

TENTATIVE (UNDER DEVELOPMENT)

TOSHIBA CMOS DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

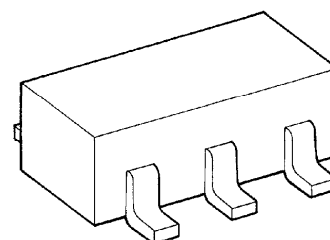
TC7SZ125F, TC7SZ125FU**BUS BUFFER****3-STATE OUTPUT****FEATURES**

- High Output Drive : ± 24 mA (Typ.) ($V_{CC} = 3$ V)
- Super High Speed Operation : $t_{PD} = 2.6$ ns (Typ.)
($V_{CC} = 5$ V, 50 pF)
- Operation Voltage Range : $V_{CC}(\text{opr}) = 1.8 \sim 5.5$ V
- 5 V Tolerant Function
- Matches the Performance of TC74LCX Series when
Operated at 3.3 V V_{CC}

MAXIMUM RATINGS ($T_a = 25^\circ\text{C}$)

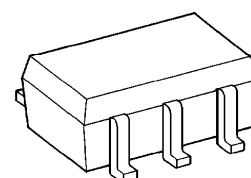
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage Range	V_{CC}	$-0.5 \sim 6$	V
DC Input Voltage	V_{IN}	$-0.5 \sim 6$	V
DC Output Voltage	V_{OUT}	$-0.5 \sim 6$	V
Input Diode Current	I_{IK}	± 20	mA
Output Diode Current	I_{OK}	± 20	mA
DC Output Current	I_{OUT}	± 50	mA
DC V_{CC} / Ground Current	I_{CC}	± 50	mA
Power Dissipation	P_D	200	mW
Storage Temperature	T_{stg}	$-65 \sim 150$	$^\circ\text{C}$
Lead Temperature (10s)	T_L	260	$^\circ\text{C}$

TC7SZ125F



SSOP5-P-0.95

TC7SZ125FU



SSOP5-P-0.65A

Weight

SSOP5-P-0.95 : 0.016 g (Typ.)

SSOP5-P-0.65A : 0.006 g (Typ.)

980910EBA1

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DC ELECTRICAL CHARACTERISTICS

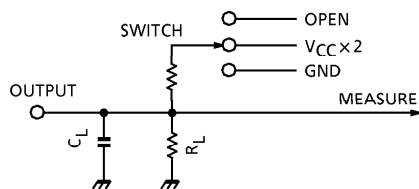
CHARACTERISTIC	SYMBOL	TEST CONDITION	V _{CC} (V)	Ta = 25°C			Ta = -40~85°C		UNIT
				MIN.	TYP.	MAX.	MIN.	MAX.	
High-Level Input Voltage	V _{IH}		1.8	0.88 × V _{CC}	—	—	0.88 × V _{CC}	—	V
			2.3~5.5	0.75 × V _{CC}	—	—	0.75 × V _{CC}	—	V
Low-Level Input Voltage	V _{IL}		1.8	—	—	0.12 × V _{CC}	—	0.12 × V _{CC}	V
			2.3~5.5	—	—	0.25 × V _{CC}	—	0.25 × V _{CC}	V
High-Level Output Voltage	V _{OH}	V _{IN} = V _{IH} or V _{IL}	I _{OH} = -100 μA	1.8	1.7	1.8	—	1.7	V
				2.3	2.2	2.3	—	2.2	
				3.0	2.9	3.0	—	2.9	
				4.5	4.4	4.5	—	4.4	
			I _{OH} = -8 mA	2.3	1.9	2.15	—	1.9	V
			I _{OH} = -16 mA	3.0	2.4	2.8	—	2.4	
			I _{OH} = -24 mA	3.0	2.3	2.68	—	2.3	
			I _{OH} = -32 mA	4.5	3.8	4.2	—	3.8	
Low-Level Output Voltage	V _{OL}	V _{IN} = V _{IH} or V _{IL}	I _{OH} = 100 μA	1.8	—	0	0.1	—	V
				2.3	—	0	0.1	—	
				3.0	—	0	0.1	—	
				4.5	—	0	0.1	—	
			I _{OH} = 8 mA	2.3	—	0.1	0.3	—	V
			I _{OH} = 16 mA	3.0	—	0.15	0.4	—	
			I _{OH} = 24 mA	3.0	—	0.22	0.55	—	
			I _{OH} = 32 mA	4.5	—	0.22	0.55	—	
Input Leakage Current	I _{IN}	V _{IN} = 5.5 V or GND	0~5.5	—	—	±1	—	±10	μA
Power Off Leakage Current	I _{OFF}	V _{IN} or V _{OUT} = 5.5 V	0.0	—	—	1	—	10	μA
Quiescent Supply Current	I _{CC}	V _{IN} = V _{CC} or GND	5.5	—	—	2	—	20	μA

