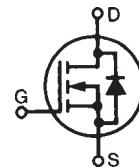


High Voltage Power MOSFET

IXTF1N250

V_{DSS} = 2500V
I_{D25} = 1A
R_{DS(on)} ≤ 40Ω



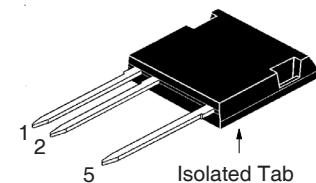
N-Channel Enhancement Mode

(Electrically Isolated Tab)

Symbol	Test Conditions	Maximum Ratings	
V _{DSS}	T _J = 25°C to 150°C	2500	V
V _{DGR}	T _J = 25°C to 150°C, R _{GS} = 1MΩ	2500	V
V _{GSS}	Continuous	±20	V
V _{GSM}	Transient	±30	V
I _{D25}	T _C = 25°C	1	A
I _{DM}	T _C = 25°C, Pulse Width Limited by T _{JM}	6	A
P _D	T _C = 25°C	110	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
M _d	Mounting Force	20..120 / 4.5..27	Nm/lb.in.
V _{ISOL}	50/60Hz, 1min	2500	V~
Weight		5	g

Symbol	Test Conditions (T _J = 25°C, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV _{DSS}	V _{GS} = 0V, I _D = 250μA	2500		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2.0		V
I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V			±100 nA
I _{DSS}	V _{DS} = 0.8 • V _{DSS} , V _{GS} = 0V Note 2, T _J = 125°C		25	μA
R _{DS(on)}	V _{GS} = 10V, I _D = 0.5 • I _{D25} , Note 1		40	Ω

ISOPLUS i4-Pak™



1 = Gate 5 = Drain
2 = Source

Features

- Silicon Chip on Direct-Copper Bond (DCB) Substrate
- Isolated Mounting Surface
- 2500V Electrical Isolation
- Molding Epoxies meet UL 94 V-0 Flammability Classification

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- High Voltage Power Supplies
- Capacitor Discharge
- Pulse Circuits

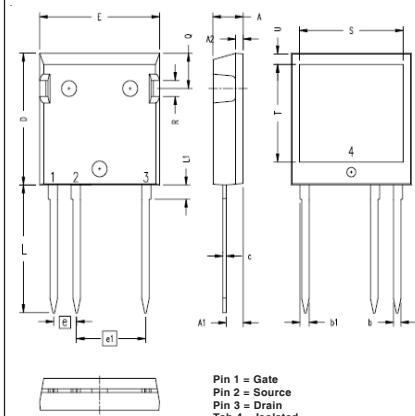
Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 50\text{V}$, $I_D = 0.5 \cdot I_{D25}$, Note 1	1.0	1.8	mS
C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$	1660		pF
C_{oss}		77		pF
C_{rss}		23		pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = I_{D25}$ $R_G = 5\Omega$ (External)	69		ns
t_r		25		ns
$t_{d(off)}$		132		ns
t_f		39		ns
$Q_{g(on)}$	$V_{GS} = 10\text{V}$, $V_{DS} = 600\text{V}$, $I_D = 0.5 \cdot I_{D25}$	41		nC
Q_{gs}		8		nC
Q_{gd}		16		nC
R_{thJC}			1.13	$^\circ\text{C}/\text{W}$
R_{thCS}		0.21		$^\circ\text{C}/\text{W}$

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
I_s	$V_{GS} = 0\text{V}$		1.5	A
I_{SM}	Repetitive, pulse width limited by T_{JM}		6	A
V_{SD}	$I_F = 1\text{A}$, $V_{GS} = 0\text{V}$, Note 1		1.5	V
t_{rr}	$I_F = 1\text{A}$, $-di/dt = 100\text{A}/\mu\text{s}$, $V_R = 200\text{V}$	2.5		μs

- Notes 1. Pulse test, $t \leq 300\mu\text{s}$, duty cycle, $d \leq 2\%$.
 2. Device must be heatsunk for high-temp I_{DSS} measurement to avoid thermal runaway.

ISOPLUS i4-Pak™ (HV) Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.190	.205	4.83	5.21
A1	.102	.118	2.59	3.00
A2	.046	.085	1.17	2.16
b	.045	.055	1.14	1.40
b1	.058	.068	1.47	1.73
C	.020	.029	0.51	0.74
D	.819	.840	20.80	21.34
E	.770	.799	19.56	20.29
e	.150 BSC		3.81 BSC	
e1	.450BSC		11.43 BSC	
L	.780	.840	19.81	21.34
L1	.083	.102	2.11	2.59
Q	.210	.244	5.33	6.20
R	.100	.180	2.54	4.57
S	.660	.690	16.76	17.53
T	.590	.620	14.99	15.75
U	.065	.080	1.65	2.03

