DDR3 ECC SO-DIMM

DDR3 ECC SO-DIMM is high-speed, low power memory module that use DDR3 SDRAM in FBGA package and a 2048 bits serial EEPROM on a 204-pin printed circuit board. DDR3 ECC SO-DIMM is a Dual In-Line Memory Module and is intended for mounting into 204-pin edge connector sockets.

Synchronous design allows precise cycle control with the use of system clock. Data I/O transactions are possible on both edges of DQS. Range of operation frequencies, programmable latencies allow the same device to be useful for a variety of high bandwidth, high performance memory system applications.
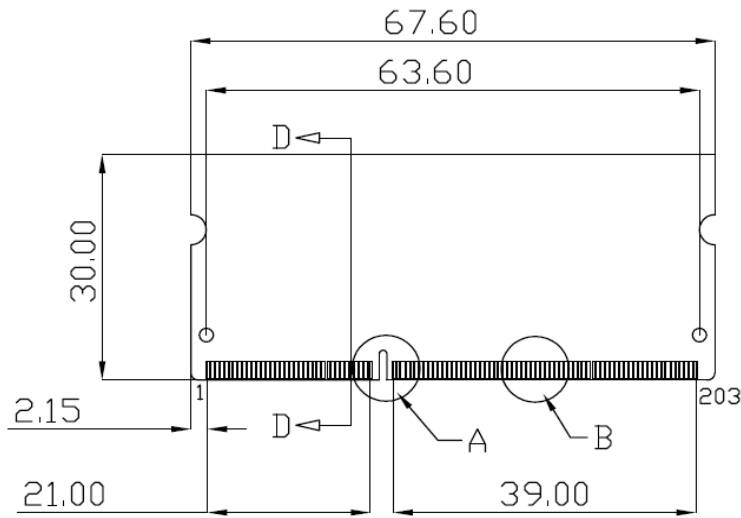
Features

- RoHS compliant products.

- JEDEC standard 1.5V ± 0.075V Power supply

- VDDQ=1.5V ± 0.075V

- Clock Freq: 667MHZ for 1333Mb/s/Pin.

- Clock Freq: 800MHZ for 1600Mb/s/Pin.

- Programmable CAS Latency: 5, 6, 7, 8, 9 ,10, 11

- Programmable Additive Latency (Posted /CAS):

  0,CL-2 or CL-1 clock

- Programmable /CAS Write Latency (CWL)

  = 7(DDR3-1333) , 8(DDR3-1600)

- 8 bit pre-fetch

- Burst Length: 4, 8

- Bi-directional Differential Data-Strobe

- Internal calibration through ZQ pin

- On Die Termination with ODT pin

- Serial presence detect with EEPROM
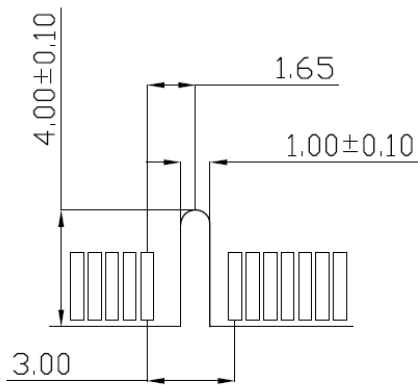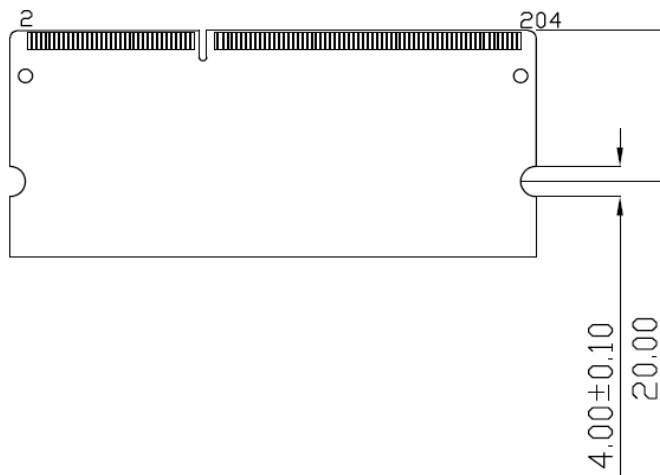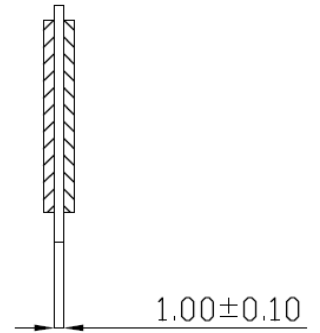
- On DIMM thermal Sensor

