

TRUTH TABLE

INPUTS		OUTPUTS
$\overline{1OE}$	1A1-1A4	1Y1-1Y4
L	L	L
L	H	H
H	X	Z

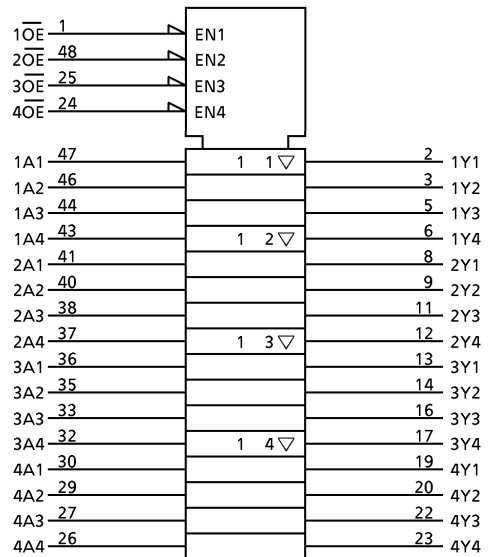
INPUTS		OUTPUTS
$\overline{2OE}$	1A1-2A4	2Y1-2Y4
L	L	L
L	H	H
H	X	Z

INPUTS		OUTPUTS
$\overline{3OE}$	3A1-3A4	3Y1-3Y4
L	L	L
L	H	H
H	X	Z

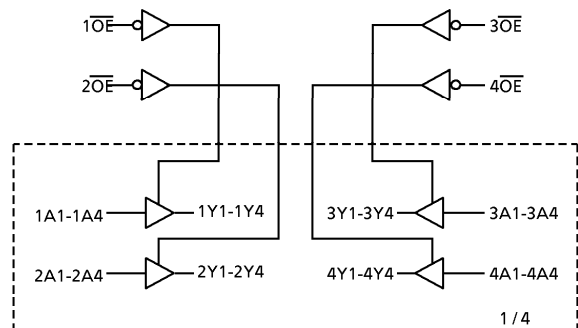
INPUTS		OUTPUTS
$\overline{4OE}$	4A1-4A4	4Y1-4Y4
L	L	L
L	H	H
H	X	Z

X : Don't Care
Z : High impedance

IEC LOGIC SYMBOL



SYSTEM DIAGRAM



961001EBA2'

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MAXIMUM RATINGS

PARAMETER	SYMBOL	RATING	UNIT
Power Supply Voltage	V_{CC}	-0.5~7.0	V
Input Voltage	V_{IN}	-0.5~7.0	V
Output Voltage	V_{OUT}	-0.5~7.0 (Note 1)	V
		-0.5~ $V_{CC} + 0.5$ (Note 2)	
Input Diode Current	I_{IK}	-50	mA
Output Diode Current	I_{OK}	± 50 (Note 3)	mA
DC Output Current	I_{OUT}	± 50	mA
Power Dissipation	P_D	400	mW
DC V_{CC} / Ground Current Per Supply Pin	I_{CC} / I_{GND}	± 100	mA
Storage Temperature	T_{stg}	-65~150	$^{\circ}C$

(Note 1) Output in Off-State

(Note 2) High or Low State. I_{OUT} absolute maximum rating must be observed.

(Note 3) $V_{OUT} < GND$, $V_{OUT} > V_{CC}$

RECOMMENDED OPERATING RANGE

PARAMETER	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	2.0~3.6	V
		1.5~3.6 (Note 4)	
Input Voltage	V_{IN}	0~5.5	V
Output Voltage	V_{OUT}	0~5.5 (Note 5)	V
		0~ V_{CC} (Note 6)	
Output Current	I_{OH} / I_{OL}	± 24 (Note 7)	mA
		± 12 (Note 8)	
Operating Temperature	T_{opr}	-40~85	$^{\circ}C$
Input Rise And Fall Time	dt / dv	0~10 (Note 9)	ns / V

(Note 4) Data Retention Only

(Note 5) Output in Off-State

(Note 6) High or Low State

(Note 7) $V_{CC} = 3.0 \sim 3.6V$

(Note 8) $V_{CC} = 2.7 \sim 3.0V$

(Note 9) $V_{IN} = 0.8 \sim 2.0V$, $V_{CC} = 3.0V$

ELECTRICAL CHARACTERISTICS

DC characteristics (Ta = -40~85°C)

