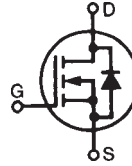


PolarVHV™ HiPerFET IXFB30N120P

Power MOSFET

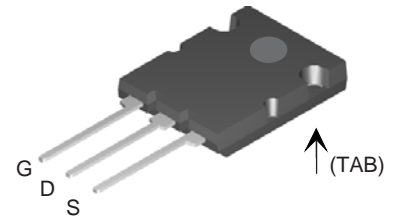
N-Channel Enhancement Mode

$$\begin{aligned}
 V_{DSS} &= 1200 \text{ V} \\
 I_{D25} &= 30 \text{ A} \\
 R_{DS(on)} &\leq 350 \text{ m}\Omega \\
 t_{rr} &\leq 300 \text{ ns}
 \end{aligned}$$



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C to } 150^\circ\text{C}$	1200	V
V_{GSS}	Continuous	± 30	V
V_{GSM}	Transient	± 40	V
I_{D25}	$T_C = 25^\circ\text{C}$	30	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	75	A
I_{AR}	$T_C = 25^\circ\text{C}$	10	A
E_{AR}	$T_C = 25^\circ\text{C}$	60	mJ
E_{AS}	$T_C = 25^\circ\text{C}$	3	J
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$, $R_G = 1 \Omega$	15	V/ns
P_D	$T_C = 25^\circ\text{C}$	1250	W
T_J		-55 ... +150	$^\circ\text{C}$
T_{JM}		150	$^\circ\text{C}$
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 10 s	260	$^\circ\text{C}$
F_C	Mounting force	30..120/7.5...2.7	N/lb
Weight		10	g

PLUS264™ (IXFB)



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

Features

- Fast recovery diode
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
 - easy to drive and to protect

Advantages

- Plus 264™ package for clip or spring mounting
- Space savings
- High power density

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 3 \text{ mA}$	1200		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 1 \text{ mA}$	3.5		6.5 V
I_{GSS}	$V_{GS} = \pm 30 \text{ V}$, $V_{DS} = 0 \text{ V}$			$\pm 200 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$ $T_J = 125^\circ\text{C}$			25 μA 3000 μA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 0.5 I_{D25}$, Note 1			350 $\text{m}\Omega$

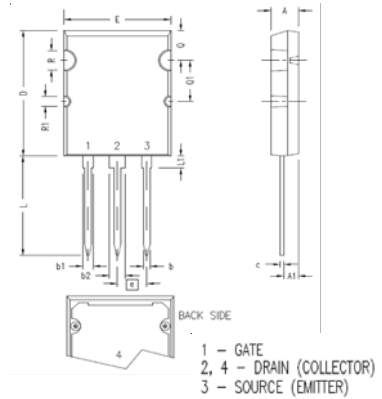
Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 20\text{ V}; I_D = 0.5 I_{D25}$, Note 1	13	23	S
C_{iss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		22.5	nF
C_{oss}			955	pF
C_{rss}			28	pF
$t_{d(on)}$	Resistive switching time $V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$ $R_G = 1\ \Omega$ (External)		57	ns
t_r			60	ns
$t_{d(off)}$			97	ns
t_f			46	ns
$Q_{g(on)}$	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 0.5 I_{D25}$		310	nC
Q_{gs}			105	nC
Q_{gd}			137	nC
R_{thJC}			0.10	$^\circ\text{C/W}$
R_{thCS}		0.13		$^\circ\text{C/W}$

Source-Drain Diode

Symbol	Test Conditions	Characteristic Values ($T_J = 25^\circ\text{C}$, unless otherwise specified)		
		Min.	Typ.	Max.
I_S	$V_{GS} = 0\text{ V}$			30 A
I_{SM}	Repetitive			120 A
V_{SD}	$I_F = I_S, V_{GS} = 0\text{ V}$, Note 1			1.5 V
t_{rr}	$I_F = 25\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}$ $V_R = 100\text{ V}$			300 ns
Q_{RM}			0.9	μC
I_{RM}			8.0	A

Notes:

1. Pulse test, $t \leq 300\ \mu\text{s}$, duty cycle $d \leq 2\%$

PLUS264™ (IXFB) Outline


SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.185	.209	4.70	5.31
A1	.102	.118	2.59	3.00
b	.037	.055	0.94	1.40
b1	.087	.102	2.21	2.59
b2	.110	.126	2.79	3.20
c	.017	.029	0.43	0.74
D	1.007	1.047	25.58	26.59
E	.760	.799	19.30	20.29
e	.215 BSC		5.46 BSC	
L	.779	.842	19.79	21.39
L1	.087	.102	2.21	2.59
Q	.240	.256	6.10	6.50
Q1	.330	.346	8.38	8.79
ØR	.155	.187	3.94	4.75
ØR1	.085	.093	2.16	2.36

PRELIMINARY TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from data gathered during objective characterizations of preliminary engineering lots; but also may yet contain some information supplied during a pre-production design evaluation. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

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

IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents:

4,835,592	4,931,844	5,049,961	5,237,481	6,162,665	6,404,065 B1	6,683,344	6,727,585	7,005,734 B2	7,157,338 B2
4,850,072	5,017,508	5,063,307	5,381,025	6,259,123 B1	6,534,343	6,710,405 B2	6,759,692	7,063,975 B2	
4,881,106	5,034,796	5,187,117	5,486,715	6,306,728 B1	6,583,505	6,710,463	6,771,478 B2	7,071,537	

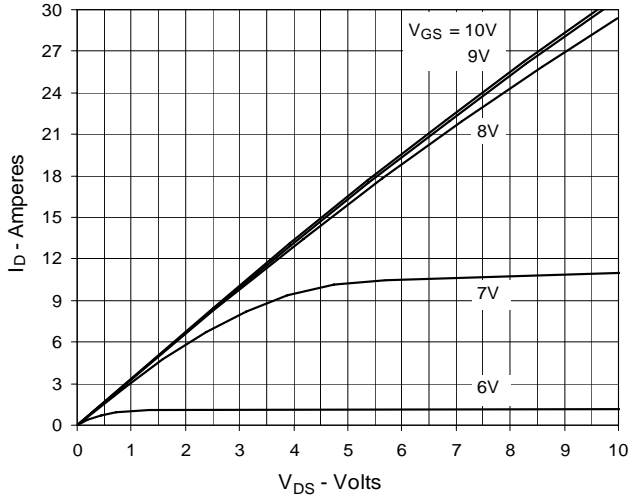
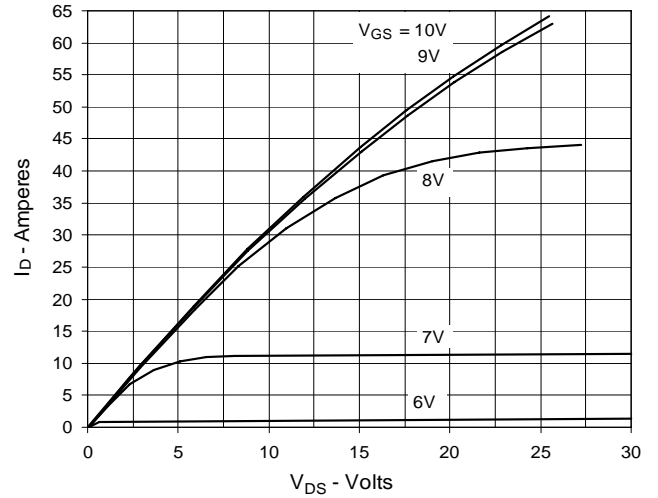
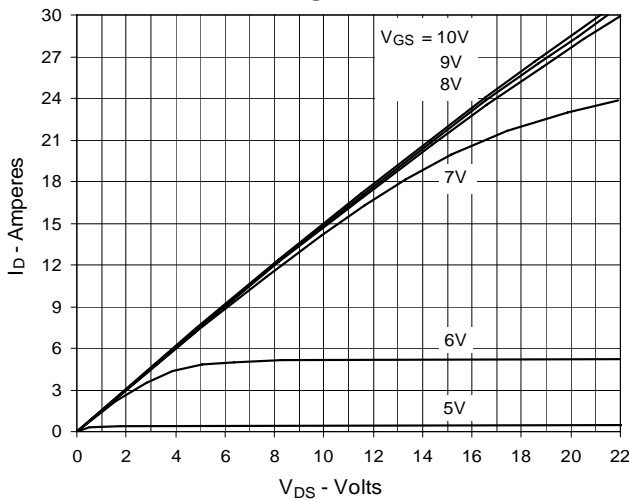
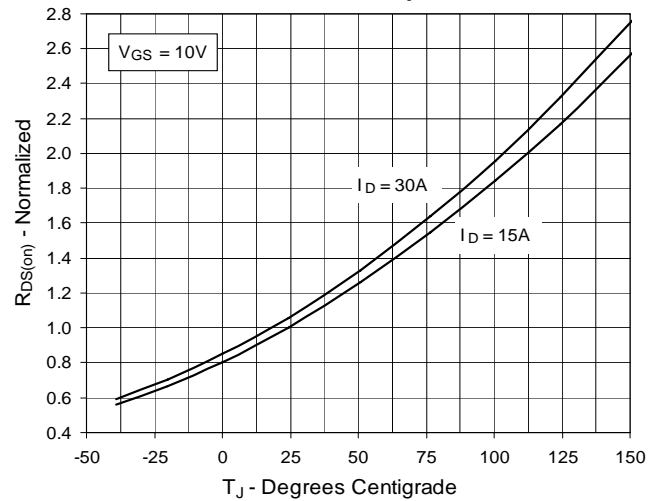
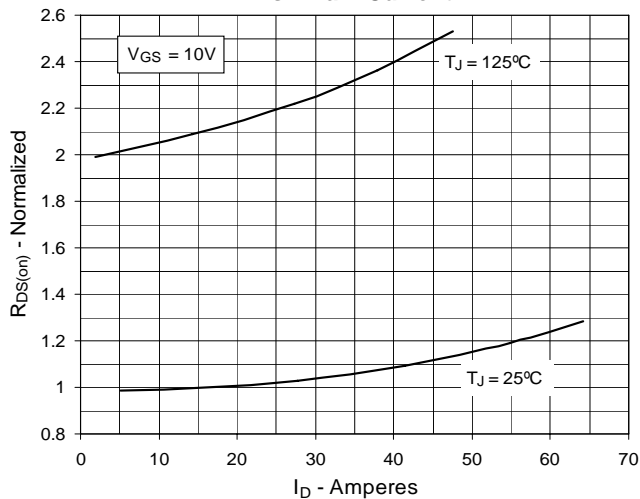
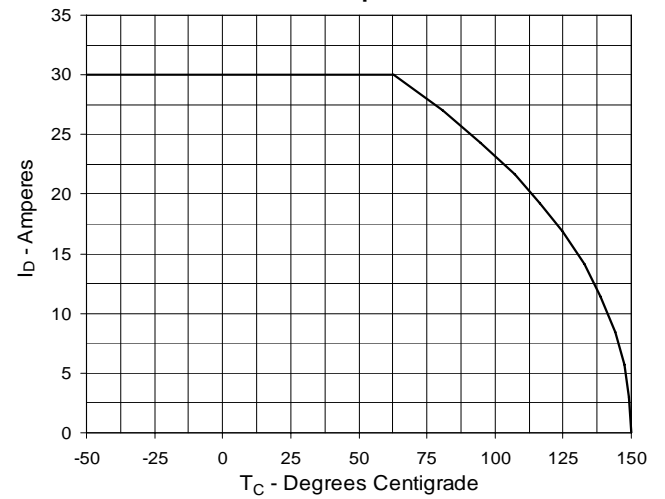
**Fig. 1. Output Characteristics
@ 25°C**

