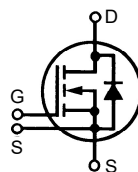


Linear™ Power MOSFET w/Extended FBSOA

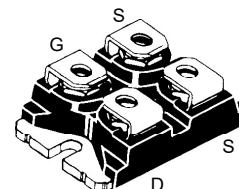
IXTN8N150L



N-Channel Enhancement Mode
Guaranteed FBSOA

$$\begin{aligned} V_{DSS} &= 1500V \\ I_{D25} &= 7.5A \\ R_{DS(on)} &\leq 3.6\Omega \end{aligned}$$

miniBLOC, SOT-227 B
E153432



G = Gate D = Drain
S = Source S = Source

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	1500	V
V_{DGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}, R_{GS} = 1M\Omega$	1500	V
V_{GSS}	Continuous	± 30	V
V_{GSM}	Transient	± 40	V
I_{D25}	$T_C = 25^\circ\text{C}$	7.5	A
I_{DM}	$T_C = 25^\circ\text{C}$, Pulse Width Limited by T_{JM}	20	A
P_D	$T_C = 25^\circ\text{C}$	545	W
T_J		-55 to +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 to +150	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS, $t = 1\text{minute}$	2500	V~
	$I_{ISOL} \leq 1\text{mA}$, $t = 1\text{s}$	3000	V~
M_d	Mounting Torque for Base Plate Terminal Connection Torque	1.5/13	Nm/lb.in.
		1.3/11.5	Nm/lb.in.
Weight		30	g

Features

- Designed for Linear Operations
- International Standard Package
- Molding Epoxies Meet UL94 V-0 Flammability Classification
- Guaranteed FBSOA at 60°C
- miniBLOC with Aluminum Nitride Isolation
- Low $R_{DS(on)}$ HDMOS™ Process
- Rugged Polysilicon Gate Cell Structure
- Low Package Inductance

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- Programmable Loads
- Current Regulators
- DC-DC Convertors
- Battery Chargers
- DC Choppers
- Temperature and Lighting Controls

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0V, I_D = 1\text{mA}$	1500		V
$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 250\mu\text{A}$	5.0		8.0 V
I_{GSS}	$V_{GS} = \pm 30V, V_{DS} = 0V$			± 200 nA
I_{DSS}	$V_{DS} = V_{DSS}, V_{GS} = 0V$ $T_J = 125^\circ\text{C}$			25 μA
				500 μA
$R_{DS(on)}$	$V_{GS} = 20V, I_D = 4A$, Note 1			3.6 Ω

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 50\text{V}$, $I_D = 4\text{A}$, Note 1	1.4	2.3	3.2 S
C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$		8000	pF
C_{oss}			405	pF
C_{rss}			70	pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 15\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 4\text{A}$ $R_G = 2\Omega$ (External)		36	ns
t_r			18	ns
$t_{d(off)}$			90	ns
t_f			95	ns
$Q_{g(on)}$	$V_{GS} = 15\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 4\text{A}$		250	nC
Q_{gs}			80	nC
Q_{gd}			116	nC
R_{thJC}			0.05	0.23°C/W
R_{thCS}				$^\circ\text{C/W}$

Safe Operating Area Specification

Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
SOA	$V_{DS} = 1500\text{V}$, $I_D = 0.17\text{A}$, $T_C = 60^\circ\text{C}$, $T_P = 3\text{s}$	255		W

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
I_S	$V_{GS} = 0\text{V}$			8 A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			32 A
V_{SD}	$I_F = 8\text{A}$, $V_{GS} = 0\text{V}$, Note 1			1.2 V
t_{rr}	$I_F = I_S$, $-di/dt = 100\text{A}/\mu\text{s}$, $V_R = 100\text{V}$		1700	ns

Note: 1. Pulse Test, $t \leq 300\mu\text{s}$; Duty Cycle, $d \leq 2\%$.

Littelfuse reserves the right to change limits, test conditions, and dimensions.

