

**isc N-Channel MOSFET Transistor**
**IRFP4004, IIRFP4004**
**• FEATURES**

- Static drain-source on-resistance:  
 $R_{DS(on)} \leq 1.7m\Omega$
- Enhancement mode:  
 $V_{th} = 2.0$  to  $4.0V$  ( $V_{DS}=V_{GS}$ ,  $I_D=250 \mu A$ )
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**• DESCRIPTION**

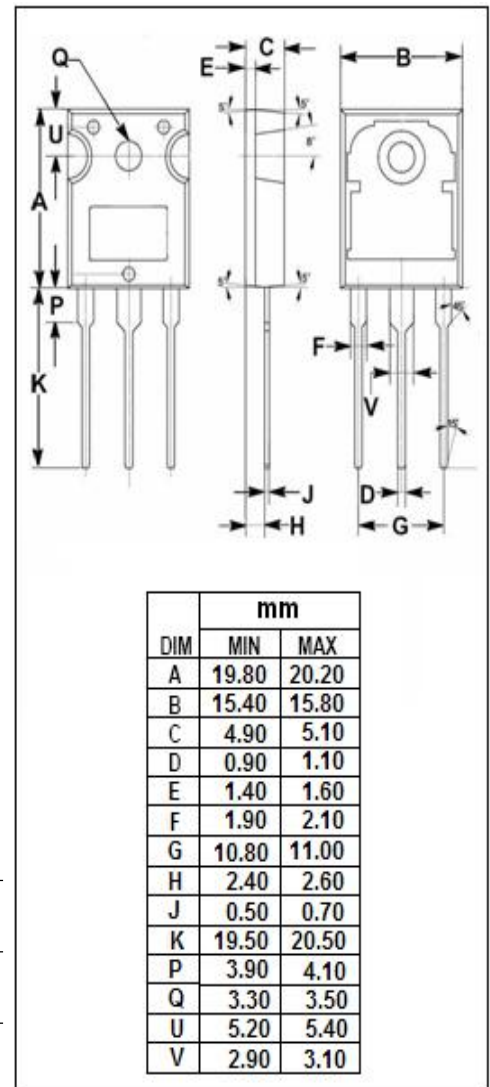
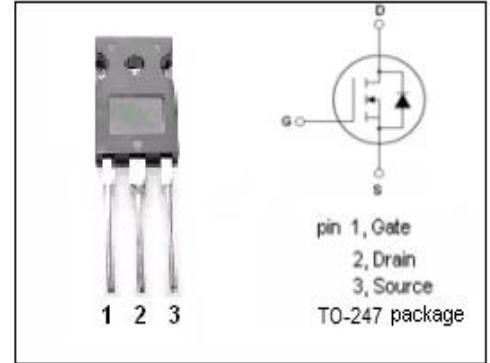
- High Efficiency Synchronous Rectification in SMPS
- Uninterruptible Power Supply
- High Speed Power Switching

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

| SYMBOL    | PARAMETER                            | VALUE    | UNIT       |
|-----------|--------------------------------------|----------|------------|
| $V_{DSS}$ | Drain-Source Voltage                 | 40       | V          |
| $V_{GS}$  | Gate-Source Voltage                  | $\pm 20$ | V          |
| $I_D$     | Drain Current-Continuous             | 195      | A          |
| $I_{DM}$  | Drain Current-Single Pulsed          | 1390     | A          |
| $P_D$     | Total Dissipation @ $T_c=25^\circ C$ | 380      | W          |
| $T_j$     | Max. Operating Junction Temperature  | 175      | $^\circ C$ |
| $T_{stg}$ | Storage Temperature                  | -55~175  | $^\circ C$ |

**• THERMAL CHARACTERISTICS**

| SYMBOL        | PARAMETER                             | MAX | UNIT         |
|---------------|---------------------------------------|-----|--------------|
| $R_{th(j-c)}$ | Channel-to-case thermal resistance    | 0.4 | $^\circ C/W$ |
| $R_{th(j-a)}$ | Channel-to-ambient thermal resistance | 40  | $^\circ C/W$ |



## isc N-Channel MOSFET Transistor

## IRFP4004, IIRFP4004

## 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> =250 μA               | 40  |     |      | V    |
| V <sub>GS(th)</sub> | Gate Threshold Voltage         | V <sub>DS</sub> =V <sub>GS</sub> ; I <sub>D</sub> =250 μA | 2.0 |     | 4.0  | V    |
| R <sub>DS(on)</sub> | Drain-Source On-Resistance     | V <sub>GS</sub> =10V; I <sub>D</sub> =195A                |     |     | 1.7  | mΩ   |
| I <sub>GSS</sub>    | Gate-Source Leakage Current    | V <sub>GS</sub> = ±20V                                    |     |     | ±0.2 | μA   |
| I <sub>DSS</sub>    | Drain-Source Leakage Current   | V <sub>DS</sub> =40V; V <sub>GS</sub> = 0V                |     |     | 20   | μA   |
| V <sub>SD</sub>     | Diode forward voltage          | I <sub>S</sub> =195A, V <sub>GS</sub> = 0V                |     |     | 1.3  | V    |

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