IXYS **Preliminary Technical Information**

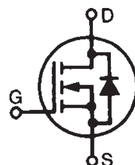
High Voltage Power MOSFET

IXTJ4N150

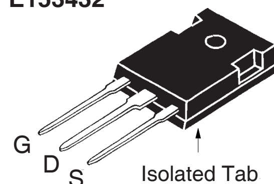
V_{DSS} = 1500V
I_{D25} = 2.5A
$R_{DS(on)}$ ≤ 6Ω

(Electrically Isolated Tab)

N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode



ISO TO-247™
E153432



G = Gate D = Drain
S = Source

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	1500	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ	1500	V
V_{GSS}	Continuous	±30	V
V_{GSM}	Transient	±40	V
I_{D25}	T_C = 25°C	2.5	A
I_{DM}	T_C = 25°C, Pulse Width Limited by T_{JM}	12	A
I_A	T_C = 25°C	4	A
E_{AS}	T_C = 25°C	350	mJ
dv/dt	$I_S \le I_{DM}$, $V_{DD} \le V_{DSS}$, $T_J \le 150°C$	5	V/ns
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 10 seconds	260	°C
F_C	Mounting Torque	1.13 / 10	Nm/lb.in
V_{ISOL}	50/60 Hz, RM, t = 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	1500			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = 250μA	2.5		5.0	V
I_{GSS}	V_{GS} = ±30V, V_{DS} = 0V			±100	nA
I_{DSS}	$V_{DS} = V_{DSS}$, V_{GS} = 0V			10	μA
	T_J = 125°C			100	μA
$R_{DS(on)}$	V_{GS} = 10V, I_D = 2A, Note 1			6	Ω

Features

- Silicon Chip on Direct-Copper Bond (DCB) Substrate
- Isolated Mounting Surface
- 2500V~ Electrical Isolation
- Fast Intrinsic Diode
- Avalanche Rated
- 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 Applications
- Pulse Circuits

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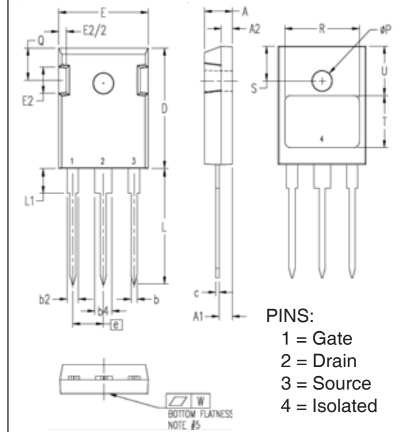
Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Min.	Typ.	Max.	
g_{fs}	V_{DS} = 20V, I_D = 2A, Note 1	2.8	4.6		S
C_{iss}	V_{GS} = 0V, V_{DS} = 25V, f = 1MHz		1576		pF
C_{oss}			105		pF
C_{rss}			35		pF
$t_{d(on)}$	**Resistive Switching Times** V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 2A R_G = 5Ω (External)		19		ns
t_r			23		ns
$t_{d(off)}$			42		ns
t_f			22		ns
$Q_{g(on)}$	V_{GS} = 10V, V_{DS} = 0.5 • V_{DSS}, I_D = 2A		44.5		nC
Q_{gs}			7.7		nC
Q_{gd}			12.7		nC
R_{thJC}				1.13	°C/W
R_{thCS}			0.30		°C/W

ISO TO-247 (IXTJ) OUTLINE



SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	.190	.205	4.83	5.21
A1	.087	.100	2.21	2.54
A2	.075	.085	1.91	2.16
b	.045	.055	1.14	1.40
b2	.075	.085	1.91	2.16
b4	.115	.126	2.92	3.20
c	.023	.033	0.58	0.84
D	.820	.840	20.83	21.34
E	.620	.635	15.75	16.13
E2	.175	.195	4.44	4.95
e	.215 BSC		5.45 BSC	
L	.780	.810	19.81	20.57
L1	.160	.177	4.06	4.50
Q	.220	.240	5.59	6.10
R	.520	.540	13.21	13.72
S	.242 BSC		6.15 BSC	
T	.355	.375	9.02	9.53
U	.345	.370	8.76	9.40
øP	.140	.144	3.55	3.66
W	.000	.004	0.00	0.10

