THE DATASHEET OF

IXFN32N80P

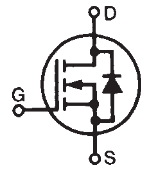
IXYS

PolarHV™ HiPerFET Power MOSFET

IXFN32N80P

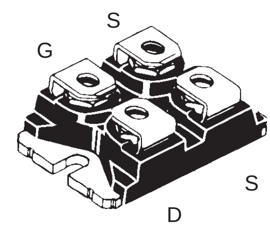
V_{DSS}	=	800	V
I_{D25}	=	25	A
$R_{DS(on)}$	≤	270	mΩ
t_{rr}	≤	250	ns

N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode



Symbol	Test Conditions		Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C		800	V
V_{DGR}	T_J = 25°C to 150°C; R_{GS} = 1 MΩ		800	V
V_{GSS}	Continuous		±30	V
V_{GSM}	Transient		±40	V
I_{D25}	T_C = 25°C		29	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}		250	A
I_{AR}	T_C = 25°C		30	A
E_{AR}	T_C = 25°C		100	mJ
E_{AS}	T_C = 25°C		5	J
dv/dt	I_S ≤ I_{DM}, di/dt ≤ 100 A/µs, V_{DD} ≤ V_{DSS}, T_J ≤ 150°C, R_G = 2 Ω		10	V/ns
P_D	T_C = 25°C		625	W
T_J			-55 ... +150	°C
T_{JM}			150	°C
T_{stg}			-55 ... +150	°C
T_L	1.6 mm (0.062 in.) from case for 10 s		300	°C
V_{ISOL}	50/60 Hz, RMS	t = 1 min	2500	V~
	I_{ISOL} ≤ 1 mA	t = 1 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°C, unless otherwise specified)		Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0 V, I_D = 3 mA		800			V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 8 mA		3.0		5.0	V
I_{GSS}	V_{GS} = ±30 V, V_{DS} = 0 V				±200	nA
I_{DSS}	V_{DS} = V_{DSS}				25	µA
	V_{GS} = 0 V	T_J = 125°C			2	mA
$R_{DS(on)}$	V_{GS} = 10 V, I_D = 16A, Note 1				270	mΩ

Symbol	Test Conditions	Min.	Typ.	Max.	
	Characteristic Values (T_J = 25°C, unless otherwise specified)				
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		30		ns
t_r	R_G = 2 Ω (External)		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

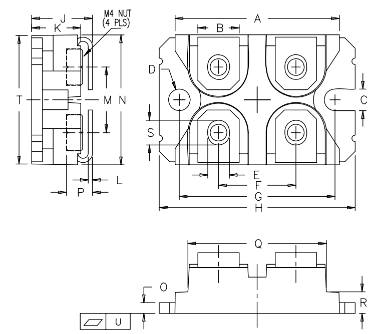
Characteristic Values (T_J = 25°C, unless otherwise specified)

Symbol	Test Conditions	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			250	ns
Q_{RM}	V_R = 100V		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

