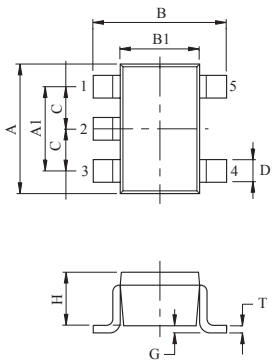
KIC7SZ86FU

SILICON MONOLITHIC CMOS DIGITAL INTEGRATED CIRCUIT

EXCLUSIVE OR GATE

FEATURES

- Super High Speed : t_{PD}=2.9ns(Typ.) into 50pF at V_{CC}=5V.
- High Output Driver : ±24mA at V_{CC}=3V.
- Power Down High Impedance inputs/outputs.
- Wide Operating Voltage Range : $V_{CC(opr)}$=1.65~5.5V.



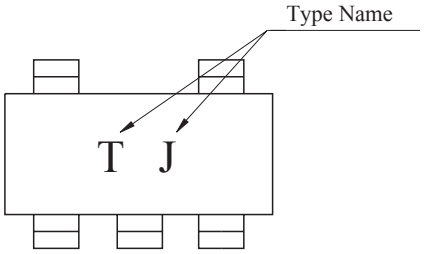
DIM	MILLIMETERS
A	2.00±0.20
A1	1.3±0.1
B	2.1±0.1
B1	1.25±0.1
C	0.65
D	0.2+0.10/-0.05
G	0-0.1
H	0.9±0.1
T	0.15+0.1/-0.05

USV

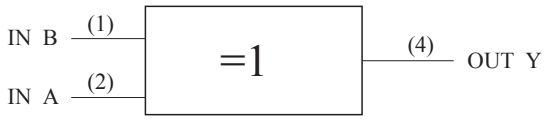
MAXIMUM RATINGS (Ta=25℃)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage Range	V_{CC}	-0.5~6	V
DC Input Voltage	V_{IN}	-0.5~6	V
DC Output Voltage	V_{OUT}	-0.5~6	V
Input Diode Current	I_{IK}	-50~20	mA
Output Diode Current	I_{OK}	-50~20	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}	-65~150	℃
Lead Temperature (10s)	T_L	260	℃

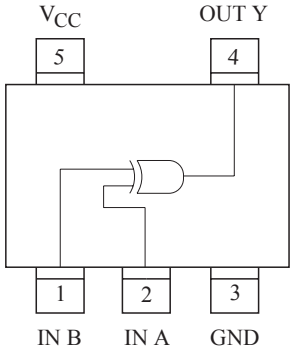
MARKING



Logic Diagram



PIN CONNECTION(TOP VIEW)



TRUTH TABEL

A	B	Y
H	H	L
L	H	H
H	L	H
L	L	L

RECOMMENDED OPERATING CONDIITIONS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V_{CC}	1.65 ~ 5.5	V
Input Voltage	V_{IN}	0 ~ 5.5	V
Output Voltage	V_{OUT}	0 ~ V_{CC}	V
Operating Temperature	T_{opr}	-40 ~ 85	℃
Input Rise and Fall Time	t_r, t_f	0 ~ 20 (V_{CC}=1.8V, 2.5V ± 0.2V) 0 ~ 10 (V_{CC}=3.3V ± 0.3V) 0 ~ 5 (V_{CC}=5.0V ± 0.5V)	ns/V

ELECTRICAL CHARACTERISTICS

DC Characteristics

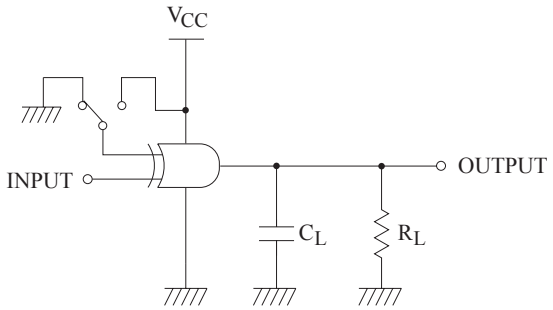
CHARACTERISTIC		SYMBOL	TEST CONDITION		Ta=25℃			Ta=-40~85℃		UNIT
				V_{CC}(V)	MIN.	TYP.	MAX.	MIN.	MAX.	
Input Voltage	High Level	V_{IH}	-	1.65~1.95	0.75 × V_{CC}	-	-	0.75 × V_{CC}	-	V
				2.3~5.5	0.7 × V_{CC}	-	-	0.7 × V_{CC}	-	
	Low Level	V_{IL}	-	1.65~1.95	-	-	0.25 × V_{CC}	-	0.25 × V_{CC}	
				2.3~5.5	-	-	0.3 × V_{CC}	-	0.3 × V_{CC}	
Output Voltage	High Level	V_{OH}	V_{IN}=V_{IH} · V_{IL} I_{OH}=-100μA	1.65	1.55	1.65	-	1.55	-	V
				1.8	1.7	1.8	-	1.7	-	
				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}=-4mA	1.65	1.29	1.52	-	1.29	-	
			I_{OH}=-8mA	2.3	1.9	2.15	-	1.9	-	
			I_{OH}=-16mA	3.0	2.4	2.80	-	2.4	-	
			I_{OH}=-24mA	3.0	2.3	2.68	-	2.3	-	
			I_{OH}=-32mA	4.5	3.8	4.20	-	3.8	-	
	Low Level	V_{OL}	V_{IN}=V_{IH} or V_{IL} I_{OL}=100μA	1.65	-	0.0	0.1	-	0.1	
				1.8	-	0.0	0.1	-	0.1	
				2.3	-	0.0	0.1	-	0.1	
				3.0	-	0.0	0.1	-	0.1	
				4.5	-	0.0	0.1	-	0.1	
			I_{OL}=4mA	1.65	-	0.08	0.24	-	0.24	
			I_{OL}=8mA	2.3	-	0.10	0.3	-	0.3	
			I_{OL}=16mA	3.0	-	0.15	0.4	-	0.4	
			I_{OL}=24mA	3.0	-	0.22	0.55	-	0.55	
			I_{OL}=32mA	4.5	-	0.22	0.55	-	0.55	
Input Leakage Current		I_{IN}	V_{IN}=5.5V, 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}=5.5V, GND	1.65~5.5	-	-	2.0	-	20	μA

