

TENTATIVE (UNDER DEVELOPMENT)

TOSHIBA CMOS DIGITAL INTEGRATED CIRCUIT SILICON MONOLITHIC

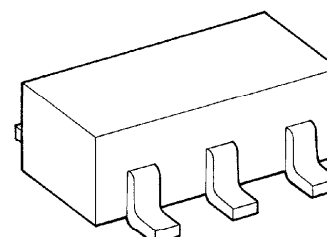
TC7SZ05F, TC7SZ05FU**INVERTER (OPEN DRAIN)****FEATURES**

- High Output Drive : $\pm 24\text{mA}$ (Typ.) ($V_{CC} = 3\text{V}$)
- Super High Speed Operation : $t_{PD} = 2.4\text{ns}$ (Typ.)
($V_{CC} = 5\text{V}$, 50pF)
- Operation Voltage Range : $V_{CC}(\text{opr}) = 1.8 \sim 5.5\text{V}$
- 5V Tolerant Function

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

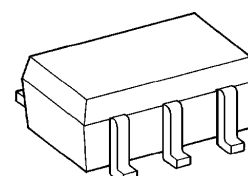
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage Range	V_{CC}	$-0.5 \sim 6$	V
DC Input Voltage	V_{IN}	$-0.5 \sim 6$	V
DC Output Voltage	V_{OUT}	$-0.5 \sim 6$	V
Input Diode Current	I_{IK}	± 20	mA
Output Diode Current	I_{OK}	± 20	mA
DC Output Current	I_{OUT}	± 50	mA
DC V_{CC} /Ground Current	I_{CC}	± 50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

TC7SZ05F



SSOP5-P-0.95

TC7SZ05FU



SSOP5-P-0.65A

Weight

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

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

980508EBA1

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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 Leakage	I _{LKG}	V _{IN} = V _{IL}		1.8~5.5	—	—	± 5	—	± 10	μA	
Low-Level Output Voltage	V _{OL}	V _{IN} = V _{IH}	I _{OH} = 100μA	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} = 8mA	2.3	—	0.1	0.3	—	0.3	V	
				I _{OH} = 16mA	3.0	—	0.15	0.4	—		0.4
				I _{OH} = 24mA	3.0	—	0.22	0.55	—		0.55
				I _{OH} = 32mA	4.5	—	0.22	0.55	—		0.55
Input Leakage Current	I _{IN}	V _{IN} = 5.5V or GND		0~5.5	—	—	± 1	—	± 10	μA	
Power Off Leakage Current	I _{OFF}	V _{IN} or V _{OUT} = 5.5V		0.0	—	—	1	—	10	μA	
Quiescent Supply Current	I _{CC}	V _{IN} = V _{CC} or GND		5.5	—	—	2	—	20	μA	

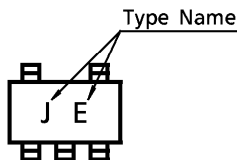
AC ELECTRICAL CHARACTERISTICS (Input $t_r = t_f = 3\text{ns}$)

CHARACTERISTIC	SYMBOL	TEST CONDITION	V _{CC} (V)	Ta = 25°C			Ta = - 40~85°C		UNIT
				MIN.	TYP.	MAX.	MIN.	MAX.	
Propagation Delay Time	tpZL	CL = 50pF, RL = 500Ω	1.8	1.5	4.6	10.5	1.5	11.0	ns
			2.5 ± 0.2	0.8	3.0	7.0	0.8	7.5	
			3.3 ± 0.3	0.8	2.4	5.0	0.8	5.2	
			5.0 ± 0.5	0.5	1.9	4.3	0.5	4.5	
	tpLZ	CL = 50pF, RL = 500Ω	1.8	1.5	4.1	10.5	1.5	11.0	
			2.5 ± 0.2	0.8	2.5	7.0	0.8	7.5	
			3.3 ± 0.3	0.8	2.1	5.0	0.8	5.2	
			5.0 ± 0.5	0.5	1.2	4.3	0.5	4.5	
Input Capacitance	CIN		0~5.5	—	4	—	—	—	pF
Power Dissipation Capacitance	CPD	(Note 1)	3.3	—	3.6	—	—	—	pF
			5.5	—	6.5	—	—	—	

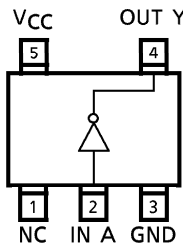
(Note 1) CPD is defined as the value of the internal equivalent capacitance which is calculated from the operating current consumption without load.
Average operating current can be obtained by the equation.

