

TENTATIVE (UNDER DEVELOPMENT)

TOSHIBA CMOS DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

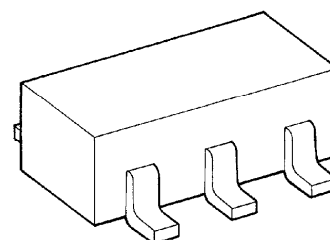
TC7SZ126F, TC7SZ126FU**BUS BUFFER, 3-STATE OUTPUT****FEATURES**

- 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 : $V_{CC(opr)} = 1.8 \sim 5.5$ V
- 5 V Tolerant Function
- Matches the Performance of TC74LCX Series when
Operated at 3.3 V V_{CC}

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

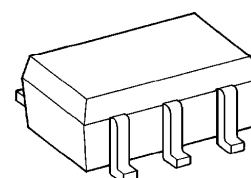
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage Range	V_{CC}	$-0.5 \sim 6$	V
DC Input Voltage	V_{IN}	$-0.5 \sim 6$	V
DC Output Voltage	V_{OUT}	$-0.5 \sim 6$	V
Input Diode Current	I_{IK}	± 20	mA
Output Diode Current	I_{OK}	± 20	mA
DC Output Current	I_{OUT}	± 50	mA
DC V_{CC} / Ground Current	I_{CC}	±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

TC7SZ126F



SSOP5-P-0.95

TC7SZ126FU



SSOP5-P-0.65A

Weight

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

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

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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}	—	
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}	
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	—	
			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	—	0.1	V
				2.3	—	0	0.1	—	0.1	
				3.0	—	0	0.1	—	0.1	
				4.5	—	0	0.1	—	0.1	
			I _{OH} = 8 mA	2.3	—	0.1	0.3	—	0.3	
			I _{OH} = 16 mA	3.0	—	0.15	0.4	—	0.4	
			I _{OH} = 24 mA	3.0	—	0.22	0.55	—	0.55	
			I _{OH} = 32 mA	4.5	—	0.22	0.55	—	0.55	
Input Leakage Current	I _{IIN}	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 $t_r = t_f = 3\text{ns}$)

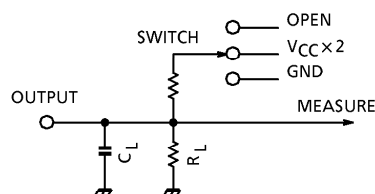
CHARACTERISTIC	SYMBOL	TEST CONDITION	Ta = 25°C			Ta = -40~85°C		UNIT
			V _{CC} (V)	MIN.	TYP.	MAX.	MIN.	MAX.
Propagation Delay Time	tp _{LH} tp _{HL}	C _L = 15 pF, R _L = 1 MΩ (Figure 1)	1.8	2.0	5.3	11.0	2.0	11.5
			2.5 ± 0.2	0.8	3.4	7.5	0.8	8.0
			3.3 ± 0.3	0.5	2.5	5.2	0.5	5.5
			5.0 ± 0.5	0.5	2.1	4.5	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	tp _{ZL} tp _{ZH}	C _L = 50 pF, R _L = 500 Ω (Figure 1)	1.8	2.0	6.1	11.5	2.0	12.0
			2.5 ± 0.2	1.5	3.8	8.0	1.5	8.5
			3.3 ± 0.3	1.5	3.2	5.7	1.5	6.0
			5.0 ± 0.5	0.8	2.3	5.0	0.8	5.3
Output Disable Time	tp _{LZ} tp _{HZ}	C _L = 50 pF, R _L = 500 Ω (Figure 1)	1.8	2.0	5.6	11.0	2.0	12.0
			2.5 ± 0.2	1.0	4.0	8.0	1.0	8.5
			3.3 ± 0.3	1.0	3.5	5.7	1.0	6.0
			5.0 ± 0.5	0.5	2.5	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.

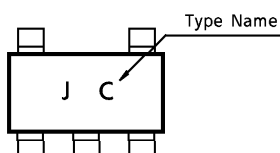
$$I_{CC(\text{opr})} = C_{PD} \cdot V_{CC} \cdot f_{IN} + I_{CC}$$

Figure 1 AC Characteristics Measurement Circuit

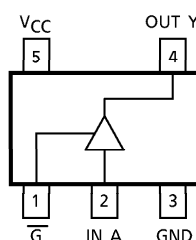


CHARACTERISTICS	SWITCH
tp _{LH} , tp _{HL}	OPEN
tp _{LZ} , tp _{ZL}	V _{CC} × 2
tp _{HZ} , tp _{ZH}	GND

MARKING



PIN ASSIGNMENT (TOP VIEW)



