

PolarHV™ HiPerFET IXFN 80N50P

Power MOSFET

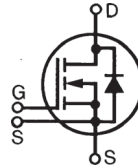
$$V_{DSS} = 500 \text{ V}$$

$$I_{D25} = 66 \text{ A}$$

$$R_{DS(on)} \leq 65 \text{ m}\Omega$$

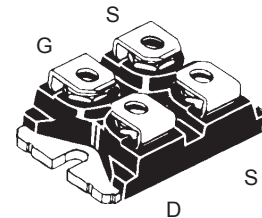
$$t_{rr} \leq 200 \text{ ns}$$

N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	500	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	500	V
V_{GS}	Transient	± 40	V
V_{GSM}	Continuous	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	66	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	200	A
I_{AR}	$T_C = 25^\circ\text{C}$	80	A
E_{AR}	$T_C = 25^\circ\text{C}$	80	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	3.0	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	$T_C = 25^\circ\text{C}$	700	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; $I_{ISOL} \leq 1 \text{ mA}$	2500	V~
M_d	Mounting torque Terminal connection torque (M4)	1.5/13 Nm/ib.in. 1.5/13 Nm/ib.in.	
Weight		30	g

miniBLOC, SOT-227 B (IXFN)
E153432



G = Gate D = Drain
S = Source

Either source tab S can be used for source current or Kelvin gate return.

Features

- | Fast intrinsic diode
- | International standard package
- | Unclamped Inductive Switching (UIS) rated
- | UL recognized.
- | Isolated mounting base

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}	$V_{GS} = 0 \text{ V}$, $I_D = 500 \mu\text{A}$	500		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 8 \text{ mA}$	3.0		5.0 V
I_{GSS}	$V_{GS} = \pm 30 \text{ V}_{DC}$, $V_{DS} = 0$			$\pm 200 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$			25 μA 1 mA $T_J = 125^\circ\text{C}$
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 0.5 I_{D25}$, Note 1			65 m Ω

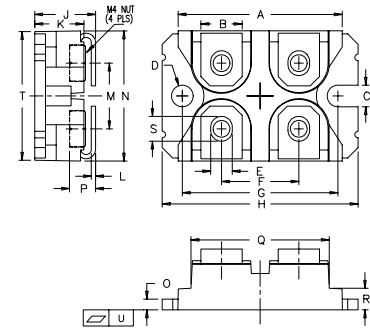
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$ unless otherwise specified)			
		Min.	Typ.	Max.	
g_{fs}	$V_{DS} = 20\text{ V}; I_D = 0.5 I_{D25}$, Note 1	35	70	S	
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		12.7	nF	
C_{oss}			1280	pF	
C_{rss}			120	pF	
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$		25	ns	
t_r			27	ns	
$t_{d(off)}$		$R_G = 2\ \Omega$ (External)		70	ns
t_f				18	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$		195	nC	
Q_{gs}			70	nC	
Q_{gd}			64	nC	
R_{thJC}				0.18°C/W	
R_{thCK}		0.05		$^\circ\text{C/W}$	

Source-Drain Diode

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$ unless otherwise specified)		
		Min.	Typ.	Max.
I_S	$V_{GS} = 0\text{ V}$			80 A
I_{SM}	Repetitive			200 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Note 1			1.5 V
t_{rr}	$I_F = 25\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}$			200 ns
Q_{RM}	$V_R = 100\text{ V}, V_{GS} = 0\text{ V}$		0.8	μC
I_{RM}			8	A

Note 1: Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$

miniBLOC, SOT-227B (IXFN) 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

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

IXYS MOSFETs and IGBTs are covered by	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
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	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

