

isc N-Channel MOSFET Transistor

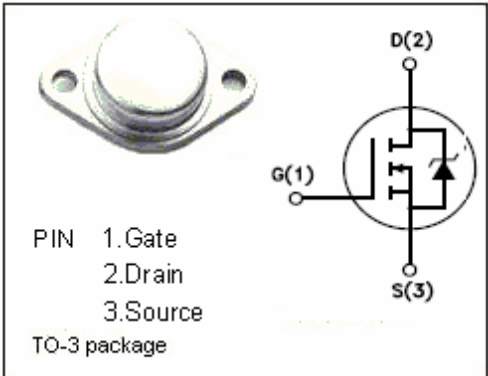
IRF257

DESCRIPTION

- Drain Current  $I_D=20A@ T_C=25^{\circ}C$
- Drain Source Voltage  
:  $V_{DSS}= 275V(Min)$
- Static Drain-Source On-Resistance  
:  $R_{DS(on)} =0.17 \Omega (Max)$
- Nanosecond Switching Speed

APPLICATIONS

- Switching power supplies
- Switching converters,motor driver,relay driver

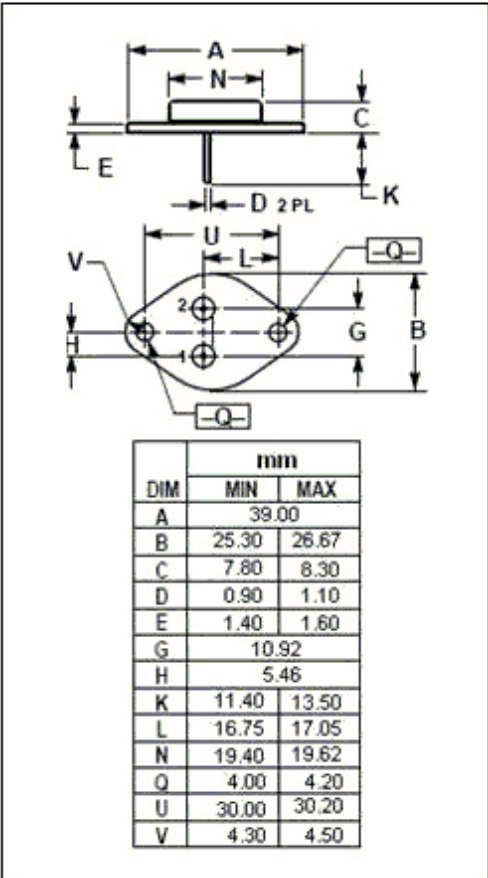


ABSOLUTE MAXIMUM RATINGS( $T_a=25^{\circ}C$ )

| SYMBOL    | PARAMETER                                   | VALUE    | UNIT        |
|-----------|---------------------------------------------|----------|-------------|
| $V_{DSS}$ | Drain-Source Voltage ( $V_{GS}=0$ )         | 275      | V           |
| $V_{GS}$  | Gate-Source Voltage                         | $\pm 20$ | V           |
| $I_D$     | Drain Current-continuous@ $T_C=25^{\circ}C$ | 20       | A           |
| $P_{tot}$ | Total Dissipation@ $T_C=25^{\circ}C$        | 150      | W           |
| $T_j$     | Max. Operating Junction Temperature         | 150      | $^{\circ}C$ |
| $T_{stg}$ | Storage Temperature Range                   | -55~150  | $^{\circ}C$ |

THERMAL CHARACTERISTICS

| SYMBOL       | PARAMETER                              | MAX  | UNIT          |
|--------------|----------------------------------------|------|---------------|
| $R_{th j-c}$ | Thermal Resistance,Junction to Case    | 0.83 | $^{\circ}C/W$ |
| $R_{th j-a}$ | Thermal Resistance,Junction to Ambient | 30   | $^{\circ}C/W$ |



**isc N-Channel MOSFET Transistor****IRF257****• ELECTRICAL CHARACTERISTICS (T<sub>C</sub>=25°C)**

| SYMBOL               | PARAMETER                        | CONDITIONS                                                             | MIN | TYPE | MAX  | UNIT |
|----------------------|----------------------------------|------------------------------------------------------------------------|-----|------|------|------|
| V <sub>(BR)DSS</sub> | Drain-Source Breakdown Voltage   | V <sub>GS</sub> =0; I <sub>D</sub> =250μA                              | 275 |      |      | V    |
| V <sub>GS(TH)</sub>  | Gate Threshold Voltage           | V <sub>DS</sub> = V <sub>GS</sub> ; I <sub>D</sub> =250μA              | 2.0 |      | 4.0  | V    |
| R <sub>DS(ON)</sub>  | Drain-Source On-stage Resistance | V <sub>GS</sub> =10V; I <sub>D</sub> =12A                              |     |      | 0.17 | Ω    |
| I <sub>GSS</sub>     | Gate Source Leakage Current      | V <sub>GS</sub> =±20V; V <sub>DS</sub> =0                              |     |      | ±100 | nA   |
| I <sub>DSS</sub>     | Zero Gate Voltage Drain Current  | V <sub>DS</sub> =275V; V <sub>GS</sub> =0                              |     |      | 250  | uA   |
| V <sub>SD</sub>      | Diode Forward Voltage            | I <sub>S</sub> =20A; V <sub>GS</sub> =0                                |     |      | 1.8  | V    |
| C <sub>iss</sub>     | Input Capacitance                | V <sub>DS</sub> =25V;<br>V <sub>GS</sub> =0V;<br>f <sub>T</sub> =1MHz  |     | 2700 |      | pF   |
| C <sub>rss</sub>     | Reverse Transfer Capacitance     |                                                                        |     | 130  |      |      |
| C <sub>oss</sub>     | Output Capacitance               |                                                                        |     | 580  |      |      |
| t <sub>r</sub>       | Rise Time                        | I <sub>D</sub> =16A;<br>V <sub>DD</sub> =95V;<br>R <sub>L</sub> =4.7 Ω |     | 84   | 130  | ns   |
| t <sub>d(on)</sub>   | Turn-on Delay Time               |                                                                        |     | 19   | 29   |      |
| t <sub>f</sub>       | Fall Time                        |                                                                        |     | 65   | 98   |      |
| t <sub>d(off)</sub>  | Turn-off Delay Time              |                                                                        |     | 75   | 110  |      |