# 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
  - 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

# 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 |

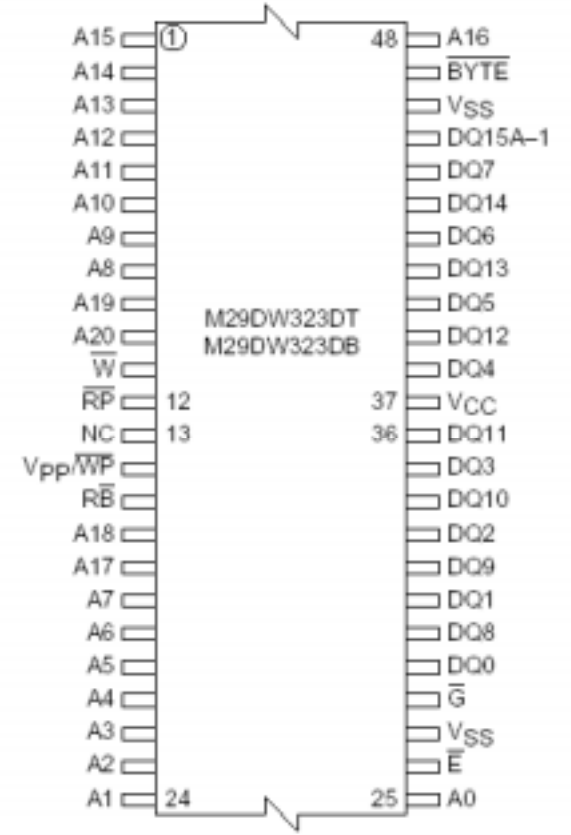
*While Programming or Erasing in a group of Banks (from 1 to 3), Read operations are possible in any of the other banks*

