ELECTRONICS, INC.
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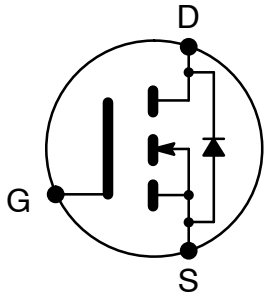
NTE2951
MOSFET
N–Channel, Enhancement Mode
High Speed Switch
TO–247 Type Package

Features:
- High Speed Switching
- No Secondary Breakdown
- Avalanche–Proof
- Low ON–Resistance
- Low Driving Power



Applications
- Switching Regulators
- UPS (Uninterruptible Power Supply)
- DC–DC Converters

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

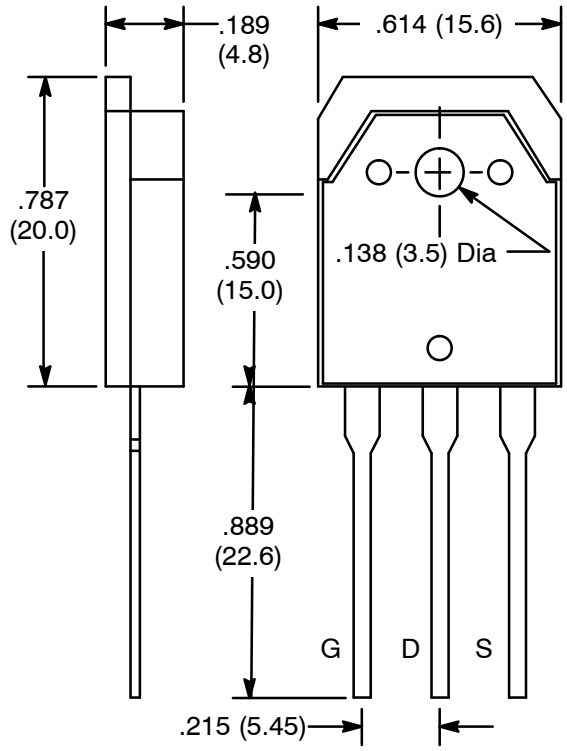
Drain–Source Voltage, V_{DS} 600V
Drain–Source Voltage (V_{GS} = –30V), V_{DSX} 600V
Continuous Drain Current, I_D . . . . . ±43A
Pulsed Drain Current, $I_{D(pulse)}$ . . . . . ±172A
Gate–Source Voltage, V_{GS} . . . . . ±30V
Non–Repetitive Maximum Avalanche Current (T_{ch} = +25°C), I_{AS} 43A
Repetitive or Maximum Avalanche Current (T_{ch} ≤ +150°C), I_{AR} 21.5A
Non–Repetitive Maximum Avalanche Energy (V_{CC} = 60V, L = 802μH), E_{AS} 808.9mJ
Maximum Drain–Source dV/dt (V_{DS} ≤ 600V), dV_{DS}/dt 20kV/s
Peak Diode Recovery dV/dt (Note 1), dV/dt 5kV/μs
Maximum Power Dissipation, P_D
  T_A = +25°C 2.5W
  T_C = +25°C 600W
Operating Temperature Range, T_{ch} . . . . . –55° to +150°C
Storage Temperature Range, T_{stg} . . . . . –55° to +150°C
Thermal Resistance, Channel–to–Case, $R_{th(ch–c)}$ . . . . . 0.208°C/W
Thermal Resistance, Channel–to–Ambient, $R_{th(ch–a)}$ . . . . . 50°C/W

Note 1. $I_F \le -I_D$, –di/dt = 50A/μs, $V_{CC} \le V_{(BR)DSS}$, T_{ch} +150°C.

RoHS 2002/95/EC

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

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain–to–Source Breakdown Voltage	$V_{(BR)DSS}$	V_{GS} = 0V, I_D = 250μA	600	–	–	V
Gate Threshold Voltage	$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 250μA	3.0	–	5.0	V
Zero Gate Voltage Drain Current	I_{DSS}	V_{DS} = 600V, V_{GS} = 0V, T_{ch} = +25°C	–	–	25	μA
		V_{DS} = 480V, V_{GS} = 0V, T_{ch} = +125°C	–	–	250	μA
Gate–Source Leakage Current	I_{GSS}	V_{GS} = ±30V, V_{DS} = 0V	–	10	100	nA
Static Drain–Source On–Resistance	$R_{DS(on)}$	V_{GS} = 10V, I_D = 26A	–	0.12	0.16	Ω
Forward Transconductance	gfs	V_{DS} = 25V, I_D = 21.5A	15	30	–	S
Input Capacitance	C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz	–	5360	8040	pF
Output Capacitance	C_{oss}		–	680	1020	pF
Reverse Transfer Capacitance	C_{rss}		–	40	60	pF
Turn–On Delay Time	$t_{d(on)}$	V_{CC} = 300V, I_D = 21.5A, R_{GS} = 10Ω, V_{GS} = 10V	–	80	120	ns
Rise Time	t_r		–	87	131	ns
Turn–Off Delay Time	$t_{d(off)}$		–	190	285	ns
Fall Time	t_f		–	44	66	ns
Total Gate Charge	Q_g	V_{CC} = 300V, I_D = 43A, V_{GS} = 10V	–	112	168	nC
Gate–Source Charge	Q_{gs}		–	34	51	nC
Gate–Drain (“Miller”) Charge	Q_{gd}		–	40	60	nC
Avalanche Capability	I_{AV}	L = 802μH, T_{ch} = +25°C	43	–	–	A
Diode Forward ON Voltage	V_{SD}	I_F = 43A, V_{GS} = 0V, T_{ch} = +25°C	–	1.0	1.5	V
Reverse Recovery Time	t_{rr}	I_F = 43A, V_{GS} = 0V, –di/dt = 100A/μs, T_{ch} = +25°C	–	0.98	–	μs
Reverse Recovery Charge	Q_{rr}		–	22		μC



Alternate Case