

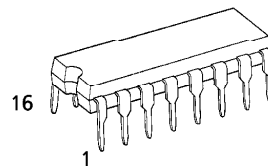
TC4512BP, TC4512BF, TC4512BFN

TC4512B 8-CHANNEL DATA SELECTOR

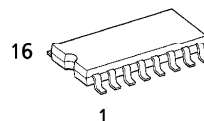
TC4512B is data selector which selects 8 channel data inputs (X0 through X7) according to binary address inputs A, B and C. Since high impedance can be given to output Z by setting DISABLE input to "H", the wired-OR arrangement can be achieved. DISABLE input takes precedence over other inputs giving the output high impedance.

If DISABLE="L" and INHIBIT="H", the data select operation is inhibited and output Z becomes "L" Level.

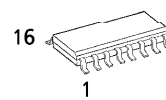
(Note) The JEDEC SOP (FN) is not available in Japan.



P (DIP16-P-300-2.54A)
Weight : 1.00g (Typ.)



F (SOP16-P-300-1.27)
Weight : 0.18g (Typ.)



FN (SOL16-P-150-1.27)
Weight : 0.13g (Typ.)

MAXIMUM RATINGS

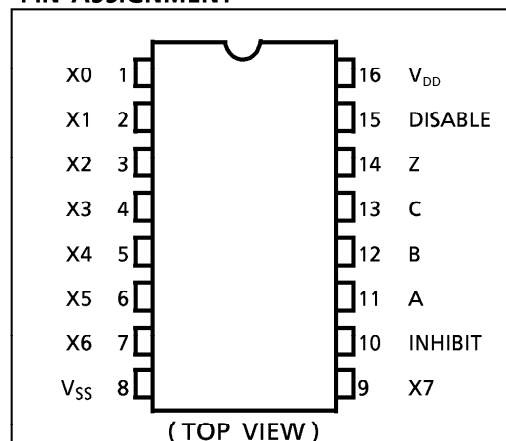
CHARACTERISTIC	SYMBOL	RATING	UNIT
DC Supply Voltage	V_{DD}	$V_{SS} - 0.5 \sim V_{SS} + 20$	V
Input Voltage	V_{IN}	$V_{SS} - 0.5 \sim V_{DD} + 0.5$	V
Output Voltage	V_{OUT}	$V_{SS} - 0.5 \sim V_{DD} + 0.5$	V
DC Input Current	I_{IN}	± 10	mA
Power Dissipation	P_D	300 (DIP) / 180 (SOIC)	mW
Operating Temperature Range	T_{opr}	$-40 \sim 85$	$^{\circ}\text{C}$
Storage Temperature Range	T_{stg}	$-65 \sim 150$	$^{\circ}\text{C}$

TRUTH TABLE

INPUTS					OUTPUT
A	B	C	INHIBIT	DISABLE	Z
L	L	L	L	L	X0
H	L	L	L	L	X1
L	H	L	L	L	X2
H	H	L	L	L	X3
L	L	H	L	L	X4
H	L	H	L	L	X5
L	H	H	L	L	X6
H	H	H	L	L	X7
*	*	*	H	L	L
*	*	*	*	H	HZ

