



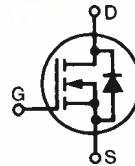
Advance Technical Information

HiPerRF™
Power MOSFETs
F-Class: MegaHertz Switching

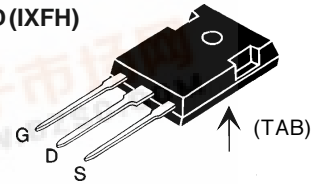
IXFH 60N20F
IXFT 60N20F

V_{DSS} = 200V
I_{D25} = 60A
R_{DS(on)} = 38mΩ
t_{rr} ≤ 200 ns

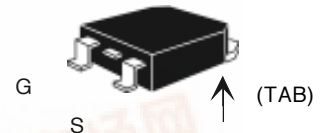
N-Channel Enhancement Mode
Avalanche Rated, Low Q_g, Low Intrinsic R_g
High dV/dt, Low t_{rr}



TO-247 AD (IXFH)



TO-268 (IXFT) Case Style



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

Symbol	Test Conditions	Maximum Ratings	
V _{DSS}	T _J = 25°C to 150°C	200	V
V _{DGR}	T _J = 25°C to 150°C; R _{GS} = 1 MΩ	200	V
V _{GS}	Continuous	±20	V
V _{GSM}	Transient	±30	V
I _{D25}	T _C = 25°C	60	A
I _{DM}	T _C = 25°C, pulse width limited by T _{JM}	240	A
I _{AR}	T _C = 25°C	60	A
E _{AR}	T _C = 25°C	35	mJ
E _{AS}	T _C = 25°C	1.5	J
dv/dt	I _S ≤ I _{DM} , di/dt ≤ 100 A/μs, V _{DD} ≤ V _{DSS} T _J ≤ 150°C, R _G = 2 Ω	10	V/ns
P _D	T _C = 25°C	315	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	TO-247 1.13/10	Nm/lb.in.
Weight		TO-247	6 g
		TO-268	4 g

Features

- RF capable MOSFETs
- Double metal process for low gate resistance
- Unclamped Inductive Switching (UIS) rated
- Low package inductance - easy to drive and to protect
- Fast intrinsic rectifier

Applications

- DC-DC converters
- Switched-mode and resonant-mode power supplies, >500kHz switching
- DC choppers
- 13.5 MHz industrial applications
- Pulse generation
- Laser drivers
- RF amplifiers

Advantages

- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values (T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
V _{DSS}	V _{GS} = 0 V, I _D = 1mA	200		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 4mA	2.0		4.0 V
I _{GSS}	V _{GS} = ±20 V, V _{DS} = 0			±100 nA
I _{DSS}	V _{DS} = V _{DSS}			50 μA
	V _{GS} = 0 V			1.5 mA
R _{DS(on)}	V _{GS} = 10 V, I _D = 0.5 I _{D25} Note 1			38 mΩ

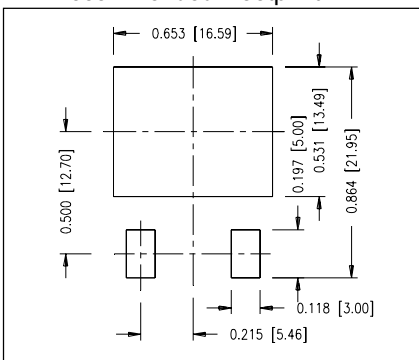


Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 0.5 I_{D25}$ Note 1	18	26	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		2930	pF
C_{oss}			940	pF
C_{rss}			320	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$ $R_G = 2.0\ \Omega$ (External)		15	ns
t_r			14	ns
$t_{d(off)}$			42	ns
t_f			7.0	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$		100	nC
Q_{gs}			25	nC
Q_{gd}			46	nC
R_{thJC}			0.39	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	$V_{GS} = 0\text{ V}$		60	A
I_{SM}	Repetitive; pulse width limited by T_{JM}		240	A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Note 1		1.5	V
t_{rr}	$I_F = 25\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$		0.8	ns
Q_{RM}			10	μC
I_{RM}				A

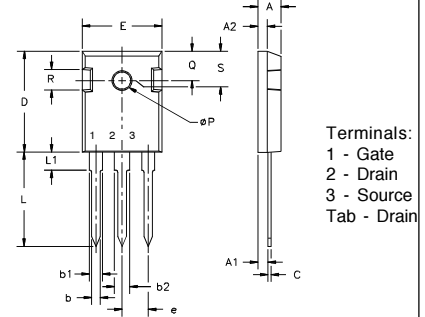
Note: 1. Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$

Min Recommended Footprint



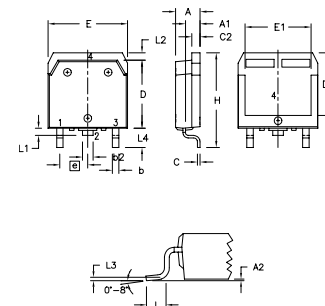
IXYS reserves the right to change limits, test conditions, and dimensions.

TO-247 AD 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	.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
∅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



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.9	5.1	.193	.201
A ₁	2.7	2.9	.106	.114
A ₂	.02	.25	.001	.010
b	1.15	1.45	.045	.057
b ₂	1.9	2.1	.75	.83
C	.4	.65	.016	.026
D	13.80	14.00	.543	.551
E	15.85	16.05	.624	.632
E ₁	13.3	13.6	.524	.535
e	5.45 BSC		.215 BSC	
H	18.70	19.10	.736	.752
L	2.40	2.70	.094	.106
L1	1.20	1.40	.047	.055
L2	1.00	1.15	.039	.045
L3		0.25 BSC		.010 BSC
L4	3.80	4.10	.150	.161