

isc N-Channel MOSFET Transistor

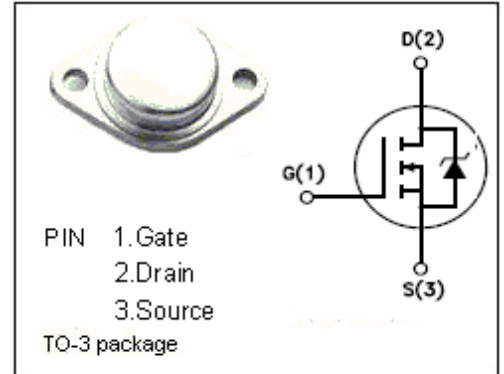
IRF342

DESCRIPTION

- V_{GS} Rated at $\pm 20V$
- Silicon Gate for Fast Switching Speeds
- $I_{DSS}, V_{DS(on)}, SOA$ and $V_{GS(th)}$ specified at Elevated temperature
- Rugged

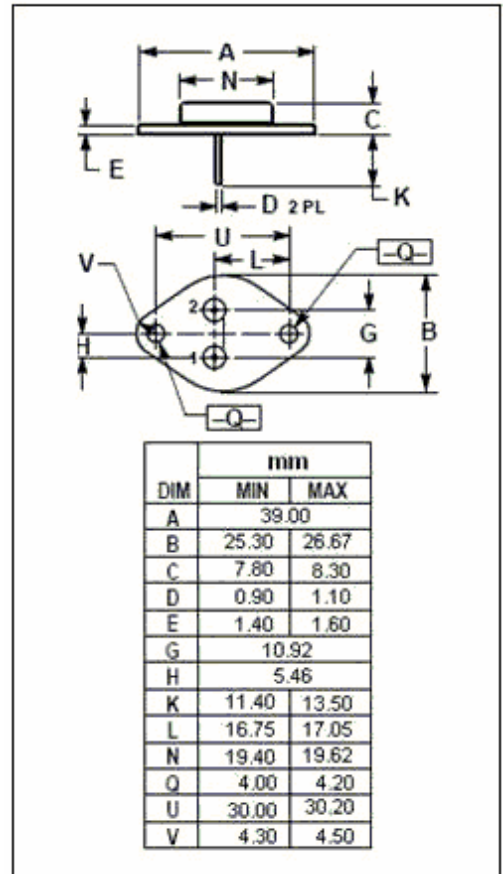
APPLICATIONS

- Designed especially for high voltage, high speed applications, such as off-line switching power supplies, UPS, AC and DC motor controls, relay and solenoid drivers.



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

| SYMBOL | PARAMETER | VALUE | UNIT |
|-----------|--|----------|-------------|
| V_{DSS} | Drain-Source Voltage ($V_{GS}=0$) | 400 | V |
| V_{GS} | Gate-Source Voltage | ± 20 | V |
| I_D | Drain Current-continuous@ $TC=25^{\circ}C$ | 8.3 | A |
| P_{tot} | Total Dissipation@ $TC=25^{\circ}C$ | 125 | W |
| T_j | Max. Operating Junction Temperature | -55~150 | $^{\circ}C$ |
| T_{stg} | Storage Temperature Range | -55~150 | $^{\circ}C$ |



THERMAL CHARACTERISTICS

| SYMBOL | PARAMETER | MAX | UNIT |
|--------------|---|-----|---------------|
| $R_{th j-c}$ | Thermal Resistance, Junction to Case | 1.0 | $^{\circ}C/W$ |
| $R_{th j-A}$ | Thermal Resistance, Junction to Ambient | 30 | $^{\circ}C/W$ |

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• ELECTRICAL CHARACTERISTICS ($T_C=25^\circ\text{C}$)

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNIT |
|---------------|----------------------------------|--|-----|------|-----------|---------------|
| $V_{(BR)DSS}$ | Drain-Source Breakdown Voltage | $V_{GS}=0; I_D=0.25\text{mA}$ | 400 | | | V |
| $V_{GS(TH)}$ | Gate Threshold Voltage | $V_{DS}=V_{GS}; I_D=0.25\text{mA}$ | 2 | | 4 | V |
| $R_{DS(ON)}$ | Drain-Source On-stage Resistance | $V_{GS}=10\text{V}; I_D=5.2\text{A}$ | | | 0.8 | Ω |
| I_{GSS} | Gate Source Leakage Current | $V_{GS}=\pm 20\text{V}; V_{DS}=0$ | | | ± 100 | nA |
| I_{DSS} | Zero Gate Voltage Drain Current | $V_{DS}=400\text{V}; V_{GS}=0$ | | | 250 | μA |
| V_{SD} | Diode Forward Voltage | $I_F=10\text{A}; V_{GS}=0$ | | | 2 | V |
| C_{iss} | Input Capacitance | $V_{DS}=25\text{V}, V_{GS}=0\text{V}, F=1.0\text{MHz}$ | | 1250 | 1600 | pF |
| C_{oss} | Output Capacitance | | | 300 | 450 | pF |
| C_{rss} | Reverse Transfer Capacitance | | | 80 | 150 | pF |

• SWITCHING CHARACTERISTICS ($T_C=25^\circ\text{C}$)

| SYMBOL | PARAMETER | CONDITIONS | MIN | TYP | MAX | UNIT |
|-------------------|---------------------|---|-----|-----|-----|------|
| $T_d(\text{on})$ | Turn-on Delay Time | $V_{DD}=200\text{V}, I_D=10\text{A}, R_G=9.1\Omega$ | | 17 | 21 | ns |
| T_r | Rise Time | | | 27 | 41 | ns |
| $T_d(\text{off})$ | Turn-off Delay Time | | | 45 | 75 | ns |
| T_f | Fall Time | | | 20 | 36 | ns |