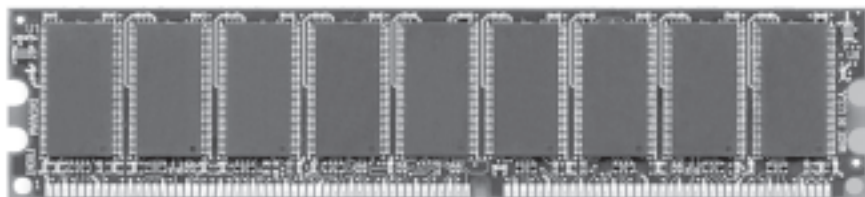


DTM63612 AND DTM63613

256MB-32M x 72, 512MB-64M x 72, 184 Pin Unbuffered DDR SDRAM DIMMs



Identification

DTM63612:64Mx72
DTM63613:32Mx72

Performance range

266MHz/CL=2.5
200MHz/CL=2

Features

Utilizes 133MHz DDR SDRAM
Auto & self refresh capability
SSTL_2 compatible inputs and outputs
VDD/VDDQ=2.5V +/-0.2V
MRS cycle, with address key, programs Latency (Access from column address) Burst length (2, 4 and 8 page) Data scramble (Sequential & Interleave)
Serial Presence Detect
184-pin JEDEC DIMM double-sided assembly, 5.250" wide by 1.25" high
Commands entered on each positive CK edge
DQS edge-aligned with data for Reads; center-aligned with Data for Writes
Two Data accesses per clock cycle
DTM63612 is two physical banks
DTM63613 is one physical bank
SDRAM Addressing (13/10/2) (Row/Col/Bank)

Description

The Dataram DTM63612 assembly is a 64Mx72 DDR Synchronous Dynamic RAM high density memory module. The DTM63612 consists of eighteen 32Mx8bit DDR Synchronous DRAMs in a 66 pin TSOP-II 400mil package. The Dataram DTM63613 assembly is a 32Mx72 DDR Synchronous Dynamic RAM high density memory module. The DTM63613 consists of nine 32Mx8bit DDR Synchronous DRAMs in a 66pin TSOP-II 400mil package. One 2K EEPROM for serial presence detect is used on all assemblies. These DDR SDRAM modules use a double data rate architecture to achieve high speed operation. Synchronous design allows for precise cycle control with the use of a differential system clock.

Pin configurations

Front side

Back side

1 VREF	24 DQ17	47 DQS8	70 VDD	93 VSS	116 VSS	139 VSS	162 DQ46
2 DQ0	25 DQS2	48 A0	71 NC	94 DQ4	117 DQ21	140 DQS17	163 DQ47
3 VSS	26 VSS	49 CB2	72 DQ48	95 DQ5	118 A11	141 A10	164 VDDQ
4 DQ1	27 A9	50 VSS	73 DQ49	96 VDDQ	119 DQS11	142 CB6	165 DQ52
5 DQS0	28 DQ18	51 CB3	74 VSS	97 DQS9	120 VDD	143 VDDQ	166 DQ53
6 DQ2	29 A7	52 BA1	75 CK2#	98 DQ6	121 DQ22	144 CB7	167 NC
7 VDD	30 VDDQ	53 DQ32	76 CK2	99 DQ7	122 A8	145 VSS	168 VDD
8 DQ3	31 DQ19	54 VDDQ	77 VDDQ	100 VSS	123 DQ23	146 DQ36	169 DQS15
9 NC	32 A5	55 DQ33	78 DQS6	101 NC	124 VSS	147 DQ37	170 DQ54
10 NC	33 DQ24	56 DQS4	79 DQ50	102 NC	125 A6	148 VDD	171 DQ55
11 VSS	34 VSS	57 DQ34	80 DQ51	103 NC	126 DQ28	149 DQS13	172 VDDQ
12 DQ8	35 DQ25	58 VSS	81 VSS	104 VDDQ	127 DQ29	150 DQ38	173 NC
13 DQ9	36 DQS3	59 BA0	82 VDDID	105 DQ12	128 VDDQ	151 DQ39	174 DQ60
14 DQS1	37 A4	60 DQ35	83 DQ56	106 DQ13	129 DQS12	152 VSS	175 DQ61
15 VDDQ	38 VDD	61 DQ40	84 DQ57	107 DQS10	130 A3	153 DQ44	176 VSS
16 CK1	39 DQ26	62 VDDQ	85 VDD	108 VDD	131 DQ30	154 RAS#	177 DQS16
17 CK1#	40 DQ27	63 WE#	86 DQ57	109 DQ14	132 VSS	155 DQ45	178 DQ62
18 VSS	41 A2	64 DQ41	87 DQ58	110 DQ15	133 DQ31	156 VDDQ	179 DQ63
19 DQ10	42 VSS	65 CAS#	88 DQ59	111 CKE1	134 CB4	157 CS0#	180 VDDQ
20 DQ11	43 A1	66 VSS	89 VSS	112 VDDQ	135 CB5	158 CS1#	181 SA0
21 CKE0	44 CB0	67 DQS5	90 NC	113 NC	136 VDDQ	159 DQS14	182 SA1
22 VDDQ	45 CB1	68 DQ42	91 SDA	114 DQ20	137 CK0	160 VSS	183 SA2
23 DQ16	46 VDD	69 DQ43	92 SDL	115 A12	138 CK0#	161 DQ46	184 VDDSPD

