

OKI Semiconductor MR27V25603L

 $\underline{16M-Word \times 16-Bit \text{ or } 32M-Word \times 8-Bit P2ROM}$

FEATURES

 ·16,777,216-word × 16-bit/33,554,432-word × 8-bit electrically switchable configuration

 · 3.0 V to 3.6 V power supply
 · Access time 100 ns MAX (MR27V25603L-xxxTM) 120 ns MAX (MR27V25603L-xxxTME)
 · Operating current 35 mA MAX(5MHz)
 · Standby current 10 μA MAX

- Input/Output TTL compatible
- · Three-state output

PACKAGES

· MR27V25603L-xxxTM, MR27V25603L-xxxTME 50-pin plastic TSOP (TSOP(2)50-P-400-0.80-K)

· MR27V25603L-xxxMB, MR27V25603L-xxxMBE 70-pin plastic SSOP (SSOP70-P-500-0.80-K)

P2ROM ADVANCED TECHNOLOGY

P2ROM stands for Production Programmed ROM. This exclusive Oki technology utilizes factory test equipment for programming the customers code into the P2ROM prior to final production testing. Advancements in this technology allows production costs to be equivalent to MASKROM and has many advantages and added benefits over the other non-volatile technologies, which include the following;

- **Short lead time**, since the P2ROM is programmed at the final stage of the production process, a large P2ROM inventory "bank system" of un-programmed packaged products are maintained to provide an aggressive lead-time and minimize liability as a custom product.
- No mask charge, since P2ROMs do not utilize a custom mask for storing customer code, no mask charges apply.
- No additional programming charge, unlike Flash and OTP that require additional programming and handling costs, the P2ROM already has the code loaded at the factory with minimal effect on the production throughput. The cost is included in the unit price.
- Custom Marking is available at no additional charge.

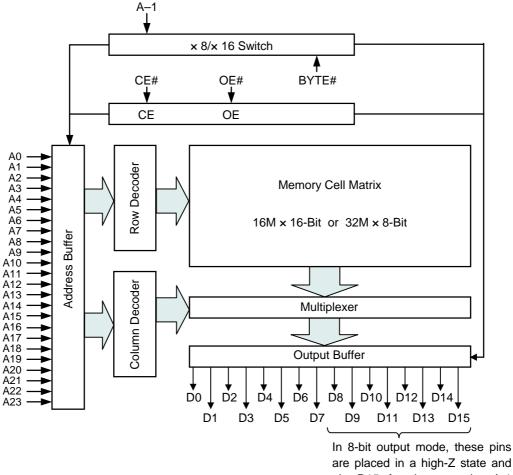
Oki, /Network Solutions for a Global Society

FEDR27V25603L-02-02

Issue Date: Jun. 8, 2004

PIN CONFIGURATION (TOP VIEW)							
A11 A10 A9 A8 A7 A6 A5 A4 A3 A2 A1 A23 GND BYTE# A0 D0 BYTE# A0 D1 D1 D1 D1 D1 D1 D1 D1 D1 D1 D1 D1 D1	$\begin{array}{c} 1 \\ 2 \\ 3 \\ 4 \\ 5 \\ 6 \\ 7 \\ 8 \\ 9 \\ 10 \\ 11 \\ 12 \\ 13 \\ 14 \\ 15 \\ 16 \\ 17 \\ 18 \\ 19 \\ 20 \\ 21 \\ 22 \\ 23 \\ 24 \\ 25 \\ \end{array}$	Sotsop (Type2)	49 48 47 46 44 43 42 41 40 93 38 37 36 55 34 33 32 33 30 29 28 27	CE# A12 A13 A14 A15 Vcc A16 A17 A18 A19 A20 A21 GND A22 NC OE# D15/A-1 D7 D15/A-1 D7 D15/A-1 D7 D15/A-1 D7 D14 D6 D13 D5 D12 D12 D4 Vcc			
A23 NC NC NC NC GND NC NC	5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34	0 70SSOP	8 8 6 6 6 6 6 6 8 8 8 5 6 6 5 6 5 5 8 8 8 5 6 5 5 5 5	CE# A12 A13 A14 A15 Vcc A16 A17 A18 A19 A20 A21 NC NC NC NC NC NC NC NC NC NC NC NC NC			

BLOCK DIAGRAM



are placed in a high-Z state and pin D15 functions as the A-1 address pin.