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 4,850,072 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

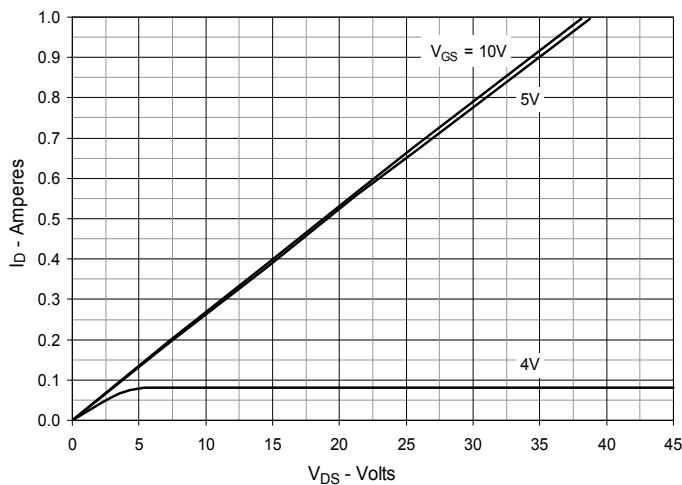
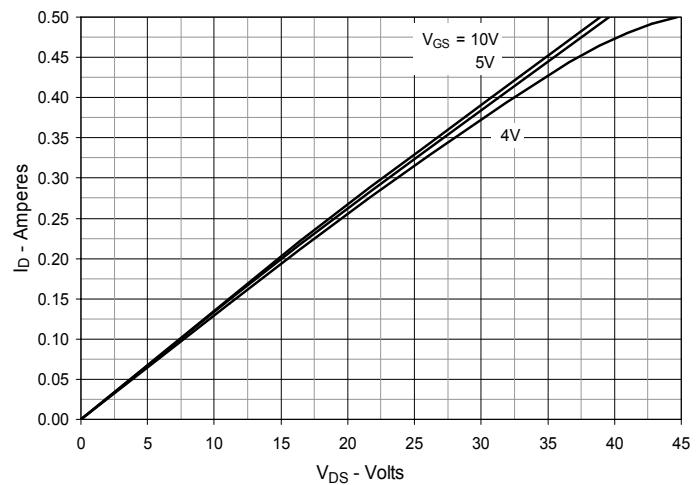
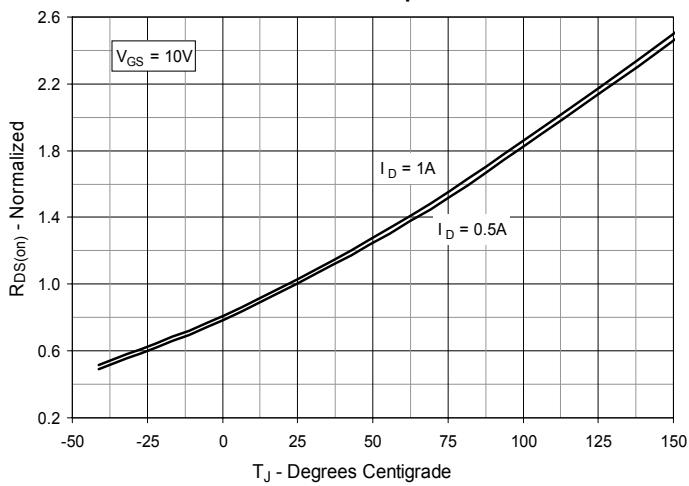
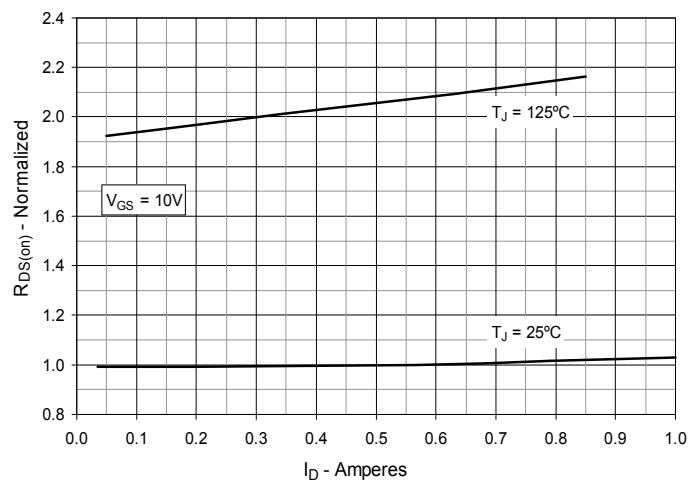
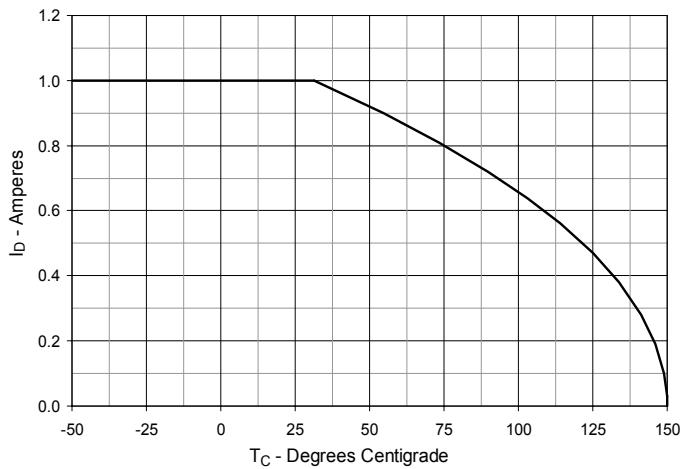
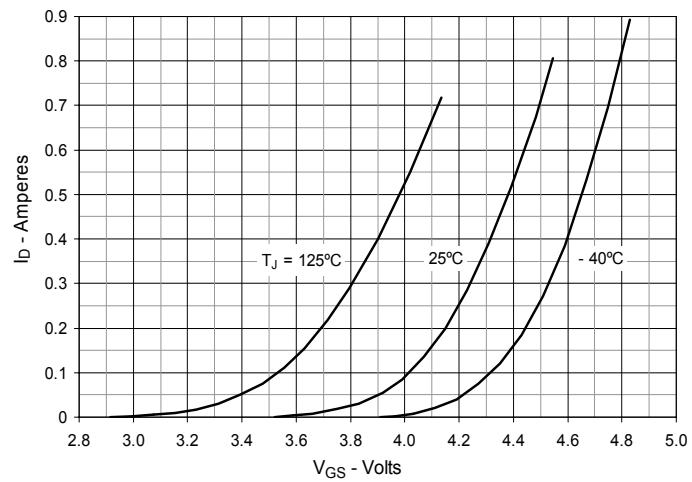
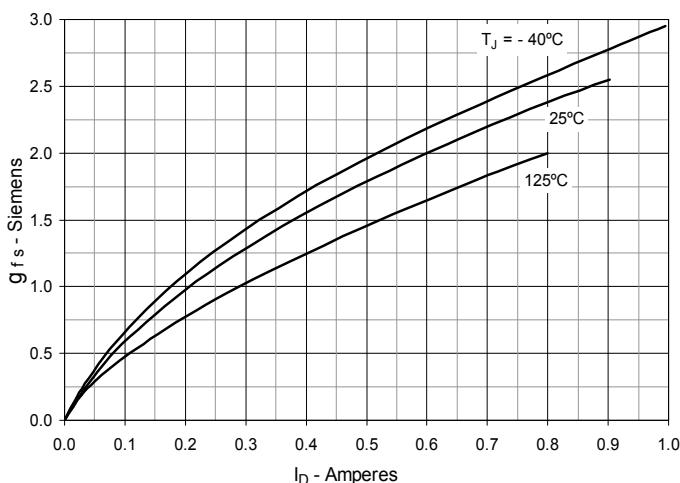
