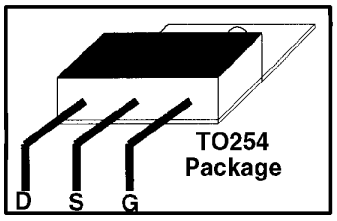
NEW ENGLAND SEMICONDUCTOR

NESM150

POWER MOSFET

N CHANNEL POWER MOSFET

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



ABSOLUTE MAXIMUM RATINGS ($T_C = 25^0C$ unless otherwise noted)

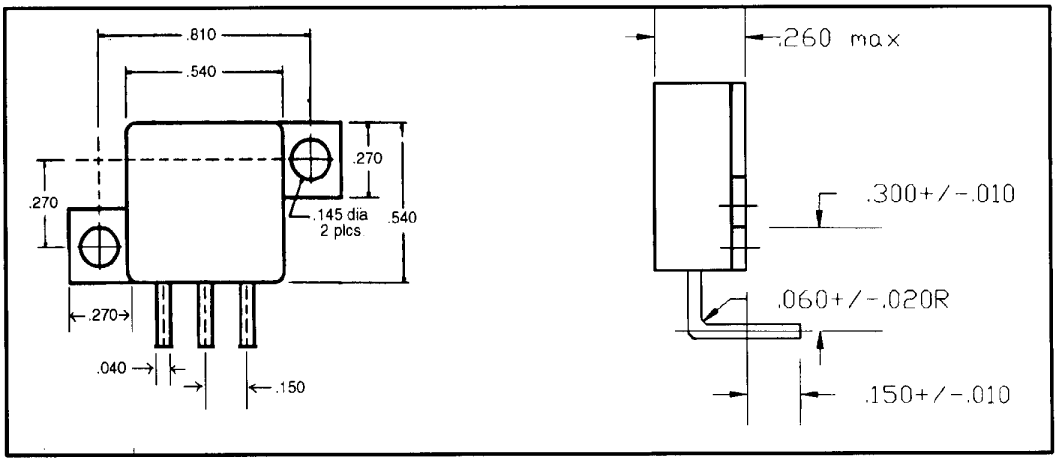
PARAMETERS/TEST CONDITIONS		SYMBOL	NESM150	UNITS
Drain-Source Voltage		V_{DS}	100	V
Gate-Source Voltage		V_{GS}	±20	V
Continuous Drain Current	$T_C = 25^0C$ $T_C = 100^0C$	I_D	34 21	A A
Pulsed Drain Current (1)		I_{DM}	136	A
Power Dissipation	$T_C = 25^0C$ $T_C = 100^0C$	P_D	150 60	W W
Operating Junction & Storage Temperature Range		T_J, T_{stg}	-55 to 150	^0C
Lead Temperature (1/16" from case for 10 secs.)		T_L	300	^0C

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

NEW ENGLAND SEMICONDUCTOR

NESM150

ELECTRICAL CHARACTERISTICS (T_J = 25°C unless otherwise noted)

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

SOURCE-DRAIN DIODE RATINGS & CHARACTERISTICS (T_j = 25°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 A/µS	t_{rr}	-		500	ns
Reverse Recovered Charge I_F = I_S, dI_F/dt = 100 A/µS	Q_{rr}	-		2.9	µC

(1)Pulse width limited by maximum junction temperature.
(2)Pulse test: Pulse width < 300 µsec. Duty Cycle ≤ 2%.

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