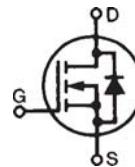


HiPerFET™ Power MOSFETs

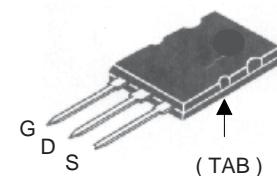
IXFB80N50Q2

N-Channel Enhancement Mode
Avalanche Rated, Low Q_g , Low Intrinsic R_G
High dV/dt , Low t_{rr}



V_{DSS} = 500V
 I_{D25} = 80A
 $R_{DS(on)}$ ≤ 60mΩ
 t_{rr} ≤ 250ns

PLUS264™(IXFB)



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

Features

- Double metal process for low gate resistance
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
 - easy to drive and to protect
- Fast intrinsic rectifier

Applications

- DC-DC converters
- Switched-mode and resonant-mode power supplies, >500kHz switching
- DC choppers
- Pulse generation
- Laser drivers

Advantages

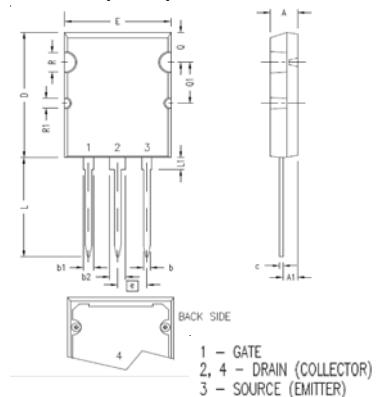
- PLUS 264™ package for clip or spring mounting
- Space savings
- High power density

Symbol	Test Conditions	Maximum Ratings		
V_{DSS}	$T_J = 25^\circ\text{C}$ to 150°C	500		V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 150°C , $R_{GS} = 1\text{M}\Omega$	500		V
V_{GSS}	Continuous	± 30		V
V_{GSM}	Transient	± 40		V
I_{D25}	$T_c = 25^\circ\text{C}$	80		A
I_{DRMS}	External lead limited	75		A
I_{DM}	$T_c = 25^\circ\text{C}$, pulse width limited by T_{JM}	320		A
I_{AR}	$T_c = 25^\circ\text{C}$	80		A
E_{AR}	$T_c = 25^\circ\text{C}$	60		mJ
E_{AS}	$T_c = 25^\circ\text{C}$	5.0		J
dV/dt	$I_s \leq I_{DM}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 150^\circ\text{C}$	20		V/ns
P_D	$T_c = 25^\circ\text{C}$	960		W
T_J		-55 ... +150		°C
T_{JM}		150		°C
T_{stg}		-55 ... +150		°C
T_L	1.6 mm (0.063 in.) from case for 10s	300		°C
T_{SOLD}	Plastic body for 10s	260		°C
F_c	Mounting force	30...120/6.7...27		N / lbs
Weight		10		g

Symbol	Test Conditions	Characteristic Values		
		($T_J = 25^\circ\text{C}$, unless otherwise specified)	Min.	Typ.
BV_{DSS}	$V_{GS} = 0\text{ V}$, $I_D = 1\text{mA}$	500		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 8\text{mA}$	3.0		V
I_{GSS}	$V_{GS} = \pm 30\text{ V}$, $V_{DS} = 0\text{V}$		± 200	nA
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0\text{V}$		100	μA
			5	mA
$T_J = 125^\circ\text{C}$				
$R_{DS(on)}$	$V_{GS} = 10\text{V}$, $I_D = 0.5 \cdot I_{D25}$, Note 1		60	mΩ

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 10\text{V}$, $I_D = 0.5 \cdot I_{D25}$, Note 1	50	65	S
C_{iss}			15	nF
C_{oss}			1610	pF
C_{rss}			300	pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{D25}$ $R_G = 1\Omega$ (External)	29		ns
t_r		25		ns
$t_{d(off)}$		60		ns
t_f		11		ns
$Q_{g(on)}$		250		nC
Q_{gs}		80		nC
Q_{gd}		120		nC
R_{thJC}			0.13	°C/W
R_{thCK}		0.13		°C/W

