

HiPerFET™ Power MOSFET

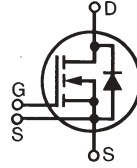
Single MOSFET Die

Preliminary data sheet

IXFE 36N100
IXFE 34N100

V_{DSS}	I_{D25}	$R_{DS(on)}$
1000 V	33 A	0.24 Ω
1000 V	30 A	0.28 Ω

$t_{rr} \leq 250$ ns

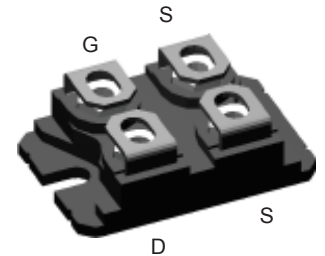


Symbol Test Conditions

Maximum Ratings

V_{DSS}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	1000	V
V_{DGR}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}, R_{GS} = 1\text{M}\Omega$	1000	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	36N100	33 A
		34N100	30 A
I_{DM}	$T_C = 25^\circ\text{C};$ Note 1	36N100	144 A
		34N100	136 A
I_{AR}	$T_C = 25^\circ\text{C}$	36	A
E_{AR}	$T_C = 25^\circ\text{C}$	64	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	4	J
dv/dt	$I_S \leq I_{DM}, di/dt \leq 100 \text{ A}/\mu\text{s}, V_{DD} \leq V_{DSS}$ $T_J \leq 150^\circ\text{C}, R_G = 2 \Omega$	5	V/ns
P_D	$T_C = 25^\circ\text{C}$	580	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 (0.063 in) from case for 10 s	300	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS $t = 1$ min $I_{ISOL} \leq 1$ mA $t = 1$ s	2500 3000	V~ V~
M_d	Mounting torque Terminal connection torque	1.5/13 Nm/lb.in. 1.5/13 Nm/lb.in.	
Weight		19	g

ISOPLUS 227™ (IXFE)



G = Gate
S = Source

D = Drain

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

Features

- Conforms to SOT-227B outline
- 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

- Low cost
- 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.
V_{DSS}	$V_{GS} = 0 \text{ V}, I_D = 3 \text{ mA}$	1000		V
$V_{GS(th)}$	$V_{DS} = V_{GS}, I_D = 8 \text{ mA}$	3.0		5.5 V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}, V_{DS} = 0 \text{ V}$			± 200 nA
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$		$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$	100 μA 2 mA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}, I_D = I_T$ Note 2	36N100 34N100		0.24 Ω 0.28 Ω

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 15\text{ V}; I_D = I_T$, Note 3	18	40	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		9200	pF
C_{oss}			1200	pF
C_{rss}			300	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = I_T$ $R_G = 1\ \Omega$ (External),		41	ns
t_r			65	ns
$t_{d(off)}$			110	ns
t_f			30	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = I_T$		380	nC
Q_{gs}			65	nC
Q_{gd}			185	nC
R_{thJC}			0.22	K/W
R_{thCK}		0.07		K/W

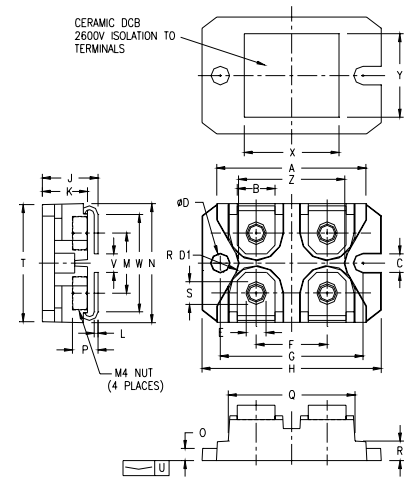
Source-Drain Diode

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

Symbol	Test Conditions	Characteristic Values			
		Min.	Typ.	Max.	
I_S	$V_{GS} = 0$	36N100 34N100		36 34	A A
I_{SM}	Repetitive; pulse width limited by T_{JM}	36N100 34N100		144 136	A A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$			1.3	V
t_{rr}	$I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 25^\circ\text{C}$ $T_J = 25^\circ\text{C}$	180 30		ns ns
Q_{RM}			2		μC
I_{RM}			8		A

- Notes:
1. Pulse width limited by T_{JM} .
 2. Pulse test, $t \leq 300\text{ ms}$, duty cycle $d \leq 2\%$.
 3. I_T Test current:
IXFE36N100: $I_T = 18\text{ A}$
IXFE34N100: $I_T = 17\text{ A}$

ISOPLUS-227 B



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	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

Please see IXFN36N100 data sheet for characteristic curves.

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 6,306,728B1 6,259,123B1 6,306,728B1
4,850,072 4,931,844 5,034,796 5,063,307 5,237,481 5,381,025 6,404,065B1 6,162,665 6,534,343