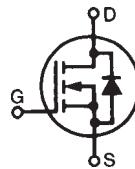


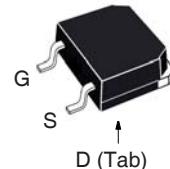
High Voltage HiPerFET™**Power MOSFET****Q-CLASS****IXFT12N100QHV**

N-Channel Enhancement Mode
Fast Intrinsic Diode

V_{DSS} = 1000V
I_{D25} = 12A
R_{DS(on)} ≤ 1.05Ω



TO-268S



G = Gate D = Drain
S = Source Tab = Drain

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	±20	V
V _{GSM}	Transient	±30	V
I _{D25}	T _C = 25°C	12	A
I _{DM}	T _C = 25°C, Pulse Width Limited by T _{JM}	48	A
I _A	T _C = 25°C	12	A
E _{AS}	T _C = 25°C	950	mJ
dv/dt	I _S ≤ I _{DM} , V _{DD} ≤ V _{DSS} , T _J ≤ 150°C	5	V/ns
P _D	T _C = 25°C	445	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
Weight		4	g

Features

- Avalanche Rated
- Fast Intrinsic Diode
- High Blocking Voltage
- High Voltage Package
- Low Drain-to-Tab Capacitance
- Low Package Inductance

Advantages

- High Power Density
- Easy to Mount
- Space Savings

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 = 4mA	2.5		5.5 V
I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100 nA
I _{DSS}	V _{DS} = V _{DSS} , V _{GS} = 0V T _J = 125°C			25 μA 1 mA
R _{DS(on)}	V _{GS} = 10V, I _D = 0.5 • I _{D25} , Note 1		1.05	Ω

Applications

- DC-DC Converters
- Battery Chargers
- Switch-Mode and Resonant-Mode Power Supplies
- DC Choppers
- Temperature and Lighting Controls

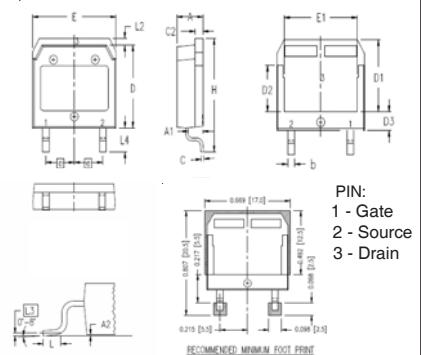
Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 20\text{V}$, $I_D = 0.5 \cdot I_{D25}$, Note 1	6	10	S
C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$	3050		pF
C_{oss}		305		pF
C_{rss}		85		pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{D25}$ $R_G = 2\Omega$ (External)	24		ns
t_r		14		ns
$t_{d(off)}$		50		ns
t_f		11		ns
$Q_{g(on)}$	$V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{D25}$	95		nC
Q_{gs}		15		nC
Q_{gd}		48		nC
R_{thJC}			0.28	°C/W

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
I_s	$V_{GS} = 0\text{V}$		12	A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}		48	A
V_{SD}	$I_F = I_S$, $V_{GS} = 0\text{V}$, Note 1		1.5	V
t_{rr}	$I_F = I_S$, $-di/dt = 100\text{A}/\mu\text{s}$ $V_R = 100\text{V}$, $V_{GS} = 0\text{V}$	200	250	ns
I_{RM}		7.0		A
Q_{RM}		0.6		μC

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

TO-268 (VHV) Outline



SYM	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	.193	.201	4.90	5.10
A1	.106	.114	2.70	2.90
A2	.001	.010	0.02	0.25
b	.045	.057	1.15	1.45
C	.016	.026	0.40	0.65
C2	.057	.063	1.45	1.60
D	.543	.551	13.80	14.00
D1	.465	.476	11.80	12.10
D2	.295	.307	7.50	7.80
D3	.114	.126	2.90	3.20
E	.624	.632	15.85	16.05
E1	.524	.535	13.30	13.60
E2	.215	BSC	5.45	BSC
H	.736	.752	18.70	19.10
L	.067	.079	1.70	2.00
L2	.039	.045	1.00	1.15
L3	.010	BSC	0.25	BSC
L4	.150	.161	3.80	4.10

ADVANCE TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from a subjective evaluation of the design, based upon prior knowledge and experience, and constitute a "considered reflection" of the anticipated result. 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 7,157,338B2 4,860,072 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

