



**THE DATASHEET OF  
IXFH96N20P**

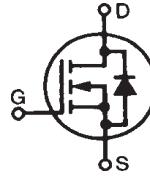


# PolarHT™ HiPerFET Power MOSFET

IXFH 96N20P  
IXFT 96N20P  
IXFV 96N20P

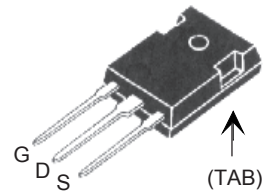
$V_{DSS} = 200 \text{ V}$   
 $I_{D25} = 96 \text{ A}$   
 $R_{DS(on)} \leq 24 \text{ m}\Omega$   
 $t_{rr} \leq 200 \text{ ns}$

N-Channel Enhancement Mode  
Avalanche Rated  
Fast Intrinsic Diode

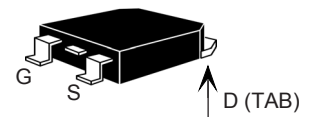


Symbol	Test Conditions	Maximum Ratings	
		Value	Unit
$V_{DSS}$	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	200	V
$V_{DGR}$	$T_J = 25^\circ\text{C to } 150^\circ\text{C}; R_{GS} = 1 \text{ M}\Omega$	200	V
$V_{GS}$	Continuous	$\pm 20$	V
$V_{GSM}$	Transient	$\pm 30$	V
$I_{D25}$	$T_C = 25^\circ\text{C}$	96	A
$I_{D(RMS)}$	External lead current limit	75	A
$I_{DM}$	$T_C = 25^\circ\text{C}$ , pulse width limited by $T_{JM}$	225	A
$I_{AR}$	$T_C = 25^\circ\text{C}$	60	A
$E_{AR}$	$T_C = 25^\circ\text{C}$	50	mJ
$E_{AS}$	$T_C = 25^\circ\text{C}$	1.5	J
$dv/dt$	$I_S \leq I_{DM}$ , $di/dt \leq 100 \text{ A}/\mu\text{s}$ , $V_{DD} \leq V_{DSS}$ , $T_J \leq 150^\circ\text{C}$ , $R_G = 4 \Omega$	10	V/ns
$P_D$	$T_C = 25^\circ\text{C}$	600	W
$T_J$		-55 ... +175	$^\circ\text{C}$
$T_{JM}$		175	$^\circ\text{C}$
$T_{stg}$		-55 ... +150	$^\circ\text{C}$
$T_L$	1.6 mm (0.062 in.) from case for 10 s	300	$^\circ\text{C}$
$T_{SOLD}$	Plastic body for 10s	260	$^\circ\text{C}$
$M_d$	Mounting torque (TO-247)	1.13/10	Nm/lb.in.
Weight	TO-220	4	g
	TO-247	6	g
	TO-268	5	g

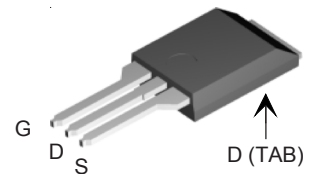
TO-247 (IXFH)



TO-268 (IXFT)



PLUS220 (IXFV)



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

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
$BV_{DSS}$	$V_{GS} = 0 \text{ V}$ , $I_D = 250 \mu\text{A}$	200		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 4 \text{ mA}$	2.5		5.0 V
$I_{GSS}$	$V_{GS} = \pm 20 \text{ V}_{DC}$ , $V_{DS} = 0$			$\pm 100 \text{ nA}$
$I_{DSS}$	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$ $T_J = 150^\circ\text{C}$			25 $\mu\text{A}$
				250 $\mu\text{A}$
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$ , $I_D = 0.5 I_{D25}$ Pulse test, $t \leq 300 \mu\text{s}$ , duty cycle $d \leq 2\%$			24 $\text{m}\Omega$

