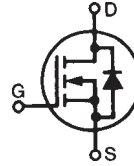# ⌂IXYS

PolarHV™ HiPerFET   IXFC 26N50P
Power MOSFET
ISOPLUS 220™
(Electrically Isolated Tab)

N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode

V_{DSS}	= 500	V
I_{D25}	= 15	A
$R_{DS(on)}$	≤ 260	mΩ
trr	≤ 250	ns

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25° C to 150° C	500	V
V_{DGR}	T_J = 25° C to 150° C; R_{GS} = 1 MΩ	500	V
V_{GS}	Continuous	±30	V
V_{GSM}	Transient	±40	V
I_{D25}	T_C = 25° C	15	A
I_{DM}	T_C = 25° C, pulse width limited by T_{JM}	78	A
I_{AR}	T_C = 25° C	26	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 ≤150° C, R_G = 4 Ω	20	V/ns
P_D	T_C = 25° C	130	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
V_{ISOL}	50/60 Hz, RMS, t = 1, leads-to-tab	2500	V~
F_C	Mounting Force	11..65/2.5..15	N/lb
Weight		2	g

ISOPLUS220™ (IXFC)

®L **E153432**
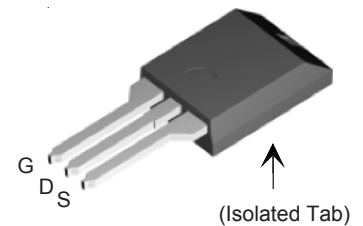
(Isolated Tab)

G = Gate   D = Drain
S = Source

Features
| Silicon chip on Direct-Copper-Bond substrate
  - High power dissipation
  - Isolated mounting surface
  - 2500V electrical isolation
| Low drain to tab capacitance(<30pF)

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

Advantages
| Easy assembly
| Space savings
| High power density

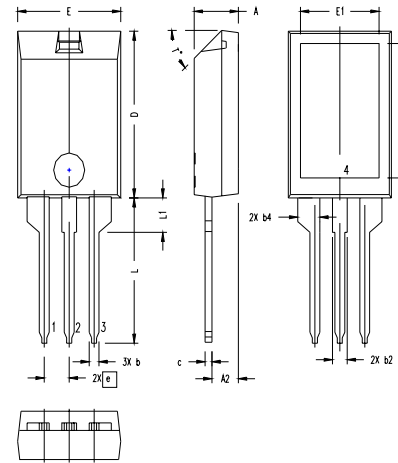| Symbol	Test Conditions (T_J = 25° C, unless otherwise specified)	Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0 V, I_D = 250 μA	500			V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = 4 mA	3.0		5.5	V
I_{GSS}	V_{GS} = ±30 V_{DC}, V_{DS} = 0			±100	nA
I_{DSS}	V_{DS} = V_{DSS} V_{GS} = 0 V T_J = 125° C			25 / 250	μA
$R_{DS(on)}$	V_{GS} = 10 V, I_D = I_T Pulse test, t ≤300 μs, duty cycle d ≤ 2 %			260	mΩ

Symbol	Test Conditions	Characteristic Values ($T_J = 25°C$, unless otherwise specified)			
		Min.	Typ.	Max.	
g_{fs}	$V_{DS} = 10$ V; $I_D = I_T$, pulse test	18	28		S
C_{iss}			3600		pF
C_{oss}	$V_{GS} = 0$ V, $V_{DS} = 25$ V, $f = 1$ MHz		380		pF
C_{rss}			48		pF
$t_{d(on)}$			20		ns
t_r	$V_{GS} = 10$ V, $V_{DS} = 0.5$ V_{DSS}, $I_D = I_T$		25		ns
$t_{d(off)}$	$R_G = 4$ Ω (External)		58		ns
t_f			20		ns
$Q_{g(on)}$			65		nC
Q_{gs}	$V_{GS} = 10$ V, $V_{DS} = 0.5$ V_{DSS}, $I_D = I_T$		20		nC
Q_{gd}			20		nC
R_{thJC}				0.95° C/W	
R_{thCS}			0.21	° C/W	

