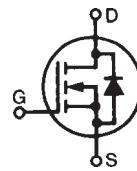


Polar™ HiPerFET™
Power MOSFET

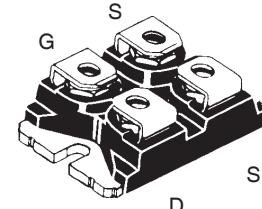
N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode

IXFN32N120P



V_{DSS} = 1200V
I_{D25} = 32A
R_{DS(on)} ≤ 310mΩ
t_{rr} ≤ 300ns

miniBLOC
 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.

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} = 1MΩ	1200	V
V _{GSS}	Continuous	±30	V
V _{GSM}	Transient	±40	V
I _{D25}	T _C = 25°C	32	A
I _{DM}	T _C = 25°C, Pulse Width Limited by T _{JM}	100	A
I _A	T _C = 25°C	16	A
E _{AS}	T _C = 25°C	2	J
dv/dt	I _S ≤ I _{DM} , V _{DD} ≤ V _{DSS} , T _J ≤ 150°C	20	V/ns
P _D	T _C = 25°C	1000	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
T _{SOLD}	Plastic Body for 10s	260	°C
V _{ISOL}	50/60 Hz, RMS t = 1 minute	2500	V~
	I _{ISOL} ≤ 1mA t = 1 second	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	1200		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 1mA	3.5		V
I _{GSS}	V _{GS} = ±30V, V _{DS} = 0V		±300	nA
I _{DSS}	V _{DS} = V _{DSS} , V _{GS} = 0V T _J = 125°C		50 5	μA mA
R _{DS(on)}	V _{GS} = 10V, I _D = 0.5 • I _{D25} , Note 1		310	mΩ

Features

- International Standard Package
- miniBLOC, with Aluminium Nitride Isolation
- Isolation Voltage 2500 V~
- High Current Handling Capability
- Fast Intrinsic Diode
- Avalanche Rated
- Low R_{DS(on)} HDMOS™ Process

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- High Voltage Switch-Mode and Resonant-Mode Power Supplies
- High Voltage Pulse Power Applications
- High Voltage Discharge Circuits in Lasers Pulsers, Spark Igniters, RF Generators
- High Voltage DC-DC Converters
- High Voltage DC-AC Inverters

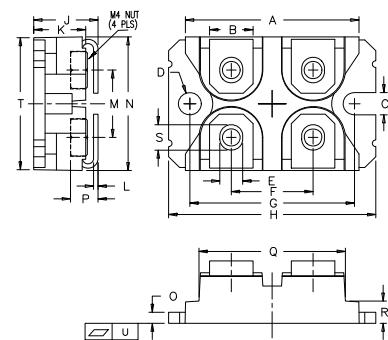
Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 20\text{V}$, $I_D = 0.5 \cdot I_{D25}$, Note 1	17	28	S
C_{iss}			21	nF
C_{oss}			1100	pF
C_{rss}			77	pF
R_{Gi}	Gate input resistance	0.84		Ω
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{D25}$ $R_G = 1\Omega$ (External)	70		ns
t_r		62		ns
$t_{d(off)}$		88		ns
t_f		58		ns
$Q_{g(on)}$	$V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{D25}$	360		nC
Q_{gs}		130		nC
Q_{gd}		160		nC
R_{thJC}			0.125	$^\circ\text{C}/\text{W}$
R_{thCS}		0.05		$^\circ\text{C}/\text{W}$

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		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}	$I_F = I_S$, $V_{GS} = 0\text{V}$, Note 1		1.5	V
t_{rr}	$I_F = 20\text{A}$, $-di/dt = 100\text{A}/\mu\text{s}$ $V_R = 100\text{V}$, $V_{GS} = 0\text{V}$		300	ns
Q_{RM}			1.9	μC
I_{RM}			15	A

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

SOT-227B (IXFN) Outline



(M4 screws (4x) supplied)

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	.76	.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

