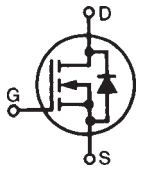
IXYS

Polar™ Power MOSFET HiPerFET™

IXFB44N100P

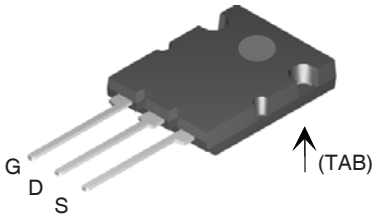
V_{DSS} = 1000V
I_{D25} = 44A
$R_{DS(on)}$ ≤ 220mΩ
t_{rr} ≤ 300ns

N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	1000	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ	1000	V
V_{GSS}	Continuous	± 30	V
V_{GSM}	Transient	± 40	V
I_{D25}	T_C = 25°C	44	A
I_{DM}	T_C = 25°C, pulse width limited by T_{JM}	110	A
I_{AR}	T_C = 25°C	22	A
E_{AS}	T_C = 25°C	2	J
dV/dt	$I_S \le I_{DM}$, $V_{DD} \le V_{DSS}$, $T_J \le 150°C$	15	V/ns
P_D	T_C = 25°C	1250	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	1.6mm (0.062 in.) from case for 10s	300	°C
T_{SOLD}	Plastic body for 10s	260	°C
F_C	Mounting torque	30..120/6.7..27	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

Applications

- Switched-mode and resonant-mode power supplies
- DC-DC Converters
- Laser Drivers
- AC and DC motor controls
- Robotics and servo controls

Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0V, I_D = 3mA	1000			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 1mA	3.5		6.5	V
I_{GSS}	V_{GS} = ± 30V, V_{DS} = 0V			± 200	nA
I_{DSS}	$V_{DS} = V_{DSS}$			50	μA
	V_{GS} = 0V, T_J = 125°C			3	mA
$R_{DS(on)}$	V_{GS} = 10V, $I_D = 0.5 \bullet I_{D25}$, Note 1			220	mΩ

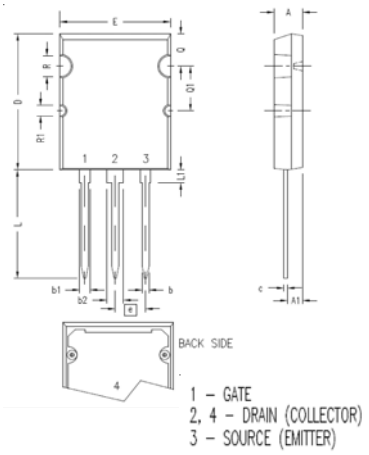
© 2008 IXYS CORPORATION, All rights reserved

Symbol	Test Conditions (T_J = 25°C unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	V_{DS} = 20V, I_D = 0.5 • I_{D25}, Note 1	20	35		S
C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		19		nF
C_{oss}			1060		pF
C_{rss}			41		pF
R_{Gi}	Gate input resistance		1.70		Ω
$t_{d(on)}$	**Resistive Switching Times**		60		ns
t_r	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		68		ns
$t_{d(off)}$	R_G = 1Ω (External)		90		ns
t_f			56		ns
$Q_{g(on)}$	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		305		nC
Q_{gs}			104		nC
Q_{gd}			126		nC
R_{thJC}				0.10	°C/W
R_{thCS}			0.13		°C/W

Source-Drain Diode (T_J = 25°C unless otherwise specified)		Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0V			44	A
I_{SM}	Repetitive, pulse width limited by T_{JM}			176	A
V_{SD}	I_F = I_S, V_{GS} = 0V, Note 1			1.5	V
t_{rr}	I_F = 22A, -di/dt = 100A/μs			300	ns
Q_{RM}	V_R = 100V		2.5		μC
I_{RM}			17		A

Note 1: Pulse test, t ≤ 300μs; duty cycle, d ≤ 2%.

