

TS32MLD64V4F3

184PIN DDR400 Unbuffered DIMM
256MB With 32Mx8 CL3

Description

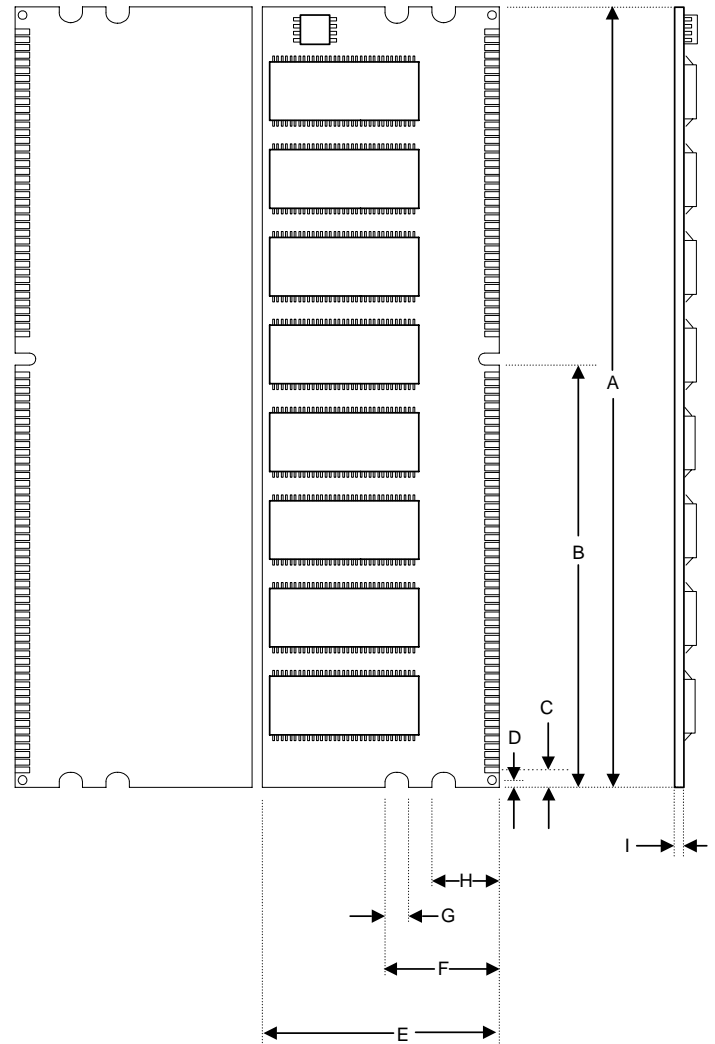
The TS32MLD64V4F3 is a 32M x 64bits Double Data Rate SDRAM high-density for DDR400. The TS32MLD64V4F3 consists of 8pcs CMOS 32Mx8 bits Double Data Rate SDRAMs in 66 pin TSOP-II 400mil packages and a 2048 bits serial EEPROM on a 184-pin printed circuit board. The TS32MLD64V4F3 is a Dual In-Line Memory Module and is intended for mounting into 184-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.
- Power supply: VDD: $2.6V \pm 0.1V$, VDDQ: $2.6V \pm 0.1V$
- Max clock Freq: 200MHZ.
- Operating Temperature: TC = 0 to 70°C.
- Double-data-rate architecture; two data transfers per clock cycle
- Differential clock inputs (CK and /CK)
- DLL aligns DQ and DQS transition with CK transition
- Auto and Self Refresh 7.8us refresh interval.
- Data I/O transactions on both edge of data strobe.
- Edge aligned data output, center aligned data
- Serial Presence Detect (SPD) with serial EEPROM
- SSTL-2 compatible inputs and outputs.
- MRS cycle with address key programs.
CAS Latency (Access from column address): 3
Burst Length (2,4,8)
Data Sequence (Sequential & Interleave)

Placement



PCB: 09-2432

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Dimensions

| Side | Millimeters | Inches |
|------|-------------|-------------|
| A | 133.35±0.20 | 5.250±0.008 |
| B | 72.39 | 2.850 |
| C | 6.35 | 0.250 |
| D | 2.20 | 0.087 |
| E | 30.023±0.20 | 1.182±0.008 |
| F | 19.80 | 0.800 |
| G | 4.00 | 0.157 |
| H | 12.00 | 0.472 |
| I | 1.27±0.10 | 0.050±0.004 |

(Refer Placement)

Pin Identification

| Symbol | Function |
|------------------|---|
| A0~A12, BA0, BA1 | Address input |
| DQ0~DQ63 | Data Input / Output. |
| DQS0~DQS7 | Data strobe input/output |
| CK0, /CK0 | |
| CK1, /CK1 | Clock Input. |
| CK2, /CK2 | |
| CKE0 | Clock Enable Input. |
| /CS0 | Chip Select Input. |
| /RAS | Row Address Strobe |
| /CAS | Column Address Strobe |
| /WE | Write Enable |
| DM0~DM7 | Data-in Mask |
| VDD | +2.5 Voltage power supply |
| VDDQ | +2.5 Voltage Power Supply for DQS |
| VREF | Power Supply for Reference |
| VDDSPD | +2.5 Voltage Serial EEPROM Power Supply |
| SA0~SA2 | Address in EEPROM |
| SCL | Serial PD Clock |
| SDA | Serial PD Add/Data input/output |
| VSS | Ground |
| NC | No Connection |

