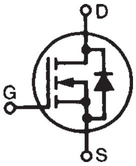
PolarHV™ HiPerFET Power MOSFET ISOPLUS 220™ (Electrically Isolated Tab)

IXFC 26N50P

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

N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode

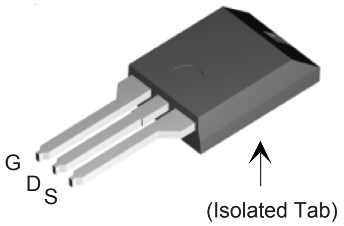


Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25° C to 150° C	500	V
V_{DGR}	T_J = 25° C to 150° C; R_{GS} = 1 MΩ	500	V
V_{GS}	Continuous	±30	V
V_{GSM}	Transient	±40	V
I_{D25}	T_C = 25° C	15	A
I_{DM}	T_C = 25° C, pulse width limited by T_{JM}	78	A
I_{AR}	T_C = 25° C	26	A
E_{AR}	T_C = 25° C	40	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

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	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}			25	µA
	V_{GS} = 0 V T_J = 125° C			250	µA
$R_{DS(on)}$	V_{GS} = 10 V, I_D = I_T Pulse test, t ≤ 300 µs, duty cycle d ≤ 2 %			260	mΩ

ISOPLUS220™ (IXFC)

E153432



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

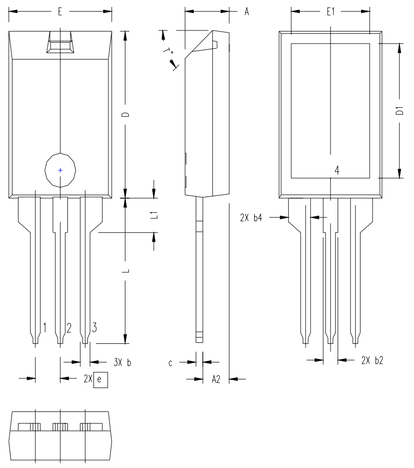
Symbol	Test Conditions	Min.	Typ.	Max.	
	(T_J = 25° C, unless otherwise specified)				
g_{fs}	V_{DS}= 10 V; $I_D = I_T$, pulse test	18	28		S
C_{iss}	V_{GS} = 0 V, V_{DS} = 25 V, f = 1 MHz		3600		pF
C_{oss}			380		pF
C_{rss}			48		pF
$t_{d(on)}$	V_{GS} = 10 V, V_{DS} = 0.5 V_{DSS}, $I_D = I_T$ R_G = 4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

Source-Drain Diode

Symbol	Test Conditions	Min.	Typ.	Max.	
	(T_J = 25° C, unless otherwise specified)				
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 ≤300 µs, duty cycle d≤ 2 %			1.5	V
t_{rr}	I_F = 25 A -di/dt = 100 A/µs V_R = 100 V, V_{GS} = 0 V			250	ns
Q_{RM}			0.3		µC

Note: Test Current I_T = 13A

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.

