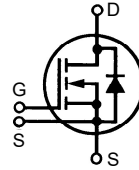


**Linear™
Power MOSFET
w/Extended FBSOA**

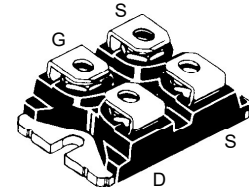
IXTN8N150L

V_{DSS} = 1500V
I_{D25} = 7.5A
R_{DS(on)} ≤ 3.6Ω



N-Channel Enhancement Mode
Guaranteed FBSOA

miniBLOC, SOT-227 B
E153432



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

Symbol	Test Conditions	Maximum Ratings	
V _{DSS}	T _J = 25°C to 150°C	1500	V
V _{DGR}	T _J = 25°C to 150°C, R _{GS} = 1MΩ	1500	V
V _{GSS}	Continuous	±30	V
V _{GSM}	Transient	±40	V
I _{D25}	T _C = 25°C	7.5	A
I _{DM}	T _C = 25°C, Pulse Width Limited by T _{JM}	20	A
P _D	T _C = 25°C	545	W
T _J		-55 to +150	°C
T _{JM}		150	°C
T _{stg}		-55 to +150	°C
V _{ISOL}	50/60 Hz, RMS, t = 1minute	2500	V~
	I _{ISOL} ≤ 1mA, t = 1s	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°C, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV _{DSS}	V _{GS} = 0V, I _D = 1mA	1500		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	5.0		V
I _{GSS}	V _{GS} = ±30V, V _{DS} = 0V			±200 nA
I _{DSS}	V _{DS} = V _{DSS} , V _{GS} = 0V T _J = 125°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}				0.23 $^\circ\text{C/W}$
R_{thCS}		0.05		$^\circ\text{C/W}$

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 @ $T_J = 25^\circ\text{C}$

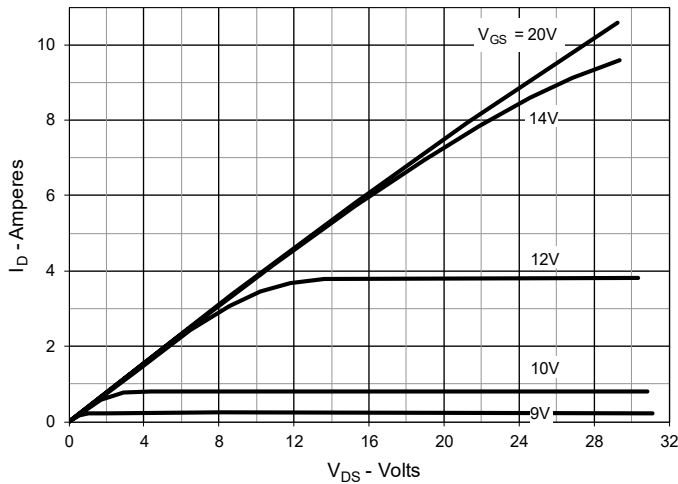


Fig. 2. Output Characteristics @ $T_J = 125^\circ\text{C}$

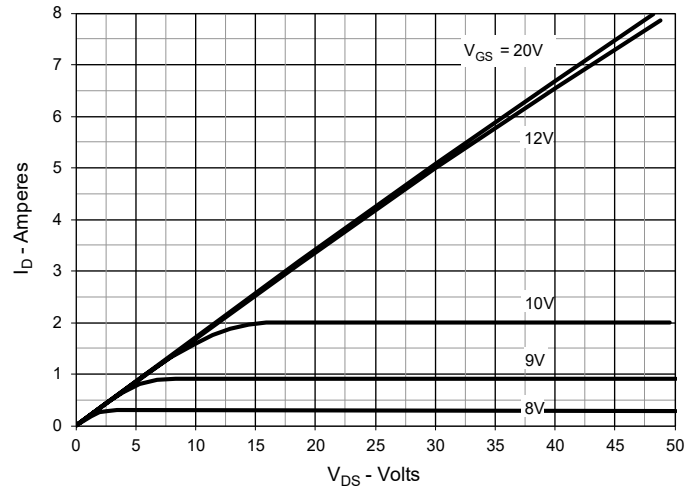


Fig. 3. $R_{DS(on)}$ Normalized to $I_D = 4\text{A}$ Value vs. Junction Temperature