* : DON'T CARE
HZ : HIGH IMPEDANCE

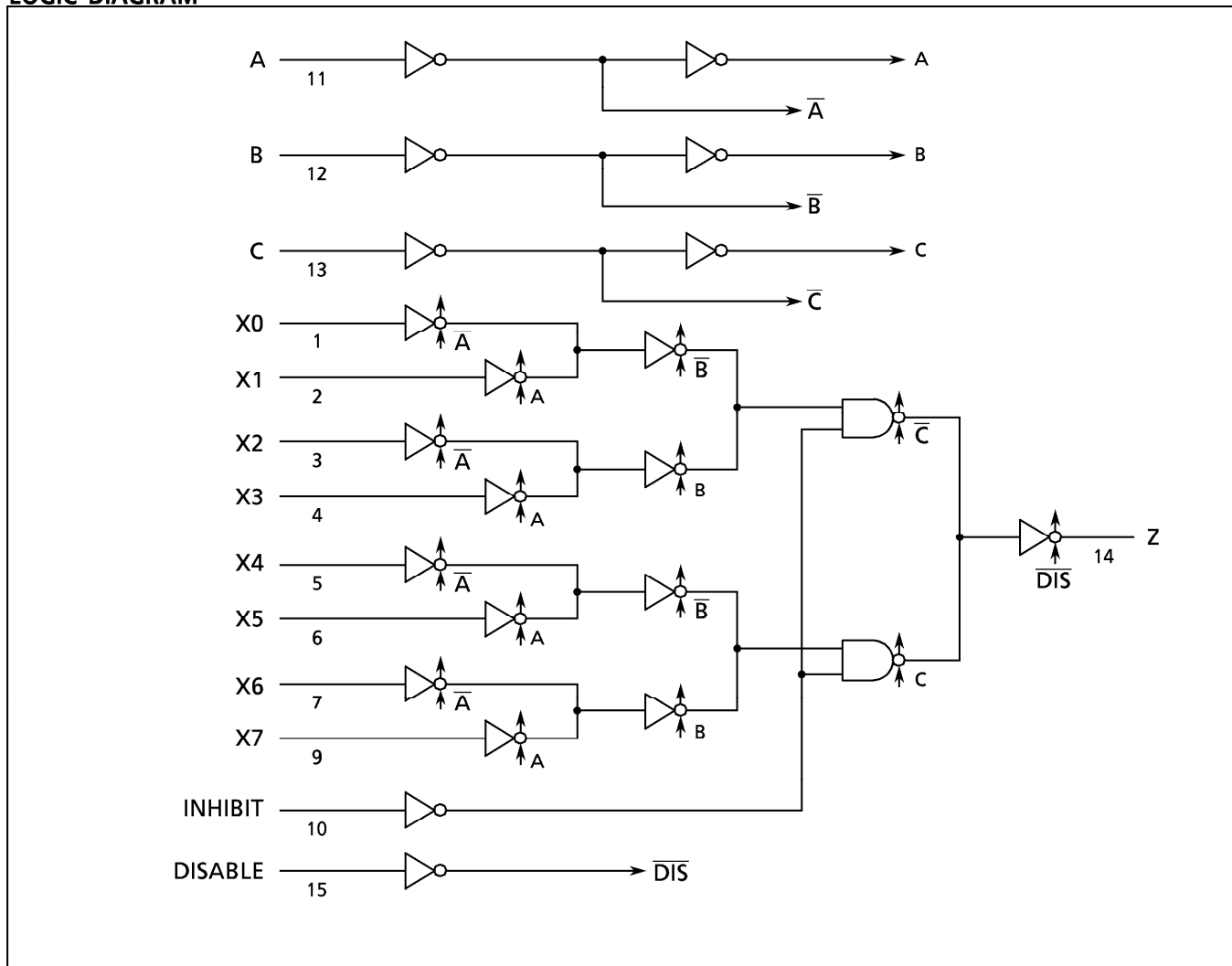
PIN ASSIGNMENT



961001EBA2

● TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.

LOGIC DIAGRAM



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- The information contained herein is subject to change without notice.

RECOMMENDED OPERATING CONDITIONS ($V_{SS} = 0V$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNITS
DC Supply Voltage	V_{DD}		3	—	18	V
Input Voltage	V_{IN}		0	—	V_{DD}	V

STATIC ELECTRICAL CHARACTERISTICS ($V_{SS} = 0V$)

