



PolarHT™ HiPerFET Power MOSFET

IXFH 74N20P
IXFV 74N20P
IXFV 74N20PS

$V_{DSS} = 200 \text{ V}$
 $I_{D25} = 74 \text{ A}$
 $R_{DS(on)} = 34 \text{ m}\Omega$
 $t_{rr} \leq 200 \text{ ns}$

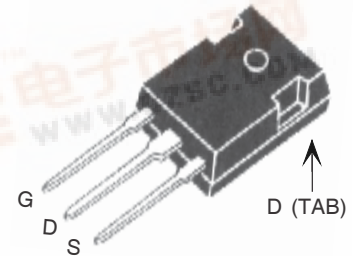
N-Channel Enhancement Mode
Fast Recovery Diode, Avalanche
Rated

Preliminary Data Sheet

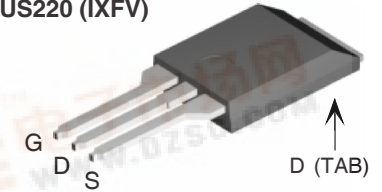


Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C to } 175^\circ\text{C}$	200	V
V_{DGR}	$T_J = 25^\circ\text{C to } 175^\circ\text{C}; R_{GS} = 1 \text{ M}\Omega$	200	V
V_{GS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	74	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	200	A
I_{AR}	$T_C = 25^\circ\text{C}$	60	A
E_{AR}	$T_C = 25^\circ\text{C}$	40	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	1.0	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	$T_C = 25^\circ\text{C}$	480	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 Plastic body for 10 s	300 250	$^\circ\text{C}$ $^\circ\text{C}$
F_C	Mounting Force (PLUS220)	1.13/10	Nm/lb.in.
M_d	Mounting torque (TO-247)	1.13/10	Nm/lb.in.
Weight	TO-247	6.0	g
	PLUS220	4.0	g

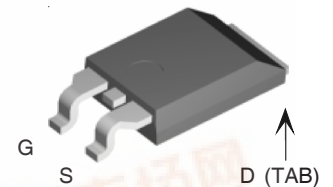
TO-247 (IXFH)



PLUS220 (IXFV)



PLUS220SMD (IXFV-PS)



