1M BIT (65,536 WORD × 16 BIT) CMOS MASK ROM

DESCRIPTION

The TC531024P/F is a 1,048,576 bits read only memory organized as 65,536 words by 16 bits.

The TC531024P/F is fabricated using Toshiba's advanced CMOS technology which provides the high speed and low power features with access time of 120ns / 150ns, an operation current of 40mA at 8.3MHz and a standby current of 20μA.

The TC531024P/F is packaged in a standard 600mil 40pin DIP, or 525mil 40pin SOP.

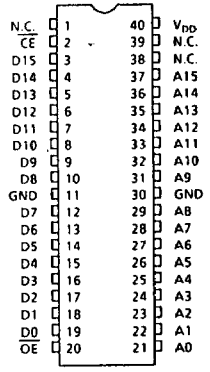
FEATURES

TC531024P/F	-12	-15
Power Supply	5V ± 5%	5V ± 10%
Access Time (Max.)	120ns	150ns
Power Dissipation : Operating Current (Max.)	40mA	35mA
Power Dissipation : Standby Current (Max.)	20μA	20μA

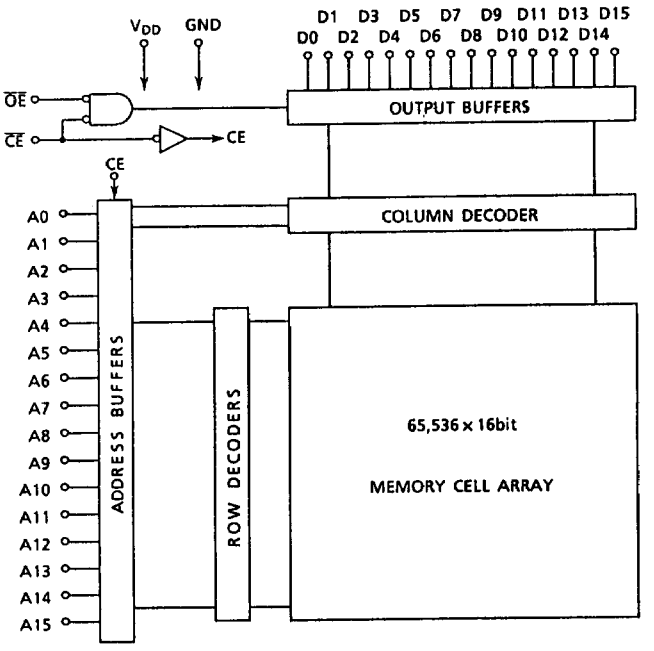
- Single 5V Power Supply
- Fully Static Operation
- All Input and Output : TTL Compatible
- Three State Output
- 40pin 600mil width Plastic DIP
- 40pin 525mil width Plastic SOP

PIN CONNECTION

(TOP VIEW)



BLOCK DIAGRAM



PIN NAMES

A0~A15	Address inputs
D0~D15	Data Outputs
$\overline{OE}$	Output Enable Input
$\overline{CE}$	Chip Enable Input
V_{DD}	Power Supply
GND	Ground
N.C.	No Connection

MAXIMUM RATINGS

SYMBOL	ITEM	RATING	UNIT
V_{DD}	Power Supply Voltage	−0.5~7.0	V
V_{IN}	Input Voltage	−0.5~V_{DD}	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	0~70	°C
T_{SOLDER}	Soldering Temperature - Time	260 · 10	°C · sec

Note : * Plastic FP.

D.C. OPERATING CONDITIONS (Ta = 0~70°C)

SYMBOL	PARAMETER	MIN.	MAX.	UNIT
V_{DD}	Power Supply Voltage	4.5	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. OPERATING CHARACTERISTICS (Ta = 0~70°C, V_{DD} = 5V ± 10%)

