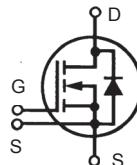


HiPerFET™ Power MOSFETs

IXFN 32N120

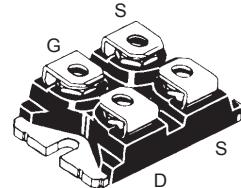
V_{DSS} = 1200V
I_{D25} = 32A
R_{DS(on)} = 0.35Ω

N-Channel Enhancement Mode
Avalanche Rated, High dv/dt, Low t_{rr}



Symbol	Test Conditions	Maximum Ratings		
V _{DSS}	T _J = 25°C to 150°C	1200	V	
V _{DGR}	T _J = 25°C to 150°C; R _{GS} = 1 MΩ	1200	V	
V _{GS}	Continuous	±30	V	
V _{GSM}	Transient	±40	V	
I _{D25}	T _C = 25°C, Chip capability	32	A	
I _{DM}	T _C = 25°C, pulse width limited by T _{JM}	128	A	
I _{AR}	T _C = 25°C	32	A	
E _{AR}	T _C = 25°C	64	mJ	
E _{AS}	T _C = 25°C	4	J	
dv/dt	I _S ≤ I _{DM} , di/dt ≤ 100 A/μs, V _{DD} ≤ V _{DSS} , T _J ≤ 150°C, R _G = 2 Ω	15	V/ns	
P _D	T _C = 25°C	780	W	
T _J		-55 ... +150	°C	
T _{JM}		150	°C	
T _{stg}		-55 ... +150	°C	
V _{ISOL}	50/60 Hz, RMS I _{ISOL} ≤ 1 mA	t = 1 min 2500 t = 1 s 3000	V~	
M _d	Mounting torque Terminal connection torque	1.5/13 Nm/lb.in. 1.5/13 Nm/lb.in.		
Weight		30	g	

miniBLOC, SOT-227 B (IXFN)
 E153432



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

Either Source terminal at miniBLOC can be used as Main or Kelvin Source

Features

- International standard package
- miniBLOC, with Aluminium nitride isolation
- Low R_{DS(on)} HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
- Fast intrinsic Rectifier

Applications

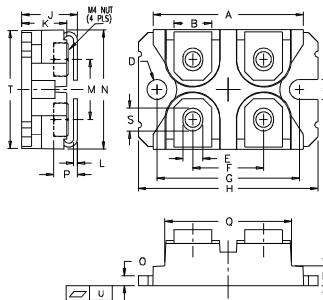
- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- Temperature and lighting controls

Advantages

- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values		
		(T _J = 25°C, unless otherwise specified)	min.	typ.
V _{DSS}	V _{GS} = 0 V, I _D = 3 mA	1200		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 8 mA	2.5		5.0 V
I _{GSS}	V _{GS(th)} = ±30 V _{DC} , V _{DS} = 0			±200 nA
I _{DSS}	V _{DS} = V _{DSS} V _{GS} = 0 V	T _J = 25°C T _J = 125°C		50 μA 3 mA
R _{DS(on)}	V _{GS} = 10 V, I _D = 0.5 • I _{D25} Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %		0.35	Ω

Symbol	Test Conditions	Characteristic Values			
		($T_J = 25^\circ\text{C}$, unless otherwise specified)	min.	typ.	max.
g_{fs}	$V_{DS} = 20 \text{ V}; I_D = 0.5 \cdot I_{D25}$, pulse test	28	52	S	
C_{iss} C_{oss} C_{rss}	$V_{GS} = 0 \text{ V}, V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$	15900		pF	
		1000		pF	
		260		pF	
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$V_{GS} = 10 \text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$ $R_G = 1 \Omega$ (External),	36		ns	
		42		ns	
		98		ns	
		22		ns	
$Q_{g(on)}$ Q_{gs} Q_{gd}	$V_{GS} = 10 \text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$	400		nC	
		70		nC	
		188		nC	
R_{thJC}			0.16	K/W	
R_{thCK}			0.05	K/W	