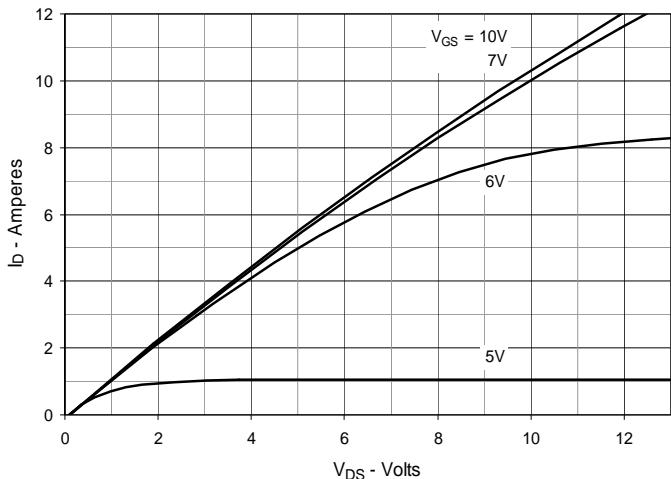
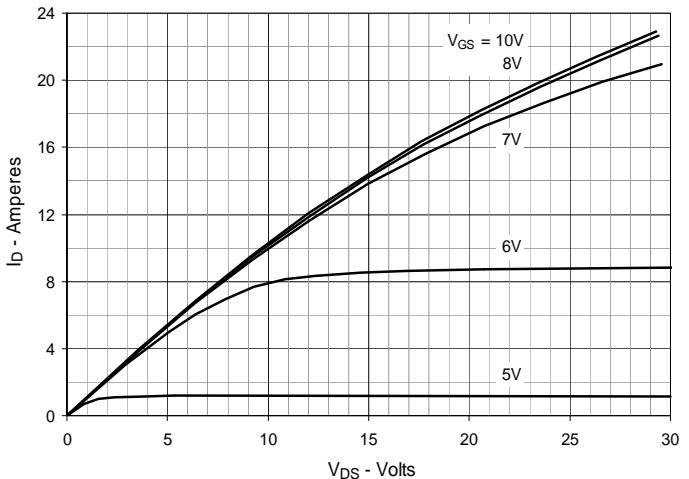
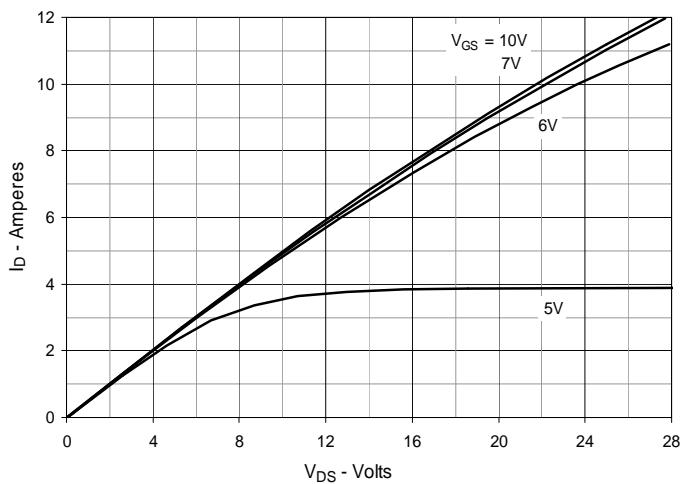
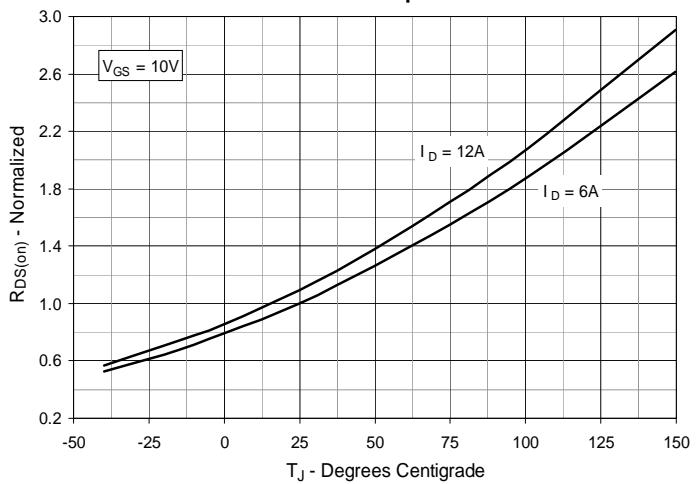
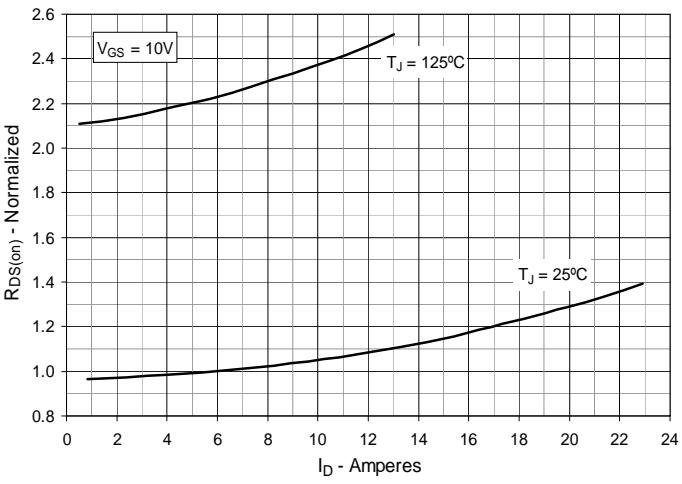
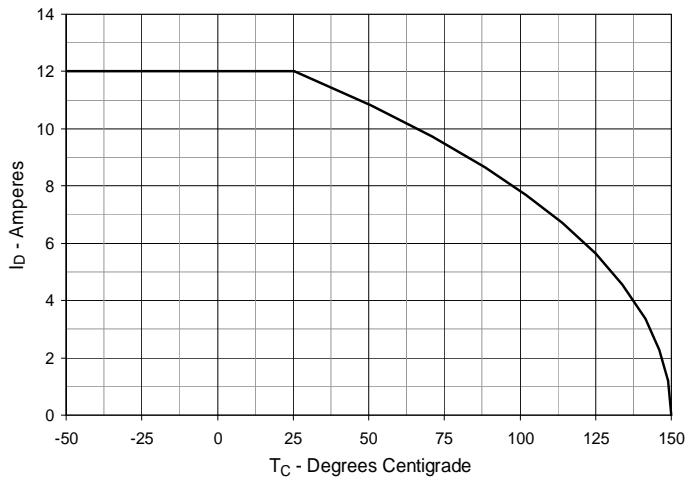
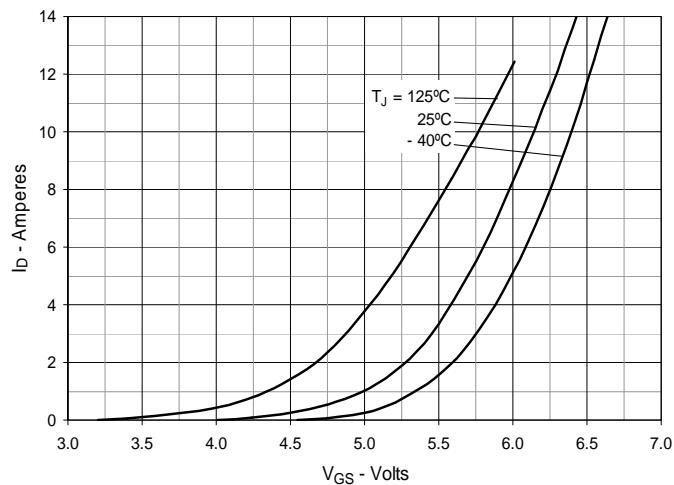
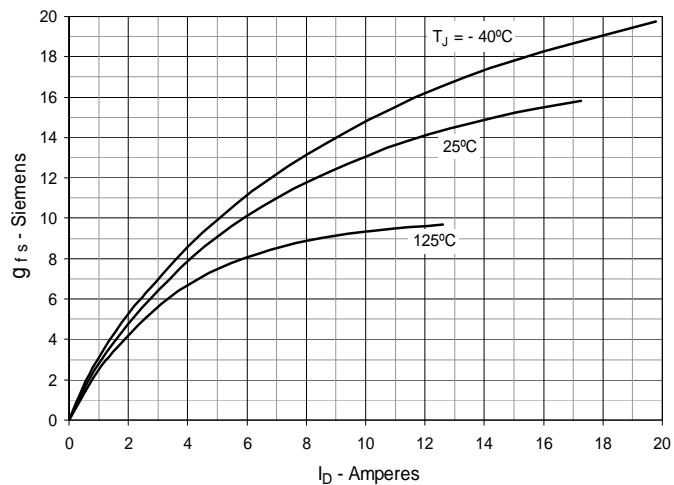
