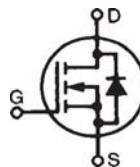


High Voltage Power MOSFET

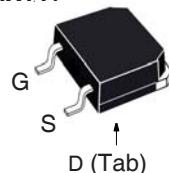
IXTT3N200P3HV
IXTH3N200P3HV

V_{DSS} = 2000V
I_{D25} = 3A
R_{DS(on)} ≤ 8Ω

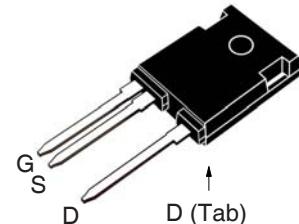
N-Channel Enhancement Mode



TO-268HV (IXTT)



TO-247HV (IXTH)



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

Symbol	Test Conditions	Maximum Ratings	
V _{DSS}	T _J = 25°C to 150°C	2000	V
V _{DGR}	T _J = 25°C to 150°C, R _{GS} = 1MΩ	2000	V
V _{GSS}	Continuous	±20	V
V _{GSM}	Transient	±30	V
I _{D25}	T _C = 25°C	3.0	A
I _{D110}	T _C = 110°C	2.6	A
I _{DM}	T _C = 25°C, Pulse Width Limited by T _{JM}	9.0	A
P _D	T _C = 25°C	520	W
T _J		- 55 ... +150	°C
T _{JM}		150	°C
T _{stg}		- 55 ... +150	°C
T _L	Maximum Lead Temperature for Soldering Plastic Body for 10s	300	°C
T _{SOLD}		260	°C
M _d	Mounting Torque	1.13/10	Nm/lb.in
Weight	TO-268HV	4	g
	TO-247HV	6	g

Symbol	Test Conditions (T _J = 25°C, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV _{DSS}	V _{GS} = 0V, I _D = 250μA	2000		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	3.0		V
I _{GSS}	V _{GS} = ±20V, V _{DS} = 0V		±100	nA
I _{DSS}	V _{DS} = V _{DSS} , V _{GS} = 0V		10	μA
	T _J = 125°C		250	μA
R _{DS(on)}	V _{GS} = 10V, I _D = 1.5A, Note 1		8	Ω

Features

- High Blocking Voltage
- High Voltage Packages

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- High Voltage Power Supplies
- Capacitor Discharge Applications
- Pulse Circuits
- Laser and X-Ray Generation Systems

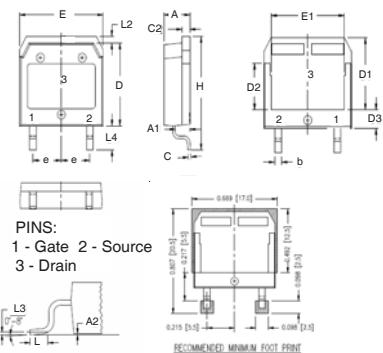
Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 50\text{V}$, $I_D = 1.5\text{A}$, Note 1	2.3	3.8	S
C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$	1860		pF
C_{oss}		133		pF
C_{rss}		58		pF
R_{GI}	Gate Input Resistance	3.8		Ω
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 10\text{V}$, $V_{DS} = 500\text{V}$, $I_D = 0.5 \cdot I_{D25}$ $R_G = 5\Omega$ (External)	21		ns
t_r		27		ns
$t_{d(off)}$		67		ns
t_f		60		ns
$Q_{g(on)}$	$V_{GS} = 10\text{V}$, $V_{DS} = 1\text{kV}$, $I_D = 0.5 \cdot I_{D25}$	70		nC
Q_{gs}		8		nC
Q_{gd}		39		nC
R_{thJC}			0.24	$^\circ\text{C}/\text{W}$
R_{thCS}	TO-247HV	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	$V_{GS} = 0\text{V}$		3	A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}		12	A
V_{SD}	$I_F = I_S$, $V_{GS} = 0\text{V}$, Note 1		1.5	V
t_{rr}	$I_F = 1.5\text{A}$, $-di/dt = 100\text{A}/\mu\text{s}$ $V_R = 100\text{V}$, $V_{GS} = 0\text{V}$	420		ns
Q_{RM}		380		nC
I_{RM}		1.8		A

