IXYS

Preliminary Technical Information

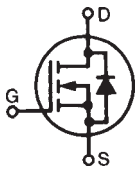
PolarHV™ Power MOSFET

(Electrically Isolated Tab)

N-Channel Enhancement Mode
Avalanche Rated

IXTP 10N60PM

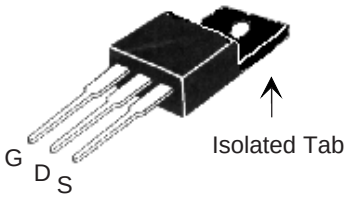
V_{DSS} = 600 V
I_{D25} = 5 A
$R_{DS(on)}$ ≤ 740 mΩ



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 175°C	600	V
V_{DGR}	T_J = 25°C to 175°C; R_{GS} = 1 MΩ	600	V
V_{GS}	Continuous	±30	V
V_{GSM}	Transient	±40	V
I_{D25}	T_C = 25°C	5	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	30	A
I_{AR}	T_C = 25°C	10	A
E_{AR}	T_C = 25°C	20	mJ
E_{AS}	T_C = 25°C	500	mJ
dv/dt	$I_S \le I_{DM}$, di/dt ≤ 100 A/μs, $V_{DD} \le V_{DSS}$, $T_J \le 150°C$, R_G = 10 Ω	10	V/ns
P_D	T_C = 25°C	50	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

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	600			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 100μA	3.0		5.0	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			50	μA
$R_{DS(on)}$	V_{GS} = 10 V, I_D = 5 A, Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			740	mΩ

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

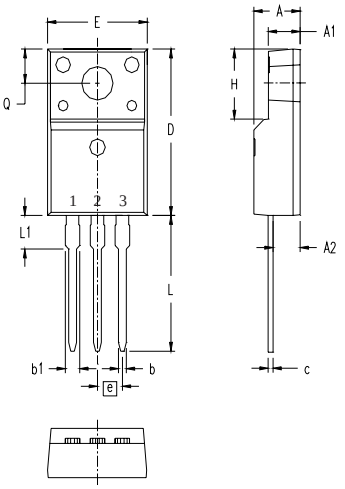
- Easy to mount
- Space savings
- High power density

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

Source-Drain Diode

Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0 V			10	A
I_{SM}	Repetitive			30	A
V_{SD}	I_F = I_S, V_{GS} = 0 V, Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %			1.5	V
t_{rr}	I_F = 9 A, -di/dt = 100 A/µs V_R = 100V		500		ns

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

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.