

256M bits DDR Mobile RAM

EDK2516CBBH (16M words × 16 bits)

Description

The EDK2516CB is a 256M bits DDR Mobile RAM organized as 4,194,304 words × 16 bits × 4 banks. The DDR Mobile RAM achieved low power consumption and high-speed data transfer using the 2 bits prefetch-pipeline architecture. Command and address inputs are synchronized with the positive edge of the clock. Data inputs and outputs are synchronized with both edges of DQS (Data Strobe). DLL is not implemented. This product is packaged in 60-ball FBGA.

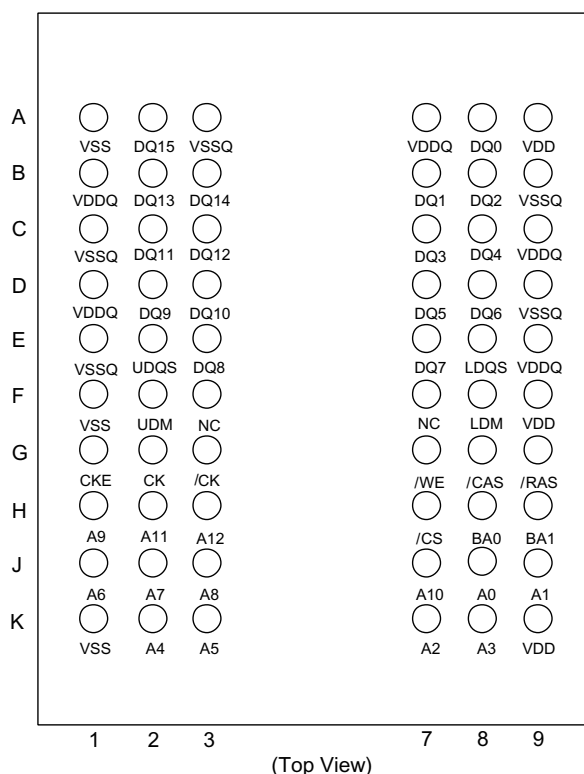
Features

- Low voltage power supply
 - VDD: 1.8V ± 0.15V
 - VDDQ: 1.8V ± 0.15V
- Wide temperature range (−25°C to 85°C)
- Programmable Partial Array Self Refresh
- Programmable Driver Strength
- Auto Temperature Compensated Self Refresh
- Deep power down mode
- Small package (60-ball FBGA)
- FBGA package is lead free solder (Sn-Ag-Cu)
- Data rate: 200Mbps/IO(max)
- Double Data Rate architecture: two data transfers per one clock cycle
- Bi-directional, data strobe (DQS) is transmitted /received with data, to be used in capturing data at the receiver.
- 1.8V LVCMOS interface
- Command and address signals refer to a positive clock edge
- Quad internal banks controlled by BA0 and BA1
- Data mask (DM) for write data
- Wrap sequence = Sequential/ Interleave
- Programmable burst length (BL) = 2, 4, 8
- Automatic precharge and controlled precharge
- Auto refresh and self refresh
 - (7.8μs maximum average periodic refresh interval)
- Burst termination by Burst stop command and Precharge command

Pin Configurations

/xxx indicates active low signal.