miniBLOC, SOT-227 B


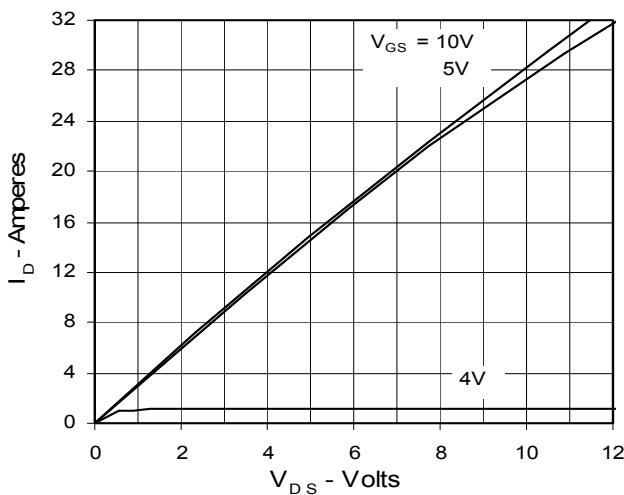
M4 screws (4x) supplied

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	31.50	31.88	1.240	1.255
B	7.80	8.20	0.307	0.323
C	4.09	4.29	0.161	0.169
D	4.09	4.29	0.161	0.169
E	4.09	4.29	0.161	0.169
F	14.91	15.11	0.587	0.595
G	30.12	30.30	1.186	1.193
H	38.00	38.23	1.496	1.505
J	11.68	12.22	0.460	0.481
K	8.92	9.60	0.351	0.378
L	0.76	0.84	0.030	0.033
M	12.60	12.85	0.496	0.506
N	25.15	25.42	0.990	1.001
O	1.98	2.13	0.078	0.084
P	4.95	5.97	0.195	0.235
Q	26.54	26.90	1.045	1.059
R	3.94	4.42	0.155	0.174
S	4.72	4.85	0.186	0.191
T	24.59	25.07	0.968	0.987
U	-0.05	0.1	-0.002	0.004

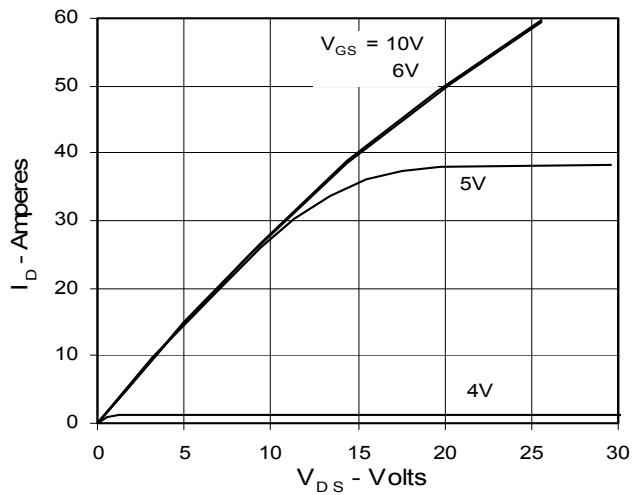
Source-Drain Diode
Characteristic Values
 $(T_J = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Test Conditions	min.	typ.	max.
I_s	$V_{GS} = 0 \text{ V}$		32	A
I_{SM}	Repetitive; pulse width limited by T_{JM}		128	A
V_{SD}	$I_F = I_s, V_{GS} = 0 \text{ V}$, Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $d \leq 2 \%$		1.3	V
t_{rr} Q_{RM} I_{RM}	$I_F = 25 \text{ A}$, $-\text{di}/\text{dt} = 100 \text{ A}/\mu\text{s}$, $V_R = 100 \text{ V}$	180 1.4 8	300	ns μC A

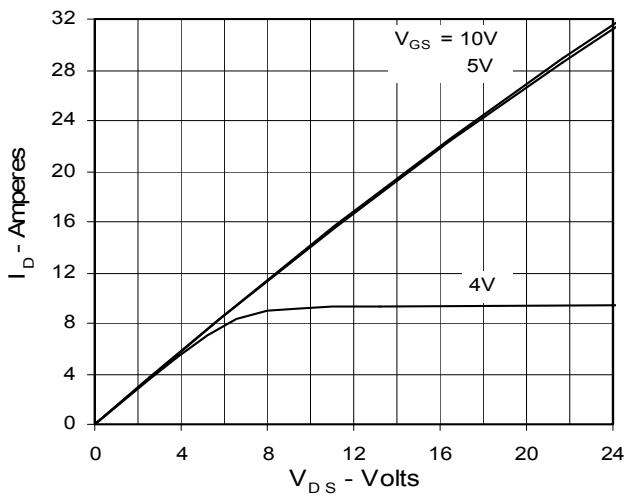
**Fig. 1. Output Characteristics
@ 25 Deg. C**



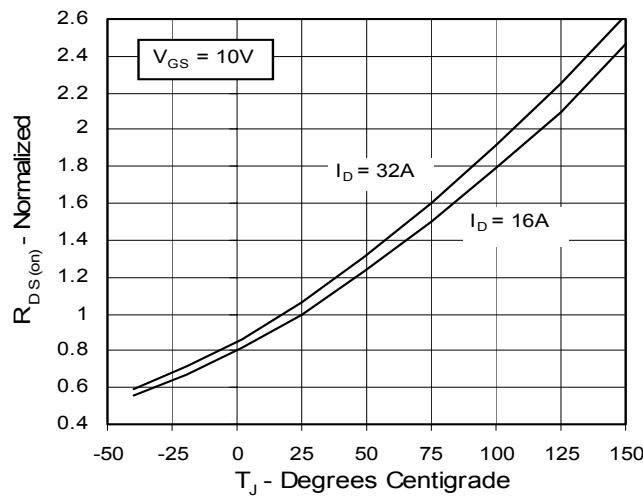
**Fig. 2. Extended Output Characteristics
@ 25 deg. C**



