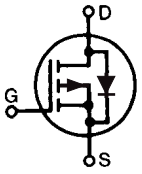
IXYS

Power MOSFETs

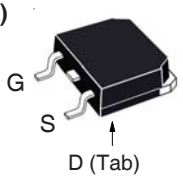
IXTT10P60
IXTH10P60

V_{DSS} = - 600V
I_{D25} = - 10A
$R_{DS(on)}$ ≤ 1Ω

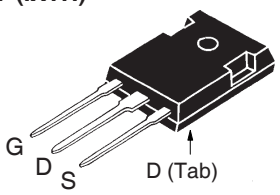
P-Channel Enhancement Mode
Avalanche Rated



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	- 600	V
V_{DGR}	T_J = 25°C to 150°C, R_{GS} = 1MΩ	- 600	V
V_{GSS}	Continuous	±20	V
V_{GSM}	Transient	±30	V
I_{D25}	T_C = 25°C	- 10	A
I_{DM}	T_C = 25°C, Pulse Width Limited by T_{JM}	- 40	A
I_A	T_C = 25°C	- 10	A
E_{AS}	T_C = 25°C	3	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

Symbol	Test Conditions (T_J = 25°C Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
BV_{DSS}	V_{GS} = 0V, I_D = - 250μA	- 600			V
$V_{GS(th)}$	V_{DS} = V_{GS}, I_D = - 250μA	- 3.0		- 5.0	V
I_{GSS}	V_{GS} = ± 20V, V_{DS} = 0V			±100	nA
I_{DSS}	V_{DS} = 0.8 • V_{DSS}, V_{GS} = 0V			- 25	μA
	T_J = 125°C			-1	mA
$R_{DS(on)}$	V_{GS} = 10V, I_D = 0.5 • I_{D25}, Note 1			1	Ω

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

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- High-Side Switching
- Push Pull Amplifiers
- DC Choppers
- Automatic Test Equipment

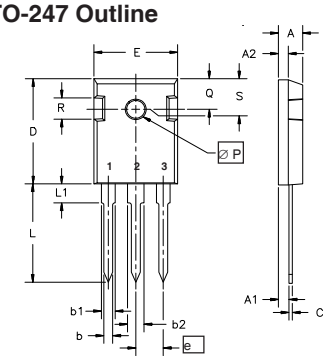
Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.
g_{fs}	V_{DS} = -10V, I_D = 0.5 • I_{D25}, Note 1	5	10.5	S
C_{iss}	V_{GS} = 0V, V_{DS} = - 25V, f = 1MHz		4665	pF
C_{oss}			437	pF
C_{rss}			157	pF
$t_{d(on)}$	**Resistive Switching Times**		33	ns
t_r	V_{GS} = -10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		27	ns
$t_{d(off)}$	R_G = 4.7Ω (External)		85	ns
t_f			35	ns
$Q_{g(on)}$	V_{GS} = -10V, V_{DS} = 0.5 • V_{DSS}, I_D = 0.5 • I_{D25}		135	nC
Q_{gs}			30	nC
Q_{gd}			45	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)	Characteristic Values Min.	Typ.	Max.	
I_S	V_{GS} = 0V			- 10	A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			- 40	A
V_{SD}	I_F = I_S, V_{GS} = 0V, Note 1			- 3.0	V
t_{rr}	I_F = -10A, -di/dt = -100A/μs V_R = -100V, V_{GS} = 0V		500		ns

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

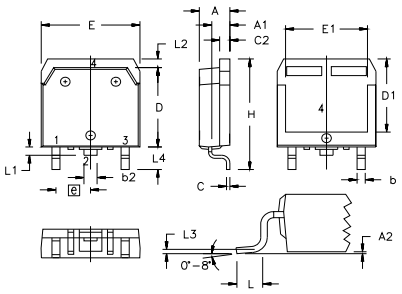
TO-247 Outline



Terminals: 1 - Gate 2 - Drain
3 - Source

Dim.	Millimeter Min.	Max.	Inches Min.	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
ØP	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	MAX	MILLIMETERS 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
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

