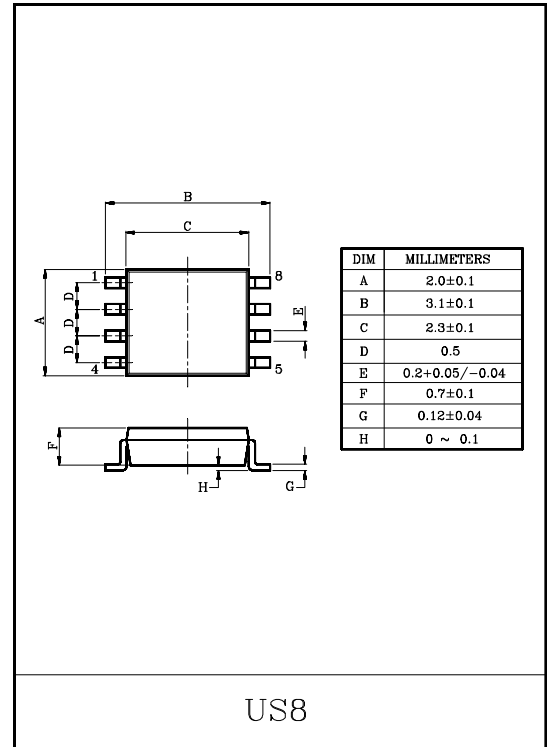


DUAL BUS BUFFER

The KIC7W125FK is a high speed DUAL BUS BUFFER fabricated with silicon gate C²MOS technology. It achieves the high speed operation similar to equivalent LSTTL while maintaining the C²MOS low power dissipation. The require 3-state control input \bar{G} to be set high to place the output into the high impedance. All inputs are equipped with protection circuits against static discharge or transient excess voltage.

FEATURES

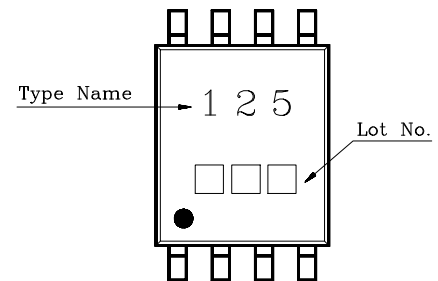
- High Speed : $t_{pd}=10ns$ (Typ.) at $V_{CC}=5V$.
- Low Power Dissipation : $I_{CC}=2\mu A$ (Max.) at $T_a=25^\circ C$.
- High Noise Immunity : $V_{NIH}=V_{NIL}=28\% V_{CC}(\text{Min.})$.
- Output Drive Capability : 15 LSTTL Loads.
- Symmetrical Output Impedance : $|I_{OH}|=I_{OL}=6mA(\text{Min.})$
- Balanced Propagation Delays : $t_{pLH}\approx t_{pHL}$
- Wide Operating Voltage Range : $V_{CC(\text{opr})}=2\sim 6V$.



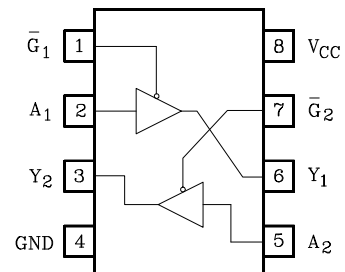
MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage Range	V_{CC}	-0.5~7	V
DC Input Voltage	V_{IN}	-0.5~ $V_{CC}+0.5$	V
DC Output Voltage	V_{OUT}	-0.5~ $V_{CC}+0.5$	V
Input Diode Current	I_{IK}	±20	mA
Output Diode Current	I_{OK}	±20	mA
DC Output Current	I_{OUT}	±35	mA
DC V_{CC} /Ground Current	I_{CC}	±37.5	mA
Power Dissipation	P_D	200	mW
Storage Temperature	T_{stg}	-65~150	°C
Lead Temperature (10s)	T_L	260	°C

MARKING

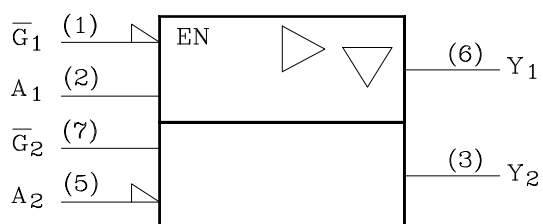


PIN CONNECTION(TOP VIEW)



