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NTE491T MOSFET N-Ch, Enhancement Mode High Speed Switch

Features:

- Zener Diode Input Protected
- Low On-Resistance
- Ultralow Threshold
- Low Input Characteristics
- Low Input and Output Leakage

Applications:

- Drivers: Relays, Solenoids, Lamps, Hammers, Displays, Memories, Transistors, etc,
- Battery Operated Systems
- Solid-State Relays
- Inductive Load Drivers

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

Drain-Source Voltage, V_{DS}	60V
Gate-Source Voltage, V_{GS}	15/-0.3V
Drain Current, I_D	
Continuous ($T_J = +150^\circ\text{C}$)	
$T_A = +25^\circ\text{C}$	310mA
$T_A = +100^\circ\text{C}$	200mA
Pulsed	1A
Power Dissipation, P_D	
$T_A = +25^\circ\text{C}$	1W
$T_A = +100^\circ\text{C}$	400mW
Operating Junction Temperature Range, T_J	-55° to +150°C
Storage Temperature Range, T_{stg}	-55° to +150°C
Thermal Resistance, Junction-to-Ambient, $R_{th(JA)}$	125°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Static Characteristics						
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0, I_D = 100\mu\text{A}$	60	-	-	V
Gate Threshold Voltage	$V_{GS(TH)}$	$I_D = 1\text{mA}, V_{DS} = V_{GS}$	0.8	-	2.5	V
Gate-Body Leakage Current	I_{GSS}	$V_{GS} = 15\text{V}, V_{DS} = 0$	-	-	100	nA
Zero-Gate-Voltage Drain Current	I_{DSS}	$V_{DS} = 48\text{V}, V_{GS} = 0$	-	-	10	μA
		$V_{DS} = 48\text{V}, V_{GS} = 0, T_J = +125^\circ\text{C}$	-	-	500	mA
ON-State Drain Current	$I_{d(on)}$	$V_{GS} = 10\text{V}, V_{DS} = 10\text{V}, \text{Note 1}$	750	-	-	mA
Drain-Source ON Resistance	$r_{DS(on)}$	$V_{GS} = 10\text{V}, I_D = 500\text{mA}$	-	-	5.0	Ω
		$V_{GS} = 10\text{V}, I_D = 500\text{mA}, T_J = +125^\circ\text{C}$	-	-	6.0	Ω
		$V_{GS} = 5\text{V}, I_D = 200\text{mA}$			7.5	Ω
Forward Transconductance	g_{fs}	$V_{DS} = 10\text{V}, I_D = 500\text{mA}$	100	-	-	mS
Dynamic Characteristics						
Input Capacitance	C_{iss}	$V_{DS} = 25\text{V}, V_{GS} = 0\text{V}, f = 1\text{MHz}$	-	-	60	pF
Output Capacitance	C_{oss}		-	-	25	pF
Reverse Transfer Capacitance	C_{rss}		-	-	5	pF
Switching Characteristics (Note 2)						
Turn-On Time	t_{ON}	$V_{DD} = 15\text{V}, R_L = 23\Omega, I_D = 600\text{mA}, V_{GEN} = 10\text{V}, R_G = 25\Omega$	-	-	10	ns
Turn-Off Time	t_{OFF}		-	-	10	ns

Note 1. Pulse Test: Pulse Width $\leq 300\mu\text{s}$, Duty Cycle $\leq 2\%$.

Note 2. Switching time is essentially independent of operating temperature.