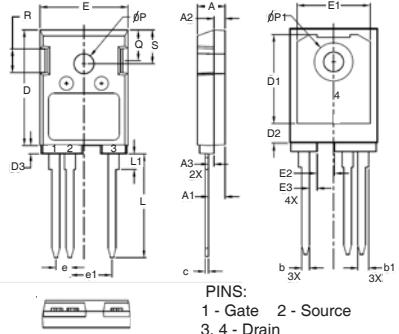
Note: 1. Pulse test, $t \leq 300\mu\text{s}$, duty cycle, $d \leq 2\%$.

TO-268HV 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

TO-247HV Outline



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.193	.201	4.90	5.10
A1	.114	.122	2.90	3.10
A2	.075	.083	1.90	2.10
A3	.035	.043	0.90	1.10
b	.053	.059	1.35	1.50
b1	.075	.083	1.90	2.10
c	.022	.030	0.55	0.75
D	.819	.843	20.80	21.40
D1	.638	.646	16.20	16.40
D2	.134	.146	3.40	3.70
D3	.055	.063	1.40	1.60
E	.622	.638	15.80	16.20
E1	.520	.528	13.20	13.40
E2	.118	.126	3.00	3.20
E3	.051	.059	1.30	1.50
e	.100	BSC	2.54	BSC
e1	.300	BSC	7.62	BSC
L	.732	.748	18.60	19.00
L1	.106	.118	2.70	3.00
ØP	.138	.142	3.50	3.60
ØP1	.272	.280	6.90	7.10
Q	.216	.224	5.50	5.70
R	.165	.169	4.20	4.30
S	.240	.248	6.10	6.30

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.

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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