KIC7W125FK

LOGIC DIAGRAM



TRUTH TABLE

INPUTS		OUTPUTS
\bar{G}	A	Y
H	X	Z
L	L	L
L	H	H

X : Don't Care
Z : High Impedance

RECOMMENDED OPERATING CONDITIONS

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage Range	V_{CC}	2~6	V
Input Voltage	V_{IN}	0~ V_{CC}	V
Output Voltage	V_{OUT}	0~ V_{CC}	V
Operating Temperature	T_{opr}	-40~85	°C
Input Rise and Fall Time	t_r, t_f	0~1000 ($V_{CC}=2.0V$) 0~500 ($V_{CC}=4.5V$) 0~400 ($V_{CC}=6.0V$)	ns

DC ELECTRICAL CHARACTERISTICS

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	V_{CC}	$T_a=25^\circ C$			$T_a=-40\sim 85^\circ C$		UNIT	
					MIN.	TYP.	MAX.	MIN.	MAX.		
High-Level Input Voltage	V_{IH}	-	-	2.0	1.5	-	-	1.5	-	V	
				4.5	3.15	-	-	3.15	-		
				6.0	4.2	-	-	4.2	-		
Low-Level Input Voltage	V_{IL}	-	-	2.0	-	-	0.5	-	0.5	V	
				4.5	-	-	1.35	-	1.35		
				6.0	-	-	1.8	-	1.8		
High-Level Output Voltage	V_{OH}	-	$V_{IN}=V_{IH}$ or V_{IL}	$I_{OH}=-20\mu A$	2.0	1.9	2.0	-	1.9	-	V
					4.5	4.4	4.5	-	4.4	-	
					6.0	5.9	6.0	-	5.9	-	
				$I_{OH}=-6mA$	4.5	4.18	4.31	-	4.13	-	
	6.0	5.68	5.80	-	5.63	-					
Low-Level Output Voltage	V_{OL}	-	$V_{IN}=V_{IL}$	$I_{OL}=20\mu A$	2.0	-	0.0	0.1	-	0.1	V
					4.5	-	0.0	0.1	-	0.1	
					6.0	-	0.0	0.1	-	0.1	
				$I_{OL}=6mA$	4.5	-	0.17	0.26	-	0.33	
	6.0	-	0.18	0.26	-	0.33					
3-State Output Off-State Current	I_{OZ}	-	$V_{IN}=V_{IH}$ or V_{IL} $V_{OUT}=V_{CC}$ or GND	6.0	-	-	± 0.5	-	± 5.0	μA	
Input Leakage Current	I_{IN}	-	$V_{IN}=V_{CC}$ or GND	6.0	-	-	± 0.1	-	± 1.0		
Quiescent Supply Current	I_{CC}	-	$V_{IN}=V_{CC}$ or GND	6.0	-	-	2.0	-	20.0		

KIC7W125FK

AC ELECTRICAL CHARACTERISTICS (Input $t_r=t_f=6ns$)

CHARACTERISTIC	SYMBOL	TEST CIR-CUIT	TEST CONDITION			Ta=25°C			Ta=-40~85°C		UNIT
				C _L	V _{CC}	MIN.	TYP.	MAX.	MIN.	MAX.	
Output Transition Time	t_{TLH} t_{THL}	-	-	50	2.0	-	20	60	-	75	ns
					4.5	-	6	12	-	15	
					6.0	-	5	10	-	13	
Propagation Delay Time	t_{pLH} t_{pHL}	-	-	50	2.0	-	30	90	-	115	
					4.5	-	11	18	-	23	
					6.0	-	10	15	-	20	
				150	2.0	-	42	130	-	165	
					4.5	-	14	26	-	33	
					6.0	-	12	22	-	28	
Output Enable Time	t_{pZL} t_{pZH}	-	R _L =1kΩ	50	2.0	-	30	90	-	115	
					4.5	-	11	18	-	23	
					6.0	-	10	15	-	20	
				150	2.0	-	42	130	-	165	
					4.5	-	14	26	-	33	
					6.0	-	12	22	-	28	
Output Disable Time	t_{pLZ} t_{pHZ}	-	R _L =1kΩ	50	2.0	-	24	100	-	125	
					4.5	-	12	20	-	25	
					6.0	-	10	17	-	21	
Input Capacitance	C _{IN}	-	-	-	-	-	5	10	-	10	pF
Output Capacitance	C _{OUT}	-	-	-	-	-	10	-	-	-	
Power Dissipation Capacitance	C _{PD}	-	(Note 1)	-	-	-	32	-	-	-	

Note 1 : C_{PD} is defined as the value of internal equivalent capacitance which is calculated from the operating current consumption without load.

Average operating current can be obtained by the equation

$$: I_{CC(oper)} = C_{PD} \cdot V_{CC} \cdot f_{IN} + I_{CC}/2 \text{ (per gate)}$$