

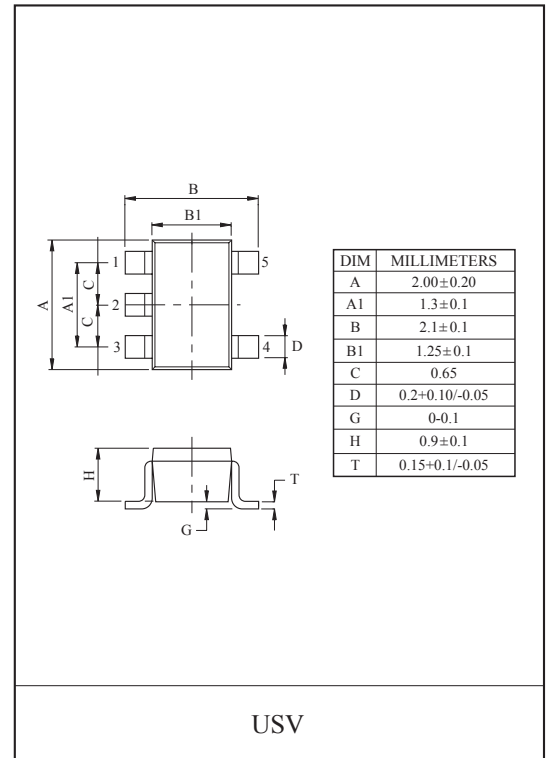
#### SCHMITT INVERTER

#### FEATURES

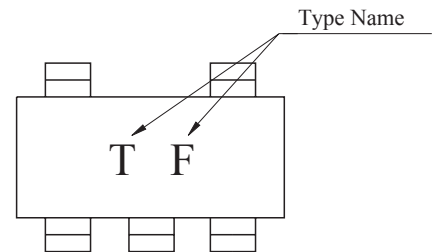
- High output drive :  $\pm 24\text{mA}(\text{min.}) @V_{CC}=3\text{V}$ .
- High Speed :  $t_{pd}=3.7\text{ns}(\text{typ.}) @V_{CC}=5\text{V}, 50\text{pF}$ .
- Wide Operating Voltage Range :  $V_{CC(\text{opr})}=1.65\sim 5.5\text{V}$ .
- High Latch-Up Immunity : Higher than or equal to  $\pm 500\text{mA}$ .
- High ESD : Higher than or equal to  $\pm 200\text{V}(\text{JEITA})$   
: Higher than or equal to  $\pm 2000\text{V}(\text{MIL})$
- Power down protection is provided on all inputs and outputs.

#### MAXIMUM RATINGS (Ta=25°C)

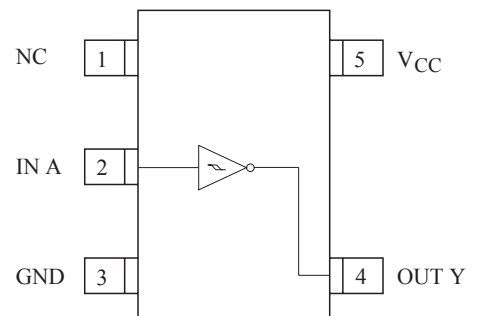
CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage Range	$V_{CC}$	-0.5~6	V
DC Input Voltage	$V_{IN}$	-0.5~6	V
DC Output Voltage	$V_{OUT}$	-0.5~6	V
Input Diode Current	$I_{IK}$	-20	mA
Output Diode Current	$I_{OK}$	-20	mA
DC Output Current	$I_{OUT}$	$\pm 50$	mA
DC $V_{CC}$ /ground Current	$I_{CC}$	$\pm 50$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



#### MARKING

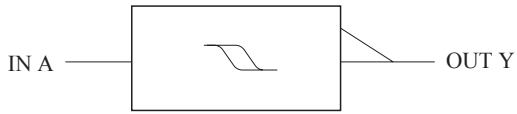


#### PIN CONNECTION(TOP VIEW)



# KIC7SZ14FU

## Logic Diagram



## Recommended Operating Conditions

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	$V_{CC}$	1.65~5.5	V
		1.5~5.5 (Note1)	
Input Voltage	$V_{IN}$	0~5.5	V
Output Voltage	$V_{OUT}$	0~5.5 (Note2)	V
		0~ $V_{CC}$ (Note3)	
Operating Temperature	$T_{opr}$	-40~85	°C

Note1 : Data retention only.

Note2 :  $V_{CC}=0V$ .