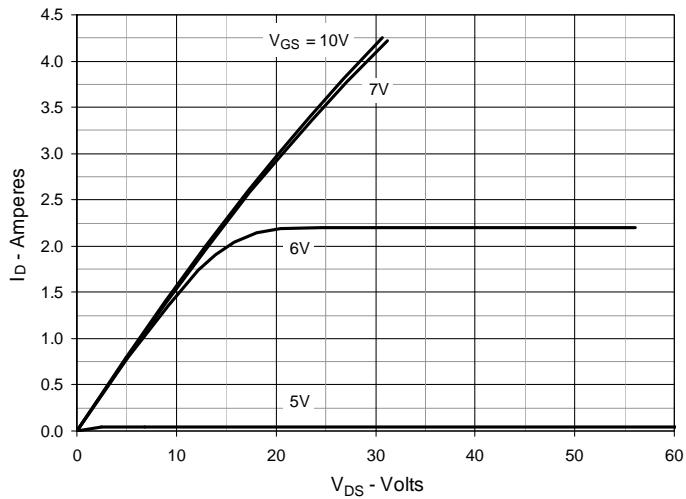
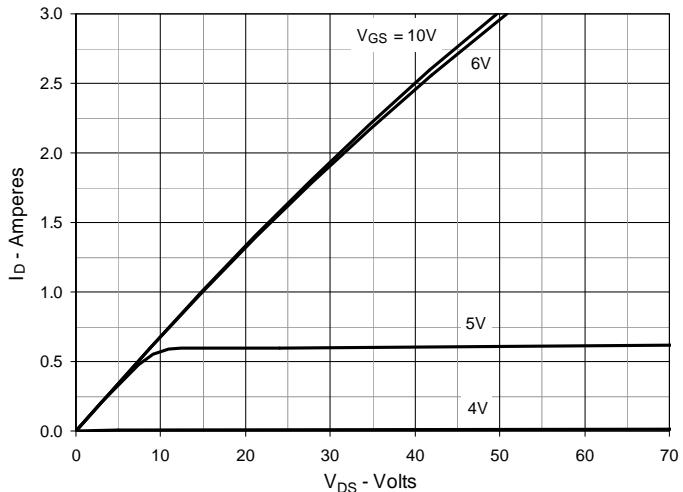
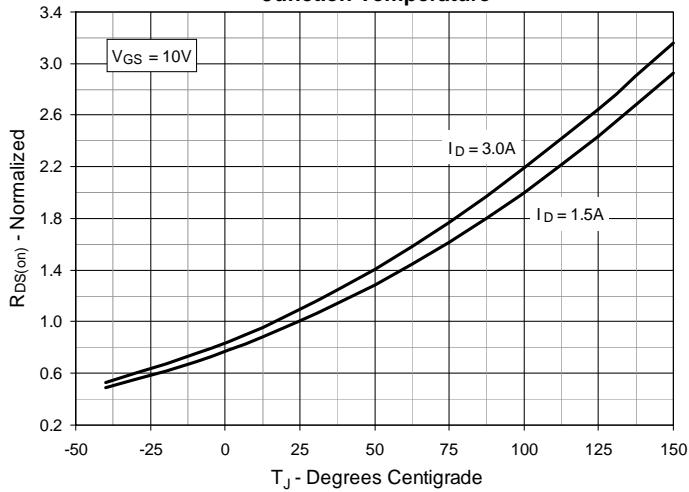
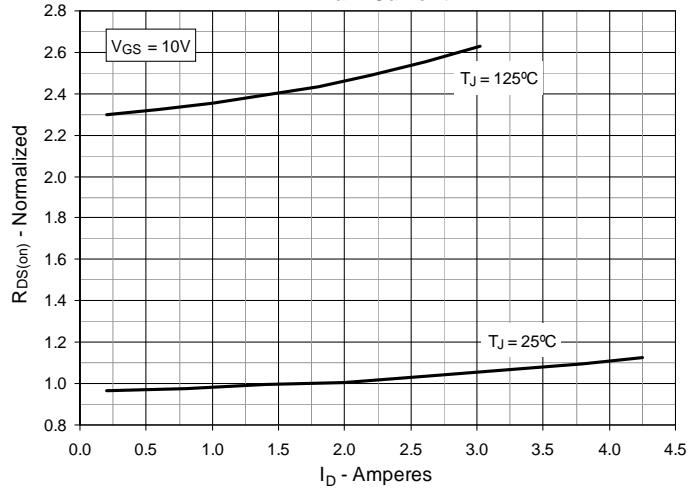
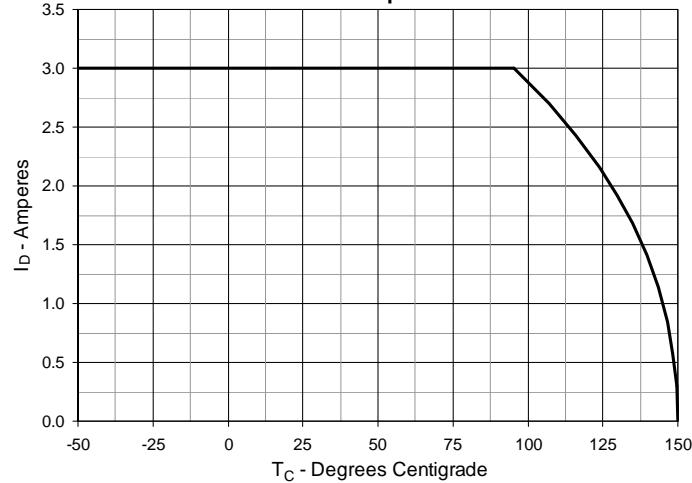
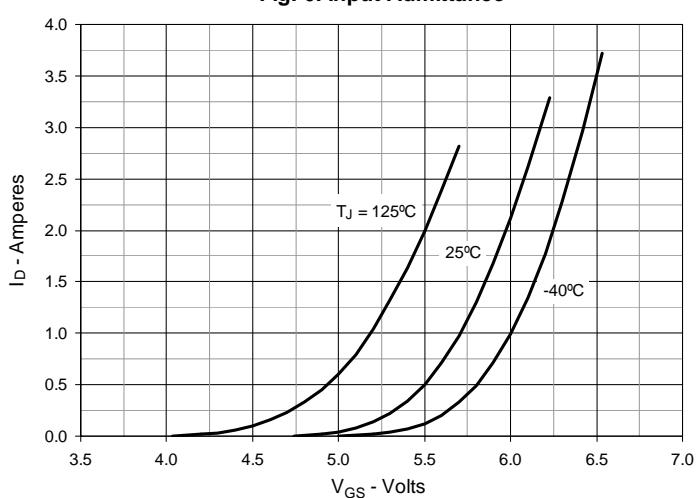
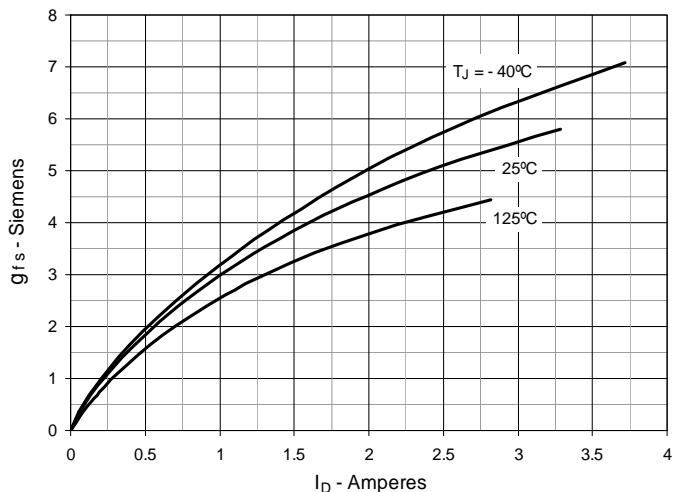
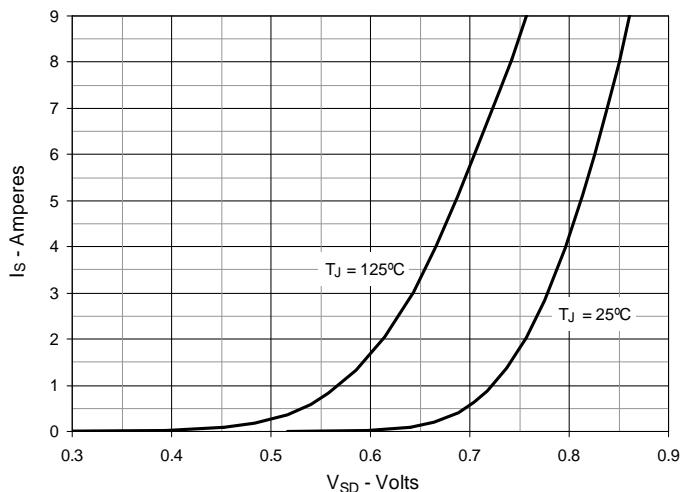
