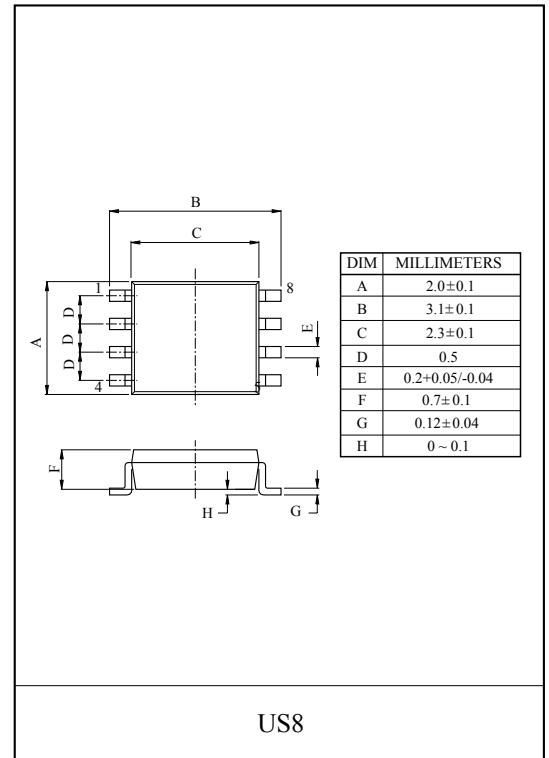
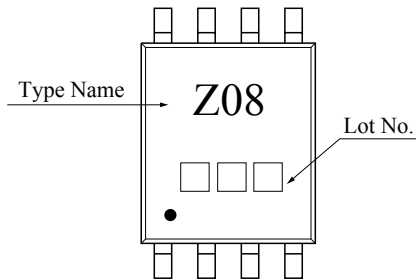


#### 2 INPUT AND GATE

#### FEATURES

- High output drive :  $\pm 24\text{mA}(\text{min.}) @V_{CC}=3\text{V}$ .
- Super high speed operation :  $t_{pd} 2.4\text{ns}(\text{typ.}) @V_{CC}=5\text{V}, 50\text{pF}$ .
- Operation voltage range :  $V_{CC(\text{opr})}=1.65\sim 5.5\text{V}$ .
- Latch-up performance :  $\pm 500\text{mA}$  or more
- ESD performance :  $\pm 200\text{V}$  or more (EIAJ)  
 $\pm 2000\text{V}$  or more (MIL)
- Power down protection is provided on all inputs and outputs.

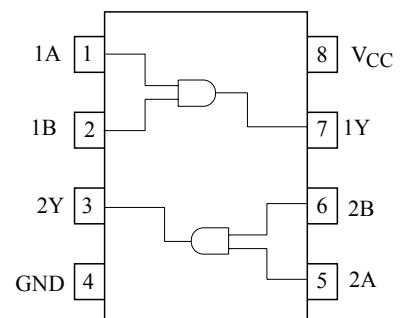
#### MARKING



#### MAXIMUM RATINGS (Ta=25 °C)

| CHARACTERISTIC              | SYMBOL    | RATING    | UNIT |
|-----------------------------|-----------|-----------|------|
| Power Supply Voltage        | $V_{CC}$  | -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           | $I_{OUT}$ | ± 50      | mA   |
| DC $V_{CC}$ /ground Current | $I_{CC}$  | ± 50      | mA   |
| Power Dissipation           | $P_D$     | 200       | mW   |
| Storage Temperature Range   | $T_{stg}$ | -65 ~ 150 | °C   |
| Lead Temperature (10s)      | $T_L$     | 260       | °C   |

#### PIN CONNECTION(TOP VIEW)



# KIC7WZ08FK

Truth Table

| A | B | Y |
|---|---|---|
| L | L | L |
| L | H | L |
| H | L | L |
| H | H | H |

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   |
| Input Rise and Fall Time | $d_t/d_v$ | 0~20 ( $V_{CC}=1.8V \pm 0.15V,$<br>2.5V $\pm 0.2V$ ) | ns/V |
|                          |           | 0~10 ( $V_{CC}=3.3V \pm 0.3V$ )                      |      |
|                          |           | 0~5 ( $V_{CC}=5.5V \pm 0.5V$ )                       |      |

Note1 : Data retention only.

