

SDR SDRAM

MT48LC16M4A2 – 4 Meg x 4 x 4 Banks

MT48LC8M8A2 – 2 Meg x 8 x 4 Banks

MT48LC4M16A2 – 1 Meg x 16 x 4 Banks

Features

- PC100- and PC133-compliant
- Fully synchronous; all signals registered on positive edge of system clock
- Internal, pipelined operation; column address can be changed every clock cycle
- Internal banks for hiding row access/precharge
- Programmable burst lengths: 1, 2, 4, 8, or full-page
- Auto precharge, includes concurrent auto precharge and auto refresh modes
- Self refresh modes: standard and low-power (not available on AT devices)
- Auto refresh
 - 64ms, 4096-cycle refresh (commercial and industrial)
 - 16ms, 4096-cycle refresh (automotive)
- LVTTTL-compatible inputs and outputs
- Single 3.3V ±0.3V power supply

Options

- Configuration
 - 16 Meg x 4 (4 Meg x 4 x 4 banks)
 - 8 Meg x 8 (2 Meg x 8 x 4 banks)
 - 4 Meg x 16 (1 Meg x 16 x 4 banks)
- Write recovery (^tWR)
 - ^tWR = 2 CLK
- Plastic package – OCPL¹
 - 54-pin TSOP II (400 mil)
 - 54-pin TSOP II (400 mil) Pb-free
 - 54-ball VFPGA (x16 only) (8mm x 8mm)
 - 54-ball VFPGA (x16 only) (8mm x 8mm)
- Timing – cycle time
 - 6ns @ CL = 3
 - 6ns @ CL = 3
 - 7.5ns @ CL = 3 (PC133)
 - 7.5ns @ CL = 2 (PC133)
- Self refresh
 - Standard
 - Low-power
- Operating temperature range
 - Commercial (0°C to +70°C)
 - Industrial (–40°C to +85°C)
 - Automotive (–40°C to +105°C)
- Revision

Marking

- 16M4³
- 8M8
- 4M16
- A2
- TG
- P
- F4
- B4²
- 6³
- 6A
- 75³
- 7E
- None
- L³
- None
- IT
- AT²
- :G, :J

- Notes: 1. Off-center parting line.
 2. Contact Micron for availability.
 3. Available only on Revision G.

Table 1: Key Timing Parameters

CL = CAS (READ) latency

Speed Grade	Clock Frequency (MHz)	Target ^t RCD- ^t RP-CL	^t RCD (ns)	^t RP (ns)	CL (ns)
-6	167	3-3-3	18	18	18
-6A	167	3-3-3	18	18	18
-75	133	3-3-3	20	20	20
-7E	133	2-2-2	15	15	15

Table 2: Address Table

Parameter	16 Meg x 4	8 Meg x 8	4 Meg x 16
Configuration	4 Meg x 4 x 4 banks	2 Meg x 8 x 4 banks	1 Meg x 16 x 4 banks
Refresh count	4K	4K	4K
Row addressing	4K A[11:0]	4K A[11:0]	4K A[11:0]
Bank addressing	4 BA[1:0]	4 BA[1:0]	4 BA[1:0]
Column addressing	1K A[9:0]	512 A[8:0]	256 A[7:0]

Table 3: 64Mb SDR Part Numbering

Part Numbers	Architecture	Package
MT48LC16M4A2TG	16 Meg x 4	54-pin TSOP II
MT48LC16M4A2P	16 Meg x 4	54-pin TSOP II
MT48LC8M8A2TG	8 Meg x 8	54-pin TSOP II
MT48LC8M8A2P	8 Meg x 8	54-pin TSOP II
MT48LC4M16A2TG	4 Meg x 16	54-pin TSOP II
MT48LC4M16A2P	4 Meg x 16	54-pin TSOP II
MT48LC4M16A2B4 ¹	4 Meg x 16	54-ball VFBGA
MT48LC4M16A2F4 ¹	4 Meg x 16	54-ball VFBGA

Note: 1. FBGA Device Decoder: www.micron.com/decoder.

