HiPerFET™ Power MOSFET

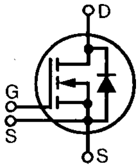
IXFE 180N10

V_{DSS} = 100 V
I_{D25} = 176 A
$R_{DS(on)}$ = 8 mΩ

t_{rr} ≤ 250 ns

Single Die MOSFET

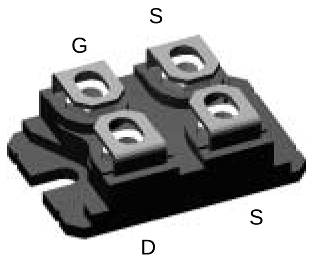
Preliminary data sheet



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	100	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ	100	V
V_{GS}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	T_C = 25°C	176	A
$I_{L(RMS)}$	Terminal (current limit)	100	A
I_{DM}	T_C = 25°C; Note 1	720	A
I_{AR}	T_C = 25°C	180	A
E_{AR}	T_C = 25°C	60	mJ
E_{AS}	T_C = 25°C	3	J
dv/dt	$I_S \le I_{DM}$, di/dt ≤ 100 A/µs, $V_{DD} \le V_{DSS}$ $T_J \le 150°C$, R_G = 2 Ω	5	V/ns
P_D	T_C = 25°C	500	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	1.6 mm (0.063 in) from case for 10 s	300	°C
V_{ISOL}	50/60 Hz, RMS t = 1 min	2500	V~
	I_{ISOL} ≤ 1 mA t = 1 s	3000	V~
M_d	Mounting torque	1.5/13Nm/lb.in.	
	Terminal connection torque	1.5/13Nm/lb.in.	
Weight		19	g

Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)		Characteristic Values Min.	Typ.	Max.	
V_{DSS}	V_{GS} = 0 V, I_D = 3mA		100			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 8mA		2		4	V
I_{GSS}	V_{GS} = ±20V, V_{GS} = 0V				±100	nA
I_{DSS}	$V_{DS} = V_{DSS}$	T_J = 25°C			100	µA
	V_{GS} = 0 V	T_J = 125°C			2	mA
$R_{DS(on)}$	V_{GS} = 10V, $I_D = I_T$ Note 2				8	mΩ

ISOPLUS 227™ (IXFE)



G = Gate D = Drain
S = Source

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

Features

- Conforms to SOT-227B outline
- Encapsulating epoxy meets UL 94 V-0, flammability classification
- Low $R_{DS\ (on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
- Fast intrinsic Rectifier

Applications

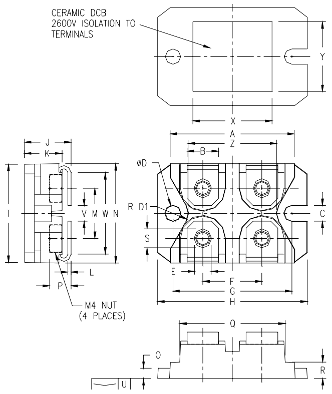
- DC-DC converters
- Synchronous rectification
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- Temperature and lighting controls
- Low voltage relays

Advantages

- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	V_{DS} = 10 V; I_D = 60A, Note 2	60	90		S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz		9100		pF
C_{oss}			3200		pF
C_{rss}			1600		pF
$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 • V_{DSS}, I_D = I_T R_G = 1 Ω (External),		50		ns
t_r			90		ns
$t_{d(off)}$			140		ns
t_f			65		ns
$Q_{g(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 • V_{DSS}, I_D = I_T		360		nC
Q_{gs}			65		nC
Q_{gd}			190		nC
R_{thJC}				0.25	K/W
R_{thCK}	Note: I_T = 90 A		0.07		K/W

ISOPLUS-227 B



SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	1.240	1.270	31.50	32.26
B	.310	.330	7.87	8.38
C	.155	.165	3.94	4.19
D	.155	.165	3.94	4.19
D1	.150	.157	3.81	3.98
E	.160	.168	4.06	4.27
F	.587	.595	14.91	15.11
G	1.186	1.193	30.12	30.30
H	1.489	1.505	37.80	38.23
J	.465	.481	11.81	12.22
K	.370	.380	9.40	9.65
L	.030	.033	0.76	0.84
M	.496	.506	12.60	12.85
N	.990	1.001	25.15	25.42
O	.100	.105	2.54	2.67
P	.195	.235	4.95	5.97
Q	1.045	1.059	26.54	26.90
R	.160	.170	4.06	4.32
S	.186	.191	4.72	4.85
T	.968	.987	24.59	25.07
U	-.001	.002	-0.03	0.05
V	.130	.160	3.30	4.06
W	.780	.830	19.81	21.08
X	.770	.810	19.56	20.57
Y	.680	.720	17.27	18.29
Z	.885	.892	22.48	22.66

Source-Drain Diode

Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0			180	A
I_{SM}	Repetitive; Note1			720	A
V_{SD}	I_F = 100 A, V_{GS} = 0 V, Note2			1.5	V
t_{rr}	I_F = 50 A, -di/dt = 100 A/µs, V_R = 50 V			250	ns
Q_{RM}			1.1		µC
I_{RM}			13		A

Please see IXFN180N10 data sheet for characteristic curves.

Notes:
1. Pulse width limited by $T_{JM.}$
2. Pulse test, t ≤ 300 ms, duty cycle d ≤ 2 %
3. I_T = 90A