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:

4,835,592	4,931,844	5,049,961	5,237,481	6,162,665	6,404,065 B1	6,683,344	6,727,585	7,005,734 B2	7,157,338 B2
4,860,072	5,017,508	5,063,307	5,381,025	6,259,123 B1	6,534,343	6,710,405 B2	6,759,692	7,063,975 B2	
4,881,106	5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505	6,710,463	6,771,478 B2	7,071,537	

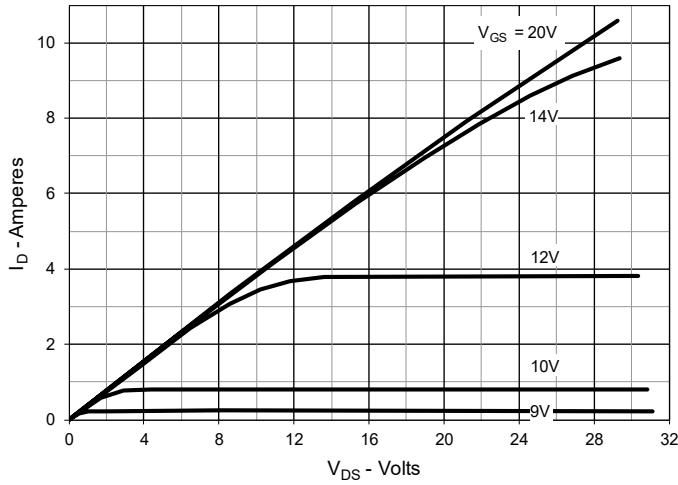
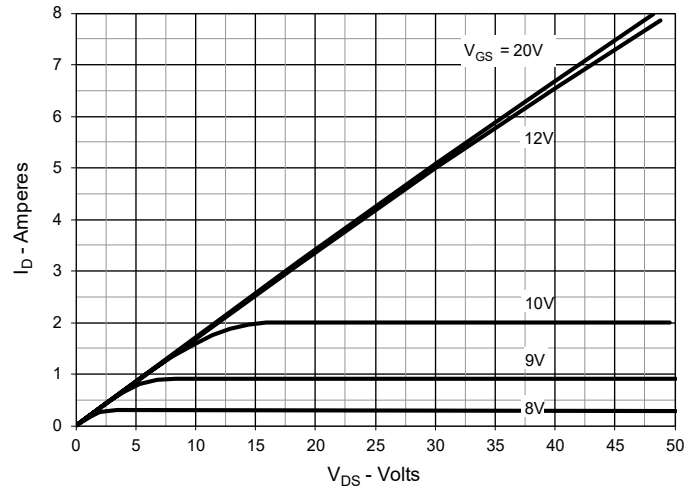
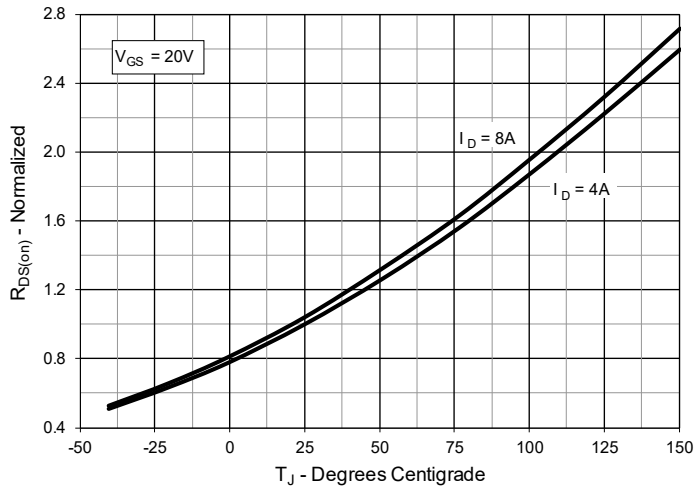
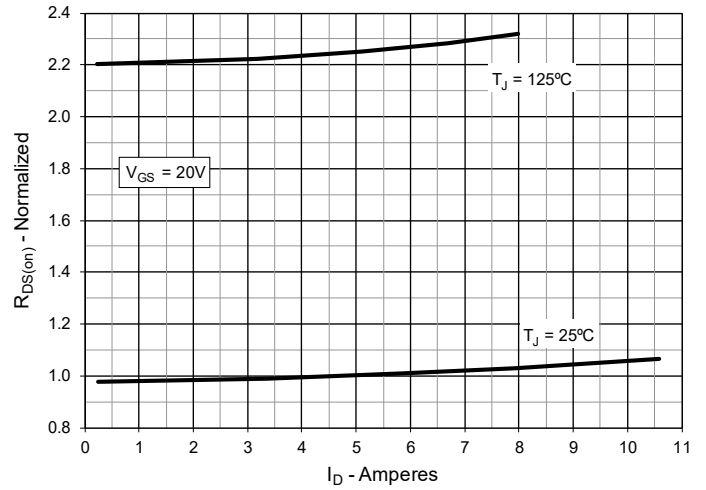
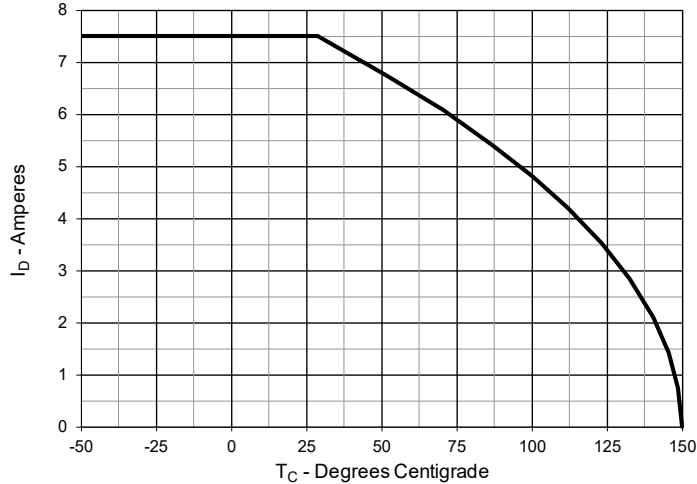
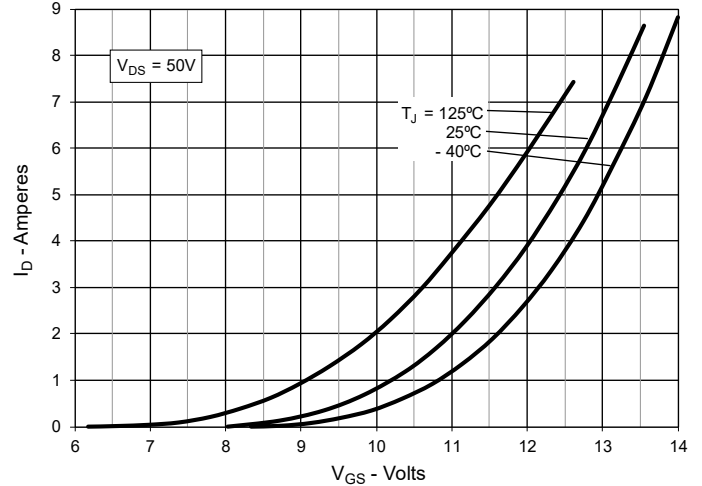
Fig. 1. Extended Output Characteristics @ $T_J = 25^\circ\text{C}$

