

Memory Module Specifications

KSM29ES8/16HC

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

CL21 288-Pin DIMM

DESCRIPTION

Kingston's KSM29ES8/16HC is a 2G x 72-bit (16GB) DDR4-2933 CL21 SDRAM (Synchronous DRAM), 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 Typical
- VDDQ = 1.2V Typical
- VPP = 2.5V Typical
- VDDSPD = 2.2V to 3.6V
- Nominal and dynamic on-die termination (ODT) for data, strobe, and mask signals
- Data transfer rates: PC4-2933, PC4-2666, PC4-2400, PC4-2133, PC4-1866, PC4-1600
- Low-power auto self refresh (LPASR)
- Data bus inversion (DBI) for data bus
- On-die VREFDQ generation and calibration
- Single-rank
- On-board I2 serial presence-detect (SPD) EEPROM
- Temperature sensor with integrated SPD
- 16 internal banks; 4 groups of 4 banks each
- Fixed burst chop (BC) of 4 and burst length (BL) of 8 via the mode register set (MRS)
- Selectable BC4 or BL8 on-the-fly (OTF)
- Fly-by topology
- Terminated control command and address bus
- PCB: Height 1.23" (31.25mm)
- RoHS Compliant and Halogen-Free

SPECIFICATIONS

CL(IDD)	21 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 (C-DIE)

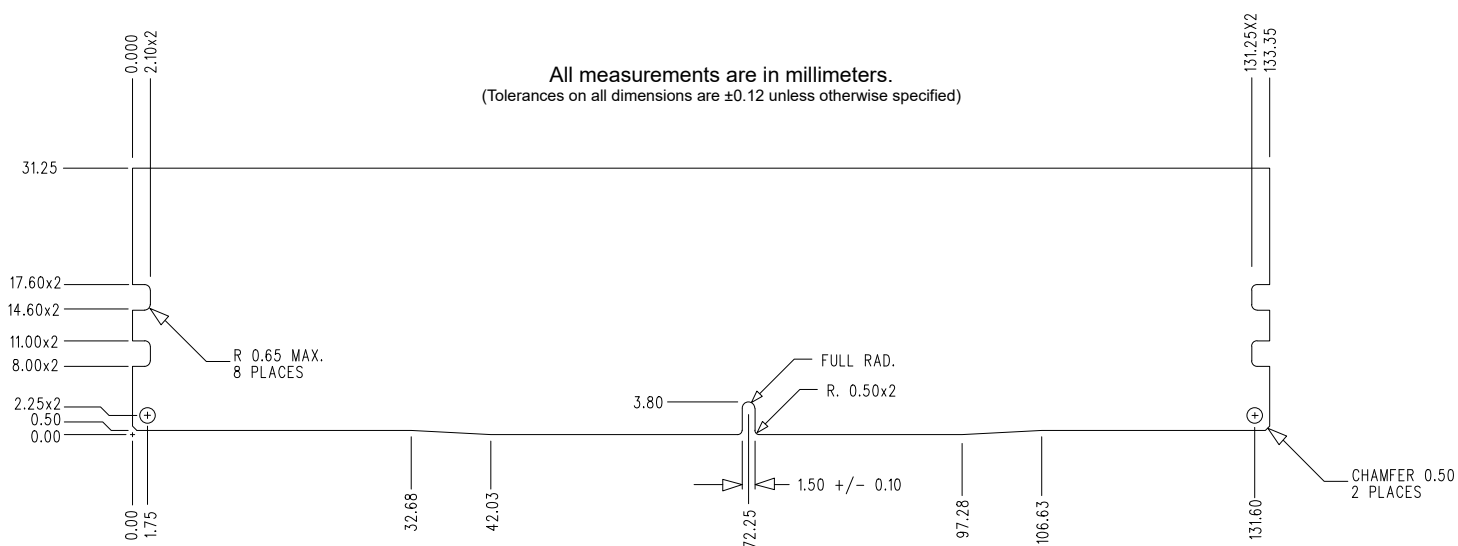
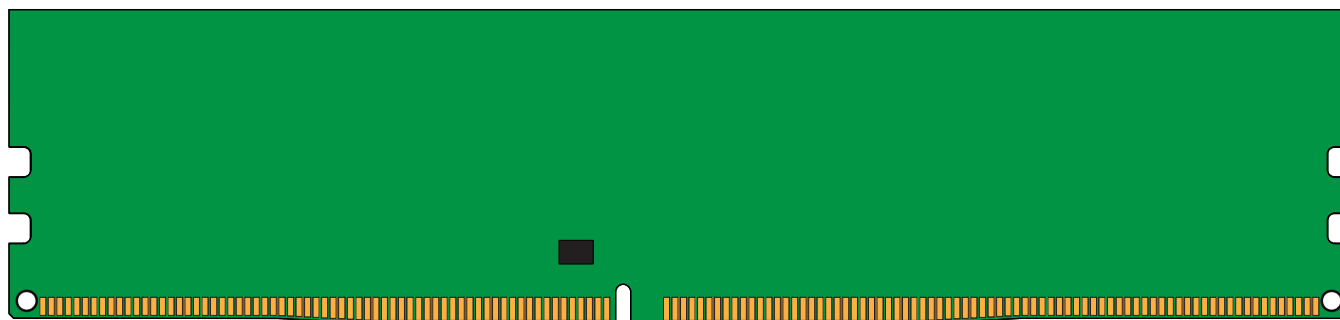
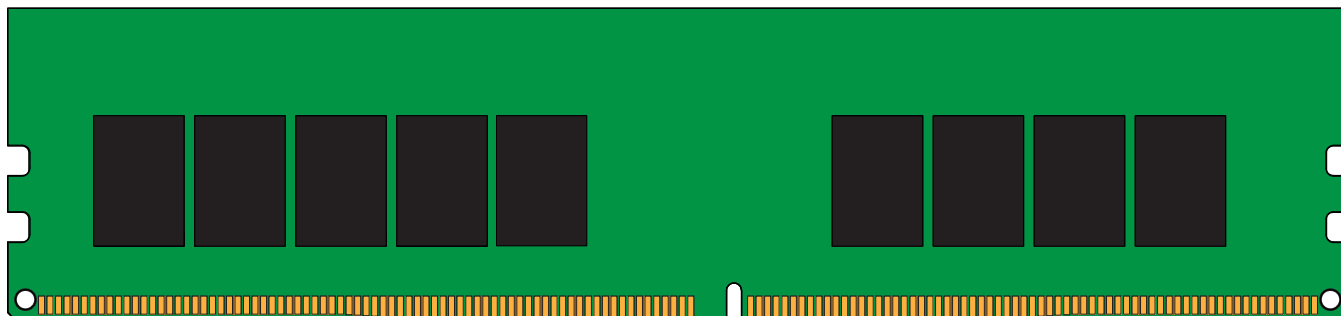
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IDD Specifications

