

Identification

DTM60167:16Mx72 PC100
DTM60168:16Mx72 PC133
DTM60171:32Mx72 PC100
DTM60172:32Mx72 PC133

Performance range

PC100=100MHz(10ns@CL=2)
PC133=133MHz(7.5ns@CL=3)

Features

Burst mode operation
Auto & self refresh capability (4096 Cycles/64ms)
LVTTTL compatible inputs and outputs
Single 3.3V±0.3V power supply
MRS cycle with address key programs Latency (Access from column address) Burst length (1, 2, 4 & 8)
Data scramble (Sequential & Interleave)
Serial presence detect with EEPROM
168-pin PC100/PC133 DIMM assembly 5.250" wide by 1.000" high

Description

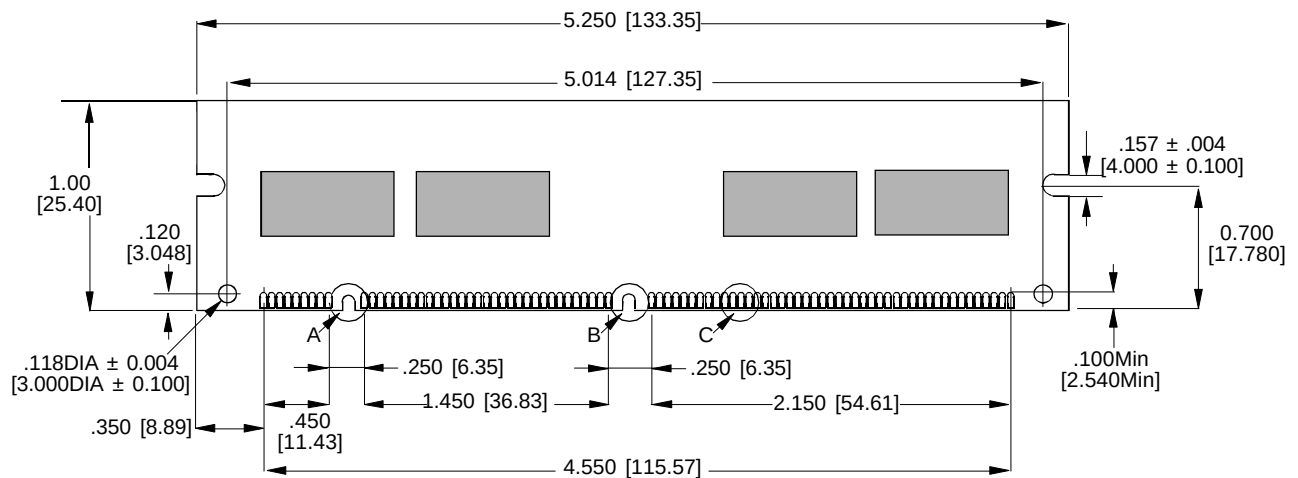
The Dataram DTM60167 and DTM60168 are 16Mx72 SDRAM memory modules, and the DTM60171 and DTM60172 are 32Mx72 SDRAM memory modules. Two performance grades are available: PC100 (DTM60167 and DTM60171) and PC133 (DTM60168 and DTM60172). All four module designs are Registered, employ ECC, and use a 2K EEPROM for Serial Presence Detect. All modules are in a standard 168-pin wide form factor, but are only one inch high--ideal for inclusion into low profile applications such as 1U servers. Each module is configured as one physical bank of DRAMs, and each DRAM is comprised of four internal banks of memory locations. Each specific memory location is further addressed by 12 row lines (A0-A11), and 10 column lines (A0-9) for the 128 MB modules, or by 13 row lines (A0-12), and 10 column lines (A0-9) for the 256 MB modules.

