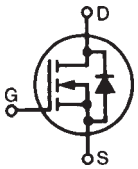
IXYS

Polar™ Power MOSFET
HiPerFET™

IXFN32N100P

N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode

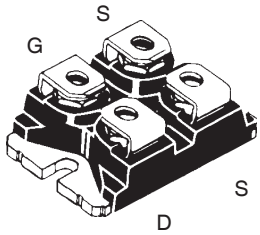


V_{DSS} = 1000V
I_{D25} = 27A
$R_{DS(on)}$ ≤ 320mΩ
t_{rr} ≤ 300ns

Symbol	Test Conditions		Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C		1000	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ		1000	V
V_{GSS}	Continuous		± 30	V
V_{GSM}	Transient		± 40	V
I_{D25}	T_C = 25°C		27	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}		75	A
I_{AR}	T_C = 25°C		16	A
E_{AS}	T_C = 25°C		1.5	J
dV/dt	I_S ≤ I_{DM}, V_{DD} ≤ V_{DSS}, T_J ≤ 150°C		20	V/ns
P_D	T_C = 25°C		690	W
T_J			-55 ... +150	°C
T_{JM}			150	°C
T_{stg}			-55 ... +150	°C
T_L	1.6mm (0.062 in.) from case for 10s		300	°C
V_{ISOL}	50/60 Hz, RMS	t = 1min	2500	V~
	I_{ISOL} ≤ 1mA	t = 1s	3000	V~
M_d	Mounting torque		1.5/13	Nm/lb.in.
	Terminal connection torque		1.3/11.5	Nm/lb.in.
Weight			30	g

Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)		Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0V, I_D = 3mA		1000			V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 1mA		3.5		6.5	V
I_{GSS}	V_{GS} = ± 30V, V_{DS} = 0V				± 200	nA
I_{DSS}	V_{DS} = V_{DSS}				50	μA
	V_{GS} = 0V	T_J = 125°C			2.5	mA
$R_{DS(on)}$	V_{GS} = 10V, I_D = 16A, Note 1				320	mΩ

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

Applications

- Switched-mode and resonant-mode power supplies
- DC-DC Converters
- Laser Drivers
- AC and DC motor controls
- Robotics and servo controls

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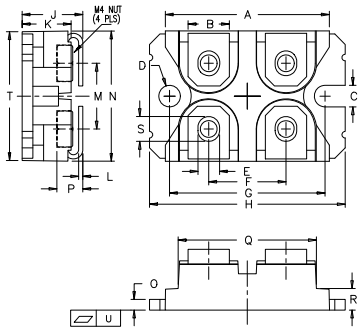
Symbol	Test Conditions (T_J = 25°C unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	V_{DS} = 20V, I_D = 16A, Note 1	13	21		S
C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		14.2		nF
C_{oss}			815		pF
C_{rss}			60		pF
R_{Gi}	Gate input resistance		1.50		Ω
$t_{d(on)}$	**Resistive Switching Times** V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 16A, R_G = 1Ω (External)		50		ns
t_r			55		ns
$t_{d(off)}$			76		ns
t_f			43		ns
$Q_{g(on)}$	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 16A		225		nC
Q_{gs}			85		nC
Q_{gd}			94		nC
R_{thJC}				0.18	°C/W
R_{thCS}			0.05		°C/W

Source-Drain Diode (T_J = 25°C unless otherwise specified)		Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0V			32	A
I_{SM}	Repetitive, pulse width limited by T_{JM}			128	A
V_{SD}	I_F = I_S, V_{GS} = 0V, Note 1			1.5	V
t_{rr}	I_F = 16A, -di/dt = 100A/μs, V_R = 100V			300	ns
Q_{RM}			2.2		μC
I_{RM}			15		A

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

SOT-227B Outline



SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS 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 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 7,157,338B2 4,850,072 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. Output Characteristics @ 25ºC

