IXYS

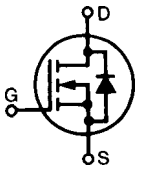
HiPerFET™ Power MOSFETs Q-Class

IXFE 73N30Q

V_{DSS} = 300 V
I_{D25} = 66 A
$R_{DS(on)}$ = 46 mΩ

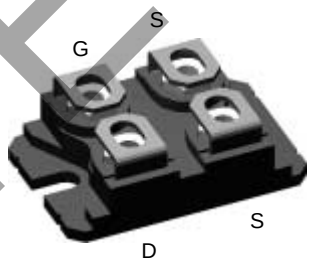
$t_{rr} \leq 250$ ns

N-Channel Enhancement Mode
Avalanche Rated, Low Q_g, High dv/dt



Preliminary data sheet

ISOPLUS 227™ (IXFE)



G = Gate D = Drain
S = Source

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

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	300	V
V_{DGR}	T_J = 25°C to 150°C; R_{GS} = 1 MΩ	300	V
V_{GS}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	T_C = 25°C	66	A
I_{DM}	T_C = 25°C, Note1	292	A
I_{AR}	T_C = 25°C	73	A
E_{AR}	T_C = 25°C	60	mJ
E_{AS}		2.5	J
dv/dt	$I_S \leq I_{DM}$, di/dt ≤ 100 A/µs, $V_{DD} \leq V_{DSS}$, $T_J \leq 150$°C, R_G = 2 Ω	5	V/ns
P_D	T_C = 25°C	400	W
T_J		-55 to +150	°C
T_{JM}		150	°C
T_{stg}		-55 to +150	°C
V_{ISOL}	50/60 Hz, RMS t = 1 min	2500	V~
	$I_{ISOL} \leq$ 1 mA t = 1 s	3000	V~
M_d	Mounting torque	1.5/13	Nm/lb.in.
	Terminal connection torque	1.5/13	Nm/lb.in.
Weight		19	g

Symbol	Test Conditions	Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
V_{DSS}	V_{GS} = 0 V, I_D = 1 mA	300			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 4 mA	2.0		4.0	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 = 25°C			100	µA
	$V_{DS} = V_{DSS}$, V_{GS} = 0 V, T_J = 125°C			2	mA
$R_{DS(on)}$	V_{GS} = 10 V, $I_D = I_T$, Note1			46	mΩ

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

OBSOLETE

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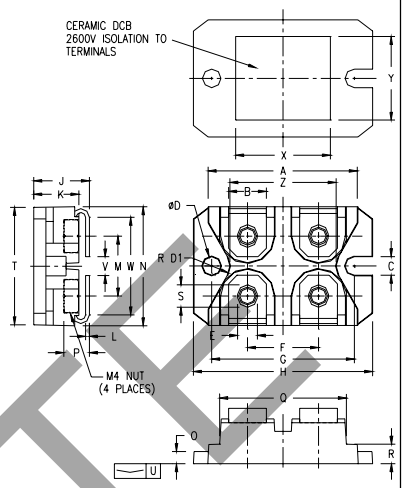
Symbol	Test Conditions (T$_J$ = 25°C, unless otherwise specified)	Characteristic Values min.	typ.	max.	
g_{fs}	V_{DS} = 10 V; I_D = I_T, Note2	30	47		S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz		6400		pF
C_{oss}			1340		pF
C_{rss}			340		pF
$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 • V_{DSS}, I_D = I_T R_G = 1.0 Ω (External),		37		ns
t_r			36		ns
$t_{d(off)}$			82		ns
t_f			12		ns
$Q_{g(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 • V_{DSS}, I_D = I_T		190		nC
Q_{gs}			51		nC
Q_{gd}			78		nC
R_{thJC}				0.31	K/W
R_{thCK}			0.07		K/W

Source-Drain Diode

Symbol	Test Conditions (T$_J$ = 25°C, unless otherwise specified)	Characteristic Values min.	typ.	max.	
I_S	V_{GS} = 0 V			73	A
I_{SM}	Repetitive; pulse width limited by T_{JM}			292	A
V_{SD}	I_F = I_S, V_{GS} = 0 V, Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %			1.5	V
t_{rr}	I_F = 25A, -di/dt = 100 A/µs, V_R = 100 V			250	ns
Q_{RM}			0.8		µC
I_{RM}			7		A

Notes: 1. Pulse width limited by T_{JM}.
2. Pulse test, t ≤ 300 ms, duty cycle d ≤ 2%.
3. I_T Test current: I_T = 36.5 A

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

OBSOLETE

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