Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

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IXYS

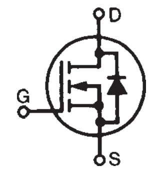
PolarHT™ HiPerFET Power MOSFET ISOPLUS220™

IXFC 96N15P

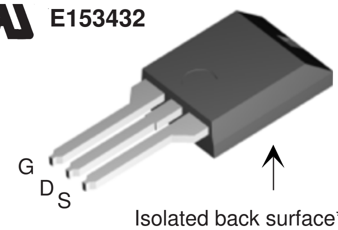
(Electrically Isolated Back Surface)

V_{DSS}	=	150	V
I_{D25}	=	42	A
$R_{DS(on)}$	=	26	mΩ
t_{rr}	<	200	ns

N-Channel Enhancement Mode
Fast Recovery Diode, Avalanche Rated



ISOPLUS 220™
E153432



G = Gate D = Drain
S = Source

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 175°C	150	V
V_{DGR}	T_J = 25°C to 175°C; R_{GS} = 1 MΩ	150	V
V_{GS}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	T_C = 25°C	42	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	250	A
I_{AR}	T_C = 25°C	60	A
E_{AR}	T_C = 25°C	40	mJ
E_{AS}	T_C = 25°C	1.0	J
dv/dt	I_S ≤ I_{DM}, di/dt ≤ 100 A/µs, V_{DD} ≤ V_{DSS}, T_J ≤ 175°C, R_G = 4 Ω	10	V/ns
P_D	T_C = 25°C	120	W
T_J		-55 ... +175	°C
T_{JM}		175	°C
T_{stg}		-55 ... +150	°C
T_L	1.6 mm (0.062 in.) from case for 10 s	300	°C
F_C	Mounting force	11...65/2.4...11	N/lb
V_{ISOL}	50/60 Hz, 1 minute	2500	~V
Weight		3	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	150			V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 4 mA	3.0		5.0	V
I_{GSS}	V_{GS} = ±20 V_{DC}, V_{DS} = 0			±100	nA
I_{DSS}	V_{DS} = V_{DSS}			25	µA
	V_{GS} = 0 V T_J = 150 °C			300	µA
$R_{DS(on)}$	V_{GS} = 10 V, I_D = 48 A, Note 1 Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %			26	mΩ

Features

- Silicon chip on Direct-Copper-Bond substrate
  - High power dissipation
  - Isolated mounting surface
  - 2500V electrical isolation
- Low drain to tab capacitance(<35pF)
- Low $R_{DS (on)}$ HDMOS™ process
- Rugged polysilicon gate cell structure
- Unclamped Inductive Switching (UIS) rated
- Fast intrinsic Rectifier

Applications

- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- AC motor control

Advantages

- Easy assembly: no screws, or isolation foils required
- Space savings
- High power density
- Low collector capacitance to ground (low EMI)

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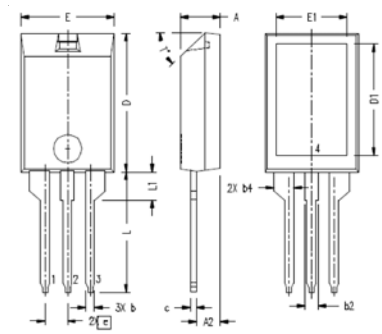
Symbol	Test Conditions	Min.	Typ.	Max.	
	Characteristic Values (T_J = 25°C, unless otherwise specified)				
g_{fs}	V_{DS}= 10 V; I_D = 48 A, Note 1	35	45		S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz		3500		pF
C_{oss}			1000		pF
C_{rss}			280		pF
$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 V_{DSS}, I_D = 48 A		30		ns
t_r	R_G = 4 Ω (External)		33		ns
$t_{d(off)}$			66		ns
t_f			18		ns
$Q_{g(on)}$	V_{GS}= 10 V, V_{DS} = 0.5 V_{DSS}, I_D = 48 A		110		nC
Q_{gs}			26		nC
Q_{gd}			59		nC
R_{thJC}				1.25	K/W
R_{thCS}	(TO-247, PLUS220)		0.21		K/W

