FEDR27V852E-02-01

OKI Semiconductor

This version: Jan. 2001

MR27V852E

524,288–Word × 16–Bit or 1,048,576–Word × 8–Bit
8–Word x 16-Bit or 16–Word x 8-Bit Page Mode Production Programmed Read Only Memory (P2ROM)

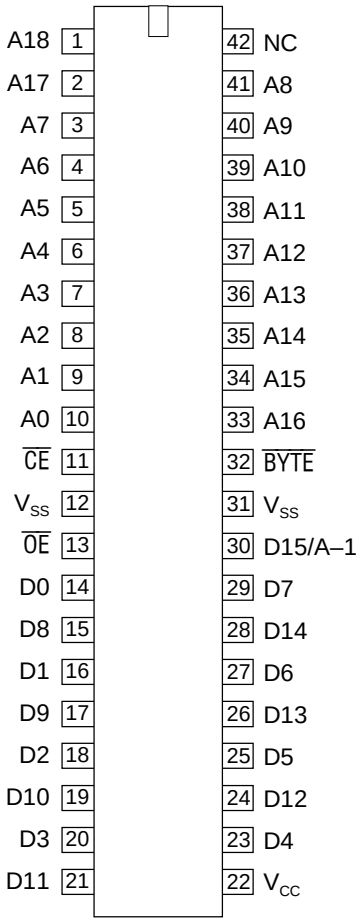
GENERAL DESCRIPTION

The MR27V852E is a 8 Mbit Production Programmed Read Only Memory (P2ROM) with page mode. Its configuration can be electrically switched between 524,288-word × 16-bit and 1,048,576-word × 8-bit by the state of the $\overline{BYTE}$ pin. The MR27V852E supports high speed asynchronous read operation using a single 3.3V power supply.

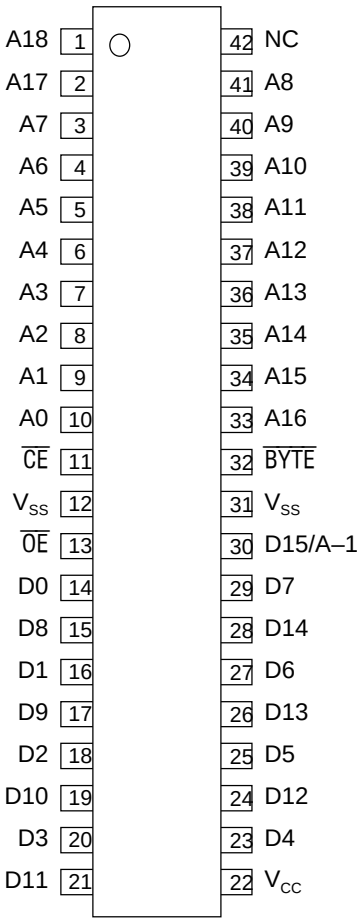
FEATURES

· 524,288-word × 16-bit / 1,048,576-word × 8-bit electrically switchable configuration
· Page size of 8-word x 16-Bit or 16-word x 8-Bit
· +3.3 V power supply
· Access time
  Random access mode 100 ns MAX
  Page access mode 30 ns MAX
· Operating current 80 mA MAX
· Standby current 50 µA MAX
· Input/Output TTL compatible
· Tri-state output
· Packages:
  42-pin plastic DIP (DIP42-P-600-2.54) (Product Name : MR27V852E-xxxRA)
  42-pin plastic SOJ (SOJ42-P-400-1.27) (Product Name : MR27V852E-xxxJA)

PIN CONFIGURATION (TOP VIEW)



