M29DWxxx FAMILY
Multiple Bank

May, 2004

STMicroelectronics

Family Overview

- Densities from 32Mb to 64Mb
- Wide application area covered
- 0.15µm process technology
  - **technology shrink on going**
    - *higher densities*
    - *improved performances*
    - *Increased reliability*

Main Features
M29DW323

- 32Mb (4Mbx8 / 2Mbx16), Boot Block
- Access Time
  - 70, 90ns
- Supply Voltage
  - Vcc = 2.7V to 3.6V for Program, Erase and Read
  - Vpp = 12V for fast Program (optional)
- Programming Time
  - 10µs per Byte/Word typical
  - Double Word / Quadruple Byte Program
- Low Power Consumption
  - Standby and Automatic Standby
- Dual Operations:
  - Read in one bank or group of banks while Program or Erase in the other

Bank Architecture
M29DW323

DUAL BANK Memory Array 8Mb + 24Mb

Bank	Bank Size	Parameter Blocks		Main Blocks	
		No. of Blocks	Block Size	No. of Blocks	Block Size
A	8 Mbit	8	8KByte/ 4 KWord	15	64KByte/ 32 KWord
B	24 Mbit	-		48	64KByte/ 32 KWord

While Programming or Erasing in Bank A,
Read operations are possible in Bank B
and viceversa

Main Features
M29DW324

- 32Mb (4Mbx8 / 2Mbx16), Boot Block
- Access Time
  - 70, 90ns
- Supply Voltage
  - Vcc = 2.7V to 3.6V for Program, Erase and Read
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- Programming Time
  - 10µs per Byte/Word typical
  - Double Word / Quadruple Byte Program
- Low Power Consumption
  - Standby and Automatic Standby

Bank Architecture
M29DW324

DUAL BANK Memory Array 16Mb + 16Mb

Bank	Bank Size	Parameter Blocks		Main Blocks	
		No. of Blocks	Block Size	No. of Blocks	Block Size
A	16 Mbit	8	8KByte/ 4 KWord	31	64KByte/ 32 KWord
B	16 Mbit	—	—	32	64KByte/ 32 KWord

While Programming or Erasing in Bank A,
Read operations are possible in Bank B
and viceversa

Main Features
M29DW640

- 64Mb (8Mbx8 / 4Mbx16), Page, Boot Block
- Access Time
  - 70, 90ns
- Supply Voltage
  - Vcc = 2.7V to 3.6V for Program, Erase and Read
  - Vpp = 12V for fast Program (optional)
- Programming Time
  - 10µs per Byte/Word typical
  - 4 word / 8Bytes at-a-time Program
- Asynchronous Page Read Mode
  - Page Width 4 Words
  - Page Access 25,30ns
  - Random Access 70,90ns

Bank Architecture
M29DW640

QUADRUPLE BANK Memory Array
8Mb + 24Mb + 24Mb + 8Mb

Bank	Bank Size	Parameter Blocks		Main Blocks	
		No. of Blocks	Block Size	No. of Blocks	Block Size
A	8 Mbit	8	8KByte/ 4 KWord	15	64KByte/ 32 KWord
B	24 Mbit	—	—	48	64KByte/ 32 KWord
C	24 Mbit	—	—	48	64KByte/ 32 KWord
D	8 Mbit	8	8KByte/ 4 KWord	15	64KByte/ 32 KWord