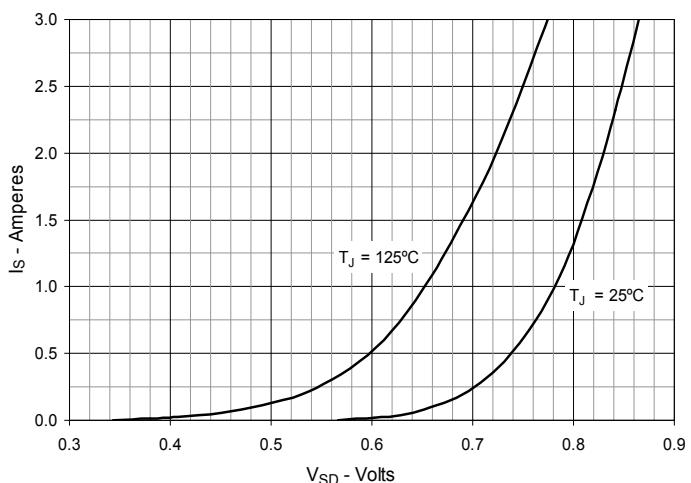
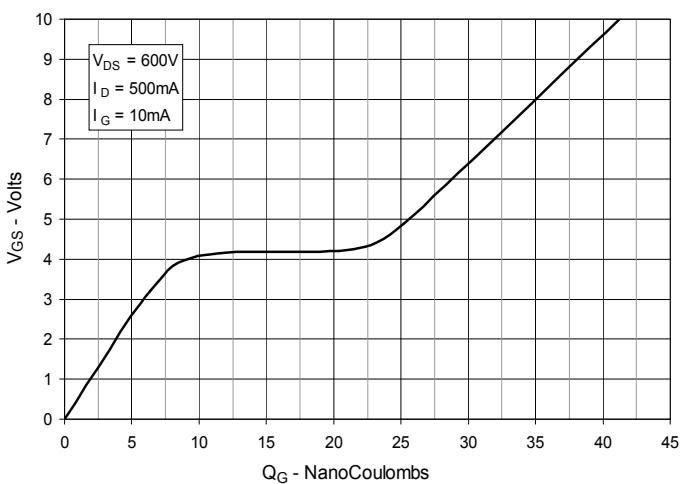
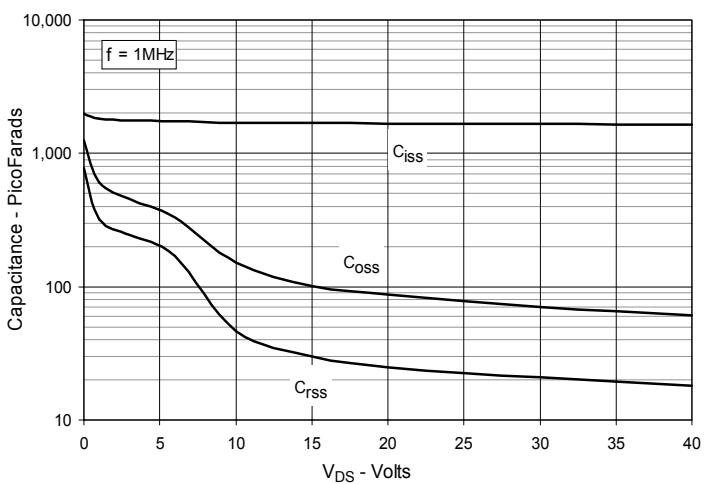
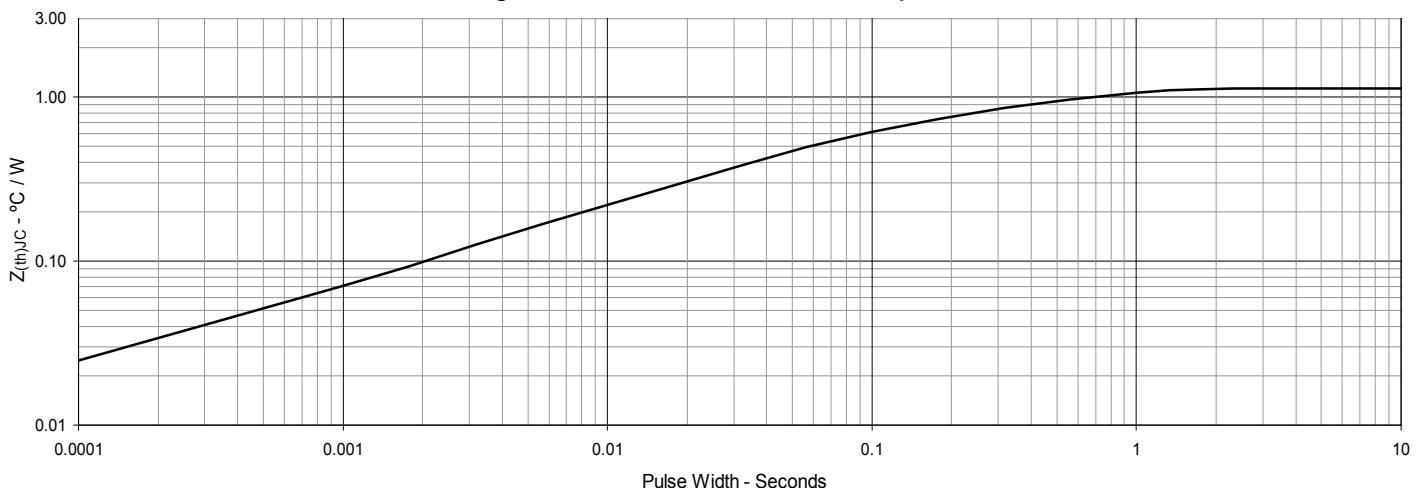
Fig. 1. Output Characteristics @ $T_J = 25^\circ\text{C}$

Fig. 2. Output Characteristics @ $T_J = 125^\circ\text{C}$

Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 0.5\text{A}$ Value vs. Junction Temperature

Fig. 3. $R_{DS(on)}$ Normalized to $I_D = 0.5\text{A}$ Value vs. Drain Current

Fig. 5. Maximum Drain Current vs. Case Temperature

Fig. 6. Input Admittance


Fig. 7. Transconductance**Fig. 8. Forward Voltage Drop of Intrinsic Diode****Fig. 9. Gate Charge****Fig. 10. Capacitance****Fig. 11. Maximum Transient Thermal Impedance**

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