Fig. 1. Output Characteristics @ T_J = 25ºC

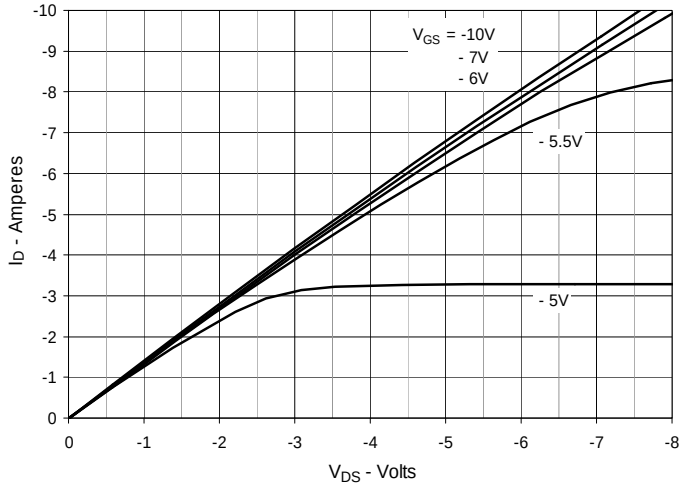


Fig. 2. Extended Output Characteristics @ T_J = 25ºC

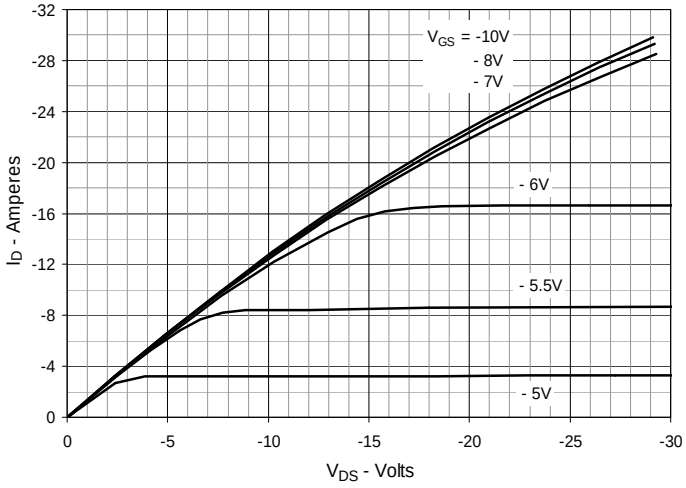


Fig. 3. Output Characteristics @ T_J = 125ºC

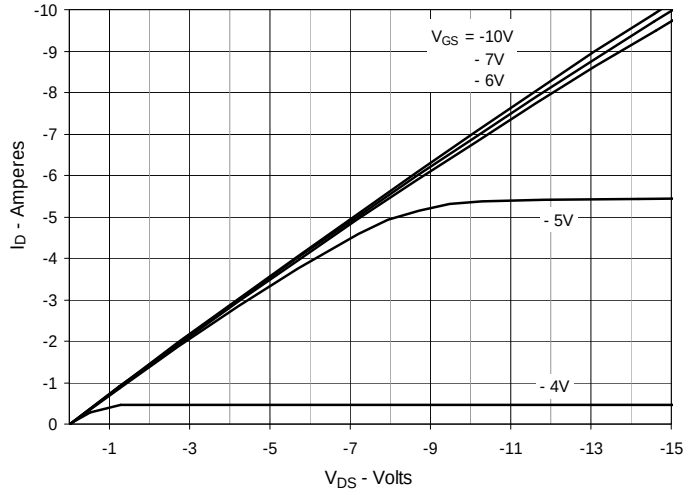


Fig. 4. $R_{DS(on)}$ Normalized to I_D = - 5A Value vs. Junction Temperature

