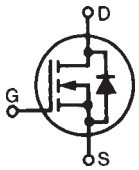
PolarHV™ HiPerFET Power MOSFET

(Electrically Isolated Tab)

IXFP 3N50PM

V_{DSS} = 500 V
I_{D25} = 2.7 A
$R_{DS(on)}$ ≤ 2.0 Ω
t_{rr} ≤ 200 ns

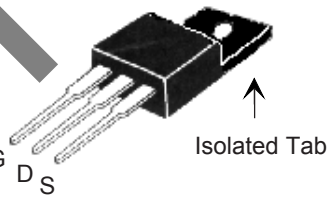
N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode



OBSOLETE

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25° C to 150° C	500	V
V_{DGR}	T_J = 25° C to 150° C; R_{GS} = 1 MΩ	500	V
V_{GSS}	Continuous	± 30	V
V_{GSM}	Transient	± 40	V
I_{D25}	T_C = 25° C	2.7	A
I_{DM}	T_C = 25° C, pulse width limited by T_{JM}	8	A
I_{AR}	T_C = 25° C	3	A
E_{AR}	T_C = 25° C	10	mJ
E_{AS}	T_C = 25° C	100	mJ
dv/dt	$I_S \le I_{DM}$, di/dt ≤100 A/μs, $V_{DD} \le V_{DSS}$, T_J ≤150° C, R_G = 50 Ω	10	V/ns
P_D	T_C = 25° C	36	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	1.6 mm (0.062 in.) from case for 10 s	300	°C
T_{SOLD}	Plastic body for 10 s	260	°C
M_d	Mounting torque	1.13/10	Nm/lb.in.
Weight		4	g

OVERMOLDED TO-220 (IXTP...M) OUTLINE



G = Gate D = Drain
S = Source

Features

- Plastic overmolded tab for electrical isolation
- Fast intrinsic diode
- International standard package
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
  - easy to drive and to protect

Advantages

- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions (T_J = 25° C, unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0 V, I_D = 250 μA	500			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 250 μA	3.0		5.5	V
I_{GSS}	V_{GS} = ±30 V_{DC}, V_{DS} = 0			±100	nA
I_{DSS}	$V_{DS} = V_{DSS}$, V_{GS} = 0 V			5	μA
	T_J = 125° C			200	μA
$R_{DS(on)}$	V_{GS} = 10 V, I_D = 1.8 A, Note 1			2.0	Ω

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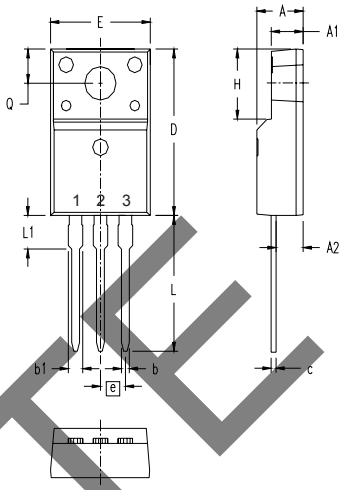
Symbol	Test Conditions	Characteristic Values (T_J = 25° C, unless otherwise specified) Min.	Typ.	Max.	
g_{fs}	V_{DS}= 10 V; I_D = 1.8 A, Note 1		3.5		S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz		409		pF
C_{oss}			48		pF
C_{rss}			6.1		pF
$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 V_{DSS}, I_D = 3.6 A R_G = 50 Ω (External)		25		ns
t_r			28		ns
$t_{d(off)}$			63		ns
t_f			29		ns
$Q_{g(on)}$	V_{GS}= 10 V, V_{DS} = 0.5 V_{DSS}, I_D = 1.8		9.3		nC
Q_{gs}			3.3		nC
Q_{gd}			3.4		nC
R_{thJC}				3.5	°C/W

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			5	A
V_{SD}	I_F = I_S, V_{GS} = 0 V, Note 1			1.5	V
t_{rr}	I_F = 3.6 A, -di/dt = 100 A/µs, V_R = 100 V, V_{GS} = 0 V			200	ns
Q_{RM}			0.1		µC
I_{RM}			0.5		A

Notes: 1) Pulse test, t ≤300 µs, duty cycle d≤ 2 %
2) Test current I_T = 2.5 A

ISOLATED TO-220 (IXTP...M)



Terminals: 1 - Gate
2 - Drain (Collector)
3 - Source (Emitter)

SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	.177	.193	4.50	4.90
A1	.092	.108	2.34	2.74
A2	.101	.117	2.56	2.96
b	.028	.035	0.70	0.90
b1	.050	.058	1.27	1.47
c	.018	.024	0.45	0.60
D	.617	.633	15.67	16.07
E	.392	.408	9.96	10.36
e	.100 BSC		2.54 BSC	
H	.255	.271	6.48	6.88
L	.499	.523	12.68	13.28
L1	.119	.135	3.03	3.43
ØP	.121	.129	3.08	3.28
Q	.126	.134	3.20	3.40

OBSOLETE

PRELIMINARY TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from data gathered during objective characterizations of preliminary engineering lots; but also may yet contain some information supplied during a pre-production design evaluation. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

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IXYS MOSFETs and IGBTs are covered by one or moreof the following U.S. patents: 4,835,592 4,850,072 4,881,106 4,931,844 5,017,508 5,034,796 5,049,961 5,063,307 5,187,117 5,237,481 5,381,025 5,486,715 6,162,665 6,259,123 B1 6,306,728 B1 6,404,065 B1 6,534,343 6,583,505 6,683,344 6,710,405B2 6,710,463 6,727,585 6,759,692 6,771,478 B2