AC Characteristics

CHARACTERISTIC	SYMBOL	TEST CONDITION		Ta=25℃			Ta=-40~85℃		UNIT
			V_{CC}(V)	MIN.	TYP.	MAX.	MIN.	MAX.	
Propagation Delay (Figures 1,3)	t_{PLH} t_{PHL}	C_L=15pF, R_L=1MΩ	1.65	2.0	6.9	13.8	2.0	14.5	ns
			1.8	2.0	5.7	11.5	2.0	12	
			2.5±0.2	0.8	3.8	8.0	0.8	8.5	
			3.3±0.3	0.5	3.0	5.7	0.5	6.0	
			5.0±0.5	0.5	2.4	5.0	0.5	5.4	
	t_{PLH} t_{PHL}	C_L=50pF, R_L=500Ω	3.3±0.3	1.5	3.5	6.2	1.5	6.5	ns
			5.0±0.5	0.8	2.9	5.4	1.0	5.8	
Input Capacitance	C_{IN}		0	-	4	-	-	-	pF
Power Dissipation Capacitance (Figure 2)	C_{PD}	(Note)	3.3	-	25	-	-	-	pF
			5.0	-	31	-	-	-	

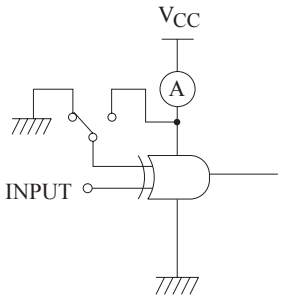
Note : C_{PD} is defined as the value of the internal equivalent capacitance which is derived from dynamic operating current consumption (I_{CCD}) at no output loading and operating at 50% duty cycle. (See Figure 2.) C_{PD} is related to I_{CCD} dynamic operating current by the exprssion : $I_{CCD}=C_{PD} \cdot V_{CC} \cdot f_{IN}+I_{CC}$

AC Loading and Waveforms



C_L includes load and stray capacitance
Input PRR=1.0MHz ; t_W =500ns

FIGURE 1. AC Test Circuit



Input=AC Waveform ; $t_r=t_f$=1.8ns;
PRR=10MHz ; Duty Cycle=50%

FIGURE 2. I_{CCD} Test Circuit

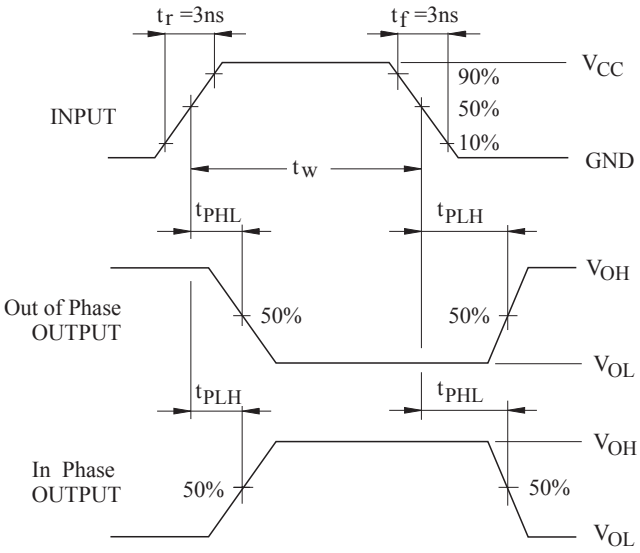


FIGURE 3. AC Waveforms