

# Isc N-Channel MOSFET Transistor

**TK46A08N1, ITK46A08N1**

## • FEATURES

- Low drain-source on-resistance:  
 $R_{DS(ON)} = 8.4m\Omega$  ( $V_{GS} = 10V$ )
- Enhancement mode:  
 $V_{th} = 2.0$  to  $4.0V$  ( $V_{DS} = 10V$ ,  $I_D = 0.5mA$ )
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

## • DESCRIPTION

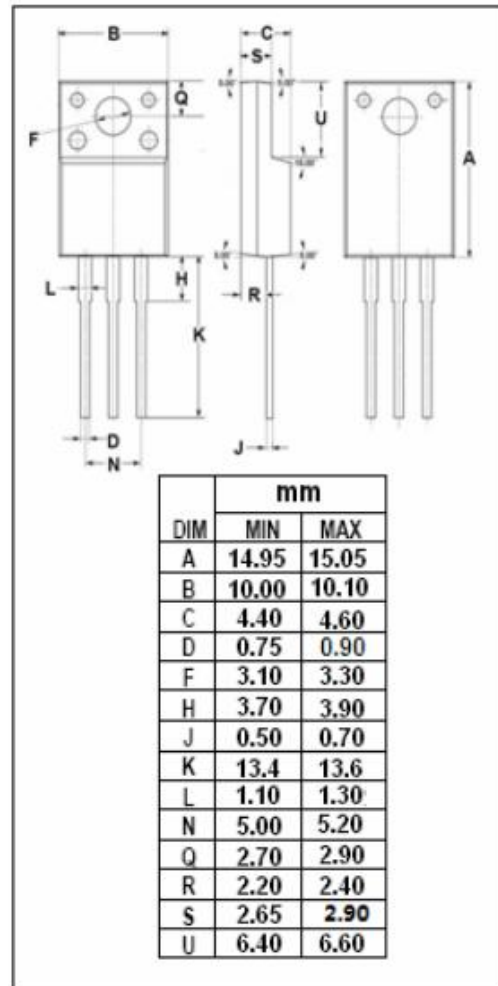
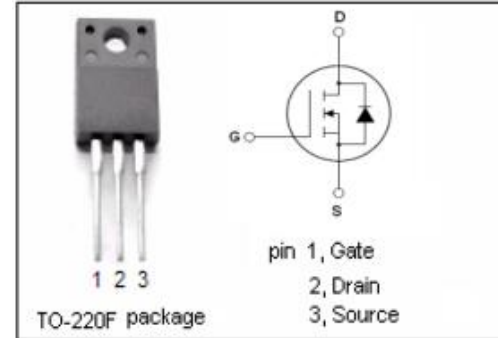
- Switching Voltage Regulators

## • ABSOLUTE MAXIMUM RATINGS( $T_a = 25^\circ C$ )

| SYMBOL    | PARAMETER                              | VALUE    | UNIT       |
|-----------|--|----------|------------|
| $V_{DS}$  | Drain-Source Voltage                   | 80       | V          |
| $V_{GS}$  | Gate-Source Voltage                    | $\pm 20$ | V          |
| $I_D$     | Drain Current-Continuous               | 46       | A          |
| $I_{DM}$  | Drain Current-Single Pulsed            | 169      | A          |
| $P_D$     | Total Dissipation @ $T_c = 25^\circ C$ | 35       | W          |
| $T_j$     | Max. Operating Junction Temperature    | 150      | $^\circ C$ |
| $T_{stg}$ | Storage Temperature                    | -55~150  | $^\circ C$ |

## • THERMAL CHARACTERISTICS

| SYMBOL         | PARAMETER                             | MAX  | UNIT         |
|----------------|---------------------------------------|------|--------------|
| $R_{th(ch-c)}$ | Channel-to-case thermal resistance    | 3.57 | $^\circ C/W$ |
| $R_{th(ch-a)}$ | Channel-to-ambient thermal resistance | 62.5 | $^\circ C/W$ |



**Isc N-Channel MOSFET Transistor****TK46A08N1, ITK46A08N1****ELECTRICAL CHARACTERISTICS****T<sub>C</sub>=25°C unless otherwise specified**

| SYMBOL              | PARAMETER                      | CONDITIONS                                   | MIN | TYP | MAX  | UNIT |
|---------------------|--------------------------------|--|-----|-----|------|------|
| BV <sub>DSS</sub>   | Drain-Source Breakdown Voltage | V <sub>GS</sub> =0V; I <sub>D</sub> = 10mA   | 80  |     |      | V    |
| V <sub>GS(th)</sub> | Gate Threshold Voltage         | V <sub>DS</sub> = 10V; I <sub>D</sub> =0.5mA | 2.0 |     | 4.0  | V    |
| R <sub>DS(on)</sub> | Drain-Source On-Resistance     | V <sub>GS</sub> =10V; I <sub>D</sub> =23A    |     |     | 8.4  | mΩ   |
| I <sub>GSS</sub>    | Gate-Source Leakage Current    | V <sub>GS</sub> = ±20V; V <sub>DS</sub> = 0V |     |     | ±0.1 | μA   |
| I <sub>DSS</sub>    | Drain-Source Leakage Current   | V <sub>DS</sub> = 80V; V <sub>GS</sub> = 0V  |     |     | 10   | μA   |
| V <sub>SDF</sub>    | Diode forward voltage          | I <sub>DR</sub> =46A, V <sub>GS</sub> = 0 V  |     |     | 1.2  | V    |

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