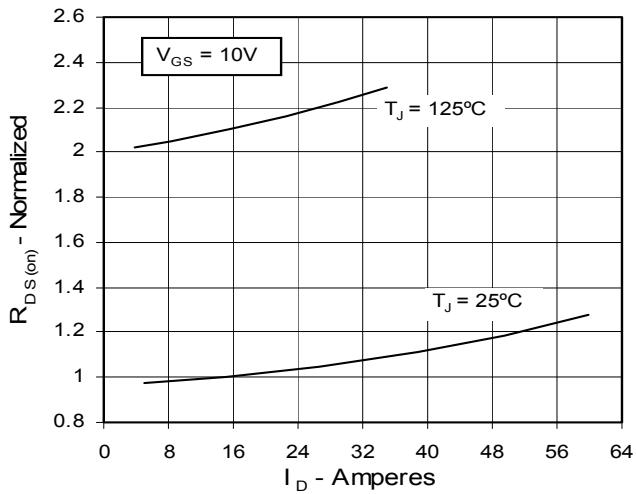
**Fig. 3. Output Characteristics
@ 125 Deg. C**



**Fig. 4. $R_{DS(on)}$ Normalized to I_{D25} Value vs.
Junction Temperature**



**Fig. 5. $R_{DS(on)}$ Normalized to I_{D25}
Value vs. I_D**



**Fig. 6. Drain Current vs. Case
Temperature**

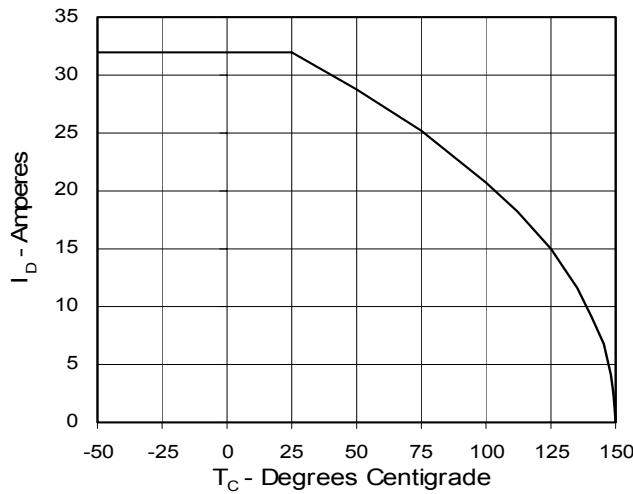
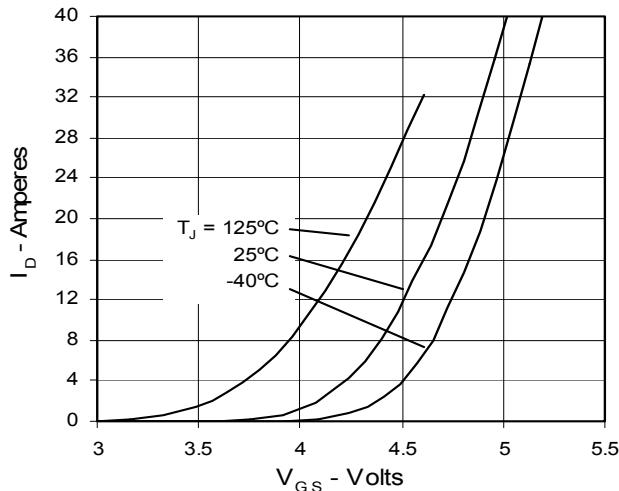


