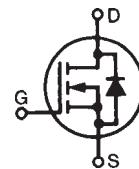


PolarHV™ HiPerFET

Power MOSFET

(Electrically Isolated Tab)

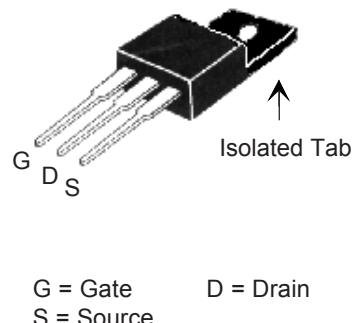
N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode



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

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	$I_s \leq I_{DM}$, $di/dt \leq 100$ A/μs, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ C$, $R_G = 50$ 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}	$V_{GS} = \pm 30$ V _{DC} , $V_{DS} = 0$			±100 nA
I_{BSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0$ V			5 μA 200 μA
$R_{DS(on)}$	$V_{GS} = 10$ V, $I_D = 1.8$ A Note 1			2.0 Ω

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

Source-Drain Diode

Characteristic Values

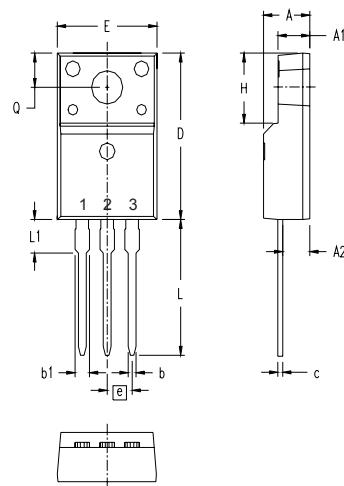
 $(T_j = 25^\circ C$ unless otherwise specified)

Symbol	Test Conditions	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} Q_{RM} I_{RM}	$I_F = 3.6 A$, $-di/dt = 100 A/\mu s$, $V_R = 100 V$, $V_{GS} = 0 V$		200	ns
		0.1		μC
		0.5		A

Notes:

- 1) Pulse test, $t \leq 300 \mu s$, duty cycle $d \leq 2 \%$
- 2) Test current $I_T = 2.5 A$

ISOLATED TO-220 (IXTP...M)



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

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	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
$\emptyset P$.121	.129	3.08	3.28
Q	.126	.134	3.20	3.40

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