## Features

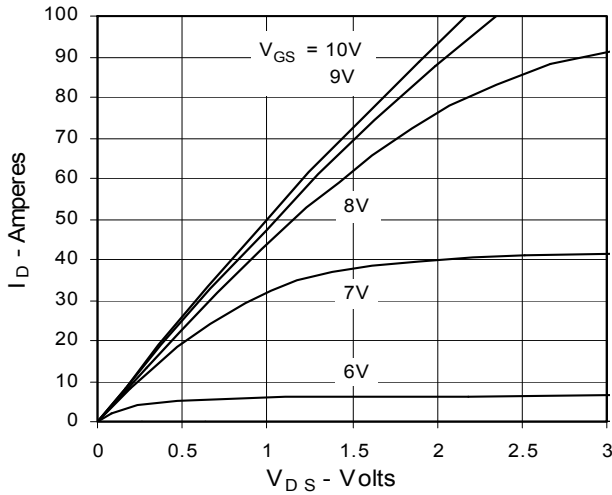
- † Fast Intrinsic Diode
- † International standard packages
- † Unclamped Inductive Switching (UIS) rated
- † Low package inductance
- easy to drive and to protect

## Advantages

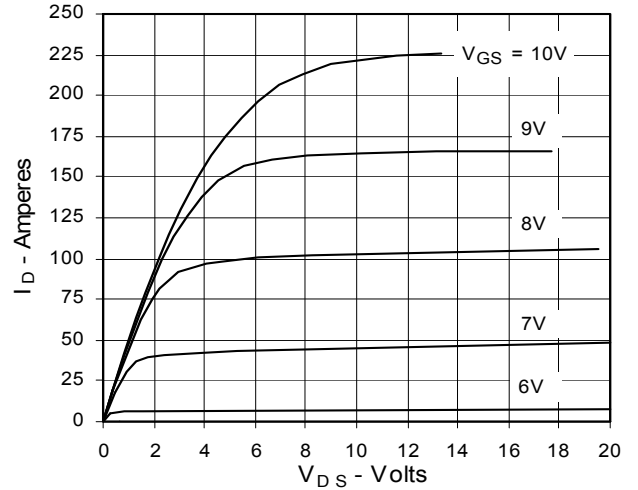
- † Easy to mount
- † Space savings
- † High power density



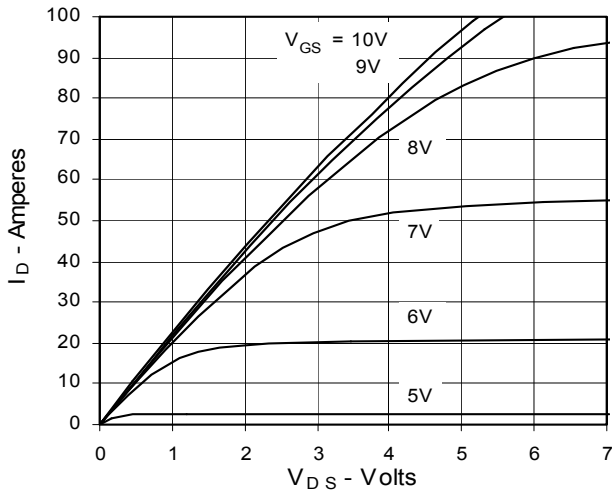
**Fig. 1. Output Characteristics @ 25°C**



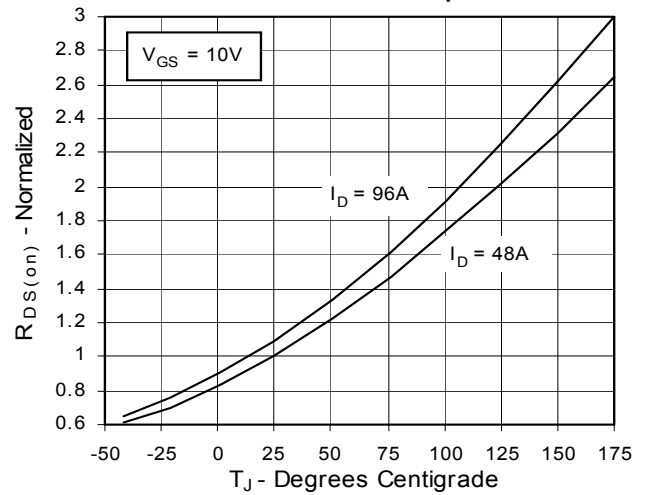
**Fig. 2. Extended Output Characteristics @ 25°C**