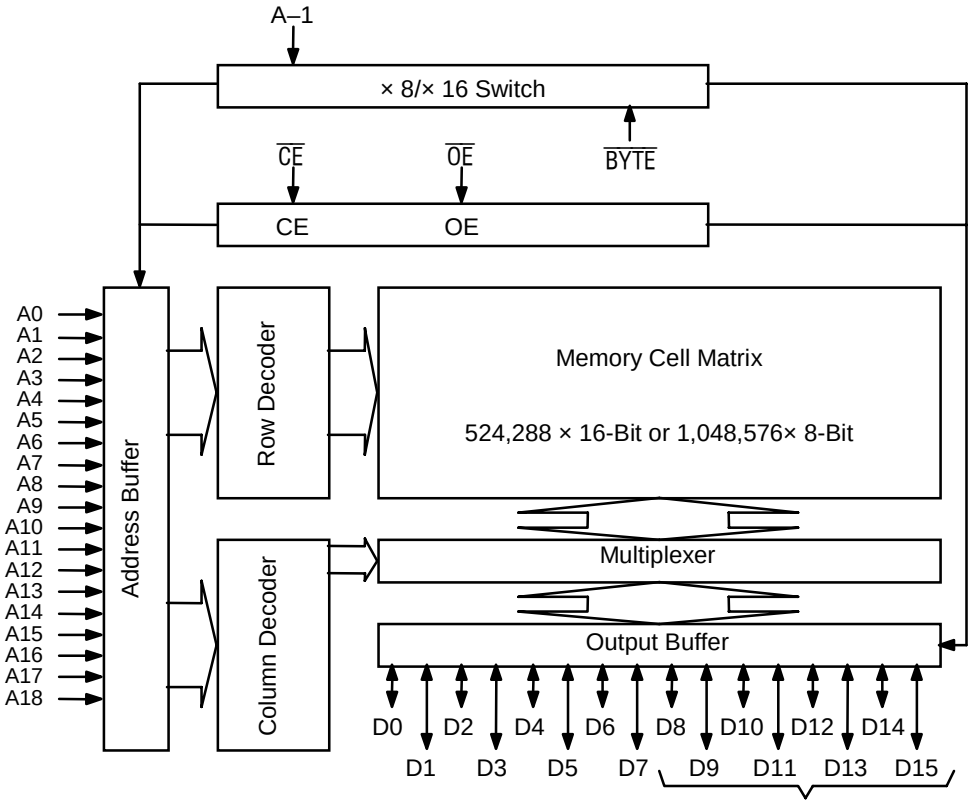
42-pin DIP



42-pin SOJ

Pin name	Functions
D15/A–1	Data output/Address input
A0 to A18	Address input
D0 to D14	Data output
$\overline{CE}$	Chip enable
$\overline{OE}$	Output enable
$\overline{BYTE}$	Mode switch
V_{CC}	Power supply voltage
V_{SS}	GND
NC	Non connection

BLOCK DIAGRAM



In 8-bit output mode, these pins are placed in a high-Z state and pin D15 functions as the A-1 address pin.

FUNCTION TABLE

Mode	$\overline{CE}$	$\overline{OE}$	$\overline{BYTE}$	V_{CC}	D0 to D7	D8 to D14	D15/A–1
Read (16-Bit)	L	L	H	3.3 V	D_{OUT}		
Read (8-Bit)	L	L	L		D_{OUT}	Hi–Z	L/H
Output disable	L	H	H		Hi–Z		
			L				*
Standby	H	*	H		Hi–Z		
			L				*

*: Don't Care (H or L)

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Condition	Value	Unit
Operating temperature under bias	Ta	—	0 to 70	°C
Storage temperature	Tstg		–55 to 125	°C
Input voltage	V_I	relative to V_{SS}	–0.5 to V_{CC}+0.5	V
Output voltage	V_O		–0.5 to V_{CC}+0.5	V
Power supply voltage	V_{CC}		–0.5 to 5	V
Power dissipation per package	P_D	—	1.0	W

RECOMMENDED OPERATING CONDITIONS

(Ta = 0 to 70°C)

Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
V_{CC} power supply voltage	V_{CC}	V_{CC} = 3.0 to 3.6 V	3.0	—	3.6	V
Input “H” level	V_{IH}		2.2	—	V_{CC}+0.5*	V
Input “L” level	V_{IL}		–0.5**	—	0.6	V

Voltage is relative to V_{SS}.