PARAMETER		SYMBOL	TEST CONDITION		V _{CC} (V)	MIN.	MAX.	UNIT
Input Voltage	"H" Level	V _{IH}			2.7~3.6	2.0	—	V
	"L" Level	V _{IL}			2.7~3.6	—	0.8	V
Output Voltage	"H" Level	V _{OH}	V _{IN} = V _{IH} or V _{IL}	I _{OH} = -100μA	2.7~3.6	V _{CC} - 0.2	—	V
				I _{OH} = -12μA	2.7	2.2	—	
				I _{OH} = -18mA	3.0	2.4	—	
				I _{OH} = -24mA	3.0	2.2	—	
	"L" Level	V _{OL}	V _{IN} = V _{IH} or V _{IL}	I _{OL} = 100μA	2.7~3.6	—	0.2	V
				I _{OL} = 12mA	2.7	—	0.4	
				I _{OL} = 16mA	3.0	—	0.4	
				I _{OL} = 24mA	3.0	—	0.55	
Input Leakage Current		I _{IN}	V _{IN} = 0~5.5V		2.7~3.6	—	±5.0	μA
3-State Output Off-State Current		I _{OZ}	V _{IN} = V _{IH} or V _{IL} V _{OUT} = 0~5.5V		2.7~3.6	—	±5.0	μA
Power Off Leakage Current		I _{OFF}	V _{IN} / V _{OUT} = 5.5V		0	—	10.0	μA
Quiescent Supply Current		I _{CC}	V _{IN} = V _{CC} or GND		2.7~3.6	—	20.0	μA
			V _{IN} / V _{OUT} = 3.6~5.5V		2.7~3.6	—	±20.0	
Increase In I _{CC} Per Input		ΔI _{CC}	V _{IH} = V _{CC} - 0.6V		2.7~3.6	—	500	μA

AC characteristics (Ta = -40~85°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	V _{CC} (V)	MIN.	MAX.	UNIT
Propagation Delay Time	t _{pLH}	(Fig.1, 2)	2.7	—	6.2	ns
	t _{pHL}		3.3 ± 0.3	1.5	5.2	
3-State Output Enable Time	t _{pZL}	(Fig.1, 3)	2.7	—	7.5	ns
	t _{pZH}		3.3 ± 0.3	1.5	6.5	
3-State Output Disable Time	t _{pLZ}	(Fig.1, 3)	2.7	—	6.5	ns
	t _{pHZ}		3.3 ± 0.3	1.5	5.5	
Output To Output Skew	t _{osLH}	(Note 10)	2.7	—	—	ns
	t _{osHL}		3.3 ± 0.3	—	1.0	

(Note 10) Parameter guaranteed by design.
 (t_{osLH} = |t_{pLHm} - t_{pLHn}|, t_{osHL} = |t_{pHLm} - t_{pHLn}|)

Dynamic switching characteristics
 (Ta = 25°C, Input t_r = t_f = 2.5ns, C_L = 50pF, R_L = 500Ω)

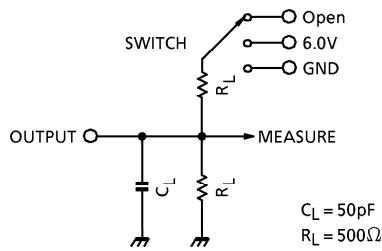
CHARACTERISTIC	SYMBOL	TEST CONDITION	V _{CC} (V)	TYP	UNIT
Quiet Output Maximum Dynamic V _{OL}	V _{OLP}	V _{IH} = 3.3V, V _{IL} = 0V	3.3	0.8	V
Quiet Output Minimum Dynamic V _{OL}	V _{OLV}	V _{IH} = 3.3V, V _{IL} = 0V	3.3	0.8	V

Capacitive characteristics (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	V _{CC} (V)	TYP	UNIT
Input Capacitance	C _{IN}	—	3.3	7	pF
Output Capacitance	C _{OUT}		3.3	8	pF
Power Dissipation Capacitance	C _{PD}	f _{IN} = 10MHz (Note 11)	3.3	25	pF

(Note 11) C_{PD} is defined as the value of the internal equivalent capacitance which is calculated from the operating current consumption without load.
 Average operating current can be obtained by the equation :
 I_{CC (opr.)} = C_{PD} · V_{CC} · f_{IN} + I_{CC} / 16. (Per bit)

Fig.1 Test circuit



PARAMETER	SWITCH
t_{pLH}, t_{pHL}	Open
t_{pLZ}, t_{pZL}	6.0V
t_{pHZ}, t_{pZH}	GND

