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

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

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