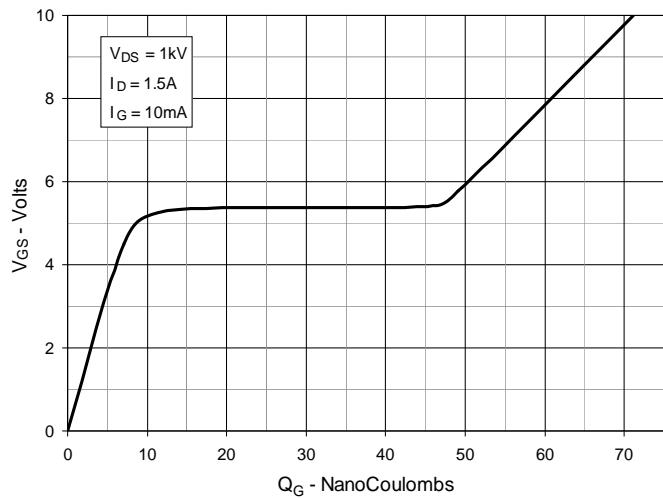
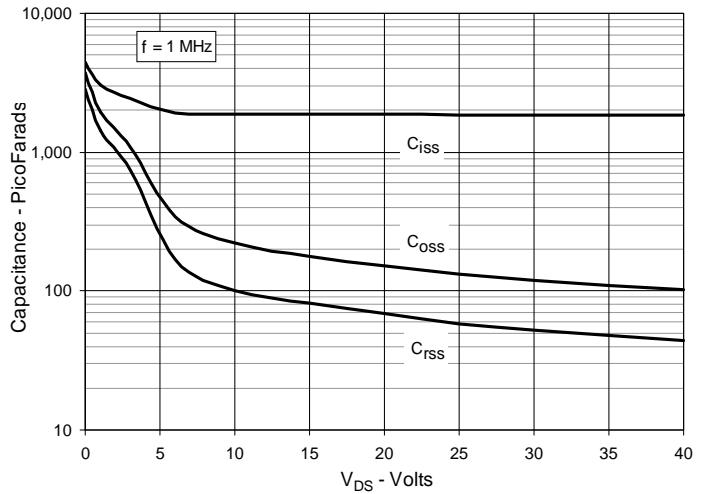
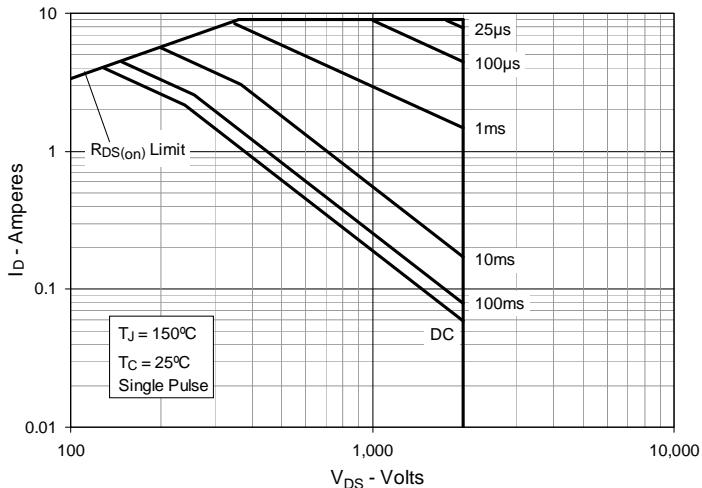
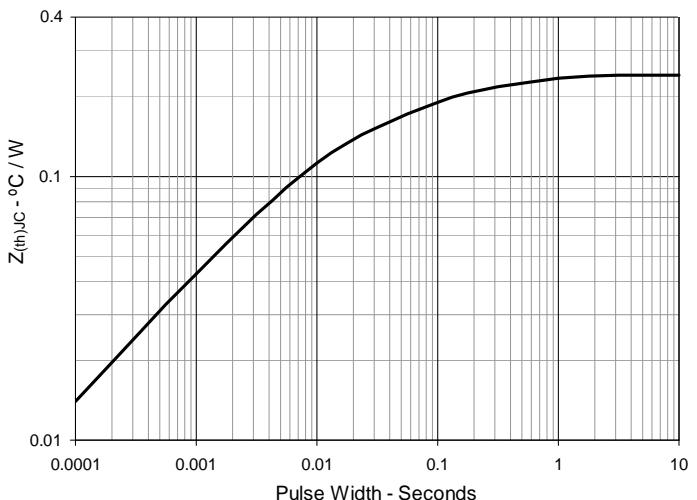
Fig. 1. Output Characteristics @ $T_J = 25^\circ\text{C}$

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

Fig. 3. $R_{DS(on)}$ Normalized to $I_D = 1.5\text{A}$ Value vs. Junction Temperature

Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 1.5\text{A}$ 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. Forward-Bias Safe Operating Area

Fig. 12 Maximum Transient Thermal Impedance


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