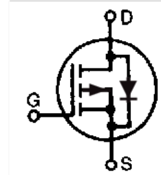
IXYS

Power MOSFETs

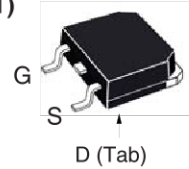
IXTH11P50
IXTT11P50

V_{DSS} = - 500V
I_{D25} = - 11A
$R_{DS(on)}$ ≤ 750mΩ

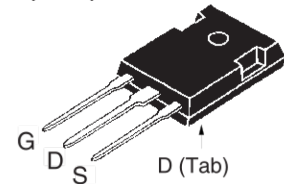
P-Channel Enhancement Mode
Avalanche Rated



TO-268 (IXTT)



TO-247 (IXTH)



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

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	T_J = 25°C to 150°C	- 500	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ	- 500	V
V_{GSS}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	T_C = 25°C	- 11	A
I_{DM}	T_C = 25°C, Pulse Width Limited by T_{JM}	- 44	A
I_A	T_C = 25°C	- 11	A
E_{AS}	T_C = 25°C	1	J
P_D	T_C = 25°C	300	W
T_J		- 55 ... +150	°C
T_{JM}		150	°C
T_{stg}		- 55 ... +150	°C
T_L	1.6mm (0.062in.) from Case for 10s	300	°C
T_{sold}	Plastic Body for 10 seconds	260	°C
M_d	Mounting Torque (TO-247)	1.13 / 10	Nm/lb.in.
Weight	TO-268	4	g
	TO-247	6	g

Features

- International Standard Packages
- Low $R_{DS(on)}$ HDMOS™ Process
- Rugged Polysilicon Gate Cell Structure
- Avalanche Rated
- Low Package Inductance
  - Easy to Drive and to Protect

Symbol	Test Conditions	Characteristic Values			
(T_J = 25°C Unless Otherwise Specified)		Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0V, I_D = - 250μA	- 500			V
	BV_{DSS} Temperature Coefficient		0.09		%/K
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = - 250μA	- 3.0		- 5.0	V
	$V_{GS(th)}$ Temperature Coefficient		- 0.25		%/K
I_{GSS}	V_{GS} = ± 20V, V_{DS} = 0V			±100	nA
I_{DSS}	V_{DS} = V_{DSS}, V_{GS} = 0V			- 200	μA
	T_J = 125°C			-1	mA
$R_{DS(on)}$	V_{GS} = 10V, I_D = - 5.5A, Note 1			750	mΩ
	$R_{DS(on)}$ Temperature Coefficient			0.92	%/K

Advantages

- Easy to Mount
- Space Savings
- High Power Density

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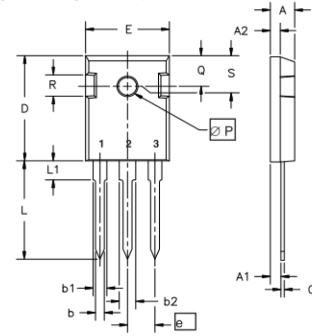
Symbol	Test Conditions ($T_J = 25°C$, Unless Otherwise Specified)	Min.	Typ.	Max.	
g_{fs}	V_{DS} = -10V, I_D = 0.5 • I_{D25}, Note 1	6	11		S
C_{iss}	V_{GS} = 0V, V_{DS} = - 25V, f = 1MHz		4600		pF
C_{oss}			500		pF
C_{rss}			187		pF
$t_{d(on)}$	**Resistive Switching Times**		26		ns
t_r	V_{GS} = -10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		32		ns
$t_{d(off)}$	R_G = 4.7Ω (External)		80		ns
t_f			34		ns
$Q_{g(on)}$	V_{GS} = -10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		145		nC
Q_{gs}			30		nC
Q_{gd}			55		nC
R_{thJC}				0.42	°C/W
R_{thCS}	TO-247		0.21		°C/W

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25°C$, Unless Otherwise Specified)	Min.	Typ.	Max.	
I_S	V_{GS} = 0V			- 11	A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			- 44	A
V_{SD}	$I_F = I_S$, V_{GS} = 0V, Note 1			- 3.0	V
t_{rr}	I_F = -11A, -di/dt = -100A/µs V_R = -100V, V_{GS} = 0V		500		ns

