



# M29F040

## 4 Mbit (512Kb x8, Uniform Block) Single Supply Flash Memory

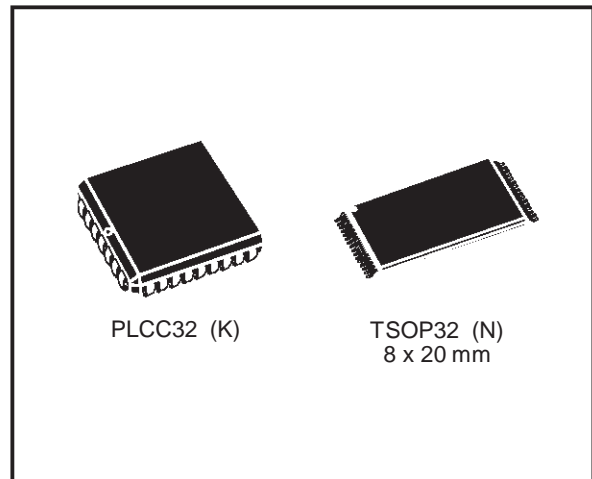
### DATA BRIEFING

- 5V  $\pm$  10% SUPPLY VOLTAGE for PROGRAM/ERASE and READ OPERATIONS
- FAST ACCESS TIME: 70ns
- BYTE PROGRAMMING TIME: 10 $\mu$ s typical
- ERASE TIME
  - Block: 1.0 sec typical
  - Chip: 2.5 sec typical
- PROGRAM/ERASE CONTROLLER (P/E.C.)
  - Program Byte-by-Byte
  - Data Polling and Toggle bits Protocol for P/E.C. Status
- MEMORY ERASE in BLOCKS
  - 8 Uniform Blocks of 64 KBytes each
  - Block Protection
  - Multiblock Erase
- ERASE SUSPEND and RESUME MODES
- LOW POWER CONSUMPTION
  - Read mode: 8mA typical (at 12MHz)
  - Stand-by mode: 25 $\mu$ A typical
  - Automatic Stand-by mode
- 100,000 PROGRAM/ERASE CYCLES per BLOCK
- 20 YEARS DATA RETENTION
  - Defectivity below 1ppm/year
- ELECTRONIC SIGNATURE
  - Manufacturer Code: 20h
  - Device Code: E2h

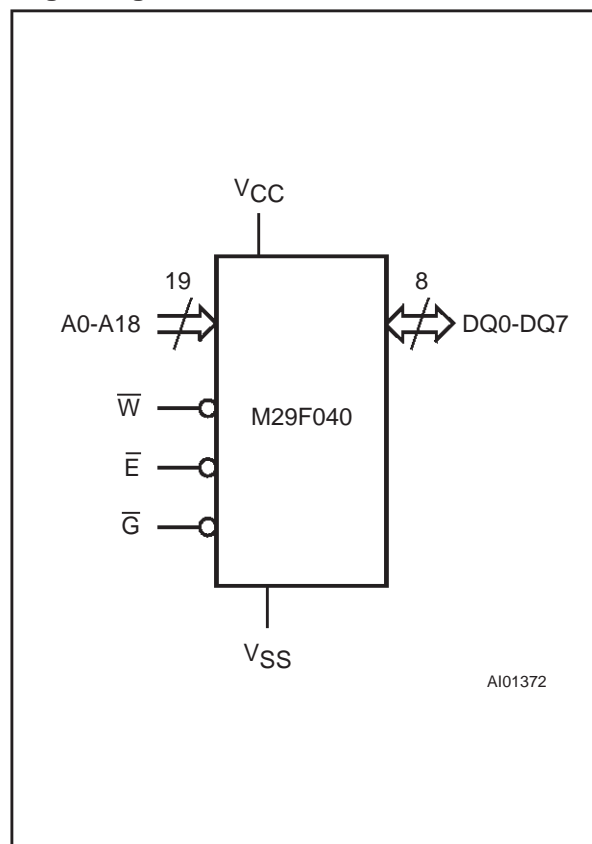
### DESCRIPTION

The M29F040 is a non-volatile memory that may be erased electrically at the block level, and programmed Byte-by-Byte.