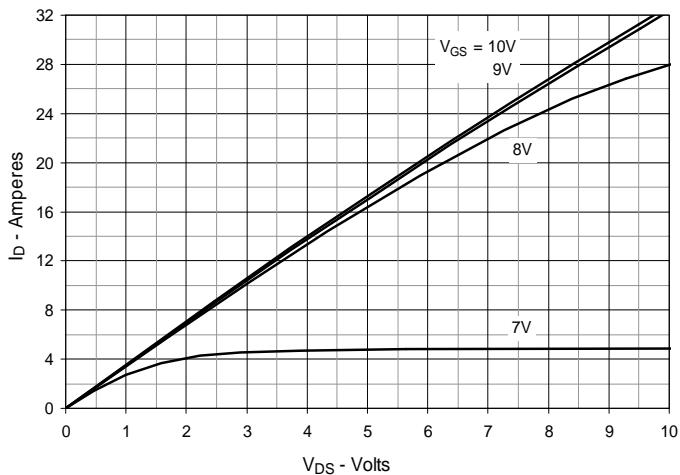
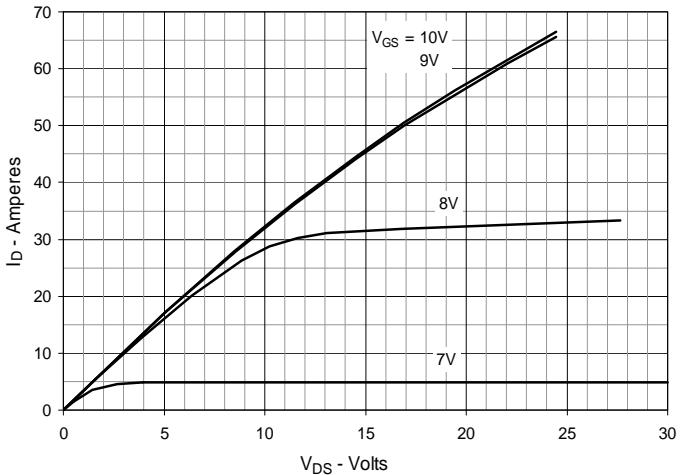
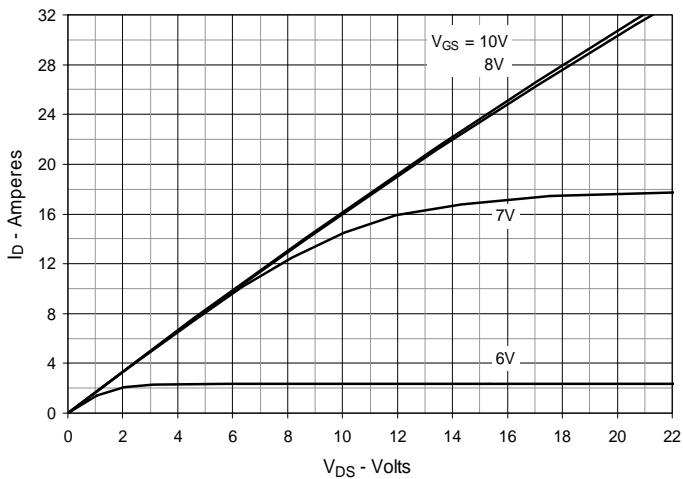
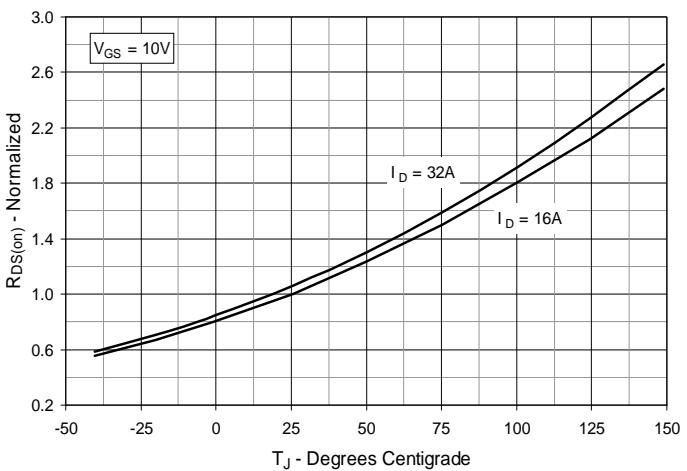
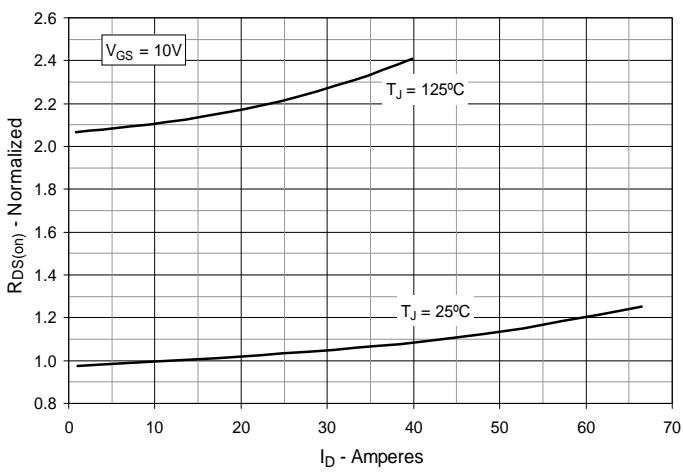
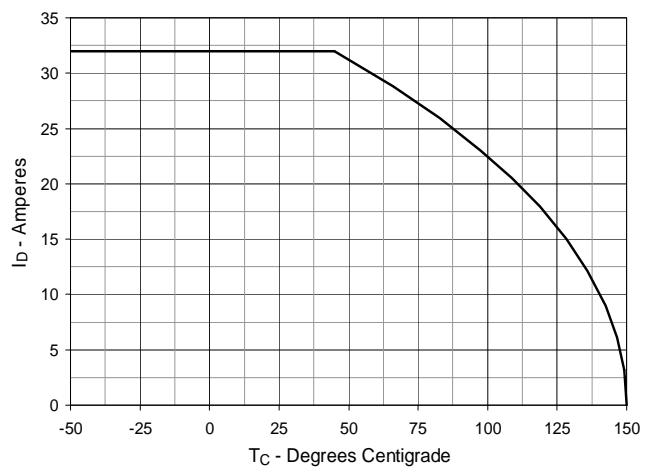
Fig. 1. Output Characteristics @ $T_J = 25^\circ\text{C}$ **Fig. 2. Extended Output Characteristics @ $T_J = 25^\circ\text{C}$** **Fig. 3. Output Characteristics $T_J = 125^\circ\text{C}$** **Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 16\text{A}$ Value vs. Junction Temperature****Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 16\text{A}$ Value vs. Drain Current****Fig. 6. Maximum Drain Current vs. Case Temperature**