Fig. 1. Output Characteristics
@ 25°C

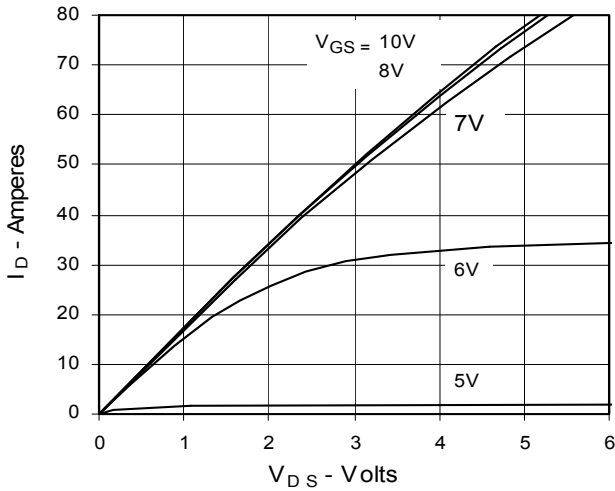


Fig. 2. Extended Output Characteristics
@ 25°C

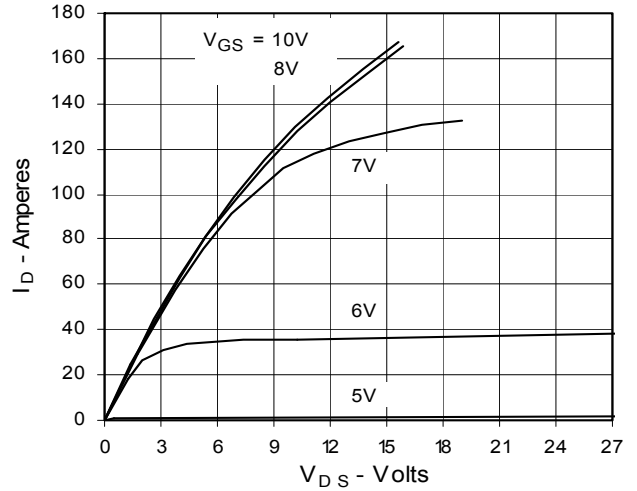


Fig. 3. Output Characteristics
@ 125°C

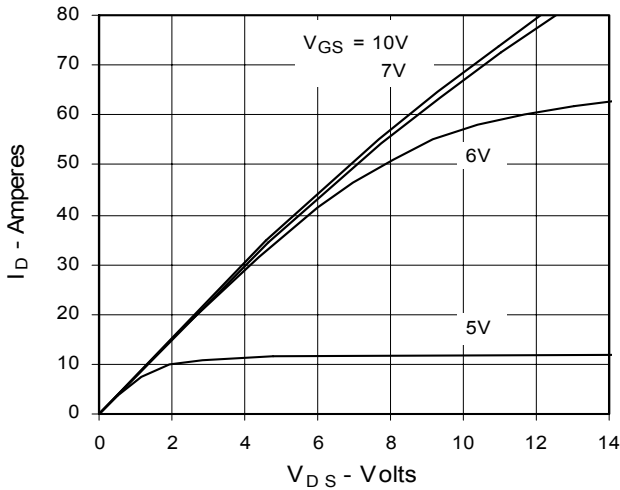


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 40A$ Value vs. Junction Temperature

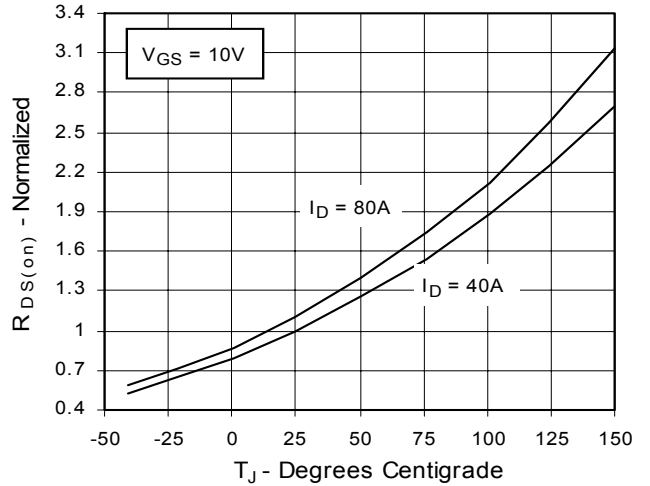


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 40A$ Value vs. Drain Current