Note3 : High or low state

## ELECTRICAL CHARACTERISTICS

### DC Characteristics

CHARACTERISTIC	SYMBOL	TEST CONDITION	$T_a=25^\circ C$			$T_a=-40\sim 85^\circ C$		UNIT	
			$V_{CC}(V)$	MIN.	TYP.	MAX.	MIN.		MAX.
Positive Threshold Voltage	$V_P$	-	1.65	0.6	1.0	1.4	0.65	1.4	V
			1.8	0.7	1.1	1.5	0.7	1.5	
			2.3	1.0	1.4	1.8	1.0	1.8	
			3.0	1.3	1.75	2.2	1.3	2.2	
			4.5	1.9	2.45	3.1	1.9	3.1	
			5.5	2.2	2.9	3.6	2.2	3.6	
Negative Threshold Voltage	$V_N$	-	1.65	0.2	0.5	0.8	0.2	0.8	V
			1.8	0.25	0.55	0.9	0.25	0.9	
			2.3	0.40	0.75	1.15	0.40	1.15	
			3.0	0.6	1.0	1.5	0.6	1.5	
			4.5	1.0	1.43	2.0	1.0	2.0	
			5.5	1.2	1.70	2.4	1.2	2.4	
Hysteresis Voltage	$V_H$	-	1.65	0.1	0.48	0.9	0.1	1.0	V
			1.8	0.15	0.54	1.0	0.15	1.0	
			2.3	0.25	0.65	1.1	0.25	1.1	
			3.0	0.4	0.77	1.2	0.4	1.2	
			4.5	0.6	1.01	1.5	0.6	1.5	
			5.5	0.7	1.18	1.7	0.7	1.7	

# KIC7SZ14FU

CHARACTERISTIC	SYMBOL	TEST CONDITION		Ta=25°C			Ta=-40~85°C		UNIT	
				V <sub>CC</sub> (V)	MIN.	TYP.	MAX.	MIN.		MAX.
High-Level Output Voltage	V <sub>OH</sub>	V <sub>IN</sub> =V <sub>IL</sub>	I <sub>OH</sub> =-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 <sub>OH</sub> =-4mA	1.65	1.29	1.52	-	1.29	-	
			I <sub>OH</sub> =-8mA	2.3	1.9	2.15	-	1.9	-	
			I <sub>OH</sub> =-16mA	3.0	2.4	2.8	-	2.4	-	
			I <sub>OH</sub> =-24mA	3.0	2.3	2.68	-	2.3	-	
			I <sub>OH</sub> =-32mA	4.5	3.8	4.2	-	3.8	-	
	V <sub>OL</sub>	V <sub>IN</sub> =V <sub>IH</sub>	I <sub>OL</sub> =100μA	1.65	-	0	0.1	-	0.1	V
				1.8	-	0	0.1	-	0.1	
				2.3	-	0	0.1	-	0.1	
				3.0	-	0	0.1	-	0.1	
				4.5	-	0	0.1	-	0.1	
			I <sub>OL</sub> =4mA	1.65	-	0.08	0.24	-	0.24	
			I <sub>OL</sub> =8mA	2.3	-	0.1	0.3	-	0.3	
			I <sub>OL</sub> =16mA	3.0	-	0.15	0.4	-	0.4	
			I <sub>OL</sub> =24mA	3.0	-	0.22	0.55	-	0.55	
			I <sub>OL</sub> =32mA	4.5	-	0.22	0.55	-	0.55	
Input Leakage Current	I <sub>IN</sub>	V <sub>IN</sub> =5.5V or GND	0~5.5	-	-	±1	-	±10	μA	
Power OFF Leakage Current	I <sub>OFF</sub>	V <sub>IN</sub> or V <sub>OUT</sub> =5.5V	0.0	-	-	1	-	10	μA	
Quiescent Supply Current	I <sub>CC</sub>	V <sub>IN</sub> =5.5V or GND	1.65~5.5	-	-	1	-	10	μA	

## AC Characteristics (unless otherwise specified, Input : t<sub>r</sub>=t<sub>f</sub>=3ns)

CHARACTERISTIC	SYMBOL	TEST CONDITION		Ta=25°C			Ta=-40~85°C		UNIT
				V <sub>CC</sub> (V)	MIN.	TYP.	MAX.	MIN.	
Propagation delay time	t <sub>PLH</sub> t <sub>PHL</sub>	C <sub>L</sub> =15pF, R <sub>L</sub> =1MΩ	1.65	2.0	9.1	15.0	2.0	15.6	ns
			1.8	2.0	7.6	12.5	2.0	13	
			2.5±0.2	1.0	5.0	9.0	1.0	9.5	
			3.3±0.3	1.0	3.7	6.3	1.0	6.5	
			5.0±0.5	0.5	3.1	5.2	0.5	5.5	
			3.3±0.3	1.5	4.4	7.2	1.5	7.5	ns
			5.0±0.5	0.5	3.7	5.9	0.8	6.2	
Input Capacitance	C <sub>IN</sub>	-	-	-	-	-	-	pF	
Power Dissipation Capacitance	C <sub>PD</sub>	(Note4)	-	-	-	-	-	pF	

Note : C<sub>PD</sub> 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<sub>CC(oper)</sub>=C<sub>PD</sub> · V<sub>CC</sub> · f<sub>IN</sub>+I<sub>CC</sub>