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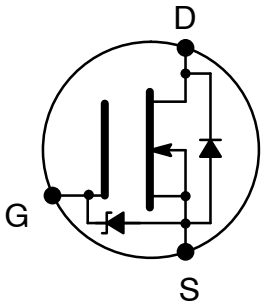
RoHS 2002/95/EC

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

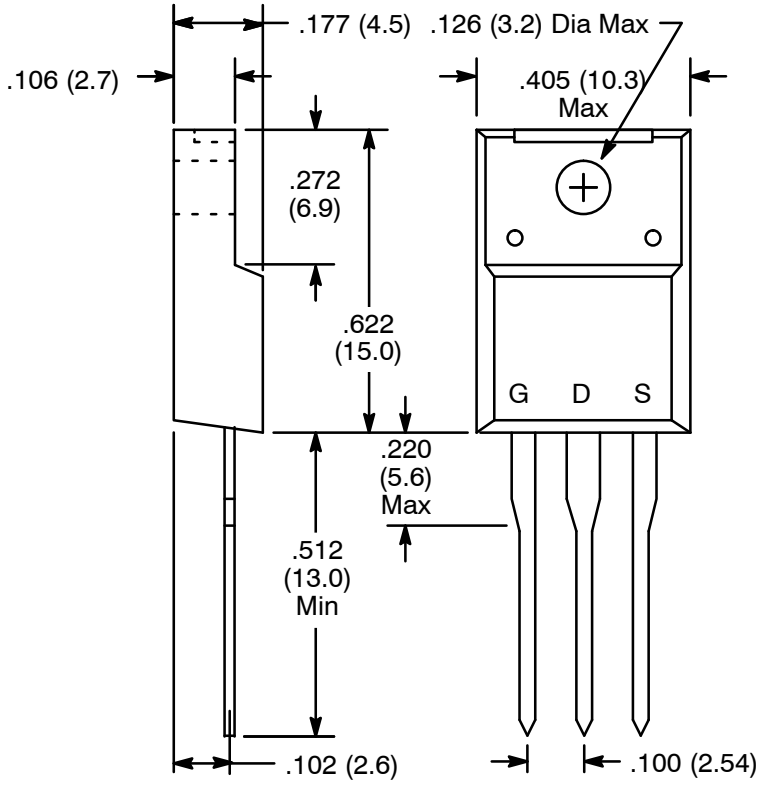
Absolute Maximum Ratings: (T_A = +25°C unless otherwise specified)

Drain–Source Voltage, V_{DSS} 600V
Drain–Gate Voltage (R_{GS} = 20kΩ), V_{DGR} 600V
Gate–Source Voltage, V_{GSS} . . . . . ±30V
Continuous Drain Current, I_D
  Continuous 10A
  Pulsed 40A
Drain Power Dissipation (T_C = +25°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°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°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} = 90V, Starting T_{ch} = +25°C, L = 6.36mH, R_G = 25Ω, I_{AR} = 10A.
Note 2. Repetitive Rating: Pulse Width limited by Max. Junction Temperature.

Electrical Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Gate Leakage Current	I_{GSS}	V_{DS} = 0V, V_{GS} = ±25V	–	–	±10	≤A
Gate−Source Breakdown Voltage	$V_{(BR)GSS}$	V_{DS} = 0V, I_G = ±10≤A	±30	–	–	V
Drain Cut−Off Current	I_{DSS}	V_{DS} = 600, V_{GS} = 0V	–	–	100	≤A
Drain−Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 10mA	600	–	–	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = 10V, I_D = 1mA	2.0	–	4.0	V
Drain−Source ON Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 5A	–	0.54	0.75	±
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 = 1MHz	–	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±, V_{IN}: t_r, t_f < 5ns, Duty ≤ 1%, t_w = 10≤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/≤s	–	1300	–	ns
Reverse Recovery Charge	Q_{rr}			16		≤C



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