CHARACTERISTIC		SYMBOL	TEST CONDITION	V _{DD} (V)	- 40°C		25°C			85°C		UNIT
					MIN.	MAX.	MIN.	TYP.	MAX.	MIN.	MAX.	
High-Level Output Voltage		V _{OH}	I _{OUT} < 1μA V _{IN} = V _{SS} , V _{DD}	5 10 15	4.95 9.95 14.95	— — —	4.95 9.95 14.95	5.00 10.00 15.00	— — —	4.95 9.95 14.95	— — —	V
Low-Level Output Voltage		V _{OL}	I _{OUT} < 1μA V _{IN} = V _{SS} , V _{DD}	5 10 15	— — —	0.05 0.05 0.05	— — —	0.00 0.00 0.00	0.05 0.05 0.05	— — —	0.05 0.05 0.05	
Output High Current		I _{OH}	V _{OH} = 4.6V	5	- 0.61	—	- 0.51	- 1.0	—	- 0.42	—	
			V _{OH} = 2.5V	5	- 2.5	—	- 2.1	- 4.0	—	- 1.7	—	
			V _{OH} = 9.5V	10	- 1.5	—	- 1.3	- 2.2	—	- 1.1	—	
			V _{OH} = 13.5V	15	- 4.0	—	- 3.4	- 9.0	—	- 2.8	—	
			V _{IN} = V _{SS} , V _{DD}									
Output Low Current		I _{OL}	V _{OL} = 0.4V	5	0.61	—	0.51	1.2	—	0.42	—	
			V _{OL} = 0.5V	10	1.5	—	1.3	3.2	—	1.1	—	
			V _{OL} = 1.5V	15	4.0	—	3.4	12.0	—	2.8	—	
			V _{IN} = V _{SS} , V _{DD}									
Input High Voltage		V _{IH}	V _{OUT} = 0.5V, 4.5V	5	3.5	—	3.5	2.75	—	3.5	—	V
			V _{OUT} = 1.0V, 9.0V	10	7.0	—	7.0	5.5	—	7.0	—	
			V _{OUT} = 1.5V, 13.5V	15	11.0	—	11.0	8.25	—	11.0	—	
			I _{OUT} < 1μA									
Input Low Voltage		V _{IL}	V _{OUT} = 0.5V, 4.5V	5	—	1.5	—	2.25	1.5	—	1.5	
			V _{OUT} = 1.0V, 9.0V	10	—	3.0	—	4.5	3.0	—	3.0	
			V _{OUT} = 1.5V, 13.5V	15	—	4.0	—	6.75	4.0	—	4.0	
			I _{OUT} < 1μA									
Input Current	"H" Level	I _{IH}	V _{IH} = 18V	18	—	0.1	—	10 ⁻⁵	0.1	—	1.0	μA
	"L" Level	I _{IL}	V _{IL} = 0V	18	—	- 0.1	—	- 10 ⁻⁵	- 0.1	—	- 1.0	
3-State Output Leakage Current	"H" Level	I _{DH}	V _{OH} = 18V	18	—	0.4	—	10 ⁻⁴	0.4	—	12	μA
	"L" Level	I _{DL}	V _{OL} = 0V	18	—	- 0.4	—	- 10 ⁻⁴	- 0.4	—	- 12	
Quiescent Supply Current		I _{DD}	V _{IN} = V _{SS} , V _{DD} *	5 10 15	— — —	5 10 20	— — —	0.005 0.010 0.015	5 10 20	— — —	150 300 600	μA

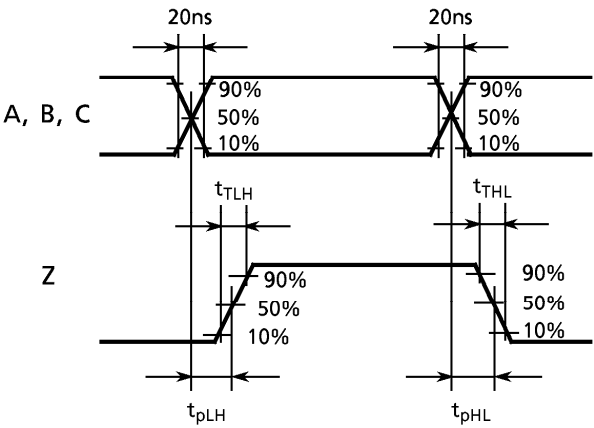
* All valid input combinations.