AC ELECTRICAL CHARACTERISTICS (Input $t_r = t_f = 3\text{ ns}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	Ta = 25°C				Ta = -40~85°C		UNIT
			V _{CC} (V)	MIN.	TYP.	MAX.	MIN.	MAX.	
Propagation Delay Time	t _{PLH} t _{PHL}	C _L = 15 pF, R _L = 1 MΩ (Figure 1)	1.8	2.0	5.3	11.0	2.0	11.5	ns
			2.5 ± 0.2	0.8	3.4	7.5	0.8	8.0	
			3.3 ± 0.3	0.5	2.5	5.2	0.5	5.5	
			5.0 ± 0.5	0.5	2.1	4.5	0.5	4.8	
		C _L = 50 pF, R _L = 500 Ω (Figure 1)	3.3 ± 0.3	1.5	3.2	5.7	1.5	6.0	
			5.0 ± 0.5	0.8	2.6	5.0	0.8	5.3	
Output Enable Time	t _{pZL} t _{pZH}	C _L = 50 pF, R _L = 500 Ω (Figure 1)	1.8	2.0	7.0	12.5	2.0	13.0	
			2.5 ± 0.2	1.5	4.6	8.5	1.5	9.0	
			3.3 ± 0.3	1.5	3.5	6.2	1.5	6.5	
			5.0 ± 0.5	0.8	2.8	5.5	0.8	5.8	
Output Disable Time	t _{pLZ} t _{pHZ}	C _L = 50 pF, R _L = 500 Ω (Figure 1)	1.8	2.0	5.4	11.0	2.0	12.0	
			2.5 ± 0.2	1.5	3.5	8.0	1.5	8.5	
			3.3 ± 0.3	1.0	2.8	5.7	1.0	6.0	
			5.0 ± 0.5	0.5	2.1	4.7	0.5	5.0	
Input Capacitance	C _{IN}		0~5.5	—	4	—	—	—	pF
Power Dissipation Capacitance	C _{PD}	(Note 1)	3.3	—	17	—	—	—	pF
			5.5	—	24	—	—	—	

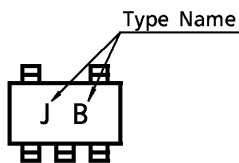
(Note 1) : C_{PD} is defined as the value of the internal equivalent capacitance which is calculated from the operating current consumption without load.
Average operating current can be obtained by the equation.
 $I_{CC (opr)} = C_{PD} \cdot V_{CC} \cdot f_{IN} + I_{CC}$

Figure 1 AC Characteristics Measurement Circuit

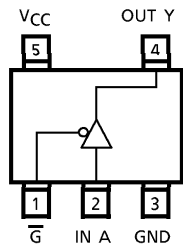


CHARACTERISTICS	SWITCH
t _{PLH} , t _{PHL}	OPEN
t _{pLZ} , t _{pZL}	V _{CC} × 2
t _{pHZ} , t _{pZH}	GND

MARKING



PIN ASSIGNMENT (TOP VIEW)