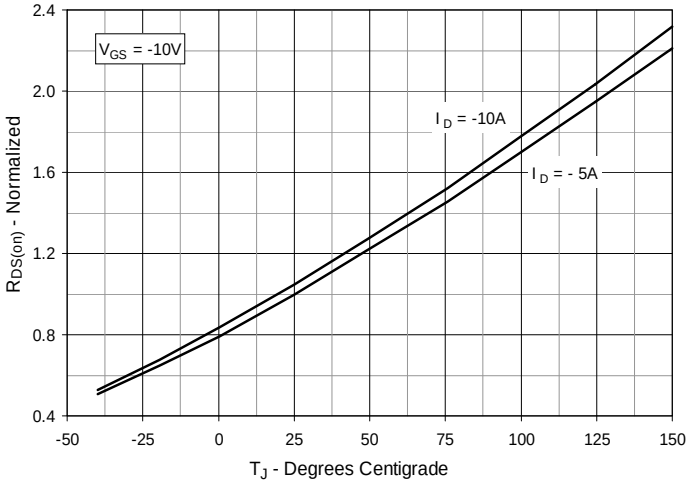


Fig. 5. $R_{DS(on)}$ Normalized to I_D = - 5A Value vs. Drain Current

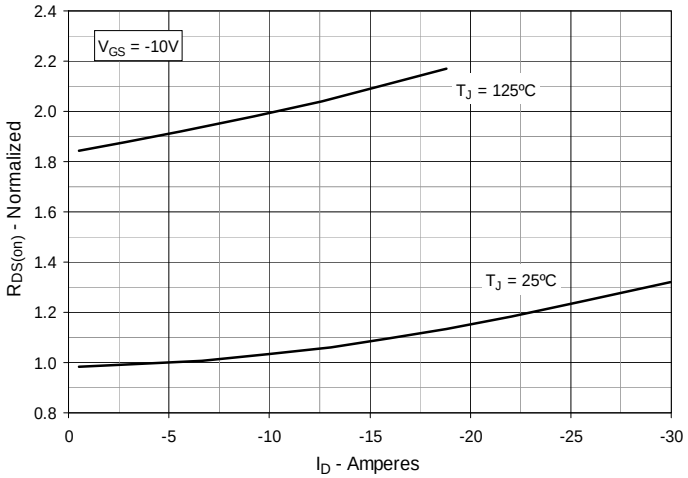


Fig. 6. Maximum Drain Current vs. Case Temperature

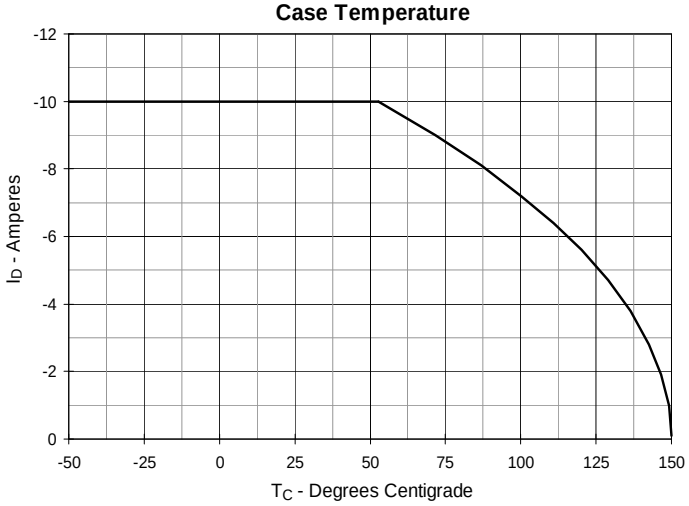


Fig. 7. Input Admittance

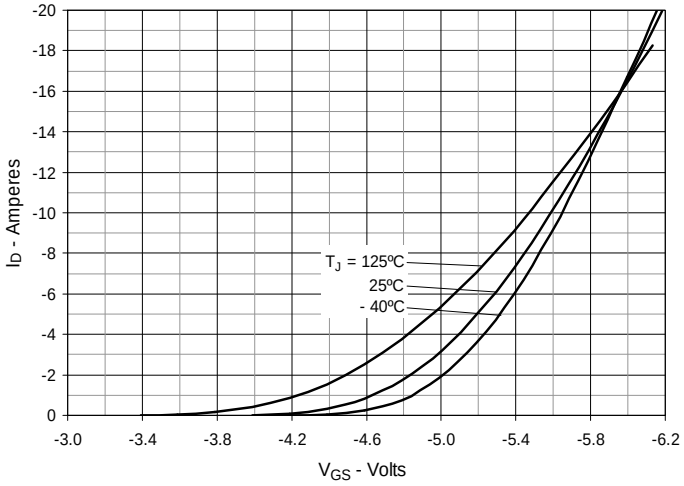


