

8GB DDR3 SDRAM SODIMM with SPD

Ordering Information

| Part Number | Bandwidth | Speed Grade | Max Frequency | CAS Latency | Density | Organization | Component Composition | Number of Rank |
|----------------|------------|-------------|---------------|-------------|---------|--------------|-----------------------|----------------|
| 78.C2GCM.AT30C | 10.6GB/sec | 1333Mbps | 666MHz | CL9 | 8GB | 1024Mx64 | 512Mx8*16EA | 2 |

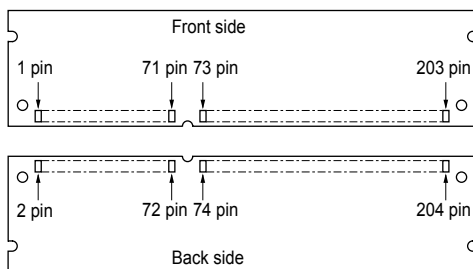
Specifications

- On Dimm Thermal Sensor: No
- Density: 8GB
- Organization
 - 1024M words × 64 bits, 2 ranks
- Mounting 16 pieces of 4G bits DDR3 SDRAM sealed in FBGA
- Package: 204-pin socket type small outline dual in line memory module (SO-DIMM)
 - PCB height: 30.0mm
 - Lead pitch: 0.6mm (pin)
 - Lead-free (RoHS compliant)
- Power supply: VDD = 1.5V ± 0.075V
- Eight internal banks for concurrent operation (components)
- Interface: SSTL_15
- Burst lengths (BL): 8 and 4 with Burst Chop (BC)
- /CAS Latency (CL): 6, 7, 8, 9
- /CAS write latency (CWL): 5, 6, 7
- Precharge: auto precharge option for each burst access
- Refresh: auto-refresh, self-refresh
- Refresh cycles
 - Average refresh period
 - 7.8μs at 0°C ≤ TC ≤ +85°C
 - 3.9μs at +85°C < TC ≤ +95°C
- Operating case temperature range
 - TC = 0°C to +95°C

Features

- Double-data-rate architecture; two data transfers per clock cycle
- The high-speed data transfer is realized by the 8 bits prefetch pipelined architecture
- Bi-directional differential data strobe (DQS and /DQS) is transmitted/received with data for capturing data at the receiver
- DQS is edge-aligned with data for READs; center-aligned with data for WRITEs
- Differential clock inputs (CK and /CK)
- DLL aligns DQ and DQS transitions with CK transitions
- Commands entered on each positive CK edge; data and data mask referenced to both edges of DQS
- Data mask (DM) for write data
- Posted /CAS by programmable additive latency for better command and data bus efficiency
- On-Die-Termination (ODT) for better signal quality
 - Synchronous ODT
 - Dynamic ODT
 - Asynchronous ODT
- Multi Purpose Register (MPR) for temperature read out
- ZQ calibration for DQ drive and ODT
- Programmable Partial Array Self-Refresh (PASR)
- /RESET pin for Power-up sequence and reset function
- SRT range:
 - Normal/extended
 - Auto/manual self-refresh
- Programmable Output driver impedance control