ISOPLUS220 Outline

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°

NOTE:
1. Bottom heatsink (Pin 4) is electrically isolated from Pin 1, 2, or 3.
2. This drawing will meet dimensional requirement of JEDEC SS Product Outline TO-273 except D and D1 dimension.
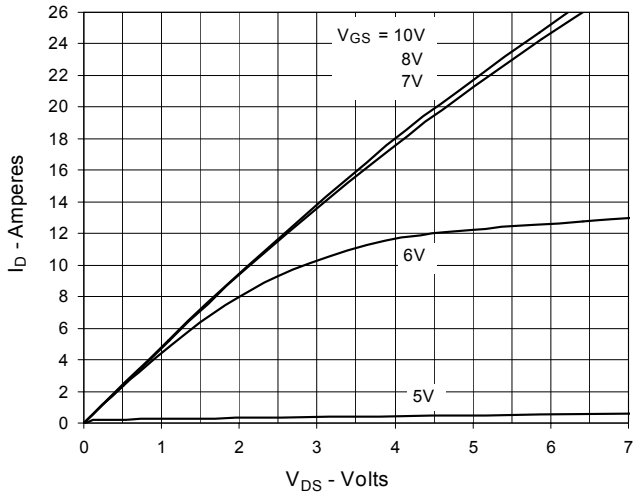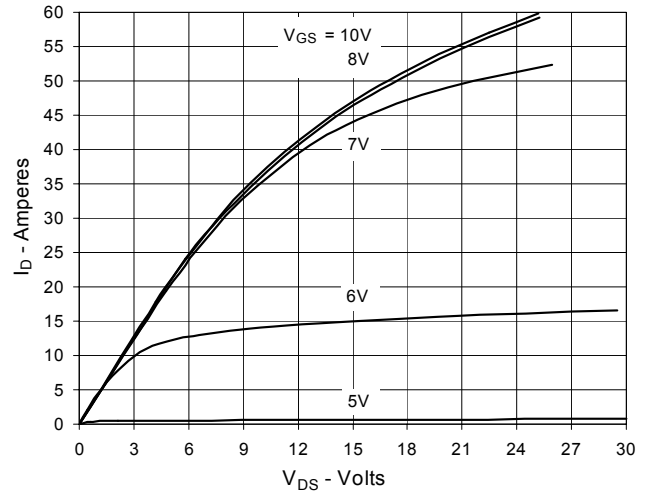
| Source-Drain Diode		Characteristic Values ($T_J = 25°C$, unless otherwise specified)			
Symbol	Test Conditions	Min.	Typ.	Max.	
I_S	$V_{GS} = 0$ V			26	A
I_{SM}	Repetitive			78	A
V_{SD}	$I_F = I_S$, $V_{GS} = 0$ V, Pulse test, $t \leq 300$ μs, duty cycle $d \leq 2$ %			1.5	V
t_{rr}	$I_F = 25$ A, -di/dt = 100 A/μs			250	ns
Q_{RM}	$V_R = 100$ V, $V_{GS} = 0$ V		0.3		μC

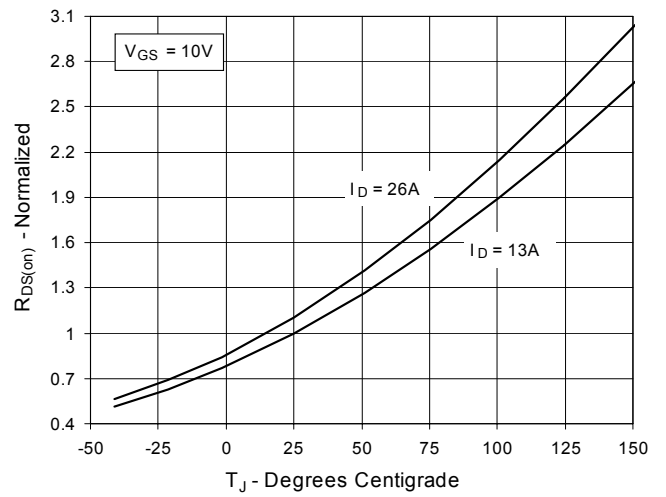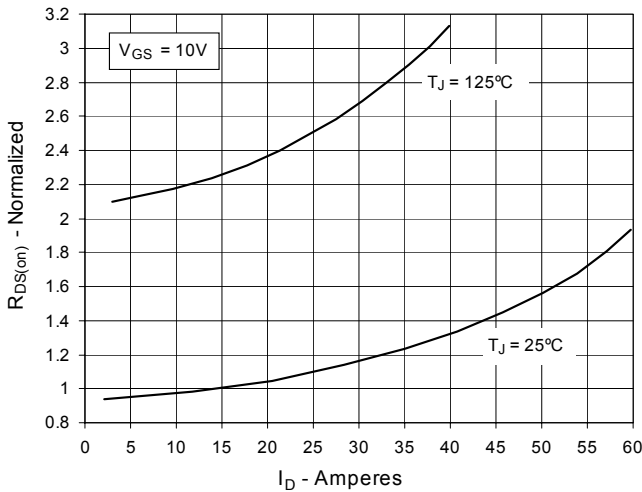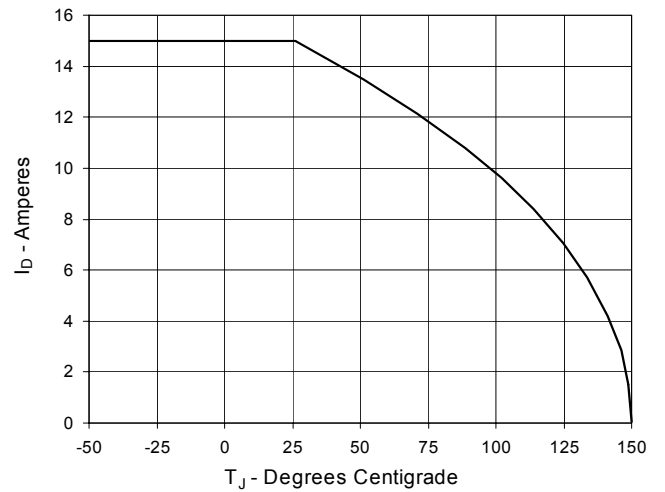Note: Test Current I_T = 13A