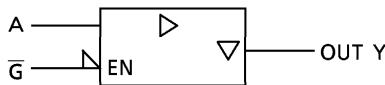


TRUTH TABLE

INPUT		OUTPUT
A	$\overline{G}$	Y
x	H	Z
L	L	L
H	L	H

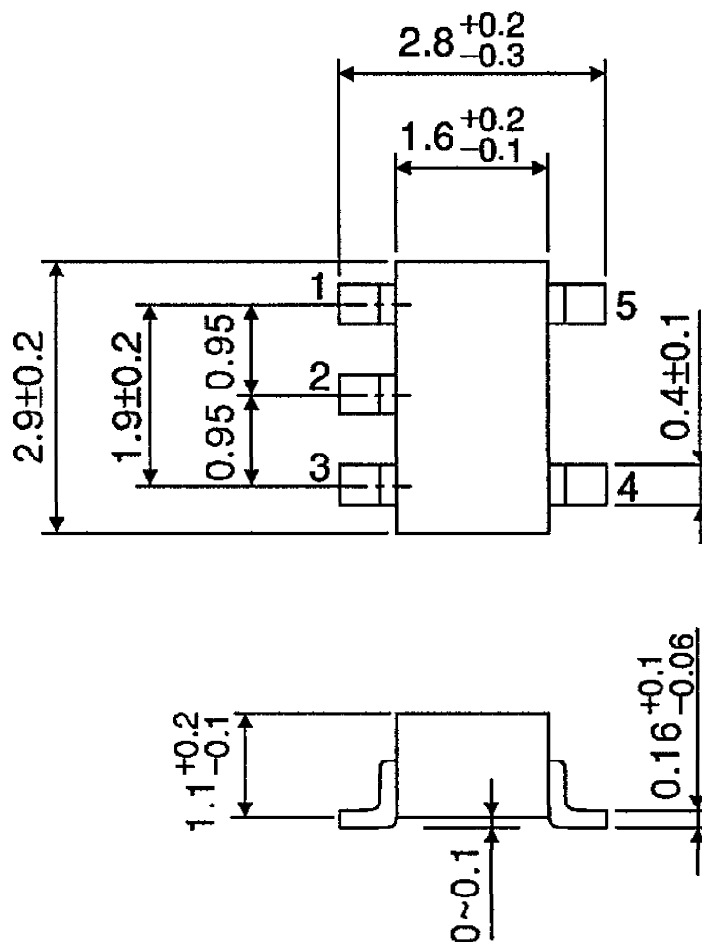
x : Don't Care
Z : High Impedance

LOGIC DIAGRAM



OUTLINE DRAWING
SSOP5-P-0.95

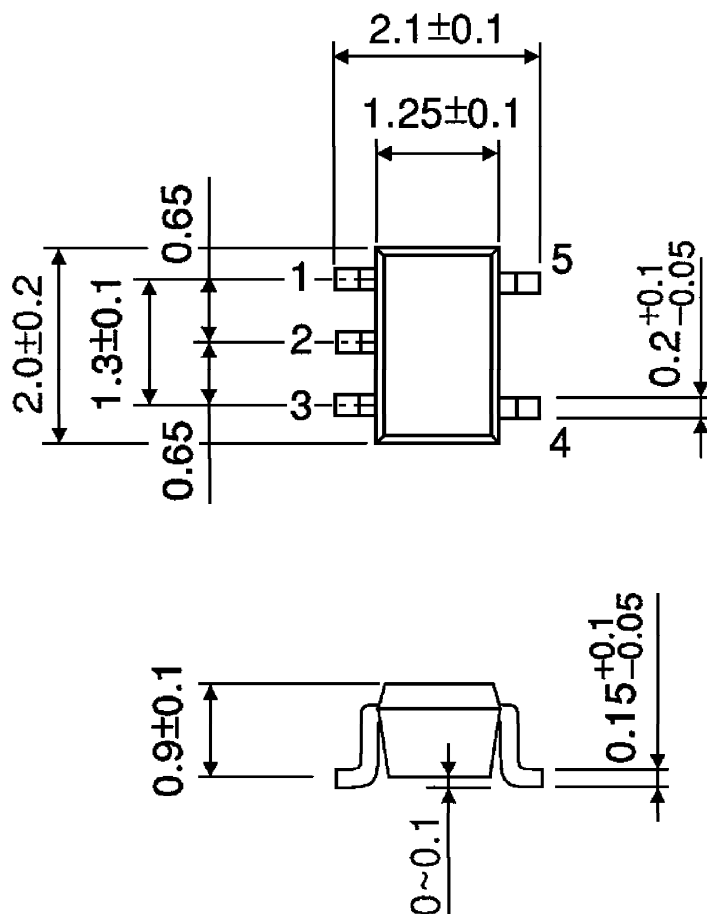
Unit : mm



Weight : 0.016 g (Typ.)

OUTLINE DRAWING
SSOP5-P-0.65A

Unit : mm



Weight : 0.006 g (Typ.)