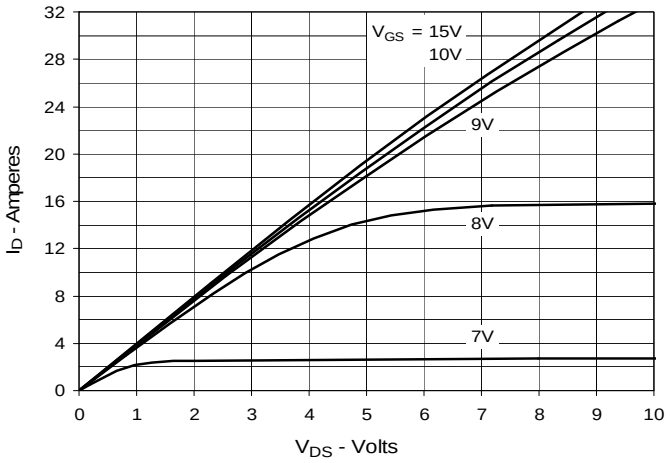


Fig. 2. Extended Output Characteristics @ 25ºC

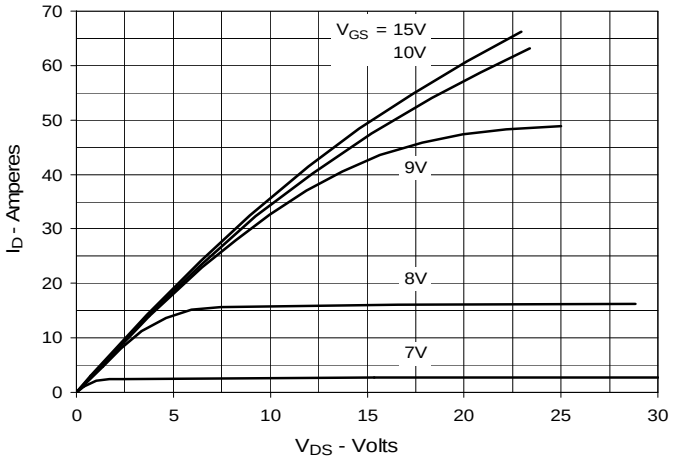


Fig. 3. Output Characteristics @ 125ºC

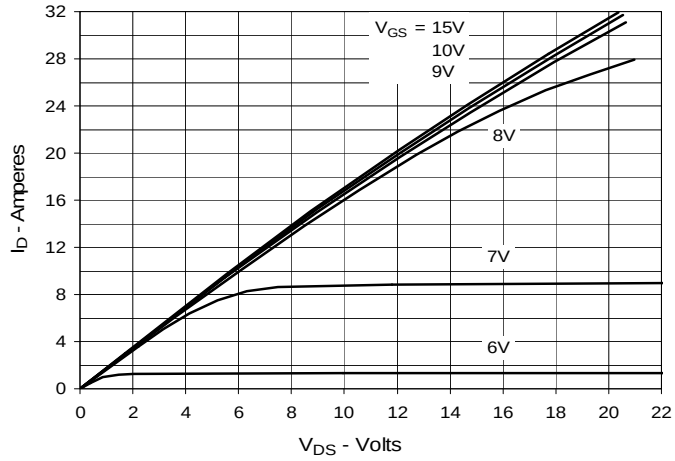


Fig. 4. $R_{DS(on)}$ Normalized to I_D = 16A Value vs. Junction Temperature

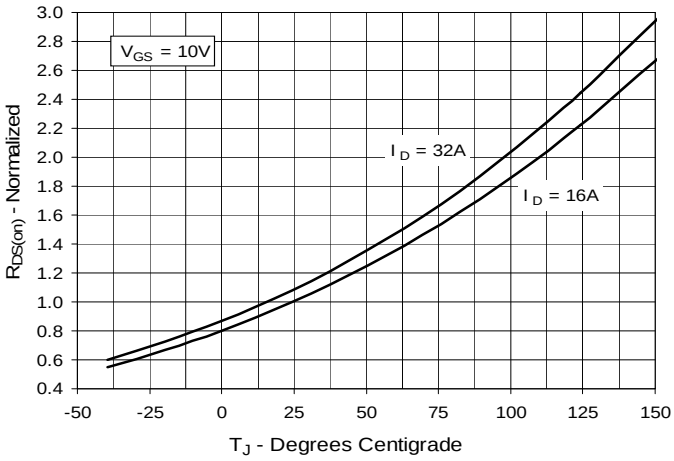