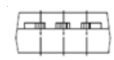
Source-Drain Diode

Symbol	Test Conditions	Min.	Typ.	Max.	
	Characteristic Values (T_J = 25°C, unless otherwise specified)				
I_S	V_{GS} = 0 V			96	A
I_{SM}	Repetitive			250	A
V_{SD}	I_F = I_S, V_{GS} = 0 V,			1.5	V
t_{rr}	I_F = 25 A			200	ns
Q_{RM}	-di/dt = 100 A/µs		600		nC
I_{RM}	V_R = 100 V, V_{GS} = 0 V		6		A

Notes: 1. Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %

ISOPLUS220™ (IXFC) 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

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 moreof 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

Fig. 1. Output Characteristics @ 25ºC

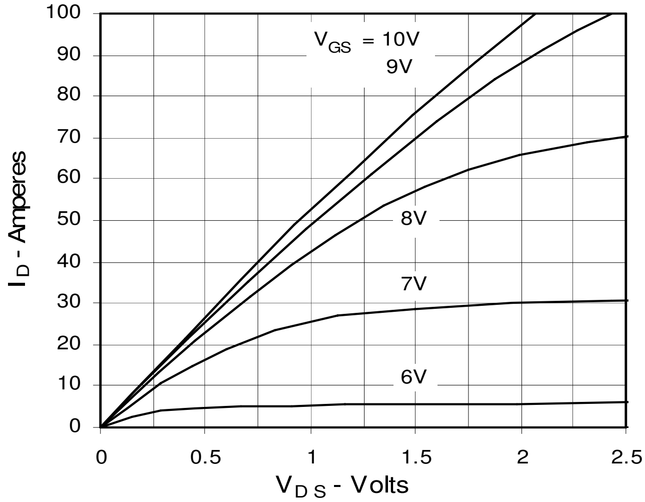


Fig. 2. Extended Output Characteristics @ 25ºC

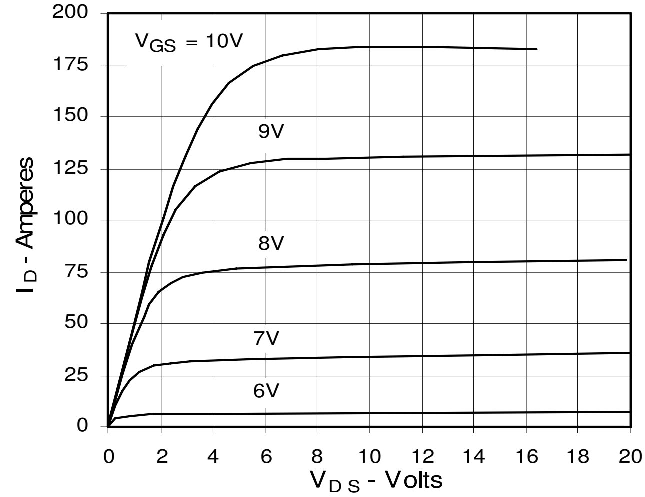


Fig. 3. Output Characteristics @ 150ºC

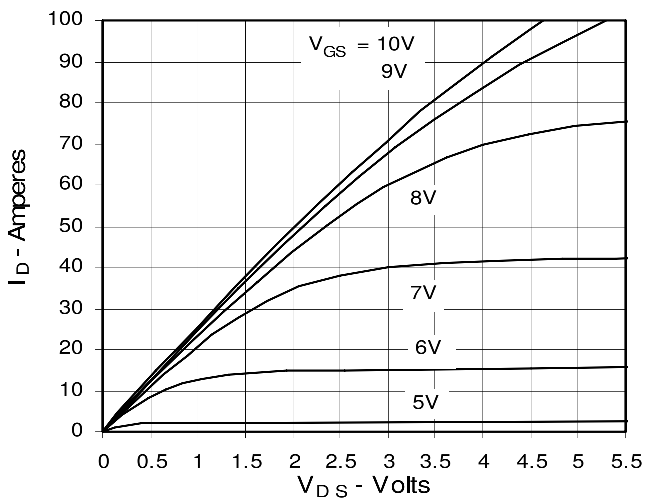


Fig. 4. $R_{DS(on)}$ Normalized to I_D = 48 A Value vs. Junction Temperature