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

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

**Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 15A$ Value
vs. Junction Temperature**

**Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 15A$ Value
vs. Drain Current**

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


Fig. 7. Input Admittance

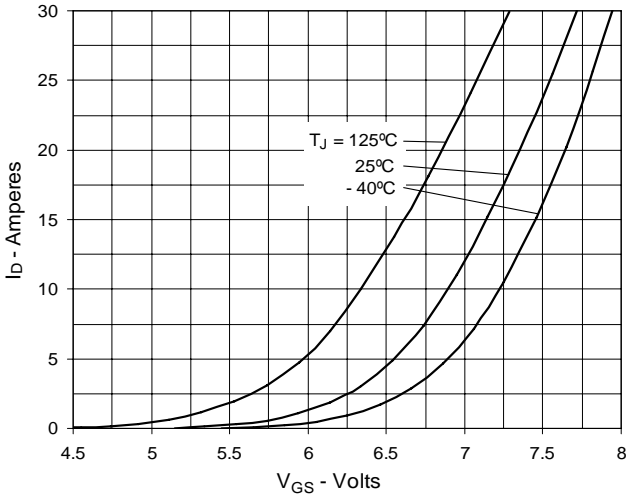


Fig. 8. Transconductance

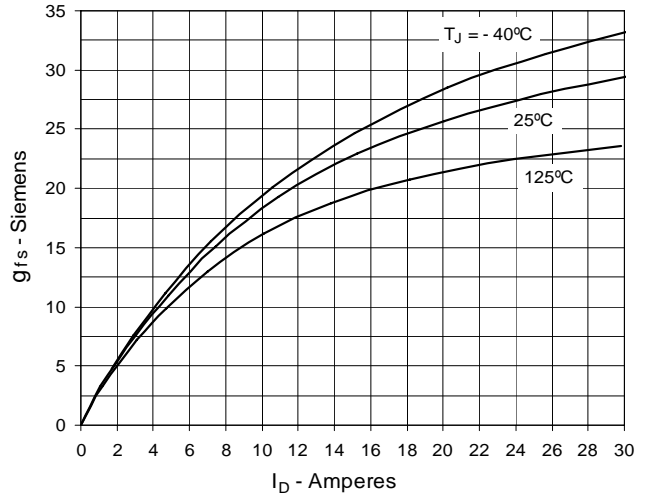


Fig. 9. Forward Voltage Drop of Intrinsic Diode

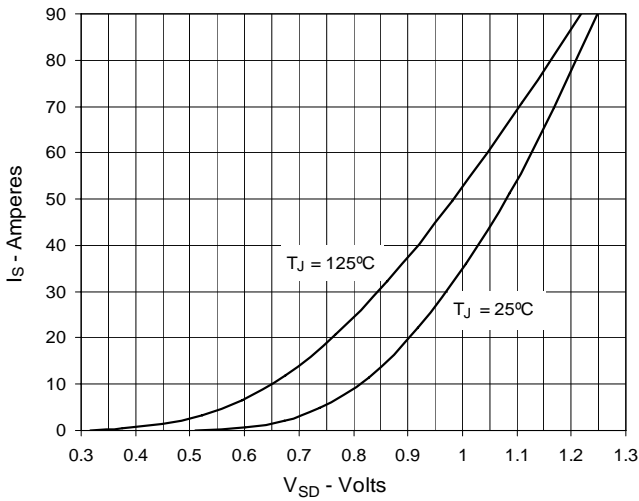


Fig. 10. Gate Charge

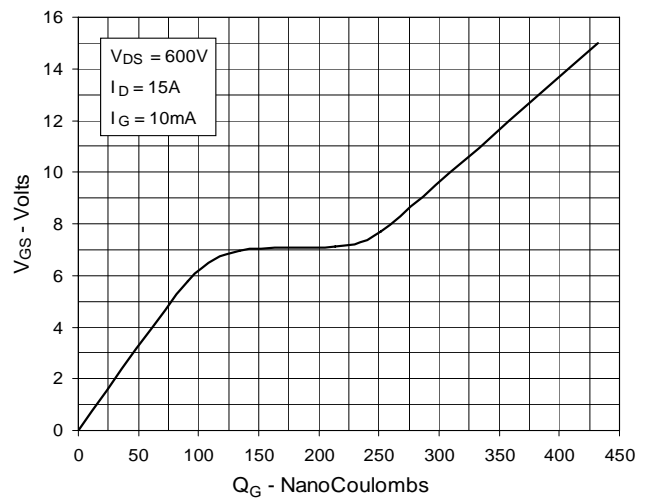


Fig. 11. Capacitance

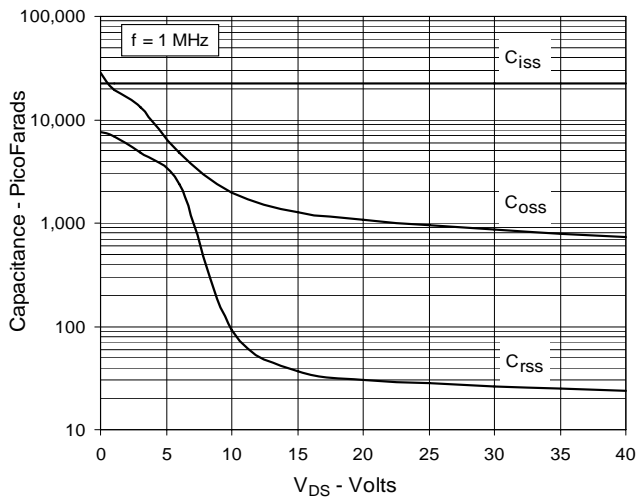


Fig. 12. Maximum Transient Thermal Impedance