Pin configurations

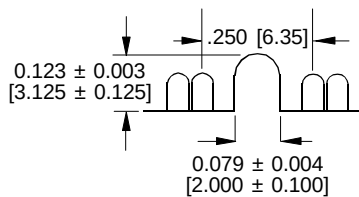
Front side			Back side				
Vss	29	DQM1	57	DQ18	85	Vss	113 DQM5
DQ0	30	CS0	58	DQ19	86	DQ32	114 *CS1
DQ1	31	DU	59	Vdd	87	DQ33	115 RAS
DQ2	32	Vss	60	DQ20	88	DQ34	116 Vss
DQ3	33	A0	61	NC	89	DQ35	117 A1
Vdd	34	A2	62	*Vref	90	Vdd	118 A3
DQ4	35	A4	63	*CKE1	91	DQ36	119 A5
DQ5	36	A6	64	Vss	92	DQ37	120 A7
DQ6	37	A8	65	DQ21	93	DQ38	121 A9
DQ7	38	A10/AP	66	DQ22	94	DQ39	122 BA0
DQ8	39	BA1	67	DQ23	95	DQ40	123 A11
Vss	40	Vdd	68	Vss	96	Vss	124 Vdd
DQ9	41	Vdd	69	DQ24	97	DQ41	125 CLK1
DQ10	42	CLK0	70	DQ25	98	DQ42	126 A12
DQ11	43	Vss	71	DQ26	99	DQ43	127 Vss
DQ12	44	DU	72	DQ27	100	DQ44	128 CKE0
DQ13	45	CS2	73	Vdd	101	DQ45	129 *CS3
Vdd	46	DQM2	74	DQ28	102	Vdd	130 DQM6
DQ14	47	DQM3	75	DQ29	103	DQ46	131 DQM7
DQ15	48	DU	76	DQ30	104	DQ47	132 *A13
CB0	49	Vdd	77	DQ31	105	CB4	133 Vdd
CB1	50	NC	78	Vss	106	CB5	134 NC
Vss	51	NC	79	CLK2	107	Vss	135 NC
NC	52	CB2	80	NC	108	NC	136 CB6
NC	53	CB3	81	WP	109	NC	137 CB7
Vdd	54	Vss	82	**SDA	110	Vdd	138 Vss
WE	55	DQ16	83	**SCL	111	CAS	139 DQ48
DQM0	56	DQ17	84	Vdd	112	DQM4	140 DQ49
							141 DQ50
							142 DQ51
							143 Vdd
							144 DQ52
							145 NC
							146 *Vref
							147 REGE
							148 Vss
							149 DQ53
							150 DQ54
							151 DQ55
							152 Vss
							153 DQ56
							154 DQ57
							155 DQ58
							156 DQ59
							157 Vdd
							158 DQ60
							159 DQ61
							160 DQ62
							161 DQ63
							162 Vss
							163 CLK3
							164 NC
							165 SA0
							166 SA1
							167 SA2
							168 Vdd

* These pins are not used in this module.

