



**ELECTRONICS, INC.**  
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## NTE2954 MOSFET N-Channel, Enhancement Mode High Speed Switch

**Applications:**

- Motor Control
- Lamp Control
- Solenoid Control
- DC-DC Converter

**Absolute Maximum Ratings:** ( $T_C = +25^\circ\text{C}$  unless otherwise specified)

Drain-Source Voltage ( $V_{GS} = 0V$ ), $V_{DSS}$ .....	100V
Gate-Source Voltage ( $V_{DS} = 0V$ ), $V_{GS}$ .....	$\pm 20V$
Drain Current, $I_D$	
Continuous .....	70A
Pulsed .....	280A
Avalanche Drain Current (Pulsed, $L = 100\mu\text{H}$ ), $I_{DA}$ .....	70A
Source Current, $I_S$	
Continuous .....	70A
Pulsed .....	280A
Maximum Power Dissipation, $P_D$ .....	35W
Channel Temperature Range, $T_{ch}$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	$-55^\circ$ to $+150^\circ\text{C}$
Thermal Resistance, Channel-to-Case, $R_{th(ch-c)}$ .....	$3.57^\circ\text{C/W}$
Isolation Voltage (AC for 1 minute, Terminal-to-Case), $V_{ISO}$ .....	2000V

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{DS} = 0V, I_D = 1\text{mA}$	100	-	-	V
Gate-Source Leakage	$I_{GSS}$	$V_{GS} = \pm 20V, V_{DS} = 0V$	-	-	$\pm 0.1$	$\mu\text{A}$
Zero Gate Voltage Drain Current	$I_{DSS}$	$V_{DS} = 100V, V_{GS} = 0$	-	-	0.1	mA
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = 10V, I_D = 1\text{mA}$	1.0	1.5	2.0	V
Static Drain-Source ON Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 35A$	-	13	17	$\text{m}\Omega$
		$V_{GS} = 4V, I_D = 35A$	-	14	18	$\text{m}\Omega$
Drain-Source On-State Voltage	$V_{DS(on)}$	$V_{GS} = 10V, I_D = 35A$	-	0.46	0.60	V
Forward Transfer Admittance	$ y_{fs} $	$V_{GS} = 10V, I_D = 35A$	-	68	-	S

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Input Capacitance	$C_{iss}$	$V_{GS} = 0V, V_{DS} = 10V, f = 1\text{MHz}$	-	8200	-	pF
Output Capacitance	$C_{oss}$		-	1150	-	pF
Reverse Transfer Capacitance	$C_{rss}$		-	600	-	pF
Turn-On Delay Time	$t_{d(on)}$	$V_{DD} = 50V, I_D = 35A, V_{GS} = 10V, R_{GEN} = R_{GS} = 50\Omega$	-	54	-	ns
Rise Time	$t_r$		-	140	-	ns
Turn-Off Delay Time	$t_{d(off)}$		-	830	-	ns
Fall Time	$t_f$		-	350	-	ns
Diode Forward Voltage	$V_{SD}$	$I_S = 35A, V_{GS} = 0V$	-	1.0	1.5	V
Reverse Recovery Time	$t_{rr}$	$I_S = 70A, di_F/dt = 100A/\mu s$	-	115	-	ns

