

TOSHIBA MOS MEMORY PRODUCTS

256K BIT (32K WORD × 8 BIT) CMOS MASK ROM
SILICON GATE MOS

TC53257P
TC53257F

DESCRIPTION

The TC53257P/F is a 262,144 bit read only memory organized as 32,768 words by 8 bits with a low bit cost, this being suitable for use in program memory of microprocessor, and in character generator. The TC53257P/F using CMOS technology is most suitable for low power applications where bat-

tery operation is required.

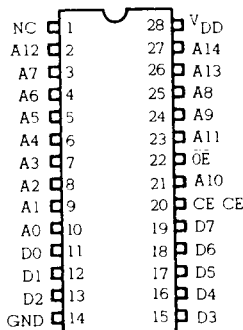
The TC53257P/F has one programmable chip enable input \overline{CE}/CE , for device selection and one output enable input (\overline{OE}) for fast memory access and output control.

FEATURES

- Single 5V Power Supply
- Access Time: 200ns(Max.)
- Power Dissipation
 - Operating Current : 25mA(Max.)
 - Standby Current : 20 μ A(Max.)
- Pin Compatible with 256K EPROM TC57256AD/ADI
- Pin Compatible with 256K OTPROM TC54256AF/AF
- Full Static Operation

- Programmable Chip Enable
- All Inputs and Outputs : TTL Compatible
- Three State Outputs
- Package
 - Plastic DIP : TC53257P
 - Plastic FP : TC53257F

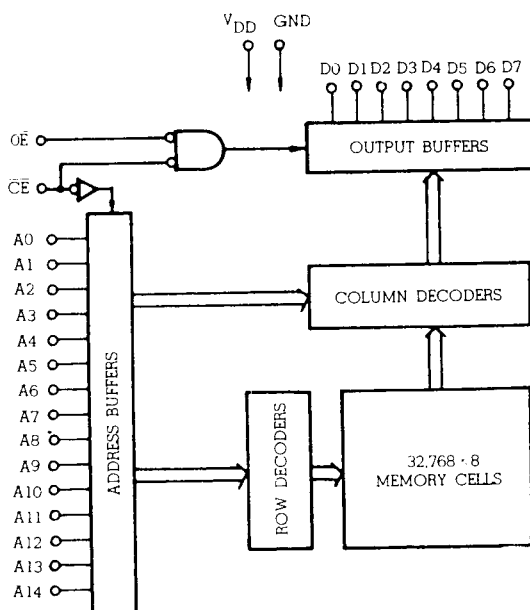
PIN CONNECTION (TOP VIEW)



PIN NAMES

A ₀ ~A ₁₄	Address Inputs
D ₀ ~D ₇	Data Outputs
NC	No connection
\overline{CE}/CE	Chip enable input
\overline{OE}	Output enable input
V _{DD}	Power supply
GND	Ground

BLOCK DIAGRAM



TC53257P

TC53257F

MAXIMUM RATINGS

SYMBOL	ITEM	RATING	UNITS
V _{DD}	Power Supply Voltage	-0.5~7.0	V
V _{IN}	Input Voltage	-0.5~7.0	V
V _{OUT}	Output Voltage	0~V _{DD}	V
P _D	Power Dissipation	1.0 0.6*	W
T _{STG}	Storage Temperature	-55~150	°C
T _{OPR}	Operating Temperature	-40~85	°C
T _{SOLDER}	Soldering Temperature·Time	260·10	°C·sec

Note : *Plastic FP

D. C. OPERATING CONDITINS (Ta = -40~85°C)

SYMBOL	PARAMETER	MIN.	TYP.	MAX.	UNIT
V _{DD}	Power Supply Voltage	4.5	5.0	5.5	V
V _{IH}	Input High Voltage	2.2	—	V _{DD} +0.3	V
V _{IL}	Input Low Voltage	-0.3	—	0.8	V

D. C. and OPERATING CHARACTERISTICS (Ta = -40~85°C, V_{DD} = 5V ± 10%)

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
I _{IL}	Input Leakage Current	V _{IN} = 0V ~ V _{DD}	—	±1.0	μA
I _{LO}	Output Leakage Current	$\overline{CE} = V_{IH}$ or $\overline{OE} = V_{IH}$ V _{OUT} = 0V ~ V _{DD}	—	±5.0	μA
I _{OH}	Output High Current	V _{OH} = 2.4V	-1.0	—	mA
I _{OL}	Output Low Current	V _{OL} = 0.4V	3.2	—	mA
I _{DD} S1	Standby Current	$\overline{CE} = V_{IH}$ CE = V _{IL}	—	2	mA
I _{DD} S2	Standby Current	$\overline{CE} = V_{DD} - 0.2V$, CE = 0.2V	—	20	μA
I _{DD} O1	Operating Current	V _{IH} = V _{IH} V _{IL} , t _{CYCLE} = 200ns	—	40	mA
I _{DD} O2		V _{IN} = V _{DD} - 0.2V / 0.2V, t _{CYCLE} = 200ns	—	25	mA

CAPACITANCE

SYMBOL	PARAMETER	CONDITIONS	MIN.	MAX.	UNIT
C _{IN}	Input Capacitance	f = 1MHz, Ta = 25°C	—	8	pF
C _{OUT}	Output Capacitance	f = 1MHz, Ta = 25°C	—	10	pF

Note : This parameter is periodically sampled and is not 100% tested.

