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NTE2994 MOSFET N-Channel, Enhancement Mode High Speed Switch

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

Drain-Source Voltage, V_{DS}	450V
Gate-Source Voltage, V_{GS}	$\pm 30\text{V}$
Continuous Drain Current, I_D	
Continuous ($T_C = +25^\circ\text{C}$)	$\pm 10\text{A}$
Pulsed	$\pm 40\text{A}$
Maximum Power Dissipation, P_D	50W
Avalanche Energy ($V_{CC} = 45\text{V}$, $L = 1.58\text{mH}$), E_{AS}	86.2mJ
Avalanche Current, Repetitive or Non-Repetitive ($T_J \leq +150^\circ\text{C}$), I_{AR}	10A
Operating Junction Temperature, T_J	$+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	2.5°C/W
Thermal Resistance, Junction-to-Ambient, R_{thJA}	62.5°C/W

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-Source Breakdown Voltage	BV_{DSS}	$I_D = 1\text{mA}$, $V_{GS} = 0\text{V}$	450	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$I_D = 1\text{mA}$, $V_{DS} = V_{GS}$	3.5	4.0	4.5	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 450$, $V_{GS} = 0\text{V}$, $T_J = +25^\circ\text{C}$	-	10	500	μA
		$V_{DS} = 450$, $V_{GS} = 0\text{V}$, $T_J = +125^\circ\text{C}$	-	0.2	1.0	mA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 30\text{V}$, $V_{DS} = 0\text{V}$	-	10	100	nA
Drain-Source On-State Resistance	$R_{DS(on)}$	$I_D = 5\text{A}$, $V_{GS} = 10\text{V}$	-	0.58	0.65	Ω
Forward Transconductance	g_{fs}	$I_D = 5\text{A}$, $V_{DS} = 25\text{V}$	3.0	6.0	-	S
Input Capacitance	C_{iss}	$V_{DS} = 25\text{V}$, $V_{GS} = 0\text{V}$, $f = 1\text{MHz}$	-	950	1450	pF
Output Capacitance	C_{oss}		-	180	270	pF
Reverse Transfer Capacitance	C_{rss}		-	80	120	pF
Turn-On Time	$t_{d(on)}$	$V_{CC} = 300\text{V}$, $V_{GS} = 10\text{V}$, $I_D = 10\text{A}$, $R_{GS} = 10\Omega$	-	25	40	ns
Rise Time	t_r		-	70	110	ns
Turn-Off Time	$t_{d(off)}$		-	70	110	ns
Fall Time	t_f		-	50	80	ns
Avalanche Capability	I_{AV}	$L = 100\mu\text{H}$, $T_J = +25^\circ\text{C}$	10	-	-	A
Diode Forward On-Voltage	V_{SD}	$I_F = 2 \times I_{DR}$, $V_{GS} = 0\text{V}$, $T_J = +25^\circ\text{C}$	-	1.1	1.65	nC
Reverse Recovery Time	t_{rr}	$I_F = I_{DR}$, $V_{GS} = 0\text{V}$, $-di_F/dt = 100\text{A}/\mu\text{s}$, $T_J = +25^\circ\text{C}$	-	400	-	ns
Reverse Recovery Charge	Q_{rr}		-	5.0	-	μC