Fig. 5. $R_{DS(on)}$ Normalized to I_D = 16A Value vs. Drain Current

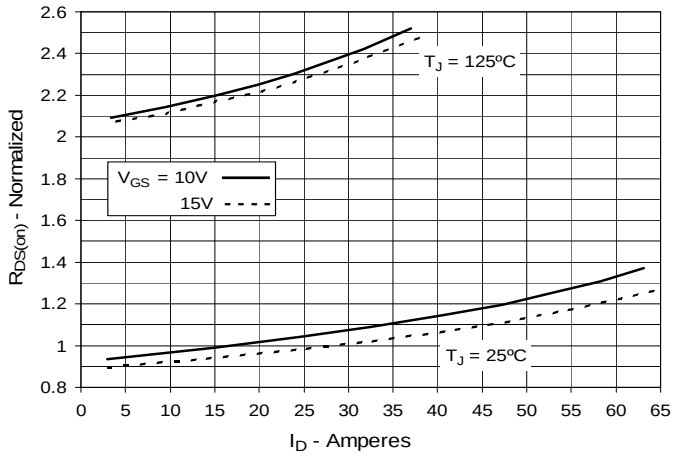


Fig. 6. Maximum Drain Current vs. Case Temperature

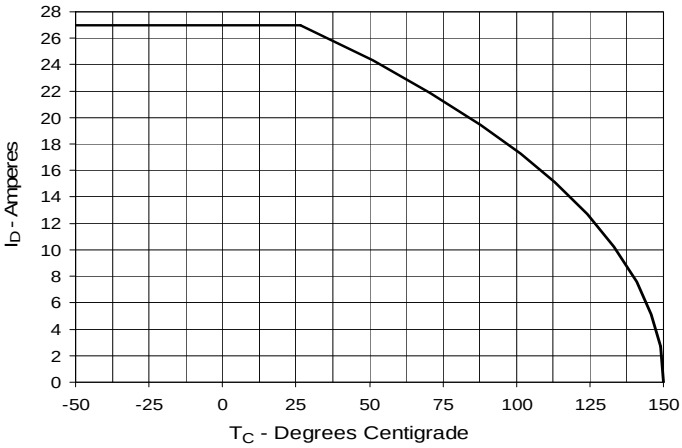


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Fig. 7. Input Admittance

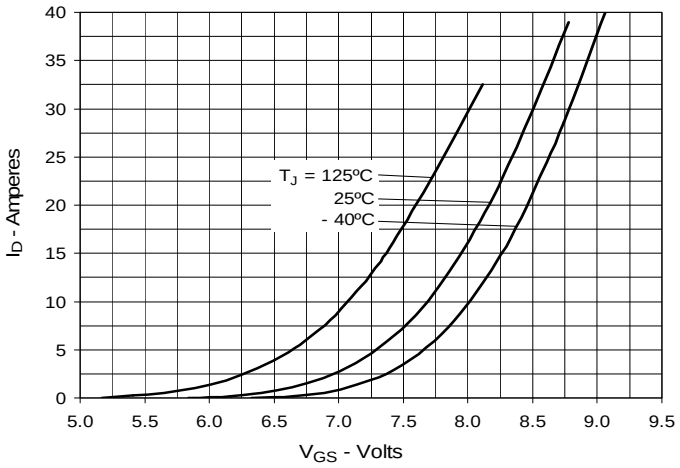


Fig. 8. Transconductance

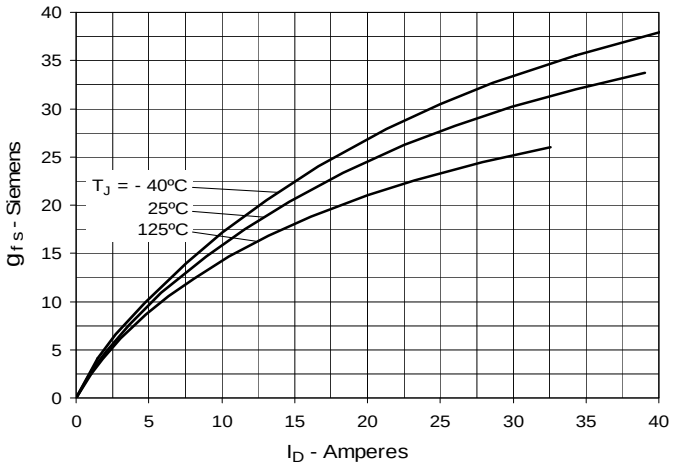