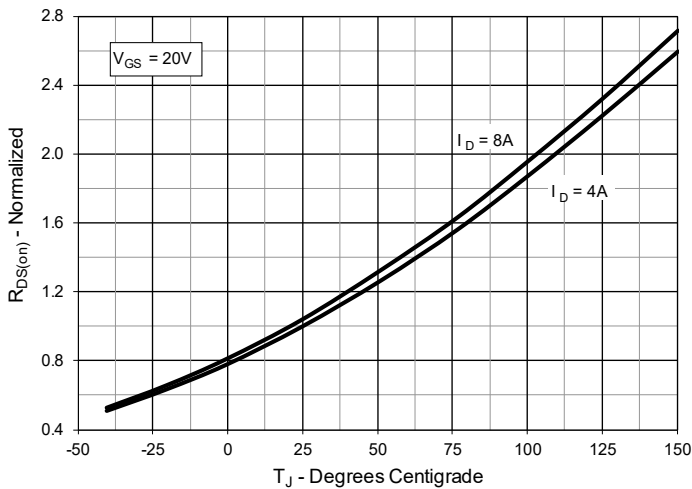


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 4\text{A}$ Value vs. Drain Current

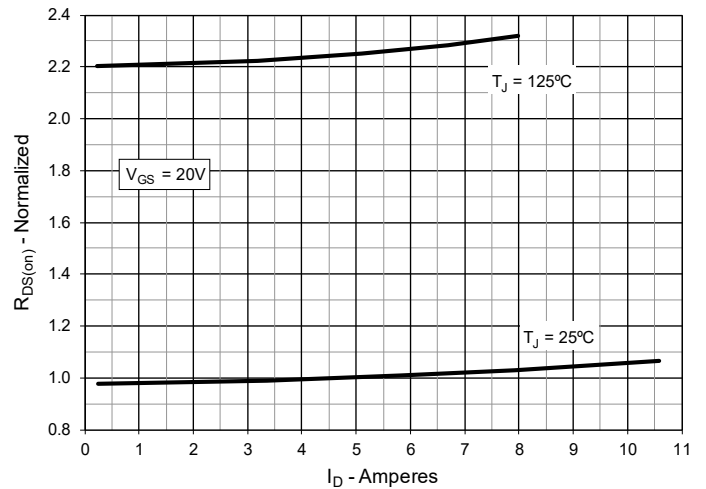


Fig. 5. Maximum Drain Current vs. Case Temperature