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

Features

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

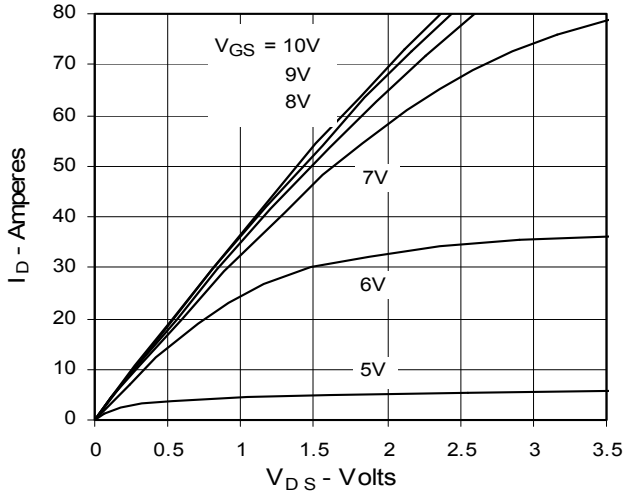
Advantages

- Easy to mount
- Space savings
- High power density

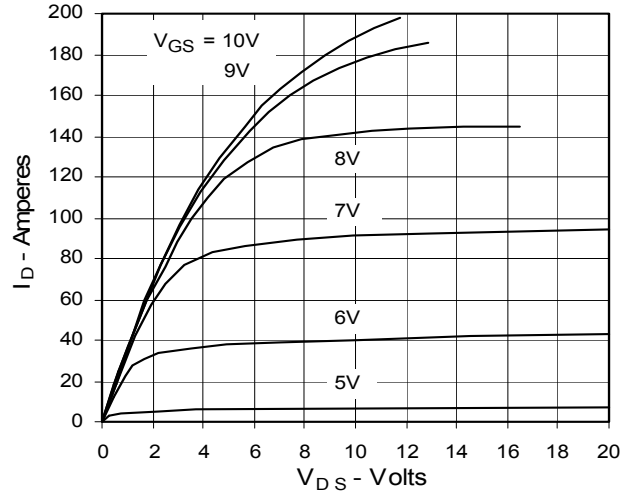
Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
V_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 250 \mu\text{A}$	200		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250 \mu\text{A}$	2.5		5.0 V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}_{DC}$, $V_{DS} = 0$			$\pm 100 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$			25 μA
	$V_{GS} = 0 \text{ V}$ $T_J = 125^\circ\text{C}$			250 μA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 0.5 I_{D25}$ Pulse test, $t \leq 300 \mu\text{s}$, duty cycle $d \leq 2\%$			34 $\text{m}\Omega$



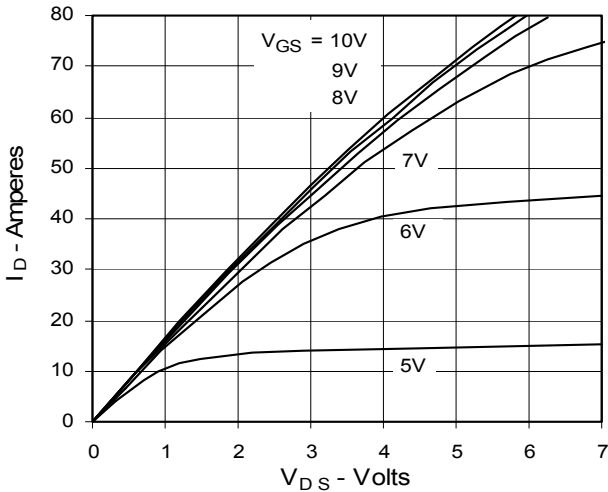
**Fig. 1. Output Characteristics
@ 25°C**



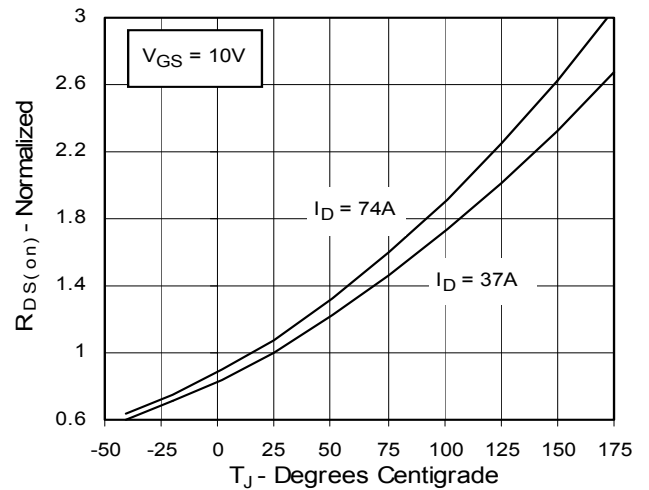
**Fig. 2. Extended Output Characteristics
@ 25°C**



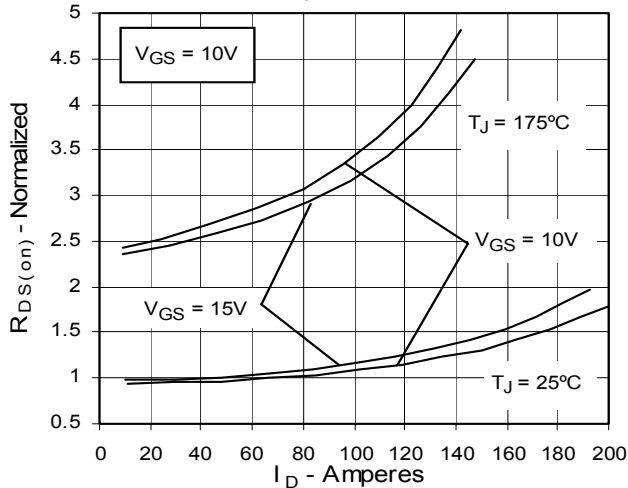
**Fig. 3. Output Characteristics
@ 150°C**