Fig. 2. Output Characteristics @ $T_J = 125^\circ\text{C}$

Fig. 3. $R_{DS(on)}$ Normalized to $I_D = 4\text{A}$ Value vs. Junction Temperature

Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 4\text{A}$ Value vs. Drain Current

Fig. 5. Maximum Drain Current vs. Case Temperature

Fig. 6. Input Admittance


Fig. 7. Transconductance

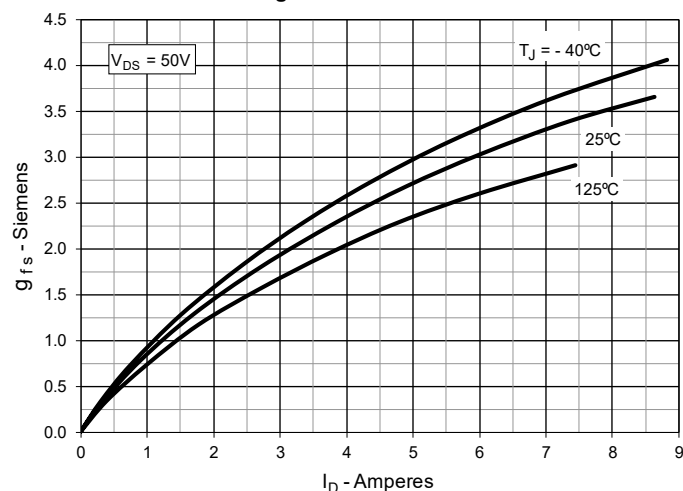


