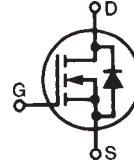


# PolarHV™ HiPerFET Power MOSFETs

**IXFH 22N60P**  
**IXFV 22N60P**  
**IXFV 22N60PS**

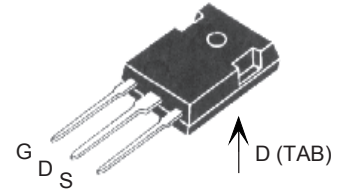
**V<sub>DSS</sub> = 600 V**  
**I<sub>D25</sub> = 22 A**  
**R<sub>DS(on)</sub> ≤ 350 mΩ**  
**t<sub>rr</sub> ≤ 200 ns**

N-Channel Enhancement Mode  
Fast Intrinsic Diode  
Avalanche Rated

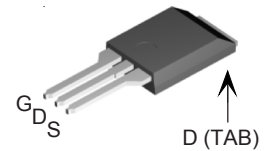


Symbol	Test Conditions	Maximum Ratings	
V <sub>DSS</sub>	T <sub>J</sub> = 25°C to 150°C	600	V
V <sub>DGR</sub>	T <sub>J</sub> = 25°C to 150°C; R <sub>GS</sub> = 1 MΩ	600	V
V <sub>GS</sub>	Continuous	±30	V
V <sub>GSM</sub>	Tranient	±40	V
I <sub>D25</sub>	T <sub>C</sub> = 25°C	22	A
I <sub>DM</sub>	T <sub>C</sub> = 25°C, pulse width limited by T <sub>JM</sub>	66	A
I <sub>AR</sub>	T <sub>C</sub> = 25°C	22	A
E <sub>AR</sub>	T <sub>C</sub> = 25°C	40	mJ
E <sub>AS</sub>	T <sub>C</sub> = 25°C	1.0	J
dv/dt	I <sub>S</sub> ≤ I <sub>DM</sub> , di/dt ≤ 100 A/μs, V <sub>DD</sub> ≤ V <sub>DSS</sub> T <sub>J</sub> ≤ 150°C, R <sub>G</sub> = 4 Ω	20	V/ns
P <sub>D</sub>	T <sub>C</sub> = 25°C	400	W
T <sub>J</sub>		-55 ... +150	°C
T <sub>JM</sub>		150	°C
T <sub>stg</sub>		-55 ... +150	°C
T <sub>L</sub>	1.6 mm (0.062 in.) from case for 10 s	300	°C
T <sub>SOLD</sub>	Plastic body for 10 s	260	°C
M <sub>d</sub>	Mounting torque (TO-247)	1.13/10	Nm/lb.in.
F <sub>C</sub>	Mounting Force (PLUS220)	11..65/2.5..15	Nm/lb.
Weight	TO-247	6	g
	PLUS220 & PLUS220SMD	4	g

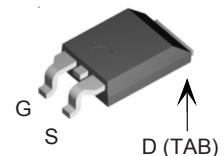
TO-247 (IXFH)



PLUS220 (IXFV)



PLUS220SMD (IXFV...S)



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

## Features

- † Fast intrinsic diode
- † Unclamped Inductive Switching (UIS) rated
- † International standard packages
- † Low package inductance
- easy to drive and to protect

