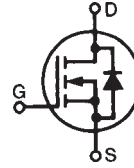


PolarHV™ HiPerFET IXFN32N80P

Power MOSFET

N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode



$$V_{DSS} = 800 \text{ V}$$

$$I_{D25} = 25 \text{ A}$$

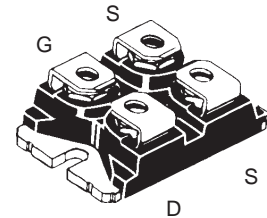
$$R_{DS(on)} \leq 270 \text{ m}\Omega$$

$$t_{rr} \leq 250 \text{ ns}$$

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	800	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	800	V
V_{GSS}	Continuous	± 30	V
V_{GSM}	Transient	± 40	V
I_{D25}	$T_C = 25^\circ\text{C}$	29	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	250	A
I_{AR}	$T_C = 25^\circ\text{C}$	30	A
E_{AR}	$T_C = 25^\circ\text{C}$	100	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	5	J
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$, $R_G = 2 \Omega$	10	V/ns
P_D	$T_C = 25^\circ\text{C}$	625	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
T_{stg}		-55 ... +150	$^\circ\text{C}$
T_L	1.6 mm (0.062 in.) from case for 10 s	300	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS	$t = 1 \text{ min}$	2500 V~
	$I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ s}$	3000 V~
M_d	Mounting torque	1.5 / 13	Nm/lb.in.
	Terminal connection torque	1.5 / 13	Nm/lb.in.
Weight		30	g

miniBLOC, SOT-227 B (IXFN)

E153432



G = Gate D = Drain
S = Source

Either Source terminal S can be used as the Source terminal or the Kelvin Source (gate return) terminal.

Features

- International standard package
- Encapsulating epoxy meets UL 94 V-0, flammability classification
- miniBLOC with Aluminium nitride isolation
- † Fast recovery diode
- † Unclamped Inductive Switching (UIS) rated
- † Low package inductance
- easy to drive and to protect

Advantages

- † Easy to mount
- † Space savings
- † High power density

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 3 \text{ mA}$	800		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 8 \text{ mA}$	3.0		5.0 V
I_{GSS}	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0 \text{ V}$			$\pm 200 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$ $T_J = 125^\circ\text{C}$			25 μA
				2 mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 16 \text{ A}$, Note 1			270 m Ω

Symbol	Test Conditions	Characteristic Values			
		(T _J = 25°C, unless otherwise specified)			
		Min.	Typ.	Max.	
g_{fs}	V _{DS} = 20 V; I _D = 16A, Note 1		20	38	S
C_{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		8820		nF
C_{oss}			660		pF
C_{rss}			22		pF
t_{d(on)}	V _{GS} = 10 V, V _{DS} = 0.5 V _{DSS} , I _D = 16A R _G = 2 Ω (External)		30		ns
t_r			29		ns
t_{d(off)}			85		ns
t_f			26		ns
Q_{g(on)}	V _{GS} = 10 V, V _{DS} = 0.5 V _{DSS} , I _D = 16 A		150		nC
Q_{gs}			39		nC
Q_{gd}			44		nC
R_{thJC}				0.2	°C/W
R_{thCS}		0.05			°C/W

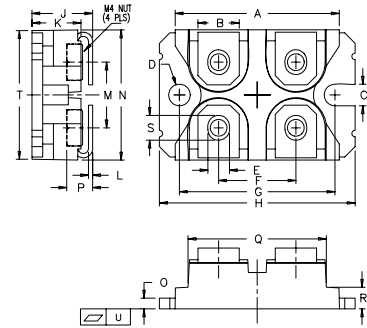
Source-Drain Diode

Symbol	Test Conditions	Characteristic Values			
		(T _J = 25°C, unless otherwise specified)			
		Min.	Typ.	Max.	
I_S	V _{GS} = 0 V			60	A
I_{SM}	Repetitive			150	A
V_{SD}	I _F = I _S , V _{GS} = 0 V, Note 1			1.5	V
t_{rr}	I _F = 25A, -di/dt = 100 A/μs V _R = 100V			250	ns
Q_{RM}			0.8		μC
I_{RM}			8.0		A

Notes:

1. Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %

SOT-227B Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.240	1.255	31.50	31.88
B	.307	.323	7.80	8.20
C	.161	.169	4.09	4.29
D	.161	.169	4.09	4.29
E	.161	.169	4.09	4.29
F	.587	.595	14.91	15.11
G	1.186	1.193	30.12	30.30
H	1.496	1.505	38.00	38.23
J	.460	.481	11.68	12.22
K	.351	.378	8.92	9.60
L	.030	.033	0.76	0.84
M	.496	.506	12.60	12.85
N	.990	1.001	25.15	25.42
O	.078	.084	1.98	2.13
P	.195	.235	4.95	5.97
Q	1.045	1.059	26.54	26.90
R	.155	.174	3.94	4.42
S	.186	.191	4.72	4.85
T	.968	.987	24.59	25.07
U	-.002	.004	-0.05	0.1

Fig. 1. Output Characteristics @ 25°C

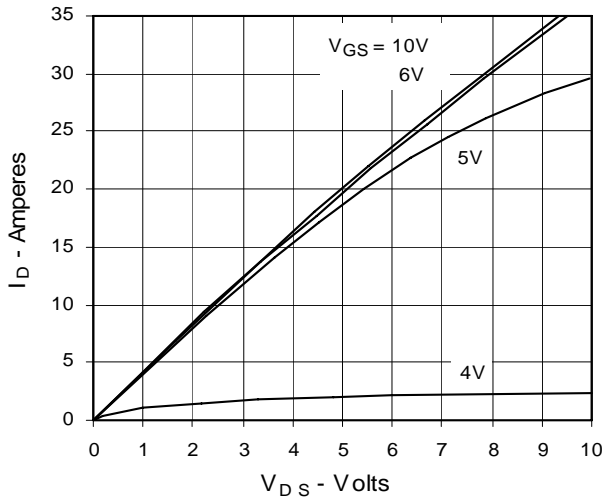


Fig. 2. Extended Output Characteristics @ 25°C

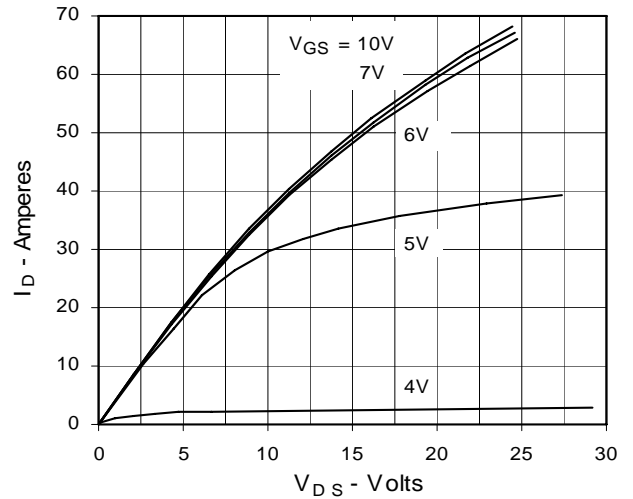


Fig. 3. Output Characteristics @ 125°C

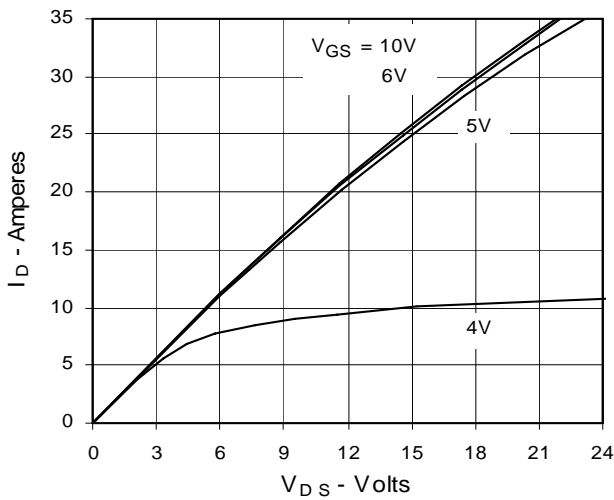


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 16A$ Value vs. Junction Temperature

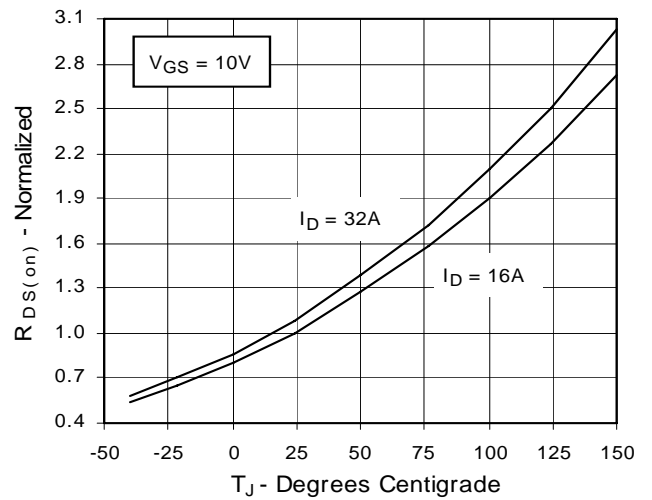


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 16A$ Value vs. Drain Current