Fig. 8. Forward Voltage Drop of Intrinsic Diode

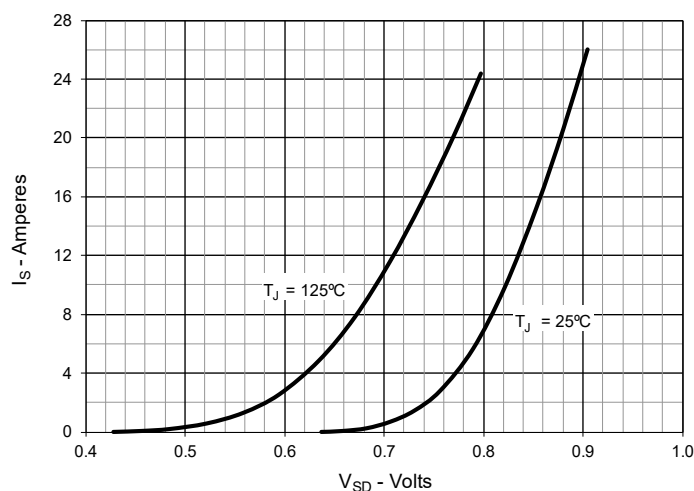


Fig. 9. Gate Charge

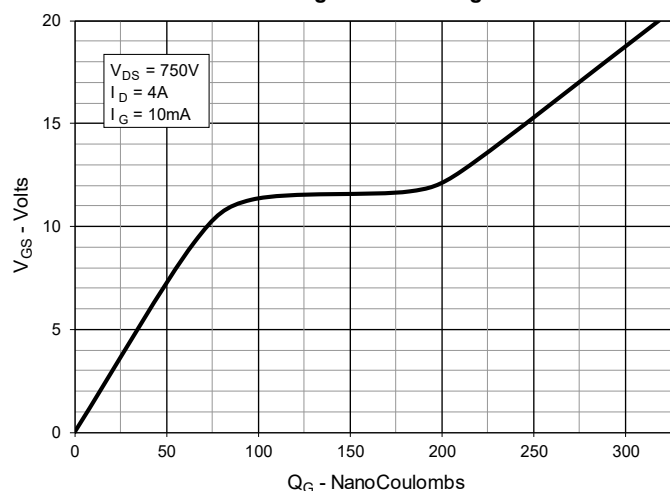


Fig. 10. Capacitance

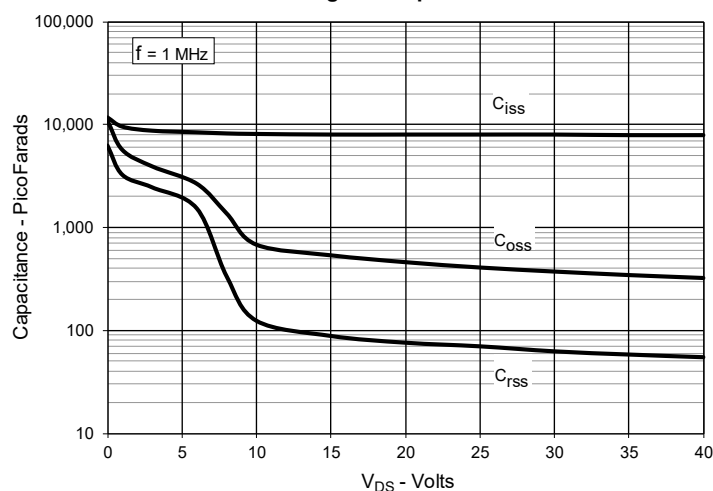
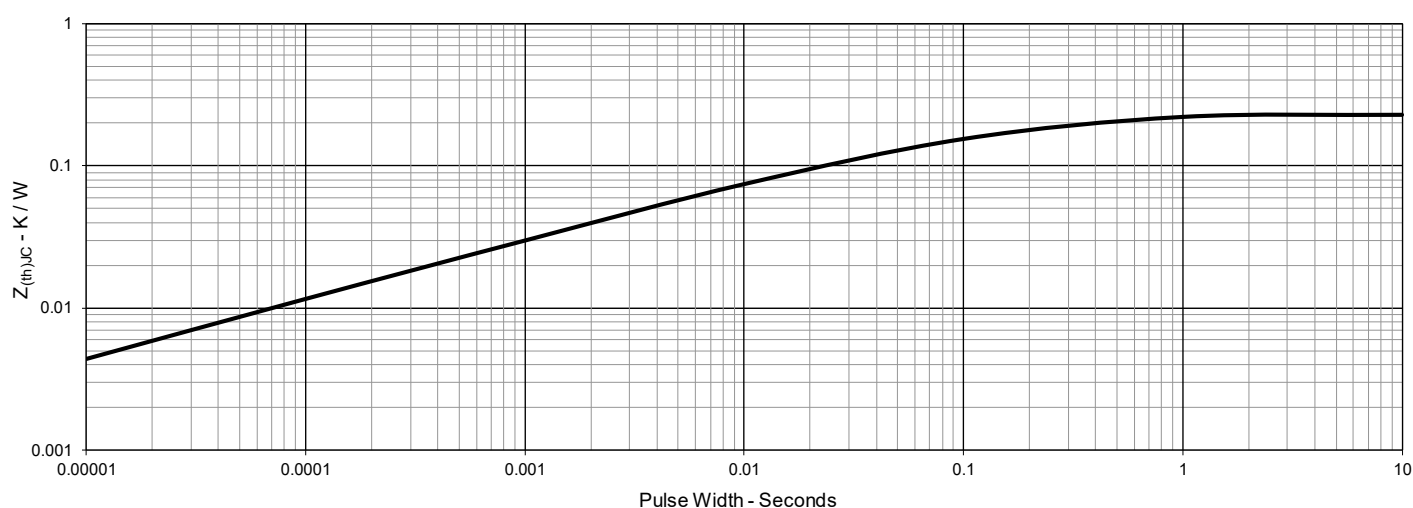


Fig. 11. Maximum Transient Thermal Impedance



Littelfuse reserves the right to change limits, test conditions, and dimensions.

