

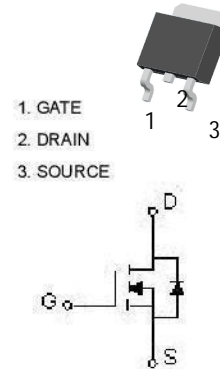


2N60 N-Channel Power MOSFET

TO-252

General Description

The high voltage MOSFET uses an advanced termination scheme to provide enhanced voltage-blocking capability without degrading performance over time. In addition, this advanced MOSFET is designed to withstand high energy in avalanche and commutation modes. The new energy efficient design also offers a drain-to-source diode with a fast recovery time. Designed for high voltage, high speed switching applications in power suppliers, converters and PWM motor controls, these devices are particularly well suited for bridge circuits where diode speed and commutating safe operating areas are critical and offer additional and safety margin against unexpected voltage transients.



FEATURES

- Robust High Voltage Termination
- Avalanche Energy Specified
- Source-to-Drain Diode Recovery Time Comparable to a Discrete Fast Recovery Diode
- Diode is Characterized for Use in Bridge Circuits
- I_{DSS} and $V_{DS(on)}$ Specified at Elevated Temperature

Maximum ratings ($T_a=25^\circ\text{C}$ unless otherwise noted)

| Parameter | Symbol | Value | Unit |
|---|-----------------|-----------|---------------------------|
| Drain-Source voltage | V_{DS} | 600 | V |
| Gate-Source Voltage | V_{GS} | ± 20 | |
| Continuous Drain Current | I_D | 2 | A |
| Pulsed Drain Current | I_{DM} | 8 | |
| Power Dissipation | P_D | 1.25 | W |
| Single Pulsed Avalanche Energy* | E_{AS} | 128 | mJ |
| Thermal Resistance from Junction to Ambient | $R_{\theta JA}$ | 100 | $^\circ\text{C}/\text{W}$ |
| Junction Temperature | T_J | 150 | $^\circ\text{C}$ |
| Storage Temperature | T_{stg} | -50 ~+150 | |

* E_{AS} condition: $T_J=25^\circ\text{C}$, $V_{DD}=50\text{V}$, $L=64\text{mH}$, $I_{AS}=2\text{A}$, $R_G=25\Omega$

Electrical characteristics (T_a=25°C unless otherwise noted)

| Parameter | Symbol | Test Condition | Min | Typ | Max | Unit |
|--|-----------------------|---|-----|-----|------|------|
| Drain-Source Breakdown Voltage | V _{(BR) DSS} | V _{GS} = 0V, I _D =250μA | 600 | | | V |
| Gate-Threshold Voltage (note1) | V _{GS(th)} | V _{DS} =V _{GS} , I _D =250μA | 2.0 | | 4.0 | |
| Gate-Body Leakage Current (note1) | I _{GSS} | V _{DS} =0V, V _{GS} =±20V | | | ±100 | nA |
| Zero Gate Voltage Drain Current | I _{DSS} | V _{DS} =600V, V _{GS} =0V | | | 25 | μA |
| Drain-Source On-State Resistance (note1) | R _{DS(on)} | V _{GS} =10V, I _D =1A | | | 4.4 | Ω |
| Forward Transconductance (note1) | g _{FS} | V _{DS} =50V, I _D =1A | 1 | | | S |
| Input Capacitance (note2) | C _{ISS} | V _{DS} =25V, V _{GS} =0V, f =1MHz | | 435 | | pF |
| Output Capacitance (note2) | C _{OSS} | | | 56 | | |
| Reverse Transfer Capacitance (note2) | C _{rSS} | | | 9.2 | | |
| Turn-On Delay Time (note2) | t _{d(on)} | V _{DD} =300V, I _D =2A, V _{GS} =10V, R _G =18Ω | | 12 | | ns |
| Rise Time (note2) | t _r | | | 21 | | |
| Turn-Off Delay Time (note2) | t _{d(off)} | | | 30 | | |
| Fall Time (note2) | t _f | | | 24 | | |
| Forward on Voltage(note1) | V _{SD} | V _{GS} =0V, I _S =2A | | | 1.6 | V |

Notes:

1. Pulse Test : Pulse Width≤300μs, duty cycle ≤2%.
2. These parameters have no way to verify.