* : Vcc+1.5 V(Max.) when pulse width of overshoot is less than 10 ns.

** : -1.5 V(Min.) when pulse width of undershoot is less than 10 ns.

ELECTRICAL CHARACTERISTICS

DC Characteristics

(V_{CC} = 3.3 V ±0.3 V, Ta = 0 to 70°C)

parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Input leakage current	I_{LI}	V_I = 0 to V_{CC}	—	—	10	µA
Output leakage current	I_{LO}	V_O = 0 to V_{CC}	—	—	10	µA
V_{CC} power supply current (Standby)	I_{CCSC}	$\overline{CE}$ = V_{CC}	—	—	50	µA
	I_{CCST}	$\overline{CE}$ = V_{IH}	—	—	1	mA
V_{CC} power supply current (Read)	I_{CCA}	$\overline{CE}$ = V_{IL}, $\overline{OE}$ = V_{IH} tc =100 ns	—	—	80	mA
Input “H” level	V_{IH}	—	2.2	—	V_{CC}+0.5*	V
Input “L” level	V_{IL}	—	–0.5**	—	0.6	V
Output “H” level	V_{OH}	I_{OH} = –2 m A	2.4	—	—	V
Output “L” level	V_{OL}	I_{OL} = 2.1 mA	—	—	0.4	V

Voltage is relative to V_{SS}.

* : Vcc+1.5 V(Max.) when pulse width of overshoot is less than 10 ns.

** : -1.5 V(Min.) when pulse width of undershoot is less than 10 ns.

AC Characteristics

(V_{CC} = 3.3V ± 0.3 V, Ta = 0 to 70°C)

Parameter	Symbol	Condition	Min.	Max.	Unit
Address cycle time	t_C	—	100	—	ns
Address access time	t_{ACC}	$\overline{CE}$ = $\overline{OE}$ = V_{IL}	—	100	ns
Page cycle time	t_{PC}	—	30	—	ns
Page access time	t_{PAC}	—	—	30	ns
$\overline{CE}$ access time	t_{CE}	$\overline{OE}$ = V_{IL}	—	100	ns
$\overline{OE}$ access time	t_{OE}	$\overline{CE}$ = V_{IL}	—	30	ns
Output disable time	t_{CHZ}	$\overline{OE}$ = V_{IL}	0	30	ns
	t_{OHZ}	$\overline{CE}$ = V_{IL}	0	25	ns
Output hold time	t_{OH}	$\overline{CE}$ = $\overline{OE}$ = V_{IL}	0	—	ns

Measurement conditions

Input signal level---------- 0 V/3 V

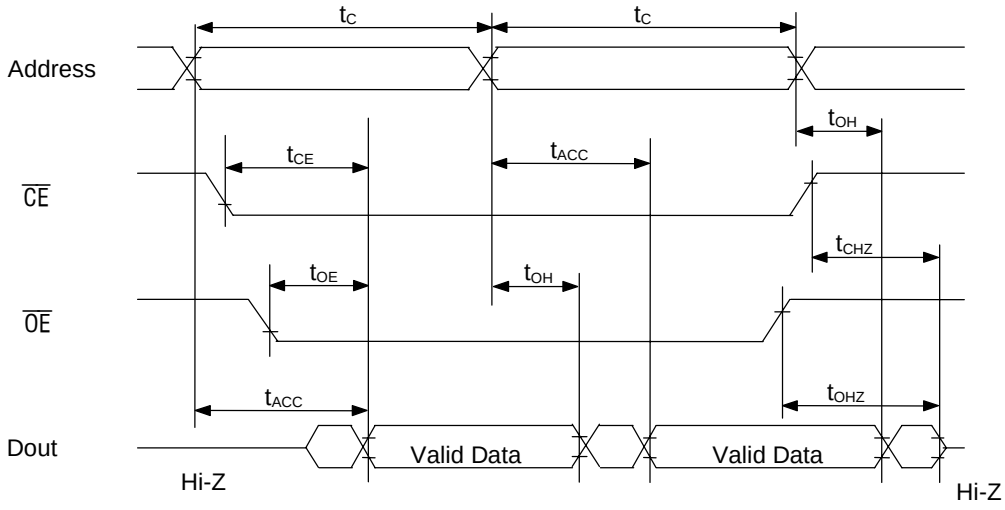
Input timing reference level ---------- 0.8 V/2.0 V

