128M [x8/x16] SINGLE 3V PAGE MODE FLASH MEMORY

FEATURES

- 2.7V to 3.6V operation voltage
- Block Structure
  - 128 x 128Kbyte Erase Blocks
- Fast random / page mode access time
  - 150/25 ns Read Access Time
- 128-bit Protection Register
  - 64-bit Unique Device Identifier
  - 64-bit User Programmable OTP Cells
- 32-Byte Write Buffer
  - 6 us/byte Effective Programming Time
- Enhanced Data Protection Features Absolute Protection with VPEN = GND
  - Flexible Block Locking
  - Block Erase/Program Lockout during Power Transitions

Performance

- Low power dissipation
  - typical 15mA active current for page mode read
  - 80uA/(max.) standby current
  - Deep power-down current: 5uA
- High Performance
  - Block erase time: 2s typ.
  - Byte programming time: 210us typ.
  - Block programming time: 0.8s typ. (using Write to Buffer Command)
- Program/Erase Endurance cycles: 10,000 cycles

Software Feature

- Support Common Flash Interface (CFI)
  - Flash device parameters stored on the device and provide the host system to access.
- Automation Suspend Options
  - Block Erase Suspend to Read
  - Block Erase Suspend to Program
  - Program Suspend to Read

Hardware Feature(Not for 48-TSOP/48-RTSOP)

- A0 pin
  - Select low byte address when device is in byte mode. Not used in word mode.
- STS pin
  - Indicates the status of the internal state machine.
- VPEN pin
  - For Erase /Program/ Block Lock enable.
- VCCQ Pin
  - The output buffer power supply, control the device 's output voltage.

Packaging

- 48-Lead TSOP
- 48-Lead RTSOP
- 56-Lead TSOP
- 64-ball CSP

Technology

- MX28F128J3 using Nbit (0.25u) Flash Technology

GENERAL DESCRIPTION

The MXIC's MX28F128J3 series Flash use the most advance 2 bits/cell Nbit technology, double the storage capacity of memory cell. The device provide the high density Flash memory solution with reliable performance and most cost-effective.

The device organized as by 8 bits or by 16 bits of output bus. The device is packaged in 48-Lead TSOP, 48-Lead RTSOP, 56-Lead TSOP, and 64-ball CSP. It is designed to be reprogrammed and erased in system or in standard EPROM programmers.

The device offers fast access time and allowing operation of high-speed microprocessors without wait states. To eliminate bus contention, the device has separate chip enable (CE0, CE1, CE2) and output enable ($\overline{OE}$) controls. The device augment EPROM functionality with in-circuit electrical erasure and programming. The device uses a command register to manage this functionality.

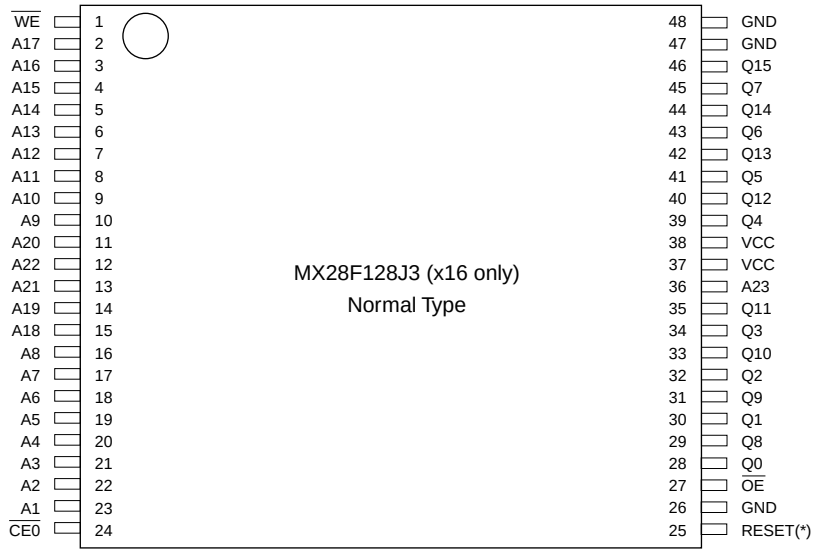
The MXIC's Nbit technology reliably stores memory contents even after the specific erase and program cycles. The MXIC cell is designed to optimize the erase and program mechanisms by utilizing the dielectric's character to trap or release charges from ONO layer.

The device uses a 2.7V to 3.6V VCC supply to perform the High Reliability Erase and auto Program/Erase algorithms.

