SERIAL PRESENCE DETECT

M393B2G70QH0-CK009/CMA09

Organization : 2G x 72
Composition : 1G x 4 * 36ea
Used component part # : K4B4G0446Q-HCK0/HCMA
# of rows in module : 2 Row
# of banks in component : 8 Banks
Feature : 30mm height & double sided component
Refresh : 8K/64ms
Bin Sort : K0(DDR3 1600@CL=11), MA(DDR3 1866@CL=13)
RCD Vendor and Revision : Inphi UVGS02

Byte #	Function Described	Function Supported		Hex Value		Note
		CK009	CMA09	CK009	CMA09	
0	Number of Serial PD Bytes Written / SPD Device Size / CRC Coverage	CRC coverage 0~116Byte, SPD Byte Total :256Byte, SPD Byte Use : 176Byte		92h		
1	SPD Revision	Version 1.2		12h		
2	Key Byte / DRAM Device Type	DDR3 SDRAM		0Bh		
3	Key Byte / Module Type	Registered DIMM		01h		
4	SDRAM Density and Banks	4Gb 8banks		04h		
5	SDRAM Addressing	Row : 16, Column : 11		22h		
6	Module Nominal Voltage, VDD	1.5V only		00h		
7	Module Organization	2Rank / x4		08h		
8	Module Memory Bus Width	ECC, 64bit		0Bh		
9	Fine Timebase Dividend and Divisor	1ps		11h		
10	Medium Timebase Dividend	1/8 (0.125ns)		01h		
11	Medium Timebase Divisor	1/8 (0.125ns)		08h		
12	SDRAM Minimum Cycle Time (tCKmin)	1.25ns	1.071ns	0Ah	09h	
13	Reserved	Reserved		00h		
14	CAS Latencies Supported, Least Significant Byte	6, 7, 8, 9, 10, 11	6, 7, 8, 9, 10, 11, 13	FCh		
15	CAS Latencies Supported, Most Significant Byte	6, 7, 8, 9, 10, 11	6, 7, 8, 9, 10, 11, 13	00h	02h	
16	Minimum CAS Latency Time(tAAmin)	13.125ns		69h		
17	Minimum Write Recovery Time (tWRmin)	15ns		78h		
18	Minimum RAS# to CAS# Delay Time (tRCDmin)	13.125ns		69h		
19	Minimum Row Active to Row Active Delay Time (tRRDmin)	6ns	5ns	30h	28h	
20	Minimum Row Precharge Time (tRPmin)	13.125ns		69h		
21	Upper Nibbles for tRAS and tRC	-		11h		
22	Minimum Active to Precharge Time (tRASmin), Least Significant Byte	35ns	34ns	18h	10h	
23	Minimum Active to Active/Refresh Time (tRCmin), Least Significatn Byte	48.125ns	47.125ns	81h	79h	
24	Minimum Refresh Recovery Time (tRFCmin), Least Significant Byte	260ns		20h		
25	Minimum Refresh Recovery Time (tRFCmin), Most Significant Byte	260ns		08h		
26	Minimum Internal Write to Read Command Delay Time (tWTRmin)	7.5ns		3Ch		
27	Minimum Internal Read to Precharge Command Delay Time (tRTPmin)	7.5ns		3Ch		
28	Upper Nibble for tFAW	30ns	27ns	00h		
29	Minimum Four Activate WIndow Delay Time (tFAWmin), Least Significant Byte	30ns	27ns	F0h	D8h	
30	SDRAM Output Drivers supported	DLL off Mode, RZQ/6, RZQ/7		83h		
31	SDRAM Thermal and Refresh Options	No ODTS, No ASR		01h		
32	Module Thermal Sensor	with TS		80h		
33	SDRAM Device Type	Standard Monolithic DRAM Device		00h		
34	Fine Offset for SDRAM Minimum Cycle Time(tCKmin)	1.25ns	1.071ns	00h	CAh	
35	Fine Offset for Minimum CAS Latency Time(tAAmin)	13.125ns		00h		
36	Fine Offset for Minimum RAS# to CAS# Delay Time(tRCDmin)	13.125ns		00h		
37	Fine Offset for Minimum Row Precharge Delay Time(tRPmin)	13.125ns		00h		
38	Fine Offset for Minimum Active to Active/Refresh Delay Time(tRCmin)	48.125ns	47.125ns	00h		

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		CK009	CMA09	CK009	CMA09	
39~40	Reserved, General Section	Reserved		00h		
41	SDRAM Maximum Activate Count (MAC) Value	Unlimited MAC_pTRR Compliant		88h		
42~59	Reserved, General Section	Reserved		00h		
60	Module Nominal Height	30mm		0Fh		
61	Module Maximum Thickness	Planar Double sides		11h		
62	Reference Raw Card Used	R/C E, 2.0		44h		
63	DIMM Module Attributes	2 Rows of DRAM / 1 Register used		09h		
64	Heat Spreader Solution	without HS		00h		
65	Register vendor ID code(LSB)	Inphi		04h		
66	Register vendor ID code(MSB)	Inphi		B3h		
67	Register Revision Number	Inphi UVGS02		21h		
68	Register Type	SSTE32882		00h		
69	Register Control Word Functions(RC0/RC1)	Default		00h		
70	Register Control Word Functions(RC2/RC3)	R/C E		50h		
71	Register Control Word Functions(RC4/RC5)	R/C E		55h		
72	Register Control Word Functions(RC6/RC7)	Default		00h		
73	Register Control Word Functions(RC8/RC9)	Default		00h		
74	Register Control Word Function(RC10, RC11)	Default		00h		
75	Register Control Word Function(RC12, RC13)	Default		00h		
76	Register Control Word Function(RC14, RC15)	Default		00h		
77~116	Reserved	-		00h		
117	Module Manufacturer ID Code, Least Significant Byte	Samsung		80h		
118	Module Manufacturer ID Code, Most Significant Byte	Samsung		CEh		
119	Module ID: Module Manufacturing Location	Onyang Korea		01h		
120	Module ID: Module Manufacturing Date	-		00h		
121	Module ID: Module Manufacturing Date	-		00h		
122~125	Module ID : Module Serial Number	-		00h		
126	Cyclical Redundancy Code	-		58h	0Bh	
127	Cyclical Redundancy Code	-		BBh	B3h	
128	Module Part Number	M		4Dh		
129	Module Part Number	3		33h		
130	Module Part Number	9		39h		
131	Module Part Number	3		33h		
132	Module Part Number	B		42h		
133	Module Part Number	2		32h		
134	Module Part Number	G		47h		
135	Module Part Number	7		37h		
136	Module Part Number	0		30h		
137	Module Part Number	Q-die		51h		
138	Module Part Number	H		48h		
139	Module Part Number	0		30h		
140	Module Part Number	-		2Dh		
141	Module Part Number	C		43h		
142	Module Part Number	K	M	4Bh	4Dh	
143	Module Part Number	0	A	30h	41h	
144	Module Part Number	Blank		20h		

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		CK009	CMA09	CK009	CMA09	
145	Module Part Number	Blank		20h		
146~147	Module Revision Code	-		00h		
148	SDRAM Manufacturer's JEDEC ID Code	Samsung		80h		
149	SDRAM Manufacturer's JEDEC ID Code	Samsung		CEh		
150~175	Manufacturer's Specific Data	-		00h		
176~255	Open for customer use	-		00h		

Note : 1. ### #####.
2. ### #####.
3. ### #####.