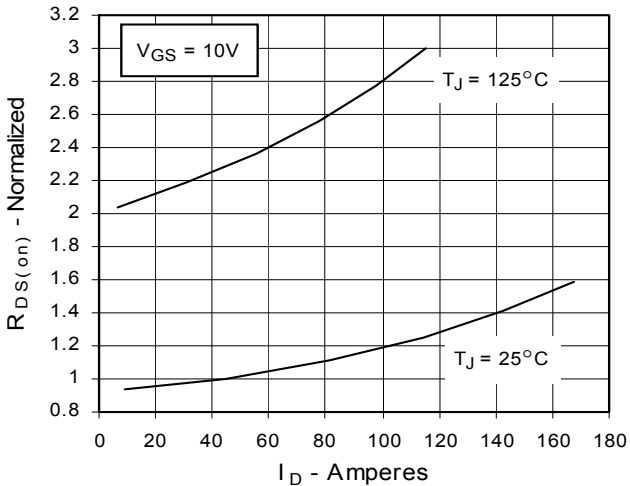


Fig. 6. Drain Current vs. Case Temperature

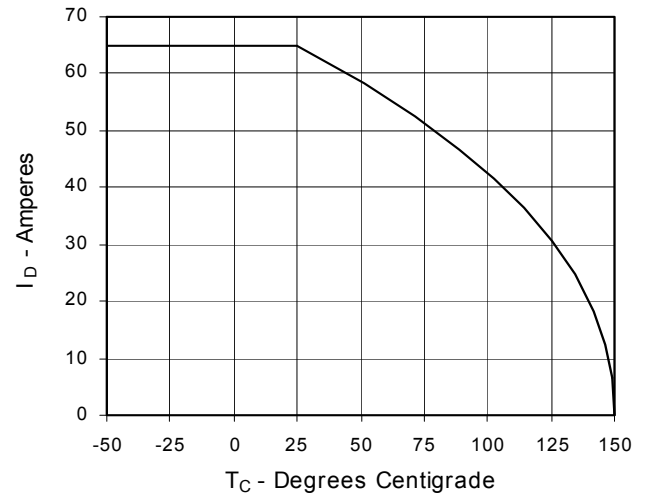


Fig. 7. Input Admittance

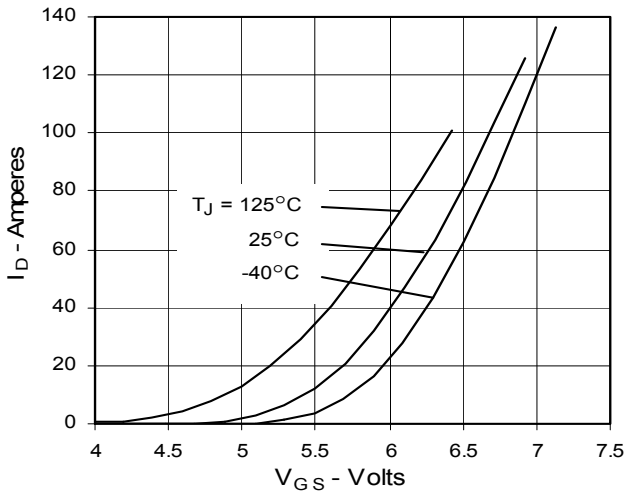


Fig. 8. Transconductance

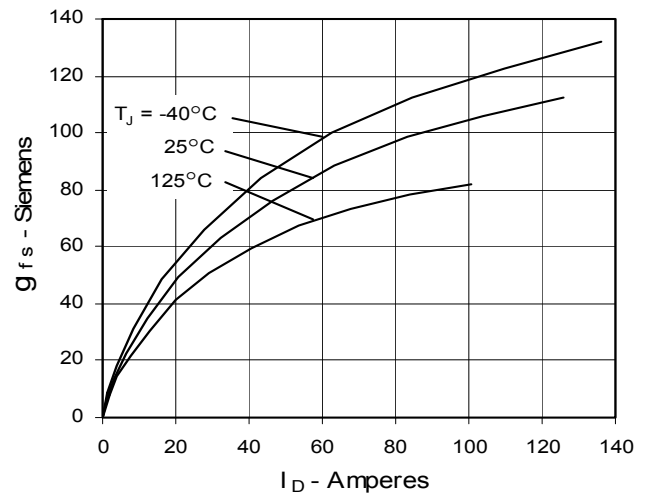


Fig. 9. Source Current vs. Source-To-Drain Voltage