The interface is directly compatible with most microprocessors. PLCC32 and TSOP32 (8 x 20mm) packages are available. Both normal and reverse pin outs are available for the TSOP32 package.

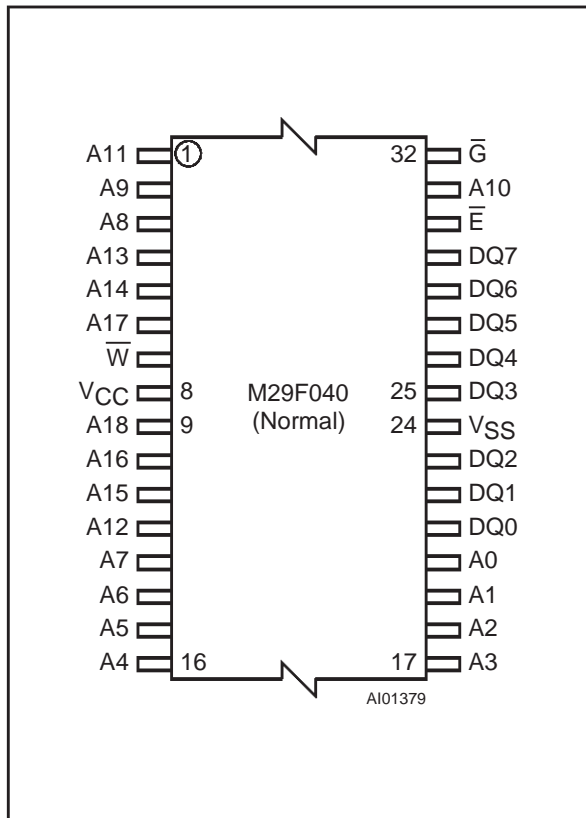


### Logic Diagram

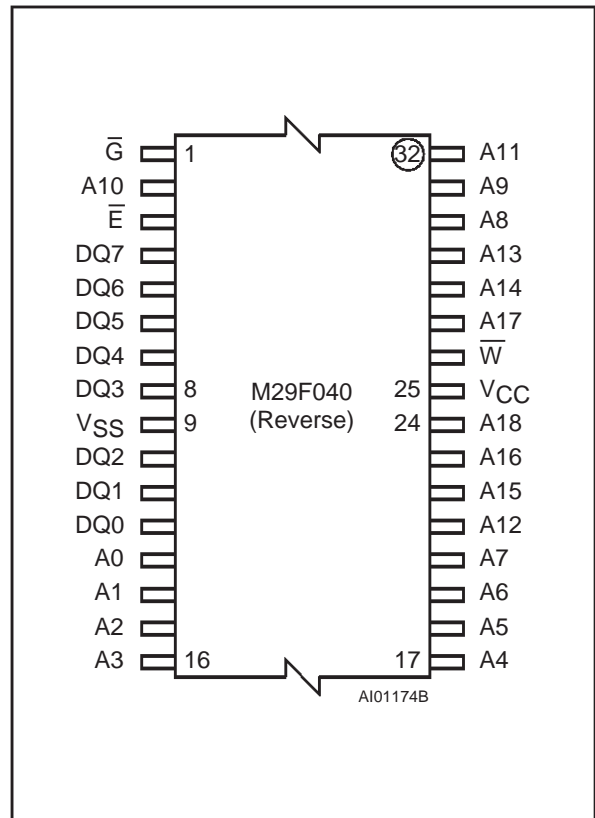


# M29F040

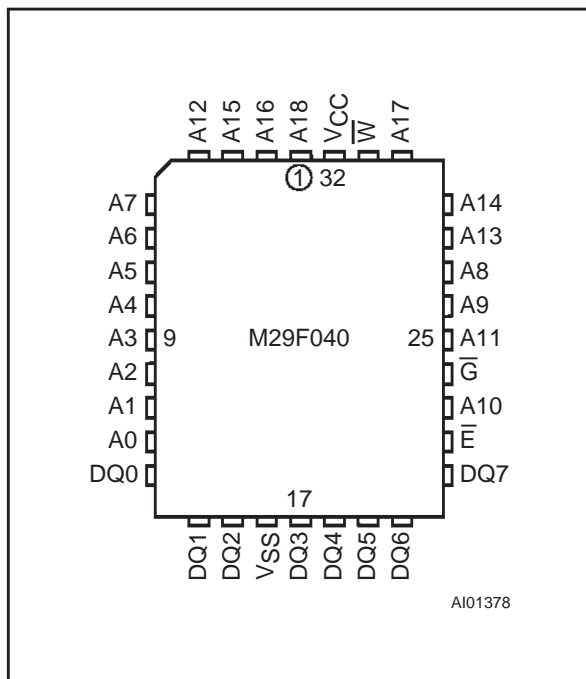
## TSOP Pin Connections



## TSOP Reverse Pin Connections



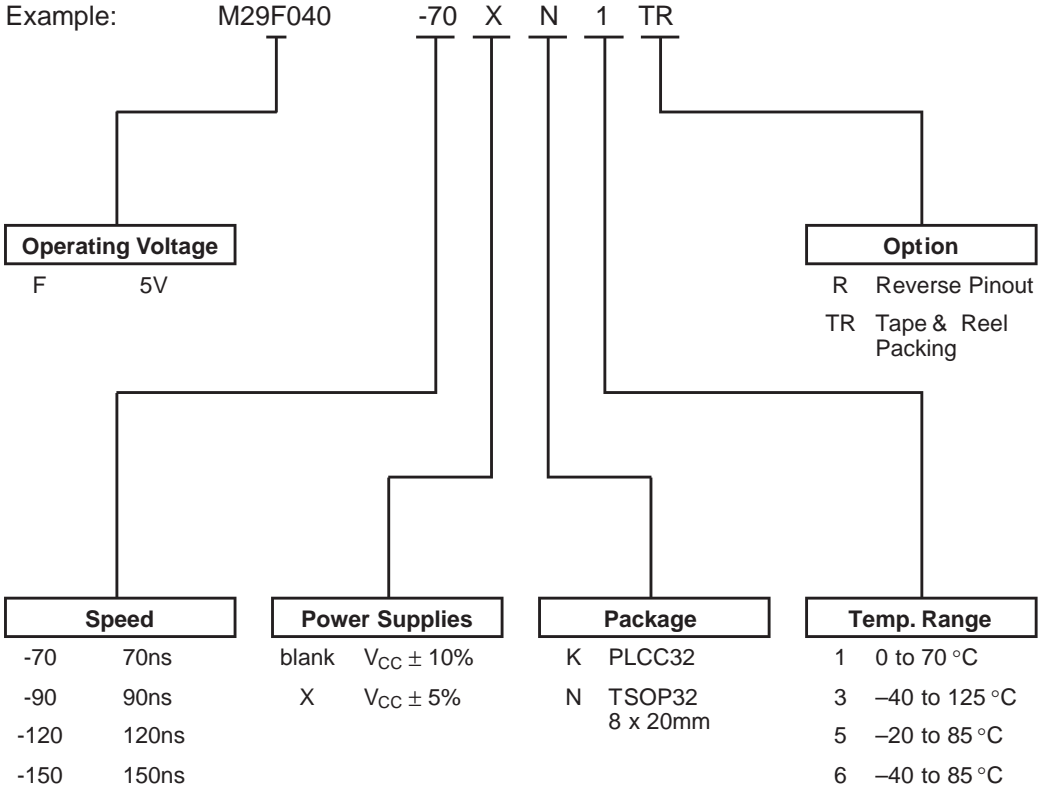
## LCC Pin Connections



## Signal Names

|                 |                      |
|-----------------|----------------------|
| A0-A18          | Address Inputs       |
| DQ0-DQ7         | Data Input / Outputs |
| $\bar{E}$       | Chip Enable          |
| $\bar{G}$       | Output Enable        |
| $\bar{W}$       | Write Enable         |
| V <sub>CC</sub> | Supply Voltage       |
| V <sub>SS</sub> | Ground               |

ORDERING INFORMATION SCHEME



Device are shipped from the factory with the memory content erased (to FFh).

For a list of available options (Speed, Package, etc...) or for further information on any aspect of this device, please contact the STMicroelectronics Sales Office nearest to you.