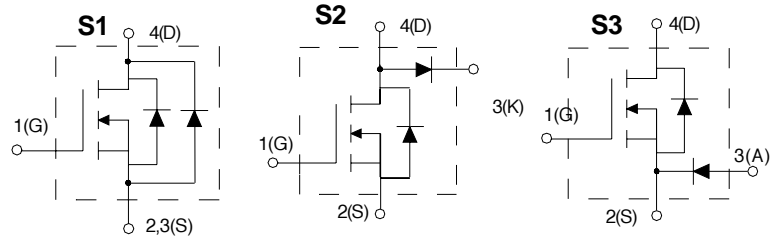


HiPerFET™ Power MOSFETs with Schottky Diodes

IXFN 100N10S1
IXFN 100N10S2
IXFN 100N10S3

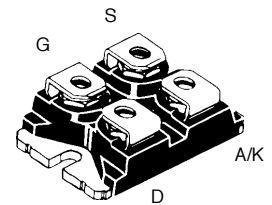
$V_{DSS} = 100 \text{ V}$
 $I_{D25} = 100 \text{ A}$
 $R_{DS(on)} = 15 \text{ m}\Omega$

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



	Symbol	Test Conditions	Maximum Ratings	miniBLOC, SOT-227 B
HiPerFET MOSFET	V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	100 V	 E153432
	V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	100 V	
	V_{GS}	Continuous	$\pm 20 \text{ V}$	
	V_{GSM}	Transient	$\pm 30 \text{ V}$	
	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 V~ 3000 V~	
	M_d	Mounting torque Terminal connection torque (M4)	1.5/13 Nm/lb.in. 1.5/13 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

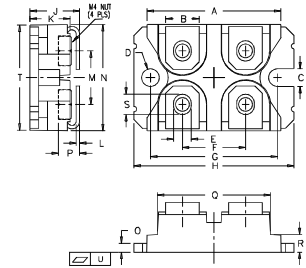
Applications

- 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 ($T_J = 25^\circ\text{C}$; unless otherwise specified)		
		min.	typ.	max.
V_{DSS}	$V_{GS} = 0\text{ V}; I_D = 3\text{ mA}$	S1	100	V
	$V_{GS} = 0\text{ V}; I_D = 250\ \mu\text{A}$	S2/S3	100	V
$V_{GS(th)}$	$V_{DS} = V_{GS}; I_D = 4\text{ mA}$		2	4 V
I_{GSS}	$V_{GS} = \pm 20\text{ V}; V_{DC}; V_{DS} = 0$			$\pm 100\text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}; V_{GS} = 0\text{ V}$ $T_J = 125^\circ\text{C}$	S1		2 mA
		S2/S3		25 μA
		S1		20 mA
		S2/S3		1 mA
$R_{DS(on)}$	$V_{GS} = 10\text{ V}; I_D = 0.5 I_{D25}$; Note 1			15 m Ω
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 0.5 I_{D25}$; pulse test		30	45 S
C_{iss}	$V_{GS} = 0\text{ V}; V_{DS} = 25\text{ V}; f = 1\text{ MHz}$			4500 pF
C_{oss}		S1		1900 pF
C_{rss}		S2/S3		1600 pF
				870 pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}; V_{DS} = 0.5 V_{DSS}; I_D = 0.5 I_{D25}$ $R_G = 1.5\ \Omega$ (External)		30	ns
t_r			70	ns
$t_{d(off)}$			100	ns
t_f			30	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}; V_{DS} = 0.5 V_{DSS}; I_D = 0.5 I_{D25}$			180 nC
Q_{gs}				36 nC
Q_{gd}				95 nC
V_{SD}	$I_F = 100\text{ A}; V_{GS} = 0\text{ V}$; Note 1 (S2, S3)			1.5 V
t_{rr}	$I_F = 25\text{ A}; -di/dt = 100\text{ A}/\mu\text{s}; V_R = 25\text{ V}$			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	Characteristic Values		
		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	$I_F = 60\text{ A}; V_{GS} = 0\text{ V}$; Note 1 $T_J = 125^\circ\text{C}$	$I_F = 60\text{ A}; V_{GS} = 0\text{ V}$		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