



# Mobile Double Data Rate (DDR) SDRAM

**MT46H32M16LF – 8 Meg x 16 x 4 Banks**

**MT46H16M32LF – 4 Meg x 32 x 4 Banks**

For a complete data sheet, please refer to [www.micron.com/mobilesds](http://www.micron.com/mobilesds).

## Features

- VDD = +1.8V ±0.1V, VDDQ = +1.8V ±0.1V
- Bidirectional data strobe per byte of data (DQS)
- Internal, pipelined double data rate (DDR) architecture; two data accesses per clock cycle
- Differential clock inputs (CK and CK#)
- Commands entered on each positive CK edge
- DQS edge-aligned with data for READS; center-aligned with data for WRITES
- Four internal banks for concurrent operation
- Data masks (DM) for masking write data—one mask per byte
- Programmable burst lengths: 2, 4, 8, 16 or full page
- Concurrent auto precharge option is supported
- Auto refresh and self refresh modes
- 1.8V LVCMOS compatible inputs
- On-chip temperature sensor to control refresh rate
- Partial array self refresh (PASR)
- Deep power-down (DPD)
- Selectable output drive (DS)
- Clock stop capability

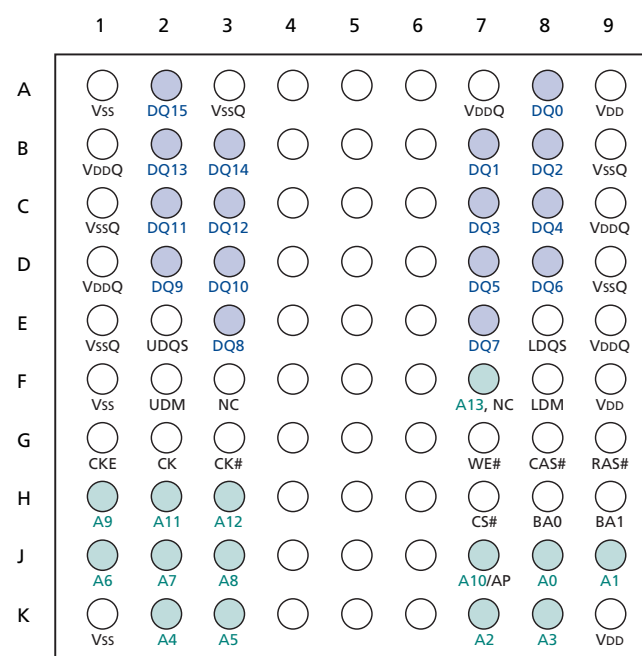
## Options

- VDD/VDDQ
  - 1.8V/1.8V
- Configuration
  - 32 Meg x 16 (8 Meg x 16 x 4 banks) 32M16
  - 16 Meg x 32 (4 Meg x 32 x 4 banks) 16M32
- Plastic Package
  - 60-Ball VFBGA<sup>1</sup> TBD
  - 90-Ball VFBGA<sup>2</sup>
- Timing – Cycle Time
  - 6ns @ CL = 3 -6
  - 7.5ns @ CL = 3 -75
  - 10ns @ CL = 3 -10
- Operating Temperature Range
  - Commercial (0° to +70°C) None
  - Industrial (-40°C to +85°C) IT

## Marking

H

**Figure 1: 60-Ball VFBGA Assignment**



**Table 1: Configuration Addressing**

| Architecture      | 32 Meg x 16    | 16 Meg x 32    |
|-------------------|----------------|----------------|
| Configuration     | 8 Meg x 16 x 4 | 4 Meg x 32 x 4 |
| Refresh Count     | 8K             | 8K             |
| Row Addressing    | 8K (A0–A12)    | 8K (A0–A12)    |
| Bank Addressing   | 4 (BA0, BA1)   | 4 (BA0, BA1)   |
| Column Addressing | 1K (A0–A9)     | 512 (A0–A8)    |

Notes: 1. Only available for x16 configuration.

2. Only available for x32 configuration.



**512Mb: 32 Meg x 16, 16 Meg x 32 Mobile DDR SDRAM**

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**8000 S. Federal Way, P.O. Box 6, Boise, ID 83707-0006, Tel: 208-368-3900  
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**Advance: This data sheet contains initial descriptions of products still under development.**



## Revision History

- Original Document, Advance .....03/05