MN63121

1K-Bit EEPROM

■ Overview

The MN63121 is a 1K-bit EEPROM supporting serial I/O and operating on a single power supply with a voltage between 1.8 and 5.5 V. It provides the following pins for easy interfacing to microprocessors or microcontrollers: chip select ($\overline{CS}$), serial clock ($\overline{SCK}$), data input (DI), data output (DO), reset (RESET), and busy (RDY/$\overline{BUSY}$). It includes a built-in timer for use in automatically erasing and writing data during data update operations.

The memory organization is 64 × 16 bits. The chip indicates the end of a write operation with either the RDY/$\overline{BUSY}$ pin or the state of the DO pin after the status output mode has been set.

Conversion of peripheral circuits to CMOS realizes great reductions in power consumption. Use of floating gate memory cells and a built-in error correction circuit ensures reliable operation for 10^5 write cycles.

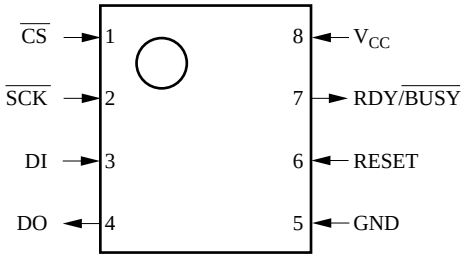
■ Features

- Memory organization: 64 × 16 bits
- Floating gate memory cells
- Function blocking erroneous writes
- Low power consumption
  - Reads: max. 6.6 mW for V_{CC} = 3.3 V
  - Standby: max. 66 µW for V_{CC} = 3.3 V
- Built-in self-timer for use in automatically erasing and writing
- Built-in error correction circuit that guarantees 10^5 write cycles
- 10-year data preservation period

■ Applications

- Keyless entry systems, cordless telephones, storage for recognition and adjustment data for terminals, etc.