AC WAVEFORM

Fig.2 t_{pLH}, t_{pHL}

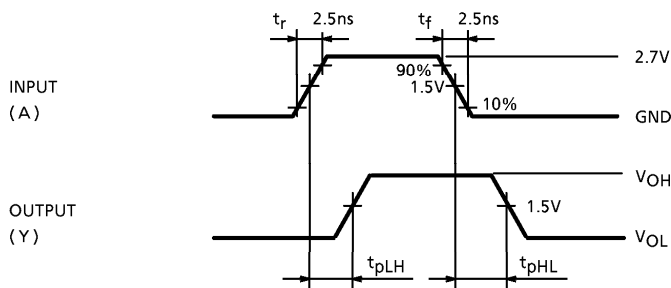
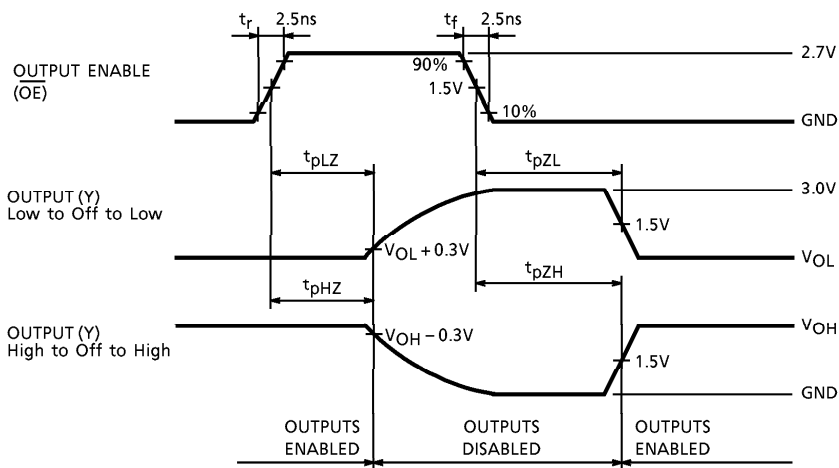


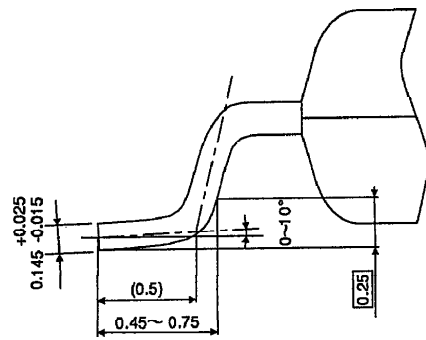
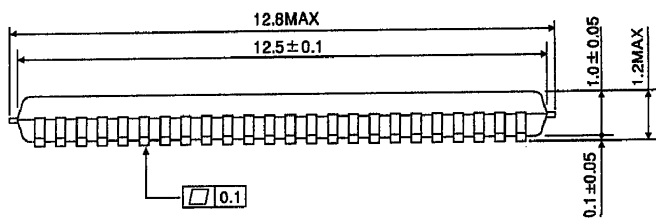
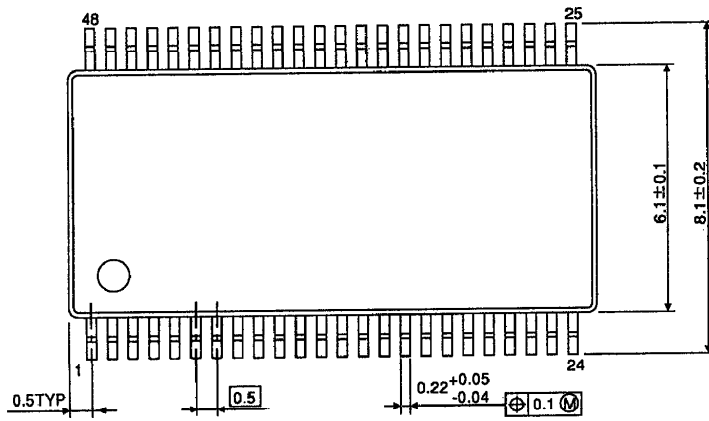
Fig.3 $t_{pLZ}, t_{pHZ}, t_{pZL}, t_{pZH}$



OUTLINE DRAWING

TSSOP48-P-0061-0.50

Unit : mm



Weight : 0.25g (Typ.)