ELECTRONICS, INC.
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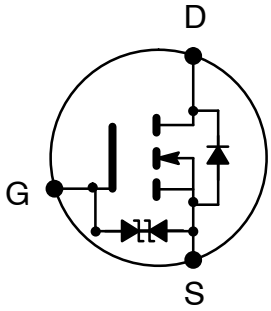
NTE2911
MOSFET
N–Channel, Enhancement Mode
High Speed Switch
TO–220 Full Pack Type Package



Features:
- Low Drain–Source ON–Resistance
- High Forward Transfer Admittance
- Low Leakage Current
- Enhancement Mode

Absolute Maximum Ratings: (T_A = +25°C, Note 1 unless otherwise specified)

Drain–Source Voltage, V_{DSS} 500V
Drain–Gate Voltage (R_{GS} = 20kΩ), V_{DGR} 500V
Gate–Source Voltage, V_{GSS} . . . . . ±30V
Drain Current (Note 2), I_D
Continuous 12A
Pulse (t = 1ms) 48A
Drain Power Dissipation (T_C = +25°C), P_D 40W
Single Pulse Avalanche Energy (Note 3), E_{AS} 364mJ
Avalanche Current, I_{AR} 12A
Repetitive Avalanche Energy (Note 4), E_{AR} 4mJ
Channel Temperature T_{ch} . . . . . +150°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C
Thermal Resistance, Channel–to–Case, $R_{th(ch–c)}$ . . . . . 3.125°C/W
Thermal Resistance, Channel–to–Ambient, $R_{th(ch–a)}$ . . . . . 62.5°C/W

Note 1. Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the Absolute Maximum Ratings.
Note 2. Ensure that the channel temperature does not exceed +150°C.
Note 3. V_{DD} = 90V, T_{ch} = +25°C (Initial), L = 4.3mH, I_{AR} = 12A, R_G = 25Ω.
Note 4. Repetitive rating: pulse width limited by maximum channel temperature.

Rev. 9–14

RoHS 2002/95/EC

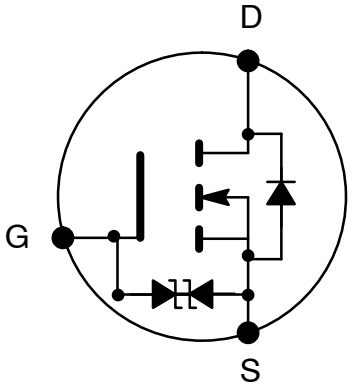
Electrical Characteristics: (T_A = +25°C unless otherwise specified)