Pin names

Pin name

Function

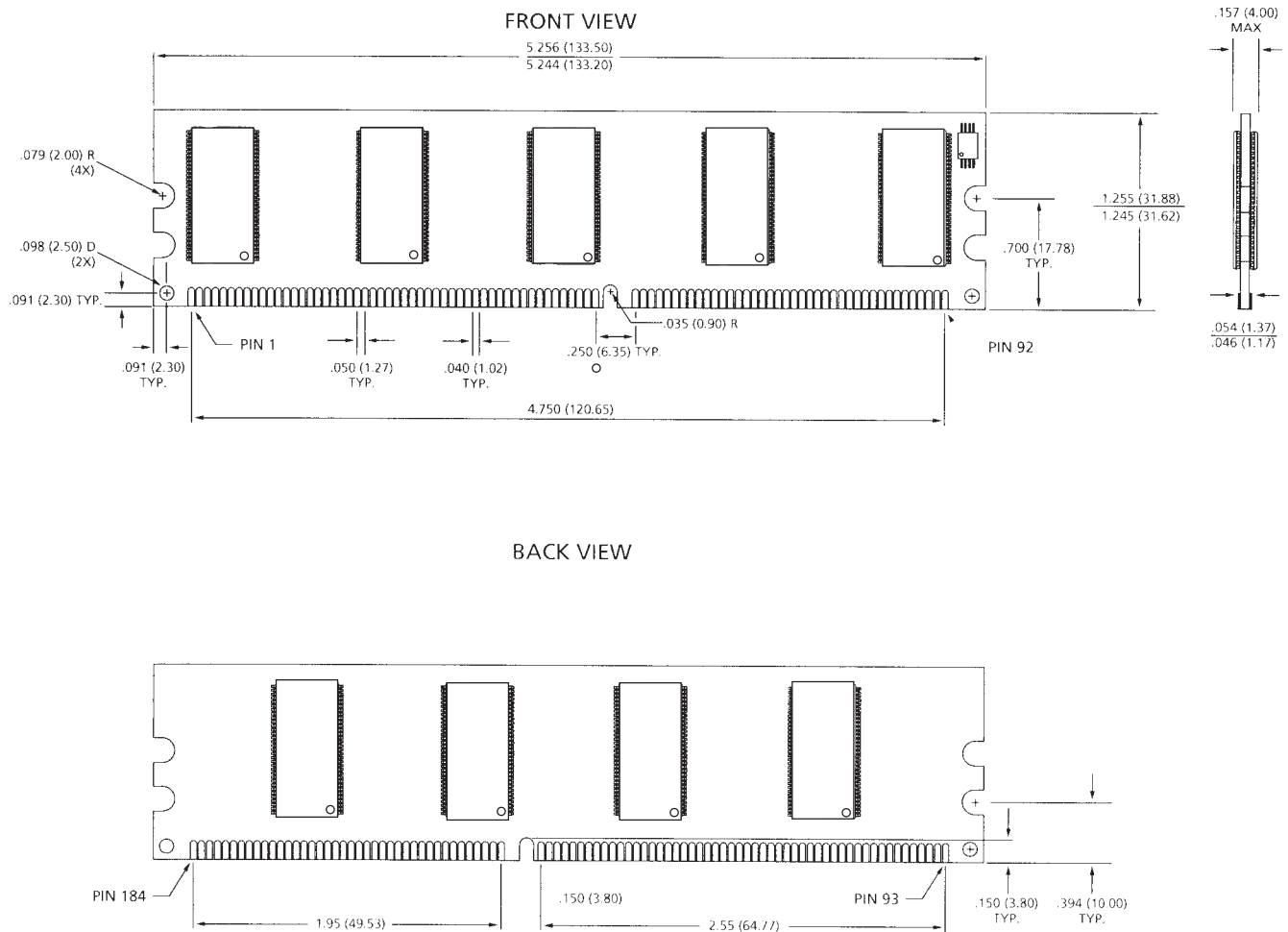
RAS#	Row address strobe
CAS#	Column address strobe
WE#	Write enable
*CS#[1:0]	Chip select
CK[2:0]CK#[2:0]	Differential Clock Inputs
*CKE[1:0]	Clock enable input
BA[1:0]	Bank Select Input
A[12:0]	Address input (Multiplexed)
VREF	SSTL_2 reference input
VDDID	VDD identification flag
SCL	Serial clock
SDA	Serial data I/O
SA[2:0]	Address EEPROM
CB[7:0]	Data I/Os: Check bits
DQS[17:0]	Data Strokes
DQ[63:0]	Data I/Os: Data bus
VDDQ	DQ power supply: 2.5V +/-0.2V
VDD	Power supply: 2.5V +/-0.2V
VSS	Ground
VDDSPD	Serial EEPROM power supply
NC	No connects