Fig. 1. Output Characteristics @ 25°C

Fig. 2. Extended Output Characteristics @ 25°C

Fig. 3. Output Characteristics @ 125°C
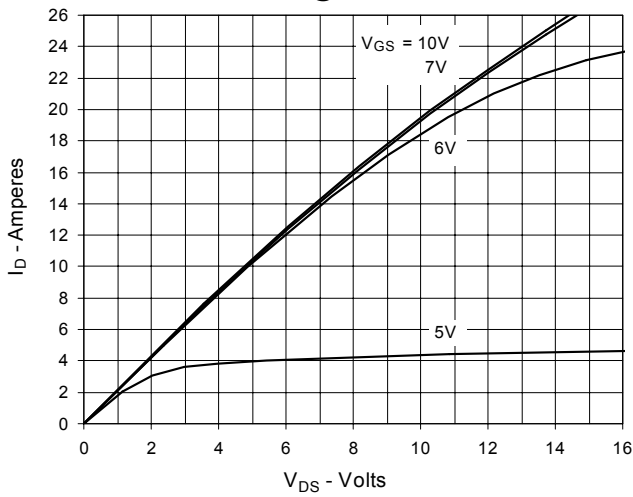
Fig. 4. $R_{DS(on)}$ Normalized to I_D = 13A Value vs. Junction Temperature

Fig. 5. $R_{DS(on)}$ Normalized to I_D = 13A Value vs. Drain Current

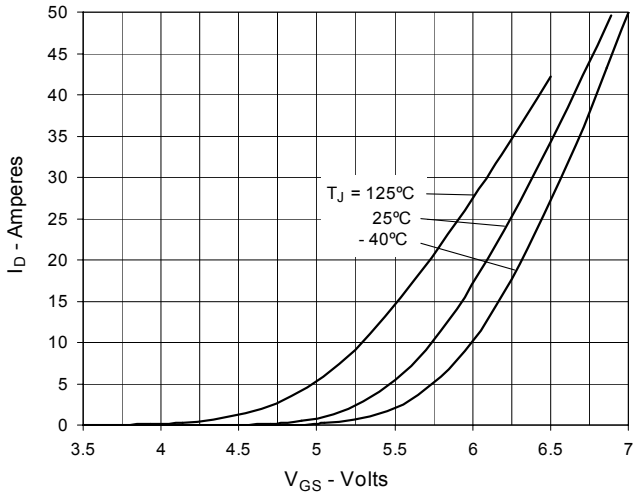**Fig. 6. Maximum Drain Current vs. Case Temperature**
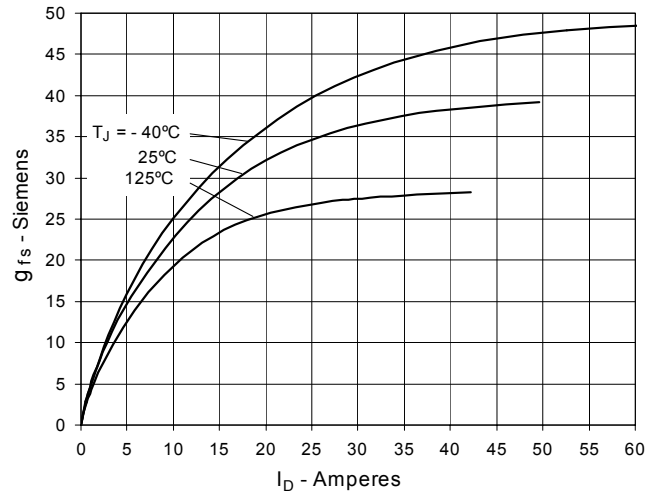
Fig. 7. Input Admittance