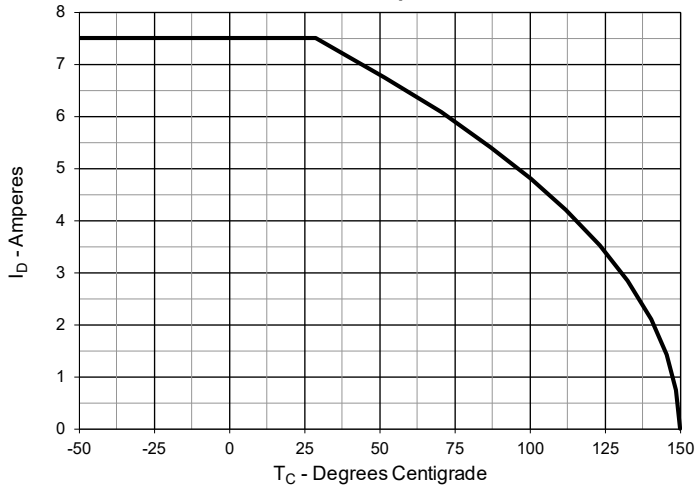


Fig. 6. Input Admittance

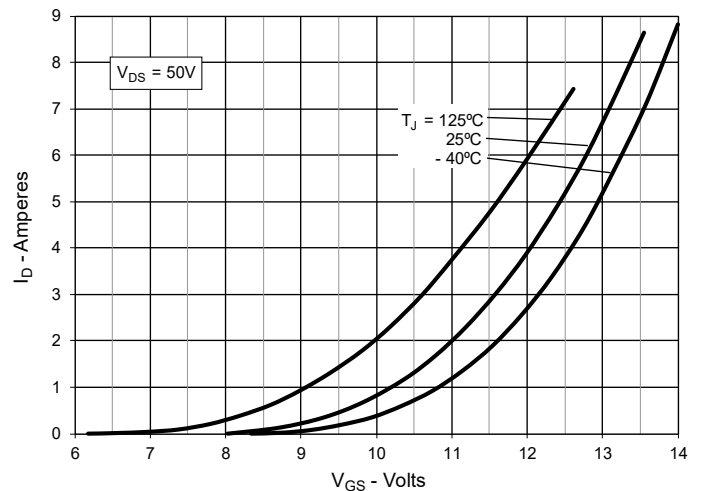


Fig. 7. Transconductance

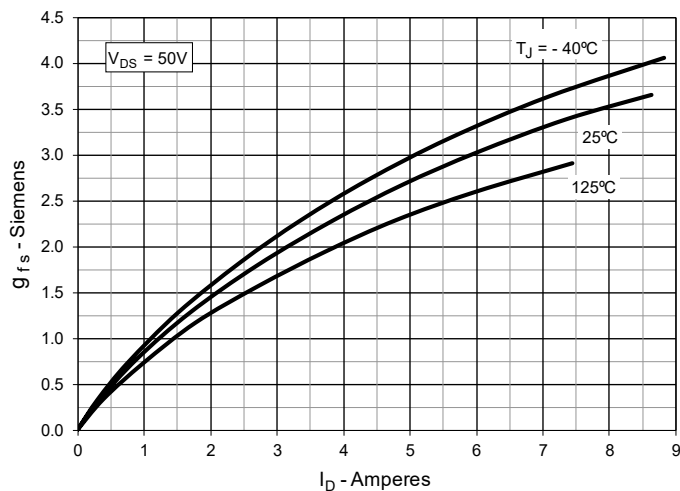


Fig. 8. Forward Voltage Drop of Intrinsic Diode