A. C. CHARACTERISTICS

($T_a = -40 \sim 85^\circ\text{C}$, $V_{DD} = 5\text{V} \pm 10\%$)

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
t_{CYC}	Cycle Time	200	—	ns
t_{ACC}	Access Time	—	200	ns
t_{CE}	Chip Enable Access Time from $\overline{CE}/\overline{CE}$	—	200	ns
t_{OE}	Output Enable Access Time from \overline{OE}	—	70	ns
t_{CED}, t_{OED}	Output Disable Time from $\overline{CE}/\overline{CE}$, \overline{OE}	0	60	ns
t_{OH}	Output Hold Time	0	—	ns

A. C. TEST CONDITIONS

Output Load : 100pF + 1TTL

Input Levels : 0.6V, 2.4V

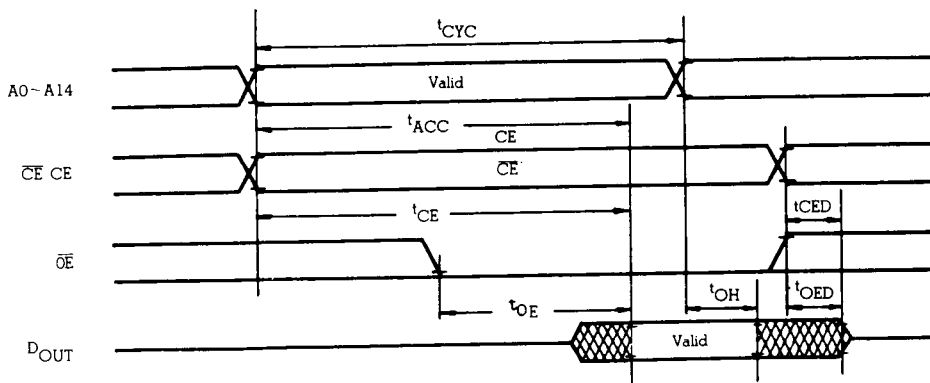
Timing Measurement Reference Levels

Input : 0.8V, 2.2V

Output : 0.8V, 2.2V

Input Rise and Fall Time : 5ns

TIMING WAVEFORMS



OPERATION MODE H : V_{IH} , L : V_{IL} , * : V_{IH} or V_{IL}

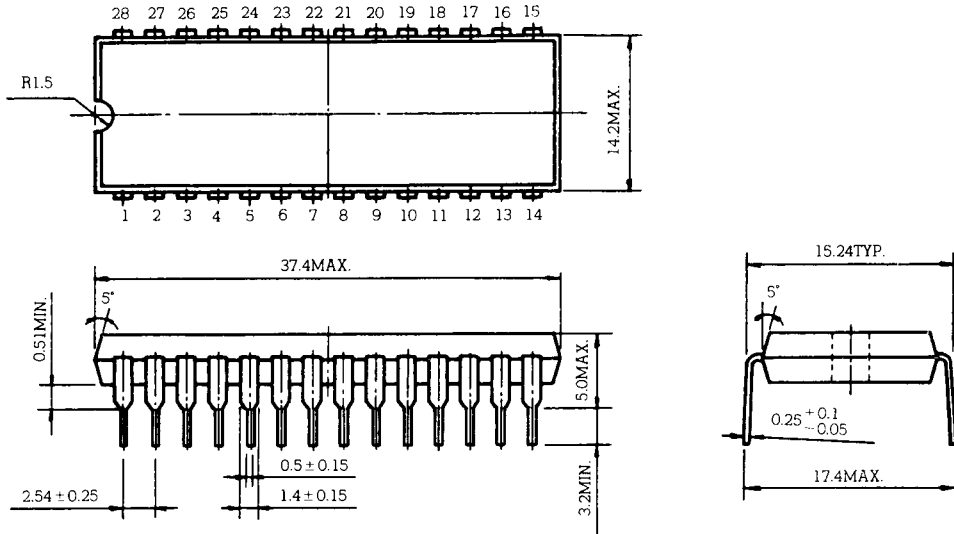
MODE	\overline{CE}/CE	\overline{OE}	$A_0 \sim A_{14}$	Outputs	Power
Read	L(H)	L	Valid	Data out	Operating
Output Deselect	L(H)	H	*	High-Z	Operating
	H(L)	*	*		Standby

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OUTLINE DRAWINGS

● Plastic DIP

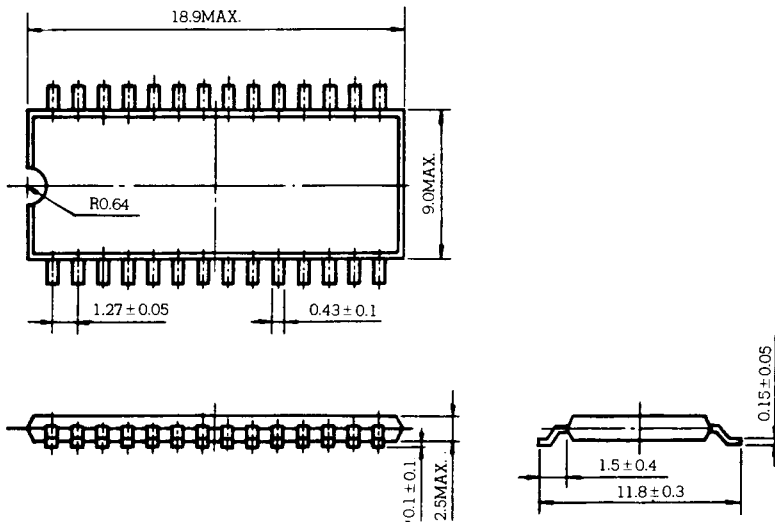
Unit: mm



NOTE : Each lead pitch is 2.54mm.

All leads are located within 0.25mm of their true longitudinal position with respect to No. 1 and No. 28 leads.

● Plastic FP



NOTE : Each lead pitch is 1.27mm.

All leads are located within 0.12mm of their true longitudinal position with respect to No. 1 and No. 28 leads.