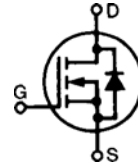


HiPerFET™ Power MOSFETs Q-Class

IXFH 6N100Q
IXFT 6N100Q

V_{DSS} = 1000 V
I_{D25} = 6 A
R_{DS(on)} = 1.9 Ω

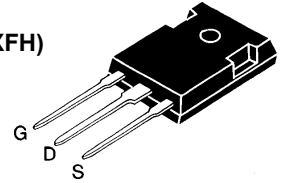
N-Channel Enhancement Mode
Avalanche Rated, Low Q_g, High dv/dt



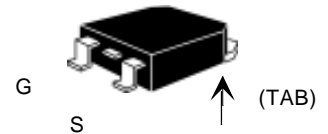
t_{rr} ≤ 250 ns

Symbol	Test Conditions	Maximum Ratings	
V _{DSS}	T _J = 25°C to 150°C	1000	V
V _{DGR}	T _J = 25°C to 150°C; R _{GS} = 1 MΩ	1000	V
V _{GS}	Continuous	±20	V
V _{GSM}	Transient	±30	V
I _{D25}	T _C = 25°C	6	A
I _{DM}	T _C = 25°C, pulse width limited by T _{JM}	24	A
I _{AR}	T _C = 25°C	6	A
E _{AR}	T _C = 25°C	20	mJ
E _{AS}		700	mJ
dv/dt	I _S ≤ I _{DM} , di/dt ≤ 100 A/μs, V _{DD} ≤ V _{DSS} , T _J ≤ 150°C, R _G = 2 Ω	5	V/ns
P _D	T _C = 25°C	180	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
M _d	Mounting torque	1.13/10	Nm/lb.in.
Weight	TO-247	6	g
	TO-268	4	g

TO-247 AD (IXFH)



TO-268 (D3) (IXFT)



G = Gate D = Drain
S = Source TAB = Drain

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	1000		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 2.5 mA	2.0		4.5 V
I _{GSS}	V _{GS} = ±20 V _{DC} , V _{DS} = 0			±100 nA
I _{DSS}	V _{DS} = 0.8 V _{DSS} , V _{GS} = 0 V			50 μA 1 mA
R _{DS(on)}	V _{GS} = 10 V, I _D = 0.5 I _{D25} Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			1.9 Ω

Features

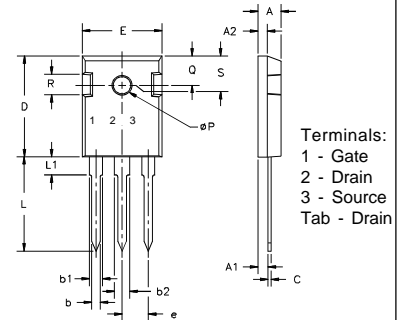
- IXYS advanced low Q_g process
- Low gate charge and capacitances
- easier to drive
- faster switching
- International standard packages
- Low R_{DS(on)}
- Unclamped Inductive Switching (UIS) rated
- Molding epoxies meet UL 94 V-0 flammability classification

Advantages

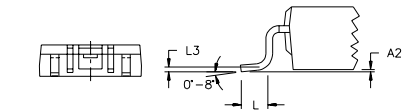
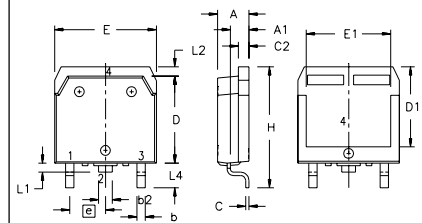
- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values ($T_j = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 0.5 \cdot I_{D25}$, pulse test	3	5	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		2200	pF
C_{oss}			180	pF
C_{rss}			30	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$ $R_G = 4.7\ \Omega$ (External),		10	ns
t_r			15	ns
$t_{d(off)}$			22	ns
t_f			12	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$		48	nC
Q_{gs}			17	nC
Q_{gd}			22	nC
R_{thJC}			0.7	K/W
R_{thCK}	(TO-247)		0.25	K/W

Symbol	Test Conditions	Characteristic Values ($T_j = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
I_S	$V_{GS} = 0\text{ V}$			9 A
I_{SM}	Repetitive; pulse width limited by T_{JM}			24 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$			1.5 V
t_{rr}	$I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$		0.75	250 ns
Q_{RM}			7.5	μC
I_{RM}				A

TO-247 AD (IXFH) Outline


Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A ₁	2.2	2.54	.087	.102
A ₂	2.2	2.6	.087	.102
b	1.0	1.4	.040	.055
b ₁	1.65	2.13	.065	.084
b ₂	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
∅P	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15	BSC	.242	BSC

TO-268 Outline


Terminals: 1 - Gate 2 - Drain
3 - Source Tab - Drain

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.193	.201	4.90	5.10
A1	.106	.114	2.70	2.90
A2	.001	.010	0.02	0.25
b	.045	.057	1.15	1.45
b2	.075	.083	1.90	2.10
C	.016	.026	0.40	0.65
C2	.057	.063	1.45	1.60
D	54.3	55.1	13.80	14.00
D1	48.8	50.0	12.40	12.70
E	62.4	63.2	15.85	16.05
E1	52.4	53.5	13.30	13.60
e	.215	BSC	5.45	BSC
H	.736	.752	18.70	19.10
L	.094	.106	2.40	2.70
L1	.047	.055	1.20	1.40
L2	.039	.045	1.00	1.15
L3	.010	BSC	0.25	BSC
L4	.150	.161	3.80	4.10

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



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