



ELECTRONICS, INC.
 44 FARRAND STREET
 BLOOMFIELD, NJ 07003
 (973) 748-5089
<http://www.nteinc.com>



NTE2907 MOSFET N-Channel, Enhancement Mode High Speed Switch

Features:

- Low Drain-Source ON Resistance
- High Forward Transfer Admittance
- Low Leakage Current

Applications:

- High Current, High Speed Switching Applications
- Chopper Regulator
- DC-DC Converter
- Motor Drive

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

Drain-Source Voltage, V_{DSS}	600V
Drain-Gate Voltage ($R_{GS} = 20\text{k}\Omega$), V_{DGR}	600V
Gate-Source Voltage, V_{GSS}	$\pm 30\text{V}$
Continuous Drain Current, I_D	
Continuous	10A
Pulsed	40A
Drain Power Dissipation ($T_C = +25^\circ\text{C}$), P_D	45W
Single Pulse Avalanche Energy (Note 1), E_{AS}	363mJ
Avalanche Current, I_{AR}	10A
Repetitive Avalanche Energy (Note 2), E_{AR}	5.0mJ
Channel Temperature, T_{ch}	$+150^\circ\text{C}$
Storage Temperature Range, T_{stg}	-55° to $+150^\circ\text{C}$
Thermal Resistance, Junction-to-Case, R_{thJC}	2.78°C/W
Thermal Resistance, Junction-to-Ambient, R_{thJA}	62.5°C/W

Note 1. $V_{DD} = 90\text{V}$, Starting $T_{ch} = +25^\circ\text{C}$, $L = 6.36\text{mH}$, $R_G = 25\Omega$, $I_{AR} = 10\text{A}$.

Note 2. Repetitive Rating: Pulse Width limited by Max. Junction Temperature.

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Gate Leakage Current	I_{GSS}	$V_{DS} = 0V, V_{GS} = \pm 25V$	-	-	± 10	μA
Gate-Source Breakdown Voltage	$V_{(BR)GSS}$	$V_{DS} = 0V, I_G = \pm 10\mu\text{A}$	± 30	-	-	V
Drain Cut-Off Current	I_{DSS}	$V_{DS} = 600, V_{GS} = 0V$	-	-	100	μA
Drain-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 10\text{mA}$	600	-	-	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = 10V, I_D = 1\text{mA}$	2.0	-	4.0	V
Drain-Source ON Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 5A$	-	0.54	0.75	Ω
Forward Transfer Admittance	$ Y_{fs} $	$V_{DS} = 10V, I_D = 5A$	3.0	9.0	-	S
Input Capacitance	C_{iss}	$V_{DS} = 10V, V_{GS} = 0V, f = 1\text{MHz}$	-	2040	-	pF
Output Capacitance	C_{oss}		-	590	-	pF
Reverse Transfer Capacitance	C_{rss}		-	230	-	pF
Turn-On Time	$t_{d(on)}$	$V_{DD} = 200V, V_{GS} = 10V, I_D = 5A,$ $R_L = 40\Omega, V_{IN}: t_p, t_f < 5\text{ns}, \text{Duty} \leq 1\%,$ $t_w = 10\mu\text{s}$	-	58	-	ns
Rise Time	t_r		-	22	-	ns
Turn-Off Time	$t_{d(off)}$		-	190	-	ns
Fall Time	t_f		-	36	-	ns
Total Gate Charge	Q_g	$V_{DD} = 400V, V_{GS} = 10V, I_D = 10A$	-	45	-	nC
Gate-Source Charge	Q_{gs}		-	25	-	nC
Gate-Drain ("Miller") Charge	Q_{gd}		-	20	-	nC
Continuous Drain Reverse Current	I_{DR}		-	-	10	A
Pulse Drain Reverse Current	I_{DRP}		-	-	40	A
Diode Forward Voltage	V_{DSF}	$I_{DR} = 10A, V_{GS} = 0V$	-	-	1.7	V
Reverse Recovery Time	t_{rr}	$I_{DR} = 10A, V_{GS} = 0V, dI_{DR}/dt = 100A/\mu\text{s}$	-	1300	-	ns
Reverse Recovery Charge	Q_{rr}			16		μC