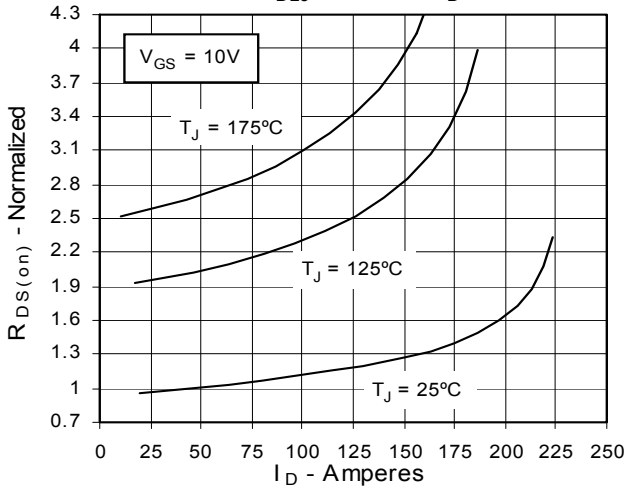
**Fig. 3. Output Characteristics @ 150°C**



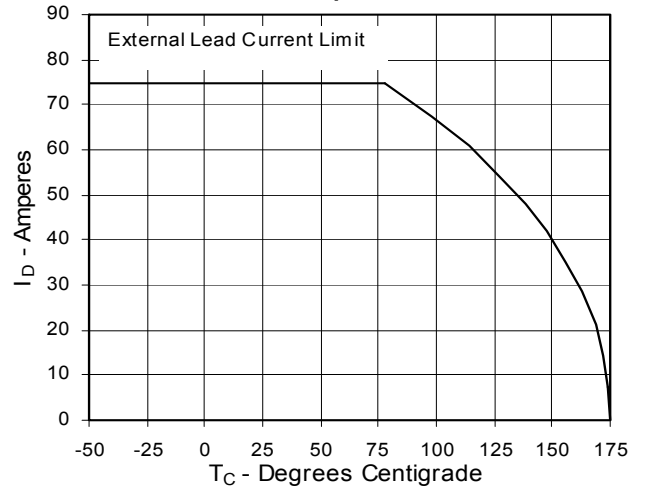
**Fig. 4. R\_DS(on) Normalized to 0.5 I\_D25 Value vs. Junction Temperature**



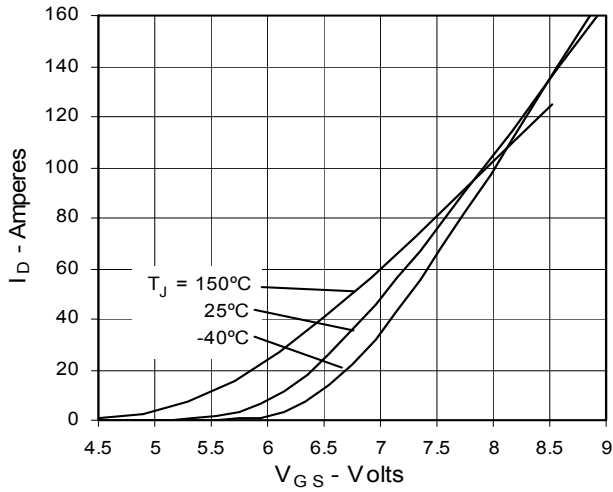
**Fig. 5. R\_DS(on) Normalized to 0.5 I\_D25 Value vs. I\_D**