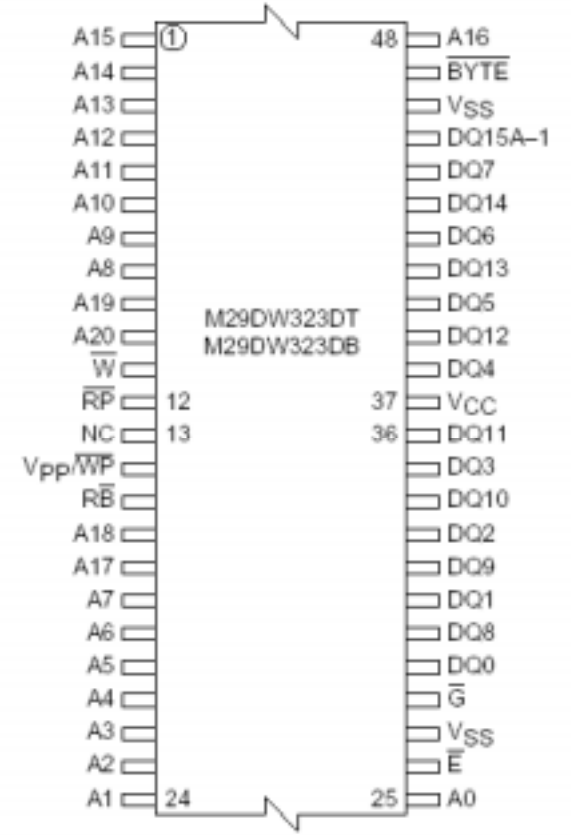
While Programming or Erasing in a group of Banks (from 1 to 3), Read operations are possible in any of the other banks

Other Family Features

- Temporary block unprotection mode
- Unlock bypass Program Command
  - faster production/batch programming
- Extended memory block
  - Extra block used as security block or to store additional information
- Common Flash Interface
  - 64 bit security code
- M29DW323/324: Erase suspend and resume modes
  - Read and program another block during erase suspend
- M29DW640: Program /Erase suspend and resume modes
  - Read from any block during program suspend
  - Read and program another block during erase suspend
- 100,000 program / erase cycles per block