PLUS264™ (IXFB) Outline



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

Fig. 1. Output Characteristics @ 25ºC

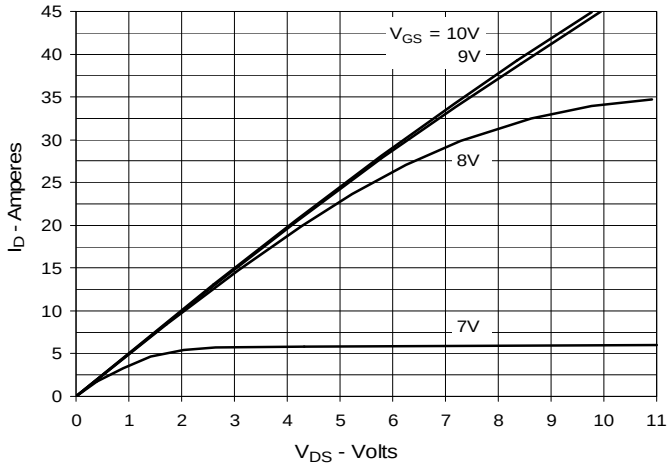


Fig. 2. Extended Output Characteristics @ 25ºC

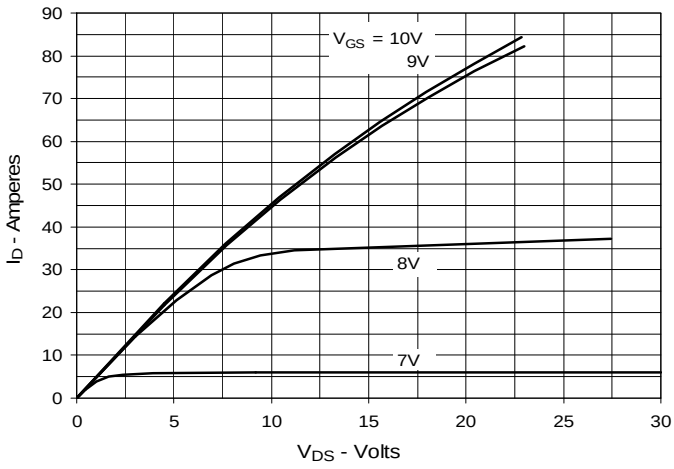


Fig. 3. Output Characteristics @ 125ºC