Fig. 8. Transconductance
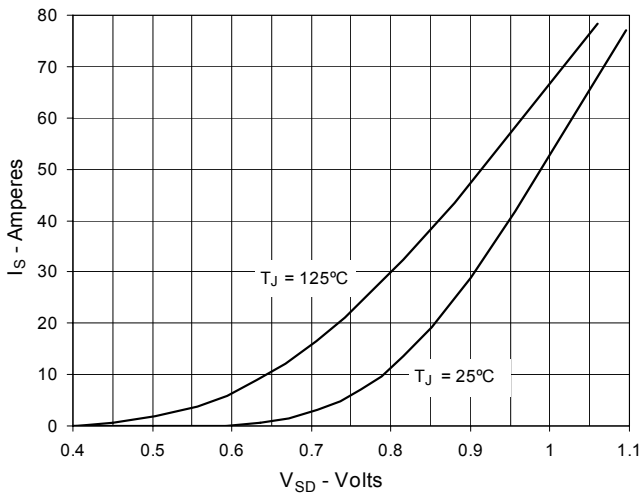

Fig. 9. Forward Voltage Drop of Intrinsic Diode

Fig. 10. Gate Charge
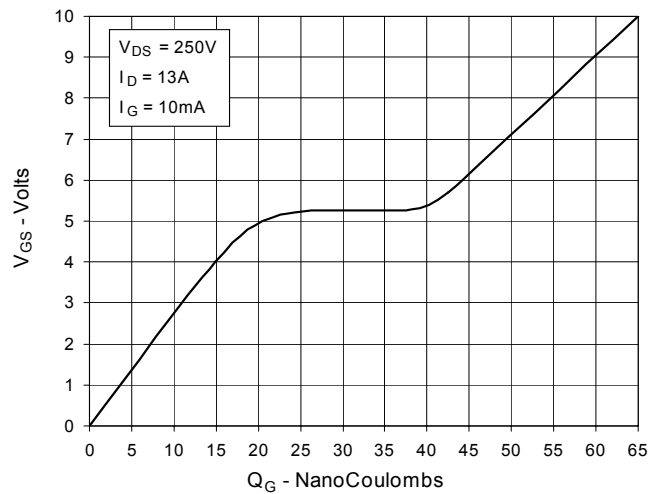
Fig. 11. Capacitance
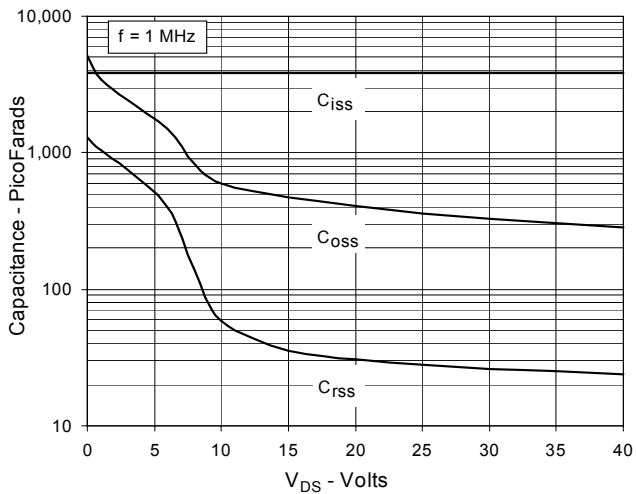
Fig. 12. Forward-Bias Safe Operating Area

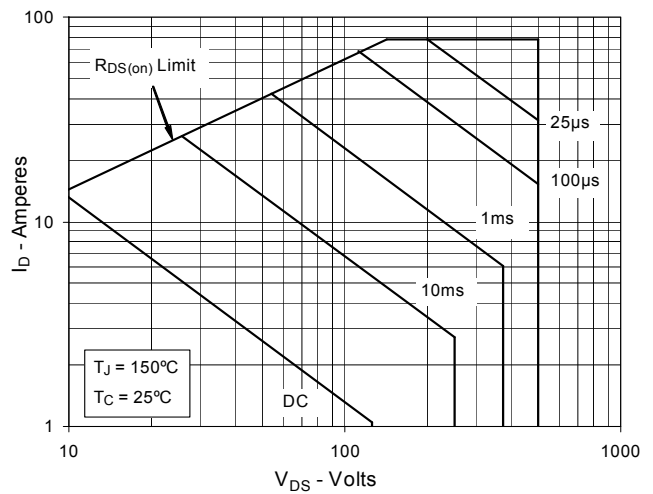IXYS reserves the right to change limits, test conditions, and dimensions.

Fig. 13. Maximum Transient Thermal Resistance

IXYS REF: T_26N50P (6J) 02-09-06-B.xls