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

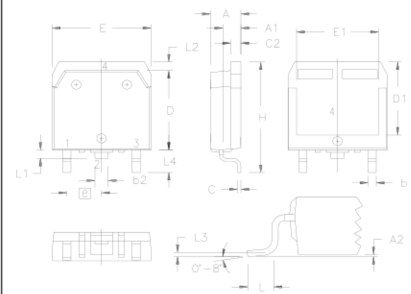
TO-247 Outline



Terminals: 1 - Gate 2 - Drain
3 - Source

Dim.	Millimeter Min.	Millimeter Max.	Inches Min.	Inches Max.
A	4.7	5.3	.185	.209
A_1	2.2	2.54	.087	.102
A_2	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b_1	1.65	2.13	.065	.084
b_2	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
∅P	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15 BSC		242 BSC	

TO-268 Outline

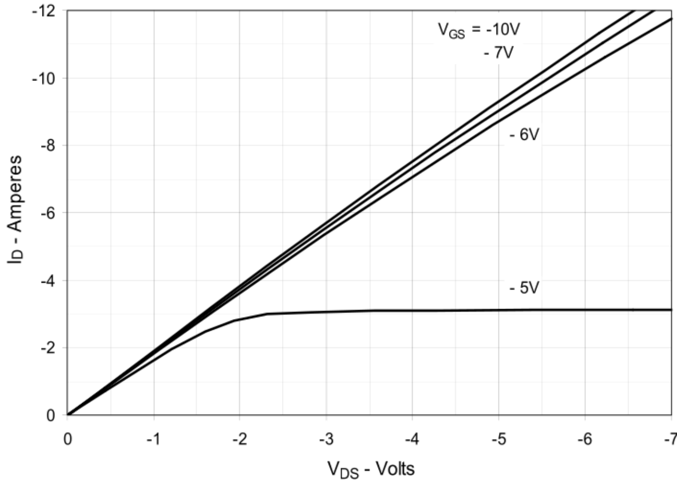


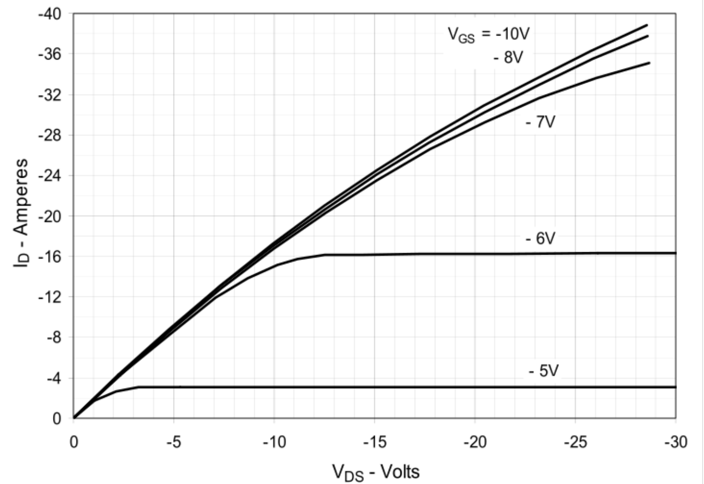
Terminals: 1 - Gate 2 - Drain
3 - Source 4 - Drain

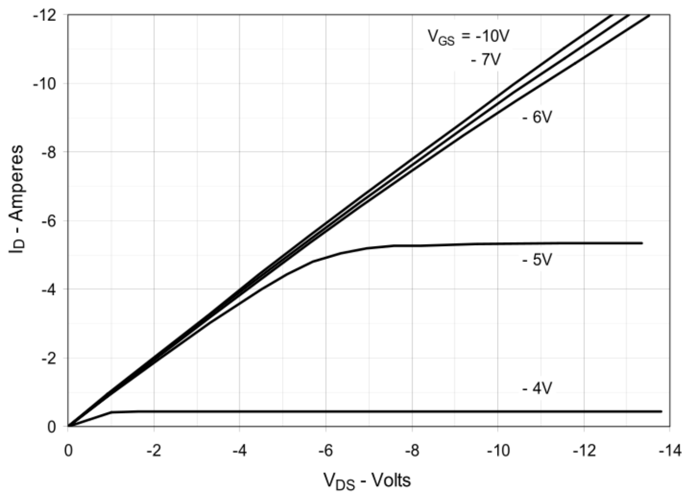
SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	.193	.201	4.90	5.10
A1	.106	.114	2.70	2.90
A2	.001	.010	0.02	0.25
b	.045	.057	1.15	1.45
b2	.075	.083	1.90	2.10
C	.016	.026	0.40	0.65
C2	.057	.063	1.45	1.60
D	.543	.551	13.80	14.00
D1	.488	.500	12.40	12.70
E	.624	.632	15.85	16.05
E1	.524	.535	13.30	13.60
e	.215 BSC		5.45 BSC	
H	.736	.752	18.70	19.10
L	.094	.106	2.40	2.70
L1	.047	.055	1.20	1.40
L2	.039	.045	1.00	1.15
L3	.010 BSC		0.25 BSC	
L4	.150	.161	3.80	4.10