**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**

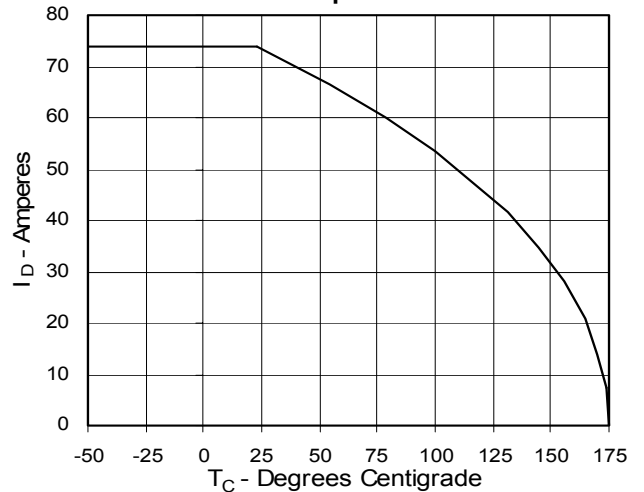


Fig. 7. Input Admittance

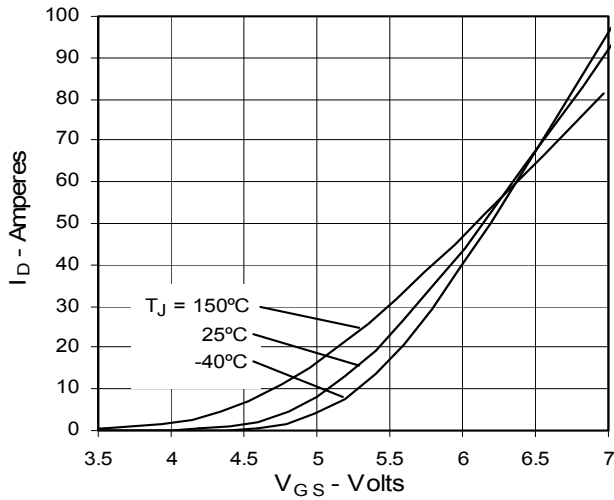


Fig. 8. Transconductance

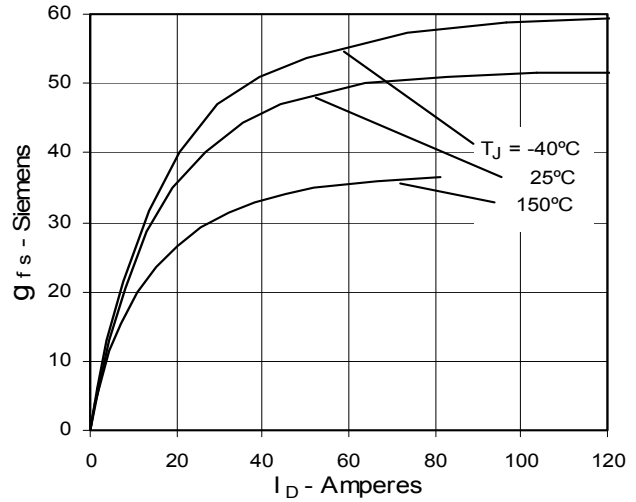


Fig. 9. Source Current vs. Source-To-Drain Voltage