Fig. 1. Output Characteristics @ 25ºC

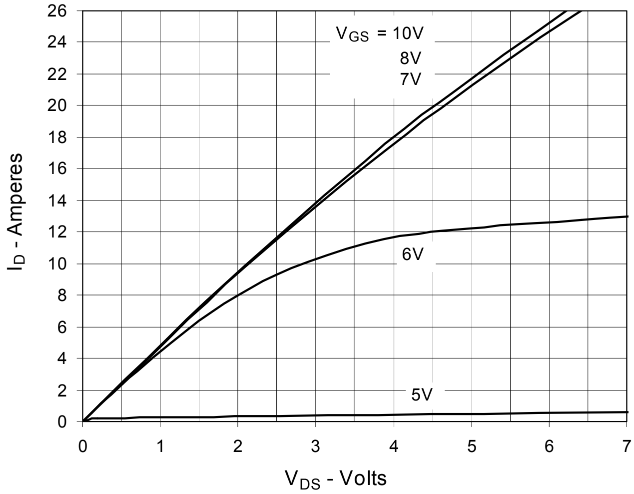


Fig. 2. Extended Output Characteristics @ 25ºC

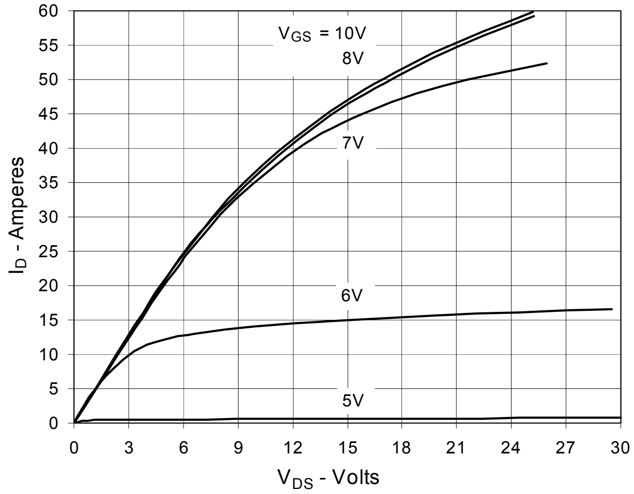


Fig. 3. Output Characteristics @ 125ºC

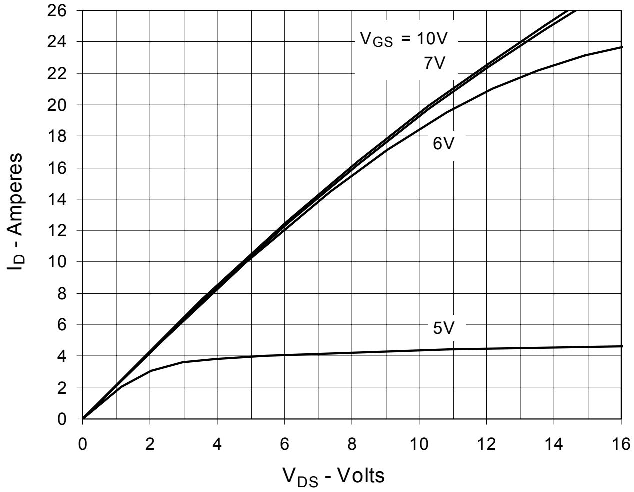


Fig. 4. $R_{DS(on)}$ Normalized to I_D = 13A Value vs. Junction Temperature

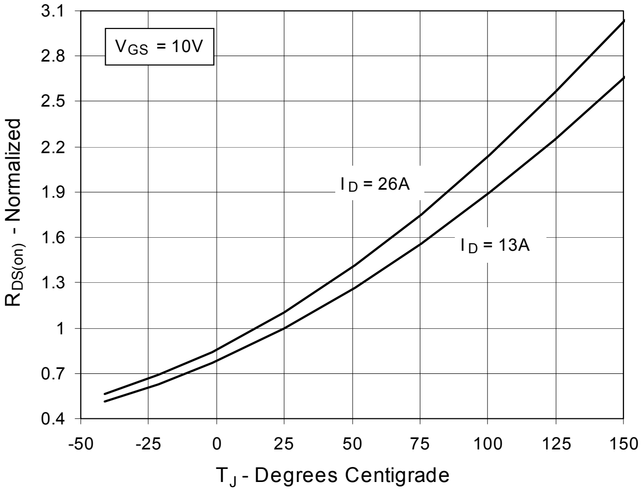