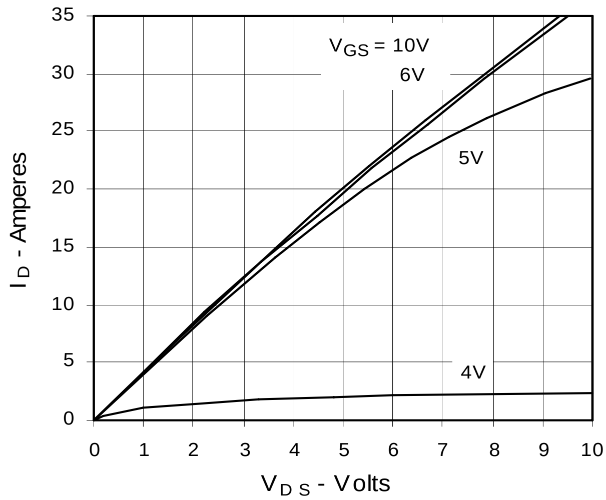


Fig. 2. Extended Output Characteristics @ 25°C

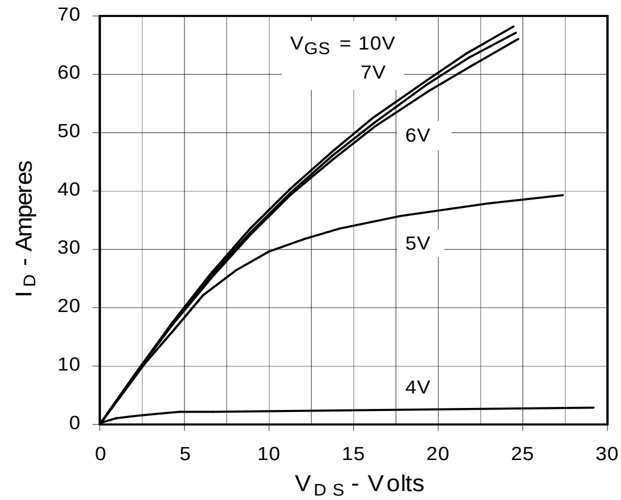


Fig. 3. Output Characteristics @ 125°C

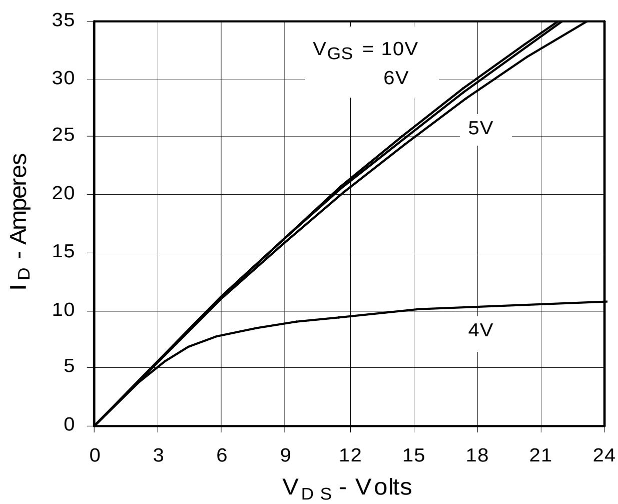


Fig. 4. $R_{DS(on)}$ Normalized to I_D = 16A Value vs. Junction Temperature

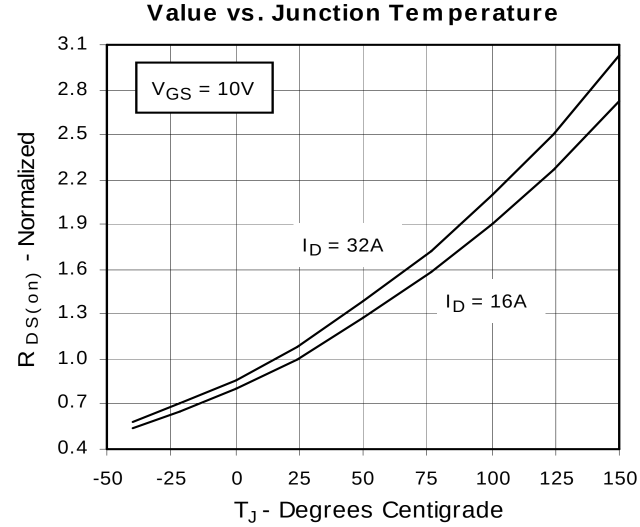


Fig. 5. $R_{DS(on)}$ Normalized to I_D = 16A Value vs. Drain Current

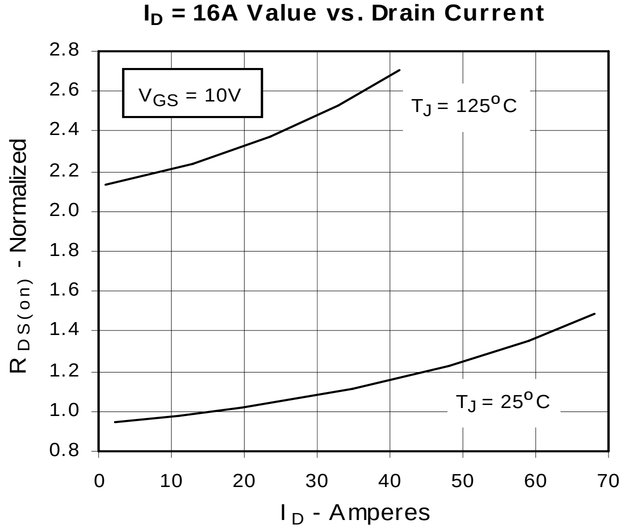


Fig. 6. Drain Current vs. Case Temperature