Output load ---------- 100 pF

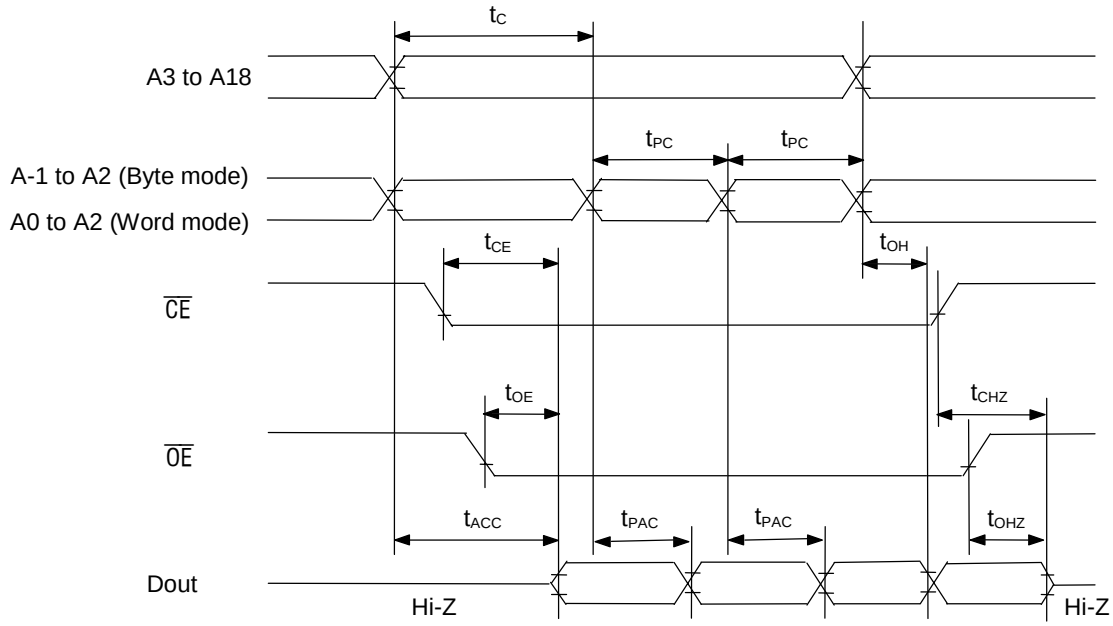
Output timing reference level---------- 0.8 V/2.0 V

Timing Chart (Read Cycle)

Random Access Mode Read Cycle



Page Access Mode Read Cycle



Pin Capacitance

(V_{CC} = 3.3 V, Ta = 25°C, f = 1 MHz)