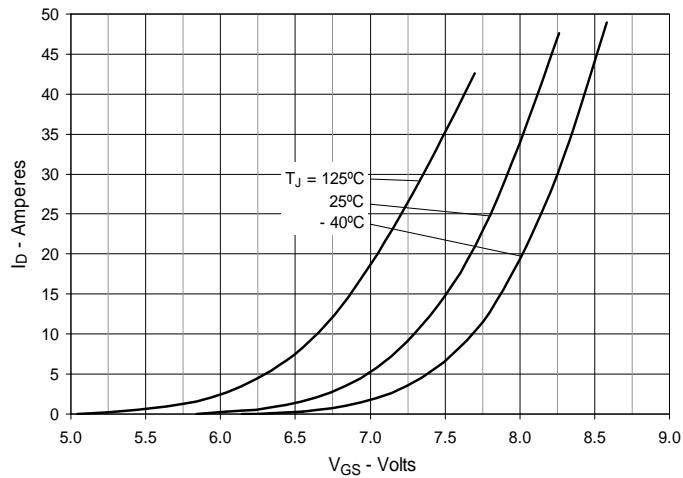
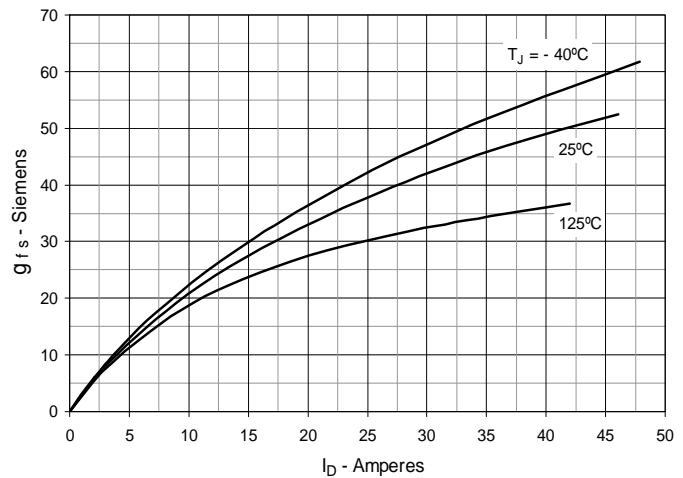
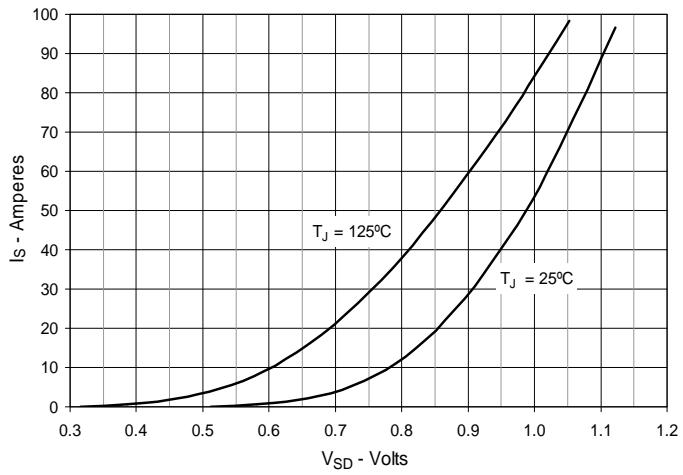
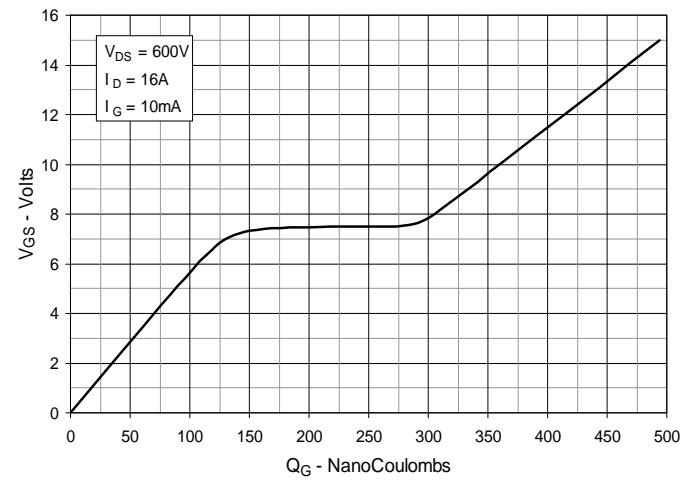
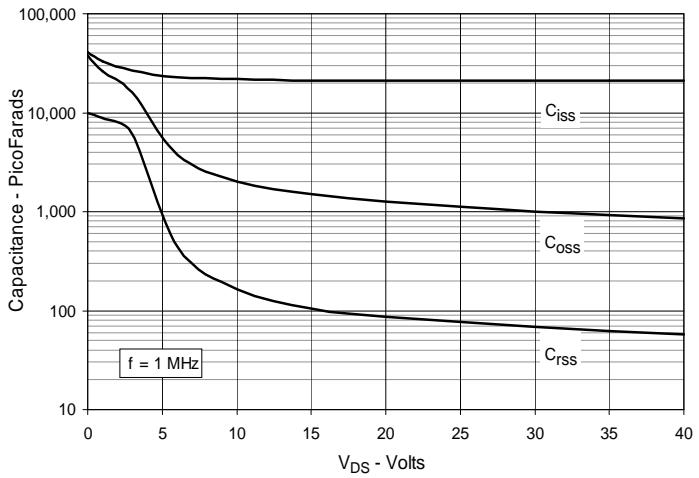
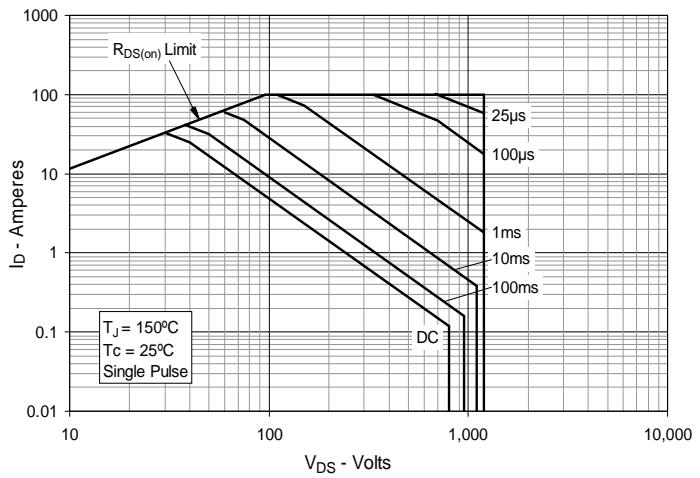
Fig. 7. Input Admittance

Fig. 8. Transconductance

Fig. 9. Forward Voltage Drop of Intrinsic Diode

Fig. 10. Gate Charge

Fig. 11. Capacitance

Fig. 12. Forward-Bias Safe Operating Area


Fig. 13. Maximum Transient Thermal Impedance