

FLASH NOR HIGH DENSITY & CONSUMER

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

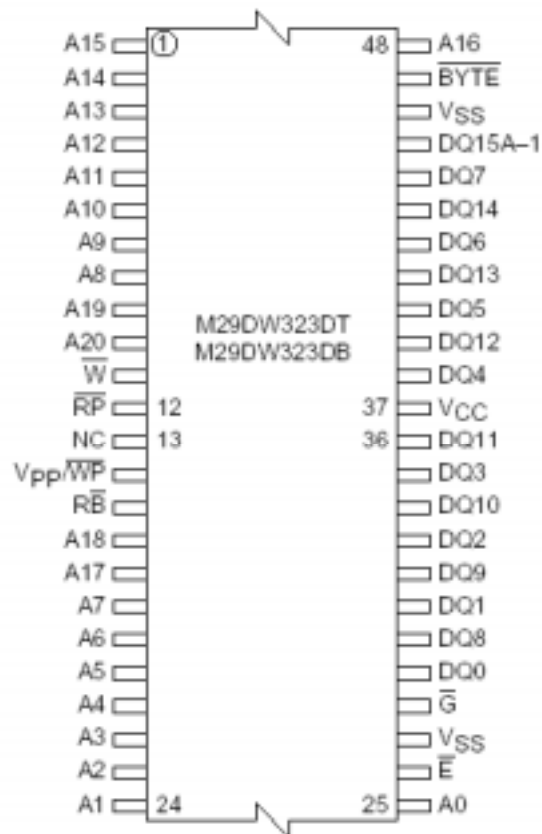
➤ M29DW323/324: Erase suspend and resume modes
➤ Read and program another block during erase suspend