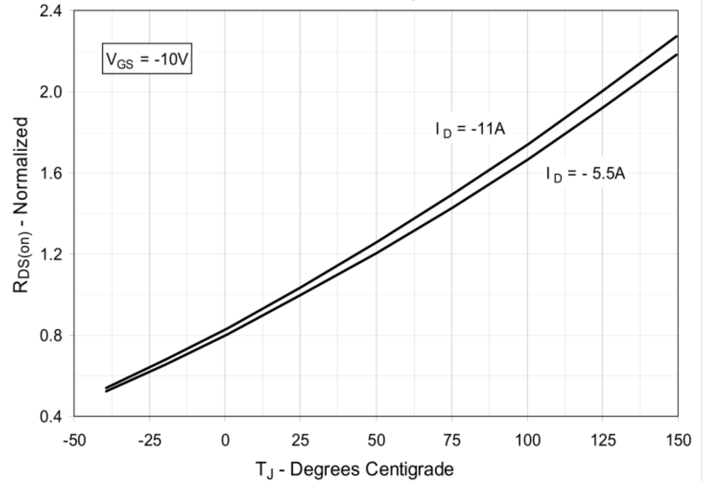
IXYS Reserves the Right to Change Limits, Test Conditions, and Dimensions.

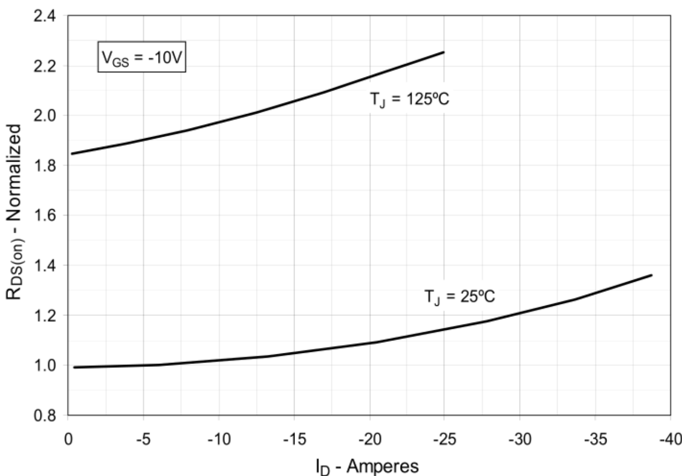
IXYS MOSFETs and IGBTs are covered by one or more of the following U.S. patents: 4,835,592 4,931,844 5,049,961 5,237,481 6,162,665 6,404,065 B1 6,683,344 6,727,585 7,005,734 B2 7,157,338B2 4,860,072 5,017,508 5,063,307 5,381,025 6,259,123 B1 6,534,343 6,710,405 B2 6,759,692 7,063,975 B2 4,881,106 5,034,796 5,187,117 5,486,715 6,306,728 B1 6,583,505 6,710,463 6,771,478 B2 7,071,537