* CS1# and CKE1 are not used on the DTM63613.

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DTM63613 184-PIN DIMM

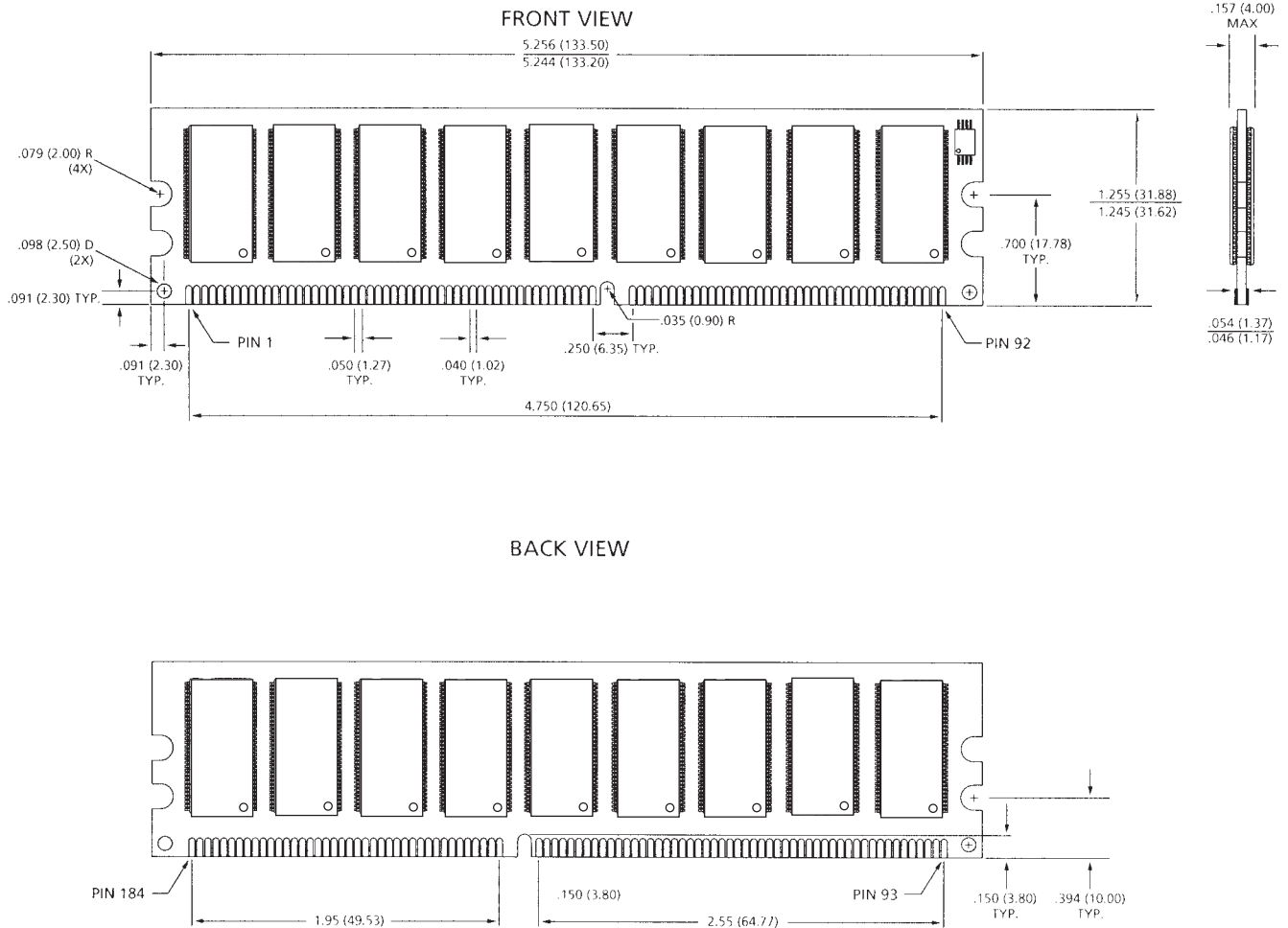


NOTE: All dimensions in inches (millimeters) $\frac{\text{MAX}}{\text{MIN}}$ or typical where noted.