Source-Drain Diode

Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Min.	Typ.	Max.	
I_S	V_{GS} = 0V			4	A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			1.6	A
V_{SD}	I_F = 4A, V_{GS} = 0V, Note 1			1.3	V
t_{rr}	I_F = 2A, -di/dt = 100A/µs V_R = 100V, V_{GS} = 0V		0.9		µs
I_{RM}			15.0		A
Q_{RM}			6.7		µC

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

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 moreof 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 = 25ºC

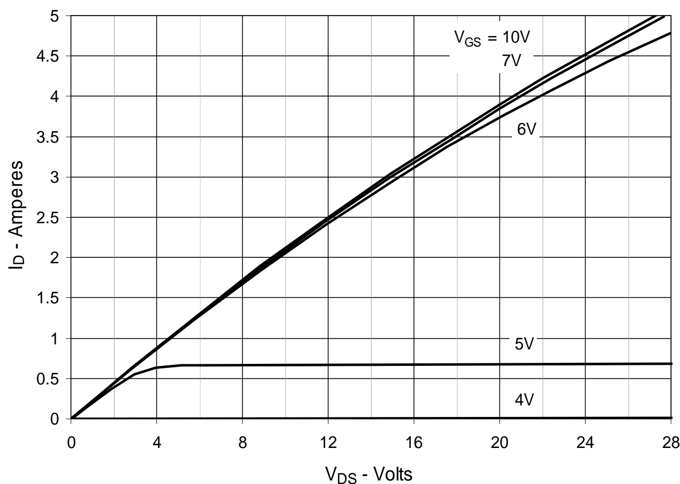


Fig. 2. Output Characteristics @ T_J = 125ºC

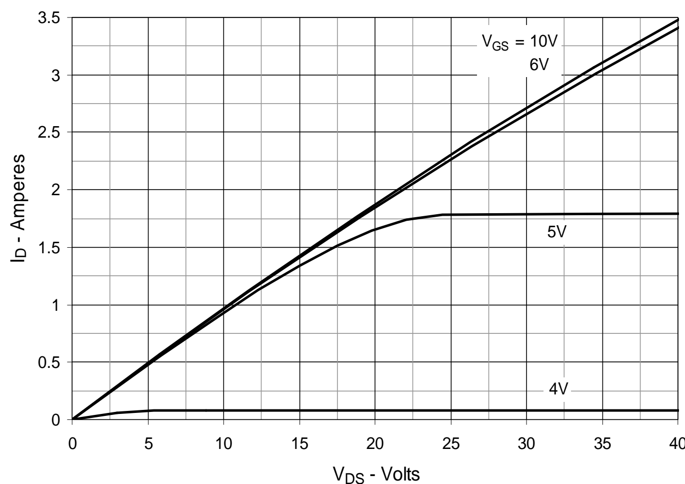


Fig. 3. $R_{DS(on)}$ Normalized to I_D = 2A Value vs. Junction Temperature

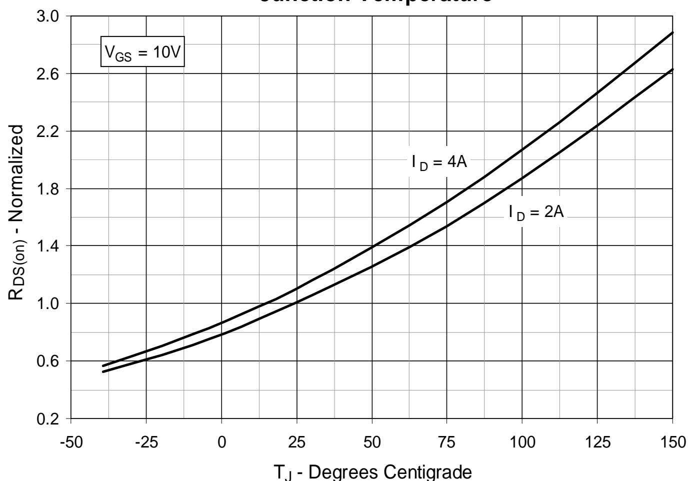


Fig. 4. $R_{DS(on)}$ Normalized to I_D = 2A Value vs. Drain Current

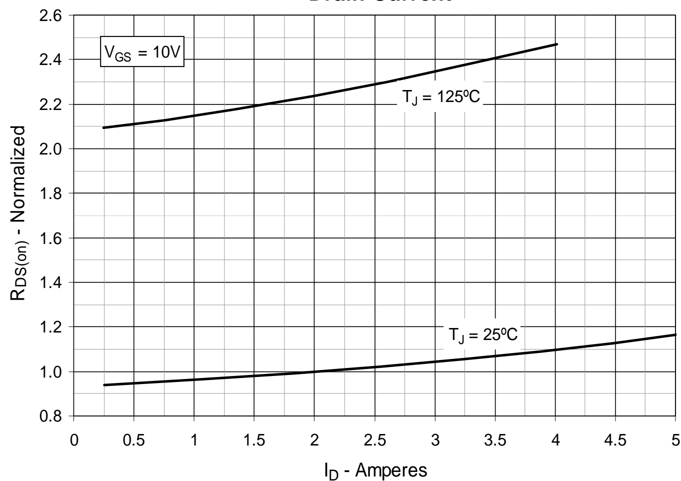