The highest degree of latch-up protection is achieved

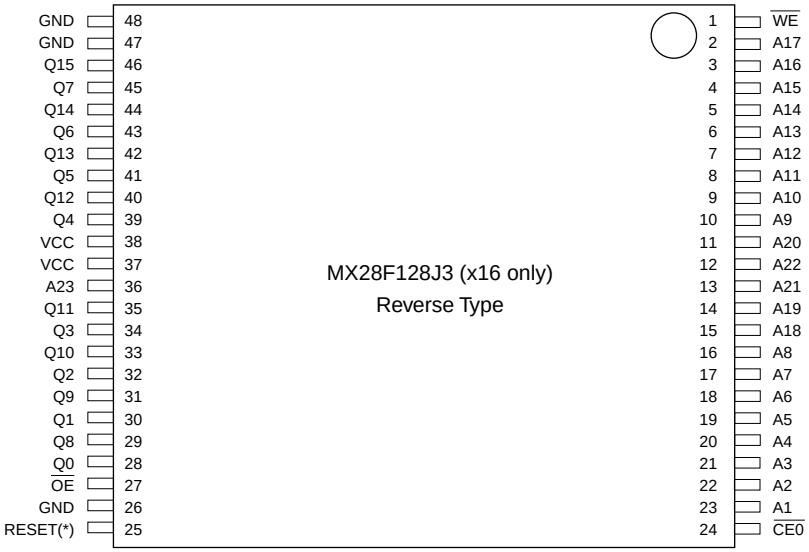
PIN CONFIGURATION

48-TSOP (12mm x 20mm) (for MX28F128J3 word mode only)



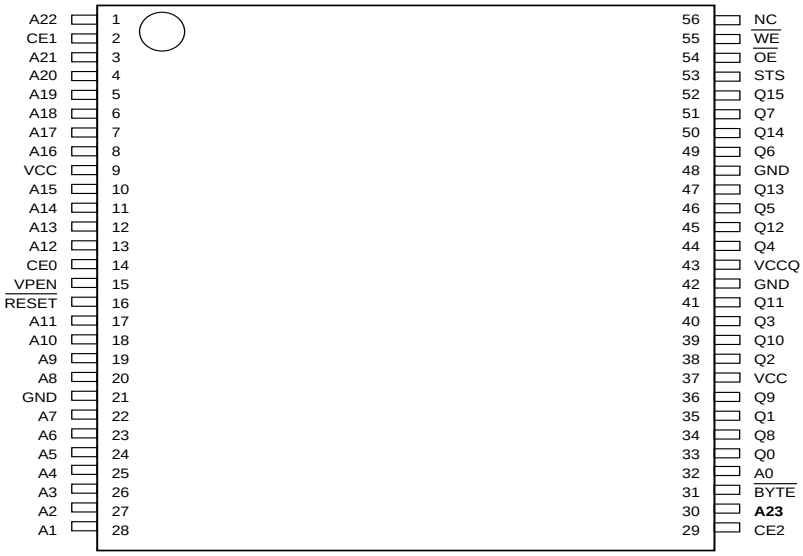
(* RESET pin : high enable)

48-RTSOP (12mm x 20mm) (for MX28F128J3 word mode only)



(* RESET pin : high enable)

56 TSOP (14mm x 20mm)



64 Ball CSP (10x13x1.2mm, 1.0mm-ball pitch)



Notes:
1. Don't Use (DU) pins refer to pins that should not be connected.

PIN DESCRIPTION

SYMBOL	PIN NAME
A0	Byte Select Address
A1~A23	Address Input
Q0~Q15	Data Inputs/Outputs
CE0, CE1, CE2	Chip Enable Input
$\overline{WE}$	Write Enable Input
$\overline{OE}$	Output Enable Input
$\overline{RESET}$	Reset/Deep Power Down mode (low enable for 56-TSOP & 64-CSP)
RESET	Reset/Deep Power Down mode (high enable for 48-TSOP & 48-RTSOP)

SYMBOL	PIN NAME
STS	STATUS Pin
$\overline{BYTE}$	Byte Mode Enable
VPEN	ERASE/PROGRAM/BLOCK Lock Enable
VCCQ	Output Buffer Power Supply
VCC	Device Power Supply
GND	Device Ground
NC	Pin Not Connected Internally
DU	Don't Use

ORDERING INFORMATION

PLASTIC PACKAGE

Part NO.	Access Time (ns)	Package type
MX28F128J3TBC-15	150/25	48-TSOP
MX28F128J3RBC-15	150/25	48-RTSOP
MX28F128J3TC-15	150/25	56-TSOP
MX28F128J3XCC-15	150/25	64-CSP

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