Automotive Temperature Addendum

MT48H16M16LF – 4 Meg x 16 x 4 banks

MT48H8M32LF – 2 Meg x 32 x 4 banks

For the latest data sheet, refer to Micron's Web site: www.micron.com

Features

- Automotive temperature (AT) range
- Fully synchronous; all signals registered on positive edge of system clock
- VDD/VDDQ = 1.70–1.95V
- Internal, pipelined operation; column address can be changed every clock cycle
- 4 internal banks for concurrent operation
- Programmable burst lengths (BL): 1, 2, 4, 8, or continuous page[1]
- Concurrent auto precharge supported
- Auto refresh mode
- LVTTL-compatible inputs and outputs
- Deep power-down (DPD)
- Selectable output drive (DS)
- 32ms refresh period (8,192 rows)
- Self refresh is not supported

Notes: 1. For continuous page burst, contact factory for availability.

Options — Marking

- VDD/VDDQ
  - 1.8V/1.8V — H
- Configuration
  - 16 Meg x 16 (4 Meg x 16 x 4 banks) — 16M16
  - 8 Meg x 32 (2 Meg x 32 x 4 banks) — 8M32
- Plastic package
  - 54-ball VFBGA (8mm x 9mm) — BF
  - 90-ball VFBGA (8mm x 13mm) — B5
- Timing – cycle time
  - 7.5ns @ CL = 3 — -75
  - 8ns @ CL = 3 — -8
- Power
  - See the 256Mb data sheet
  - Low IDD2P/IDD7 (not supported)
- Operating temperature[1]
  - Automotive (–40°C to +105°C) — AT
- Design revision — :G

Notes: 1. Specified as ambient temperature (T_A).

Table 1: Addressing

Parameter	16 Meg x 16	8 Meg x 32
Configuration	4 Meg x 16 x 4 banks	2 Meg x 32 x 4 banks
Refresh count	8K	8K
Row address	8K (A0–A12)	4K (A0–A11)
Bank address	4 (BA0, BA1)	4 (BA0, BA1)
Column address	512 (A0–A8)	512 (A0–A8)

Table 2: Key Timing Parameters
CL = CAS (READ) latency

Speed Grade	Clock Rate (MHz)		Access Time	
	CL = 2	CL = 3	CL = 2	CL = 3
-75	104	133	6ns	6ns
-8	100	125	7ns	7ns

General Description

The information in this addendum is specific to the 256Mb, 16 Meg x 16 and 8 Meg x 32 Mobile SDRAM VFBGA-packaged part. For detailed specification information, refer to the 256Mb data sheet available on Micron's Web site: www.micron.com.

Note: Any values specified in this addendum replace the same values listed in the 256Mb data sheet.

Electrical Specifications

Table 3: IDD Specifications and Conditions (x16)
See the 256Mb data sheet for notes that apply to the entire table and for notes that are specific to each parameter/condition

Parameter/Condition		Symbol	Max		Units
			-75	-8	
Operating current: Active mode; BL = 1; READ or WRITE; ^{t}RC = ^{t}RC (MIN)		IDD1	65	60	mA
Standby current: Power-down mode; All banks idle; CKE = LOW		IDD2P	600	600	µA
Standby current: Non-power-down mode; All banks idle; CKE = HIGH		IDD2N	21	21	mA
Standby current: Active mode; CKE = LOW; CS# = HIGH; All banks active; No accesses in progress		IDD3P	6	6	mA
Standby current: Active mode; CKE = HIGH; CS# = HIGH; All banks active after ^{t}RCD met; No accesses in progress		IDD3N	26	26	mA
Operating current: Burst mode; READ or WRITE; All banks active, half DQ toggling every cycle		IDD4	90	85	mA
Auto refresh current: CKE = HIGH; CS# = HIGH	^{t}RFC = ^{t}RFC (MIN)	IDD5	100	95	mA
	^{t}RFC = ^{t}REFI	IDD6	8	8	mA
Deep power-down		IZZ	10	10	µA

Table 4: IDD Specifications and Conditions (x32)
See the 256Mb data sheet for notes that apply to the entire table and for notes that are specific to each parameter/condition

Parameter/Condition	Symbol	Max		Units
		-75	-8	
Operating current: Active mode; BL = 1; READ or WRITE; ^{t}RC = ^{t}RC (MIN)	IDD1	95	90	mA
Standby current: Power-down mode; All banks idle; CKE = LOW	IDD2P	600	600	µA
Standby current: Non-power-down mode; All banks idle; CKE = HIGH	IDD2N	21	21	mA
Standby current: Active mode; CKE = LOW; CS# = HIGH; All banks active; No accesses in progress	IDD3P	6	6	mA

Table 4: IDD Specifications and Conditions (x32)
See the 256Mb data sheet for notes that apply to the entire table and for notes that are specific to each parameter/condition

Parameter/Condition		Symbol	Max		Units
			-75	-8	
Standby current: Active mode; CKE = HIGH; CS# = HIGH; All banks active after tRCD met; No accesses in progress		IDD3N	26	26	mA
Operating current: Burst mode; READ or WRITE; All banks active, half DQ toggling every cycle		IDD4	120	115	mA
Auto refresh current: CKE = HIGH; CS# = HIGH	tRFC = tRFC (MIN)	IDD5	100	95	mA
	tRFC = tREFI	IDD6	8	8	mA
Deep power-down		IZZ	10	10	µA

Table 5: Electrical Characteristics and Recommended AC Operating Conditions
See the 256Mb data sheet for notes that apply to the entire table and notes that are specific to each parameter/condition.

AC Characteristics		-75		-8		
Parameter	**Symbol**	**Min**	**Max**	**Min**	**Max**	**Units**
Refresh period	tREF	–	32	–	32	ms
Average periodic refresh interval	tREFI	–	3.9	–	3.9	µs

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