PIN DESCRIPTIONS

Pin name	Functions			
D15 / A–1	Data output / Address input			
A0 to A23	Address inputs			
D0 to D14	Data outputs			
CE#	Chip enable input			
OE#	Output enable input			
BYTE#	Word / Byte select input			
Vcc	Power supply voltage			
V _{SS}	Ground			

FUNCTION TABLE

Mode	CE#	OE#	BYTE#	Vcc	D0 to D7	D8 to D14	D15/A-1
Read (16-Bit)	L	L	Н			D _{OUT}	
Read (8-Bit)	L	L	L	2.0.1/	D _{OUT}	Hi–Z	L/H
Output disable		Н	Н	3.0 V			
Output disable L	L	п	L	to 3.6 V		Hi–Z	*
Standby	Ц		Н	3.0 V	11: 7		
Standby	Н	*	L			Hi–Z	*

*: Don't Care (H or L)

ABSOLUTE MAXIMUM RATINGS

Parameter	Symbol	Condition	Value	Unit
Operating temperature under bias	Та		0 to 70	°C
Storage temperature	Tstg	—	-55 to 125	°C
Input voltage	VI		–0.5 to V _{CC} +0.5	V
Output voltage	Vo	relative to V _{SS}	–0.5 to V_{CC} +0.5	V
Power supply voltage	V _{cc}		–0.5 to 5	V
Power dissipation per package	PD	_	1.0	W

RECOMMENDED OPERATING CONDITIONS

 $(Ta = 0 \text{ to } 70^{\circ}C)$

Parameter	Symbol	Condition	Min.	Тур.	Max.	Unit
V _{CC} power supply voltage	V _{cc}		3.0	—	3.6	V
Input "H" level	V _{IH}	V_{CC} = 3.0 to 3.6 V	2.2	—	V _{CC} +0.5*	V
Input "L" level	VIL		-0.5**	—	0.6	V

Voltage is relative to V_{SS}.

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

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

PIN CAPACITANCE

				$(V_{CC} = 3.$	$3 \text{ V}, 1a = 25^{\circ}$	C, T = T MHZ)
Parameter	Symbol	Condition	Min.	Тур.	Max.	Unit
Input	C _{IN1}	$V_1 = 0 V$	_	_	10	
BYTE#	C _{IN2}	$v_1 = 0 v$	_	_	200	pF
Output	C _{OUT}	$V_{O} = 0 V$	_	_	10	

 $(V_{00} - 3.3)$ Ta - 25°C f - 1 MHz

ELECTRICAL CHARACTERISTICS

DC Characteristics

					(Ta	= 0 to 70°C)
Parameter	Symbol	Condition	Min.	Тур.	Max.	Unit
Input leakage current	ILI	$V_I = 0$ to V_{CC}	_		5	μA
Output leakage current	I _{LO}	$V_{O} = 0$ to V_{CC}	_		5	μA
V _{CC} power supply current	I _{ccsc}	$CE\# = V_{CC}$	_		10	μA
(Standby)	ICCST	CE# = V _{IH}	_		1	mA
V _{CC} power supply current (Read)	I _{CCA}	$CE\# = V_{IL}, OE\# = V_{IH}$ f=5MHz			35	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 _{ОН} = –1 mA	2.4		_	V
Output "L" level	V _{OL}	I _{OL} = 2 mA	—		0.4	V

Voltage is relative to V_{SS}.