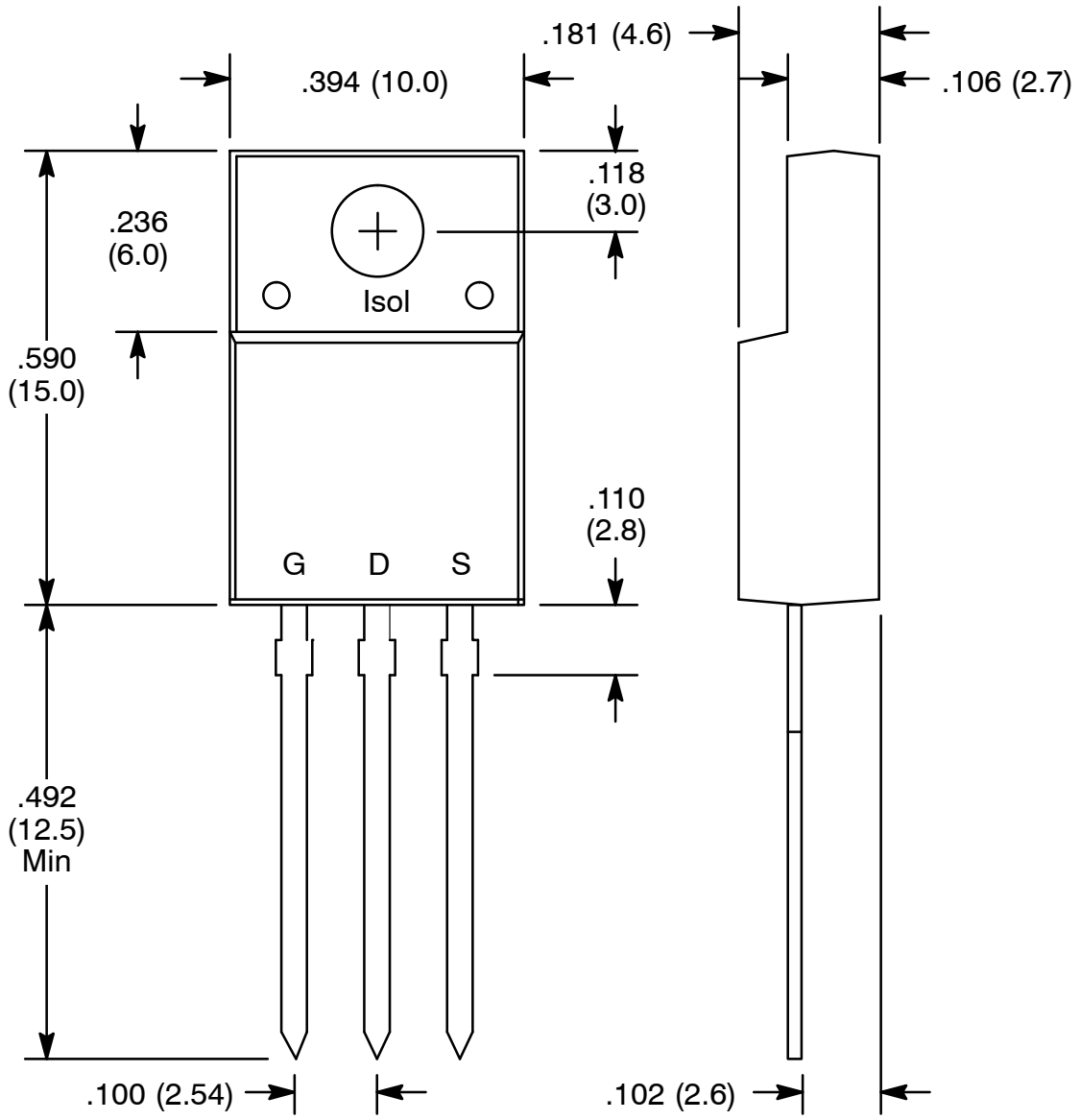
Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Gate Leakage Current	I_{GSS}	V_{GS} = ±25V, V_{DS} = 0V	–	–	±10	μA
Gate−to−Source Breakdown Voltage	$V_{(BR)GSS}$	V_{DS} = 0V, I_G = ±10μA	±30	–	–	V
Drain Cut−Off Current	I_{DSS}	V_{DS} = 500V, V_{GS} = 0V	–	–	100	μA
Drain−to−Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 10mA	500	–	–	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = 10V, I_D = 1mA	2.0	–	4.0	V
Drain−to−Source On−Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 6A	–	0.4	0.52	Ω
Forward Transfer Admittance	$\|y_{fs}\|$	V_{DS} = 10V, I_D = 6A	3.5	8.5	–	S
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz	–	1500	–	pF
Output Capacitance	C_{oss}		–	180	–	pF
Reverse Transfer Capacitance	C_{rss}		–	15	–	pF
Turn−On Time	t_{on}	V_{DD} = 200V, I_D = 6A, R_L = 33Ω, V_{GS} = 10V, Duty ≤ 1%, t_w = 10μs	–	50	–	ns
Rise Time	t_r		–	22	–	ns
Turn−Off Time	t_{off}		–	170	–	ns
Fall Time	t_f		–	36	–	ns
Total Gate Charge	Q_g	I_D = 12A, V_{DD} = 400V, V_{GS} = 10V	–	42	–	nC
Gate−to−Source Charge	Q_{gs}		–	23	–	nC
Gate−to−Drain (“Miller”) Charge	Q_{gd}		–	19	–	nC

Source−Drain Ratings and Characteristics: (T_A = +25°C unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Continuous Drain Reverse Current	I_{DR}	Note 2	–	–	12	A
Pulse Drain Reverse Current	I_{DRP}	Note 2	–	–	48	A
Diode Forward Voltage	V_{DSF}	I_{DR} = 12A, V_{GS} = 0V	–	–	−1.7	V
Reverse Recovery Time	t_{rr}	I_{DR} = 12A, V_{GS} = 0V, dI_{DR}/dt = 100A/μs	–	1200	–	ns
Reverse Recovery Charge	Q_{rr}		–	16	–	μC

Note 2. Ensure that the channel temperature does not exceed +150°C.

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