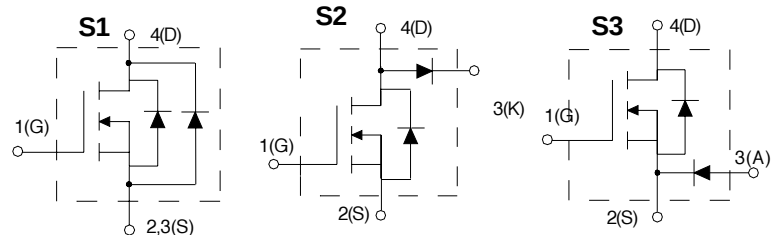


HiPerFET™ Power MOSFETs with Schottky Diodes

IXFN 100N10S1
IXFN 100N10S2
IXFN 100N10S3

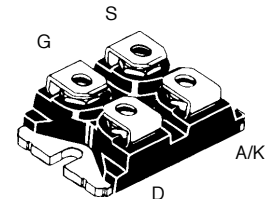
$V_{DSS} = 100 \text{ V}$
 $I_{D25} = 100 \text{ A}$
 $R_{DS(on)} = 15 \text{ m}\Omega$

Parallel, Buck & Boost Configurations
for SMPS, PFC & Motor Control Circuits



	Symbol	Test Conditions	Maximum Ratings	
HiPerFET MOSFET	V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	100	V
	V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	100	V
	V_{GS}	Continuous	± 20	V
	V_{GSM}	Transient	± 30	V
	I_{D25}	$T_C = 25^\circ\text{C}$	100	A
	I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by max. T_{JM}	400	A
	I_{AR}	$T_C = 25^\circ\text{C}$	100	A
	E_{AR}	Repetitive	45	mJ
	dv/dt	$I_S \leq I_{DM}$, $-di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$, $R_G = 2 \Omega$	5	V/ns
	P_D	$T_C = 25^\circ\text{C}$	360	W
Diode	V_{RRM}		100	V
	I_{RMS}		100	A
	I_{FAVM}	$T_C = 105^\circ\text{C}$; rectangular, $d = 0.5$	60	A
	I_{FRM}	$t_p < 10 \mu\text{s}$; pulse width limited by T_J	700	A
	$(dv/dt)_{CR}$		1	V/ns
	P_D	$T_C = 25^\circ\text{C}$	150	W
Case	T_J		-40 ... +150	$^\circ\text{C}$
	T_{JM}		150	$^\circ\text{C}$
	T_{stg}		-40 ... +150	$^\circ\text{C}$
	V_{ISOL}	50/60 Hz, RMS $I_{ISOL} \leq 1 \text{ mA}$ $t = 1 \text{ min}$	2500 3000	V~ V~
	M_d	Mounting torque Terminal connection torque (M4)	1.5/13 1.5/13	Nm/lb.in. Nm/lb.in.
	Weight		30	g

miniBLOC, SOT-227 B
E153432



S = Source
G = Gate
D = Drain
A = Anode
K = Cathode

Features

- Popular Buck & Boost circuit topologies
- Low V_F Schottky diode with very small switching losses
- International standard package miniBLOC SOT-227B
- Aluminium nitride isolation
 - high power dissipation
- Isolation voltage 3000 V~
- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Low drain-to-case capacitance (<60 pF)
 - reduced RFI

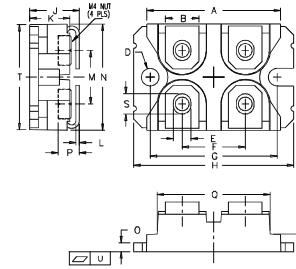
Applications

- SMPS, power factor controls and buck regulators
- DC servo and robotic drives
- DC choppers
- Switch reluctance motor controls

Advantages

- Easy to mount with 2 screws
- Space savings
- Tightly coupled Schottky diode

Symbol	Test Conditions	Characteristic Values (T _J = 25°C; unless otherwise specified)			
		min.	typ.	max.	
V _{DSS}	V _{GS} = 0 V; I _D = 3 mA	S1	100		V
	V _{GS} = 0 V; I _D = 250 μA	S2/S3	100		V
V _{GS(th)}	V _{DS} = V _{GS} ; I _D = 4 mA		2		4 V
I _{GSS}	V _{GS} = ±20 V _{DC} ; V _{DS} = 0				±100 nA
I _{DSS}	V _{DS} = V _{DSS} ; V _{GS} = 0 V T _J = 125°C	S1		2	mA
		S2/S3		25	μA
		S1		20	mA
		S2/S3		1	mA
R _{DS(on)}	V _{GS} = 10 V; I _D = 0.5 I _{D25} ; Note 1				15 mΩ
g _{fs}	V _{DS} = 10 V; I _D = 0.5 I _{D25} ; pulse test		30	45	S
C _{iss}	V _{GS} = 0 V; V _{DS} = 25 V; f = 1 MHz			4500	pF
C _{oss}		S1		1900	pF
		S2/S3		1600	pF
C _{rss}					870
t _{d(on)}	V _{GS} = 10 V; V _{DS} = 0.5 V _{DSS} ; I _D = 0.5 I _{D25} R _G = 1.5 Ω (External)			30	ns
t _r				70	ns
t _{d(off)}				100	ns
t _f				30	ns
Q _{g(on)}	V _{GS} = 10 V; V _{DS} = 0.5 V _{DSS} ; I _D = 0.5 I _{D25}			180	nC
Q _{gs}				36	nC
Q _{gd}				95	nC
V _{SD}	I _F = 100A; V _{GS} = 0 V; Note 1 (S2, S3)				1.5 V
t _{rr}	I _F = 25 A; -di/dt = 100 A/μs; V _R = 25 V				200 ns
Q _{RM}			0.8		μC
I _{RM}			6		A
R _{thJC}					0.35 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

Schottky Diode
Characteristic Values

($T_J = 25^\circ\text{C}$, unless otherwise specified)

Symbol	Test Conditions	min.	typ.	max.
I_R	$V_R = V_{RRM}$			2 mA
	$T_J = 125^\circ\text{C}; V_R = V_{RRM}$			20 mA
V_F	$I_F = 60\text{ A}; V_{GS} = 0\text{ V}; \text{Note 1}$			0.86 V
	$I_F = 60\text{ A}; V_{GS} = 0\text{ V}$			0.73 V
	$I_F = 120\text{ A}$			0.93 V
R_{thJC}				0.8 K/W
R_{thJK}			0.1	K/W

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