

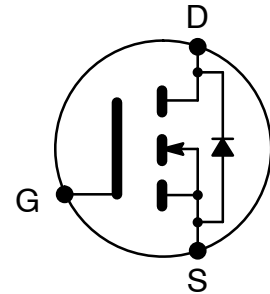


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**NTE2951
 MOSFET
 N-Channel, Enhancement Mode
 High Speed Switch
 TO-247 Type Package**

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: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

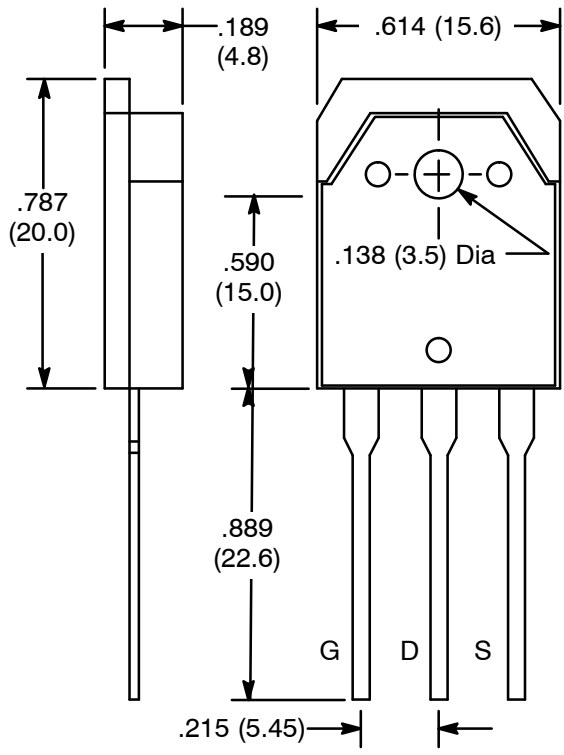
Drain-Source Voltage, V_{DS}	600V
Drain-Source Voltage ($V_{GS} = -30\text{V}$), V_{DSX}	600V
Continuous Drain Current, I_D	$\pm 43\text{A}$
Pulsed Drain Current, $I_{D(\text{pulse})}$	$\pm 172\text{A}$
Gate-Source Voltage, V_{GS}	$\pm 30\text{V}$
Non-Repetitive Maximum Avalanche Current ($T_{ch} = +25^\circ\text{C}$),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

Note 1. $I_F \leq -I_D$, $-di/dt = 50\text{A}/\mu\text{s}$, $V_{CC} \leq V_{(BR)DSS}$, $T_{ch} +150^\circ\text{C}$.



Electrical Characteristics: ($T_C = +25^\circ\text{C}$ unless otherwise specified)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Drain-to-Source Breakdown Voltage	$V_{(BR)DSS}$	$V_{GS} = 0V, I_D = 250\mu A$	600	–	–	V
Gate Threshold Voltage	$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu A$	3.0	–	5.0	V
Zero Gate Voltage Drain Current	I_{DSS}	$V_{DS} = 600V, V_{GS} = 0V, T_{ch} = +25^\circ\text{C}$	–	–	25	μA
		$V_{DS} = 480V, V_{GS} = 0V, T_{ch} = +125^\circ\text{C}$	–	–	250	μA
Gate-Source Leakage Current	I_{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$	–	10	100	nA
Static Drain-Source On-Resistance	$R_{DS(on)}$	$V_{GS} = 10V, I_D = 26A$	–	0.12	0.16	Ω
Forward Transconductance	g_{fs}	$V_{DS} = 25V, I_D = 21.5A$	15	30	–	S
Input Capacitance	C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1\text{MHz}$	–	5360	8040	pF
Output Capacitance	C_{oss}		–	680	1020	pF
Reverse Transfer Capacitance	C_{rss}		–	40	60	pF
Turn-On Delay Time	$t_{d(on)}$	$V_{CC} = 300V, I_D = 21.5A, R_{GS} = 10\Omega, V_{GS} = 10V$	–	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}	$L = 802\mu H, T_{ch} = +25^\circ\text{C}$	43	–	–	A
Diode Forward ON Voltage	V_{SD}	$I_F = 43A, V_{GS} = 0V, T_{ch} = +25^\circ\text{C}$	–	1.0	1.5	V
Reverse Recovery Time	t_{rr}	$I_F = 43A, V_{GS} = 0V, -di/dt = 100A/\mu s, T_{ch} = +25^\circ\text{C}$	–	0.98	–	μs
Reverse Recovery Charge	Q_{rr}		–	22	–	μC



Alternate Case

