

NMC48F512

524,288-Bit (64k x 8) CMOS FLASH EEPROM

General Description

The NMC48F512 is a high speed electrically erasable and programmable read only memory, ideal for on-line, in-system firmware modifications. The NMC 48F512 combines the electrical programmability feature of UV-EPROMs with a fast electrical sector/chip erase feature of EEPROMs. The whole array of the NMC48F512 can be electrically erased in 7.5 seconds (max) compared to the typical 15–20 minutes erase time required by conventional UV-EPROMs.

The NMC48F512 is equipped with on-chip address and data latches and, an on-board timer which allows the host CPU to perform program and erase operations with minimum width instruction cycles, without using wait states. The added benefit of the on-chip integration is to enable the CPU to perform other tasks during the program/erase operations. The NMC48F512 is housed in a 32-pin windowless dual-in-line package allowing for easy upgradeability to 4 Mbit.

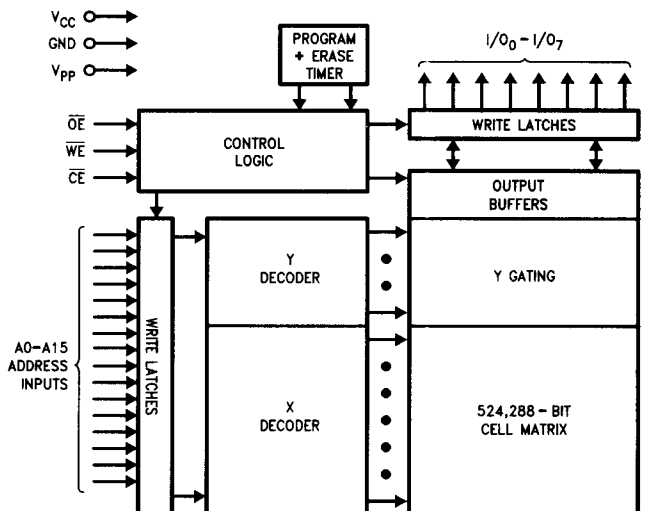
The fast access times of 200 ns and the low active and standby power consumption of the NMC48F512 make it an ideal memory for most high performance systems.

The NMC48F512 is manufactured using National's proprietary time proven CMOS double-polysilicon gate technology which combines high performance and high density with low power consumption and excellent reliability.

Features

- In-circuit program/erase
 - 512-byte sector and chip program/erase
 - 7.5 seconds (max) erase time
 - 200 μ s (typ) byte program time
- 12V–13V V_{pp} for program/erase
- Designed for total on-line operation
 - Internal address and data latches
 - On-chip program/erase timer
- Low CMOS power consumption
 - Active power: 275 mW max
 - Standby power: 0.55 mW max
- Fast access time: 200 ns
- 32-pin JEDEC approved pinout
 - Upgrade path to 4 Mbit
- Minimum endurance of 100 program/erase cycles
- Program/erase at 0°C to +70°C
- 10 year data retention
- TTL, CMOS compatible inputs/outputs
- TRI-STATE® output pins

Block Diagram

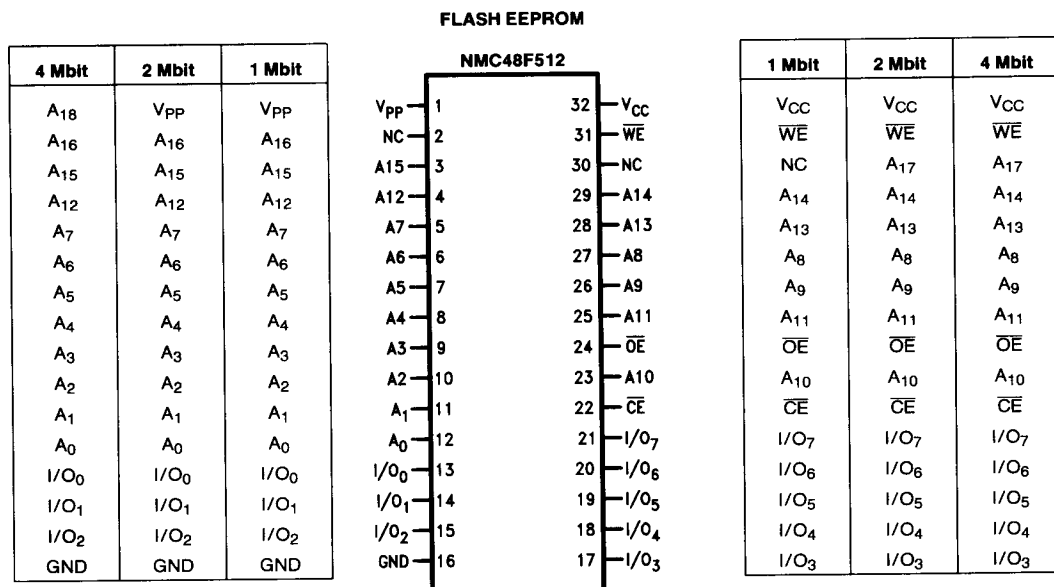


Pin Names

Pin Name	Function
A0–A15	Addresses
\overline{CE}	Chip Enable
\overline{OE}	Output Enable
\overline{WE}	Write Enable
I/O ₀ –I/O ₇	Input/Output
NC	No Connect

TL/D/9705–1

Connection Diagram



TL/D/9705-2

Note: Socket compatible EEPROM pin configurations are shown in the blocks adjacent to the NMC48F512 pins.

Order Number NMC48F512

Commercial Temp Range (0°C to +70°C)

V_{CC} = 5V ± 10%

Parameter/Order Number	Access Time (ns)
NMC48F512N200	200
NMC48F512N250	250
NMC48F512N300	300

Extended Temp Range (-40°C to +85°C)

V_{CC} = 5V ± 10%

Parameter/Order Number	Access Time (ns)
NMC48F512NE250	250
NMC48F512NE300	300

Military Temp Range (-55°C to +125°C)

V_{CC} = 5V ± 10%

Parameter/Order Number	Access Time (ns)
NMC48F512NM300	300