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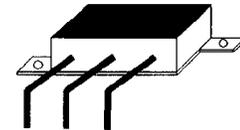
NEW ENGLAND SEMICONDUCTOR

NSG 2554

POWER MOSFET

**N CHANNEL
POWER MOSFET**

- Switching Power Supplies
- Repetitive Avalanche Rating
- Isolated Hermetic Package
- Ceramic Eyelets
- High Reliability



TO-254Z

ABSOLUTE MAXIMUM RATINGS ($T_C = 25^\circ\text{C}$ unless otherwise noted)

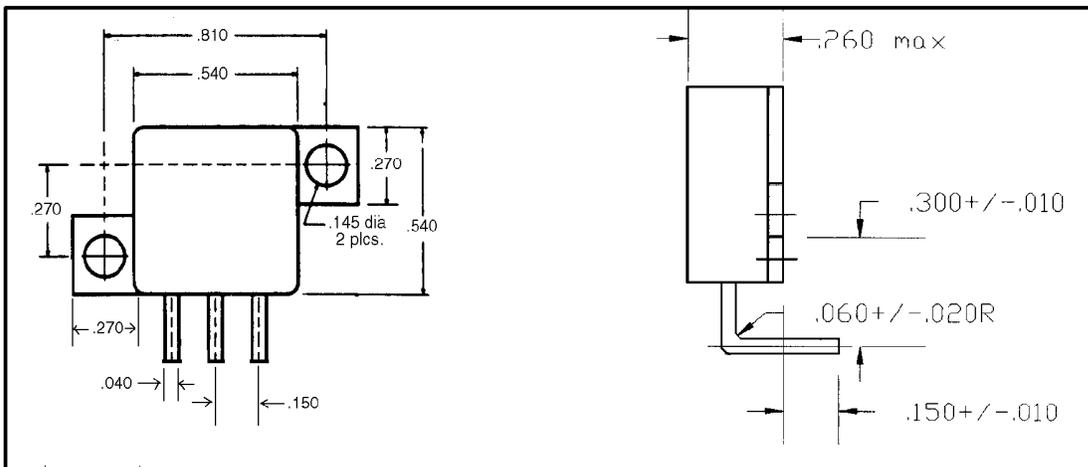
PARAMETERS/TEST CONDITIONS		SYMBOL	NSG2554	UNITS
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	± 20	V
Continuous Drain Current	$T_C = 25^\circ\text{C}$	I_D	34	A
	$T_C = 100^\circ\text{C}$		21	
Pulsed Drain Current (1)		I_{DM}	136	A
Power Dissipation	$T_C = 25^\circ\text{C}$	P_D	150	W
	$T_C = 100^\circ\text{C}$		60	
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	$^\circ\text{C}$
Lead Temperature (1/16" from case for 10 secs.)		T_L	300	$^\circ\text{C}$

THERMAL RESISTANCE RATINGS

THERMAL RESISTANCE	Symbol	Typ.	Max.	Units
Junction-to-Case	R_{thJC}	-	0.83	K/W
Junction-to-Ambient	R_{thJA}	-	48	K/W
Case-to-Sink	R_{thCS}	0.21	-	K/W

(1) Pulse width limited by maximum junction temperature.

MECHANICAL OUTLINE



NEW ENGLAND SEMICONDUCTOR

6 Lake Street Lawrence, MA 01841
1-800-446-1158 / (978) 794-1666 / FAX: (978) 689-0803

T4-4.8-860-910 REV: --



NEW ENGLAND SEMICONDUCTOR

NSG 2554

ELECTRICAL CHARACTERISTICS ($T_J = 25^{\circ}\text{C}$ unless otherwise noted)

PARAMETERS/TEST CONDITIONS		Symbol	Min	Typ.	Max.	Units
Drain-Source Breakdown Voltage $V_{GS} = 0, I_D = 1000 \mu\text{A}$		$V_{(BR)DDS}$	100	-	-	V
Gate Threshold Voltage $V_{DS} = V_{GS}, I_D = 250 \mu\text{A}$		$V_{GS(th)}$	2.0	-	4.0	V
Gate-Body Leakage $V_{DS} = 0, V_{GS} = \pm 20 \text{V}$		I_{GSS}	-	-	100	nA
Zero Gate Voltage Drain Current $V_{DS} = V_{(BR)DDS}, V_{GS} = 0$		I_{DSS}	-	-		μA
Zero Gate Voltage Drain Current $V_{DS} = 0.8 \times V_{(BR)DDS}, V_{GS} = 0, T_J = 125^{\circ}\text{C}$		I_{DSS}	-	-	250	μA
Drain-Source On-State Resistance (2) $V_{GS} = 10 \text{V}, I_D = 21 \text{A}$		$r_{DS(on)}$	-		0.07	Ω
Drain-Source On-State Resistance (2) $V_{GS} = 10 \text{V}, I_D = 34 \text{A}$		$r_{DS(on)}$	-		0.081	Ω
Forward Transconductance (2) $V_{DS} = 15 \text{V}, I_D = 21 \text{A}$		g_{fs}	9.0			S(τ)
Input Capacitance	$V_{GS} = 0$	C_{iss}		3700		
Output Capacitance	$V_{DS} = 25 \text{V}$	C_{oss}		1100		pF
Reverse Transfer Capacitance	$f = 1 \text{MHz}$	C_{rss}		200		
Total Gate Charge	$V_{DS} = 0.5 \times V_{(BR)DDS}, V_{GS} = 10 \text{V}, I_D = 34 \text{A}$ (Gate charge is essentially independent of operating temperature)	Q_g	50		125	
Gate-Source Charge		Q_{gs}	8		22	nC
Gate-Drain Charge		Q_{gd}	15		65	
Turn-On Delay Time	$V_{DD} = 50 \text{V}, I_D = 34 \text{A}, V_{GEN} = 10 \text{V}, R_G = 2.4 \Omega$ (Switching time is essentially independent of operating temperature)	$t_{d(on)}$	-		35	
Rise time		t_r	-		190	ns
Turn-Off Delay Time		$t_{d(off)}$	-		170	
Fall Time		t_f	-		130	

SOURCE-DRAIN DIODE RATINGS & CHARACTERISTICS ($T_J = 25^{\circ}\text{C}$ unless otherwise noted)

PARAMETERS/TEST CONDITIONS	Symbol	Min.	Typ.	Max.	Units
Continuous Current	I_S	-	-	34	A
Pulsed Current (1)	I_{SM}	-	-	136	A
Forward Voltage (2) $I_F = I_S, V_{GS} = 0$	V_{SD}		-	1.8	V
Reverse Recovery Time $I_F = I_S, dI_F/dt = 100 \text{A}/\mu\text{S}$	t_{rr}	-		500	ns
Reverse Recovered Charge $I_F = I_S, dI_F/dt = 100 \text{A}/\mu\text{S}$	Q_{rr}	-		2.9	μC

(1) Pulse width limited by maximum junction temperature.

(2) Pulse test: Pulse width < 300 μsec . Duty Cycle $\leq 2\%$.

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