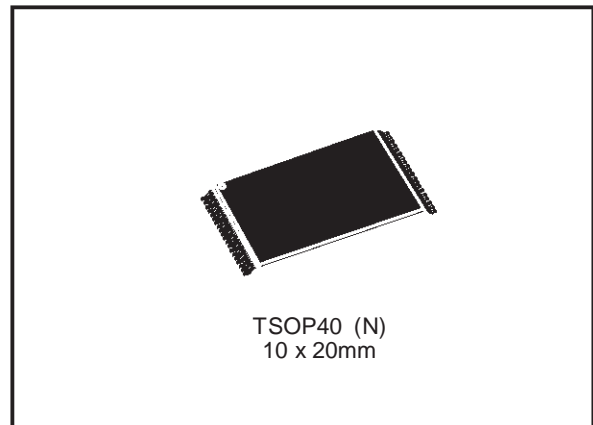




## 2 Mbit (256Kb x8, Boot Block) Low Voltage Flash Memory

### DATA BRIEFING

- 2.7V to 3.6V SUPPLY VOLTAGE
- 12V ± 5% PROGRAMMING VOLTAGE
- FAST ACCESS TIME: 100ns
- PROGRAM/ERASE CONTROLLER (P/E.C.)
- AUTOMATIC STATIC MODE
- MEMORY ERASE in BLOCKS
  - Boot Block (Top location) with hardware write and erase protection
  - Parameter and Main Blocks
- 100,000 PROGRAM/ERASE CYCLES
- LOW POWER CONSUMPTION
- 20 YEARS DATA RETENTION
  - Defectivity below 1ppm/year
- ELECTRONIC SIGNATURE
  - Manufacturer Code: 20h
  - Device Code: E5h



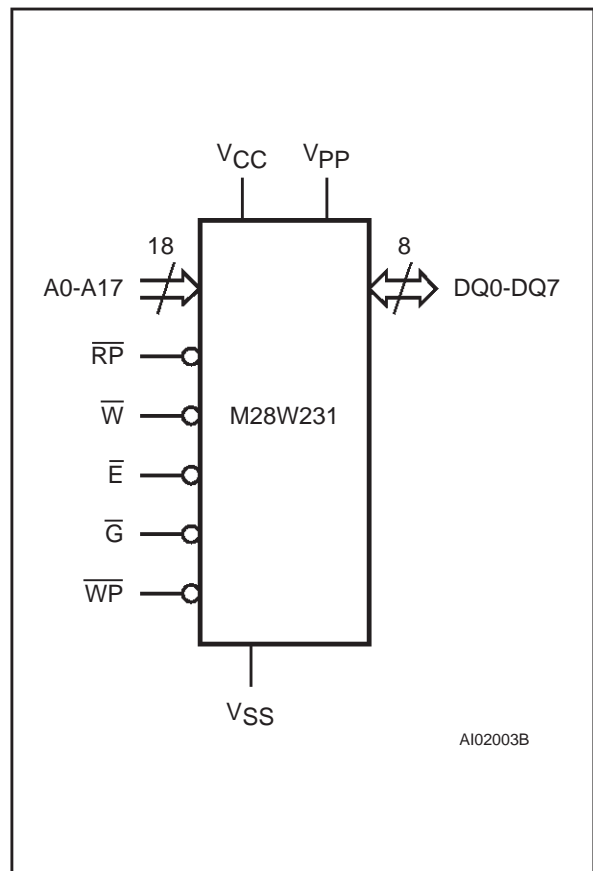
### DESCRIPTION

The M28W231 Flash memory is a non-volatile memory that may be erased electrically at the block level and programmed by byte. The interface is directly compatible with most microprocessors. TSOP40 (10 x 20mm) package is used.

### Signal Names

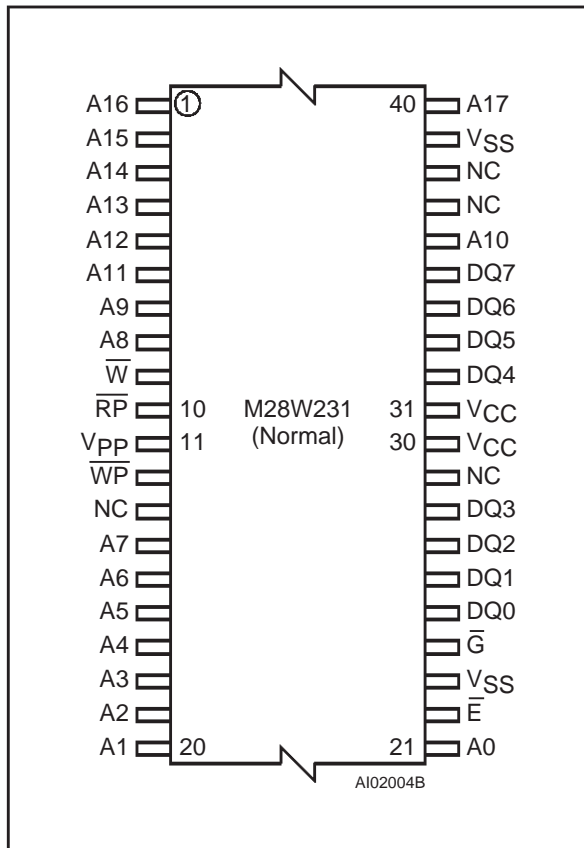
A0-A17	Address Inputs
DQ0-DQ7	Data Input / Outputs
$\bar{E}$	Chip Enable
$\bar{G}$	Output Enable
$\bar{W}$	Write Enable
$\bar{WP}$	Write Protect
$\bar{RP}$	Reset/Power Down/Boot Block Unlock
V <sub>PP</sub>	Program & Erase Supply Voltage
V <sub>CC</sub>	Supply Voltage
V <sub>SS</sub>	Ground

### Logic Diagram



# M28W231

## TSOP Pin Connections



**Warning:** NC = Not Connected.

## Ordering Information Scheme

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

Example: M28W231 -100 N 1 TR

### Operating Voltage

W 2.7V to 3.6V

### Array Matrix

3 Top Boot

### Speed

-90 <sup>(1)</sup> 90ns  
 -120 120ns  
 -150 150ns  
 -180 180ns

### Package

N TSOP40  
 10 x 20mm

### Temp. Range

1 0 to 70°C  
 5 -20 to 85°C  
 6 -40 to 85°C

### Option

TR Tape & Reel  
 Packing

**Notes:** 1. This speed is obtained with a power supply of  $V_{CC} = 3.3V \pm 0.3V$  and a load capacitance at 30pF.

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