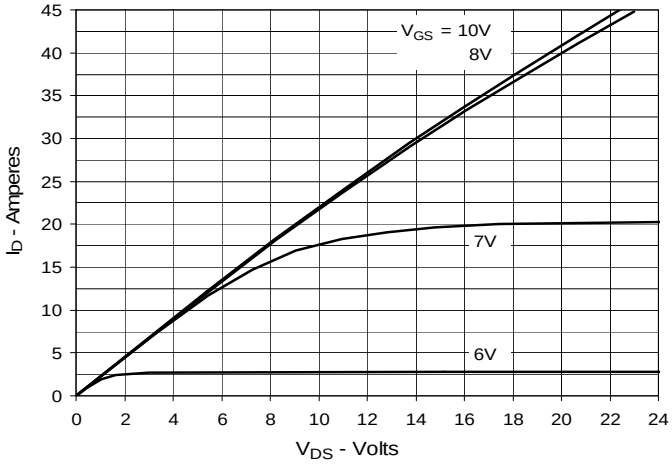


Fig. 4. $R_{DS(on)}$ Normalized to I_D = 22A Value vs. Junction Temperature

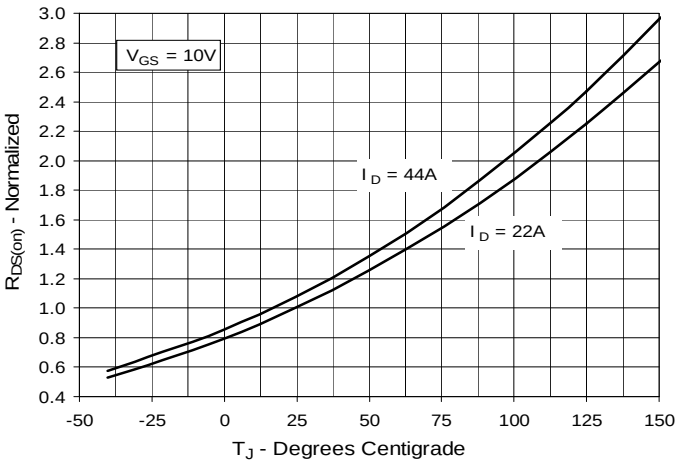


Fig. 5. $R_{DS(on)}$ Normalized to I_D = 22A Value vs. Drain Current

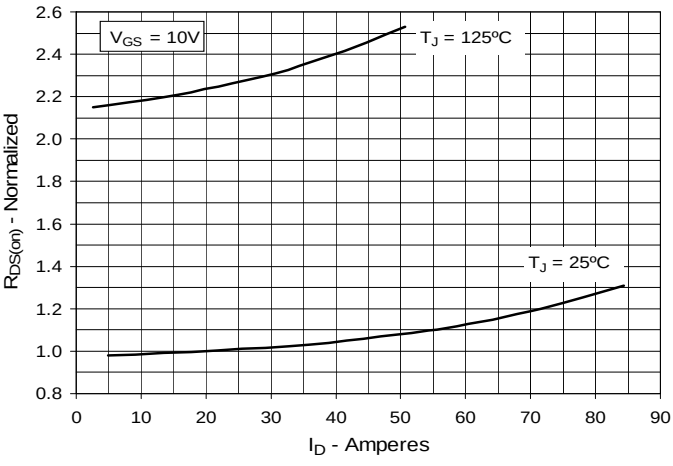
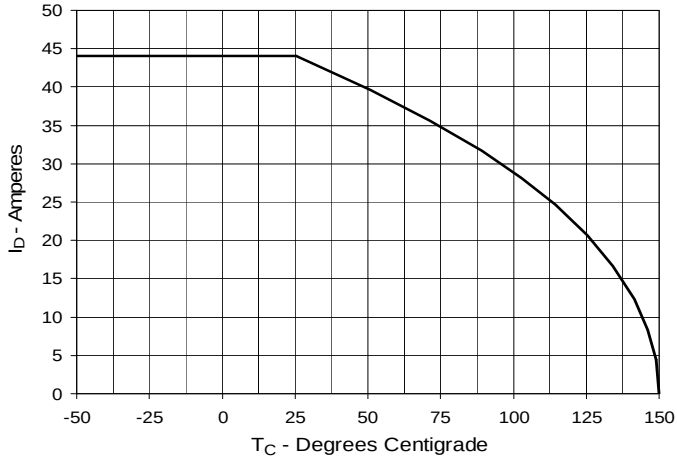


