TOSHIBA MOS MEMORY PRODUCTS

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

SILICON GATE MOS

TC53257P
TC53257F

DESCRIPTION

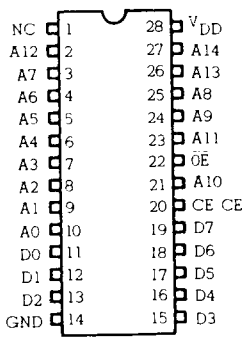
The TC53257P/F is a 262,144 bit read only memory organized as 32,768 words by 8 bits with a low bit cost, this being suitable for use in program memory of microprocessor, and in character generator. The TC53257P/F using CMOS technology is most suitable for low power applications where battery operation 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 : 20μA(Max.)
- Pin Compatible with 256K EPROM TC57256AD/ADI
- Pin Compatible with 256K OTPROM TC54256AP/AF
- Full Static Operation
- Programmable Chip Enable
- All Inputs and Outputs : TTL Compatible
- Three State Outputs
- Package
  Plastic DIP : TC53257P
  Plastic FP : TC53257F

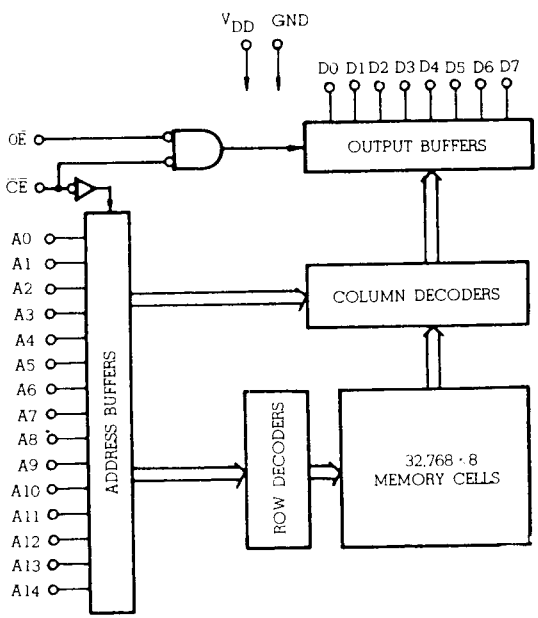
PIN CONNECTION (TOP VIEW)



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



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_{DDS1}	Standby Current	$\overline{CE}$ = V_{IH} CE = V_{IL}	—	2	mA
I_{DDS2}	Standby Current	$\overline{CE}$ = V_{DD} − 0.2V, CE = 0.2V	—	20	μA
I_{DDO1}	Operating Current	V_{IH} = $V_{IH\ VIL}$, t_{CYCLE} = 200ns	—	40	mA
I_{DDO2}		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

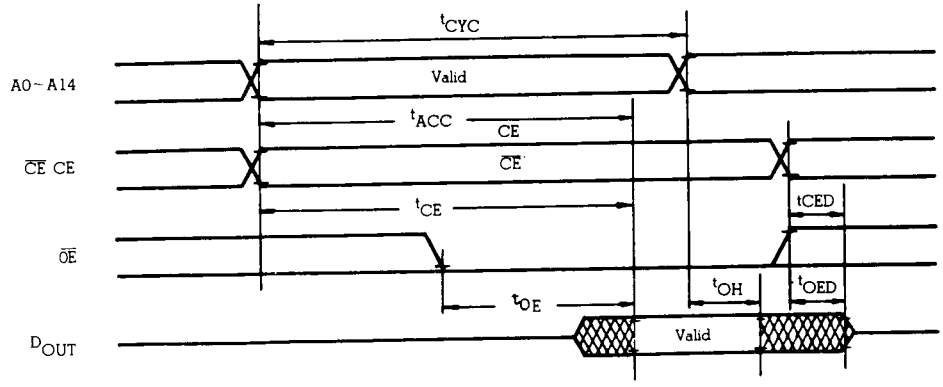
($Ta = -40 \sim 85°C$, $V_{DD} = 5V \pm 10\%$)

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

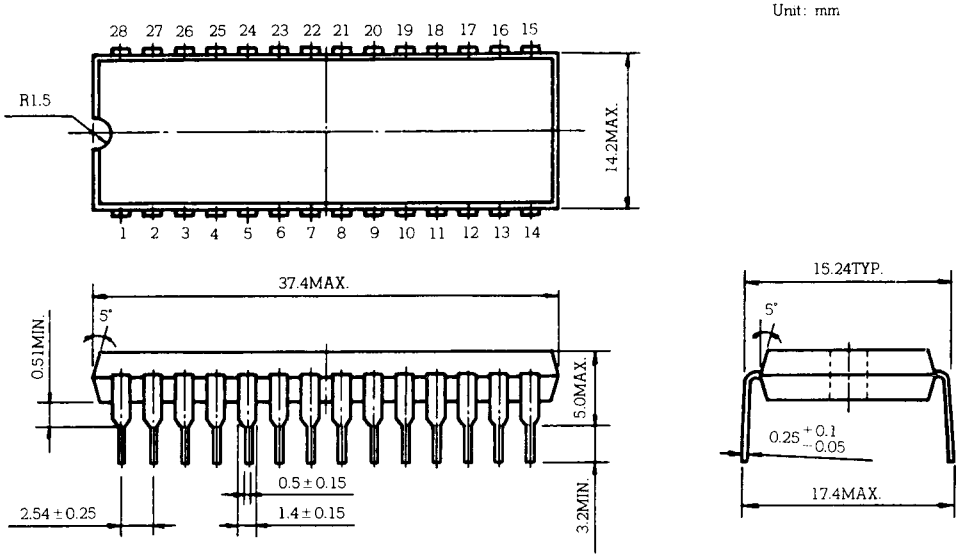
MODE	$\overline{CE}$(CE)	$\overline{OE}$	$A_{0 \sim 14}$	Outputs	Power
Read	L(H)	L	Valid	Data out	Operating
Output Deselect	L(H)	H	*	High-Z	Operating
	H(L)	*	*		Standby

TC53257P
TC53257F

OUTLINE DRAWINGS

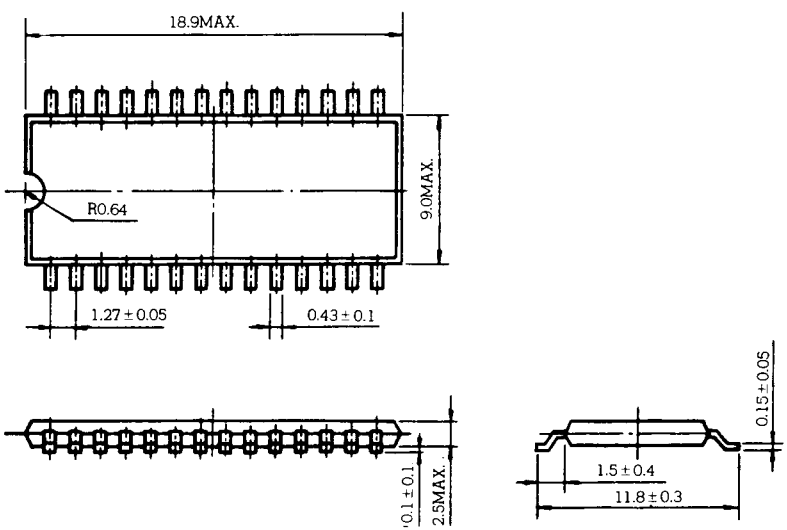
- Plastic DIP

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.