ELECTRONICS, INC.
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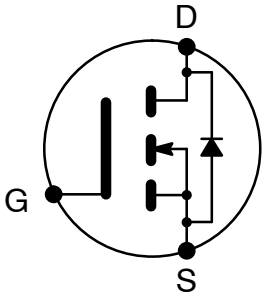
NTE2950
MOSFET
N–Channel, Enhancement Mode
High Speed Switch
TO–262 Type Package

Features:
- Low R_{DSON} Reduces Losses
- Low Gate Charge Improves the Switching Performance
- Improved Diode Recovery Improves Switching & EMI Performance
- 30V Gate Voltage Rating Improves Robustness
- Fully Characterized Avalanche SOA



Applications
- Motion Control Applications
- High Efficiency Synchronous Rectification in SMPS
- Uninterruptible Power Supply
- Hard Switched and High Frequency Circuits

Absolute Maximum Ratings:

Continuous Drain Current (V_{GS} = 10V), I_D
- T_C = +25°C (Note 1) 85A
- T_C = +100°C 60A

Pulsed Drain Current (Note 2), I_{DM} 330A

Maximum Power Dissipation (T_C = +25°C), P_D 350W
- Linear Derating Factor . . . . . 2.3W/°C

Gate–to–Source Voltage, V_{GS} . . . . . ±30V

Single Pulse Avalanche Energy (Thermally Limited, Note 3), E_{AS} 120mJ

Operating Junction Temperature Range, T_{opr} . . . . . –55° to +175°C

Storage Temperature Range, T_{STG} . . . . . –55° to +175°C

Lead Temperature (During soldering, 10 sec. max, 1.6mm from case), T_L . . . . . +300°C

Thermal Resistance, Junction–to–Case (Note 4, Note 5), R_{thJC} . . . . . 0.43°C/W

Thermal Resistance, Junction–to–Ambient (Note 4), R_{thJA} . . . . . 40°C/W

Note 1. Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 75A

Note 2. Repetitive rating: pulse width limited by max. junction temperature.

Note 3. Limited by T_{Jmax}, starting T_J = +25°C, L = 0.096mH, R_G = 25Ω, I_{AS} = 50A, V_{GS} = 10V. Device not recommended for use above this value.

Note 4. Thermal resistance is measured at T_J approximately +90°C.

Note 5. R_{thJC} (end of life) = 0.65°C/W. This is the maximum measured value after 1000 temperature cycles from –55° to +15°C and is accounted for by the physical wearout of the die attach medium.

RoHS 2002/95/EC

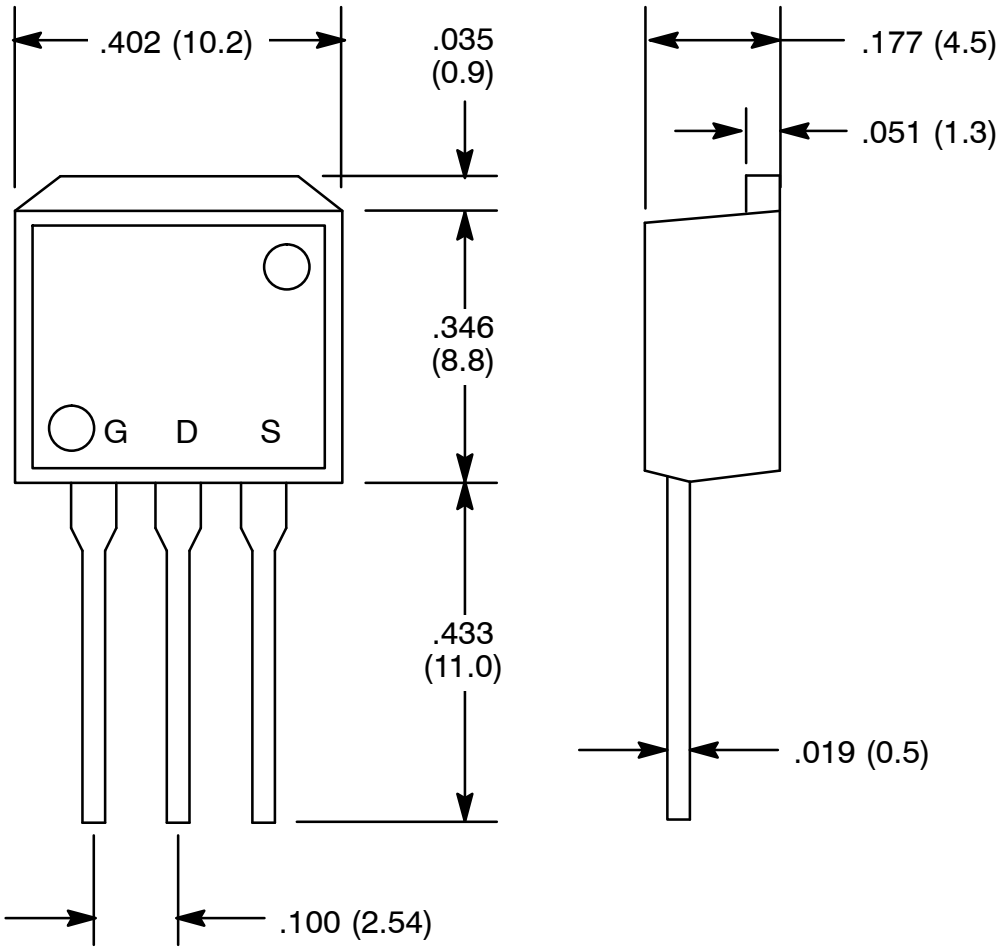
Electrical Characteristics:

Parameter	Symbol	Test Conditions		Min	Typ	Max	Unit
Static (T_J = +25°C unless otherwise specified)							
Drain–to–Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V,I_D = 250μA		150	–	–	V
Breakdown Voltage Temp. Coefficient	$\Delta V_{(BR)DSS}/\Delta T_J$	Reference to +25°C, I_D = 1mA, Note 2		–	150	–	mV/°C
Static Drain–to–Source On–Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 33A, Note 6		–	12	15	mΩ
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA		3.0	–	5.0	V
Drain–to–Source Leakage Current	I_{DSS}	V_{DS} = 150V, V_{GS} = 0V		–	–	20	μA
			T_J = +125°C	–	–	1.0	mA
Gate–to–Source Leakage Current	I_{GSS}	V_{GS} = ±20V		–	–	±100	nA
Internal Gate Resistance	$R_{G(int)}$			–	0.8	–	Ω
Dynamic (T_J = +25°C unless otherwise specified)							
Forward Transconductance	gfs	V_{DS} = 25V, I_D = 50A		130	–	–	S
Total Gate Charge	Q_g	I_D = 50A, V_{DS} = 75V, V_{GS} = 10V, Note 6		–	71	110	nC
Gate–to–Source Charge	Q_{gs}			–	24	–	nC
Gate–to–Drain (“Miller”) Charge	Q_{gd}			–	21	–	nC
Turn–On Delay Time	$t_{d(on)}$	V_{DD} = 98V, I_D = 50A, R_G = 2.5Ω, V_{GS} = 10V, Note 6		–	18	–	ns
Rise Time	t_r			–	60	–	ns
Turn–Off Delay Time	$t_{d(off)}$			–	25	–	ns
Fall Time	t_f			–	35	–	ns
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 50V, f = 1MHz		–	4460	–	pF
Output Capacitance	C_{oss}			–	390	–	pF
Reverse Transfer Capacitance	C_{rss}			–	82	–	pF
Diode Characteristics							
Continuous Source Current (Body Diode)	I_S	Note 1		–	–	85	A
Pulsed Source Current (Body Diode)	I_{SM}	Note 2		–	–	330	A
Diode Forward Voltage	V_{SD}	I_S = 50A, V_{GS} = 0V, T_J = +25°C, Note 6		–	–	1.3	V
Reverse Recovery Time	t_{rr}	I_D = 50A, V_R = 128V, di/dt = 100A/μs, Note 6		–	89	130	ns
Reverse Recovery Charge	Q_{rr}			–	300	450	nC
Reverse Recovery Current	I_{RRM}			–	6.5	–	A
Forward Turn–On Time	ton	Intrinsic turn–on time is negligible (turn–on is dominated by LS+LD)					

Note 1. Calculated continuous current based on maximum allowable junction temperature. Package limitation current is 75A

Note 2. Repetitive rating: pulse width limited by max. junction temperature.

Note 6. Pulse width ≤ 400μs; duty cycle ≤ 2%.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(0.9)
.177 (4.5)
.051 (1.3)
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(8.8)
G
D
S
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(11.0)
.019 (0.5)
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