60-ball FBGA



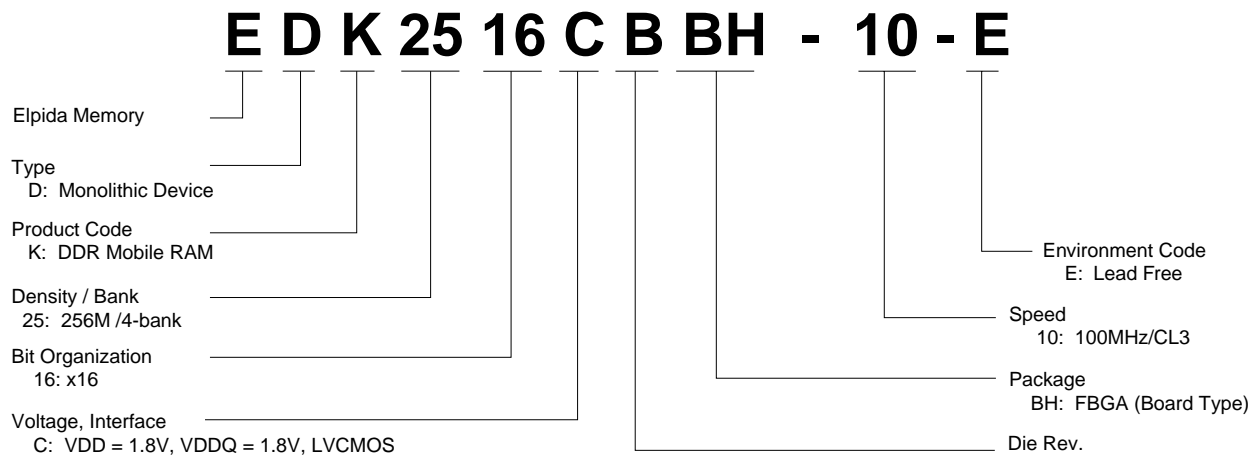
A0 to A12
BA0, BA1
DQ0 to DQ15
UDQS, LDQS
/CS
/RAS
/CAS
/WE
UDM, LDM
CK
/CK
CKE
VDD
VSS
VDDQ
VSSQ
NC

Address input
Bank select address
Data-input/output
Input and output data strobe
Chip select
Row address strobe command
Column address strobe command
Write enable
Write data mask
Clock input
Differential clock input
Clock enable
Power for internal circuit
Ground for internal circuit
Power for DQ circuit
Ground for DQ circuit
No connection

Ordering Information

Part number	Organization (words × bits)	Internal banks	Clock frequency MHz (max.)	/CAS latency	Package
EDK2516CBBH-10-E	16M × 16	4	100	3	60-ball FBGA