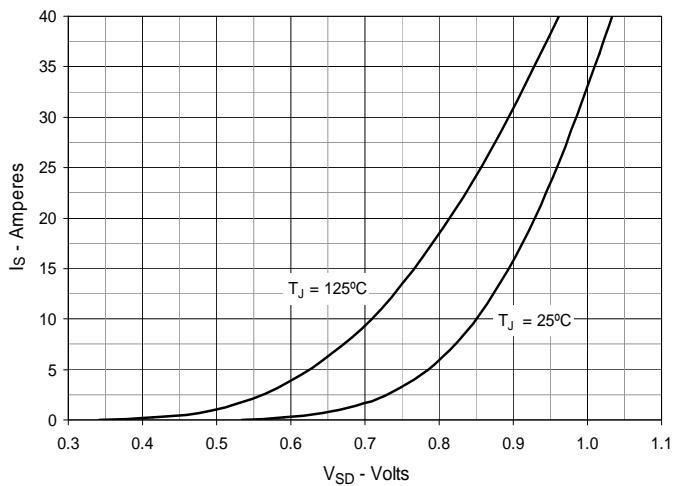
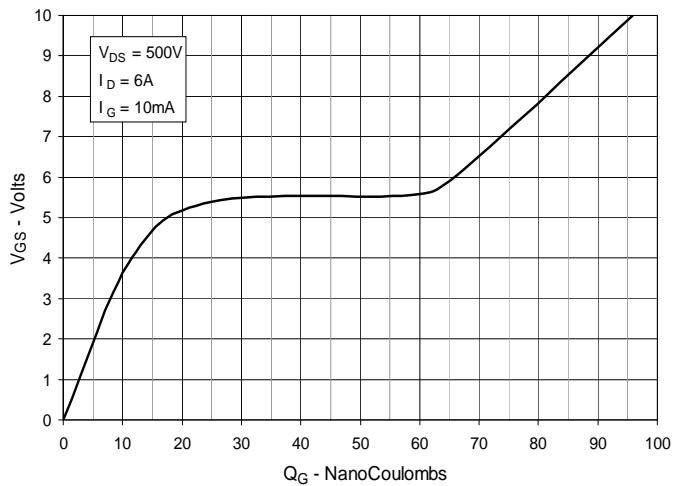
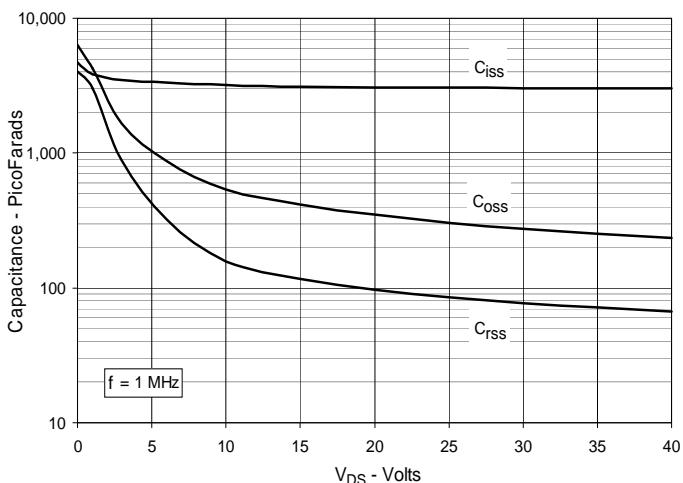
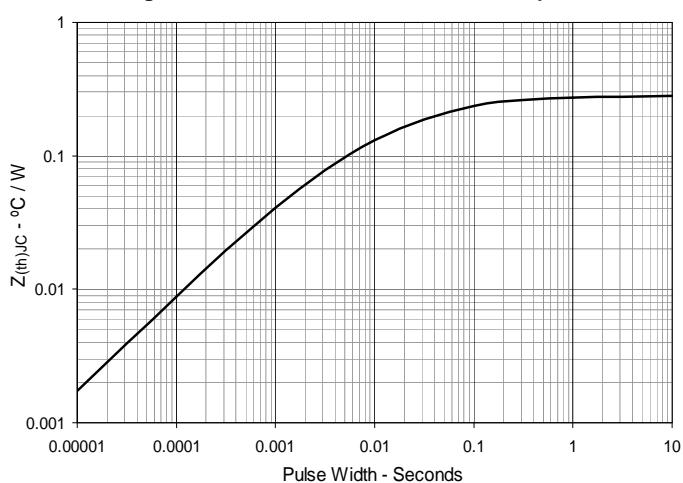
Fig. 1. Output Characteristics @ $T_J = 25^\circ\text{C}$ **Fig. 2. Extended Output Characteristics @ $T_J = 25^\circ\text{C}$** **Fig. 3. Output Characteristics @ $T_J = 125^\circ\text{C}$** **Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 6\text{A}$ Value vs. Junction Temperature****Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 6\text{A}$ 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**

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