

NTE491 MOSFET N-Ch, Enhancement Mode High Speed Switch

Absolute Maximum Ratings:

Drain-Source Voltage, V_{DS}	60V
Drain-Gate Voltage ($R_{GS} = 1M\Omega$), V_{DGR}	60V
Gate-Source Voltage, V_{GS}	$\pm 40V$
Drain Current, I_D	
Continuous	200mA
Pulsed	500mA
Total Device Dissipation ($T_A = +25^\circ C$), P_D	350mW
Derate above $25^\circ C$	2.8mW/ $^\circ C$
Operating Junction Temperature Range, T_J	-55° to $+150^\circ C$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ C$
Thermal Resistance, Junction-to-Ambient, $R_{th(JA)}$	312.5 $^\circ C/W$
Maximum Lead Temperature (During Soldering, 1/16" from case, 10sec), T_L	$+300^\circ C$

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
OFF Characteristics						
Zero-Gate-Voltage Drain Current	I_{DSS}	$V_{DS} = 48V, V_{GS} = 0$	—	—	1.0	μA
		$V_{DS} = 48V, V_{GS} = 0, T_J = +125^\circ C$	—	—	1.0	mA
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0, I_D = 10\mu A$	60	—	—	V
Gate-Body Leakage Current, Forward	I_{GSSF}	$V_{GSF} = 15V, V_{DS} = 0$	—	—	-10	nA
ON Characteristics (Note 1)						
Gate Threshold Voltage	$V_{GS(Th)}$	$I_D = 1mA, V_{DS} = V_{GS}$	0.8	—	3.0	V
Static Drain-Source ON Resistance	$r_{DS(on)}$	$V_{GS} = 10V, I_D = 500mA$	—	—	5.0	Ω
		$V_{GS} = 4.5V, I_D = 75mA$	—	—	6.0	Ω
Drain-Source ON-Voltage	$V_{DS(on)}$	$V_{GS} = 10V, I_D = 500mA$	—	—	2.5	V
		$V_{GS} = 4.5V, I_D = 75mA$	—	—	0.45	V
ON-State Drain Current	$I_{d(on)}$	$V_{GS} = 4.5V, V_{DS} = 10V$	75	—	—	mA
Forward Transconductance	g_{fs}	$V_{DS} = 10V, I_D = 200mA$	100	—	—	$\mu mhos$

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

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Dynamic Characteristics						
Input Capacitance	C _{iss}	V _{DS} = 25V, V _{GS} = 0, f = 1MHz	—	—	60	pF
Reverse Transfer Capacitance	C _{rss}		—	—	25	pF
Output Capacitance	C _{oss}		—	—	5.0	pF
Switching Characteristics						
Turn-On Delay Time	t _{on}	V _{DD} = 15V, I _D = 500mA, R _{gen} = 25Ω, R _L = 25Ω	—	—	10	ns
Turn-Off Delay Time	t _{off}		—	—	10	ns