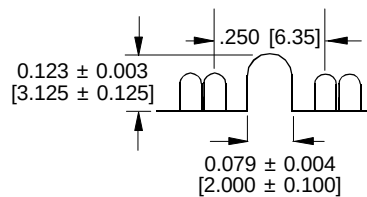
Front view



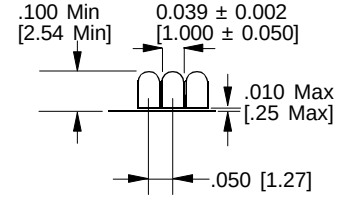
Detail A



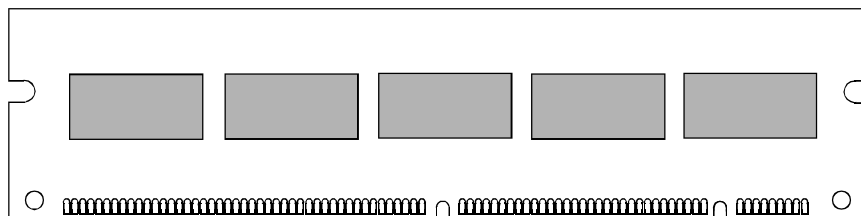
Detail B



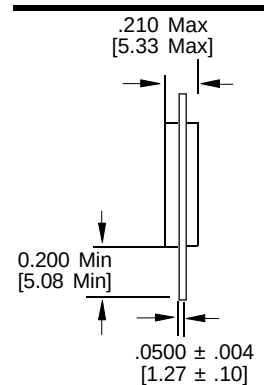
Detail C



Back view



Side view

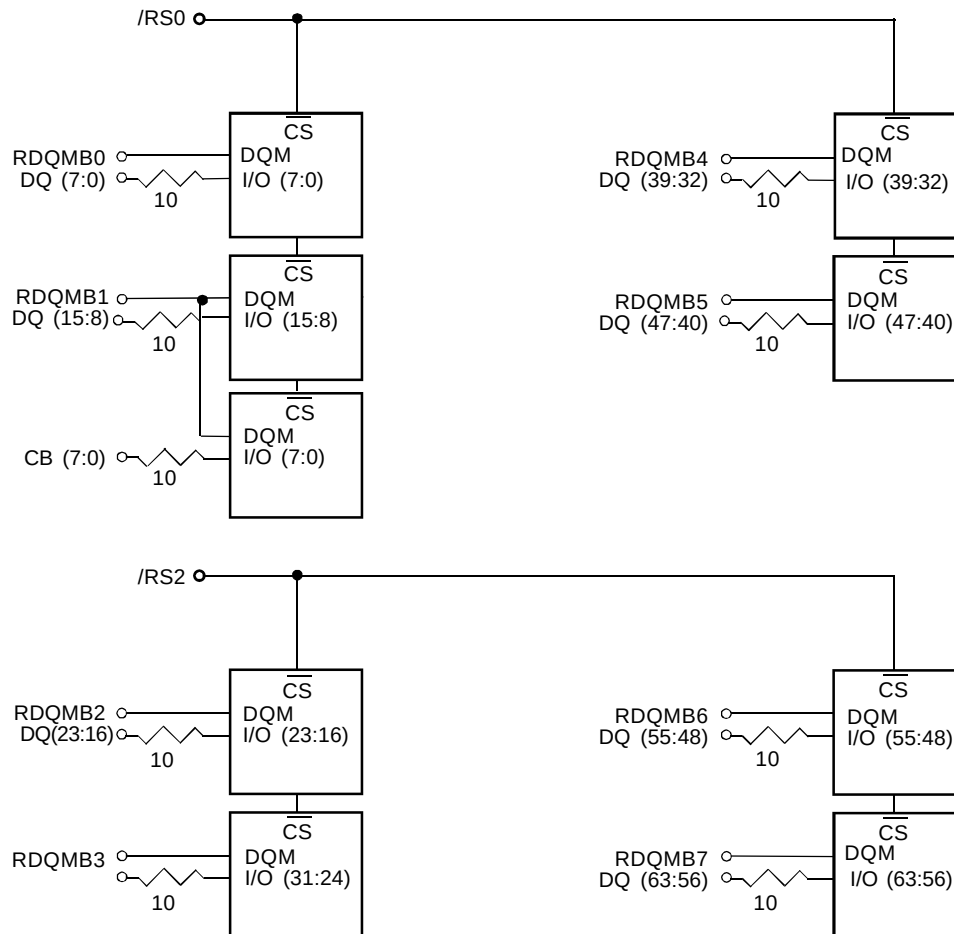


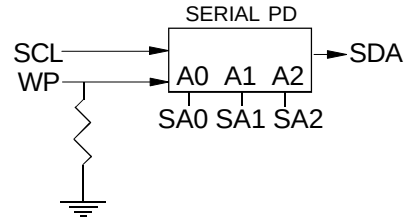
Notes

Tolerances on all dimensions except where otherwise indicated are ±.005 [.13].

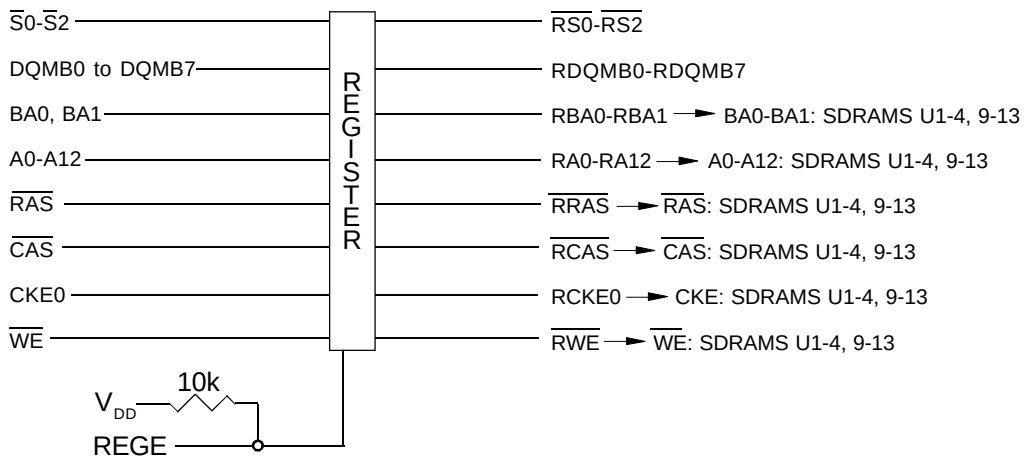
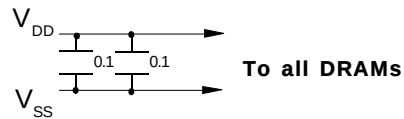
All dimensions are expressed: inches [millimeters].

Center IC is removed on 8Mx64 assemblies.





CK0 → PLL
CK1, CK2, CK3 Terminated



Note: Register, PLL, and Serial Presence Detect are all connected to V_{DD} .