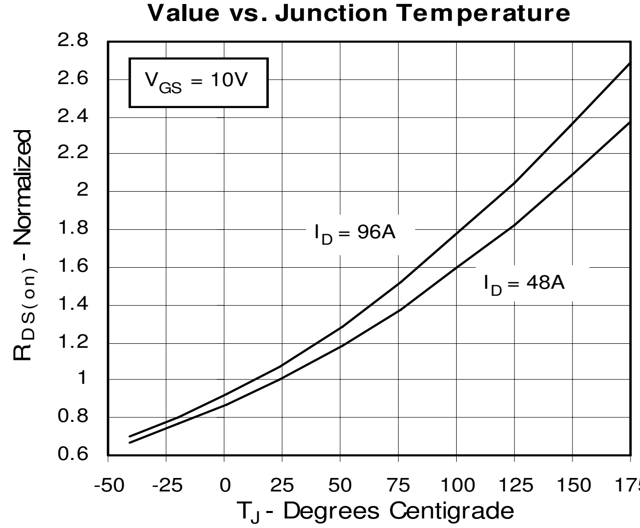


Fig. 5. $R_{DS(on)}$ Normalized to I_D = 48 A Value vs. I_D

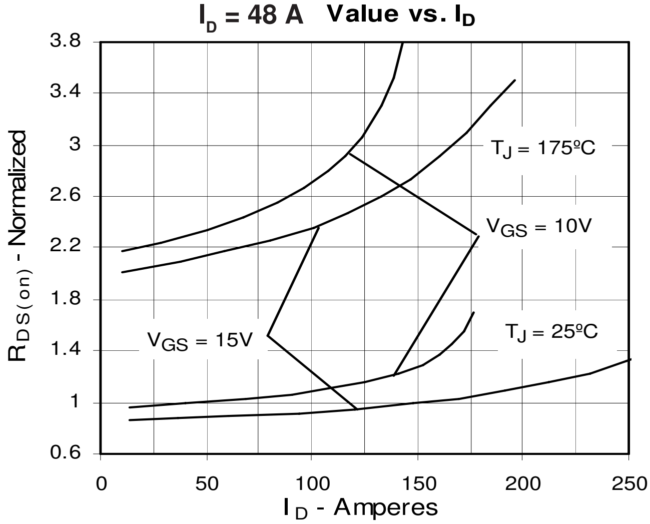


Fig. 6. Drain Current vs. Case Temperature

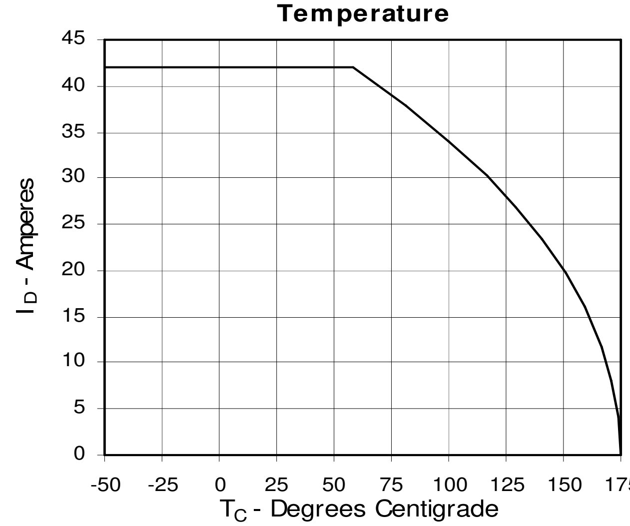


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Fig. 7. Input Admittance

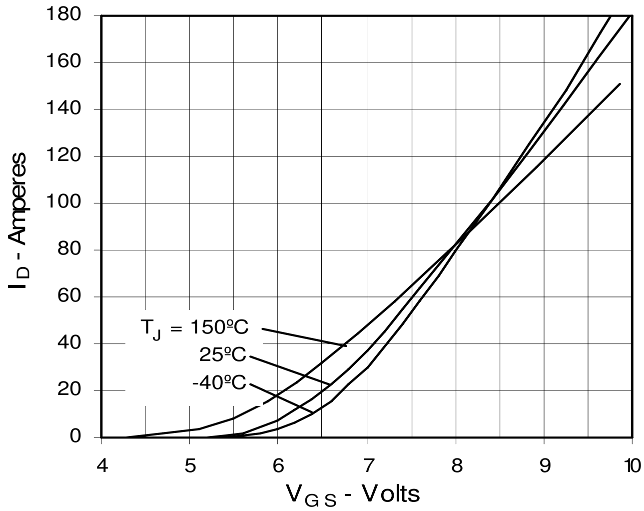


Fig. 8. Transconductance

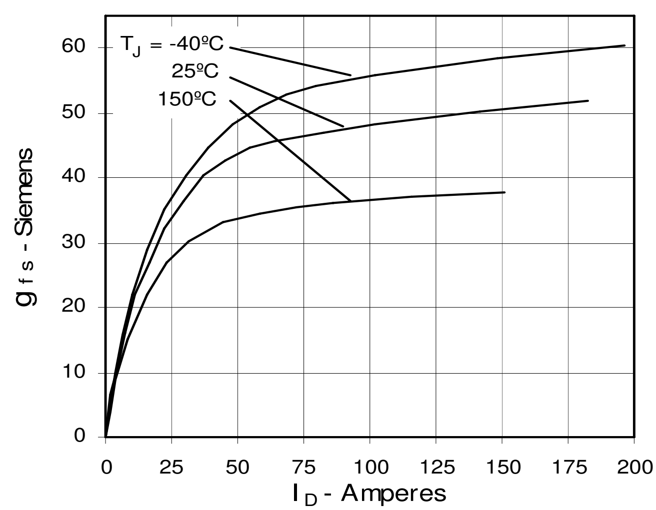


Fig. 9. Source Current vs. Source-To-Drain Voltage