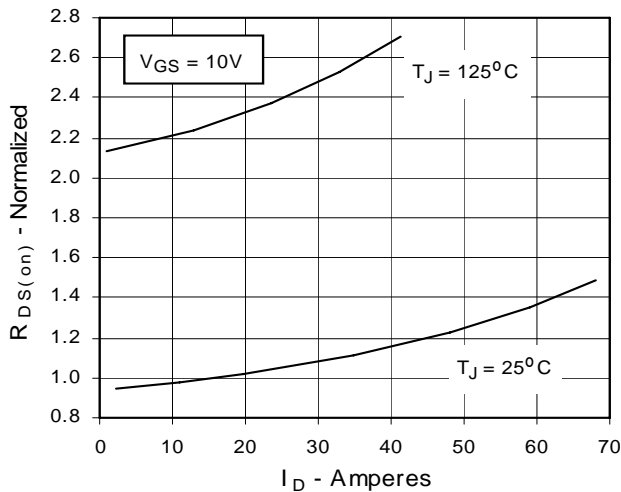


Fig. 6. Drain Current vs. Case Temperature

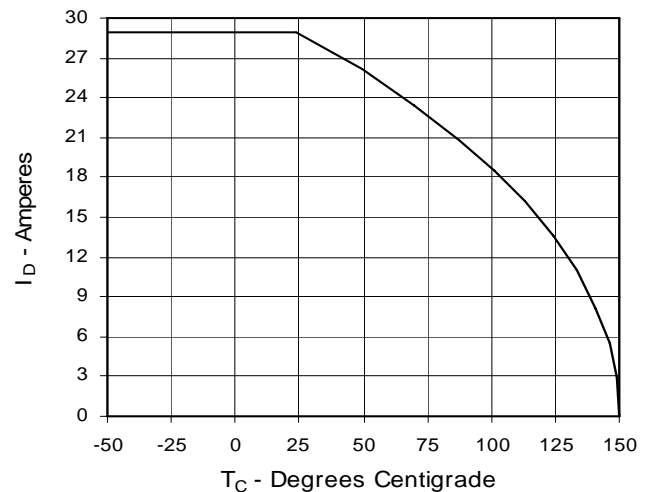


Fig. 7. Input Admittance

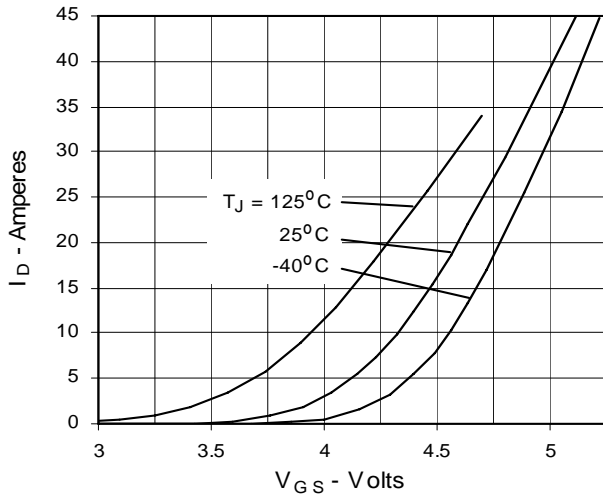


Fig. 8. Transconductance

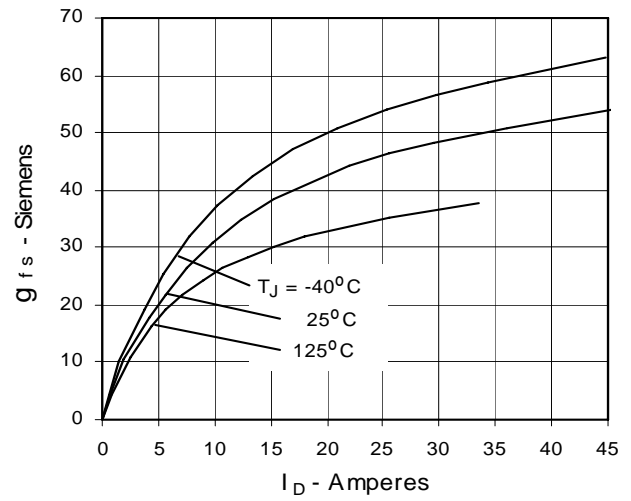


Fig. 9. Source Current vs. Source-To-Drain Voltage