DYNAMIC ELECTRICAL CHARACTERISTICS (Ta = 25°C, Vss = 0V, CL = 50pF)

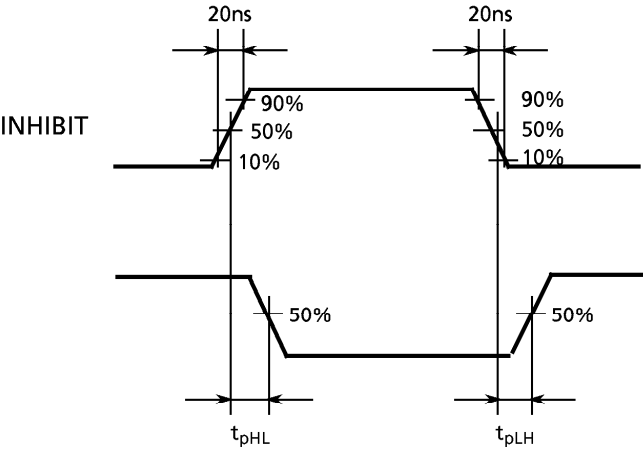
CHARACTERISTIC	SYMBOL	TEST CONDITION	V _{DD} (V)	MIN.	TYP.	MAX.	UNIT
Output Transition Time (Low to High)	t _{TLH}		5 10 15	— — —	80 50 40	200 100 80	ns
Output Transition Time (High to Low)	t _{THL}		5 10 15	— — —	80 50 40	200 100 80	
Propagation Delay Time (INHIBIT - Z)	t _{pLH} t _{pHL}		5 10 15	— — —	140 60 40	280 140 100	
Propagation Delay Time (A, B, C - Z)	t _{pLH} t _{pHL}		5 10 15	— — —	240 95 65	400 170 120	
Propagation Delay Time (X - Z)	t _{pLH} t _{pHL}		5 10 15	— — —	210 85 60	360 150 110	
Three State Disable Time (DISABLE - Z)	t _{pZL} , t _{pLZ} t _{pHZ} , t _{pZH}	R _L = 1kΩ	5 10 15	— — —	60 25 20	120 60 40	
Input Capacitance	C _{IN}			—	5	7.5	pF

WAVEFORM FOR MEASUREMENT OF DYNAMIC CHARACTERISTICS

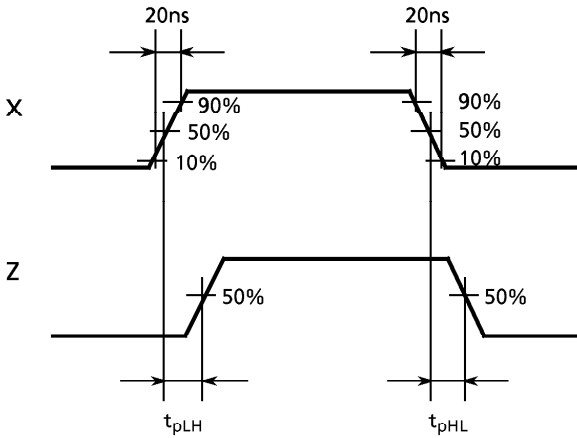
WAVEFORM 1



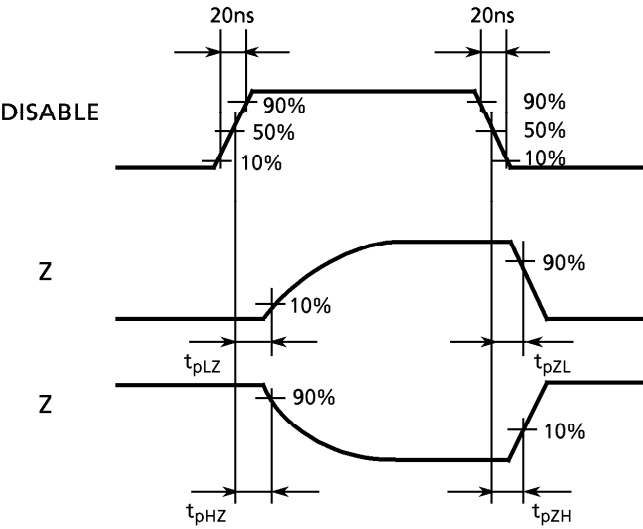
WAVEFORM 2 (X = "H")



