

HiPerFET™ Power MOSFETs

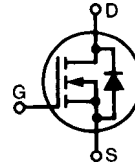
IXFA 3N80
IXFP 3N80

V_{DSS} = 800 V
I_{D25} = 3.6 A
R_{DS(on)} = 3.6 Ω

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

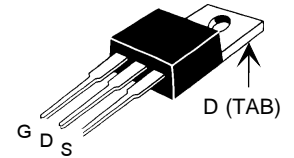
t_{rr} ≤ 250 ns

Preliminary data sheet

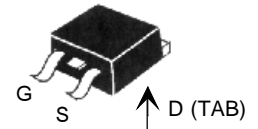


Symbol	Test Conditions	Maximum Ratings	
V _{DSS}	T _J = 25°C to 150°C	800	V
V _{DGR}	T _J = 25°C to 150°C; R _{GS} = 1 MΩ	800	V
V _{GS}	Continuous	±20	V
V _{GSM}	Transient	±30	V
I _{D25}	T _C = 25°C	3.6	A
I _{DM}	T _C = 25°C, pulse width limited by T _{JM}	14.4	A
I _{AR}	T _C = 25°C	3.6	A
E _{AR}	T _C = 25°C	10	mJ
E _{AS}		400	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	100	W
T _J		-55 to +150	°C
T _{JM}		150	°C
T _{stg}		-55 to +150	°C
T _L	1.6 mm (0.063 in) from case for 10 s	300	°C
M _d	Mounting torque (TO-220)	1.13/10	Nm/lb.in.
Weight	TO-220	4	g
	TO-263	2	g

TO-220 (IXFP)



TO-263 (IXFA)



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

Features

- International standard packages
- Low R_{DS(on)}
- Rated for unclamped Inductive load Switching (UIS)

Advantages

- Easy to mount
- Space savings
- High power density

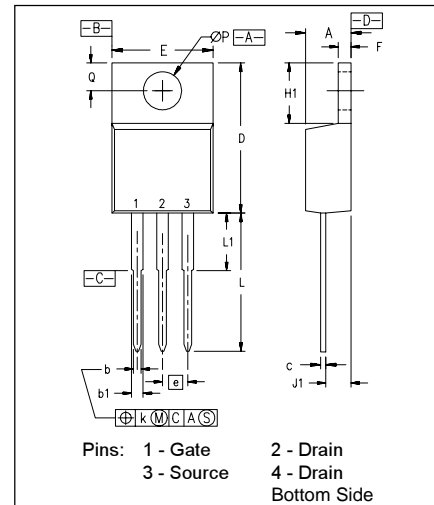
Symbol	Test Conditions	Characteristic Values (T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
V _{DSS}	V _{GS} = 0 V, I _D = 1 mA	800		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 1 mA	2.5		V
I _{GSS}	V _{GS} = ±20 V _{DC} , V _{DS} = 0			±100 nA
I _{DSS}	V _{DS} = V _{DSS} V _{GS} = 0 V	T _J = 25°C		50 μA
		T _J = 125°C		1 mA
R _{DS(on)}	V _{GS} = 10 V, I _D = 0.5 I _{D25} Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			3.6 Ω

Symbol	Test Conditions	Characteristic Values		
		(T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
g _{fs}	V _{DS} = 20 V; I _D = 0.5 • I _{D25} , pulse test	2.5	3.4	S
C _{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		685	pF
C _{oss}			73	pF
C _{rss}			16	pF
t _{d(on)}	V _{GS} = 10 V, V _{DS} = 0.5 • V _{DSS} , I _D = 0.5 • I _{D25} R _G = 12 Ω (External),		12	ns
t _r			11	ns
t _{d(off)}			25	ns
t _f			14	ns
Q _{g(on)}	V _{GS} = 10 V, V _{DS} = 0.5 • V _{DSS} , I _D = 0.5 • I _{D25}		24	nC
Q _{gs}			6	nC
Q _{gd}			9	nC
R _{thJC}	(TO-220)			1.25 KW
R _{thCK}			0.25	KW

Source-Drain Diode

Symbol	Test Conditions	Characteristic Values		
		(T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
I _S	V _{GS} = 0 V			3.6 A
I _{SM}	Repetitive; pulse width limited by T _{JM}			14.4 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 = I _S , -di/dt = 100 A/μs, V _R = 100 V		0.52	250 ns
Q _{RM}			1.8	μC
I _{RM}				

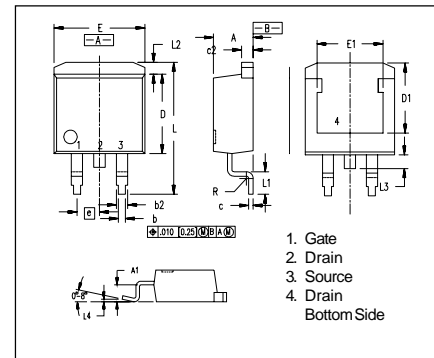
TO-220 (IXFP) Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.170	.190	4.32	4.83
b	.025	.040	0.64	1.02
b1	.045	.065	1.15	1.65
c	.014	.022	0.35	0.56
D	.580	.630	14.73	16.00
E	.390	.420	9.91	10.66
e	.100 BSC		2.54 BSC	
F	.045	.055	1.14	1.40
H1	.230	.270	5.85	6.85
J1	.090	.110	2.29	2.79
k	0	.015	0	0.38
L	.500	.550	12.70	13.97
L1	.110	.230	2.79	5.84
ØP	.139	.161	3.53	4.08
Q	.100	.125	2.54	3.18

NOTE: This drawing will meet all dimensions requirement of JEDEC outline TO-220 AB.

TO-263 (IXFA) Outline



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.06	4.83	.160	.190
A1	2.03	2.79	.080	.110
b	0.51	0.99	.020	.039
b2	1.14	1.40	.045	.055
c	0.46	0.74	.018	.029
c2	1.14	1.40	.045	.055
D	8.64	9.65	.340	.380
D1	7.11	8.13	.280	.320
E	9.65	10.29	.380	.405
E1	6.86	8.13	.270	.320
e	2.54	BSC	.100	BSC
L	14.61	15.88	.575	.625
L1	2.29	2.79	.090	.110
L2	1.02	1.40	.040	.055
L3	1.27	1.78	.050	.070
L4	0	0.38	0	.015
R	0.46	0.74	.018	.029

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