

### PolarHT™ Power MOSFET

(Electrically Isolated Tab)

N-Channel Enhancement Mode  
Avalanche Rated

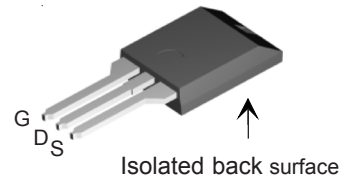
**IXTC 62N15P**  
**IXTR 62N15P**

$V_{DSS} = 150 \text{ V}$   
 $I_{D25} = 36 \text{ A}$   
 $R_{DS(on)} \leq 45 \text{ m}\Omega$

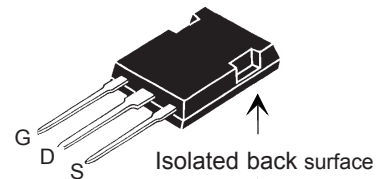


Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	150	V
$V_{DGR}$	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GS} = 1 \text{ M}\Omega$	150	V
$V_{GS}$	Continuous	$\pm 20$	V
$V_{GSM}$	Transient	$\pm 30$	V
$I_{D25}$	$T_C = 25^\circ\text{C}$	36	A
$I_{DM}$	$T_C = 25^\circ\text{C}$ , 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
<b>Weight</b>		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 ( $T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
$BV_{DSS}$	$V_{GS} = 0 \text{ V}$ , $I_D = 250 \mu\text{A}$	150		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 250 \mu\text{A}$	3.0		5.0 V
$I_{GSS}$	$V_{GS} = \pm 20 \text{ V}_{DC}$ , $V_{DS} = 0$			$\pm 100 \text{ nA}$
$I_{DSS}$	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$			10 $\mu\text{A}$ 200 $\mu\text{A}$
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$ , $I_D = 31 \text{ A}$ , Note 1			45 $\text{m}\Omega$

Symbol	Test Conditions	Characteristic Values		
		$(T_J = 25^\circ\text{C unless otherwise specified})$		
		Min.	Typ.	Max.
$g_{fs}$	$V_{DS} = 20\text{ V}; I_D = 31\text{ A, Note 1}$	14	24	S
$C_{iss}$	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		2250	pF
$C_{oss}$			660	pF
$C_{rss}$			185	pF
$t_{d(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 62\text{ A}$ $R_G = 10\ \Omega$ (External)		27	ns
$t_r$			38	ns
$t_{d(off)}$			76	ns
$t_f$			35	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 31\text{ A}$		70	nC
$Q_{gs}$			20	nC
$Q_{gd}$			38	nC
$R_{thJC}$				1.0 $^\circ\text{C/W}$
$R_{thCS}$		0.15		$^\circ\text{C/W}$

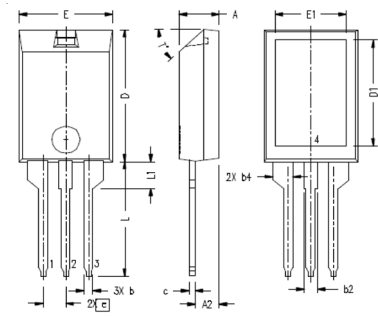
**Source-Drain Diode**

Symbol	Test Conditions	Characteristic Values		
		$T_J = 25^\circ\text{C unless otherwise specified}$		
		Min.	Typ.	Max.
$I_s$	$V_{GS} = 0\text{ V}$			62 A
$I_{SM}$	Repetitive			150 A
$V_{SD}$	$I_F = I_S, V_{GS} = 0\text{ V, Note 1}$			1.5 V
$t_{rr}$	$I_F = 25\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}$ $V_R = 100\text{ V}, V_{GS} = 0\text{ V}$		150	ns
$Q_{RM}$				2.0

Note 1: Pulse test,  $t \leq 300\ \mu\text{s}$ , duty cycle  $d \leq 2\%$ ;  
 2: Test current  $I_T = 62\text{ A}$ .

**PRELIMINARY TECHNICAL INFORMATION**

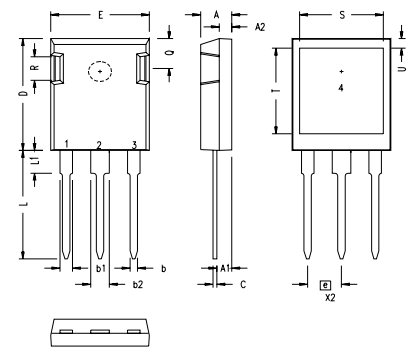
The product presented herein is under development. The Technical Specifications offered are derived from data gathered during objective characterizations of preliminary engineering lots; but also may yet contain some information supplied during a pre-production design evaluation. IXYS reserves the right 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
O	.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.

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	7,005,734B2
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	