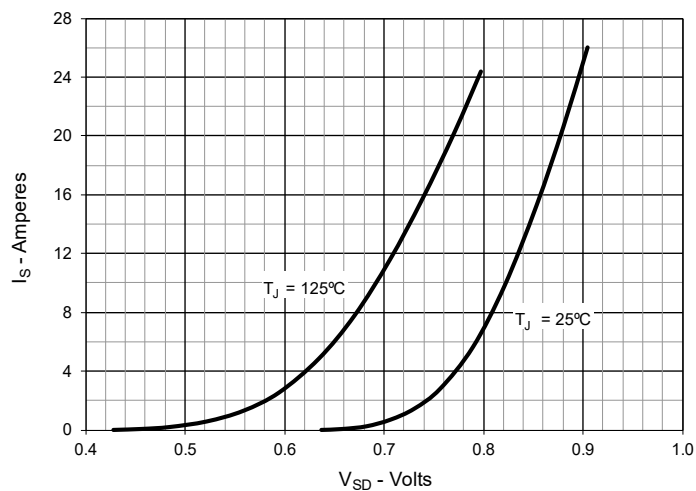


Fig. 9. Gate Charge

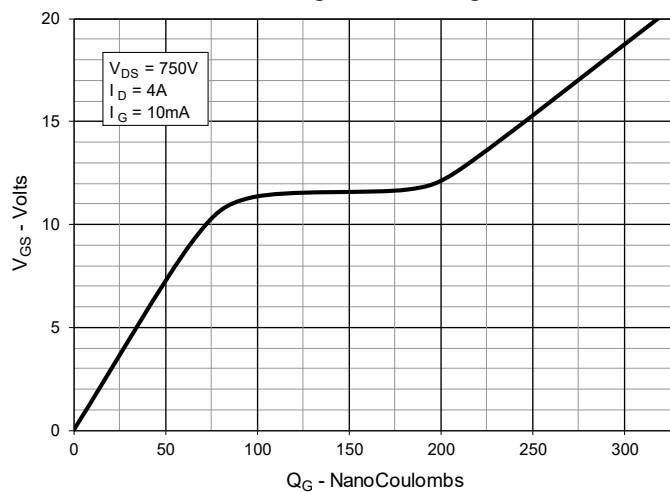


Fig. 10. Capacitance

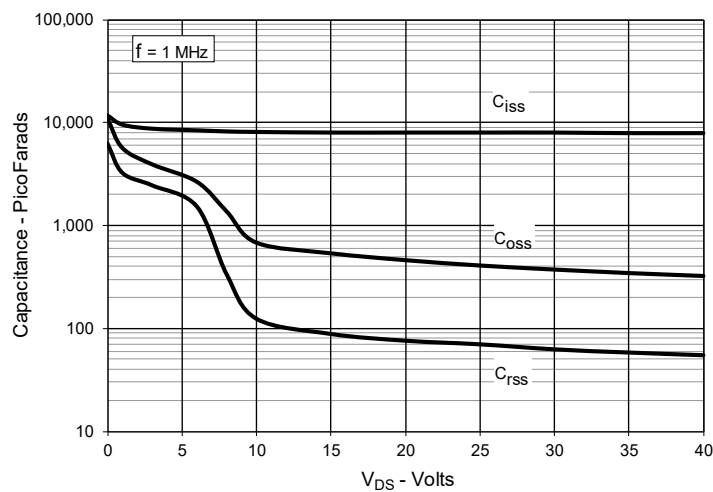
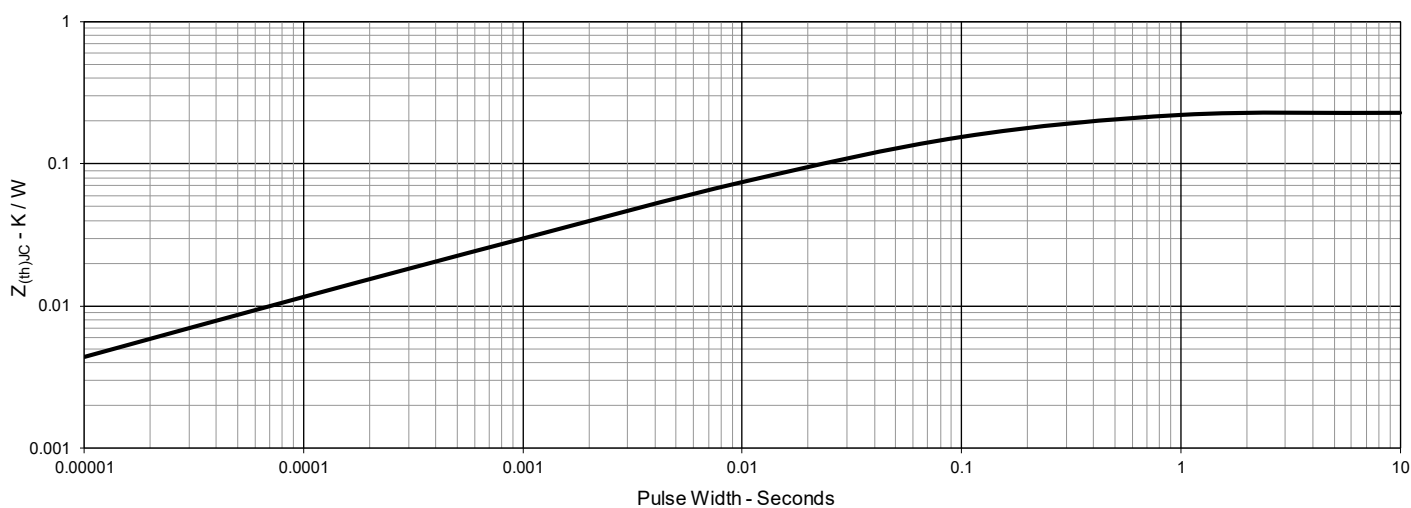
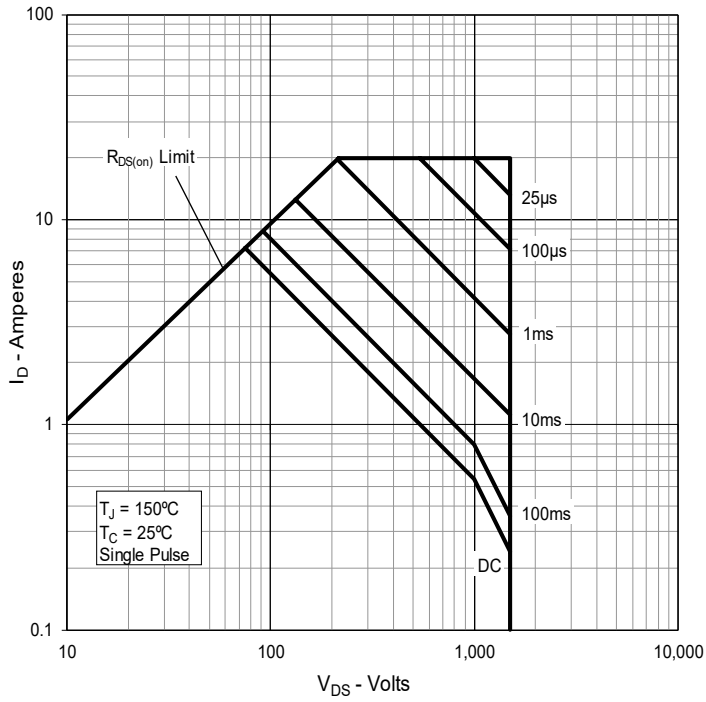