Contents

Important Notes and Warnings	7
General Description	7
Automotive Temperature	8
Functional Block Diagrams	9
Pin and Ball Assignments and Descriptions	12
Package Dimensions	15
Temperature and Thermal Impedance	17
Electrical Specifications	20
Electrical Specifications – I _{DD} Parameters	22
Electrical Specifications – AC Operating Conditions	24
Functional Description	28
Commands	29
COMMAND INHIBIT	29
NO OPERATION (NOP)	30
LOAD MODE REGISTER (LMR)	30
ACTIVE	30
READ	31
WRITE	32
PRECHARGE	33
BURST TERMINATE	33
REFRESH	34
AUTO REFRESH	34
SELF REFRESH	34
Truth Tables	35
Initialization	40
Mode Register	42
Burst Length	44
Burst Type	44
CAS Latency	46
Operating Mode	46
Write Burst Mode	46
Bank/Row Activation	47
READ Operation	48
WRITE Operation	57
Burst Read/Single Write	64
PRECHARGE Operation	65
Auto Precharge	65
AUTO REFRESH Operation	77
SELF REFRESH Operation	79
Power-Down	81
Clock Suspend	82

List of Figures

Figure 1: 16 Meg x 4 Functional Block Diagram	9
Figure 2: 8 Meg x 8 Functional Block Diagram	10
Figure 3: 4 Meg x 16 Functional Block Diagram	11
Figure 4: 54-Pin TSOP (Top View)	12
Figure 5: 54-Ball VFBGA x16 (Top View)	13
Figure 6: 54-Pin Plastic TSOP (400 mil) – Package Codes TG/P	15
Figure 7: 54-Ball VFBGA (8mm x 8mm) – Package Codes F4/B4	16
Figure 8: Example: Temperature Test Point Location, 54-Pin TSOP (Top View)	18
Figure 9: Example: Temperature Test Point Location, 54-Ball VFBGA (Top View)	19
Figure 10: ACTIVE Command	30
Figure 11: READ Command	31
Figure 12: WRITE Command	32
Figure 13: PRECHARGE Command	33
Figure 14: Initialize and Load Mode Register	41
Figure 15: Mode Register Definition	43
Figure 16: CAS Latency	46
Figure 17: Example: Meeting $t_{RCD}(\text{MIN})$ When $2 < t_{RCD}(\text{MIN})/t_{CK} \leq 3$	47
Figure 18: Consecutive READ Bursts	49
Figure 19: Random READ Accesses	50
Figure 20: READ-to-WRITE	51
Figure 21: READ-to-WRITE With Extra Clock Cycle	52
Figure 22: READ-to-PRECHARGE	52
Figure 23: Terminating a READ Burst	53
Figure 24: Alternating Bank Read Accesses	54
Figure 25: READ Continuous Page Burst	55
Figure 26: READ – DQM Operation	56
Figure 27: WRITE Burst	57
Figure 28: WRITE-to-WRITE	58
Figure 29: Random WRITE Cycles	59
Figure 30: WRITE-to-READ	59
Figure 31: WRITE-to-PRECHARGE	60
Figure 32: Terminating a WRITE Burst	61
Figure 33: Alternating Bank Write Accesses	62
Figure 34: WRITE – Continuous Page Burst	63
Figure 35: WRITE – DQM Operation	64
Figure 36: READ With Auto Precharge Interrupted by a READ	66
Figure 37: READ With Auto Precharge Interrupted by a WRITE	67
Figure 38: READ With Auto Precharge	68
Figure 39: READ Without Auto Precharge	69
Figure 40: Single READ With Auto Precharge	70
Figure 41: Single READ Without Auto Precharge	71
Figure 42: WRITE With Auto Precharge Interrupted by a READ	72
Figure 43: WRITE With Auto Precharge Interrupted by a WRITE	72
Figure 44: WRITE With Auto Precharge	73
Figure 45: WRITE Without Auto Precharge	74
Figure 46: Single WRITE With Auto Precharge	75
Figure 47: Single WRITE Without Auto Precharge	76
Figure 48: Auto Refresh Mode	78
Figure 49: Self Refresh Mode	80
Figure 50: Power-Down Mode	81

Figure 51: Clock Suspend During WRITE Burst 82
Figure 52: Clock Suspend During READ Burst 83
Figure 53: Clock Suspend Mode 84

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