Fig. 5. $R_{DS(on)}$ Normalized to I_D = 13A Value vs. Drain Current

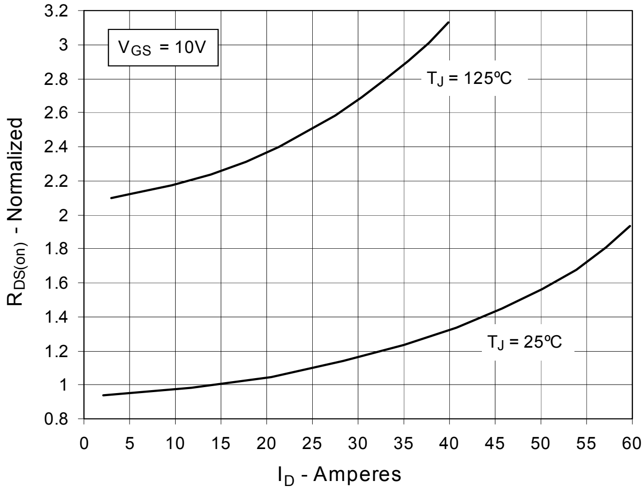


Fig. 6. Maximum Drain Current vs. Case Temperature

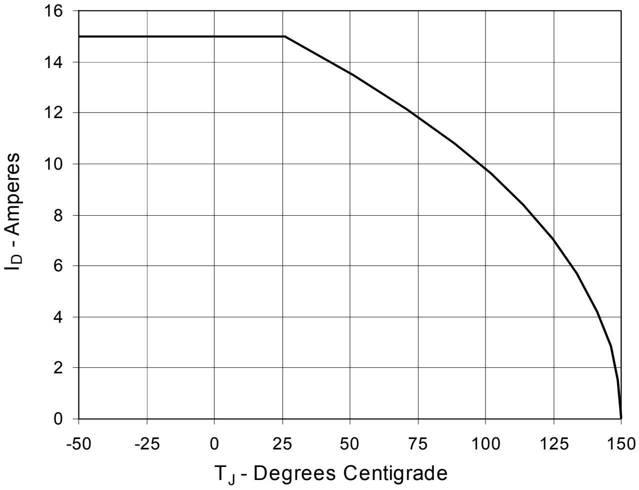


Fig. 7. Input Admittance

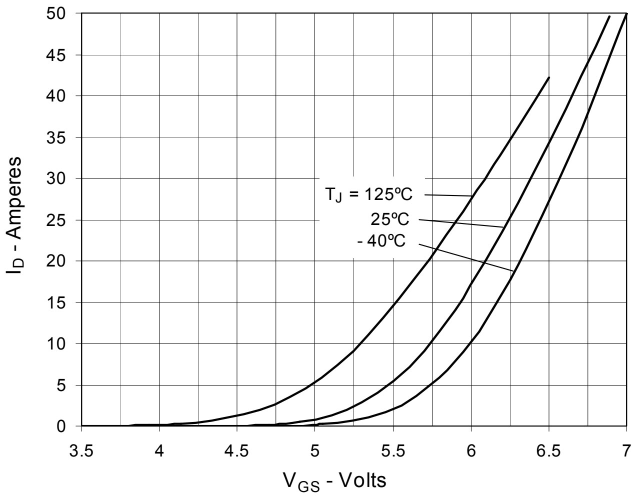


Fig. 8. Transconductance

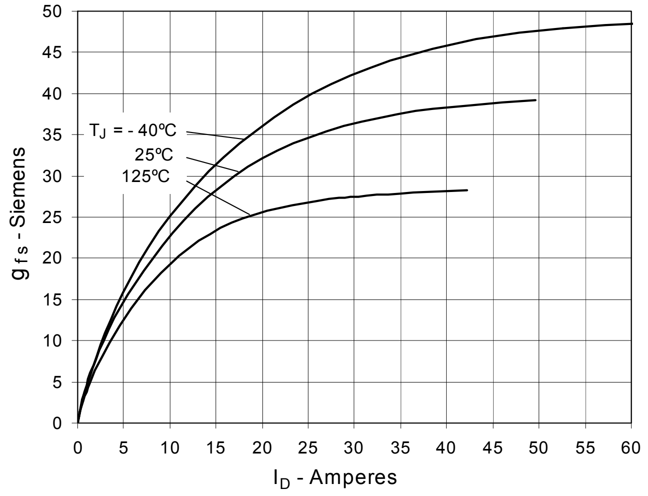


Fig. 9. Forward Voltage Drop of Intrinsic Diode