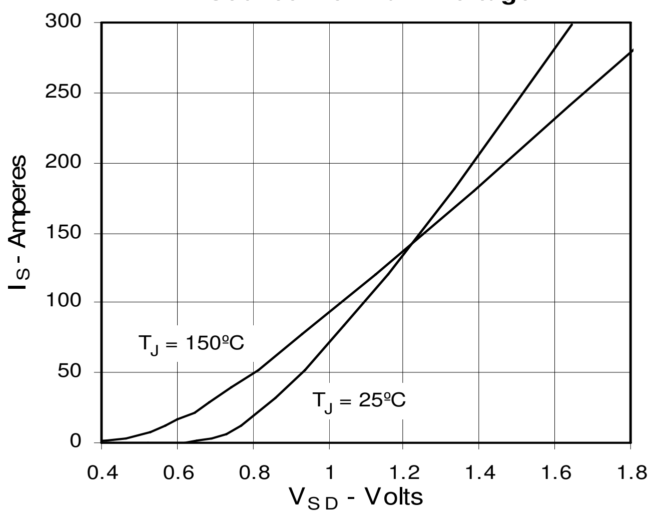


Fig. 10. Gate Charge

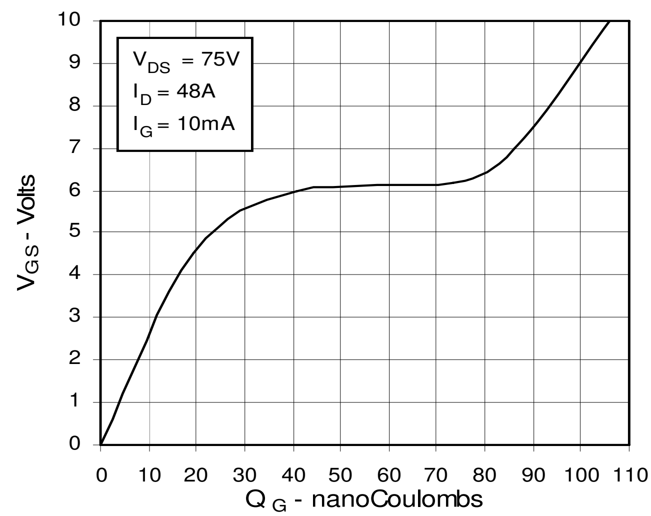


Fig. 11. Capacitance

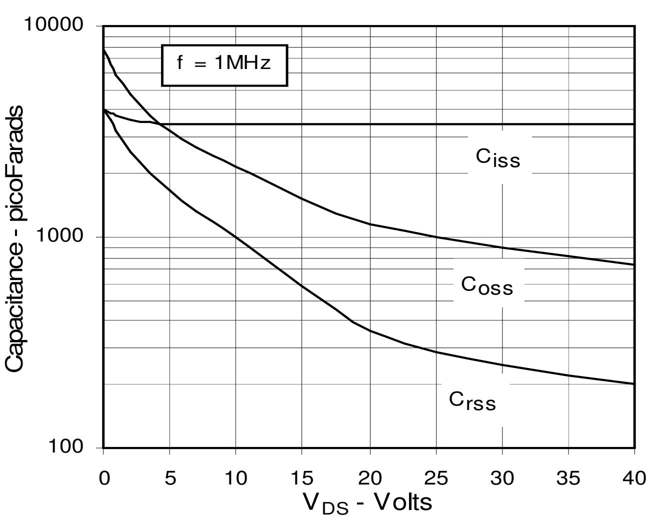
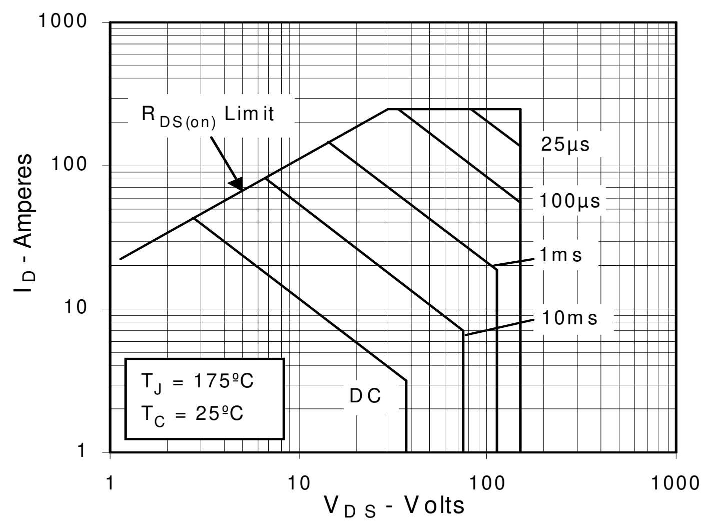
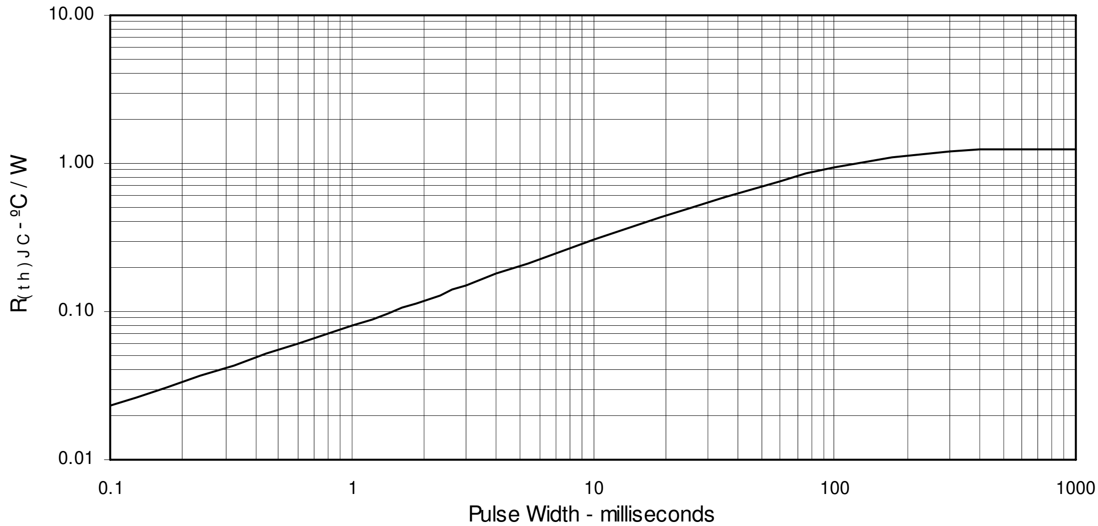


Fig. 12. Forward-Bias Safe Operating Area



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

Fig. 13. Maximum Transient Thermal Resistance



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