

# isc N-Channel MOSFET Transistor IRFR13N15D, IIRFR13N15D

**• FEATURES**

- Static drain-source on-resistance:  
 $R_{DS(on)} \leq 180m\Omega$
- Enhancement mode:
- 100% avalanche tested
- Minimum Lot-to-Lot variations for robust device performance and reliable operation

**• DESCRIPTION**

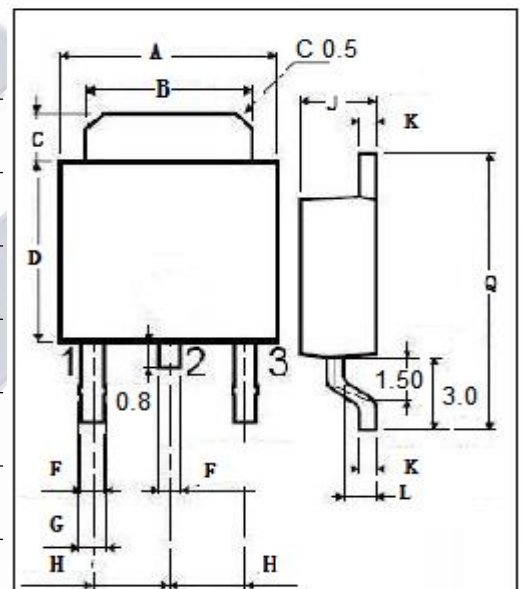
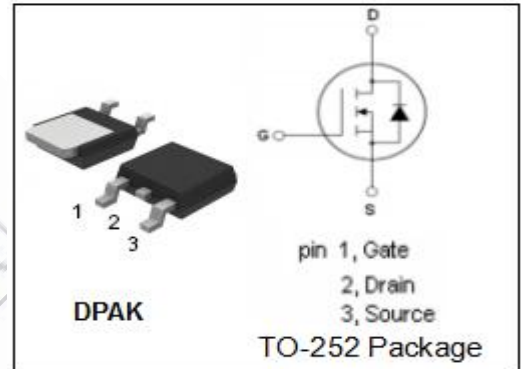
- High frequency DC-DC converters

**• ABSOLUTE MAXIMUM RATINGS(T<sub>a</sub>=25°C)**

| SYMBOL           | PARAMETER                               | VALUE   | UNIT |
|------------------|---|---------|------|
| V <sub>DSS</sub> | Drain-Source Voltage                    | 150     | V    |
| V <sub>GS</sub>  | Gate-Source Voltage                     | ±30     | V    |
| I <sub>D</sub>   | Drain Current-Continuous                | 14      | A    |
| I <sub>DM</sub>  | Drain Current-Single Pulsed             | 56      | A    |
| P <sub>D</sub>   | Total Dissipation @T <sub>c</sub> =25°C | 86      | W    |
| T <sub>j</sub>   | Max. Operating Junction Temperature     | 175     | °C   |
| T <sub>stg</sub> | Storage Temperature                     | -55~175 | °C   |

**• THERMAL CHARACTERISTICS**

| SYMBOL               | PARAMETER                             | MAX  | UNIT |
|----------------------|---------------------------------------|------|------|
| R <sub>th(j-c)</sub> | Channel-to-case thermal resistance    | 1.75 | °C/W |
| R <sub>th(j-a)</sub> | Channel-to-ambient thermal resistance | 110  | °C/W |



| DIM | mm   |      |
|-----|------|------|
|     | MIN  | MAX  |
| A   | 6.40 | 6.60 |
| B   | 5.20 | 5.40 |
| C   | 1.15 | 1.35 |
| D   | 5.70 | 6.10 |
| F   | 0.65 |      |
| G   | 0.75 |      |
| H   | 2.10 | 2.50 |
| J   | 2.10 | 2.40 |
| K   | 0.40 | 0.60 |
| L   | 0.90 | 1.10 |
| Q   | 9.90 | 10.1 |

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### ELECTRICAL CHARACTERISTICS

$T_C=25^{\circ}\text{C}$  unless otherwise specified

| SYMBOL       | PARAMETER                      | CONDITIONS                            | MIN | TYP | MAX       | UNIT             |
|--------------|--------------------------------|---------------------------------------|-----|-----|-----------|------------------|
| $BV_{DSS}$   | Drain-Source Breakdown Voltage | $V_{GS}=0V; I_D=250\ \mu\text{A}$     | 150 |     |           | V                |
| $V_{GS(th)}$ | Gate Threshold Voltage         | $V_{DS}=V_{GS}; I_D=250\ \mu\text{A}$ | 3   |     | 5.5       | V                |
| $R_{DS(on)}$ | Drain-Source On-Resistance     | $V_{GS}=10V; I_D=8.3A$                |     |     | 180       | $\text{m}\Omega$ |
| $I_{GSS}$    | Gate-Source Leakage Current    | $V_{GS}=\pm 30V$                      |     |     | $\pm 0.1$ | $\mu\text{A}$    |
| $I_{DSS}$    | Drain-Source Leakage Current   | $V_{DS}=150V; V_{GS}=0V$              |     |     | 25        | $\mu\text{A}$    |
| $V_{SD}$     | Diode forward voltage          | $I_s=8.3A, V_{GS}=0V$                 |     |     | 1.3       | V                |