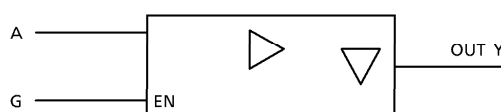
TRUTH TABLE

INPUT		OUTPUT
A	G	Y
x	L	Z
L	H	L
H	H	H

x : Don't Care

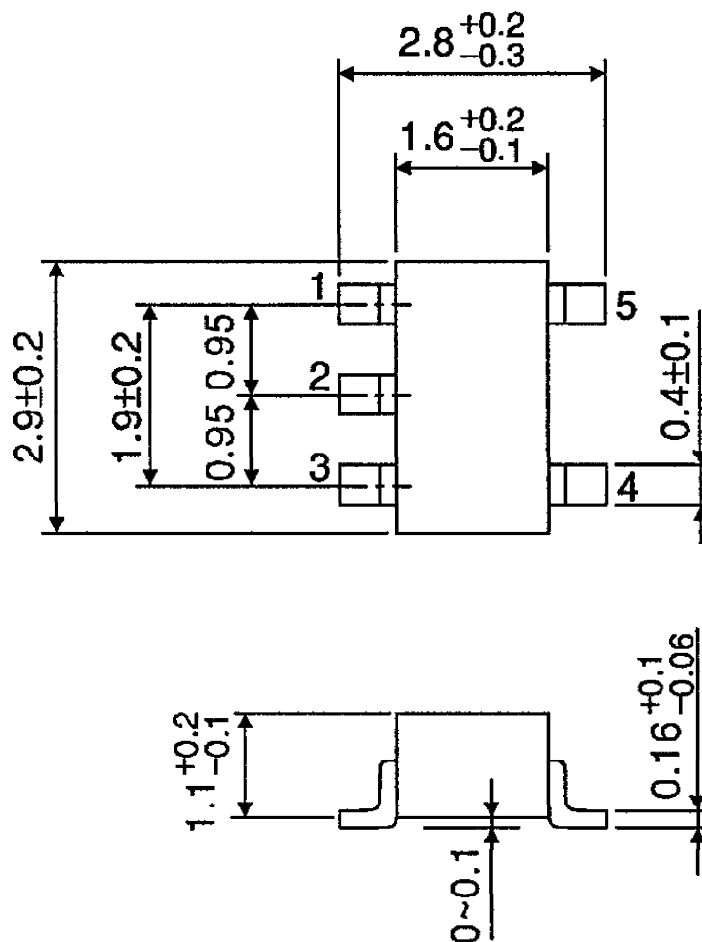
Z : High Impedance

LOGIC DIAGRAM



OUTLINE DRAWING
SSOP5-P-0.95

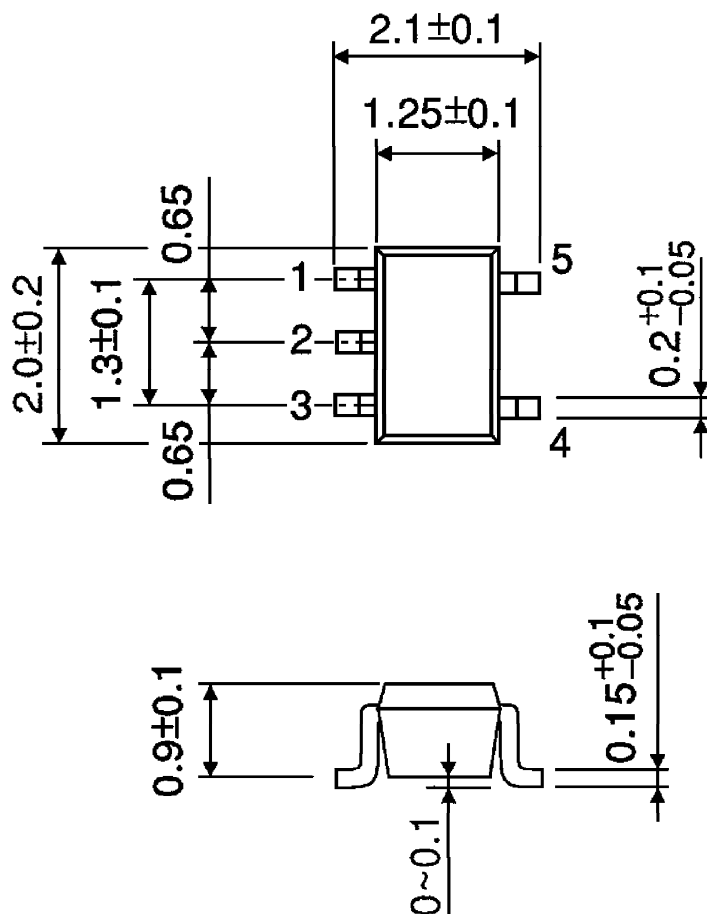
Unit : mm



Weight : 0.016 g (Typ.)

OUTLINE DRAWING
SSOP5-P-0.65A

Unit : mm



Weight : 0.006 g (Typ.)