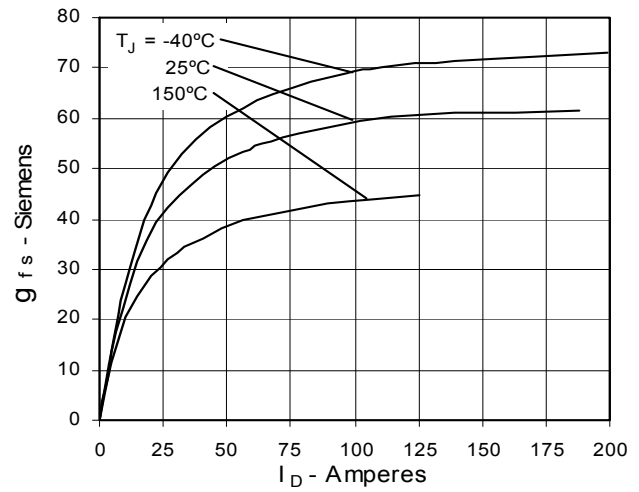
**Fig. 6. Drain Current vs. Case Temperature**



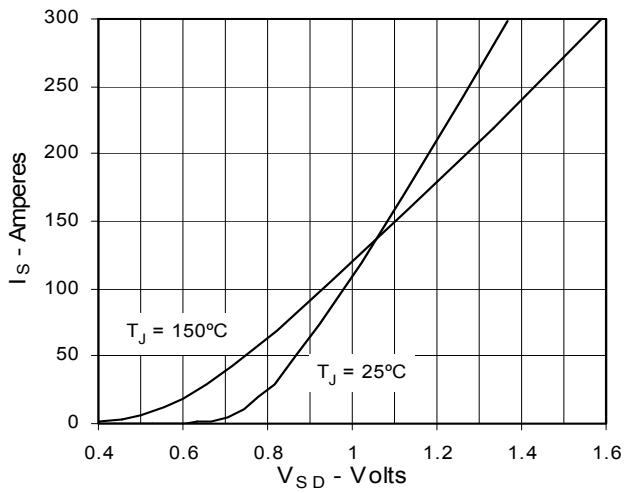
**Fig. 7. Input Admittance**



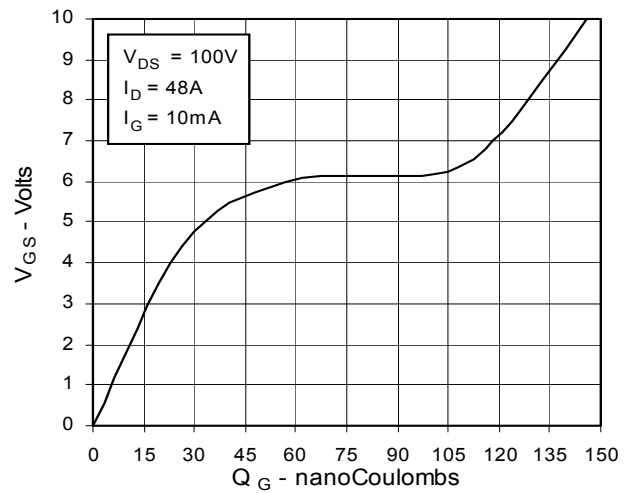
**Fig. 8. Transconductance**



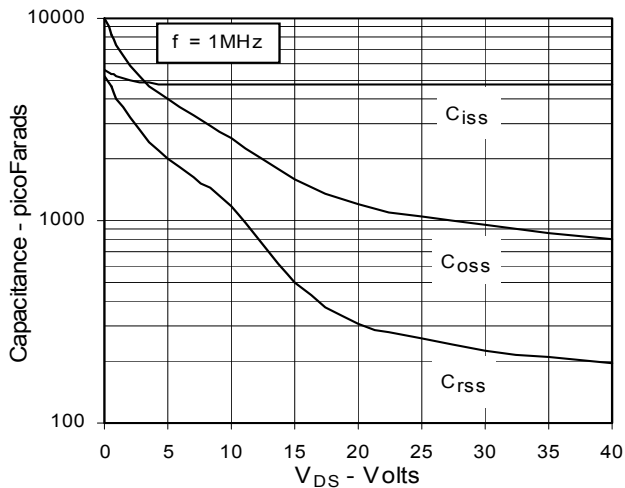
**Fig. 9. Source Current vs. Source-To-Drain Voltage**