TSOP48 Package

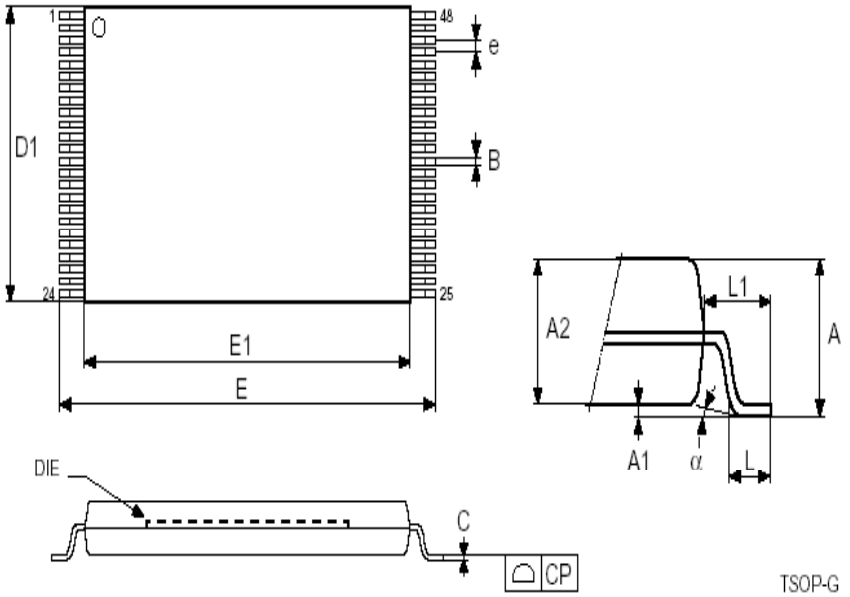
Package connections



Package Mechanical

TSOP48 Lead Plastic Thin Small Outline

12x20mm Bottom View Package Outline

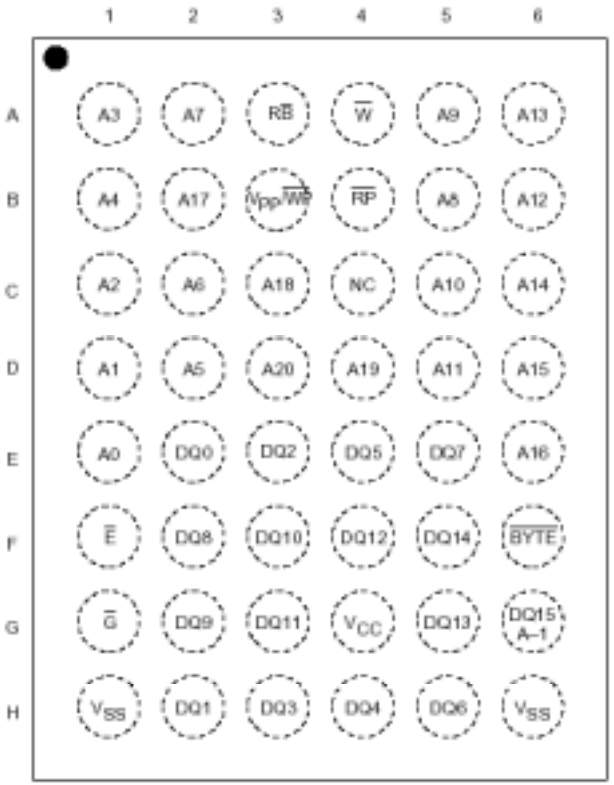


- M29DW323
- M29DW324
- M29DW640

TFBGA48 Package

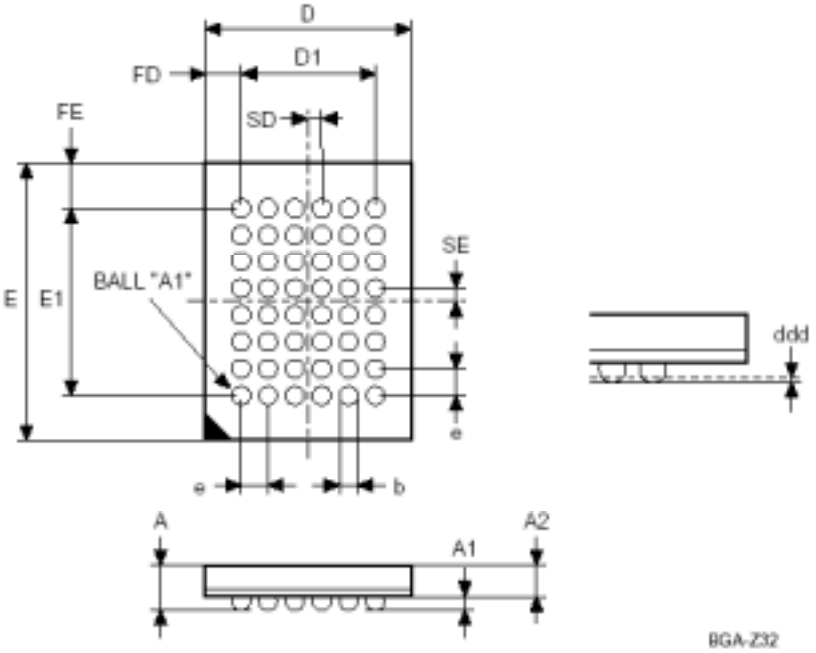
Package connections

Top view through package



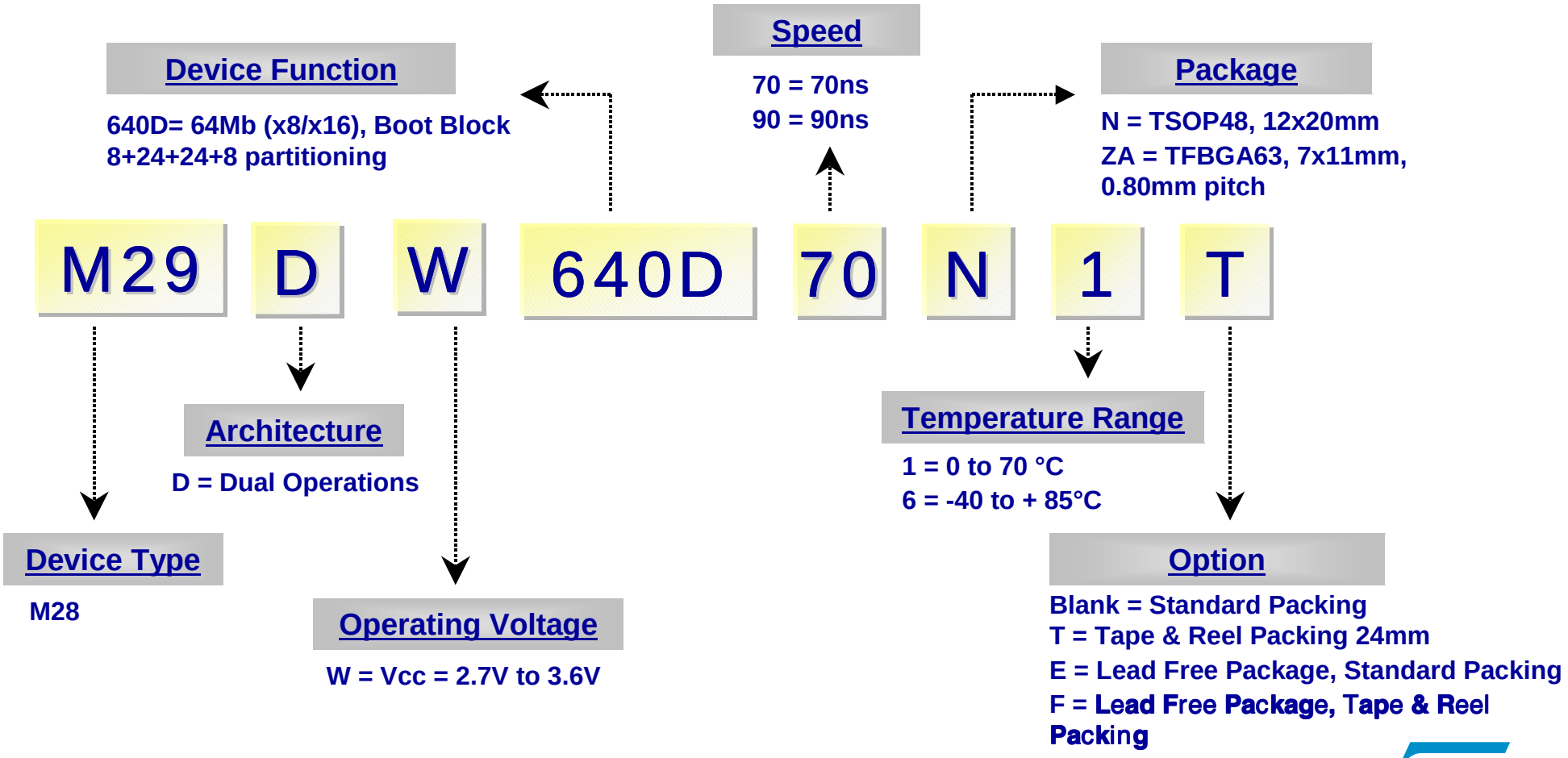
Package Mechanical

6x8mm -6x8 Ball Array, 0.8mm pitch
Bottom View Package Outline



- **M29DW323**
- **M29DW324**

Part Numbering Scheme
ex. M29DW640D



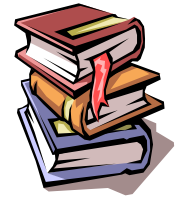
Main Applications

- Mobile Phone
- Digital Video Disk
- Personal Digital Assistant
- Set-Top Box
- Digital Still Camera
- High Definition TV
- Personal Computer
- Game

Future Developments

- New State of the Art technology shrink on going
- Higher densities soon available
- Improved performances
- Stand Alone and Stacked solutions

Additional Information



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