Pin Configurations



| Front side | | | Back side | | | | |
|------------|----------|---------|-----------|---------|----------|---------|----------|
| Pin No. | Pin name | Pin No. | Pin name | Pin No. | Pin name | Pin No. | Pin name |
| 1 | VREFDQ | 103 | /CK0 | 2 | VSS | 104 | /CK1 |
| 3 | VSS | 105 | VDD | 4 | DQ4 | 106 | VDD |
| 5 | DQ0 | 107 | A10 (AP) | 6 | DQ5 | 108 | BA1 |
| 7 | DQ1 | 109 | BA0 | 8 | VSS | 110 | /RAS |
| 9 | VSS | 111 | VDD | 10 | /DQS0 | 112 | VDD |
| 11 | DM0 | 113 | /WE | 12 | DQS0 | 114 | /CS0 |
| 13 | VSS | 115 | /CAS | 14 | VSS | 116 | ODT0 |
| 15 | DQ2 | 117 | VDD | 16 | DQ6 | 118 | VDD |
| 17 | DQ3 | 119 | A13 | 18 | DQ7 | 120 | ODT1 |
| 19 | VSS | 121 | /CS1 | 20 | VSS | 122 | NC |
| 21 | DQ8 | 123 | VDD | 22 | DQ12 | 124 | VDD |
| 23 | DQ9 | 125 | NC | 24 | DQ13 | 126 | VREFCA |
| 25 | VSS | 127 | VSS | 26 | VSS | 128 | VSS |
| 27 | /DQS1 | 129 | DQ32 | 28 | DM1 | 130 | DQ36 |
| 29 | DQS1 | 131 | DQ33 | 30 | /RESET | 132 | DQ37 |
| 31 | VSS | 133 | VSS | 32 | VSS | 134 | VSS |
| 33 | DQ10 | 135 | /DQS4 | 34 | DQ14 | 136 | DM4 |
| 35 | DQ11 | 137 | DQS4 | 36 | DQ15 | 138 | VSS |
| 37 | VSS | 139 | VSS | 38 | VSS | 140 | DQ38 |
| 39 | DQ16 | 141 | DQ34 | 40 | DQ20 | 142 | DQ39 |
| 41 | DQ17 | 143 | DQ35 | 42 | DQ21 | 144 | VSS |
| 43 | VSS | 145 | VSS | 44 | VSS | 146 | DQ44 |
| 45 | /DQS2 | 147 | DQ40 | 46 | DM2 | 148 | DQ45 |
| 47 | DQS2 | 149 | DQ41 | 48 | VSS | 150 | VSS |
| 49 | VSS | 151 | VSS | 50 | DQ22 | 152 | /DQS5 |
| 51 | DQ18 | 153 | DM5 | 52 | DQ23 | 154 | DQS5 |
| 53 | DQ19 | 155 | VSS | 54 | VSS | 156 | VSS |
| 55 | VSS | 157 | DQ42 | 56 | DQ28 | 158 | DQ46 |
| 57 | DQ24 | 159 | DQ43 | 58 | DQ29 | 160 | DQ47 |
| 59 | DQ25 | 161 | VSS | 60 | VSS | 162 | VSS |
| 61 | VSS | 163 | DQ48 | 62 | /DQS3 | 164 | DQ52 |
| 63 | DM3 | 165 | DQ49 | 64 | DQS3 | 166 | DQ53 |
| 65 | VSS | 167 | VSS | 66 | VSS | 168 | VSS |
| 67 | DQ26 | 169 | /DQS6 | 68 | DQ30 | 170 | DM6 |