**Fig. 10. Gate Charge**



**Fig. 11. Capacitance**



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

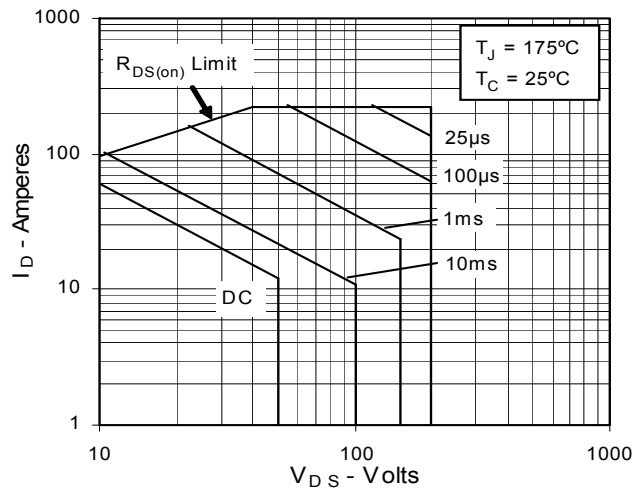
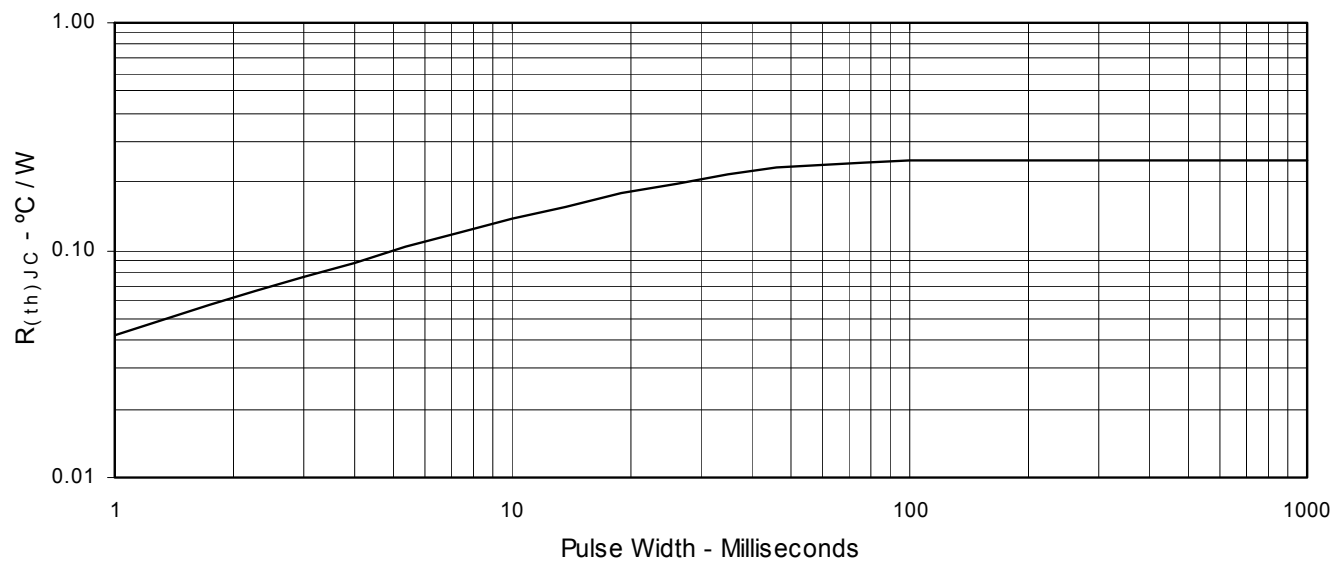


Fig. 13. Maximum Transient Thermal Resistance





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