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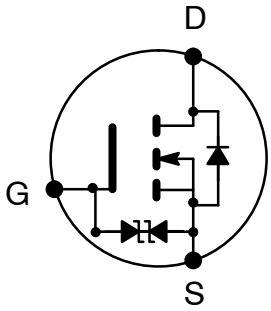
NTE2929
MOSFET
N–Channel, Enhancement Mode
TO–220 Full Pack Type Package

Features:
- Low Drain–Source ON Resistance: $R_{DS(on)}$ = 2.3Ω Typ
- High Forward Transfer Admittance: $|Y_{fs}|$ = 4.4S Typ
- Low Leakage Current: I_{DSS} = 100μA Max (V_{DS} = 720V)
- Enhancement Mode: V_{th} = 2.0 to 4.0V (V_{DS} = 10V, I_D = 1mA)



Applications:
- DC–DC Converter
- Motor Driver

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

Drain–Source Voltage, V_{DSS} 900V
Drain–Gate Voltage (R_{GS} = 20kΩ), V_{DGR} 900V
Gate–Source Voltage, V_{GSS} . . . . . ±30V
Drain Current (Note 1), I_D
  Continuous 5A
  Pulsed 15A
Drain Power Dissipation (T_C = +25°C), P_D 45W
Single Pulsed Avalanche Energy (Note 2), E_{AS} 595mJ
Avalanche Current, I_{AR} 5A
Repetitive Avalanche Energy (Note 3), E_{AR} 4.5mJ
Channel Temperature, T_{ch} . . . . . +150°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C
Maximum Thermal Resistance, Channel–to–Case, R_{thCHC} . . . . . 2.78°C/W
Maximum Thermal Resistance, Channel–to–Ambient, R_{thCHA} . . . . . 62.5°C/W

Note 1. Please use device on condition that the channel temperature is below +150°C.
Note 2. L = 43.6mH, I_{AR} = 5A, V_{DD} = 90V, R_G = 25Ω, T_{ch} = +25°C (initial).
Note 3. Repetitive rating; Pulse width limited by maximum channel temperature.

