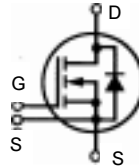


# HiPerFET™ Power MOSFETs Single Die MOSFET

## IXFN 230N10

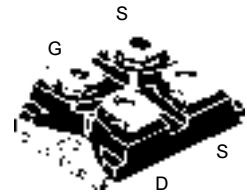
$$\begin{aligned} V_{DSS} &= 100 \text{ V} \\ I_{D25} &= 230 \text{ A} \\ R_{DS(on)} &= 6 \text{ m}\Omega \\ t_{rr} &\leq 250 \text{ ns} \end{aligned}$$

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



Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$	100	V
$V_{DGR}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$ ; $R_{GS} = 1 \text{ M}\Omega$	100	V
$V_{GS}$	Continuous	$\pm 20$	V
$V_{GSM}$	Transient	$\pm 30$	V
$I_{D25}$	$T_C = 25^\circ\text{C}$ , Chip capability	230	A
$I_{L(RMS)}$	Terminal current limit	100	A
$I_{DM}$	$T_C = 25^\circ\text{C}$ , pulse width limited by $T_{JM}$	920	A
$I_{AR}$	$T_C = 25^\circ\text{C}$	150	A
$E_{AR}$	$T_C = 25^\circ\text{C}$	64	mJ
$E_{AS}$	$T_C = 25^\circ\text{C}$	4	J
<b>dv/dt</b>	$I_S \leq I_{DM}$ , $di/dt \leq 100 \text{ A}/\mu\text{s}$ , $V_{DD} \leq V_{DSS}$ , $T_J \leq 150^\circ\text{C}$ , $R_G = 2 \Omega$	5	V/ns
$P_D$	$T_C = 25^\circ\text{C}$	700	W
$T_J$		-55 ... +150	$^\circ\text{C}$
$T_{JM}$		150	$^\circ\text{C}$
$T_{stg}$		-55 ... +150	$^\circ\text{C}$
$V_{ISOL}$	50/60 Hz, RMS $t = 1 \text{ min}$ $I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ s}$	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  
S = Source  
D = Drain

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

### Features

- International standard packages
- 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

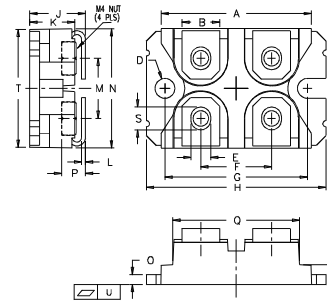
- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- Temperature and lighting controls

### Advantages

- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$V_{DSS}$	$V_{GS} = 0 \text{ V}$ , $I_D = 3 \text{ mA}$	100		V
$V_{GH(th)}$	$V_{DS} = V_{GS}$ , $I_D = 8 \text{ mA}$	2.0		V
$I_{GSS}$	$V_{GS} = \pm 20 \text{ V}_{DC}$ , $V_{DS} = 0$			$\pm 200 \text{ nA}$
$I_{DSS}$	$V_{DS} = V_{DSS}$ , $V_{GS} = 0 \text{ V}$			$100 \mu\text{A}$ 2 mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$ , $I_D = 0.5 \cdot I_{D25}$ Pulse test, $t \leq 300 \mu\text{s}$ , duty cycle $d \leq 2 \%$			6 m $\Omega$

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$g_{fs}$	$V_{DS} = 15\text{ V}; I_D = 60\text{ A}$ , pulse test	80	120	S
$C_{iss}$ $C_{oss}$ $C_{rss}$	} $V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		21000	pF
			5700	pF
			1500	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),		60	ns
			90	ns
			150	ns
			55	ns
$Q_{g(on)}$ $Q_{gs}$ $Q_{gd}$	} $V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$		690	nC
			150	nC
			370	nC
$R_{thJC}$ $R_{thCK}$		0.05	0.18	KW KW

**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

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		min.	typ.	max.
$I_s$	$V_{GS} = 0\text{ V}$			230 A
$I_{SM}$	Repetitive; pulse width limited by $T_{JM}$			920 A
$V_{SD}$	$I_F = 100\text{ A}, V_{GS} = 0\text{ V}$ , Pulse test, $t \leq 300\ \mu\text{s}$ , duty cycle $d \leq 2\%$			1.2 V
$t_{rr}$ $Q_{RM}$ $I_{RM}$	$I_F = 50\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$ $T_J = 25^\circ\text{C}$			250 ns
			1.2	$\mu\text{C}$
			9	A

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
4,850,072	4,931,844	5,034,796	5,063,307	5,237,481	5,381,025