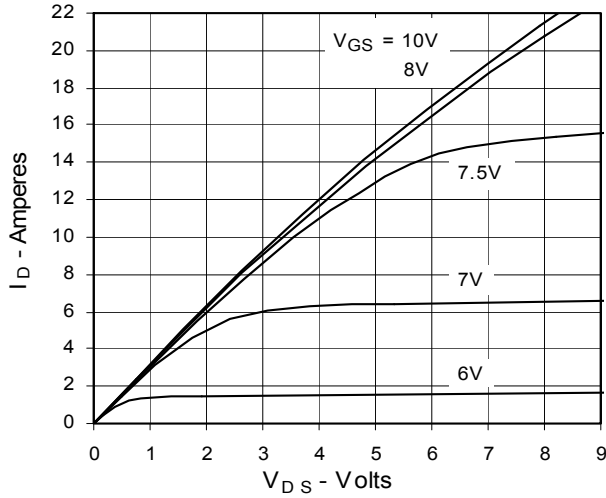
## Advantages

- † Easy to mount
- † Space savings
- † High power density

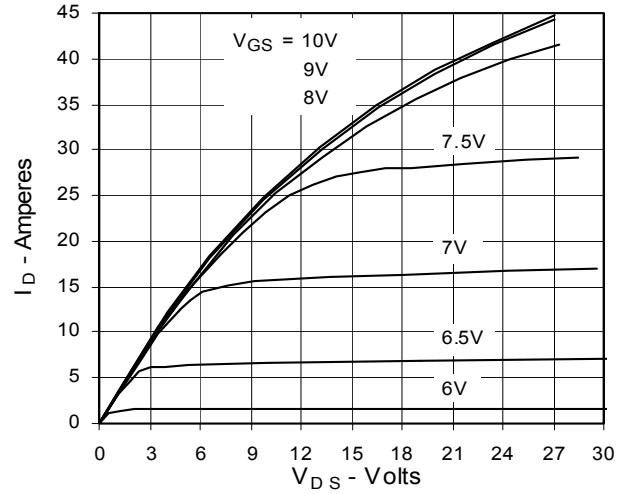
Symbol	Test Conditions (T <sub>J</sub> = 25°C, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV <sub>DSS</sub>	V <sub>GS</sub> = 0 V, I <sub>D</sub> = 250 μA	600		V
V <sub>GS(th)</sub>	V <sub>DS</sub> = V <sub>GS</sub> , I <sub>D</sub> = 4 mA	3.0		5.5 V
I <sub>GSS</sub>	V <sub>GS</sub> = ±30 V <sub>DC</sub> , V <sub>DS</sub> = 0			±100 nA
I <sub>DSS</sub>	V <sub>DS</sub> = V <sub>DSS</sub> V <sub>GS</sub> = 0 V T <sub>J</sub> = 125°C			25 μA 250 μA
R <sub>DS(on)</sub>	V <sub>GS</sub> = 10 V, I <sub>D</sub> = 0.5 I <sub>D25</sub> Pulse test, t ≤ 300 μs, duty cycle d ≤ 2 %			350 mΩ



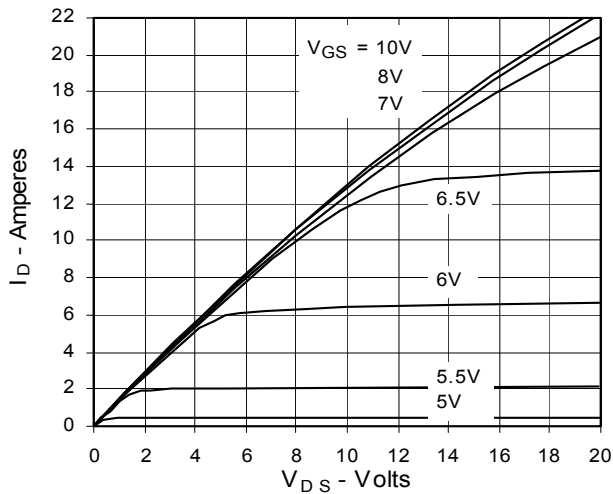
**Fig. 1. Output Characteristics  
@ 25°C**



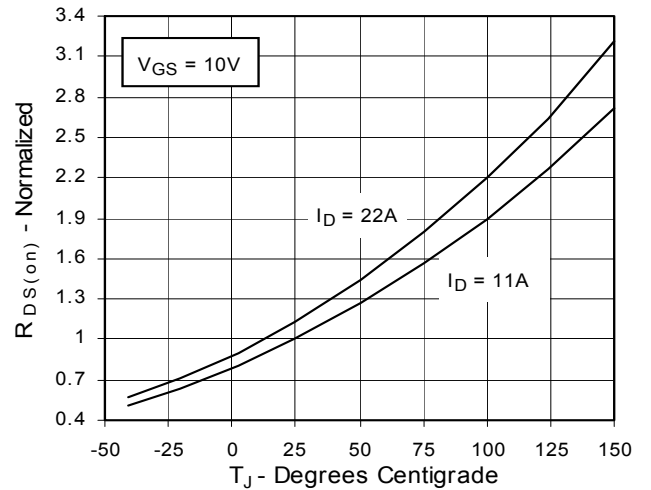
**Fig. 2. Extended Output Characteristics  
@ 25°C**