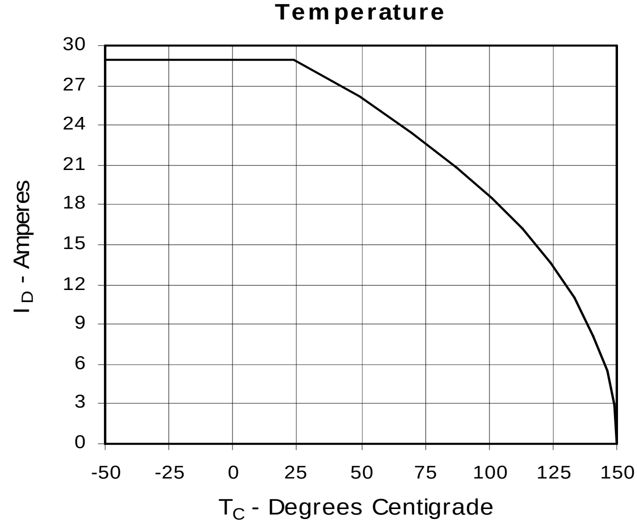


Fig. 7. Input Admittance

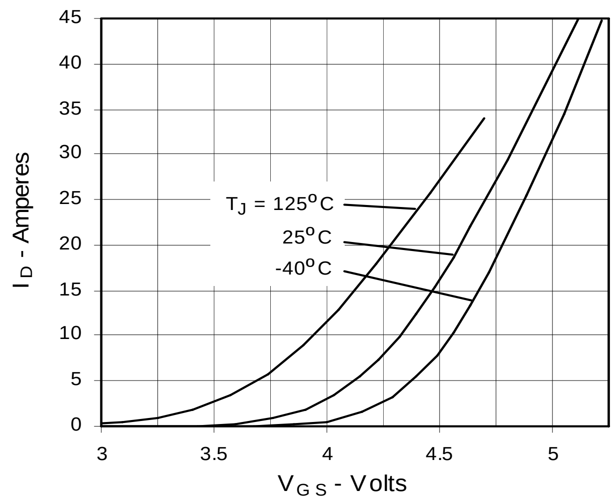


Fig. 8. Transconductance

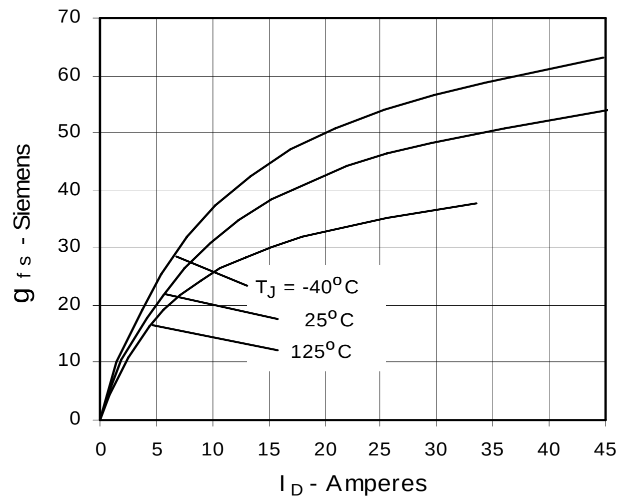


Fig. 9. Source Current vs. Source-To-Drain Voltage

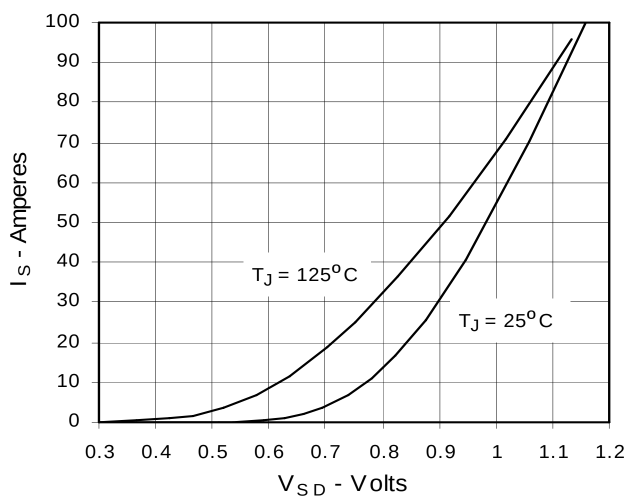


Fig. 10. Gate Charge

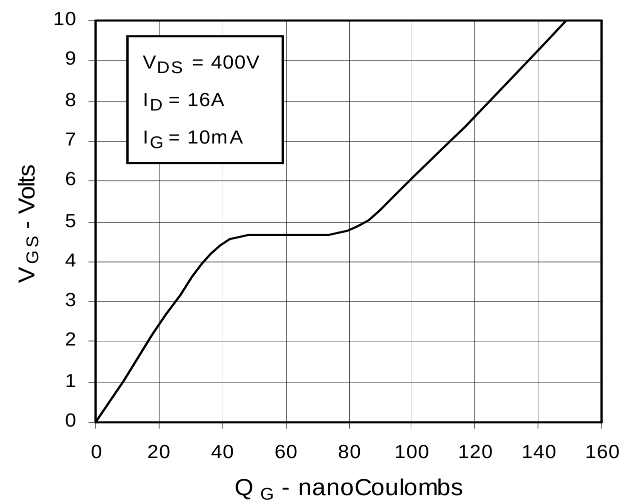


Fig. 11. Capacitance

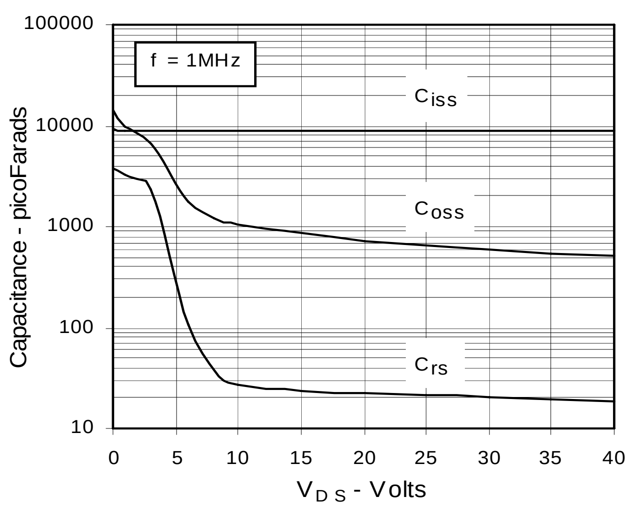


Fig. 12. Maximum Transient Thermal Resistance