Fig. 5. Maximum Drain Current vs. Case Temperature

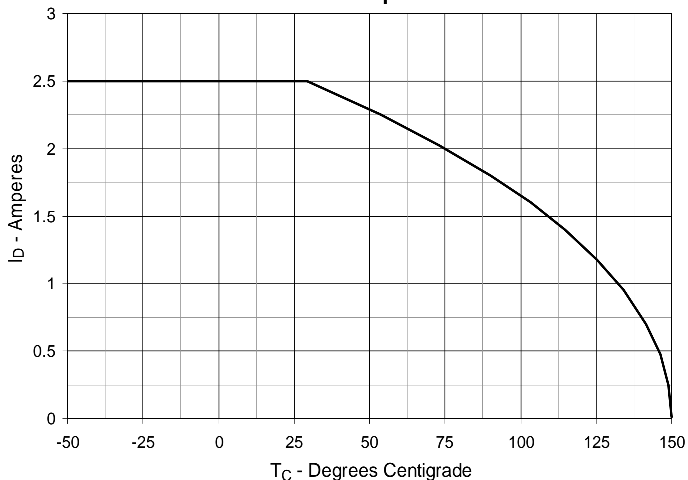


Fig. 6. Input Admittance

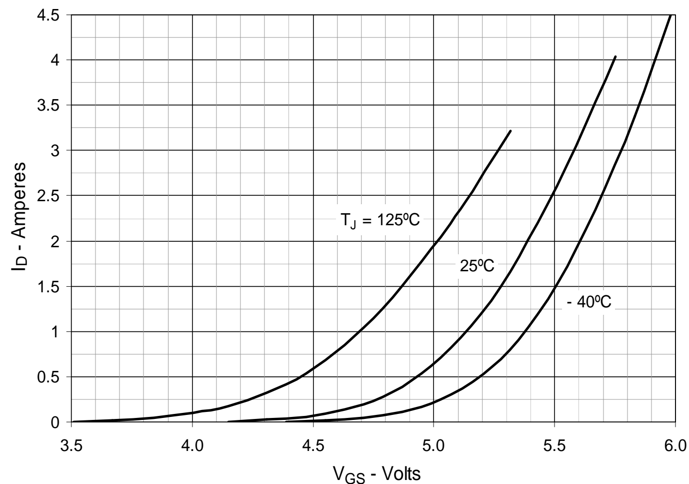


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Fig. 7. Transconductance

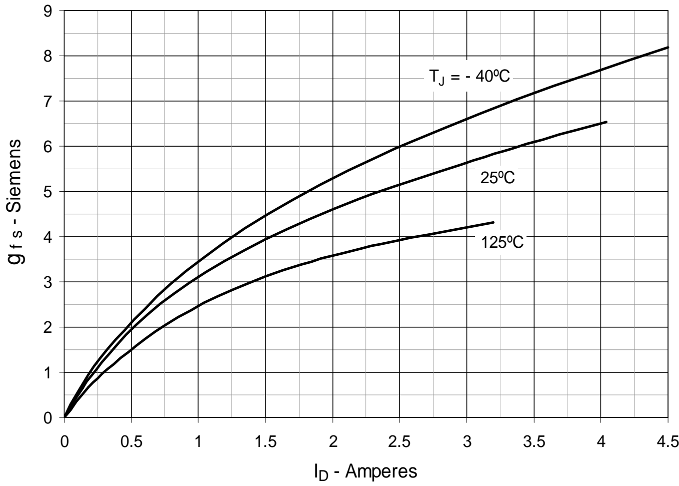


Fig. 8. Forward Voltage Drop of Intrinsic Diode

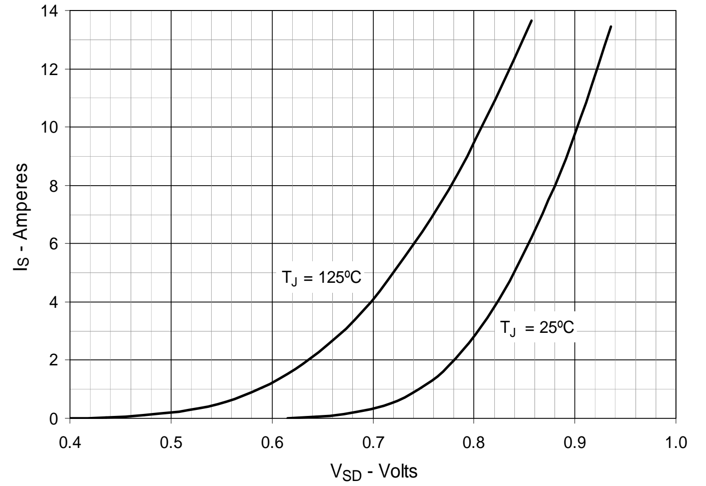


Fig. 9. Gate Charge

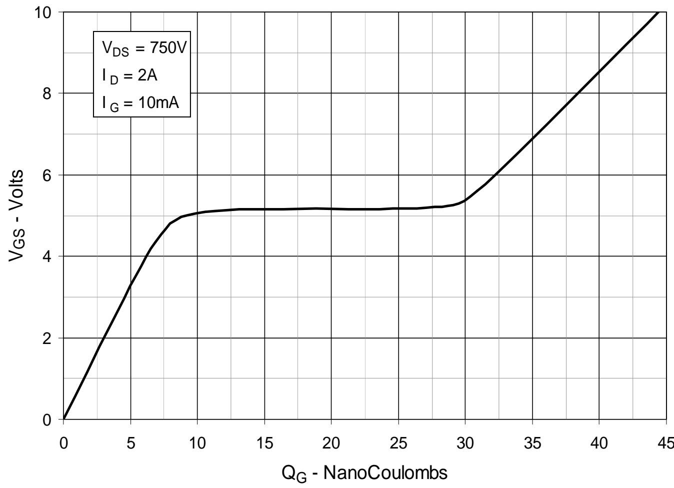