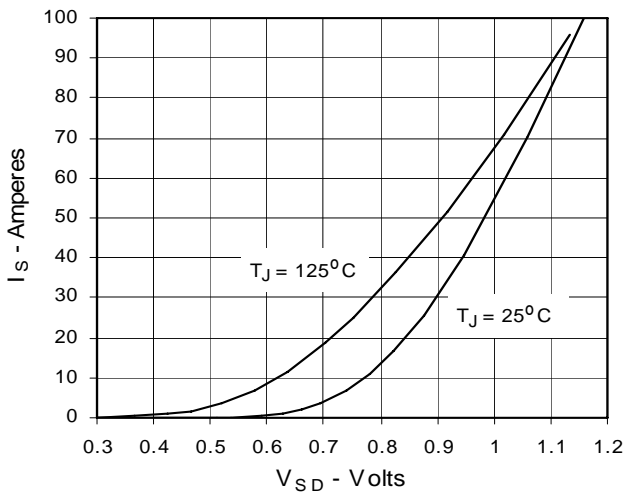


Fig. 10. Gate Charge

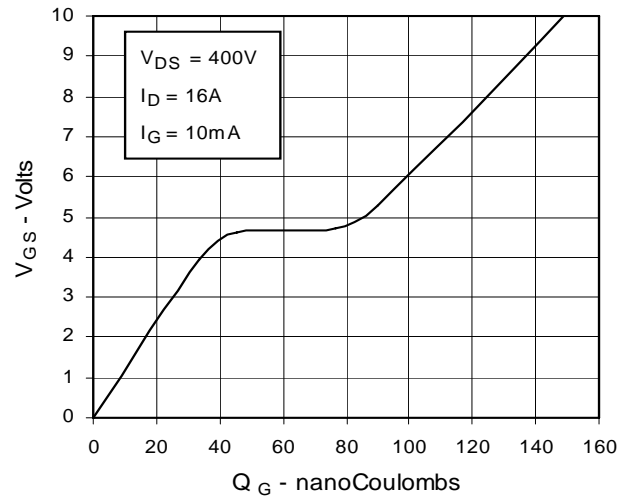


Fig. 11. Capacitance

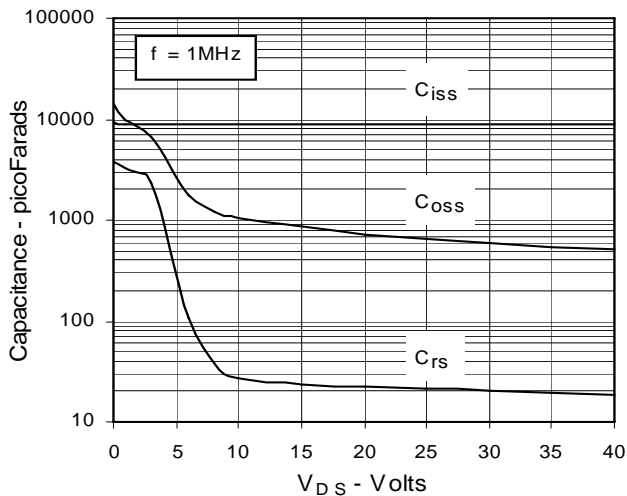
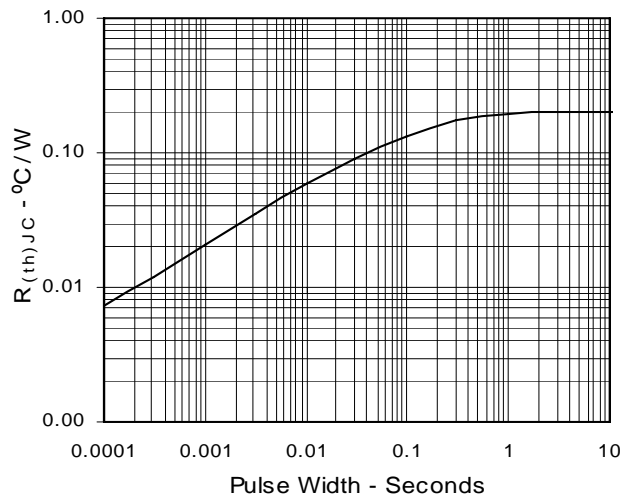


Fig. 12. Maximum Transient Thermal Resistance



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