WAVEFORM 3

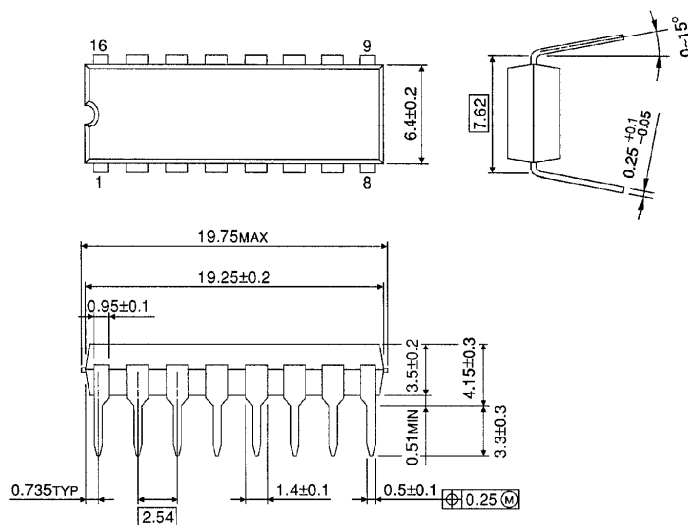


WAVEFORM 4



DIP 16PIN OUTLINE DRAWING (DIP16-P-300-2.54A)

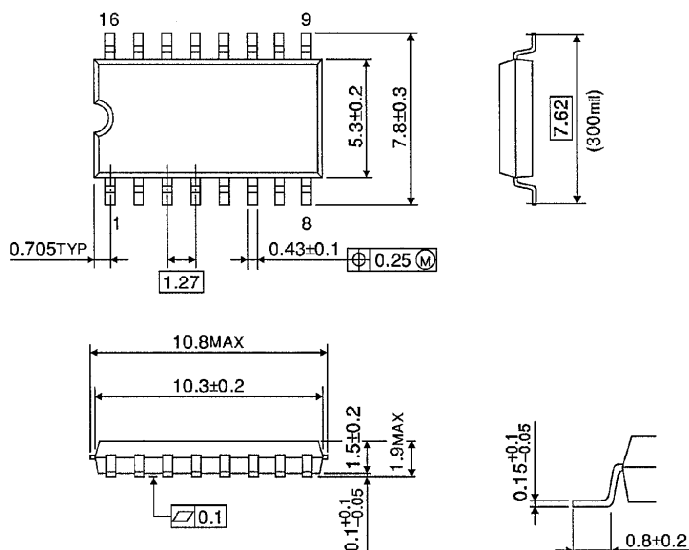
Unit in mm



Weight : 1.00g (Typ.)

SOP 16PIN (200mil BODY) OUTLINE DRAWING (SOP16-P-300-1.27)

Unit in mm

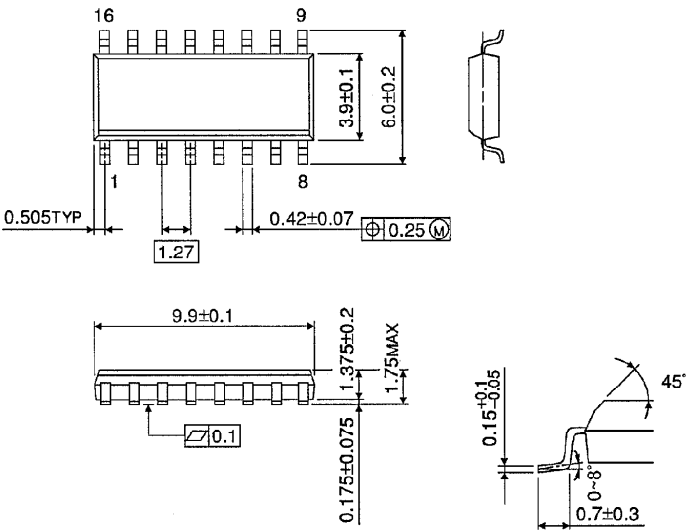


Weight : 0.18g (Typ.)

SOP 16PIN (150mil BODY) OUTLINE DRAWING (SOL16-P-150-1.27)

Unit in mm

(Note) This package is not available in Japan.



Weight : 0.13g (Typ.)