Fig. 12. Forward-Bias Safe Operating Area
@ $T_C = 25^\circ\text{C}$

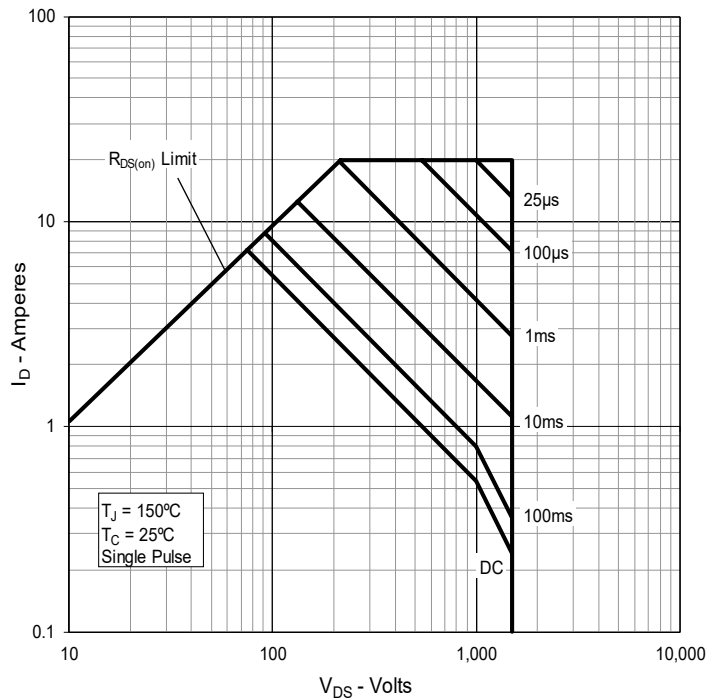
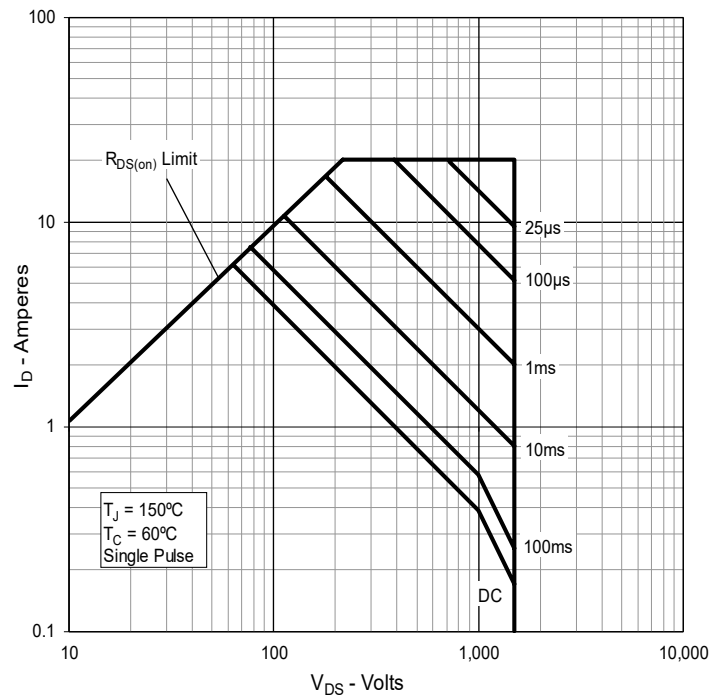
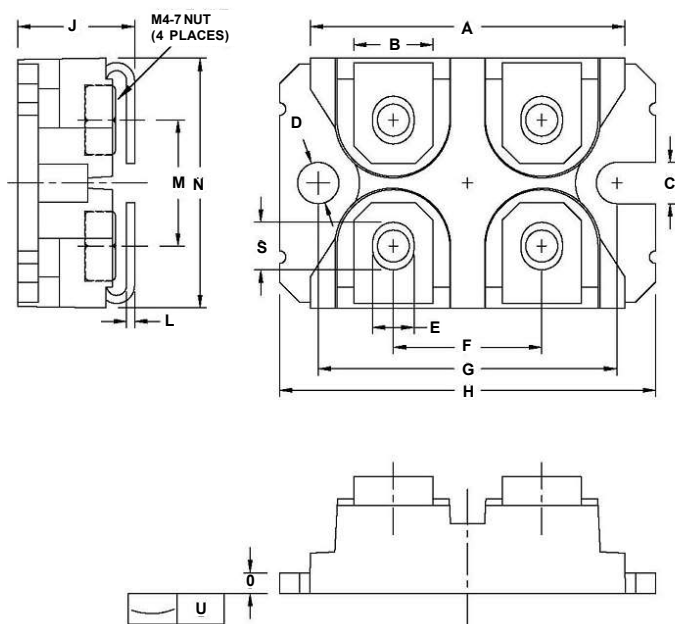


Fig. 13. Forward-Bias Safe Operating Area
@ $T_C = 60^\circ\text{C}$



SOT-227 Outline


SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.224	1.260	31.10	32.00
B	.303	.327	7.70	8.30
C	.161	.173	4.10	4.40
D	.161	.173	4.10	4.40
E	.161	.173	4.10	4.40
F	.587	.598	14.90	15.20
G	1.181	1.201	30.00	30.50
H	1.488	1.508	37.80	38.30
J	.461	.484	11.70	12.30
L	.030	.033	0.75	0.85
M	.492	.512	12.50	13.00
N	.984	1.004	25.00	25.50
O	.075	.087	1.90	2.20
S	.181	.193	4.60	4.90
U	.000	.005	0.00	0.13

- NUT MATERIAL:
STANDARD - Low carbon steel with Ni plating.
OPTIONAL - Brass Nut is available.
PART NUMBER-BN
- ALL METAL SURFACE ARE PRE NI PLATED EXCEPT TRIM AREA.