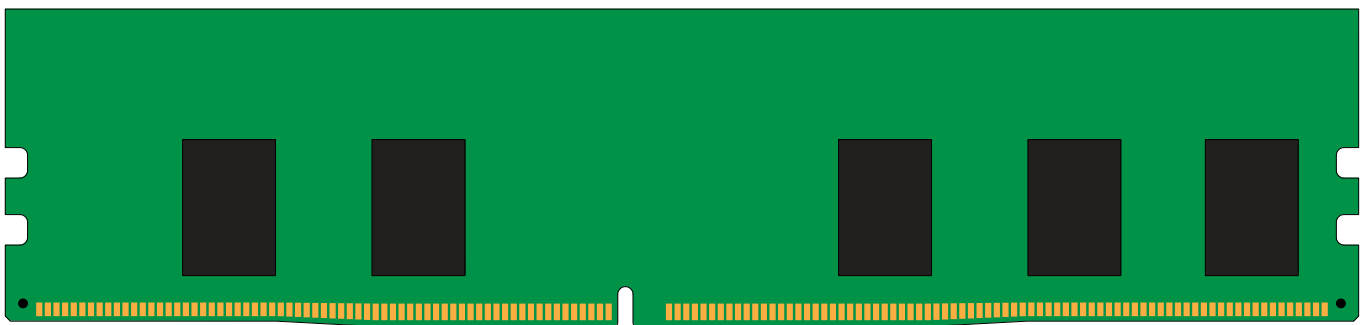
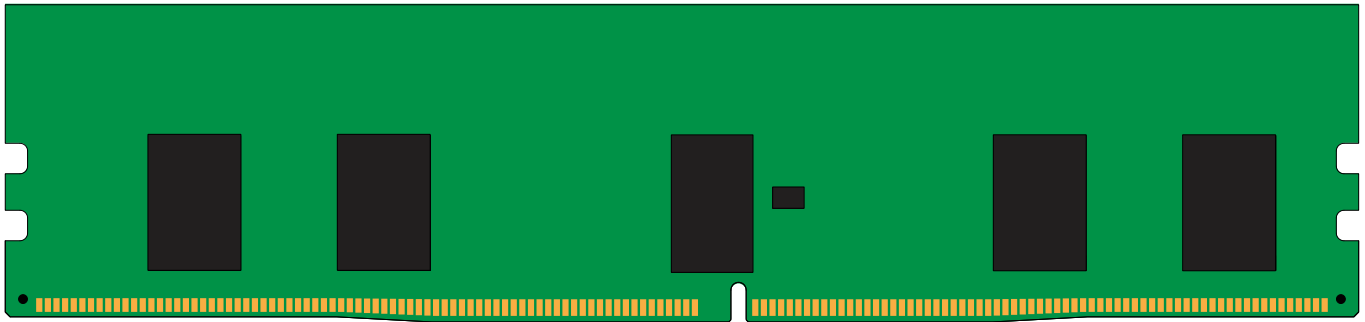
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## IDD Specifications

IDD		unit
Symbol	2933	
IDD0	708	mA
IDD0A	782	mA
IDD1	895	mA
IDD1A	926	mA
IDD2N	701	mA
IDD2NA	702	mA
IDD2NT	743	mA
IDD2NL	593	mA
IDD2NG	690	mA
IDD2ND	683	mA
IDD2NP	703	mA
IDD2P	424	mA
IDD2Q	670	mA
IDD3N	787	mA
IDD3NA	787	mA
IDD3P	666	mA
IDD4R	1691	mA
IDD4RA	1699	mA
IDD4RB	1702	mA
IDD4W	1498	mA
IDD4WA	1542	mA
IDD4WB	1437	mA
IDD4WC	1490	mA
IDD4WP	1751	mA
IDD5B	3907	mA
IDD5F2	2857	mA
IDD5F4	2454	mA
IDD6N	351	mA
IDD6E	504	mA
IDD6R	216	mA
IDD6A	504	mA
IDD7	1688	mA
IDD8	180	mA

IPP		unit
Symbol	2933	
IPP0	27	mA
IPP1	27	mA
IPP2N	18	mA
IPP2P	18	mA
IPP3N	27	mA
IPP3P	27	mA
IPP4R	27	mA
IPP4W	27	mA
IPP5B	601	mA
IPP5F2	403	mA
IPP5F4	335	mA
IPP6N	45	mA
IPP6E	72	mA
IPP6R	27	mA
IPP6A	63	mA
IPP7	81	mA
IPP8	18	mA

## MODULE DIMENSIONS



The product images shown are for illustration purposes only and may not be an exact representation of the product.  
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