



**THE DATASHEET OF  
IXTP8N50PM**



# PolarHV™

## Power MOSFET

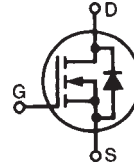
(Electrically Isolated Tab)

**IXTP 8N50PM**

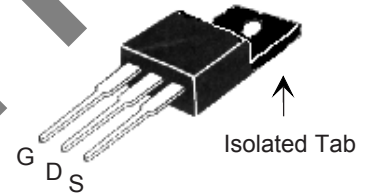
$$V_{DSS} = 500 \text{ V}$$

$$I_{D25} = 4 \text{ A}$$

$$R_{DS(on)} \leq 0.8 \text{ } \Omega$$

 N-Channel Enhancement Mode  
 Avalanche Rated


Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$	500	V
$V_{DGR}$	$T_J = 25^\circ\text{C}$ to $150^\circ\text{C}$ ; $R_{GS} = 1 \text{ M}\Omega$	500	V
$V_{GS}$	Continuous	$\pm 30$	V
$V_{GSM}$	Transient	$\pm 40$	V
$I_{D25}$	$T_C = 25^\circ\text{C}$	4	A
$I_{DM}$	$T_C = 25^\circ\text{C}$ , pulse width limited by $T_{JM}$	14	A
$I_{AR}$	$T_C = 25^\circ\text{C}$	8	A
$E_{AR}$	$T_C = 25^\circ\text{C}$	20	mJ
$E_{AS}$	$T_C = 25^\circ\text{C}$	400	mJ
$dv/dt$	$I_S \leq I_{DM}$ , $di/dt \leq 100 \text{ A}/\mu\text{s}$ , $V_{DD} \leq V_{DSS}$ , $T_J \leq 150^\circ\text{C}$ , $R_G = 18 \text{ } \Omega$	10	V/ns
$P_D$	$T_C = 25^\circ\text{C}$	41	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.
<b>Weight</b>		4	g

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

 G = Gate      D = Drain  
 S = Source

**Features**

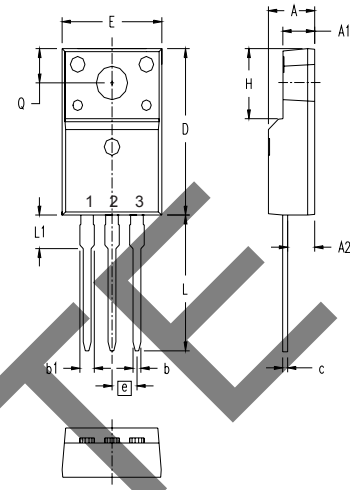
- † Plastic overmolded tab for electrical isolation
- † International standard package
- † Unclamped Inductive Switching (UIS) rated
- † Low package inductance
- easy to drive and to protect

**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.
$BV_{DSS}$	$V_{GS} = 0 \text{ V}$ , $I_D = 250 \text{ } \mu\text{A}$	500		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 250 \text{ } \mu\text{A}$	3.0		5.5 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 $\mu\text{A}$ 50 $\mu\text{A}$
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$ , $I_D = 4 \text{ A}$ Pulse test, $t \leq 300 \text{ } \mu\text{s}$ , duty cycle $d \leq 2 \%$			0.8 $\Omega$

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		Min.	Typ.	Max.
$g_{fs}$	$V_{DS} = 10\text{ V}; I_D = 4\text{ A}$	5	8	S
$C_{iss}$	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		1050	pF
$C_{oss}$			120	pF
$C_{rss}$			12	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 8\text{ A}$ $R_G = 18\ \Omega$ (External)		22	ns
$t_r$			28	ns
$t_{d(off)}$			65	ns
$t_f$			23	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 4\text{ A}$		20	nC
$Q_{gs}$			7	nC
$Q_{gd}$			7	nC
$R_{thJS}$				$3.0\ ^\circ\text{C/W}$

**ISOLATED TO-220 (IXTP...M)**


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

**Source-Drain Diode**

Symbol	Test Conditions	Characteristic Values ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)		
		Min.	Typ.	Max.
$I_S$	$V_{GS} = 0\text{ V}$			8 A
$I_{SM}$	Repetitive			14 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
$t_{rr}$	$I_F = 3\text{ A}, V_{GS} = 0\text{ V}, V_R = 100\text{ V}$ $-di/dt = 100\text{ A}/\mu\text{s}$		400	ns

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.

IXYS reserves the right to change limits, test conditions, and dimensions.

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 6,710,405B2 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







## Looking for pricing, stock, or lifecycle information?

Click below to explore more details on WIN SOURCE:

 [View IXTP8N50PM on WIN SOURCE](#)

 [IXYS Information](#)

## Optimize Your Supply Chain with WIN SOURCE Solutions

-  Global Sourcing Solution
-  Obsolete Management
-  Cost Control Management
-  Shortage Management
-  Alternative Solution
-  Excess Inventory Management