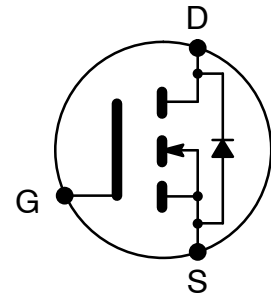




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NTE2920 MOSFET N-Ch, Enhancement Mode High Speed Switch TO3P Type Package



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.