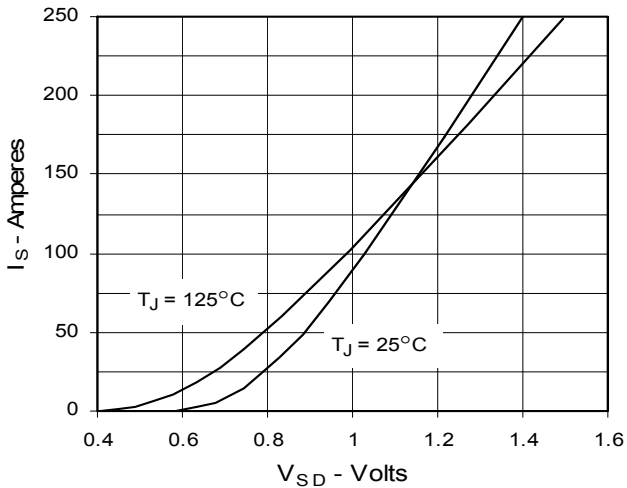


Fig. 10. Gate Charge

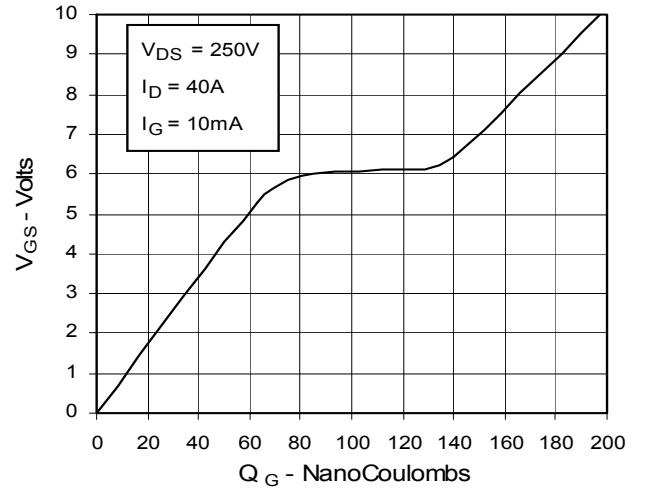


Fig. 11. Capacitance

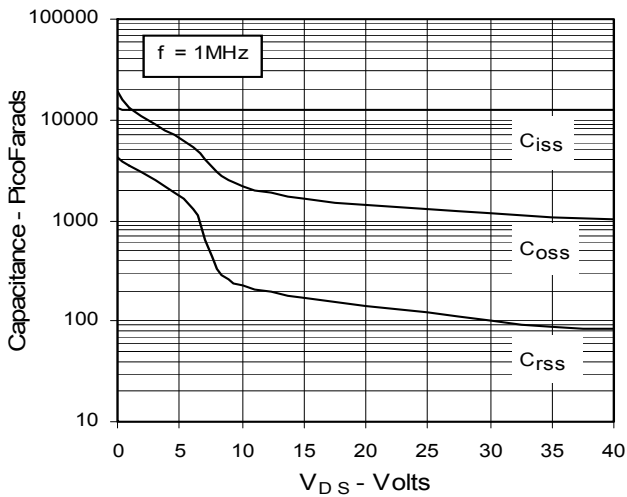


Fig. 12. Forward-Bias Safe Operating Area

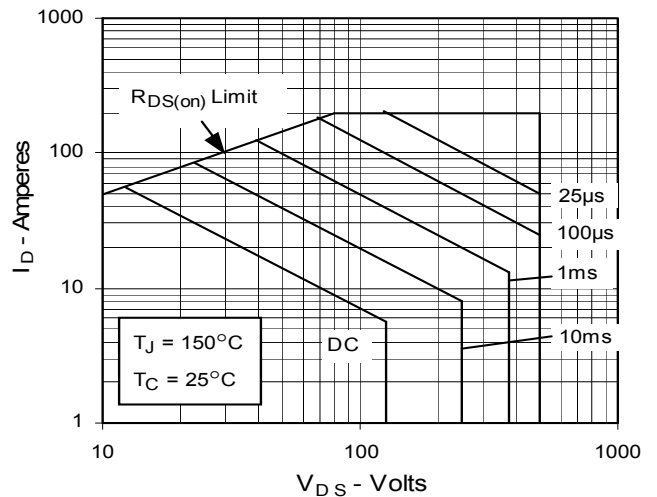
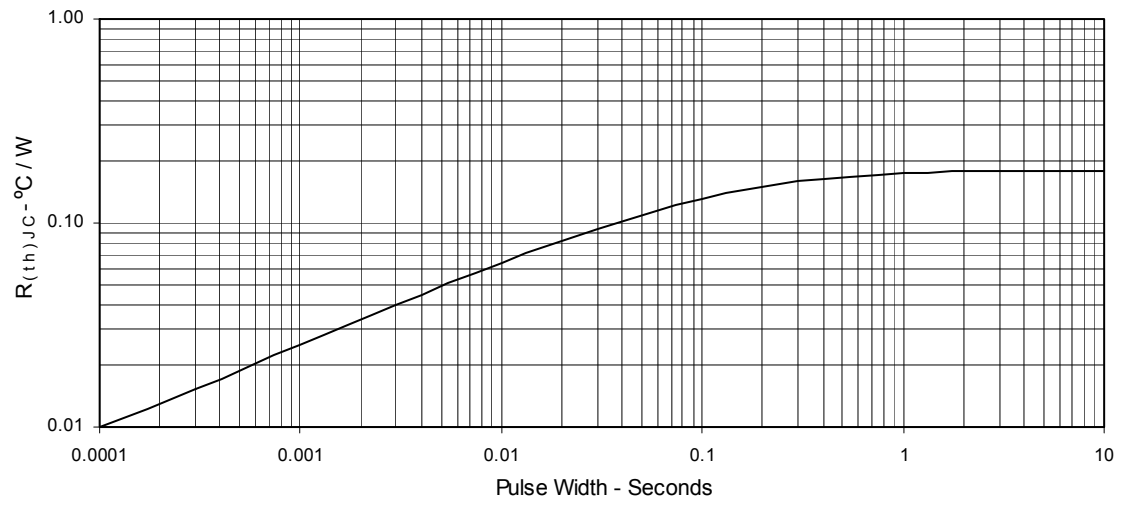


Fig. 13. Maximum Transient Thermal Resistance





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[25.330.4753.1](#) [25.330.5253.1](#) [25.334.3253.1](#) [25.334.3353.1](#) [25.350.2053.0](#) [25.352.4753.1](#) [25.522.3253.0](#) [T483C](#) [T484C](#) [T485F](#) [T485H](#)
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[25.640.5053.0](#)