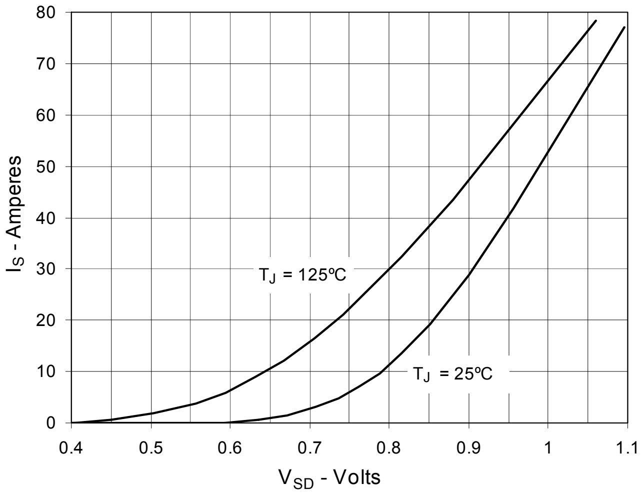


Fig. 10. Gate Charge

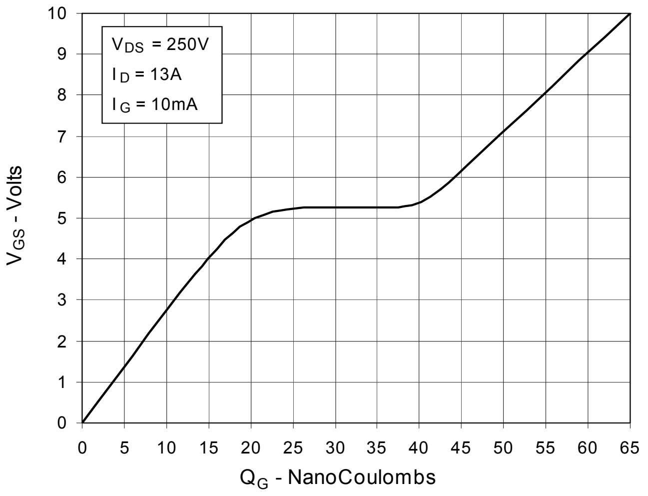


Fig. 11. Capacitance

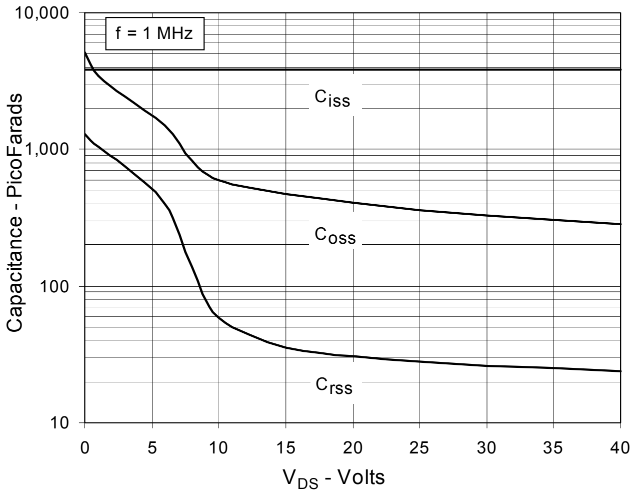


Fig. 12. Forward-Bias Safe Operating Area

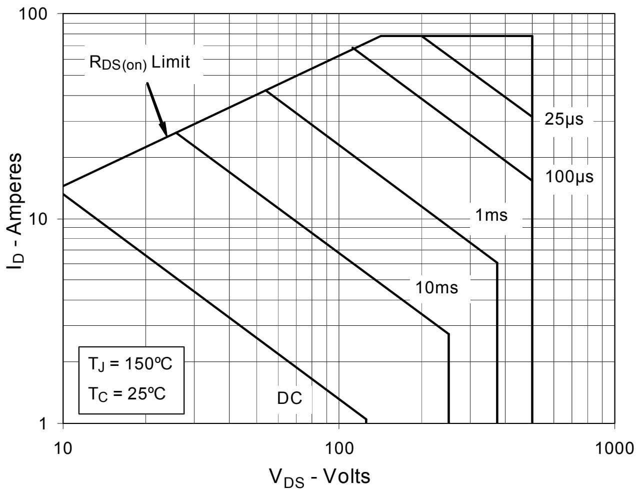
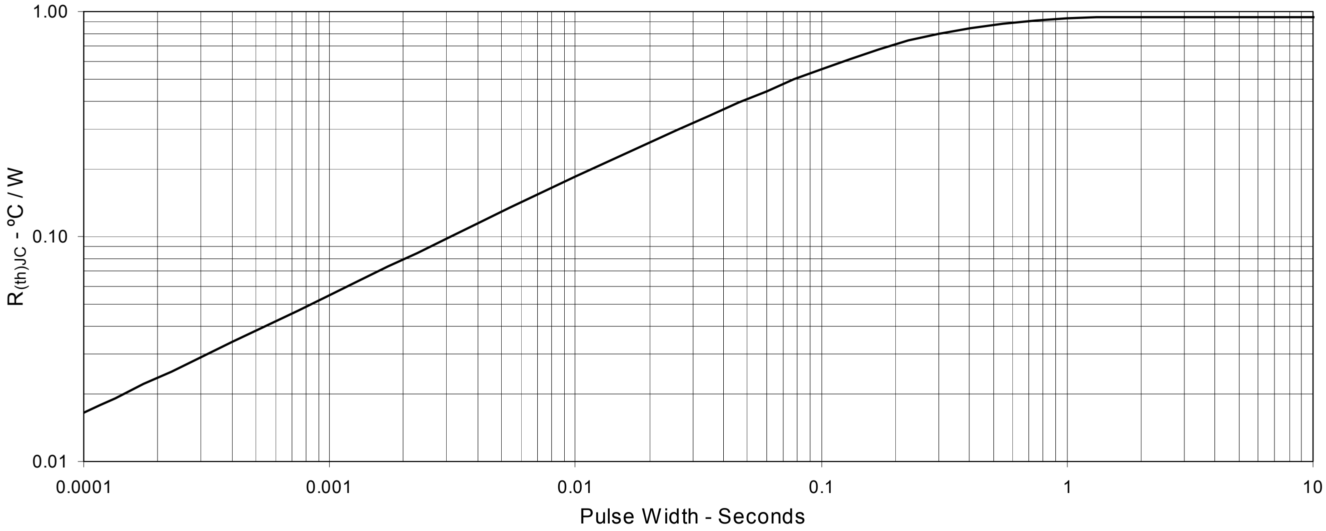


Fig. 13. Maximum Transient Thermal Resistance



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