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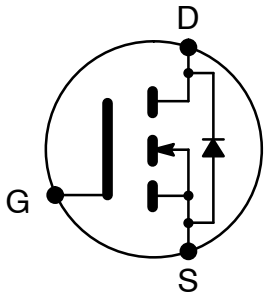
# NTE2379
# MOSFET
# N–Channel, Enhancement Mode
# High Speed Switch
# TO220 Type package

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




**Absolute Maximum Ratings:**

Gate–Source Voltage, $V_{GS}$ . . . . . ±20V

Drain Current, $I_D$

Continuous ($V_{GS}$ = 10V)

$T_C$ = +25°C . . . . . 6.2A

$T_C$ = +100°C . . . . . 3.9A

Pulsed (Note 1) . . . . . 25A

Gate Current (Pulsed), $I_{GM}$ . . . . . ±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°C), $P_D$ . . . . . 125W

Derate Above 25°C . . . . . 1.0W/°C

Operating Junction Temperature Range, $T_J$ . . . . . –55° to +150°C

Storage Temperature Range, $T_{stg}$ . . . . . –55° to +150°C

Maximum Lead Temperature (During Soldering, 1/16” from case, 10sec), $T_L$ . . . . . +300°C

Thermal Resistance:

Maximum Junction–to–Case, $R_{thJC}$ . . . . . 1.0°C/W

Typical Case–to–Sink (Mounting surface flat, smooth, and greased), $R_{thCS}$ . . . . . 0.5°C/W

Maximum Junction–to–Ambient (Free Air Operation), $R_{thJA}$ . . . . . 62°C/W

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

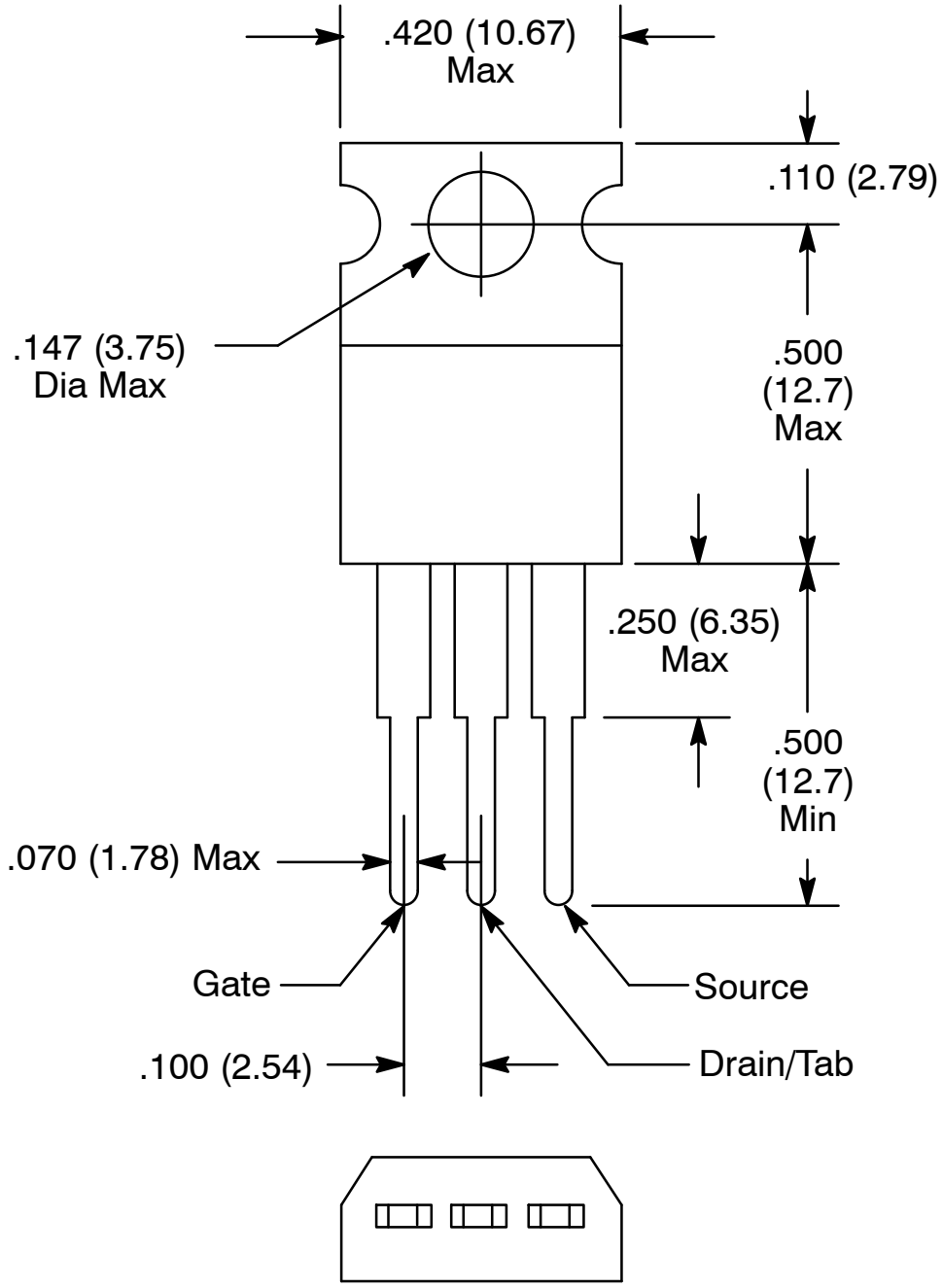
Note 2. $V_{DD}$ = 50V, starting $T_J$ = +25°C, I = 27mH, $R_G$ = 25± , $I_{AS}$ = 6.2A.

