

**isc N-Channel MOSFET Transistor**

**IRFB42N20D, IIRFB42N20D**

**• FEATURES**

- Static drain-source on-resistance:  
 $R_{DS(on)} \leq 55m\Omega$
- Enhancement mode
- Fast Switching Speed
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**• DESCRIPTION**

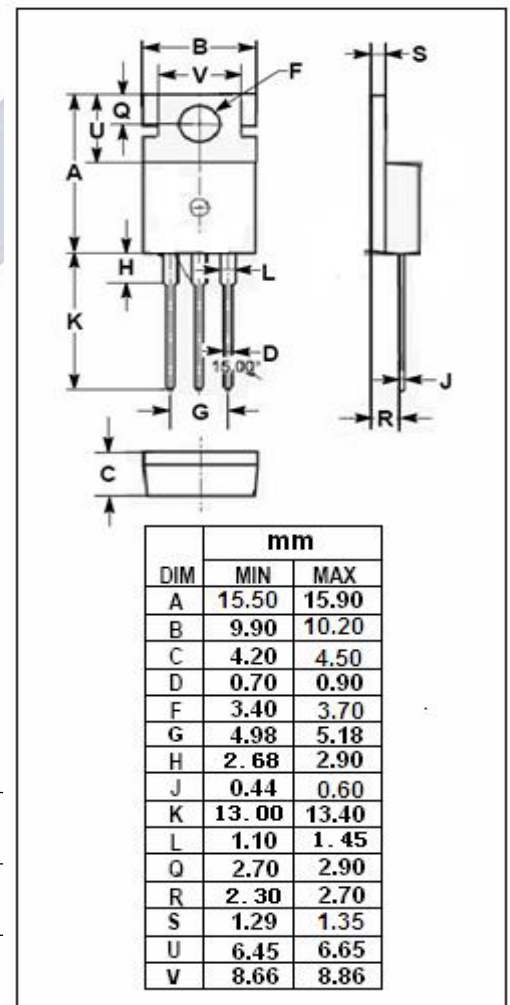
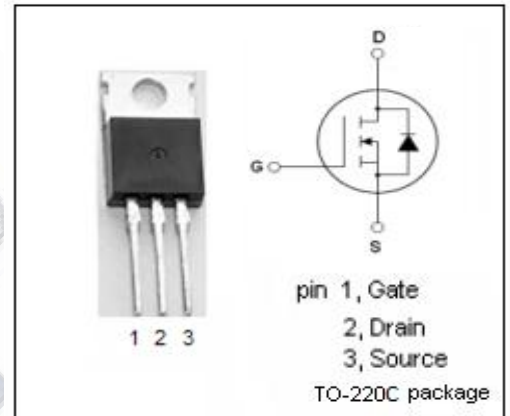
- High frequency DC-DC converters
- Uninterruptible Power Supplies

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

| SYMBOL    | PARAMETER                            | VALUE    | UNIT       |
|-----------|--------------------------------------|----------|------------|
| $V_{DSS}$ | Drain-Source Voltage                 | 200      | V          |
| $V_{GS}$  | Gate-Source Voltage                  | $\pm 30$ | V          |
| $I_D$     | Drain Current-Continuous             | 44       | A          |
| $I_{DM}$  | Drain Current-Single Pulsed          | 180      | A          |
| $P_D$     | Total Dissipation @ $T_c=25^\circ C$ | 330      | W          |
| $T_j$     | Max. Operating Junction Temperature  | 175      | $^\circ C$ |
| $T_{stg}$ | Storage Temperature                  | -55~175  | $^\circ C$ |

**• THERMAL CHARACTERISTICS**

| SYMBOL         | PARAMETER                             | MAX  | UNIT         |
|----------------|---------------------------------------|------|--------------|
| $R_{th(ch-c)}$ | Channel-to-case thermal resistance    | 0.45 | $^\circ C/W$ |
| $R_{th(ch-a)}$ | Channel-to-ambient thermal resistance | 62   | $^\circ C/W$ |



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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> =250 μ A               | 200 |     |      | V    |
| V <sub>GS(th)</sub> | Gate Threshold Voltage         | V <sub>DS</sub> =V <sub>GS</sub> ; I <sub>D</sub> =250 μ A | 3   |     | 5.5  | V    |
| R <sub>DS(on)</sub> | Drain-Source On-Resistance     | V <sub>GS</sub> =10V; I <sub>D</sub> =26A                  |     |     | 55   | mΩ   |
| I <sub>GSS</sub>    | Gate-Source Leakage Current    | V <sub>GS</sub> = ±30V                                     |     |     | ±0.1 | μ A  |
| I <sub>DSS</sub>    | Drain-Source Leakage Current   | V <sub>DS</sub> =200V; V <sub>GS</sub> = 0V                |     |     | 25   | μ A  |
| V <sub>SD</sub>     | Diode forward voltage          | I <sub>S</sub> =26A; V <sub>GS</sub> = 0V                  |     |     | 1.3  | V    |