

# Isc N-Channel MOSFET Transistor

# TK32A12N1, ITK32A12N1

**• FEATURES**

- Low drain-source on-resistance:  
 $R_{DS(ON)} = 11.0\ m\Omega$  (typ.) ( $V_{GS} = 10\ V$ )
- Enhancement mode:  
 $V_{th} = 2.0\ to\ 4.0V$  ( $V_{DS} = 10\ V, I_D=0.5mA$ )
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**• DESCRIPTION**

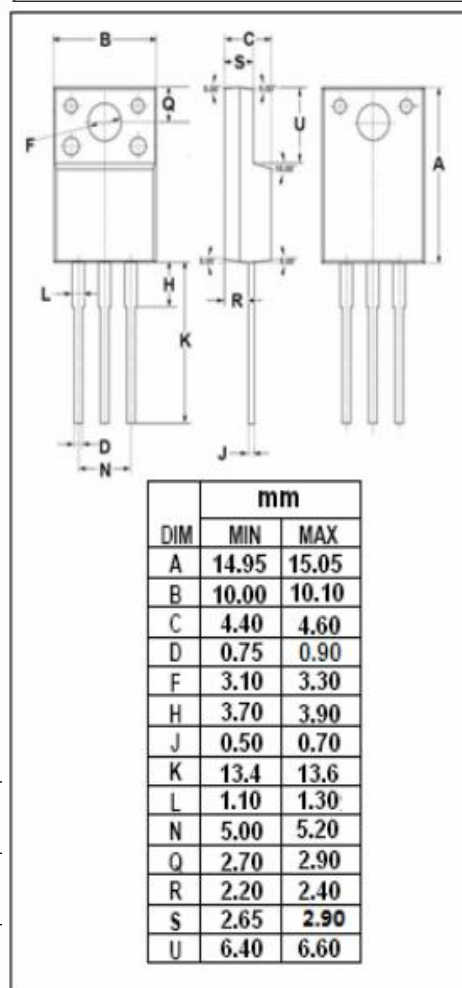
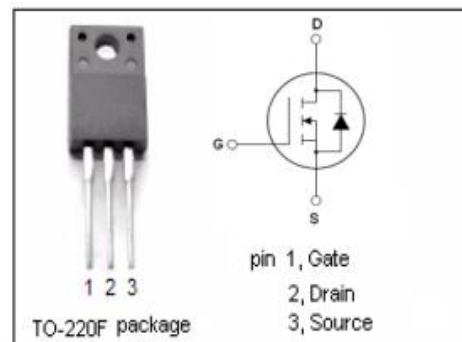
- Switching Voltage Regulators

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

| SYMBOL    | PARAMETER                            | VALUE    | UNIT       |
|-----------|--------------------------------------|----------|------------|
| $V_{DSS}$ | Drain-Source Voltage                 | 120      | V          |
| $V_{GS}$  | Gate-Source Voltage                  | $\pm 20$ | V          |
| $I_D$     | Drain Current-Continuous             | 32       | A          |
| $I_{DM}$  | Drain Current-Single Pulsed          | 110      | A          |
| $P_D$     | Total Dissipation @ $T_c=25^\circ C$ | 30       | 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    | 4.16 | $^\circ C/W$ |
| $R_{th(ch-a)}$ | Channel-to-ambient thermal resistance | 62.5 | $^\circ C/W$ |



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**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   | 120 |      |      | 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> =16A    |     | 11.0 | 13.8 | 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> = 120V; V <sub>GS</sub> = 0V |     |      | 10   | μA   |
| V <sub>SDF</sub>    | Diode forward voltage          | I <sub>DR</sub> =32A, V <sub>GS</sub> = 0 V  |     |      | 1.2  | V    |