SYMBOL	PARAMETER	CONDITIONS		MIN.	MAX.	UNIT
I_{IL}	Input Leakage Current	$0V \leq V_{IN} \leq V_{DD}$		−	± 1.0	μA
I_{LO}	Output Leakage Current	$0V \leq V_{OUT} \leq V_{DD}$		−	± 5.0	
I_{OH}	Output High Current	V_{OH} = 2.4V		−1.0	−	mA
I_{OL}	Output Low Current	V_{OL} = 0.4V		3.2	−	
I_{DDS1}	Standby Current	$\overline{CE}$ = 2.2V		−	2.0	
I_{DDS2}		$\overline{CE}$ = V_{DD} − 0.2V		−	20	μA
I_{DDO1}	Operating Current	$\overline{CE}$ = V_{IL}, V_{IN} = V_{IH} / V_{IL}, I_{OUT} = 0mA	t_{cycle} = 120ns	−	50	mA
			t_{cycle} = 150ns	−	45	
I_{DDO2}		$\overline{CE}$ = 0.2V, V_{IN} = V_{DD} − 0.2V / 0.2V, I_{OUT} = 0mA	t_{cycle} = 120ns	−	40	
			t_{cycle} = 150ns	−	35	

CAPACITANCE

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

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

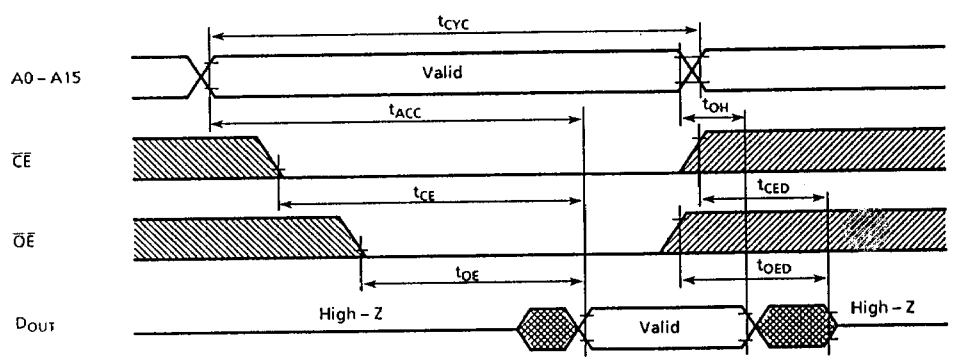
A.C. CHARACTERISTICS (Ta = 0°C~70°C)

SYMBOL	PARAMETER	V_{DD} = 5V ± 5%		V_{DD} = 5V ± 10%		UNIT
		MIN.	MAX.	MIN.	MAX.	
t_{ACC}	Access Time	–	120	–	150	ns
t_{CE}	Chip Enable Access Time	–	120	–	150	ns
t_{OE}	Output Enable Access Time	–	70	–	70	ns
t_{CED}	Output Disable Time from $\overline{CE}$	0	60	0	60	ns
t_{OED}	Output Disable Time from $\overline{OE}$	0	60	0	60	ns
t_{OH}	Output Hold Time	5	–	5	–	ns
t_{CYC}	Cycle Time	120	–	150	–	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 / 2.0V
Input Rise and Fall Time (10%~90%)		: 5ns

TIMING WAVEFORMS



OPERATION MODE

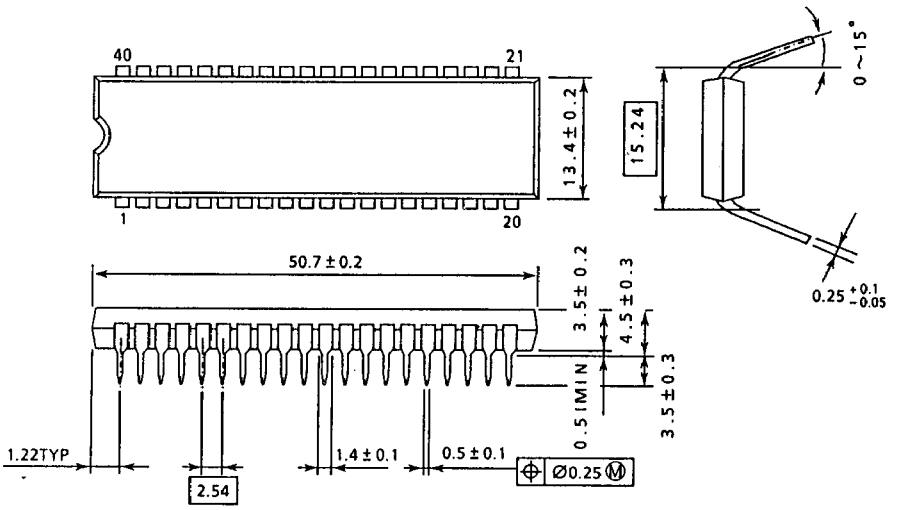
MODE	$\overline{CE}$	$\overline{OE}$	A0~A15	Outputs	Power
Read	L	L	Valid	Data Out	Operating
Standby	H	*	*	High-Z	Standby
Output Deselect	L	H	*	High-Z	Operating

