

# Memory Module Specifications

## KSM29RD8/16HDR

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

CL21 Registered w/Parity 288-Pin DIMM

### DESCRIPTION

Kingston's KSM29RD8/16HDR is a 2G x 72-bit (16GB) DDR4-2933 CL21 SDRAM (Synchronous DRAM) registered 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 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 Table (page2)

### Module Assembly

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

**RCD:** Rambus

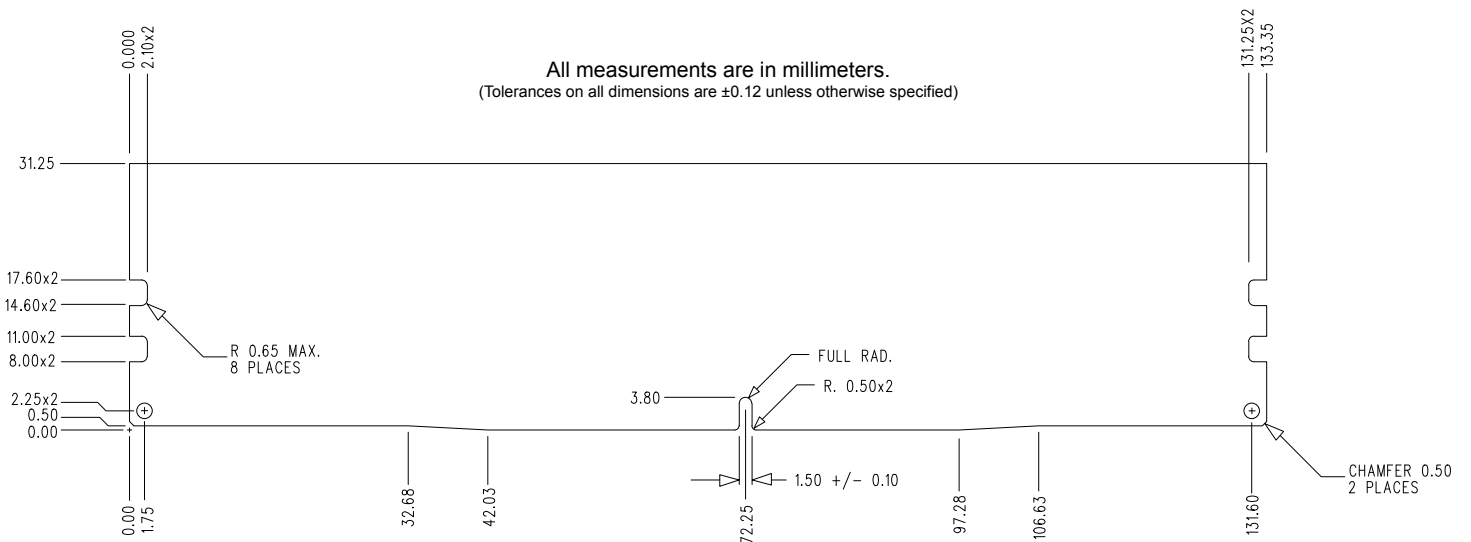
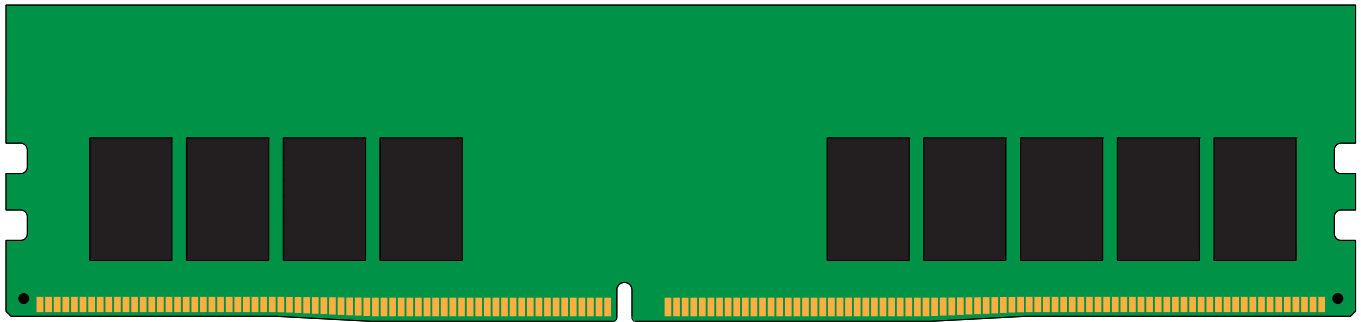
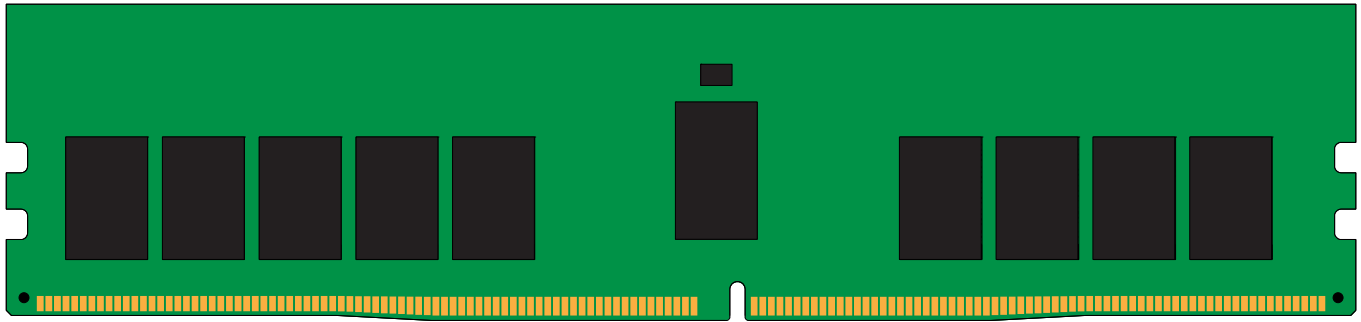
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## IDD Specifications

IDD		unit
Symbol	2933	
IDD0	985	mA
IDD0A	985	mA
IDD1	1090	mA
IDD1A	1111	mA
IDD2N	926	mA
IDD2NA	927	mA
IDD2NT	1013	mA
IDD2NL	794	mA
IDD2NG	923	mA
IDD2ND	909	mA
IDD2NP	935	mA
IDD2P	590	mA
IDD2Q	868	mA
IDD3N	957	mA
IDD3NA	957	mA
IDD3P	656	mA
IDD4R	1690	mA
IDD4RA	1717	mA
IDD4RB	1705	mA
IDD4W	1691	mA
IDD4WA	1722	mA
IDD4WB	1629	mA
IDD4WC	1672	mA
IDD4WP	1856	mA
IDD5B	2448	mA
IDD5F2	1949	mA
IDD5F4	1793	mA
IDD6N	322	mA
IDD6E	451	mA
IDD6R	203	mA
IDD6A	451	mA
IDD7	1877	mA
IDD8	157	mA

IPP		unit
Symbol	2933	
IPP0	56	mA
IPP1	60	mA
IPP2N	41	mA
IPP2P	33	mA
IPP3N	197	mA
IPP3P	193	mA
IPP4R	147	mA
IPP4W	147	mA
IPP5B	507	mA
IPP5F2	344	mA
IPP5F4	283	mA
IPP6N	73	mA
IPP6E	104	mA
IPP6R	50	mA
IPP6A	102	mA
IPP7	160	mA
IPP8	35	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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