PLUS264™ (IXFB) Outline



Source-Drain Diode

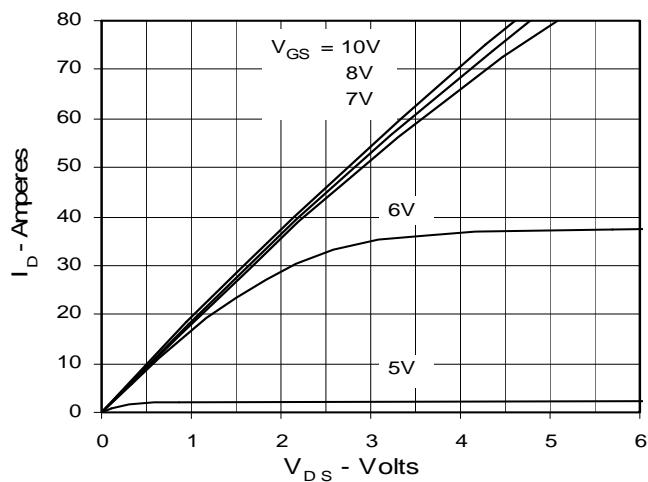
Characteristic Values

($T_J = 25^\circ\text{C}$, unless otherwise specified)

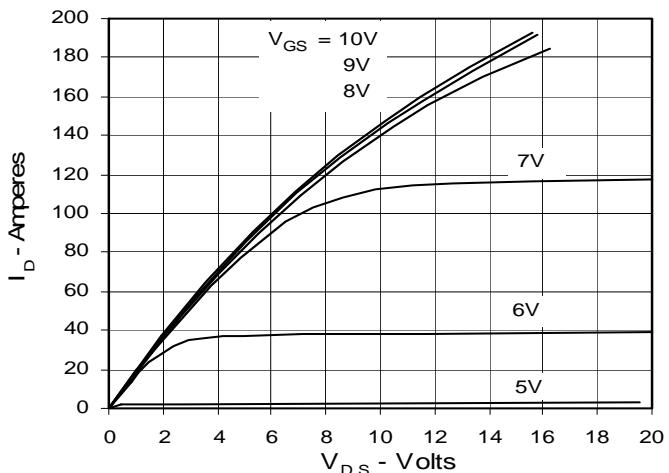
Symbol	Test Conditions	Min.	Typ.	Max.
I_s	$V_{GS} = 0\text{V}$		80	A
I_{SM}	Repetitive; pulse width limited by T_{JM}		320	A
V_{SD}	$I_F = I_S$, $V_{GS} = 0\text{V}$, Note 1		1.5	V
t_{rr}	$I_F = 25\text{A}$, $V_{GS} = 0\text{V}$ $-di/dt = 100 \text{ A}/\mu\text{s}$ $V_R = 100 \text{ V}$		250	ns
Q_{RM}		1.4		μC
I_{RM}		12		A

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

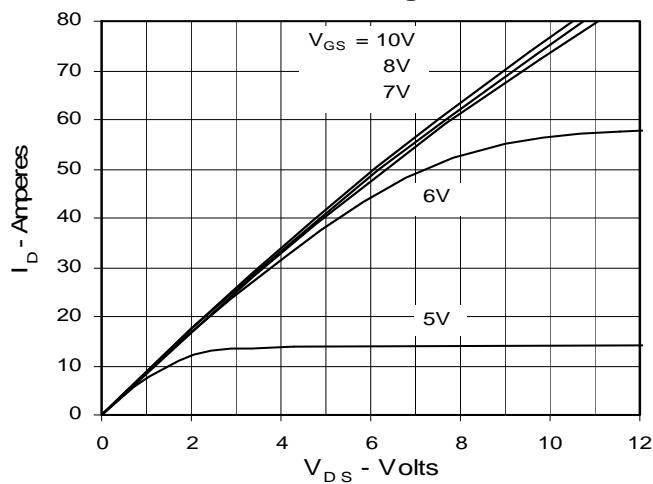
**Fig. 1. Output Characteristics
@ 25 Deg. C**



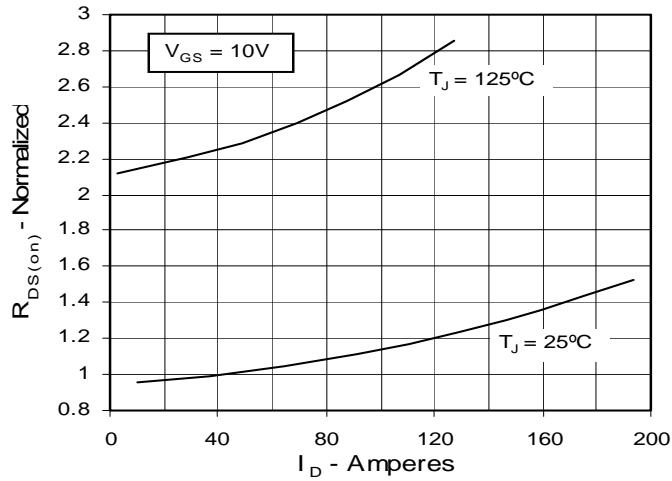
**Fig. 2. Extended Output Characteristics
@ 25 deg. C**