# 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

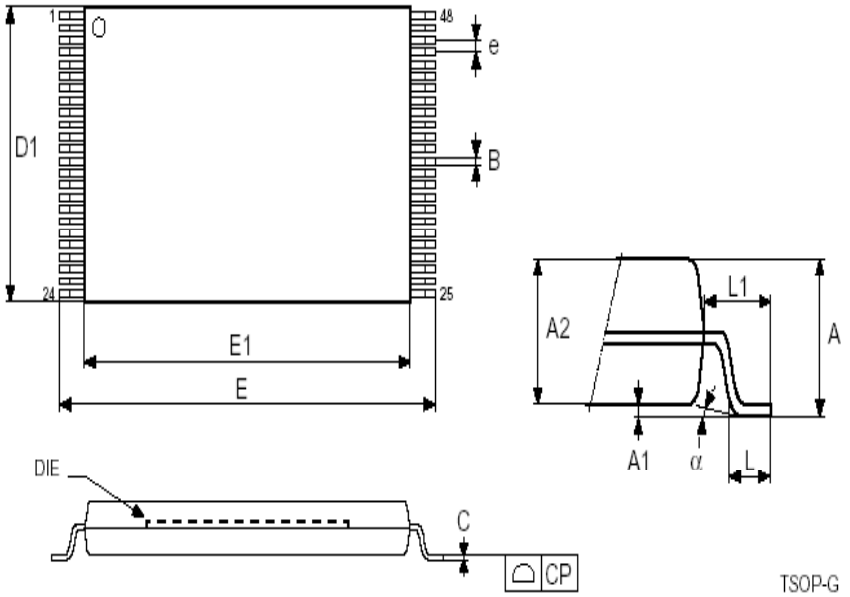
## Package connections




## Package Mechanical

**TSOP48 Lead Plastic Thin Small Outline**

***12x20mm Bottom View Package Outline***

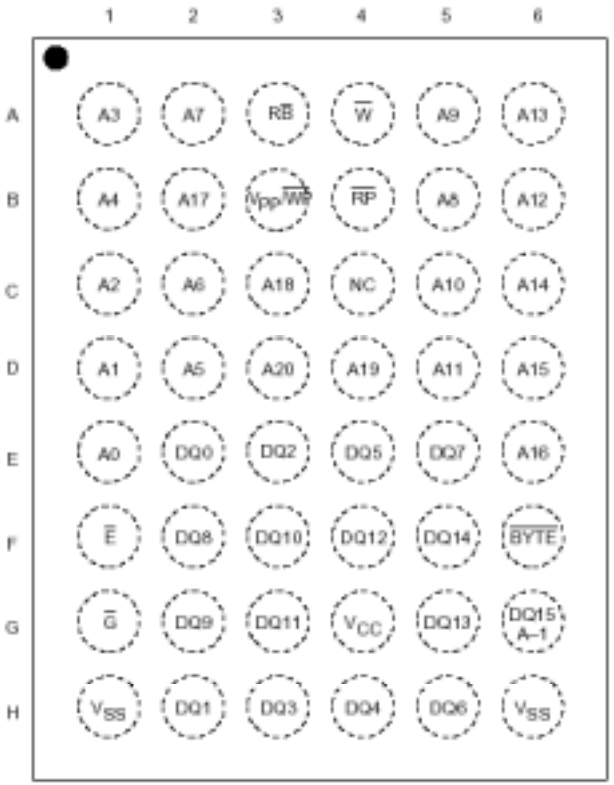



- M29DW323
- M29DW324
- M29DW640

# TFBGA48 Package

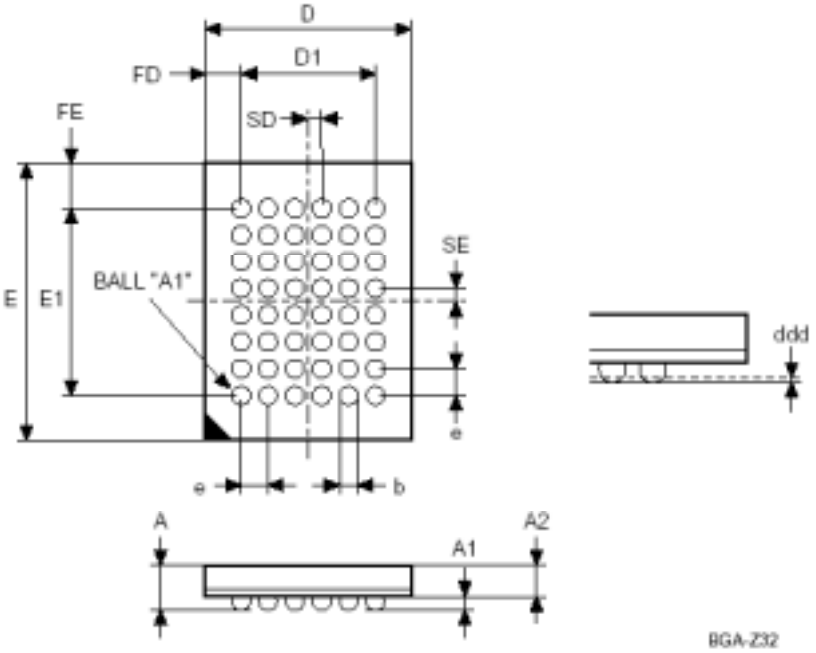
## Package connections

***Top view through package***



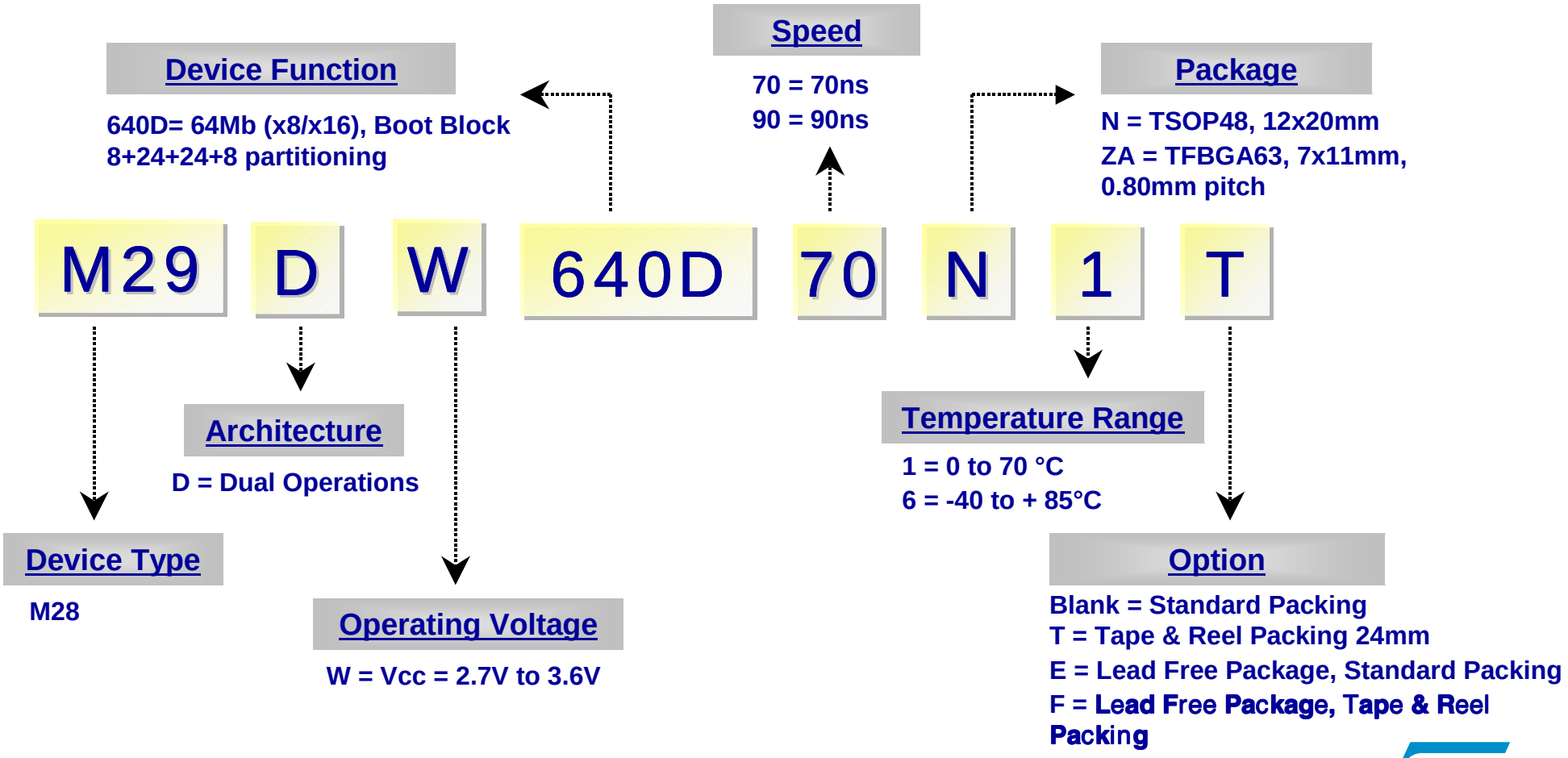

## Package Mechanical

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




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

# Part Numbering Scheme
# ex. M29DW640D



# Main Applications

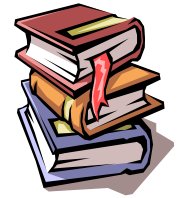
- Mobile Phone
- Digital Video Disk
- Personal Digital Assistant
- Set-Top Box
- Digital Still Camera
- High Definition TV
- Personal Computer
- Game

# Future Developments

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



# Additional Information



- ➢www.st.com/flash
- ➢Datasheets
- ➢Application Notes
- ➢Software Drivers
- ➢Presentations
- ➢Technical Articles
- ➢…and more…

ask.memory@st.com