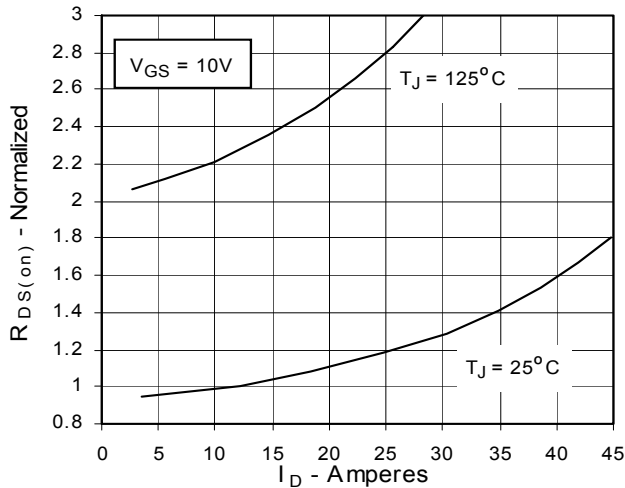
**Fig. 3. Output Characteristics  
@ 125°C**



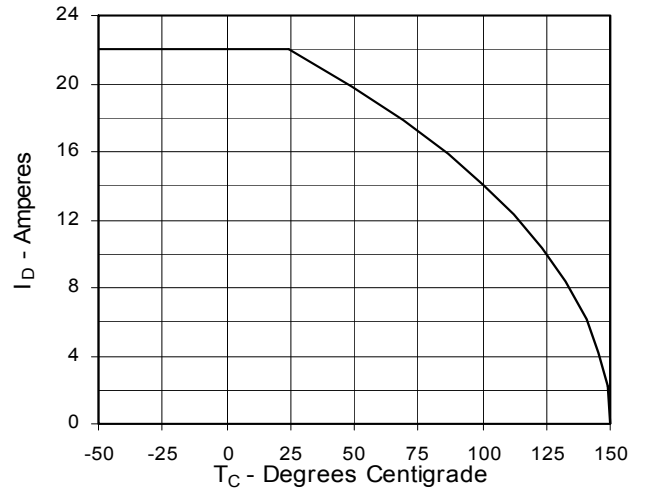
**Fig. 4.  $R_{DS(on)}$  Normalized to  $I_D = 11\text{A}$   
Value vs. Junction Temperature**



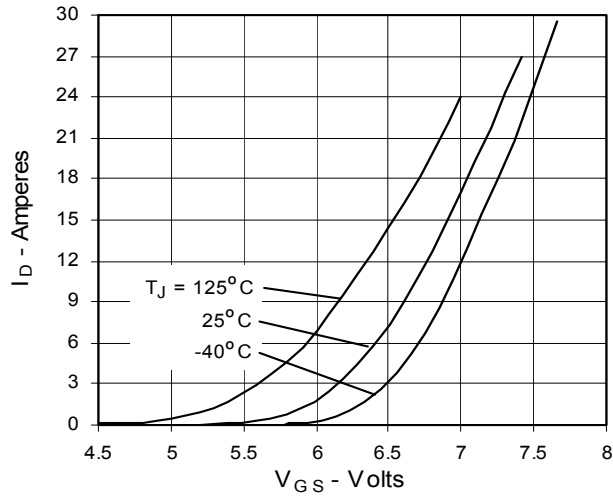
**Fig. 5.  $R_{DS(on)}$  Normalized to  
 $I_D = 11\text{A}$  Value vs. Drain Current**



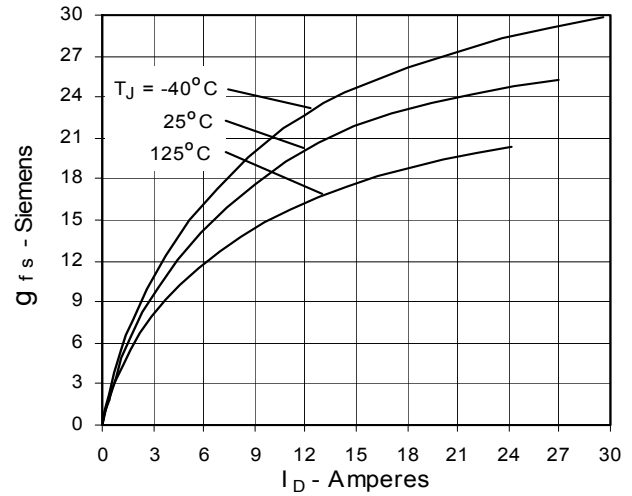
**Fig. 6. Drain Current vs. Case  
Temperature**