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



**Fig. 5. $R_{DS(on)}$ Normalized to
 $I_D = 40A$ Value vs. Drain Current**



**Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 40A$
Value vs. Junction Temperature**

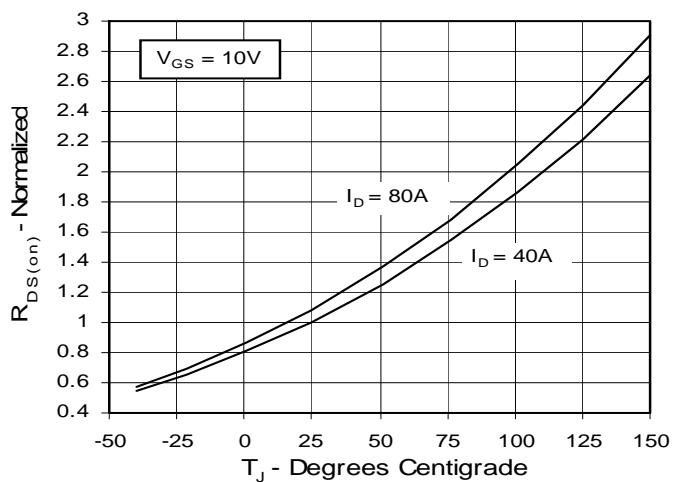


Fig. 6. Drain Current vs. Case Temperature

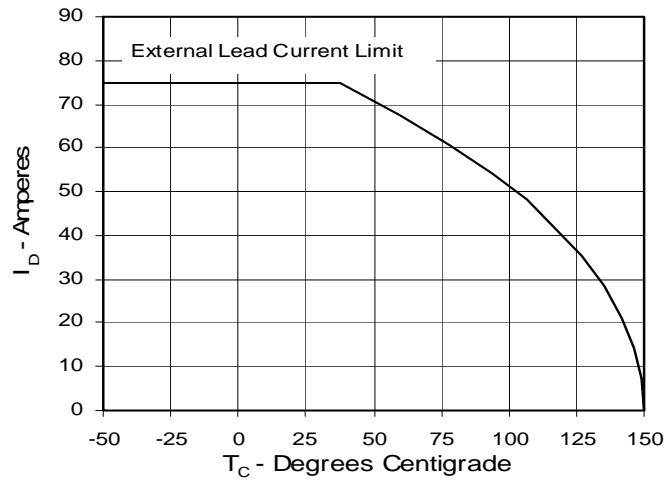
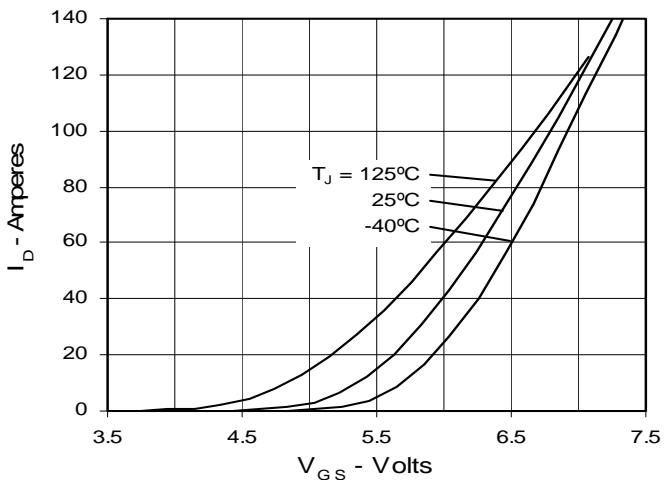
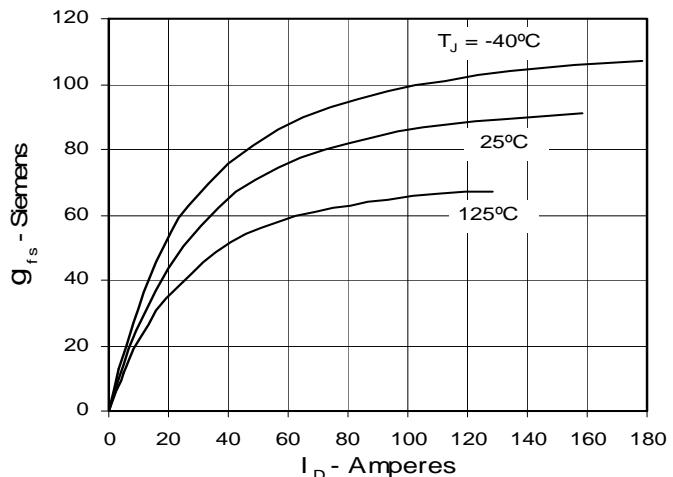