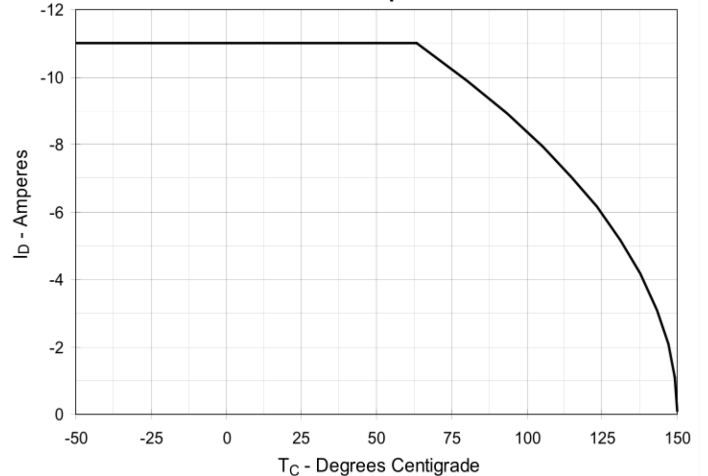












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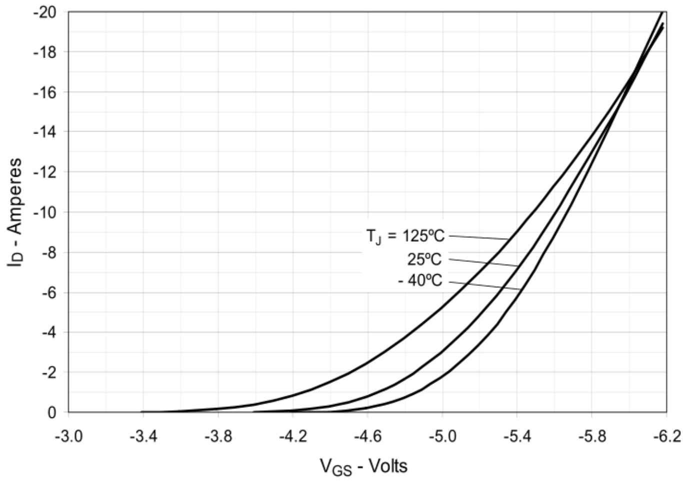