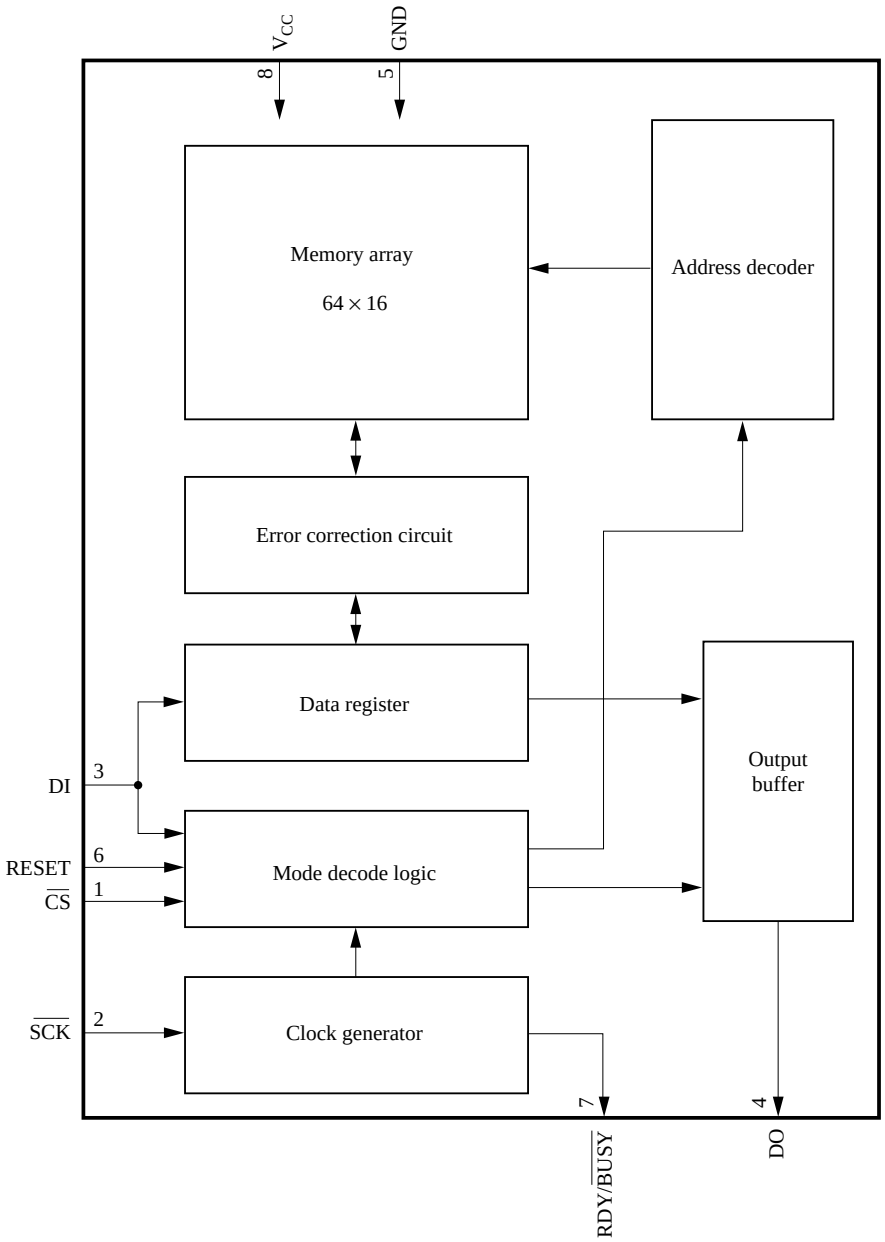
■ Pin Assignment



(TOP VIEW)

DIP008-P-0300A

■ Block Diagram



■ Pin Descriptions

Pin No.	Symbol	Pin Name
1	$\overline{CS}$	Chip select input
2	$\overline{SCK}$	Serial clock input
3	DI	Data input
4	DO	Data output
6	RESET	Reset input
7	RDY/$\overline{BUSY}$	Busy output

■ Electrical Characteristics

V_{CC}=1.8 to 5.5V, Ta=–10˚C to +70˚C

Parameter	Symbol	Test Conditions	2 to 3 V Operation		5 V Operation		Unit
			min	max	min	max	
Power supply voltage	V_{CC}		1.8	3.3	4.5	5.5	V
Input leakage current at "L" level	I_{LIL}		–10	10	–10	10	µA
Input leakage current at "H" level	I_{LIH}		–10	10	–10	10	µA
Output leakage current	I_{LO}		—	10	—	10	µA
Input voltage at "L" level	V_{IL}		– 0.1	0.2 × V_{CC}	– 0.1	0.7	V
Input voltage at "H" level	V_{IH}		0.8 × V_{CC}	V_{CC} +0.3	3.0	V_{CC} +0.3	V
V_{CC} power supply current (during operation)	I_{CC}	$\overline{SCK}$=250kHz	—	2.0	—	—	mA
		$\overline{SCK}$=1MHz	—	—	—	3.0	
V_{CC} power supply current (during standby)	I_{SB}	$\overline{CS}$, $\overline{SCK}$, DI, RESET="H" Other pins open	—	20	—	30	µA
Output voltage for "L" level (during reads)	V_{OL}	I_{OL}=400 µA	—	0.3	—	—	V
		I_{OL}=2.1mA	—	—	—	0.45	
Output voltage for "H" level (during reads)	V_{OH}	I_{OH}=–10 µA	V_{CC} – 0.3	—	—	—	V
		I_{OH}=–400 µA	—	—	2.4	—	

■ Function Descriptions

Orders	Code	Address	Data	Function
READ	10101000	$A_0A_1A_2A_3A_4A_500$	D_0 –D_7D_8–D_{15}	Read from address indicated with pins A_0 –A_5
WRITE	10100100	$A_0A_1A_2A_3A_4A_500$	D_0 –D_7D_8–D_{15}	Write to address indicated with pins A_0 –A_5
EWEN	10100011	xxxxxxxx	——	Enable erase/write
EWDS	10100000	xxxxxxxx	——	Disable erase/write
BUSYFG	10101001	00xxxxxx	0(busy) 1(ready)	Status output busy flag
ENFG		10xxxxxx	0(enable) 1(disable)	Status output write enable flag
ECCFG		01xxxxxx	0(non-correction) 1(correction)	Status output ECC flag

Note: x means "don't care".

■ Package Dimensions (Unit:mm)

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