

## Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

[IXYS Corporation](#)

[IXFN102N30P](#)

For any questions, you can email us directly:

[sales@integrated-circuit.com](mailto:sales@integrated-circuit.com)



## Preliminary Technical Information

# PolarHV™ HiPerFET IXFN 102N30P

## Power MOSFET

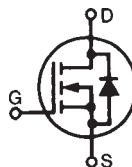
N-Channel Enhancement Mode  
Avalanche Rated  
Fast Intrinsic Diode

$$V_{DSS} = 300 \text{ V}$$

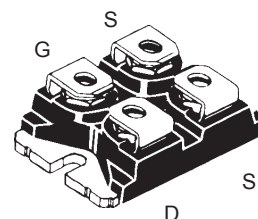
$$I_{D25} = 88 \text{ A}$$

$$R_{DS(on)} \leq 33 \text{ m}\Omega$$

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



Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$	300	V
$V_{DGR}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$ ; $R_{GS} = 1 \text{ M}\Omega$	300	V
$V_{GS}$	Continuous	$\pm 20$	V
$V_{GSM}$	Transient	$\pm 30$	V
$I_{D25}$	$T_C = 25^\circ\text{C}$	88	A
$I_L$	Lead Current Limit, RMS	100	A
$I_{DM}$	$T_C = 25^\circ\text{C}$ , pulse width limited by $T_{JM}$	250	A
$I_{AR}$	$T_C = 25^\circ\text{C}$	88	A
$E_{AR}$	$T_C = 25^\circ\text{C}$	60	mJ
$E_{AS}$	$T_C = 25^\circ\text{C}$	5	J
$dv/dt$	$I_S \leq I_{DM}$ , $di/dt \leq 100 \text{ A}/\mu\text{s}$ , $V_{DD} \leq V_{DSS}$ , $T_J \leq 150^\circ\text{C}$ , $R_G = 4 \Omega$	10	V/ns
$P_D$	$T_C = 25^\circ\text{C}$	600	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, RMS $I_{ISOL} \leq 1 \text{ mA}$	$t = 1 \text{ min}$ $t = 1 \text{ s}$	2500 3000 V~ V~
$M_d$	Mounting torque Terminal connection torque	1.5 / 13 1.5 / 13	Nm/lb.in. Nm/lb.in.
<b>Weight</b>		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

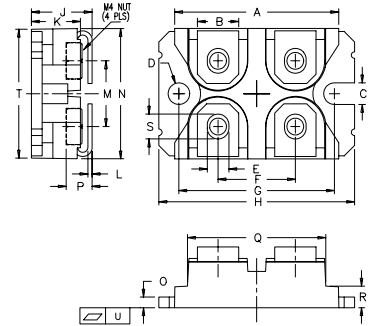
**Advantages**

- † Easy to mount
- † Space savings
- † High power density

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
$BV_{DSS}$	$V_{GS} = 0 \text{ V}$ , $I_D = 250 \mu\text{A}$	300		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 4 \text{ mA}$	2.5		5.0 V
$I_{GSS}$	$V_{GS} = \pm 20 \text{ V}_{DC}$ , $V_{DS} = 0$			$\pm 200 \text{ nA}$
$I_{DSS}$	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$ $T_J = 125^\circ\text{C}$			25 $\mu\text{A}$ 250 $\mu\text{A}$
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$ , $I_D = 0.5 I_{D25}$ , Note 1			33 $\text{m}\Omega$

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	45	57	S
$C_{iss}$	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		7500	pF
$C_{oss}$			1150	pF
$C_{rss}$			230	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 60\text{ A}$ $R_G = 3.3\ \Omega$ (External)		30	ns
$t_r$			28	ns
$t_{d(off)}$			130	ns
$t_f$			30	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$		224	nC
$Q_{gs}$			50	nC
$Q_{gd}$			110	nC
$R_{thJC}$			0.21	$^\circ\text{C/W}$
$R_{thCS}$		0.05		$^\circ\text{C/W}$

### 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

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ unless otherwise specified)		
		Min.	Typ.	Max.
$I_s$	$V_{GS} = 0\text{ V}$			102 A
$I_{SM}$	Repetitive			250 A
$V_{SD}$	$I_F = I_s, V_{GS} = 0\text{ V}$ , Note 1			1.5 V
$t_{rr}$	$I_F = 25\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}$ $V_R = 100\text{ V}, V_{GS} = 0\text{ V}$			200 ns
$Q_{RM}$			0.8	$\mu\text{C}$
$I_{RM}$			6	A

Notes:

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

### PRELIMINARY TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from data gathered during objective characterizations of preliminary engineering lots; but also may yet contain some information supplied during a pre-production design evaluation. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

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
one or more of the following U.S. patents:	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
	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