➤ 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

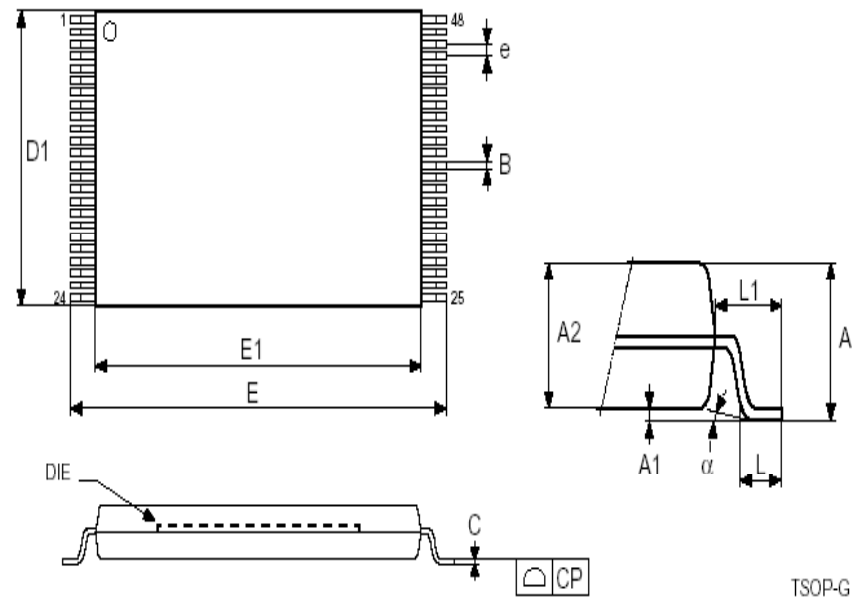
TSOP48 Package

Package connections



Package Mechanical

TSOP48 Lead Plastic Thin Small Outline
12x20mm Bottom View Package Outline



➤ M29DW323

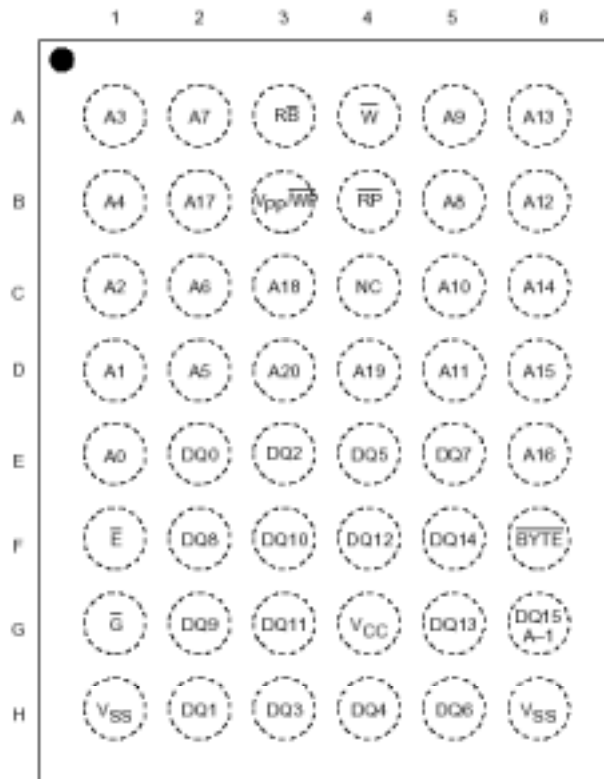
➤ M29DW324

➤ M29DW640

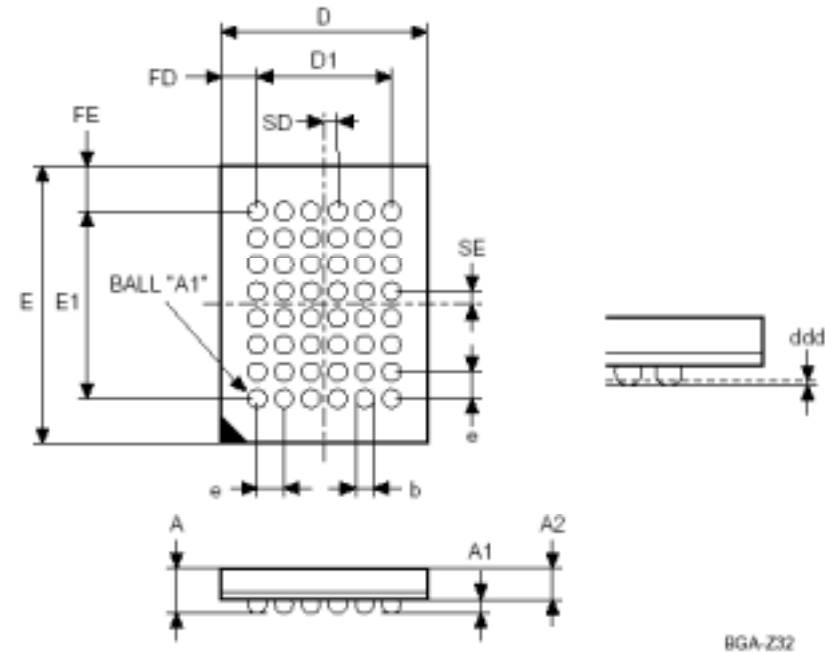
TSOP-G

TFBGA48 Package

Package connections
Top view through package



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

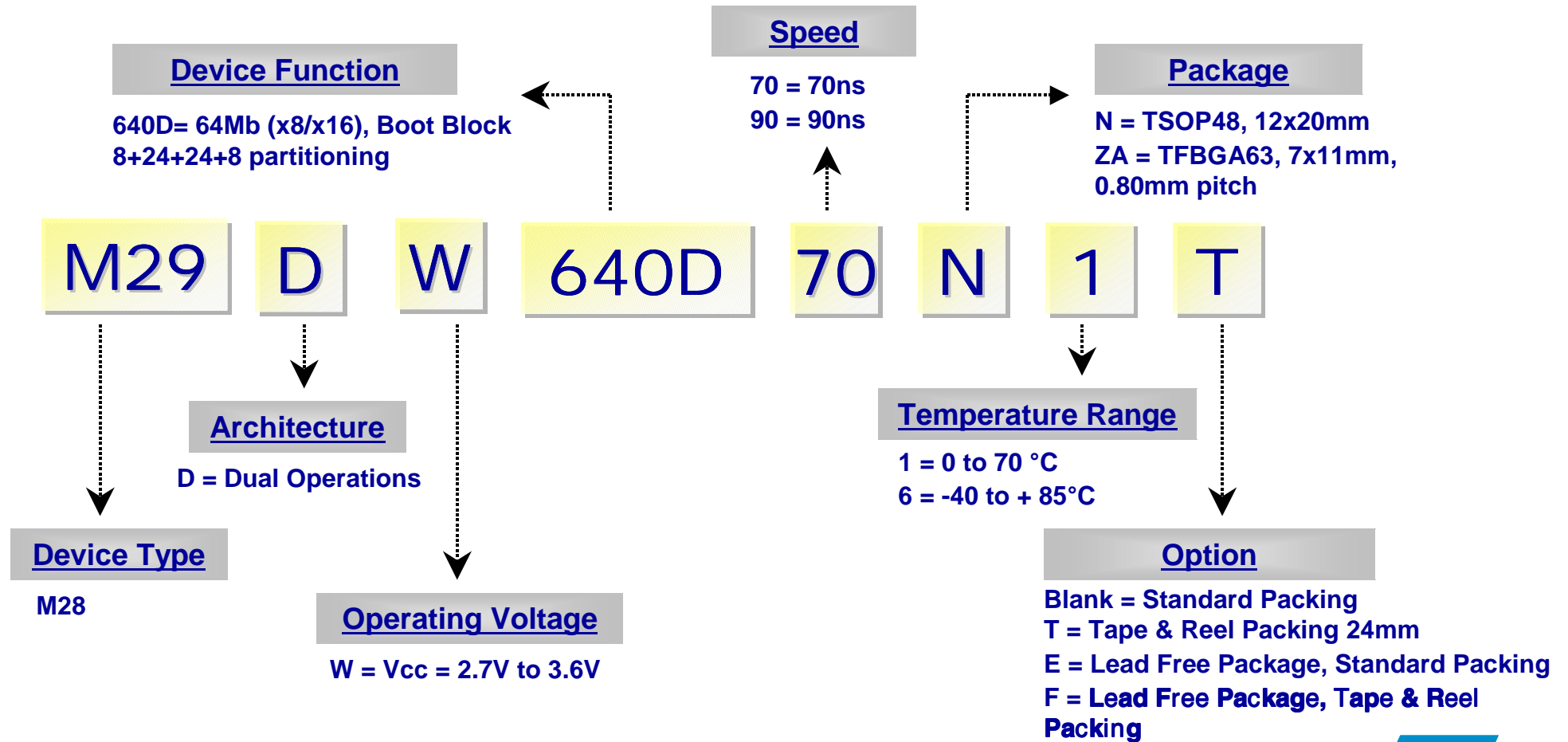


➤ M29DW323

➤ 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

Flash Memory, NOR

The screenshot shows the ST Flash Memory website for NOR flash. At the top, it says "ST Flash Memory for your Application" with a navigation menu. Below this are four images showing various applications: a PDA, a mobile phone, a laptop, and a car. The main content area is divided into several sections:

- Flash NOR News:** Press Announcement: [STMicroelectronics Introduces First PC BIOS Flash Chip Combining Firmware Hub and Low Pin Count Architecture](#). Press Announcements: [2002](#), [2003](#).
- Promotional Material:** [Promotional Literature](#), [Exhibition Panels](#), [Photo Resource](#).
- Flash NOR Applications:** Flash Memories for [mobile communications](#) include Advanced Architecture, Industry Standard and Multiple Memory Solutions. For [Consumer Applications](#), ST Flash Memories provide high performance solutions including storage for Set-top Box and DVD Players. Firmware Hub and Low Pin Count Flash Families provide solutions for [PC BIOS](#) storage. For [Automotive Applications](#), find out about the [M29DW016B](#) x32 Flash memory.
- Flash NOR Applications:** A dropdown menu labeled "Select one".
- Flash Memory Products:** A dropdown menu labeled "Select one".
- Product Support:** A dropdown menu labeled "Select one".
- Technical Documents:** [Datasheets](#), [Application Notes](#), [Technical Articles](#).
- Promotional Material:** A dropdown menu labeled "Select one".

At the bottom left of the screenshot, there is a "Flash PAK" banner with the text: "Faster programming times with ST's LightFlash™ and advanced programming tools from Data I/O".