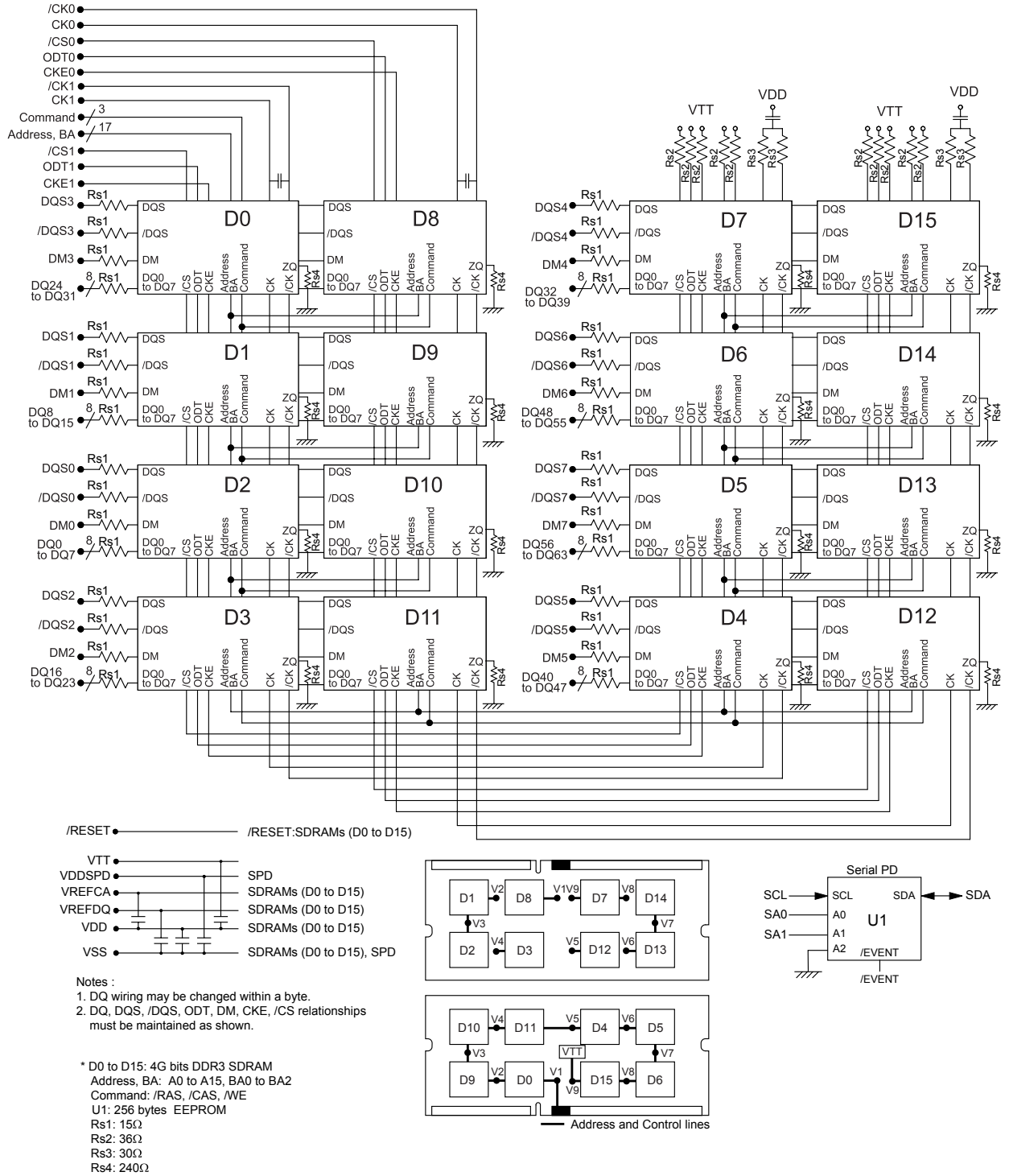
Apacer Memory Product Specification

| Front side | | | | Back side | | | |
|------------|-----------|---------|----------|-----------|----------|---------|----------|
| Pin No. | Pin name | Pin No. | Pin name | Pin No. | Pin name | Pin No. | Pin name |
| 69 | DQ27 | 171 | DQS6 | 70 | DQ31 | 172 | VSS |
| 71 | VSS | 173 | VSS | 72 | VSS | 174 | DQ54 |
| 73 | CKE0 | 175 | DQ50 | 74 | CKE1 | 176 | DQ55 |
| 75 | VDD | 177 | DQ51 | 76 | VDD | 178 | VSS |
| 77 | NC | 179 | VSS | 78 | NC | 180 | DQ60 |
| 79 | BA2 | 181 | DQ56 | 80 | NC | 182 | DQ61 |
| 81 | VDD | 183 | DQ57 | 82 | VDD | 184 | VSS |
| 83 | A12 (/BC) | 185 | VSS | 84 | A11 | 186 | /DQS7 |
| 85 | A9 | 187 | DM7 | 86 | A7 | 188 | DQS7 |
| 87 | VDD | 189 | VSS | 88 | VDD | 190 | VSS |
| 89 | A8 | 191 | DQ58 | 90 | A6 | 192 | DQ62 |
| 91 | A5 | 193 | DQ59 | 92 | A4 | 194 | DQ63 |
| 93 | VDD | 195 | VSS | 94 | VDD | 196 | VSS |
| 95 | A3 | 197 | SA0 | 96 | A2 | 198 | /EVENT |
| 97 | A1 | 199 | VDDSPD | 98 | A0 | 200 | SDA |
| 99 | VDD | 201 | SA1 | 100 | VDD | 202 | SCL |
| 101 | CK0 | 203 | VTT | 102 | CK1 | 204 | VTT |

Pin Description

| Pin name | Function |
|------------------------------|---|
| A0 to A15 | Address input Row address A0 to A15 Column address A0 to A9 |
| A10 (AP) | Auto precharge |
| A12 (/BC) | Burst chop |
| BA0, BA1, BA2 | Bank select address |
| DQ0 to DQ63 | Data input/output |
| /RAS | Row address strobe command |
| /CAS | Column address strobe command |
| /WE | Write enable |
| /CS0, /CS1 | Chip select |
| CKE0, CKE1 | Clock enable |
| CK0, CK1 | Clock input |
| /CK0, /CK1 | Differential clock input |
| DQS0 to DQS7, /DQS0 to /DQS7 | Input and output data strobe |
| DM0 to DM7 | Input mask |
| SCL | Clock input for serial PD |
| SDA | Data input/output for serial PD |
| SA0, SA1 | Serial address input |
| VDD | Power for internal circuit |
| VDDSPD | Power for serial EEPROM |
| VREFCA | Reference voltage for CA |
| VREFDQ | Reference voltage for DQ |
| VSS | Ground |
| VTT | I/O termination supply for SDRAM |
| /RESET | Set DRAM to known state |
| ODT0, ODT1 | ODT control |
| /EVENT | Temperature event pin |
| NC | No connection |