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

Note3 : High or low state

# KIC7WZ08FK

## ELECTRICAL CHARACTERISTICS

### DC Characteristics

| CHARACTERISTIC            |            | SYMBOL           | TEST CONDITION                                          |                         | Ta=25°C                |      |                        | Ta=-40~85°C            |                        | UNIT |      |
|---------------------------|------------|------------------|---------------------------------------------------------|-------------------------|------------------------|------|------------------------|------------------------|------------------------|------|------|
|                           |            |                  |                                                         |                         | V <sub>CC</sub> (V)    | MIN. | TYP.                   | MAX.                   | MIN.                   |      | MAX. |
| Input Voltage             | High Level | V <sub>IH</sub>  | -                                                       | 1.65~1.95               | 0.75 × V <sub>CC</sub> | -    | -                      | 0.75 × V <sub>CC</sub> | -                      | V    |      |
|                           |            |                  |                                                         | 2.3~5.5                 | 0.7 × V <sub>CC</sub>  | -    | -                      | 0.7 × V <sub>CC</sub>  | -                      |      |      |
|                           | Low Level  | V <sub>IL</sub>  | -                                                       | 1.65~1.95               | -                      | -    | 0.25 × V <sub>CC</sub> | -                      | 0.25 × V <sub>CC</sub> |      |      |
|                           |            |                  |                                                         | 2.3~5.5                 | -                      | -    | 0.3 × V <sub>CC</sub>  | -                      | 0.3 × V <sub>CC</sub>  |      |      |
| Output Voltage            | High Level | V <sub>OH</sub>  | V <sub>IN</sub> =<br>V <sub>IH</sub> or V <sub>IL</sub> | I <sub>OH</sub> =-100μA | 1.65                   | 1.55 | 1.65                   | -                      | 1.55                   | -    | V    |
|                           |            |                  |                                                         |                         | 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                   | -    |      |
|                           |            |                  |                                                         |                         | 2.3                    | 1.9  | 2.15                   | -                      | 1.9                    | -    |      |
|                           |            |                  |                                                         |                         | 3.0                    | 2.4  | 2.8                    | -                      | 2.4                    | -    |      |
|                           |            |                  |                                                         |                         | 4.5                    | 3.8  | 4.2                    | -                      | 3.8                    | -    |      |
|                           | Low Level  | V <sub>OL</sub>  | V <sub>IN</sub> =V <sub>IL</sub>                        | I <sub>OH</sub> =100μA  | 1.65                   | -    | 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>OH</sub> =4mA    | 1.65                   | -    | 0.08                   | 0.24                   | -                      | 0.24 |      |
|                           |            |                  |                                                         |                         | 2.3                    | -    | 0.1                    | 0.3                    | -                      | 0.3  |      |
|                           |            |                  |                                                         |                         | 3.0                    | -    | 0.15                   | 0.4                    | -                      | 0.4  |      |
|                           |            |                  |                                                         |                         | 4.5                    | -    | 0.22                   | 0.55                   | -                      | 0.55 |      |
| I <sub>OH</sub> =8mA      | 2.3        | -                | 0.1                                                     | 0.3                     | -                      | 0.3  |                        |                        |                        |      |      |
|                           | 3.0        | -                | 0.15                                                    | 0.4                     | -                      | 0.4  |                        |                        |                        |      |      |
|                           | 3.0        | -                | 0.22                                                    | 0.55                    | -                      | 0.55 |                        |                        |                        |      |      |
|                           | 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. |      | MAX. |
| Propagation delay time        | t <sub>PLH</sub><br>t <sub>PHL</sub> | C <sub>L</sub> =15pF, R <sub>L</sub> =1MΩ | -              | 1.8 ± 0.15                                 | 2.0                 | 5.7  | 10.5 | 2.0         | 11.0 | ns   |      |
|                               |                                      |                                           |                | 2.5 ± 0.2                                  | 1.0                 | 3.5  | 5.8  | 1.0         | 6.2  |      |      |
|                               |                                      |                                           |                | 3.3 ± 0.3                                  | 0.8                 | 2.6  | 3.9  | 0.8         | 4.3  |      |      |
|                               |                                      |                                           |                | 5.0 ± 0.5                                  | 0.5                 | 1.9  | 3.1  | 0.5         | 3.3  |      |      |
|                               |                                      |                                           |                | C <sub>L</sub> =50pF, R <sub>L</sub> =500Ω | 3.3 ± 0.3           | 1.2  | 3.2  | 4.8         | 1.2  | 5.2  | ns   |
|                               |                                      |                                           |                |                                            | 5.0 ± 0.5           | 0.8  | 2.5  | 3.7         | 0.8  | 4.0  |      |
| Input Capacitance             |                                      | C <sub>IN</sub>                           | -              | 0~5.5                                      | -                   | 3.0  | -    | -           | -    | pF   |      |
| Power Dissipation Capacitance |                                      | C <sub>PD</sub>                           | (Note)         | 3.3                                        | -                   | 22   | -    | -           | -    | pF   |      |
|                               |                                      |                                           |                | 5.5                                        | -                   | 37   | -    | -           | -    |      |      |

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(opp)</sub>=C<sub>PD</sub> · V<sub>CC</sub> · f<sub>IN</sub>+I<sub>CC</sub>/2