Part Number

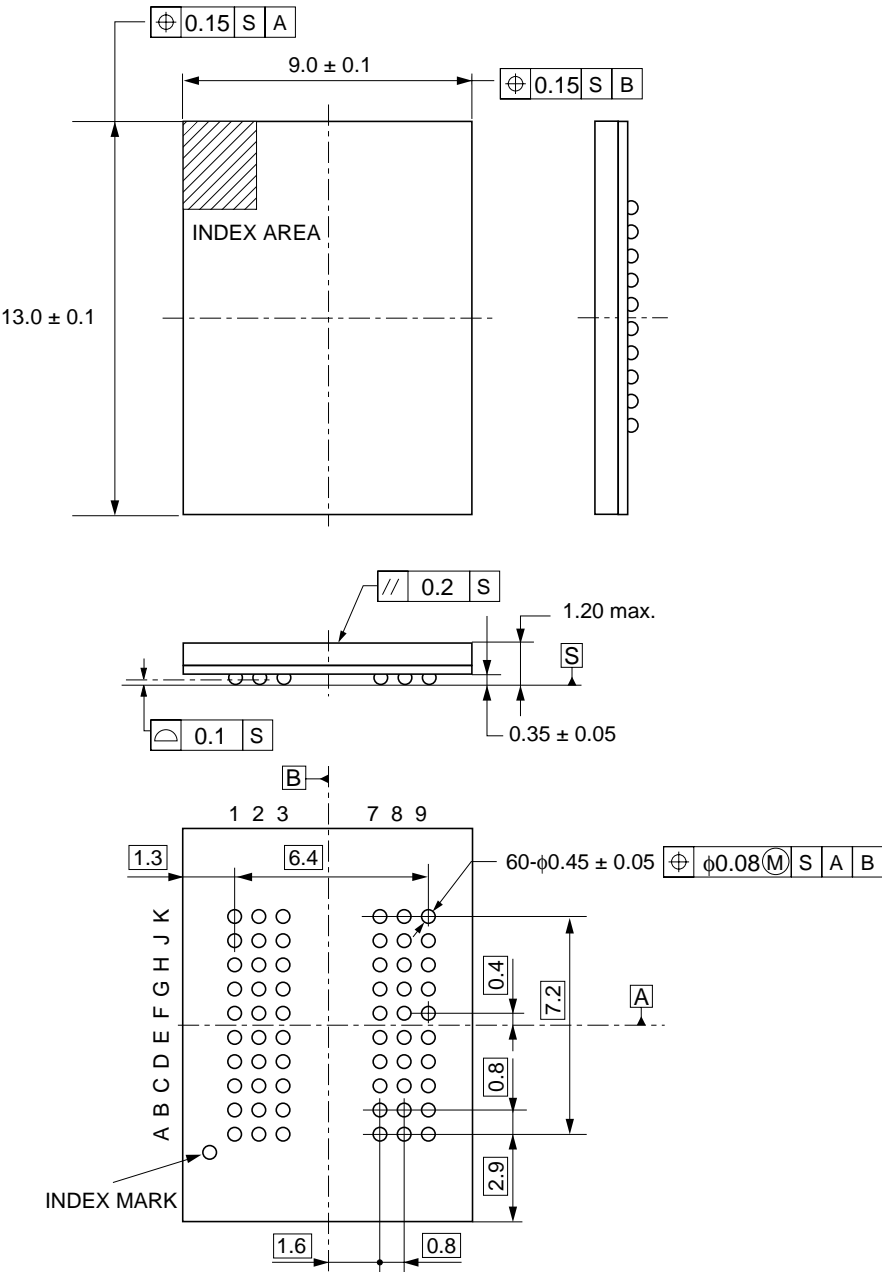


Package Drawing

60-ball FBGA

Solder ball: Lead free (Sn-Ag-Cu)

Unit: mm



ECA-TS2-0088-01

NOTES FOR CMOS DEVICES**① PRECAUTION AGAINST ESD FOR MOS DEVICES**

Exposing the MOS devices to a strong electric field can cause destruction of the gate oxide and ultimately degrade the MOS devices operation. Steps must be taken to stop generation of static electricity as much as possible, and quickly dissipate it, when once it has occurred. Environmental control must be adequate. When it is dry, humidifier should be used. It is recommended to avoid using insulators that easily build static electricity. MOS devices must be stored and transported in an anti-static container, static shielding bag or conductive material. All test and measurement tools including work bench and floor should be grounded. The operator should be grounded using wrist strap. MOS devices must not be touched with bare hands. Similar precautions need to be taken for PW boards with semiconductor MOS devices on it.

② HANDLING OF UNUSED INPUT PINS FOR CMOS DEVICES

No connection for CMOS devices input pins can be a cause of malfunction. If no connection is provided to the input pins, it is possible that an internal input level may be generated due to noise, etc., hence causing malfunction. CMOS devices behave differently than Bipolar or NMOS devices. Input levels of CMOS devices must be fixed high or low by using a pull-up or pull-down circuitry. Each unused pin should be connected to V_{DD} or GND with a resistor, if it is considered to have a possibility of being an output pin. The unused pins must be handled in accordance with the related specifications.

③ STATUS BEFORE INITIALIZATION OF MOS DEVICES

Power-on does not necessarily define initial status of MOS devices. Production process of MOS does not define the initial operation status of the device. Immediately after the power source is turned ON, the MOS devices with reset function have not yet been initialized. Hence, power-on does not guarantee output pin levels, I/O settings or contents of registers. MOS devices are not initialized until the reset signal is received. Reset operation must be executed immediately after power-on for MOS devices having reset function.

CME0107

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[Product usage]

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[Usage environment]

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