DTM63612 AND DTM63613

256MB-32M x 72, 512MB-64M x 72, 184 Pin Unbuffered DDR
SDRAM DIMMs

DTM63612 184-PIN DIMM

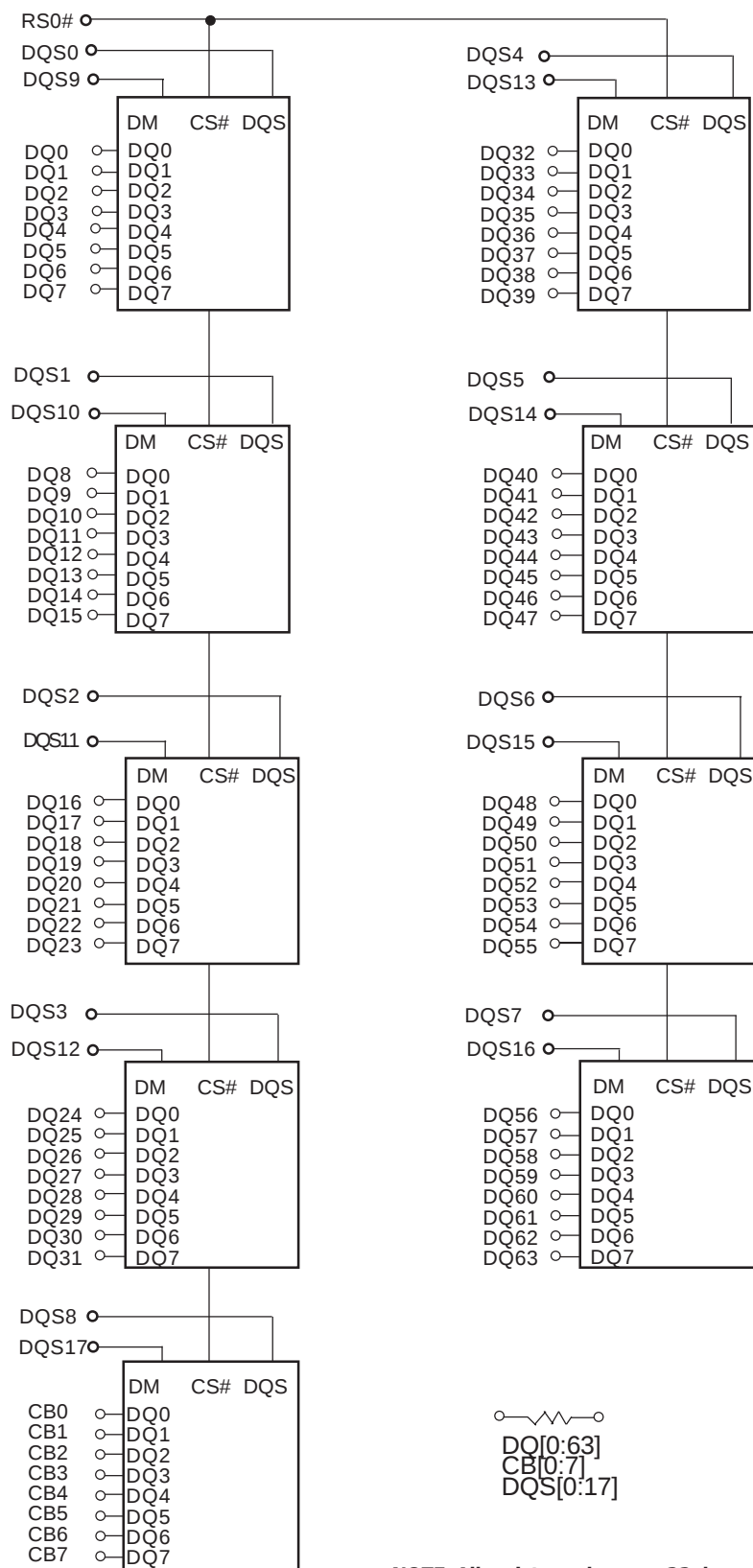


NOTE: All dimensions in inches (millimeters) $\frac{\text{MAX}}{\text{MIN}}$ or typical where noted.

DTM63612 AND DTM63613

256MB-32M x 72, 512MB-64M x 72, 184 Pin Unbuffered DDR
SDRAM DIMMs

FUNCTIONAL BLOCK DIAGRAM OF THE DTM63613



NOTE: All resistor values are 22ohms.