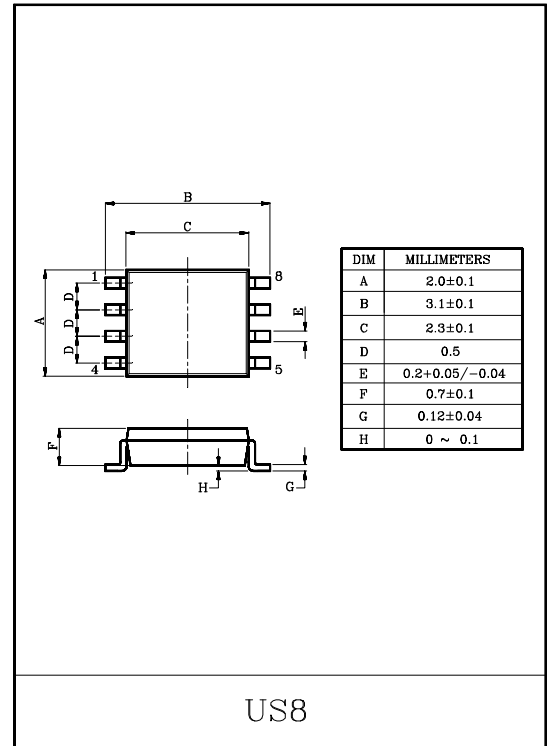


DUAL BUS BUFFER

The KIC7W126FK is a high speed C²MOS DUAL BUS BUFFERS fabricated with silicon gate C²MOS technology. It achieve the high speed operation similar to equivalent LSTTL while maintaining the C²MOS low power dissipation. The require 3-state control input G to be set low to place the output into the high impedance. All inputs are equipped with protection circuits against static discharge or transient excess voltage.

FEATURES

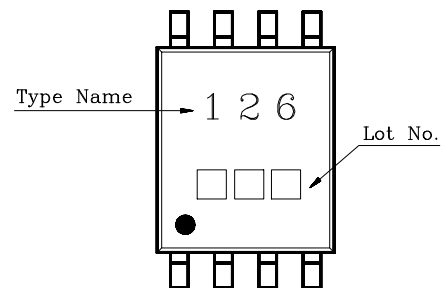
- High Speed : $t_{pd}=10ns$ (Typ.) at $V_{CC}=5V$.
- Low Power Dissipation : $I_{CC}=2\mu A$ (Max.) at $T_a=25^{\circ}C$.
- High Noise Immunity : $V_{NIH}=V_{NIL}=28\% V_{CC}$ (Min.).
- Output Drive Capability : 15 LSTTL Loads.
- Symmetrical Output Impedance : $|I_{OH}|=I_{OL}=6mA$ (Min.)
- Balanced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



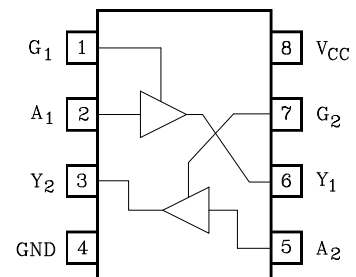
MAXIMUM RATINGS (T_a=25°C)

| 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

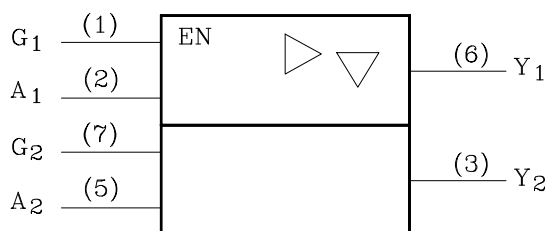


PIN CONNECTION(TOP VIEW)



KIC7W126FK

LOGIC DIAGRAM



TRUTH TABLE

| INPUTS | | OUTPUTS |
|--------|---|---------|
| G | A | Y |
| L | X | Z |
| H | L | L |
| H | H | H |

X : Don't Care
Z : High Impedance

RECOMMENDED OPERATING CONDITIONS

| CHARACTERISTIC | SYMBOL | RATING | UNIT |
|--------------------------|------------|--|------|
| Supply Voltage | 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

| PARAMETER | 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} | - | $V_{IN}=V_{IH}$ | $I_{OH}=-20\mu A$ | 2.0 | 1.9 | 2.0 | - | 1.9 | - | V |
| | | | | $I_{OH}=-6mA$ | 4.5 | 4.4 | 4.5 | - | 4.4 | - | |
| | | | | $I_{OH}=-7.8mA$ | 6.0 | 5.9 | 6.0 | - | 5.9 | - | |
| Low-Level Output Voltage | V_{OL} | - | $V_{IN}=V_{IH}$ or V_{IL} | $I_{OL}=20\mu A$ | 2.0 | - | 0.0 | 0.1 | - | 0.1 | V |
| | | | | $I_{OL}=6mA$ | 4.5 | - | 0.0 | 0.1 | - | 0.1 | |
| | | | | $I_{OL}=7.8mA$ | 6.0 | - | 0.0 | 0.1 | - | 0.1 | |
| 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 | | |

KIC7W126FK

AC ELECTRICAL CHARACTERISTICS (Input $t_r=t_f=6\text{ns}$)

| CHARACTERISTIC | SYMBOL | TEST CIRCUIT | 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} | - | $R_L=1\text{k}\Omega$ | 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} | - | $R_L=1\text{k}\Omega$ | 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

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