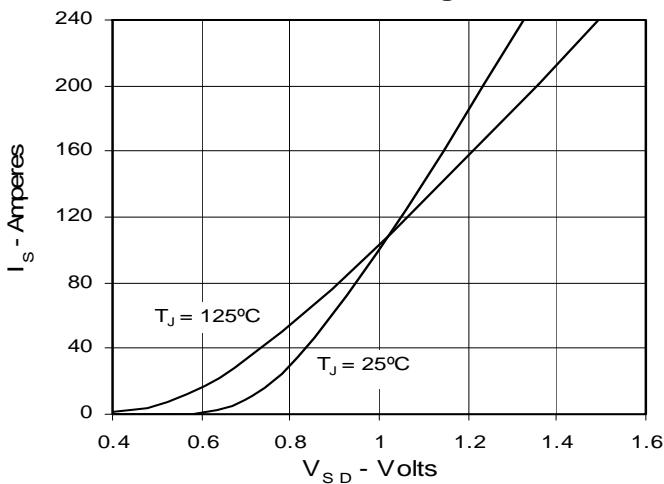
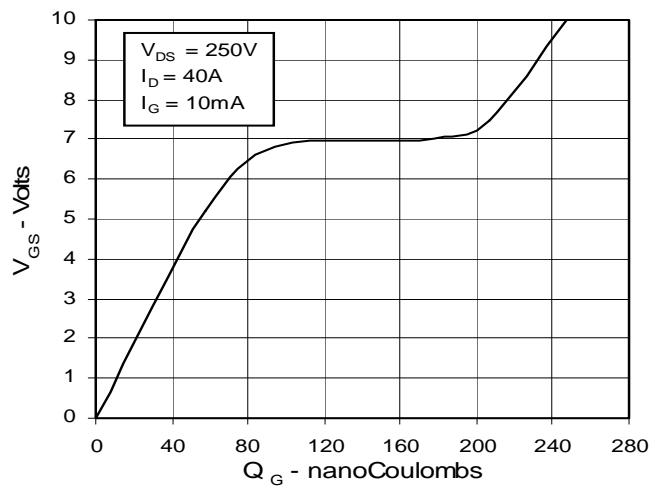
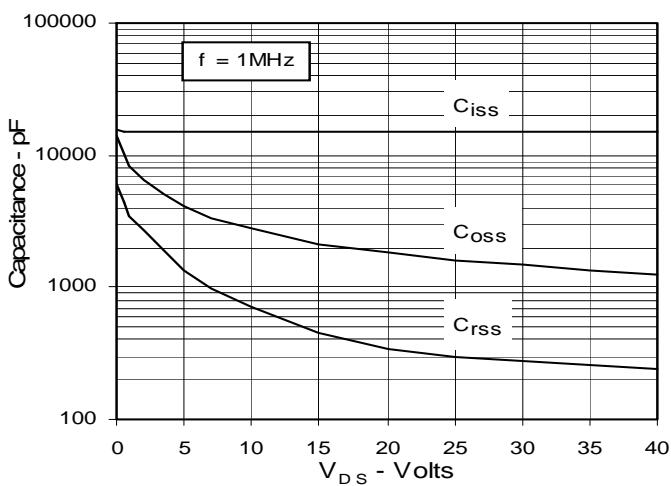
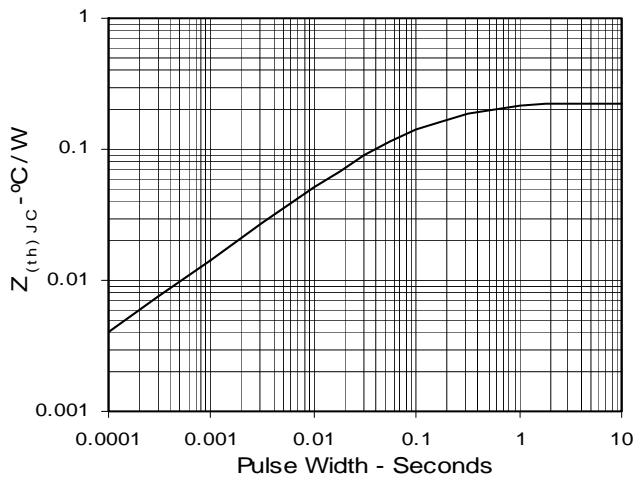


Fig. 7. Input Admittance**Fig. 8. Transconductance****Fig. 9. Source Current vs. Source-To-Drain Voltage****Fig. 10. Gate Charge****Fig. 11. Capacitance****Fig. 12. Maximum Transient Thermal Impedance**



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