Fig. 9. Forward Voltage Drop of Intrinsic Diode

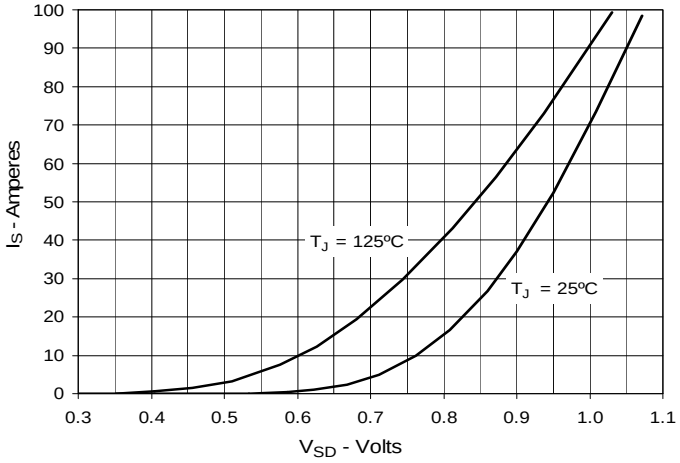


Fig. 10. Gate Charge

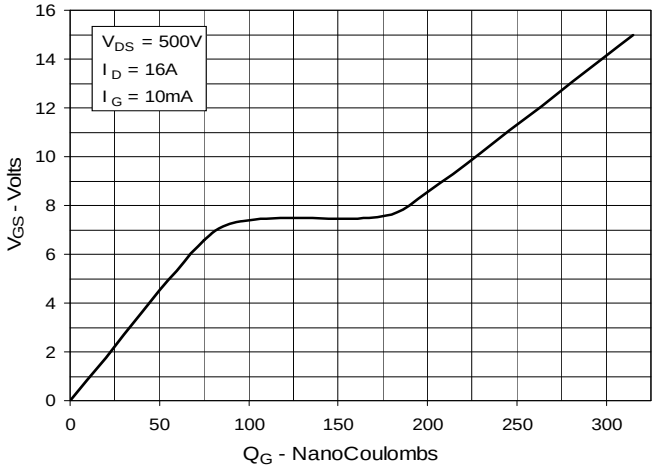


Fig. 11. Capacitance

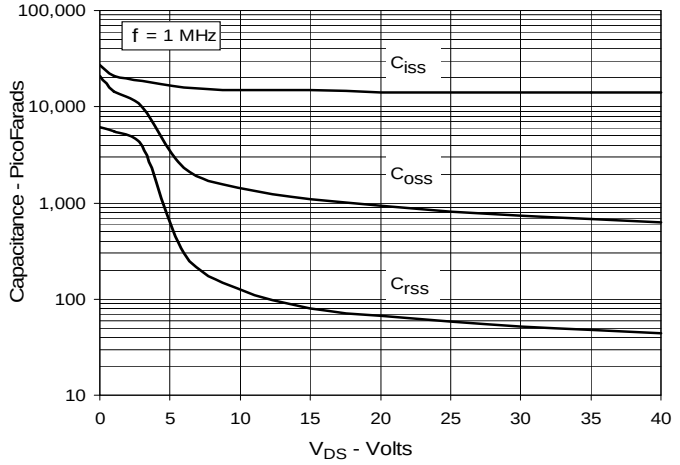
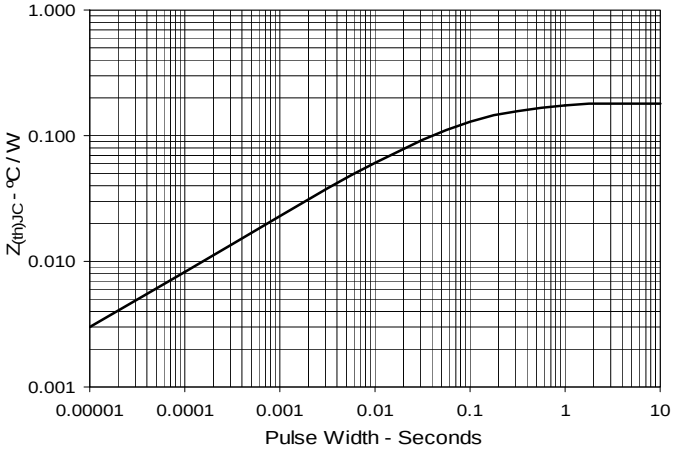


Fig. 12. Maximum Transient Thermal Impedance



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