Fig. 6. Maximum Drain Current vs. Case Temperature



© 2008 IXYS CORPORATION, All rights reserved

Fig. 7. Input Admittance

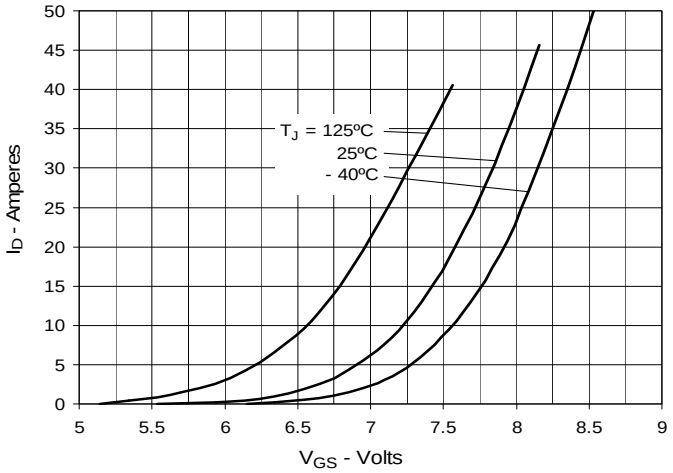


Fig. 8. Transconductance

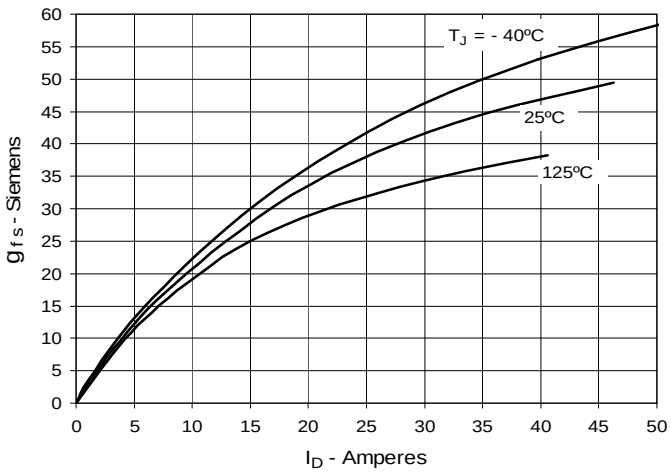


Fig. 9. Forward Voltage Drop of Intrinsic Diode

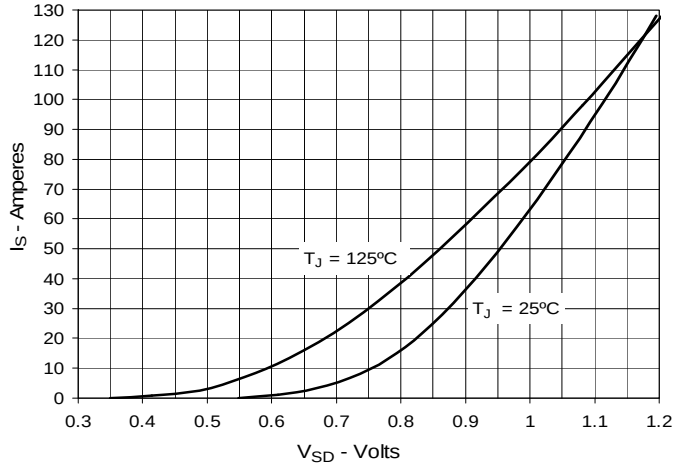


Fig. 10. Gate Charge

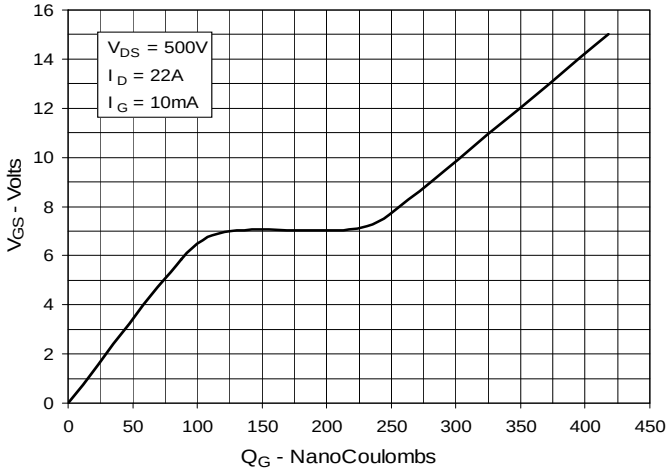


Fig. 11. Capacitance

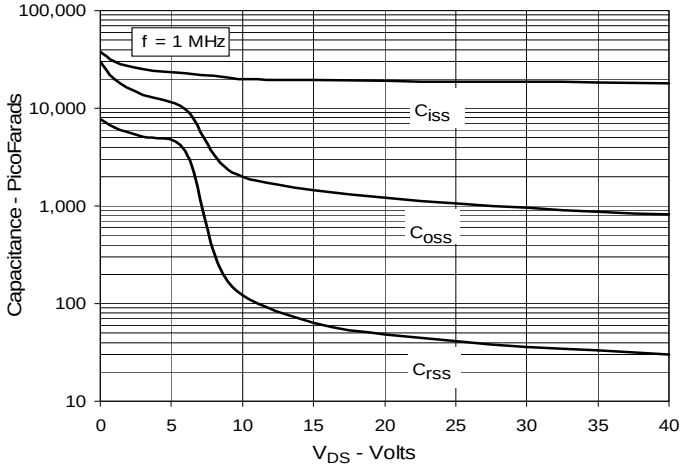
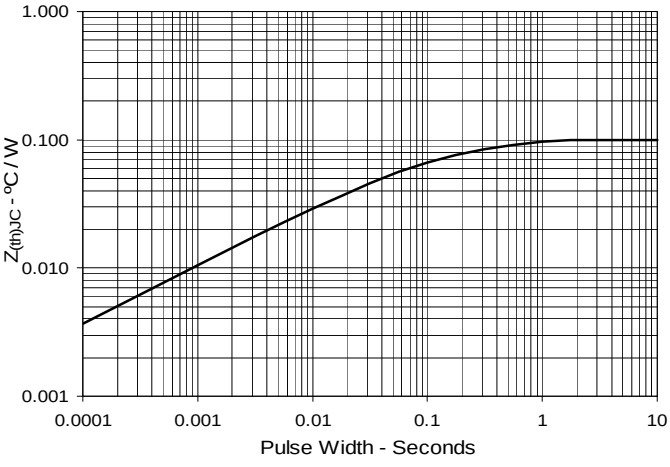


Fig. 12. Maximum Transient Thermal Impedance



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



Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.