NEW ENGLAND SEMICONDUCTOR

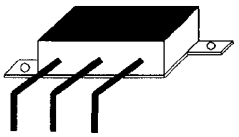
NSG2563

25 AMPERE
N-Channel

POWER MOSFET IN HERMETIC ISOLATED TO-254Z PACKAGE

FEATURES

- Isolated Hermetic Metal Package
- Fast Switching
- Low $R_{DS(ON)}$



TO-254Z

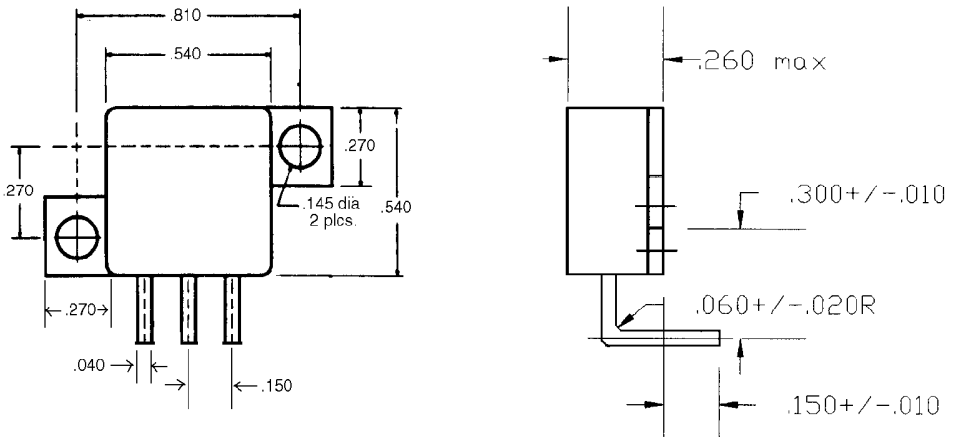
DESCRIPTION

This series of hermetically packaged products feature the latest advanced MOSFET and packaging technology. They are ideally suited for Military requirements where small size, high performance and high reliability are required, and in applications such as switching power supplies, motor controls, inverters, choppers, audio amplifiers and high energy pulse circuits.

MAXIMUM RATINGS

PART NUMBER	V_{DS}	$R_{DS(ON)}$	I_D
NSG2563	100V	.065Ω	25A

MECHANICAL OUTLINE



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

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ELECTRICAL CHARACTERISTICS ($T_C = 25^0C$ unless otherwise noted)
STATIC P/N NSG 2563

SYM	PARAMETER	MIN	TYP	MAX	UNITS	TEST CONDITIONS
BV_{DSS}	Drain-Source Breakdown Voltage	100			V	$V_{GS} = 0$ $I_D = 250\mu A$
$V_{GS(th)}$	Gate-Threshold Voltage	2.0		4.0	V	$V_{DS} = V_{GS}$, $I_D = 250\mu A$
I_{GSSF}	Gate-Body Leakage Forward			100	nA	$V_{GS} = +20V$
I_{GSSR}	Gate-body Leakage Reverse			-100	nA	$V_{GS} = -20V$
I_{DSS}	Zero Gate Voltage Drain Current		0.1	0.25	mA	V_{DS} = Max Rating, $V_{GS} = 0$
			0.2	1.0	mA	V_{DS} = 0.8 Max Ratings, $V_{GS} = 0$, $T_C = 125^0C$
$I_{D(on)}$	On-State Drain Current[1]	40			A	$V_{DS} \geq 2\ V_{DS(on)}$, $V_{GS} = 10V$
$V_{DS(on)}$	Static Drain-Source On-State Voltage[1]		1.1	1.3	V	$V_{GS} = 10V$, $I_D = 20A$
$R_{DS(on)}$	Static Drain-Source On-State Resistance[1]		.055	.065	Ω	$V_{GS} = 10V$, $I_D = 20A$
$R_{DS(on)}$	Static Drain-Source On-State Resistance[1]		0.09	0.11	Ω	$V_{GS} = 10V$, $I_D = 20A$, $T_C = 125^0C$

DYNAMIC

G_{fs}	Forward Transductance[1]	9.0	10		S(℧)	$V_{DS} \geq 2\ V_{DS(on)}$, $I_D = 20A$
C_{ISS}	Input Capacitance		2700	3000	pF	$V_{GS} = 0$, $V_{DS} = 25V$ f = 1 MHz
C_{OSS}	Output Capacitance		1300	1500	pF	
C_{rSS}	Reverse Transfer Capacitance		470	500	pF	
$t_{d(on)}$	Turn-On Delay Time		28	35	ns	$V_{DO} = 30V$, $I_D \cong 20A$ $R_g = 5\Omega$, $R_t = 1.5\Omega$ (MOSFET switching times are essentially independent of operating temperature.)
t_r	Rise Time		45	100	ns	
$t_{d(off)}$	Turn-Off Delay Time		100	125	ns	
t_r	Fall Time		50	100	ns	

BODY-DRAIN DIODE RATINGS AND CHARACTERISTICS

I_S	Continuous Source Current (Body Diode)			-40	A	Modified MOSPOWER symbol showing the integral P-N Junction rectifier 
I_{SM}	Source Current[1] (Body Diode)			-160	A	
V_{SD}	Diode Forward Voltage[1]			-2.5	V	$T_C = 25^0C$, $I_S = -40A$, $V_{GS} = 0$
t_{rr}	Reverse Recovery Time		400		ns	$T_J = 150^0C$, $I_F = I_S$, $dI_F/ds = 100\ A/\mu S$

1 PULSE TEST: Pulse Width ≤ 300μsec, Duty Cycle ≤ 2%

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