- Asynchronous reset

• Pin Identification

Symbol	Function
A0~A14, BA0~BA2	Address/Bank input
DQ0~DQ63	Data Input / Output.
DQS0~DQS8	Data strobes
/DQS0~/DQS8	Differential Data strobes
CB0~CB7	DIMM ECC check bits
CK0, /CK0,CK1, /CK1	Clock Input. (Differential pair)
CKE0, CKE1	Clock Enable Input.
ODT0, ODT1	On-die termination control line
/CS0, /CS1	DIMM Rank Select Lines.
/RAS	Row Address Strobe
/CAS	Column Address Strobe
/WE	Write Enable
DM0~DM8	Data masks/high data strobes
VDD	Voltage power supply
VDDQ	Voltage Power Supply for DQS
$V_{REF}DQ$/ $V_{REF}CA$	Power Supply for Reference
VDDSPD	SPD EEPROM Power Supply
SA0~SA1	I2C serial bus address select for EEPROM
SCL	I2C serial bus clock for EEPROM
SDA	I2C serial bus data for EEPROM
VSS	Ground
/RESET	Set DRAMs Known State
VTT	SDRAM I/O termination supply
NC	No Connection

Dimensions (Unit: millimeter)

VIEW D-D

67.60

63.60

30.00

2.15

21.00

39.00

1.00±0.10

D

A   B

1   203

2   204

4.00±0.10   20.00

Detail A

4.00±0.10

1.65

1.00±0.10

3.00

Detail B

0.45±0.03

0.6

Note:

1. Tolerances on all dimensions +/-0.15mm unless otherwise specified.

Pin Assignments

Pin No	Pin Name	Pin No	Pin Name	Pin No	Pin Name	Pin No	Pin Name	Pin No	Pin Name	Pin No	Pin Name
01	VREFDQ	69	CB0	137	VSS	02	VSS	70	VSS	138	VSS
03	VSS	71	CB1	139	/DQS4	04	DQ4	72	CB4	140	DM4
05	DQ0	73	VSS	141	DQS4	06	DQ5	74	CB5	142	DQ38
07	DQ1	75	/DQS8	143	VSS	08	VSS	76	DM8	144	DQ39
09	VSS	77	DQS8	145	DQ34	10	/DQS0	78	VSS	146	VSS
11	DM0	79	VSS	147	DQ35	12	DQS0	80	CB6	148	DQ44
13	DQ2	81	CB2	149	VSS	14	VSS	82	CB7	150	DQ45
15	DQ3	83	CB3	151	DQ40	16	DQ6	84	VREFCA	152	VSS
17	VSS	85	VDD	153	DQ41	18	DQ7	86	VDD	154	/DQS5
19	DQ8	87	CKE0	155	VSS	20	VSS	88	NC	156	DQS5
21	DQ9	89	CKE1	157	DM5	22	DQ12	90	A14	158	VSS
23	VSS	91	BA2	159	DQ42	24	DQ13	92	A9	160	DQ46
25	/DQS1	93	VDD	161	DQ43	26	VSS	94	VDD	162	DQ47
27	DQS1	95	A12	163	VSS	28	DM1	96	A11	164	VSS
29	VSS	97	A8	165	DQ48	30	/RESET	98	A7	166	DQ52
31	DQ10	99	A5	167	DQ49	32	VSS	100	A6	168	DQ53
33	DQ11	101	VDD	169	VSS	34	DQ14	102	VDD	170	VSS
35	VSS	103	A3	171	/DQS6	36	DQ15	104	A4	172	DM6
37	DQ16	105	A1	173	DQS6	38	VSS	106	A2	174	DQ54
39	DQ17	107	A0	175	VSS	40	DQ20	108	BA1	176	DQ55
41	VSS	109	VDD	177	DQ50	42	DQ21	110	VDD	178	VSS
43	/DQS2	111	CK0	179	DQ51	44	DM2	112	CK1	180	DQ60
45	DQS2	113	/CK0	181	VSS	46	VSS	114	/CK1	182	DQ61
47	VSS	115	VDD	183	DQ56	48	DQ22	116	VDD	184	VSS
49	DQ18	117	A10/AP	185	DQ57	50	DQ23	118	NC	186	/DQS7
51	DQ19	119	BA0	187	VSS	52	VSS	120	NC	188	DQS7
53	VSS	121	/WE	189	DM7	54	DQ28	122	/RAS	190	VSS
55	DQ24	123	VDD	191	DQ58	56	DQ29	124	VDD	192	DQ62
57	DQ25	125	/CAS	193	DQ59	58	VSS	126	ODT0	194	DQ63
59	DM3	127	/CS0	195	VSS	60	/DQS3	128	ODT1	196	VSS
61	VSS	129	/CS1	197	SA0	62	DQS3	130	A13	198	/EVENT
63	DQ26	131	VDD	199	VDDSPD	64	VSS	132	VDD	200	SDA
65	DQ27	133	DQ32	201	SA1	66	DQ30	134	DQ36	202	SCL
67	VSS	135	DQ33	203	Vtt	68	DQ31	136	DQ37	204	Vtt

/CS1,ODT1,CKE1：Used for dual-rank SO-DIMMs; NC on single-rank SO-DIMMs.

CK1 and /CK1：Used for dual-rank SO-DIMMs; not used on single-rank SO-DIMMs but terminated.