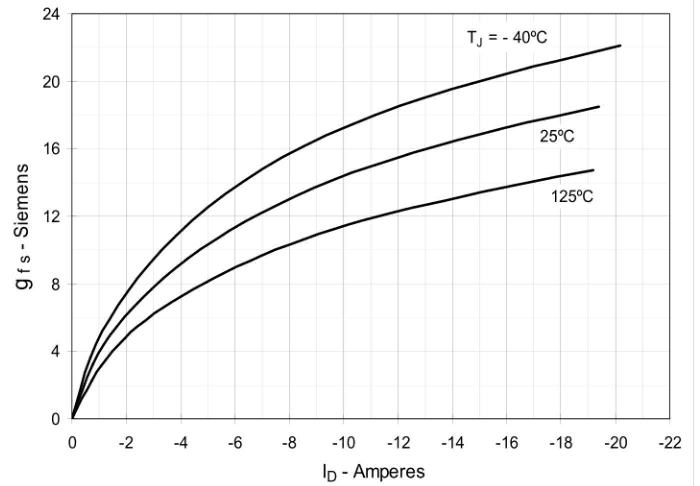

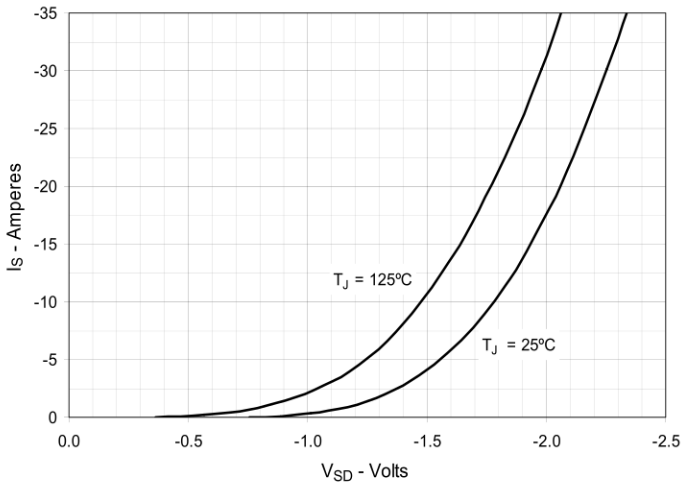

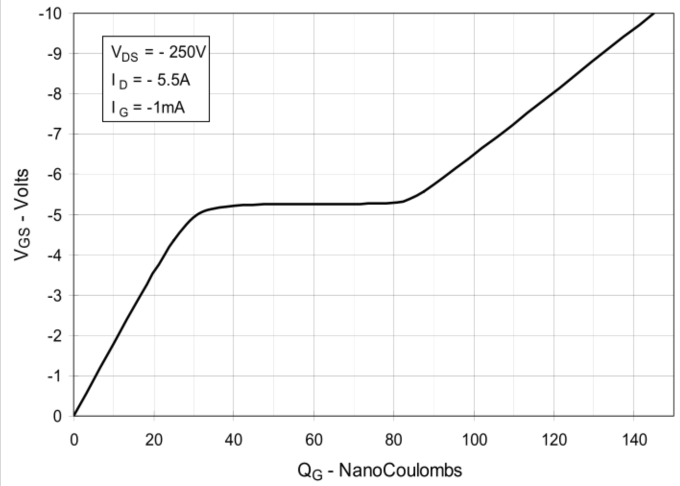

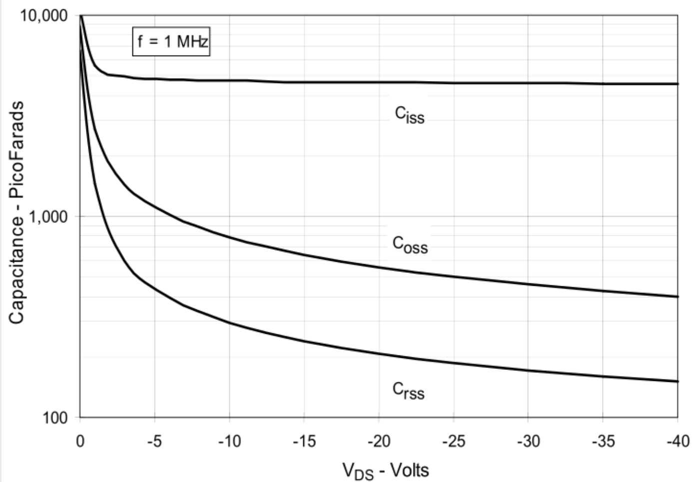

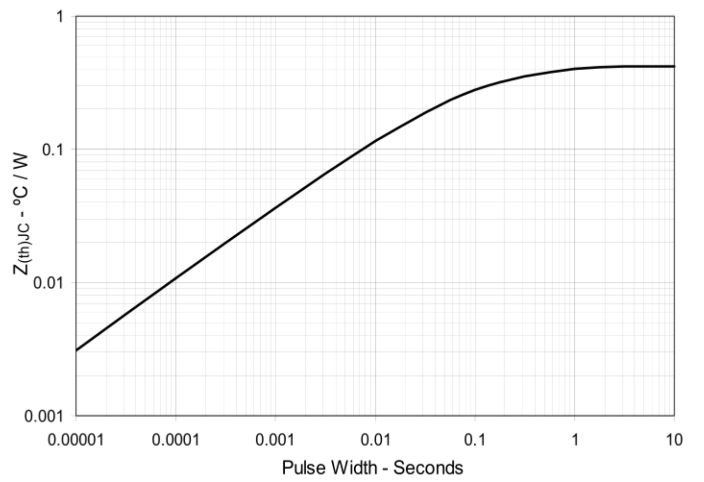

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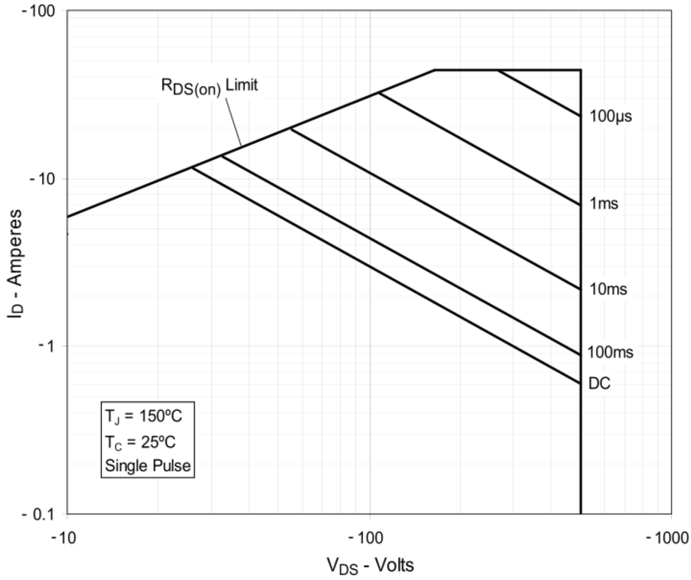

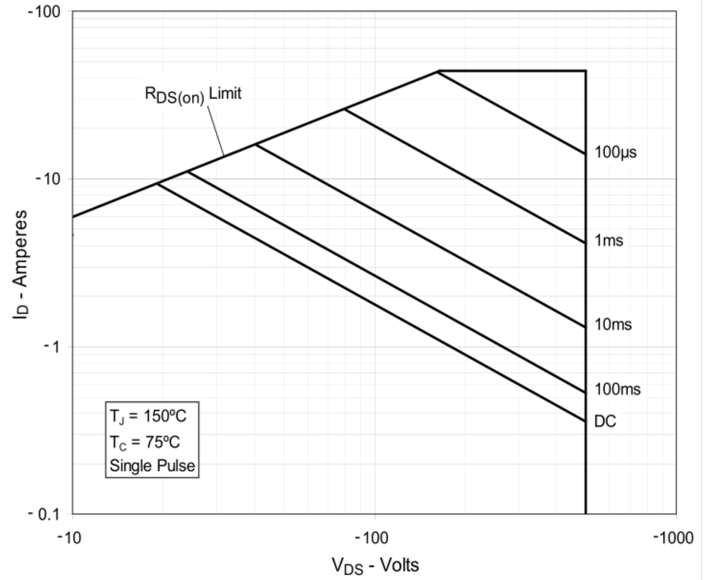

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