

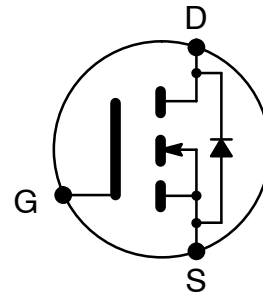


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NTE2379
MOSFET
N-Channel, Enhancement Mode
High Speed Switch
TO220 Type package

Features:

- Dynamic dv/dt Rating
- Repetitive Avalanche Rated
- Fast Switching
- Ease of Paralleling
- Simple Drive Requirements



Absolute Maximum Ratings:

| | |
|---|-------------------------------|
| Gate-Source Voltage, V_{GS} | $\pm 20V$ |
| Drain Current, I_D | |
| Continuous ($V_{GS} = 10V$) | |
| $T_C = +25^\circ C$ | 6.2A |
| $T_C = +100^\circ C$ | 3.9A |
| Pulsed (Note 1) | 25A |
| Gate Current (Pulsed), I_{GM} | $\pm 1.5A$ |
| Single Pulsed Avalanche Energy (Note 2), E_{AS} | 570mJ |
| Avalanche Current (Note 1), I_{AR} | 6.2A |
| Repetitive Avalanche Energy (Note 1), E_{AR} | 13mJ |
| Peak Diode Recovery dv/dt (Note 3), dv/dt | 3V/ns |
| Total Power Dissipation ($T_C = +25^\circ C$), P_D | 125W |
| Derate Above $25^\circ C$ | 1.0W/ $^\circ C$ |
| Operating Junction Temperature Range, T_J | -55° to $+150^\circ C$ |
| Storage Temperature Range, T_{stg} | -55° to $+150^\circ C$ |
| Maximum Lead Temperature (During Soldering, 1/16" from case, 10sec), T_L | $+300^\circ C$ |
| Thermal Resistance: | |
| Maximum Junction-to-Case, R_{thJC} | 1.0 $^\circ C/W$ |
| Typical Case-to-Sink (Mounting surface flat, smooth, and greased), R_{thCS} | 0.5 $^\circ C/W$ |
| Maximum Junction-to-Ambient (Free Air Operation), R_{thJA} | 62 $^\circ C/W$ |

Note 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

Note 2. $V_{DD} = 50V$, starting $T_J = +25^\circ C$, $I = 27mH$, $R_G = 25\pm$, $I_{AS} = 6.2A$.

Note 3. $I_{SD} \leq 6.2A$, $di/dt \leq 80A/\mu s$, $V_{DD} \leq V_{(BR)DSS}$, $T_J \leq +150^\circ C$.

Electrical Characteristics: ($T_J = +25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|--------------|---|-----|------|------|----------|
| Drain–Source Breakdown Voltage | BV_{DSS} | $V_{GS} = 0V, I_D = 250\geq A$ | 600 | – | – | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\geq A$ | 2.0 | – | 4.0 | V |
| Gate–Source Leakage Forward | I_{GSS} | $V_{GS} = 20V$ | – | – | 100 | nA |
| Gate–Source Leakage Reverse | I_{GSS} | $V_{GS} = -20V$ | – | – | -100 | nA |
| Drain–Source Leakage Current | I_{DSS} | $V_{DS} = 600V, V_{GS} = 0$ | – | – | 100 | $\geq A$ |
| | | $V_{DS} = 480V, V_{GS} = 0, T_C = +150^\circ\text{C}$ | – | – | 500 | $\geq A$ |
| Static Drain–Source ON Resistance | $R_{DS(on)}$ | $V_{GS} = 10V, I_D = 3.7A, \text{Note 4}$ | – | – | 1.2 | \pm |
| Forward Transconductance | g_{fs} | $V_{DS} \geq 100V, I_D = 3.7A, \text{Note 4}$ | 4.7 | – | – | mhos |
| Input Capacitance | C_{iss} | $V_{GS} = 0V, V_{DS} = 25V, f = 1\text{MHz}$ | – | 1300 | – | pF |
| Output Capacitance | C_{oss} | | – | 160 | – | pF |
| Reverse Transfer Capacitance | C_{rss} | | – | 30 | – | pF |
| Turn–On Delay Time | $t_{d(on)}$ | $V_{DD} = 300V, I_D = 6.2A, R_G = 9.1\pm, R_D = 47\pm, \text{Note 4}$ | – | 32 | – | ns |
| Rise Time | t_r | | – | 18 | – | ns |
| Turn–Off Delay Time | $t_{d(off)}$ | | – | 55 | – | ns |
| Fall Time | t_f | | – | 20 | – | ns |
| Total Gate Charge | Q_g | $V_{GS} = 10V, I_D = 6.2A, V_{DS} = 360V$ | – | – | 60 | nC |
| Gate–Source Charge | Q_{gs} | | – | – | 8.3 | nC |
| Gate–Drain (“Miller”) Charge | Q_{gd} | | – | – | 30 | nC |
| Internal Drain Inductance | L_D | Between lead, 6mm (.250 in) from package and center of die contact | – | 4.5 | – | nH |
| Internal Source Inductance | L_S | | – | 7.5 | – | nH |
| Source–Drain Diode Ratings and Characteristics | | | | | | |
| Continuous Source Current | I_S | (Body Diode) | – | – | 6.2 | A |
| Pulse Source Current | I_{SM} | (Body Diode) Note 1 | – | – | 25 | A |
| Diode Forward Voltage | V_{SD} | $T_J = +25^\circ\text{C}, I_S = 6.2A, V_{GS} = 0V, \text{Note 4}$ | – | – | 1.5 | V |
| Reverse Recovery Time | t_{rr} | $T_J = +25^\circ\text{C}, I_F = 6.2A, di/dt = 100A/\geq s, \text{Note 4}$ | – | 450 | 940 | ns |
| Reverse Recovery Charge | Q_{rr} | | – | 3.8 | 7.9 | $\geq C$ |
| Forward Turn–On Time | t_{on} | Intrinsic turn–on time is negligible (turn–on is dominated by $L_S + L_D$) | | | | |

Note 1. Repetitive Rating: Pulse width limited by maximum junction temperature.

Note 4. Pulse Test: Pulse Width $\leq 300\geq s$, Duty Cycle $\leq 2\%$.