Fig. 7. Input Admittance



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

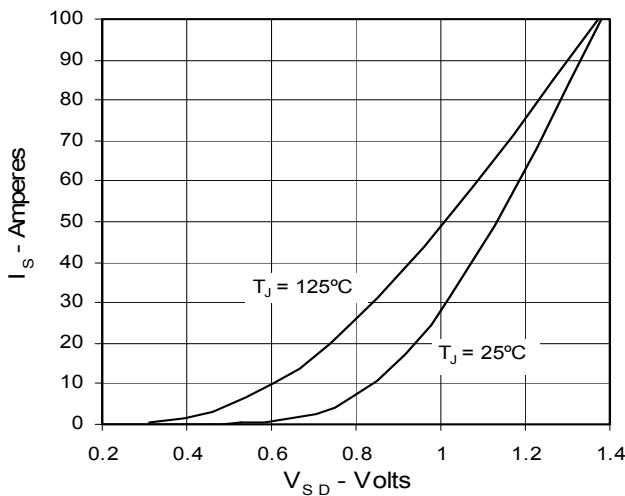


Fig. 11. Capacitance

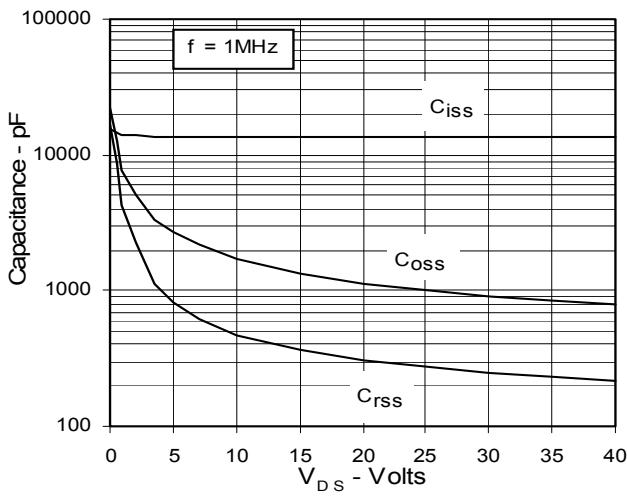


Fig. 8. Transconductance

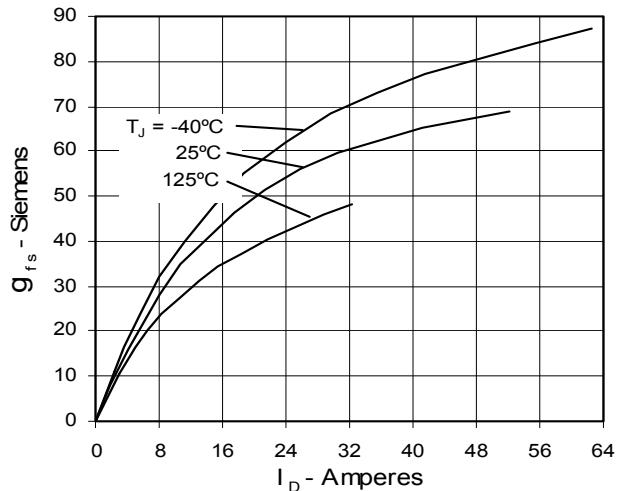


Fig. 10. Gate Charge

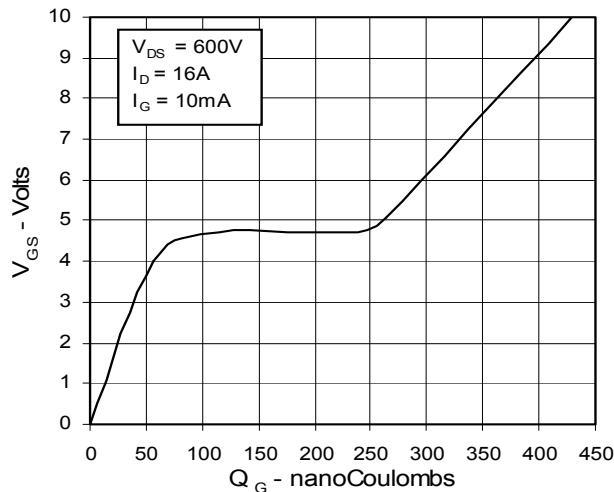
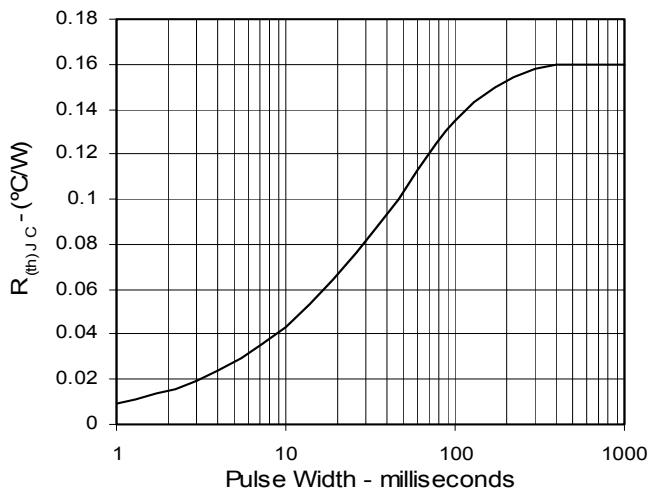


Fig. 12. Maximum Transient Thermal Resistance



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 4,881,106 5,017,508 5,049,961 5,187,117 5,486,715 6,306,728B1 6,259,123B1 6,306,728B1
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025 6,404,065B1 6,162,665 6,534,343



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