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

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

AC Characteristics

(Vcc =	3.0	to 3	6 V	Ta =	0 to	70°C)
	vuu –	0.0	10 0	.0 v	1a –	0.0	100)

Parameter	Symbol	Condition	Min.	Max.	Unit	
Address such time			100*			
Address cycle time	t _C	—	120**		ns	
				100*		
Address access time	t _{ACC}	$CE\# = OE\# = V_{IL}$	_	120**	ns	
05"		05")/		100*		
CE# access time	t _{CE}	$OE\# = V_{IL}$	_	120**	ns	
OE# access time	t _{OE}	$CE\# = V_{IL}$	—	30	ns	
Output disable time	t _{CHZ}	$OE\# = V_{IL}$	0	20	ns	
Output disable time	t _{OHZ}	$CE\# = V_{IL}$	0	20	ns	
Output hold time	t _{OH}	$CE\# = OE\# = V_{IL}$	0		ns	

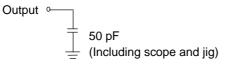
* : MR27V25603L-xxxTM, MR27V25603L-xxxMB

** : MR27V25603L-xxxTME, MR27V25603L-xxxMBE

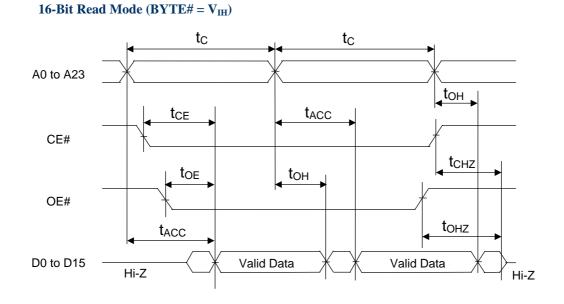
Measurement conditions

Input signal level	-0 V/3 V
Input timing reference level	
Output load	
Output timing reference level	1/2Vcc

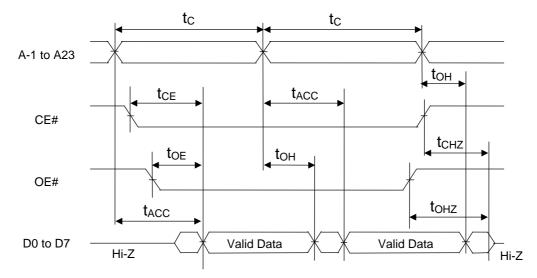
Output load



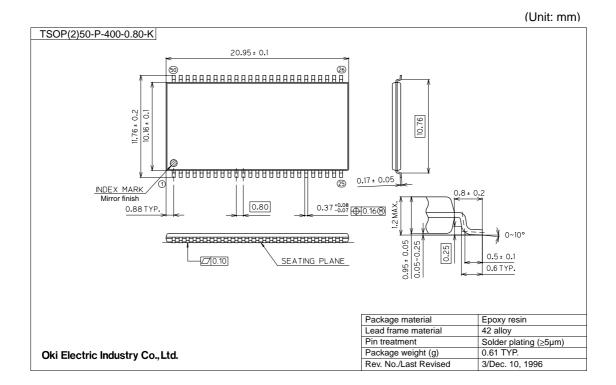
TIMING CHART (READ CYCLE)



8-Bit Read Mode (BYTE# = V_{IL})



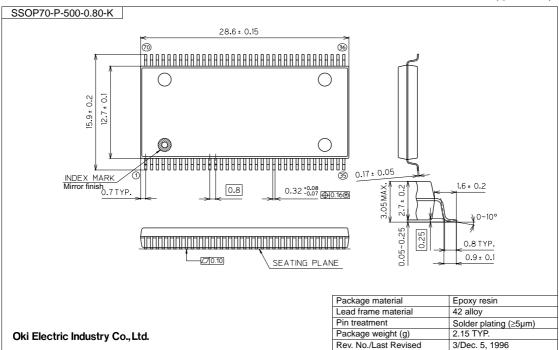
PACKAGE DIMENSIONS



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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(Unit: mm)

REVISION HISTORY

Document		Page			
No.	Date	Previous Edition	Current Edition	Description	
FEDR27V25603L-02-01	Apr. 1, 2004	-	-	Final edition 1	
FEDR27V25603L-02-02	Jun. 8, 2004	3	3	Change C _{IN1} to 10pF	

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