

HiPerFET™ Power MOSFETs

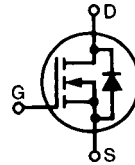
IXFH 70N15 IXFT 70N15

$$V_{DSS} = 150 \text{ V}$$

$$I_{D25} = 70 \text{ A}$$

$$R_{DS(on)} = 28 \text{ m}\Omega$$

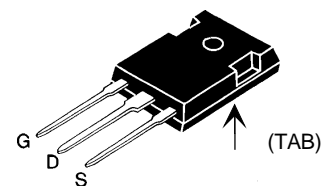
N-Channel Enhancement Mode
Avalanche Rated, High dv/dt , Low t_{rr}



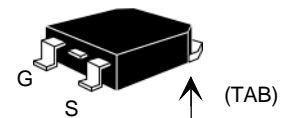
$$t_{rr} \leq 250\text{ns}$$

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	150	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	150	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	70	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	280	A
I_{AR}	$T_C = 25^\circ\text{C}$	70	A
E_{AR}	$T_C = 25^\circ\text{C}$	30	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	1.0	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	6	g
	TO-268	4	g

TO-247 AD (IXFH)



TO-268 (IXFT) Case Style



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

Features

- International standard packages
- Low $R_{DS(on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
- easy to drive and to protect
- Fast intrinsic Rectifier

Advantages

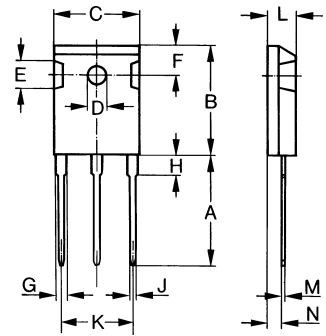
- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 250 \mu\text{A}$	150		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 4 \text{ mA}$	2.0		V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}_{DC}$, $V_{DS} = 0$			$\pm 100 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$, $T_J = 25^\circ\text{C}$ $V_{GS} = 0 \text{ V}$, $T_J = 125^\circ\text{C}$			25 μA
				750 μA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 0.5 I_{D25}$ Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $d \leq 2\%$			28 $\text{m}\Omega$

Symbol	Test Conditions	Characteristic Values			
		(T _J = 25°C, unless otherwise specified)			
		Min.	Typ.	Max.	
g_{fs}	V _{DS} = 10 V; I _D = 0.5 I _{D25} , pulse test	30	45		S
C_{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		3600		pF
C_{oss}			1080		pF
C_{rss}			360		pF
t_{d(on)}	V _{GS} = 10 V, V _{DS} = 0.5 V _{DSS} , I _D = 0.5 I _{D25} R _G = 2 Ω (External)		35		ns
t_r			52		ns
t_{d(off)}			70		ns
t_f			23		ns
Q_{g(on)}	V _{GS} = 10 V, V _{DS} = 0.5 V _{DSS} , I _D = 0.5 I _{D25}		180		nC
Q_{gs}			28		nC
Q_{gd}			92		nC
R_{thJC}	(TO-247)			0.42	K/W
R_{thCK}			0.25		K/W

Symbol	Test Conditions	Characteristic Values			
		(T _J = 25°C, unless otherwise specified)			
		min.	typ.	max.	
I_S	V _{GS} = 0 V			70	A
I_{SM}	Repetitive;			280	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 = 25 V		0.85	250	ns
Q_{RM}					μC
I_{RM}				8	A

TO-247 AD (IXFH) Outline



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	19.81	20.32	0.780	0.800
B	20.80	21.46	0.819	0.845
C	15.75	16.26	0.610	0.640
D	3.55	3.65	0.140	0.144
E	4.32	5.49	0.170	0.216
F	5.4	6.2	0.212	0.244
G	1.65	2.13	0.065	0.084
H	-	4.5	-	0.177
J	1.0	1.4	0.040	0.055
K	10.8	11.0	0.426	0.433
L	4.7	5.3	0.185	0.209
M	0.4	0.8	0.016	0.031
N	1.5	2.49	0.087	0.102

TO-268AA (D ³ PAK)		Dim.		Millimeter		Inches	
		Min.	Max.	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		
	L ₁	1.20	1.40	.047	.055		
	L ₂	1.00	1.15	.039	.045		
	L ₃	0.25 BSC		.010 BSC			
	L ₄	3.80	4.10	.150	.161		

Min. Recommended Footprint