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

MARKING



PIN ASSIGNMENT (TOP VIEW)

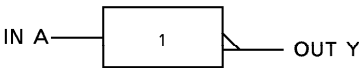


TRUTH TABLE

A	Y
L	* H
H	L

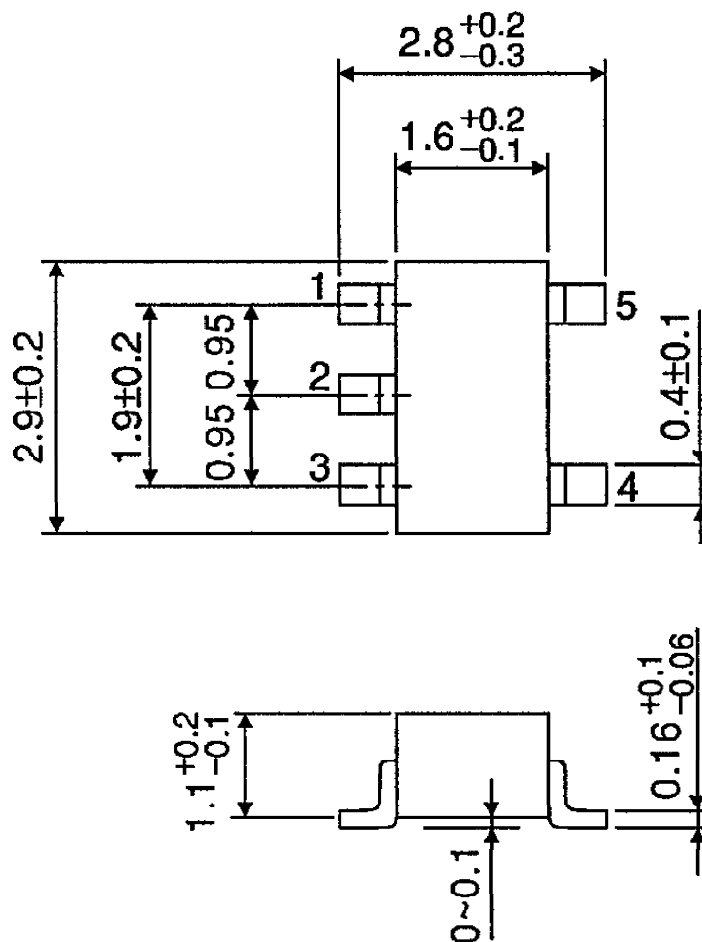
* : High Impedance

LOGIC DIAGRAM



OUTLINE DRAWING
SSOP5-P-0.95

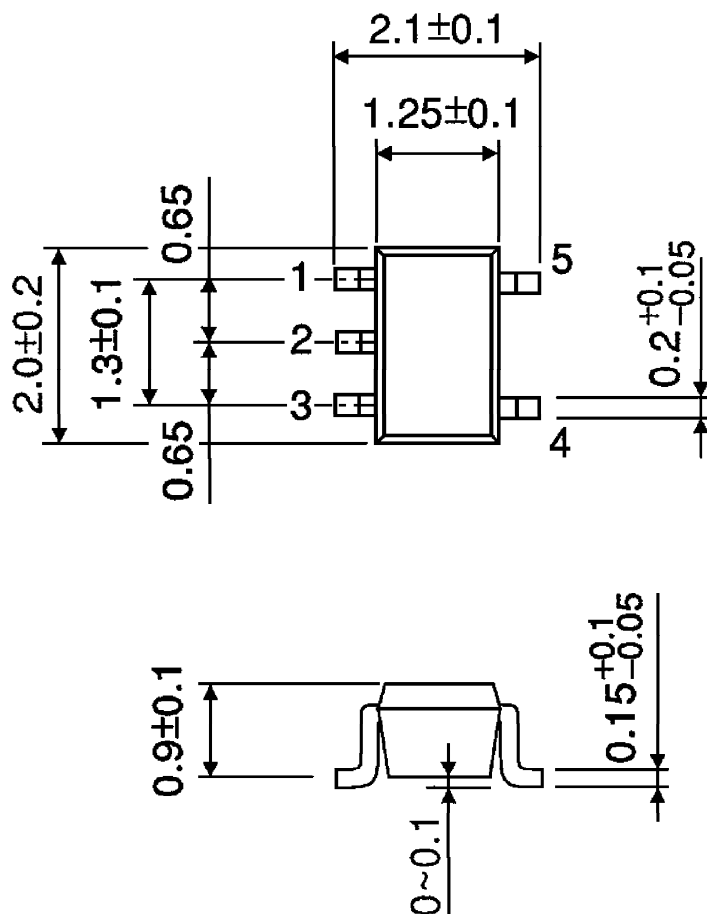
Unit : mm



Weight : 0.016g (Typ.)

OUTLINE DRAWING
SSOP5-P-0.65A

Unit : mm



Weight : 0.006g (Typ.)