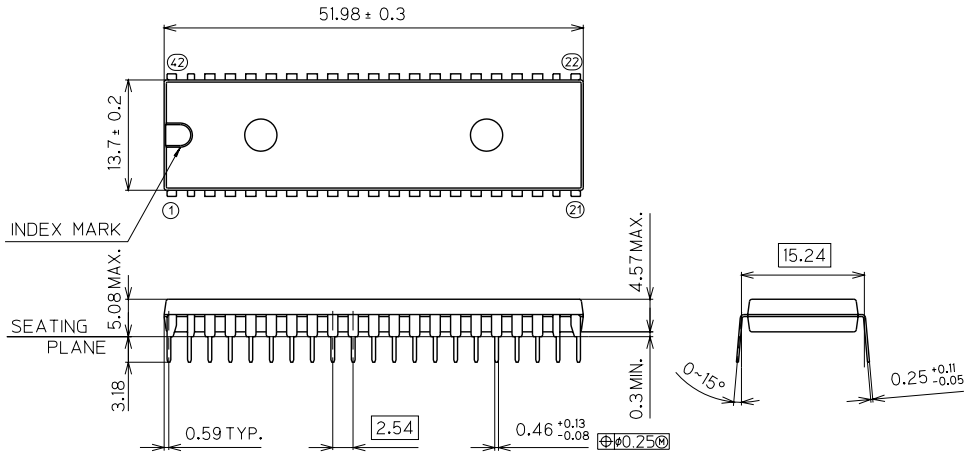
Parameter	Symbol	Condition	Min.	Typ.	Max.	Unit
Input	C_{IN1}	V_I = 0 V	—	—	10	pF
$\overline{BYTE}$	C_{IN2}		—	—	120	
Output	C_{OUT}	V_O = 0 V	—	—	10(12)	

( ):DIP only

PACKAGE DIMENSIONS

(Unit: mm)

DIP42-P-600-2.54



Package material	Epoxy resin
Lead frame material	42 alloy
Pin treatment	Solder plating (≥5µm)
Package weight (g)	6.20 TYP.
Rev. No./Last Revised	2/Dec. 11, 1996

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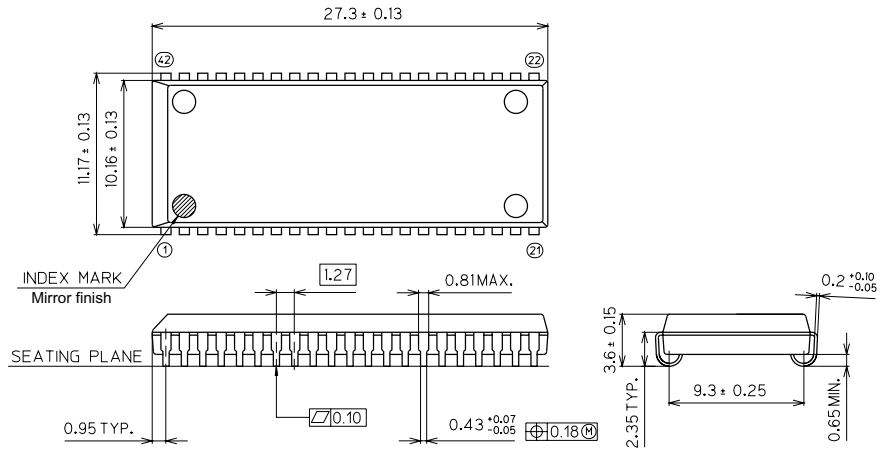
(Unit: mm)

SOJ42-P-400-1.27



Package material	Epoxy resin
Lead frame material	42 alloy
Pin treatment	Solder plating (≥5µm)
Package weight (g)	1.86 TYP.
Rev. No./Last Revised	5/Dec. 5, 1996

Oki Electric Industry Co., Ltd.

Notes for Mounting the Surface Mount Type Package

The surface mount type packages are very susceptible to heat in reflow mounting and humidity absorbed in storage.
Therefore, before you perform reflow mounting, contact Oki's responsible sales person for the product name, package name, pin number, package code and desired mounting conditions (reflow method, temperature and times).

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1. The information contained herein can change without notice owing to product and/or technical improvements. Before using the product, please make sure that the information being referred to is up-to-date.

2. The outline of action and examples for application circuits described herein have been chosen as an explanation for the standard action and performance of the product. When planning to use the product, please ensure that the external conditions are reflected in the actual circuit, assembly, and program designs.

3. When designing your product, please use our product below the specified maximum ratings and within the specified operating ranges including, but not limited to, operating voltage, power dissipation, and operating temperature.

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