Fig. 11. Maximum Transient Thermal Impedance

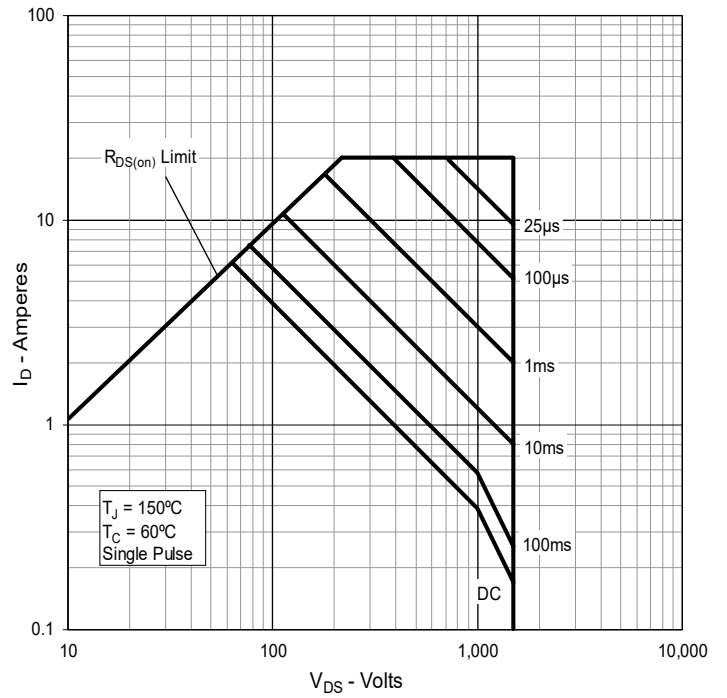


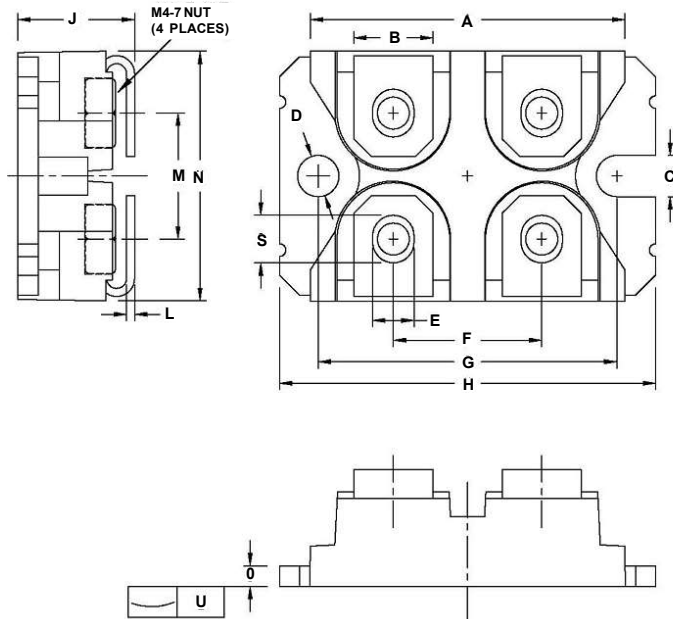
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**Fig. 12. Forward-Bias Safe Operating Area
@ $T_C = 25^\circ\text{C}$**



**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.