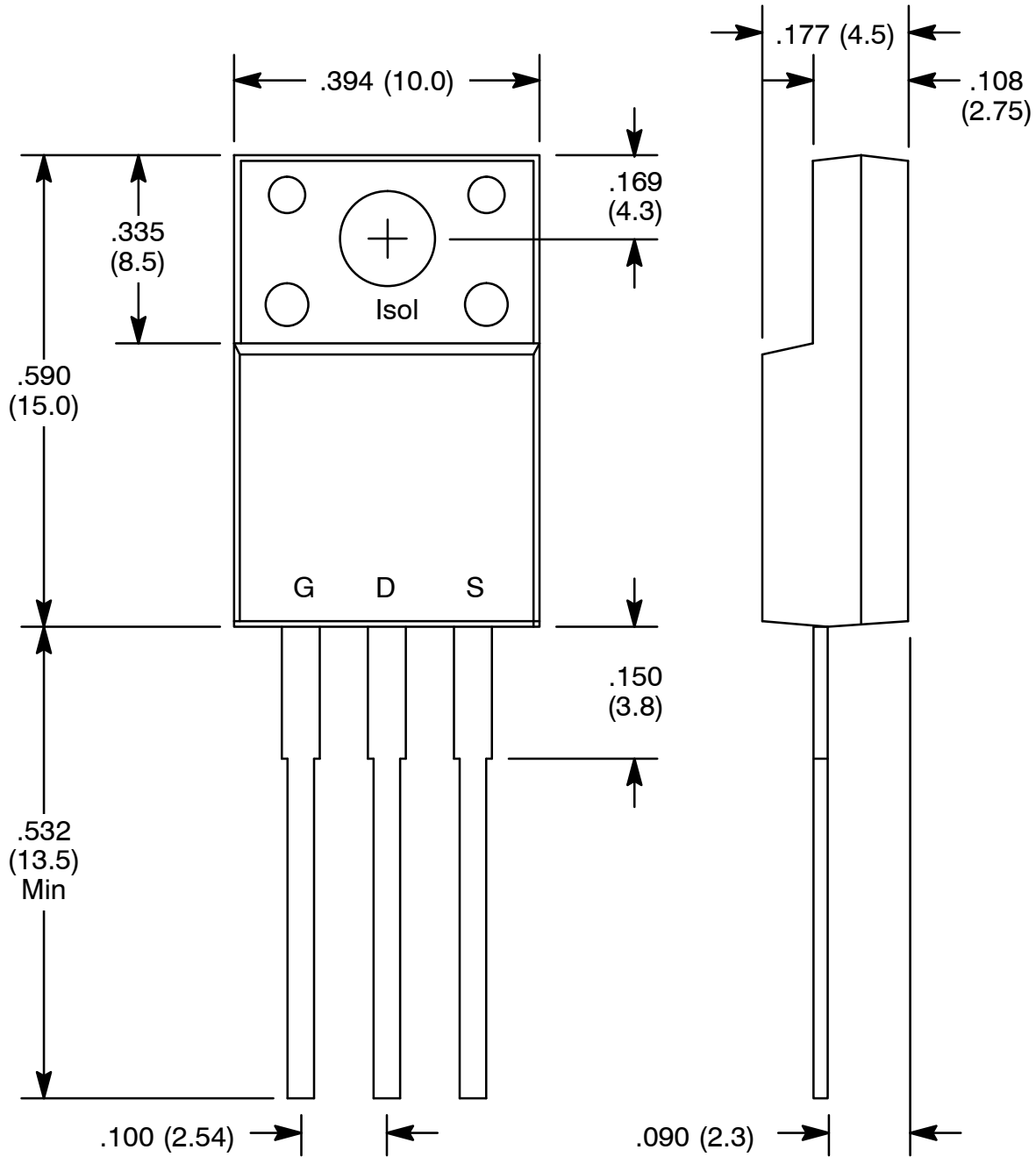
Rev. 9–14

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} = ±30V, V_{DS} = 0V	–	–	±10	μA
Gate–Source Breakdown Voltage	$V_{(BR)GSS}$	V_{DS} = 0V, I_G = ±10μA	±30	–	–	V
Drain Cut–Off Current	I_{DSS}	V_{DS} = 720V, V_{GS} = 0	–	–	100	μA
Drain–Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 10mA	500	–	–	V
Gate Threshold Voltage	V_{th}	V_{DS} = 10V, I_D = 1mA	2.0	–	4.0	V
Drain–Source ON Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 3A	–	2.3	2.5	Ω
Forward Transfer Admittance	$\|Y_{fs}\|$	V_{DS} = 20V, I_D = 3A	1.1	4.4	–	S
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz	–	1200	–	pF
Output Capacitance	C_{oss}		–	120	–	pF
Reverse Transfer Capacitance	C_{rss}		–	20	–	pF
Turn–On Delay Time	$t_{d(on)}$	V_{DD} = 200V, I_D = 3A, V_{GS} = 10V, R_L = 66.7Ω, Note 4	–	90	–	ns
Rise Time	t_r		–	40	–	ns
Turn–Off Delay Time	$t_{d(off)}$		–	200	–	ns
Fall Time	t_f		–	60	–	ns
Total Gate Charge	Q_g	V_{DD} = 400V, I_D = 5A, V_{GS} = 10V	–	45	–	nC
Gate–Source Charge	Q_{gs}		–	25	–	nC
Gate–Drain (Miller) Charge	Q_{gd}		–	20	–	nC
Drain–Source Diode Characteristics and Maximum Ratings						
Continuous Drain–Source Reverse Current	I_{DR}	Note 1	–	–	5	A
Pulsed Drain–Source Reverse Current	I_{DRP}	Note 1	–	–	15	A
Diode Forward Voltage	V_{DSF}	V_{GS} = 0V, I_{DR} = 5A	–	–	–1.9	V
Reverse Recovery Time	t_{rr}	V_{GS} = 0V, I_{DR} = 5A, dI_{DR}/dt = 100A/μs	–	1300	–	ns
Reverse Recovery Charge	Q_{rr}		–	11	–	μC

Note 1. Please use device on condition that the channel temperature is below +150°C.
Note 4. Duty Cycle ≤ 1%, t_w = 10μs.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Min
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