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Preliminary Technical Information

PolarHT™ Power MOSFET

(Electrically Isolated Tab)

N-Channel Enhancement Mode

Avalanche Rated

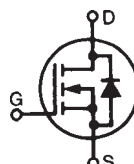
IXTC 62N15P

IXTR 62N15P

$$V_{DSS} = 150 \text{ V}$$

$$I_{D25} = 36 \text{ A}$$

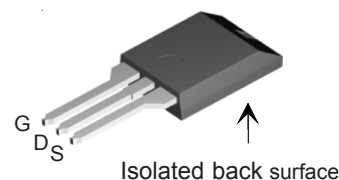
$$R_{DS(on)} \leq 45 \text{ m}\Omega$$



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	150	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C ; $R_{GS} = 1 \text{ M}\Omega$	150	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	36	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	150	A
I_{AR}	$T_C = 25^\circ\text{C}$	50	A
E_{AR}	$T_C = 25^\circ\text{C}$	30	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	1.0	J
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	$T_C = 25^\circ\text{C}$	150	W
T_J		-55 ... +175	$^\circ\text{C}$
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	$^\circ\text{C}$
F_C	Mounting force	ISOPLUS220 11..65 / 2.5..15 ISOPLUS247 20..120 / 4.5..25	N/lb N/lb
Weight		ISOPLUS220 3 ISOPLUS247 5	g g

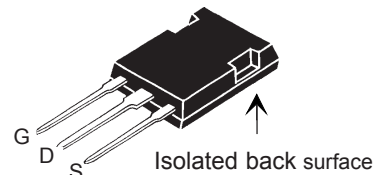
ISOPLUS220 (IXTC)

E153432



ISOPLUS247 (IXTR)

E153432



G = Gate D = Drain
S = Source TAB = Drain

Features

- International standard isolated packages
- UL recognized packages
- Silicon chip on Direct-Copper-Bond substrate
 - High power dissipation
 - Isolated mounting surface
 - 2500V electrical isolation
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
 - easy to drive and to protect
- Fast intrinsic diode

Advantages

- Easy to mount
- Space savings
- High power density

Symbol	Test Conditions	Characteristic Values	
	$(T_J = 25^\circ\text{C}$ unless otherwise specified)	Min. Typ. Max.	
BV_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 250 \mu\text{A}$	150	V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250 \mu\text{A}$	3.0	V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}_{DC}$, $V_{DS} = 0$		$\pm 100 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$ $T_J = 125^\circ\text{C}$		10 μA 200 μA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 31 \text{ A}$, Note 1		45 $\text{m}\Omega$

Symbol	Test Conditions	Characteristic Values (T _J = 25° C unless otherwise specified)		
		Min.	Typ.	Max.
g_{fs}	V _{DS} = 20 V; I _D = 31 A, Note 1	14	24	S
C_{iss}	V _{GS} = 0 V, V _{DS} = 25 V, f = 1 MHz		2250	pF
C_{oss}			660	pF
C_{rss}			185	pF
t_{d(on)}	V _{GS} = 10 V, V _{DS} = 0.5 V _{DSS} , I _D = 62 A R _G = 10 Ω (External)		27	ns
t_r			38	ns
t_{d(off)}			76	ns
t_f			35	ns
Q_{g(on)}	V _{GS} = 10 V, V _{DS} = 0.5 V _{DSS} , I _D = 31 A		70	nC
Q_{gs}			20	nC
Q_{gd}			38	nC
R_{thJC}			1.0	°C/W
R_{thCS}		0.15		°C/W

Source-Drain Diode

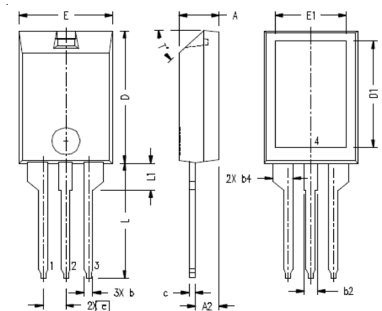
Symbol	Test Conditions	Characteristic Values (T _J = 25° C unless otherwise specified)		
		Min.	Typ.	Max.
I_S	V _{GS} = 0 V			62 A
I_{SM}	Repetitive			150 A
V_{SD}	I _F = I _S , V _{GS} = 0 V, Note 1			1.5 V
t_{rr}	I _F = 25 A, -di/dt = 100 A/μs V _R = 100 V, V _{GS} = 0 V		150	ns
Q_{RM}			2.0	μC

Note 1: Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %;
2: Test current I_T = 62 A.

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.

ISOPLUS220™ (IXTC) Outline

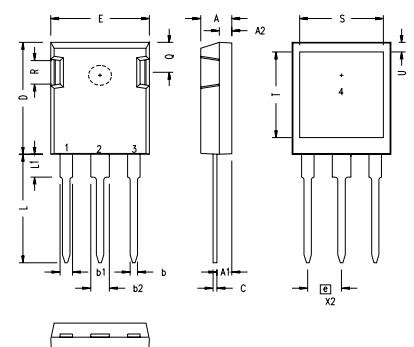


Note:
Bottom heatsink (Pin 4) is electrically isolated from Pin 1, 2, or 3.

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.157	.197	4.00	5.00
A2	.098	.118	2.50	3.00
b	.035	.051	0.90	1.30
b2	.049	.065	1.25	1.65
b4	.093	.100	2.35	2.55
c	.028	.039	0.70	1.00
D	.591	.630	15.00	16.00
D1	.472	.512	12.00	13.00
E	.394	.433	10.00	11.00
E1	.295	.335	7.50	8.50
e	.100	BASIC	2.55	BASIC
L	.512	.571	13.00	14.50
L1	.118	.138	3.00	3.50
T*			42.5*	47.5*

Ref: IXYS CO 0177 R0

ISOPLUS247 (IXTR) Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.190	.205	4.83	5.21
A1	.090	.100	2.29	2.54
A2	.075	.085	1.91	2.16
b	.045	.055	1.14	1.40
b1	.075	.084	1.91	2.13
b2	.115	.123	2.92	3.12
C	.024	.031	0.61	0.80
D	.819	.840	20.80	21.34
E	.620	.635	15.75	16.13
e	.215	BSC	5.45	BSC
L	.780	.800	19.81	20.32
L1	.150	.170	3.81	4.32
Q	.220	.244	5.59	6.20
R	.170	.190	4.32	4.83
S	.520	.540	13.21	13.72
T	.620	.640	15.75	16.26
U	.065	.080	1.65	2.03

- 1 - GATE
- 2 - DRAIN (COLLECTOR)
- 3 - SOURCE (EMITTER)
- 4 - NO CONNECTION

NOTE: This drawing will meet all dimensions requirement of JEDEC outline TO-247AD except screw hole.

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IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:	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	7,005,734 B2
	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	