IDD		unit
Symbol	2933	
IDD0	347	mA
IDD0A	347	mA
IDD1	410	mA
IDD1A	440	mA
IDD2N	257	mA
IDD2NA	257	mA
IDD2NT	291	mA
IDD2NL	180	mA
IDD2NG	257	mA
IDD2ND	235	mA
IDD2NP	263	mA
IDD2P	176	mA
IDD2Q	238	mA
IDD3N	480	mA
IDD3NA	480	mA
IDD3P	409	mA
IDD4R	1082	mA
IDD4RA	1096	mA
IDD4RB	1090	mA
IDD4W	1040	mA
IDD4WA	1075	mA
IDD4WB	975	mA
IDD4WC	1032	mA
IDD4WP	1198	mA
IDD5B	4752	mA
IDD5F2	3252	mA
IDD5F4	2618	mA
IDD6N	342	mA
IDD6E	544	mA
IDD6R	147	mA
IDD6A	579	mA
IDD7	1290	mA
IDD8	91	mA

IPP		unit
Symbol	2933	
IPP0	22	mA
IPP1	25	mA
IPP2N	8	mA
IPP2P	8	mA
IPP3N	10	mA
IPP3P	10	mA
IPP4R	45	mA
IPP4W	45	mA
IPP5B	484	mA
IPP5F2	316	mA
IPP5F4	262	mA
IPP6N	33	mA
IPP6E	58	mA
IPP6R	14	mA
IPP6A	51	mA
IPP7	132	mA
IPP8	8	mA

MODULE DIMENSIONS



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