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Pinouts:

| Pin No | Pin Name | Pin No | Pin Name | Pin No | Pin Name | Pin No | Pin Name |
|--------|----------|--------|----------|--------|----------|--------|----------|
| 01 | VREF | 47 | *DQS8 | 93 | VSS | 139 | VSS |
| 02 | DQ0 | 48 | A0 | 94 | DQ4 | 140 | *DM8 |
| 03 | VSS | 49 | *CB2 | 95 | DQ5 | 141 | A10 |
| 04 | DQ1 | 50 | VSS | 96 | VDDQ | 142 | *CB6 |
| 05 | DQS0 | 51 | *CB3 | 97 | DM0 | 143 | VDDQ |
| 06 | DQ2 | 52 | BA1 | 98 | DQ6 | 144 | *CB7 |
| 07 | VDD | 53 | DQ32 | 99 | DQ7 | 145 | VSS |
| 08 | DQ3 | 54 | VDDQ | 100 | VSS | 146 | DQ36 |
| 09 | NC | 55 | DQ33 | 101 | NC | 147 | DQ37 |
| 10 | NC | 56 | DQS4 | 102 | NC | 148 | VDD |
| 11 | VSS | 57 | DQ34 | 103 | NC | 149 | DM4 |
| 12 | DQ8 | 58 | VSS | 104 | VDDQ | 150 | DQ38 |
| 13 | DQ9 | 59 | BA0 | 105 | DQ12 | 151 | DQ39 |
| 14 | DQS1 | 60 | DQ35 | 106 | DQ13 | 152 | VSS |
| 15 | VDDQ | 61 | DQ40 | 107 | DM1 | 153 | DQ44 |
| 16 | *CK1 | 62 | VDDQ | 108 | VDD | 154 | /RAS |
| 17 | */CK1 | 63 | /WE | 109 | DQ14 | 155 | DQ45 |
| 18 | VSS | 64 | DQ41 | 110 | DQ15 | 156 | VDDQ |
| 19 | DQ10 | 65 | /CAS | 111 | *CKE1 | 157 | /CS0 |
| 20 | DQ11 | 66 | VSS | 112 | VDDQ | 158 | */CS1 |
| 21 | CKE0 | 67 | DQS5 | 113 | NC | 159 | DM5 |
| 22 | VDDQ | 68 | DQ42 | 114 | DQ20 | 160 | VSS |
| 23 | DQ16 | 69 | DQ43 | 115 | *A12 | 161 | DQ46 |
| 24 | DQ17 | 70 | VDD | 116 | VSS | 162 | DQ47 |
| 25 | DQS2 | 71 | NC | 117 | DQ21 | 163 | NC |
| 26 | VSS | 72 | DQ48 | 118 | A11 | 164 | VDDQ |
| 27 | A9 | 73 | DQ49 | 119 | DM2 | 165 | DQ52 |
| 28 | DQ18 | 74 | VSS | 120 | VDD | 166 | DQ53 |
| 29 | A7 | 75 | */CK2 | 121 | DQ22 | 167 | NC |
| 30 | VDDQ | 76 | *CK2 | 122 | A8 | 168 | VDD |
| 31 | DQ19 | 77 | VDDQ | 123 | DQ23 | 169 | DM6 |
| 32 | A5 | 78 | DQS6 | 124 | VSS | 170 | DQ54 |
| 33 | DQ24 | 79 | DQ50 | 125 | A6 | 171 | DQ55 |
| 34 | VSS | 80 | DQ51 | 126 | DQ28 | 172 | VDDQ |
| 35 | DQ25 | 81 | VSS | 127 | DQ29 | 173 | NC |
| 36 | DQS3 | 82 | NC | 128 | VDDQ | 174 | DQ60 |
| 37 | A4 | 83 | DQ56 | 129 | DM3 | 175 | DQ61 |
| 38 | VDD | 84 | DQ57 | 130 | A3 | 176 | VSS |
| 39 | DQ26 | 85 | VDD | 131 | DQ30 | 177 | DM7 |
| 40 | DQ27 | 86 | DQS7 | 132 | VSS | 178 | DQ62 |
| 41 | A2 | 87 | DQ58 | 133 | DQ31 | 179 | DQ63 |
| 42 | VSS | 88 | DQ59 | 134 | *CB4 | 180 | VDDQ |
| 43 | A1 | 89 | VSS | 135 | *CB5 | 181 | SA0 |
| 44 | *CB0 | 90 | NC | 136 | VDDQ | 182 | SA1 |
| 45 | *CB1 | 91 | SDA | 137 | CK0 | 183 | SA2 |
| 46 | VDD | 92 | SCL | 138 | /CK0 | 184 | VDDSPD |