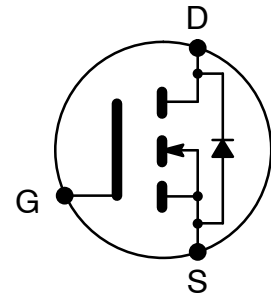




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NTE2920 MOSFET N-Ch, Enhancement Mode High Speed Switch TO3P Type Package



Features:

- Drain Current: $I_D = 70A$ at $T_C = +25^\circ C$
- Drain Source Voltage: $V_{DSS} = 60V$ Min
- Static Drain-Source On-Resistance: $R_{DS(on)} = 0.014\Omega$ Max
- Fast Switching

Absolute Maximum Ratings: ($T_A = +25^\circ C$ unless otherwise specified)

| | |
|---|-------------------------------|
| Drain-Source Voltage, V_{DSS} | 60V |
| Continuous Gate-Source Voltage, V_{GS} | $\pm 20V$ |
| Continuous Drain Current, I_D | |
| $T_C = +25^\circ C$ | 70A |
| $T_C = +100^\circ C$ | 64A |
| Single Pulse Drain Current, I_{DM} | 360A |
| Power Dissipation ($T_C = +25^\circ C$), P_D | 230W |
| Operating Junction Temperature Range, T_J | -55° to $+175^\circ C$ |
| Storage Temperature Range, T_{stg} | -55° to $+175^\circ C$ |
| Thermal Resistance, Junction-to-Case, R_{thJC} | $0.65^\circ C/W$ |
| Thermal Resistance, Junction-to-Ambient, R_{thJA} | $40^\circ C/W$ |

Electrical Characteristics: ($T_C = +25^\circ C$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|----------------------------------|---------------|-----------------------------------|-----|-----|-----------|----------|
| Drain-Source Breakdown Voltage | $V_{(BR)DSS}$ | $V_{GS} = 0V, I_D = 250\mu A$ | 60 | - | - | V |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS} = V_{GS}, I_D = 250\mu A$ | 2.0 | - | 4.0 | V |
| Drain-Source On-Resistance | $R_{DS(on)}$ | $V_{GS} = 10V, I_D = 54A$ | - | - | 0.014 | Ω |
| Gate-Source Body Leakage Current | I_{GSS} | $V_{GS} = \pm 20V, V_{DS} = 0V$ | - | - | ± 100 | nA |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS} = 60V, V_{GS} = 0V$ | - | - | 25 | μA |
| Forward ON-Voltage | V_{SD} | $I_S = 90A, V_{GS} = 0V$ | - | - | 2.5 | V |
| Forward Transconductance | g_{fs} | $V_{DS} = 25V, I_D = 54A$ | 25 | - | - | S |

Electrical Characteristics (Cont'd): ($T_C = +25^\circ\text{C}$ unless otherwise specified)

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|---------------------------------|--------------|---|-----|------|-----|------|
| Total Gate Charge | Q_g | $I_D = 64\text{A}$, $V_{DS} = 48\text{V}$, $V_{GS} = 10\text{V}$, Note 1 | - | - | 160 | nC |
| Gate-to-Source Charge | Q_{gs} | | - | - | 48 | nC |
| Gate-to-Drain ("Miller") Charge | Q_{gd} | | - | - | 54 | nC |
| Turn-On Delay Time | $t_{d(on)}$ | $V_{DD} = 30\text{V}$, $I_D = 64\text{A}$, $R_G = 6.2\Omega$, $R_D = 0.45\Omega$, Note 1 | - | 20 | - | ns |
| Rise Time | t_r | | - | 160 | - | ns |
| Turn-Off Delay Time | $t_{d(off)}$ | | - | 83 | - | ns |
| Fall Time | t_f | | - | 150 | - | ns |
| Internal Drain Inductance | L_D | Between lead, .250in. (6.0) mm from package and center of die contact | - | 5.0 | - | nH |
| Internal Source Inductance | L_S | | - | 13 | - | nH |
| Input Capacitance | C_{iss} | $V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$ | - | 4500 | - | pF |
| Output Capacitance | C_{oss} | | - | 2000 | - | pF |
| Reverse Transfer Capacitance | C_{rSS} | | - | 300 | - | pF |

Source-Drain Ratings and Characteristics:

| Parameter | Symbol | Test Conditions | Min | Typ | Max | Unit |
|--|----------|--|-----|-----|-----|---------------|
| Continuous Source Current (Body Diode) | I_S | Note 2 | - | - | 70 | A |
| Pulsed Source Current (Body Diode) | I_{SM} | Note 1 | - | - | 360 | A |
| Diode Forward Voltage | V_{SD} | $T_J = +25^\circ\text{C}$, $I_S = 90\text{A}$, $V_{GS} = 0\text{V}$, Note 3 | - | - | 2.5 | V |
| Reverse Recovery Time | t_{rr} | $T_J = +25^\circ\text{C}$, $I_F = 64\text{A}$, $di/dt = 100\text{A}/\mu\text{s}$, Note 1 | - | 270 | 540 | ns |
| Reverse Recovery Charge | Q_{rr} | | - | 1.1 | 2.2 | μC |
| Forward Turn-On Time | t_{on} | Intrinsic turn-on time is negligible (turn-on is dominated by L_S+L_D) | | | | |

Note 1. Pulse width $\leq 300\mu\text{s}$; duty cycle $\leq 2\%$.

Note 2. Current limited by the package, (Die Current = 90A).

Note 3. Repetitive rating; pulse width limited by maximum junction temperature.