Fig. 10. Capacitance

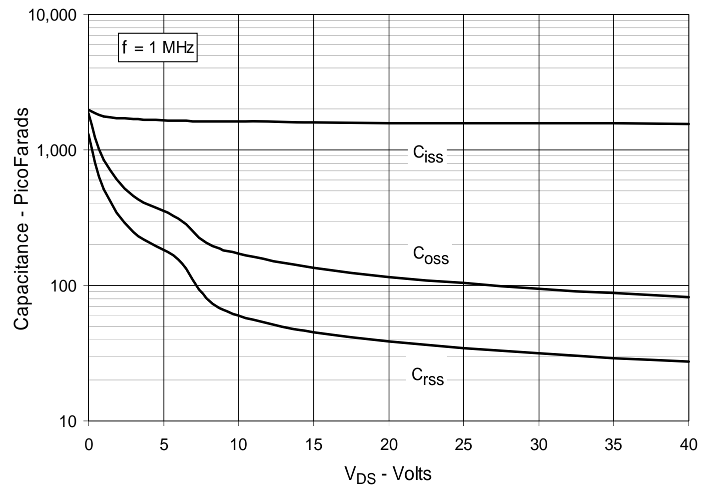


Fig. 11. Breakdown and Threshold Voltages vs. Junction Temperature

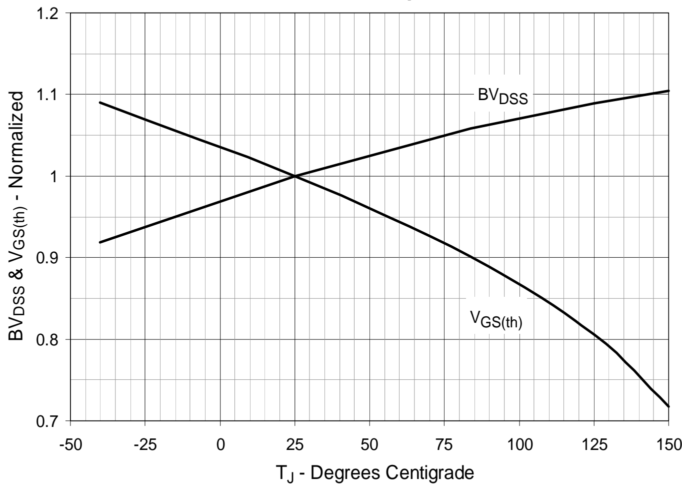
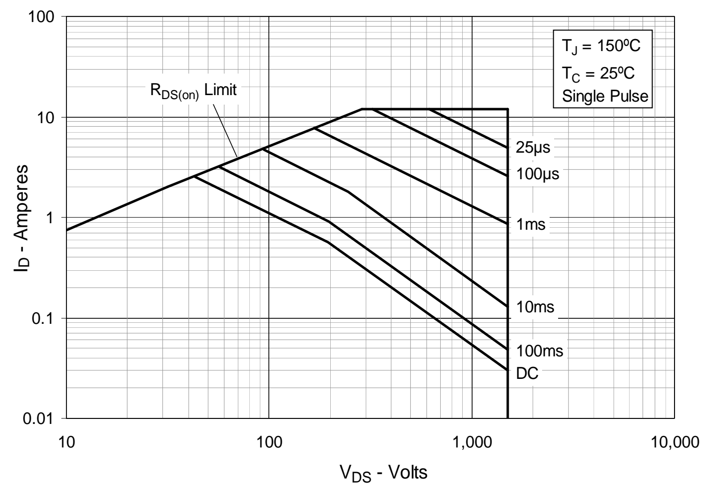


Fig. 12. Forward-Bias Safe Operating Area



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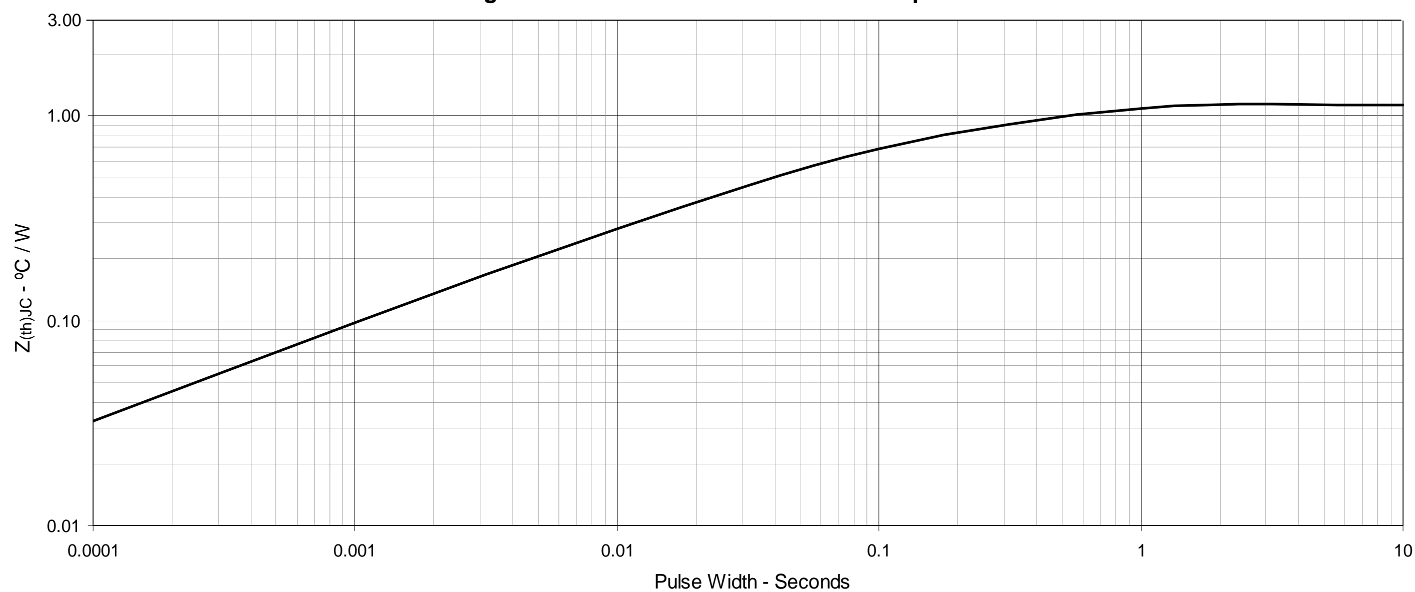

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