

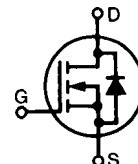
HiPerFET™ Power MOSFETs Q-Class

IXFH 75N10Q IXFT 75N10Q

V_{DSS} = 100 V
 I_{D25} = 75 A
 $R_{DS(on)}$ = 20 mΩ

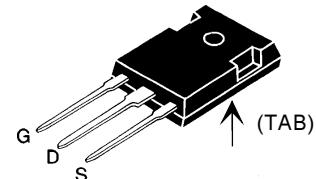
$t_{rr} \leq 200\text{ns}$

N-Channel Enhancement Mode
Avalanche Rated, High dv/dt
Low Gate Charge and Capacitances



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	100	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1\text{ M}\Omega$	100	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_c = 25^\circ\text{C}$	75	A
I_{DM}	$T_c = 25^\circ\text{C}$, pulse width limited by T_{JM}	300	A
I_{AR}	$T_c = 25^\circ\text{C}$	75	A
E_{AR}	$T_c = 25^\circ\text{C}$	30	mJ
E_{AS}	$T_c = 25^\circ\text{C}$	1.5	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	$T_c = 25^\circ\text{C}$	300	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 (0.062 in.) from case for 10 s	300	$^\circ\text{C}$
M_d	Mounting torque	1.13/10	Nm/lb.in.
Weight	TO-247 AD TO-268	6 4	g g

TO-247 AD (IXFH)



TO-268 (IXFT) Case Style



G = Gate
S = Source
TAB = Drain

Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
V_{DSS}	$V_{GS} = 0\text{ V}$, $I_D = 250\text{ }\mu\text{A}$	100		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 4\text{ mA}$	2.0		4 V
I_{GSS}	$V_{GS} = \pm 20\text{ V}_{DC}$, $V_{DS} = 0$			$\pm 100\text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0\text{ V}$	$T_J = 25^\circ\text{C}$ $T_J = 125^\circ\text{C}$		25 μA 1 mA
$R_{DS(on)}$	$V_{GS} = 10\text{ V}$, $I_D = 0.5 I_{D25}$ Pulse test, $t \leq 300\text{ }\mu\text{s}$, duty cycle d $\leq 2\%$			20 mΩ

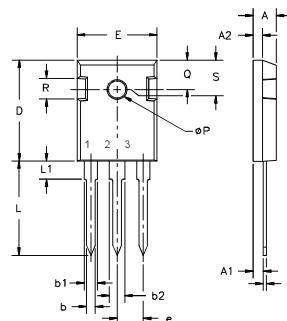
Features

- IXYS advanced low gate charge process
- International standard packages
- Low gate charge and capacitance
 - easier to drive
 - faster switching
- 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

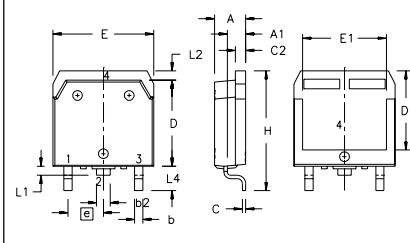
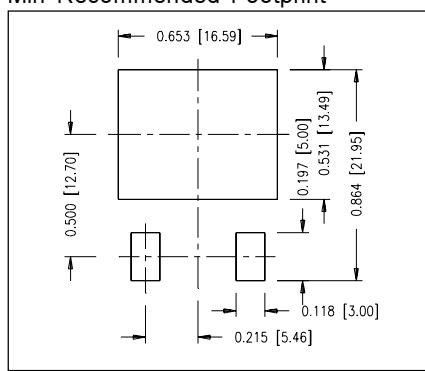
Symbol	Test Conditions	Characteristic Values			
		($T_J = 25^\circ\text{C}$, unless otherwise specified)	Min.	Typ.	Max.
g_{fs}	$V_{DS} = 10 \text{ V}; I_D = 0.5 I_{D25}$, pulse test	30	45	S	
C_{iss} C_{oss} C_{rss}	$V_{GS} = 0 \text{ V}, V_{DS} = 25 \text{ V}, f = 1 \text{ MHz}$	3700		pF	
		1300		pF	
		425		pF	
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$V_{GS} = 10 \text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$ $R_G = 4.7 \Omega$ (External)	31		ns	
		65		ns	
		65		ns	
		28		ns	
$Q_{g(on)}$ Q_{gs} Q_{gd}	$V_{GS} = 10 \text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$	140	180	nC	
		30		nC	
		65		nC	
R_{thJC}			0.42	KW	
R_{thCK}	(TO-247)		0.25	KW	

TO-247 AD Outline

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

Dim.	Millimeter Min.	Millimeter Max.	Inches Min.	Inches Max.
A	4.7	5.3	.185	.209
A ₁	2.2	2.54	.087	.102
A ₂	2.2	2.6	.059	.098
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
ØP	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

Source-Drain Diode
Characteristic Values
 $(T_J = 25^\circ\text{C}, \text{unless otherwise specified})$

Symbol	Test Conditions	min.	typ.	max.
I_s	$V_{GS} = 0 \text{ V}$		75	A
I_{SM}	Repetitive;		300	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} Q_{RM} I_{RM}	$I_F = 50 \text{ A}, -di/dt = 100 \text{ A}/\mu\text{s}, V_R = 50 \text{ V}$	0.85	200	ns
		8		μC
				A

TO-268 Outline

Min Recommended Footprint


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	.543	.551	13.80	14.00
D1	.488	.500	12.40	12.70
E	.624	.632	15.85	16.05
E1	.524	.535	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