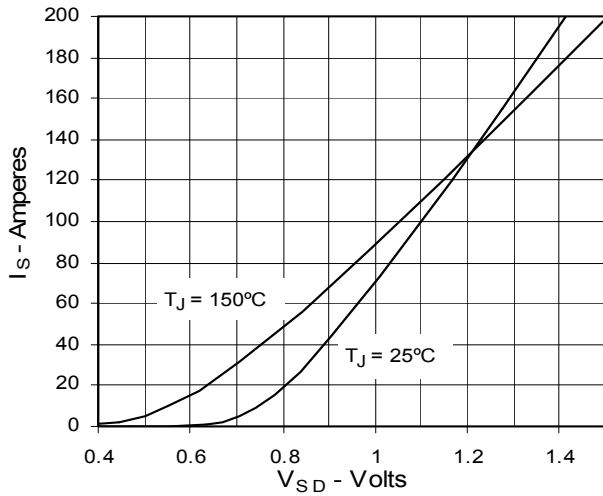


Fig. 10. Gate Charge

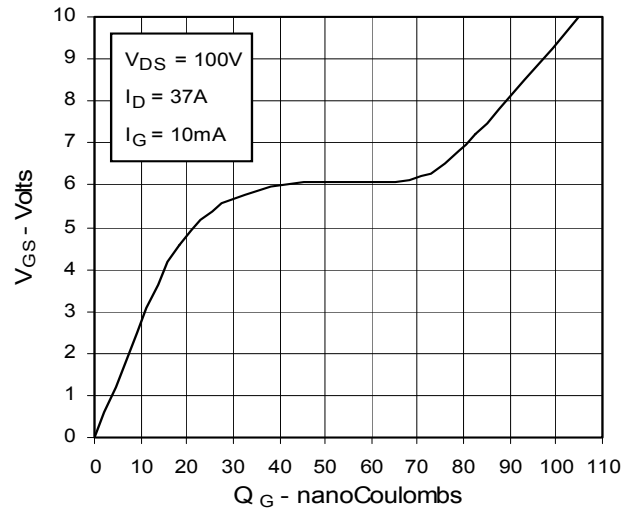


Fig. 11. Capacitance

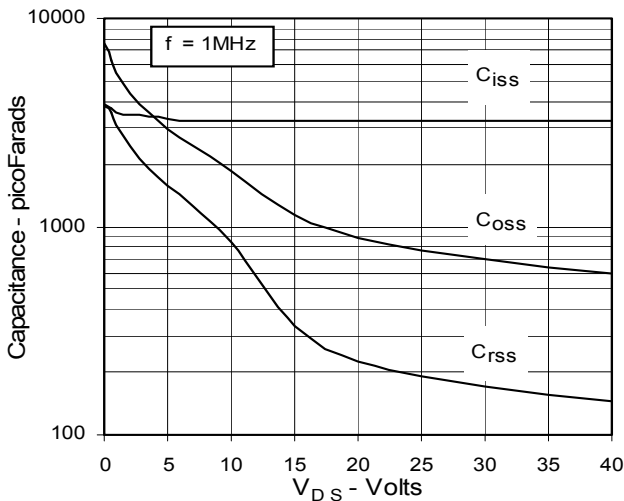


Fig. 12. Forward-Bias Safe Operating Area

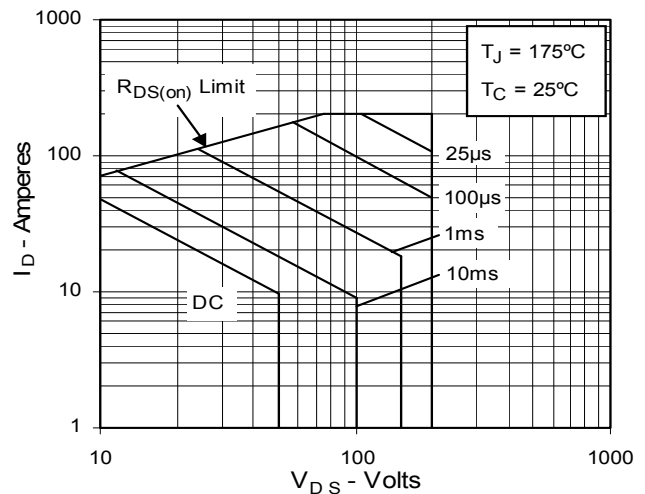


Fig. 13. Maximum Transient Thermal Resistance