H : VIH L : VIL * : VIH or VIL

OUTLINE DRAWINGS

Plastic DIP (DIP40-P-600)

単位 : mm

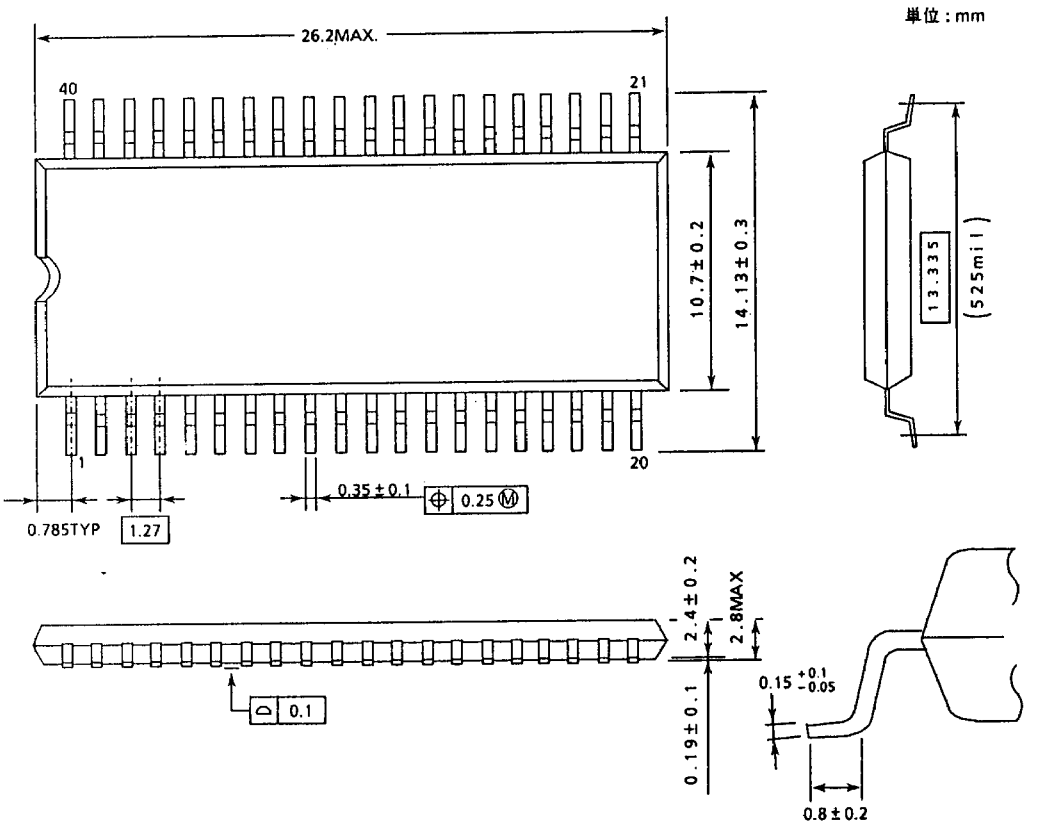


Note : Package width and length do not include mold protrusion, allowable mold protrusion is 0.15mm.

OUTLINE DRAWINGS

Plastic FP (SOP40-P-525)

単位 : mm



Note : Package width and length do not include mold protrusion, allowable mold protrusion is 0.15mm.