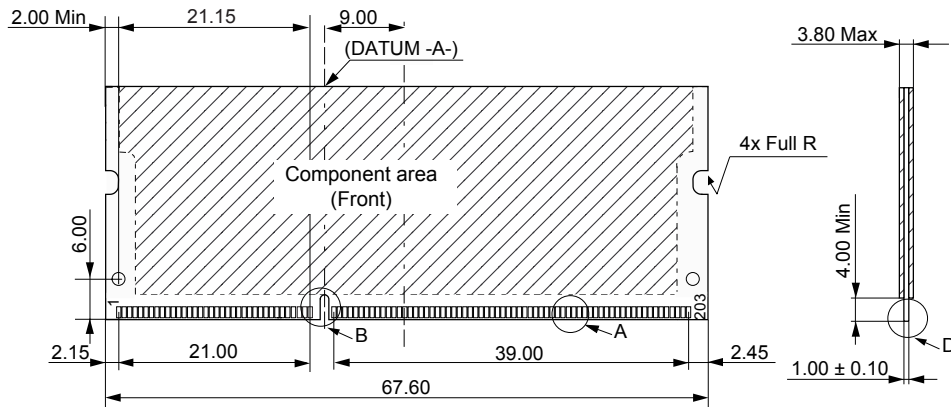
Block Diagram



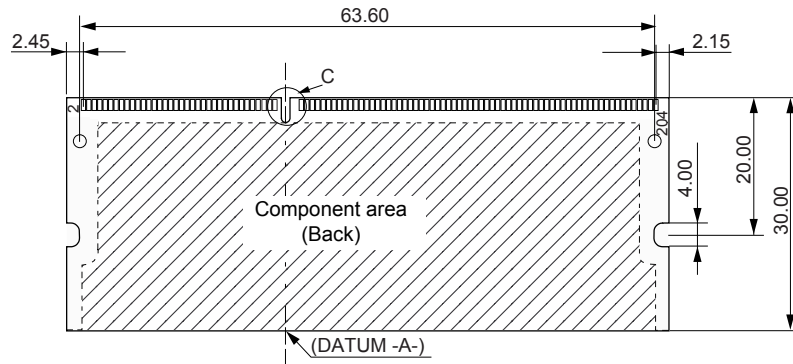
Apacer Memory Product Specification

Unit: mm

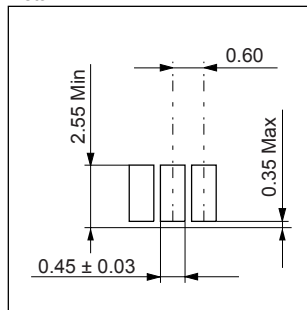
Front side



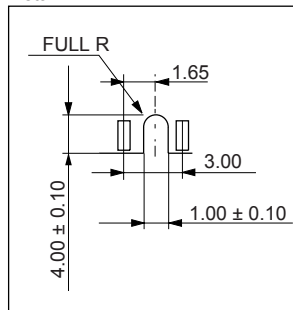
Back side



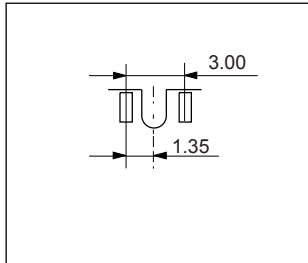
Detail A



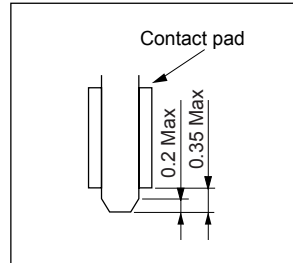
Detail B



Detail C



Detail D



(All dimensions are in millimeters with ±0.15mm tolerance unless specified otherwise.)

Данный компонент на территории Российской Федерации

Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

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