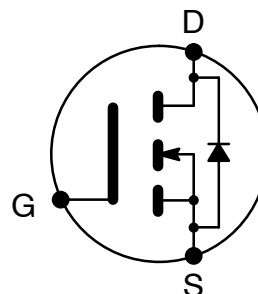




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## NTE2920 MOSFET N-Ch, Enhancement Mode High Speed Switch TO3P Type Package



**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, $T_J$ .....	$-55^\circ$ to $+175^\circ C$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ 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	$\Omega$
Gate-Source Body Leakage Current	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	$\pm 100$	nA
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 60V, V_{GS} = 0V$	-	-	25	$\mu A$
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	$\mu\text{C}$
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.

