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HiPerFET™ Power MOSFETs

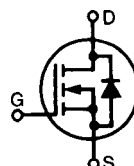
IXFA 3N80
IXFP 3N80

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

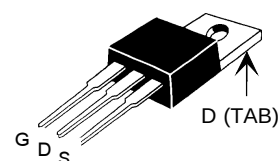
t_{rr} ≤ 250 ns

Preliminary data sheet

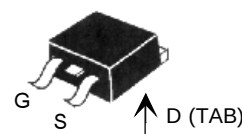


Symbol	Test Conditions	Maximum Ratings	
V _{DSS}	T _J = 25°C to 150°C	800	V
V _{DGR}	T _J = 25°C to 150°C; R _{GS} = 1 MΩ	800	V
V _{GS}	Continuous	±20	V
V _{GSM}	Transient	±30	V
I _{D25}	T _C = 25°C	3.6	A
I _{DM}	T _C = 25°C, pulse width limited by T _{JM}	14.4	A
I _{AR}	T _C = 25°C	3.6	A
E _{AR}	T _C = 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
S = Source

D = Drain
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		4.5 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 T _J = 125°C		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 %			3.6 Ω



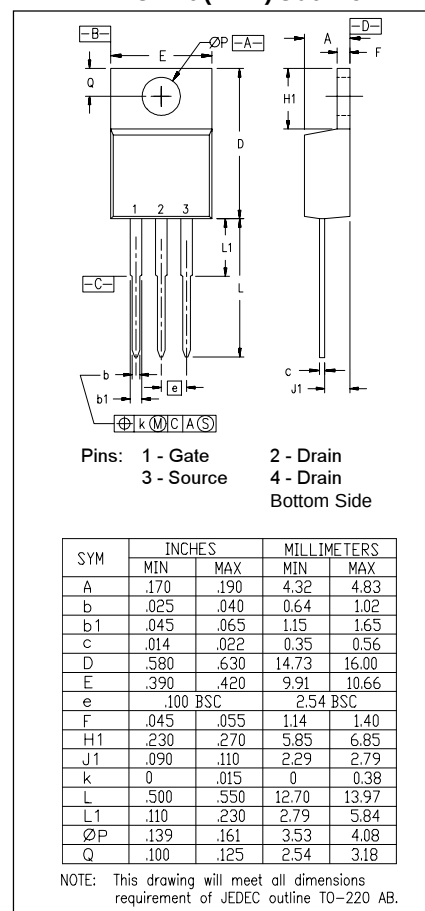
IXFA 3N80
IXFP 3N80

Symbol	Test Conditions	Characteristic Values (T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
g_{fs}	$V_{DS} = 20\text{ V}; I_D = 0.5 \cdot I_{D25}, \text{ pulse test}$	2.5	3.4	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		685	pF
C_{oss}			73	pF
C_{rss}			16	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$ $R_G = 12\ \Omega$ (External),		12	ns
t_r			11	ns
$t_{d(off)}$			25	ns
t_f			14	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$		24	nC
Q_{gs}			6	nC
Q_{gd}			9	nC
R_{thJC}	(TO-220)		1.25	KW
R_{thCK}			0.25	KW

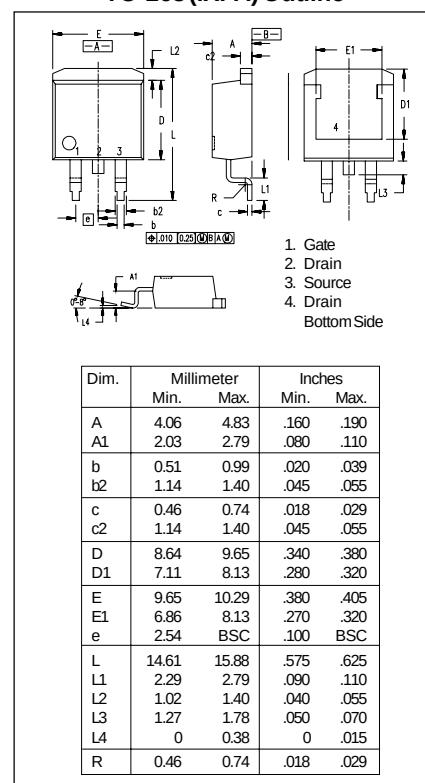
Source-Drain Diode

Symbol	Test Conditions	Characteristic Values (T _J = 25°C, unless otherwise specified)		
		min.	typ.	max.
I_S	$V_{GS} = 0\text{ V}$			3.6 A
I_{SM}	Repetitive; pulse width limited by T _{JM}			14.4 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V},$ Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$			1.5 V
t_{rr}	$I_F = I_S, -di/dt = 100\text{ A}/\mu\text{s}, V_R = 100\text{ V}$		0.52	250 ns
Q_{RM}				μC
I_{RM}			1.8	A

TO-220 (IXFP) Outline



TO-263 (IXFA) Outline



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