

PolarHV™

Power MOSFET

(Electrically Isolated Tab)

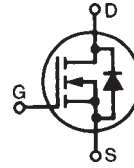
IXTP 10N60PM

$$V_{DSS} = 600 \text{ V}$$

$$I_{D25} = 5 \text{ A}$$

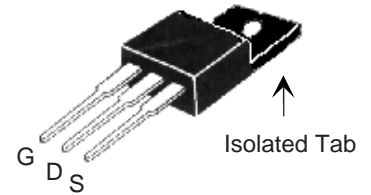
$$R_{DS(on)} \leq 740 \text{ m}\Omega$$

N-Channel Enhancement Mode
Avalanche Rated



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 175°C	600	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 175°C ; $R_{GS} = 1 \text{ M}\Omega$	600	V
V_{GS}	Continuous	± 30	V
V_{GSM}	Transient	± 40	V
I_{D25}	$T_C = 25^\circ\text{C}$	5	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	30	A
I_{AR}	$T_C = 25^\circ\text{C}$	10	A
E_{AR}	$T_C = 25^\circ\text{C}$	20	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	500	mJ
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$, $R_G = 10 \Omega$	10	V/ns
P_D	$T_C = 25^\circ\text{C}$	50	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	$^\circ\text{C}$
T_{SOLD}	Plastic body for 10 s	260	$^\circ\text{C}$
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
- 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

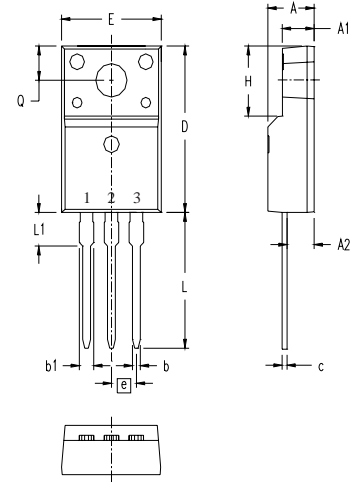
Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 250 \mu\text{A}$	600		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 100 \mu\text{A}$	3.0		5.0 V
I_{GSS}	$V_{GS} = \pm 30 \text{ V}_{DC}$, $V_{DS} = 0$			$\pm 100 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$, $V_{GS} = 0 \text{ V}$, $T_J = 125^\circ\text{C}$			5 μA 50 μA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 5 \text{ A}$ Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $d \leq 2\%$			740 $\text{m}\Omega$

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 10\text{ V}$; $I_D = 5\text{ A}$, pulse test	6	11	S
C_{iss} C_{oss} C_{rss}	$V_{GS} = 0\text{ V}$, $V_{DS} = 25\text{ V}$, $f = 1\text{ MHz}$		1610	pF
			165	pF
			14	pF
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	$V_{GS} = 10\text{ V}$, $V_{DS} = 0.5 V_{DSS}$, $I_D = 10\text{ A}$ $R_G = 10\ \Omega$ (External)		20	ns
			24	ns
			55	ns
			18	ns
$Q_{g(on)}$ Q_{gs} Q_{gd}	$V_{GS} = 10\text{ V}$, $V_{DS} = 0.5 V_{DSS}$, $I_D = 5\text{ A}$		32	nC
			11	nC
			10	nC
R_{thJS}				2.5 $^\circ\text{C/W}$

Source-Drain Diode

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		Min.	Typ.	Max.
I_S	$V_{GS} = 0\text{ V}$			10 A
I_{SM}	Repetitive			30 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}	$I_F = 9\text{ A}$, $-di/dt = 100\text{ A}/\mu\text{s}$ $V_R = 100\text{ V}$		500	ns

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
$\varnothing P$.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
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