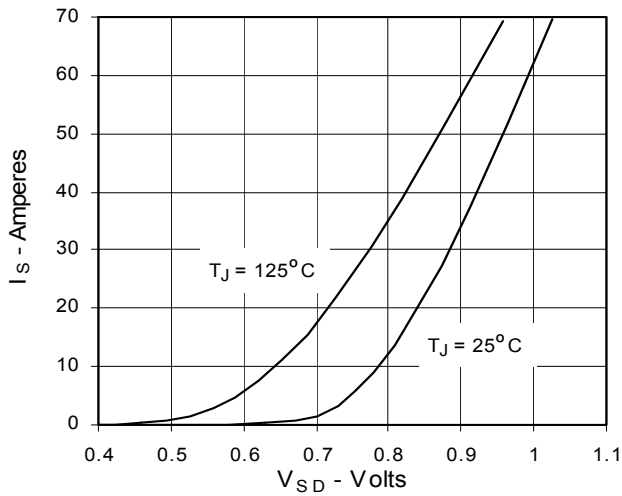
**Fig. 7. Input Admittance**



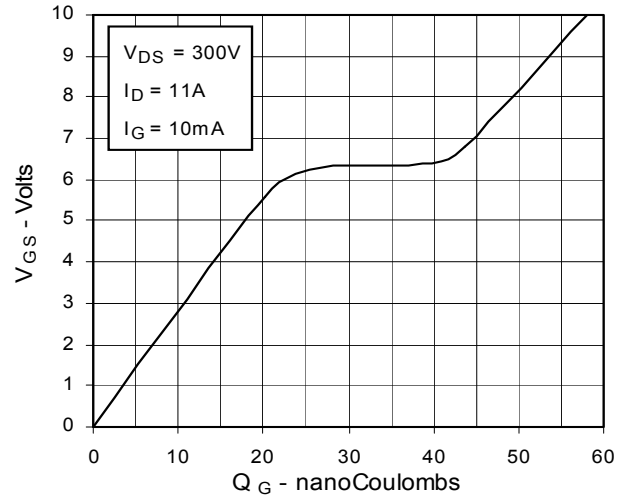
**Fig. 8. Transconductance**



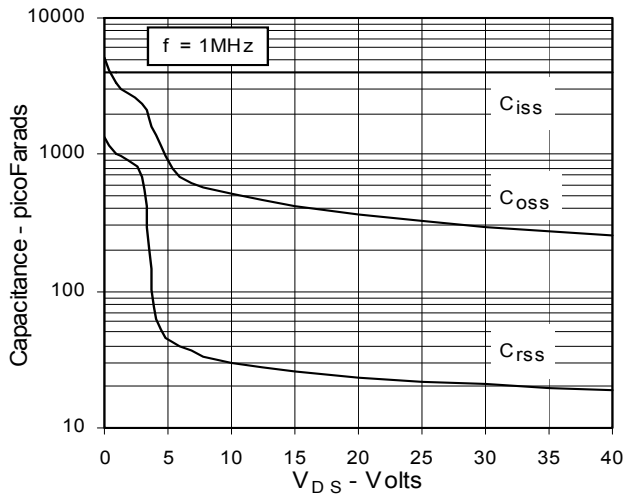
**Fig. 9. Source Current vs. Source-To-Drain Voltage**



**Fig. 10. Gate Charge**



**Fig. 11. Capacitance**



**Fig. 12. Forward-Bias Safe Operating Area**

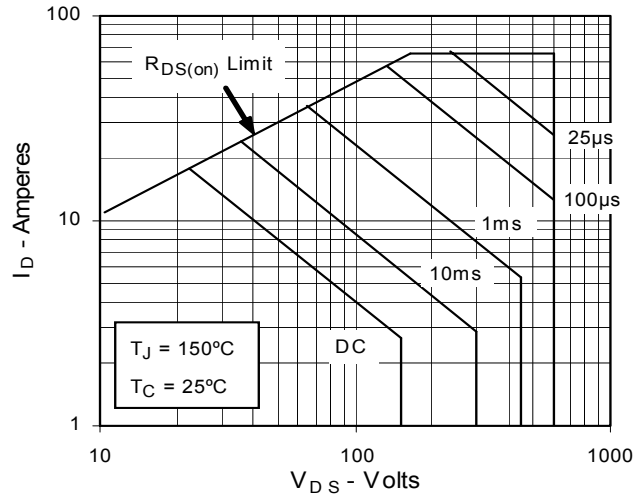


Fig. 13. Maximum Transient Thermal Resistance

