

## Memory Module Specifications

### KSM32RS4/32HAR

32GB 1Rx4 4G x 72-Bit PC4-3200

CL22 Registered w/Parity 288-Pin DIMM

#### DESCRIPTION

Kingston's KSM32RS4/32HAR is a 4G x 72-bit (32GB) DDR4-3200 CL22 SDRAM (Synchronous DRAM) registered w/ parity, 1Rx4, ECC, memory module, based on eighteen 4G x 4-bit FBGA components. The SPD is programmed to JEDEC standard latency DDR4-3200 timing of 22-22-22 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: PC4-3200, 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

#### SPECIFICATIONS

CL(IDD)	22cycles
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

<b>DRAM:</b> HYNIX (A-DIE)
<b>RCD:</b> Rambus

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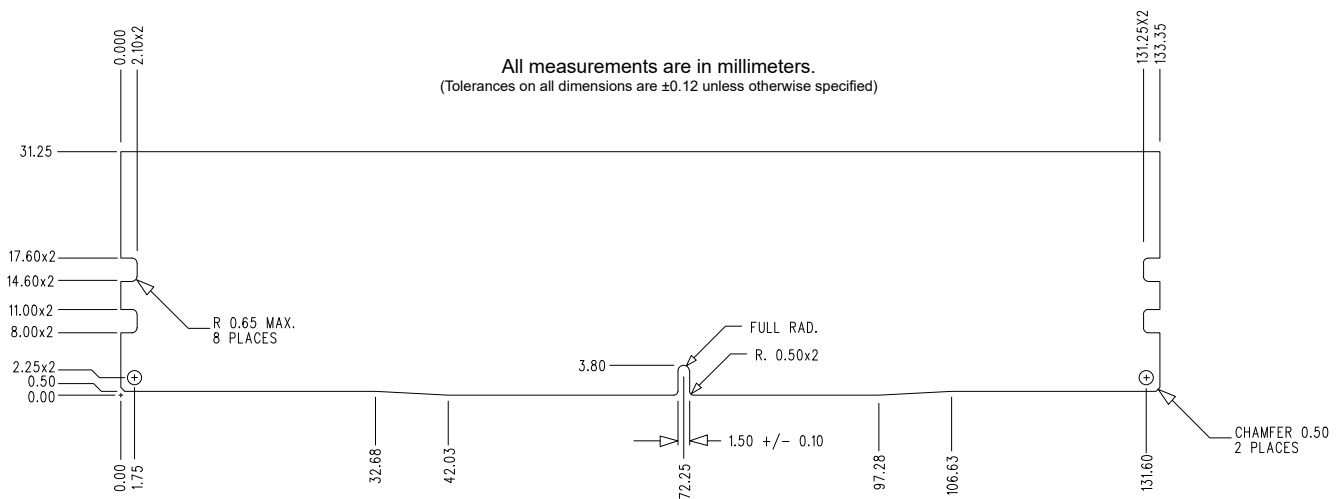
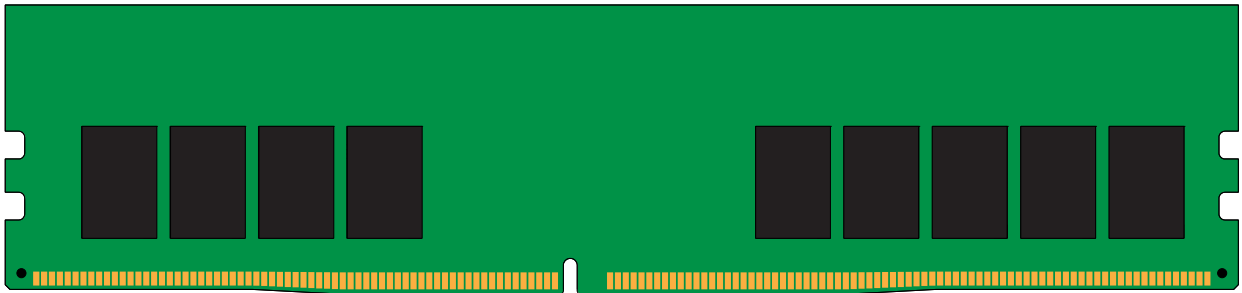
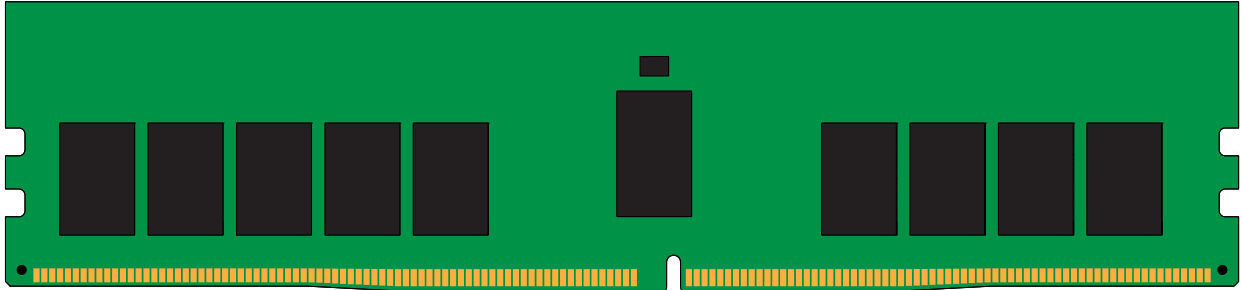
## IDD Specifications

IDD		unit
Symbol	3200	
IDD0	1268	mA
IDD0A	1270	mA
IDD1	1441	mA
IDD1A	1503	mA
IDD2N	1130	mA
IDD2NA	1131	mA
IDD2NT	1282	mA
IDD2NL	909	mA
IDD2NG	1119	mA
IDD2ND	1100	mA
IDD2NP	1151	mA
IDD2P	744	mA
IDD2Q	1068	mA
IDD3N	1364	mA
IDD3NA	1364	mA
IDD3P	1000	mA
IDD4R	2610	mA
IDD4RA	2640	mA
IDD4RB	2615	mA
IDD4W	2337	mA
IDD4WA	2429	mA
IDD4WB	2218	mA
IDD4WC	2343	mA
IDD4WP	2970	mA
IDD5B	7543	mA
IDD5F2	5468	mA
IDD5F4	4715	mA
IDD6N	604	mA
IDD6E	893	mA
IDD6R	353	mA
IDD6A	895	mA
IDD7	3650	mA
IDD8	271	mA

IPP		unit
Symbol	3200	
IPP0	38	mA
IPP1	38	mA
IPP2N	24	mA
IPP2P	24	mA
IPP3N	31	mA
IPP3P	31	mA
IPP4R	31	mA
IPP4W	31	mA
IPP5B	1167	mA
IPP5F2	778	mA
IPP5F4	643	mA
IPP6N	75	mA
IPP6E	128	mA
IPP6R	39	mA
IPP6A	109	mA
IPP7	198	mA
IPP8	24	mA

continued

## MODULE DIMENSIONS



The product images shown are for illustration purposes only and may not be an exact representation of the product.  
Kingston reserves the right to change any information at anytime without notice.