Note 3. $I_{SD} \le$ 6.2A, di/dt ≤ 80A/≥A, $V_{DD} \le V_{(BR)DSS}$, $T_J \le$ +150°C.

**Electrical Characteristics:** ($T_J$ = +25°C unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---|---|---|---|---|---|---|
| Drain–Source Breakdown Voltage | $BV_{DSS}$ | $V_{GS}$ = 0V, $I_D$ = 250≥A | 600 | – | – | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}$ = $V_{GS}$, $I_D$ = 250≥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 | ≥A |
| | | $V_{DS}$ = 480V, $V_{GS}$ = 0, $T_C$ = +150°C | – | – | 500 | ≥A |
| Static Drain–Source ON Resistance | $R_{DS(on)}$ | $V_{GS}$ = 10V, $I_D$ = 3.7A, Note 4 | – | – | 1.2 | ± |
| Forward Transconductance | $g_{fs}$ | $V_{DS}$ ≥ 100V, $I_D$ = 3.7A, Note 4 | 4.7 | – | – | mhos |
| Input Capacitance | $C_{iss}$ | $V_{GS}$ = 0V, $V_{DS}$ = 25V, f = 1MHz | – | 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±, $R_D$ = 47±, 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°C, $I_S$ = 6.2A, $V_{GS}$ = 0V, Note 4 | – | – | 1.5 | V |
| Reverse Recovery Time | $t_{rr}$ | $T_J$ = +25°C, $I_F$ = 6.2A, di/dt = 100A/≥s, Note 4 | – | 450 | 940 | ns |
| Reverse Recovery Charge | $Q_{rr}$ | | – | 3.8 | 7.9 | ≥C |
| Forward Turn–On Time | $t_{on}$ | Intrinsic turn–on time is neglegible (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 ≤ 300≥s, Duty Cycle ≤ 2%.


.420 (10.67)
Max
.110 (2.79)
.147 (3.75)
Dia Max
.500
(12.7)
Max
.250 (6.35)
Max
.500
(12.7)
Min
.070 (1.78) Max
Gate
Source
.100 (2.54)
Drain/Tab