Fig. 8. Transconductance

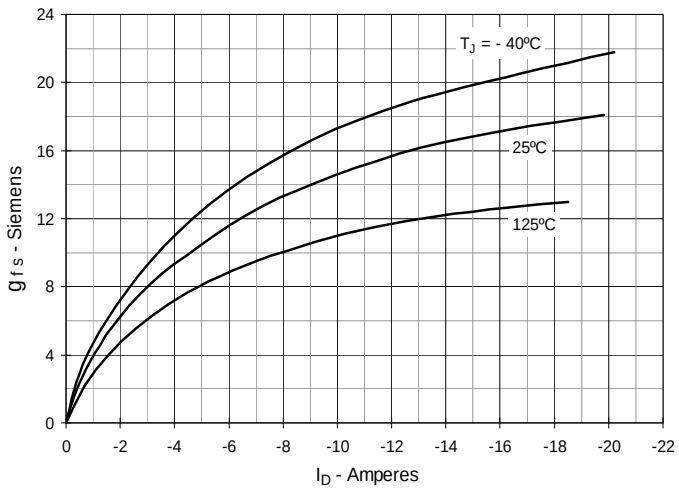


Fig. 9. Forward Voltage Drop of Intrinsic Diode

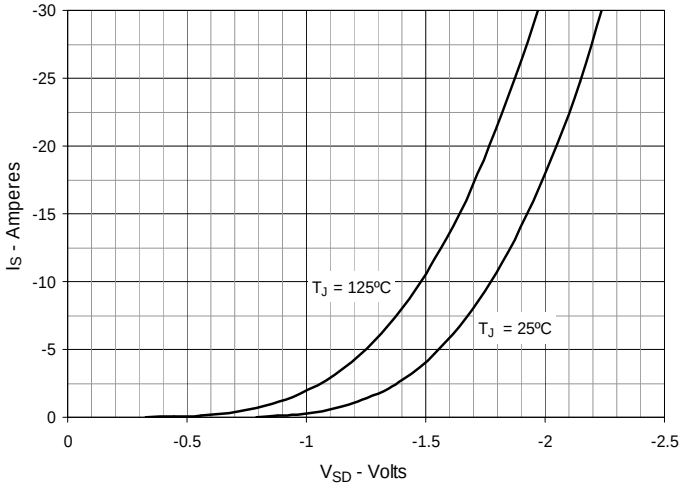


Fig. 10. Gate Charge

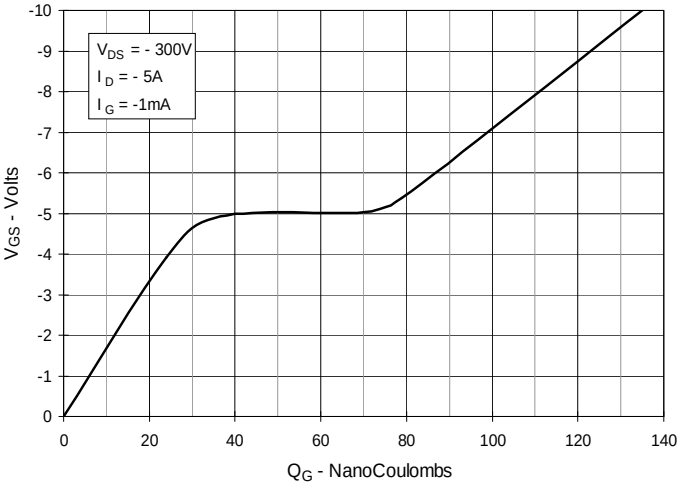


Fig. 11. Capacitance

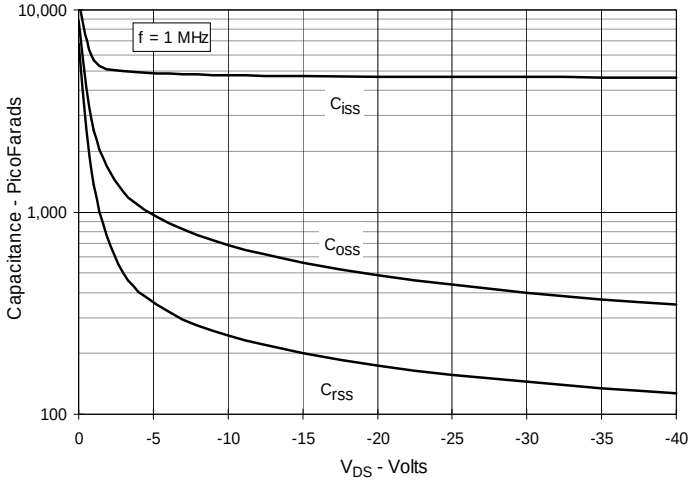


Fig. 12. Maximum Transient Thermal Impedance

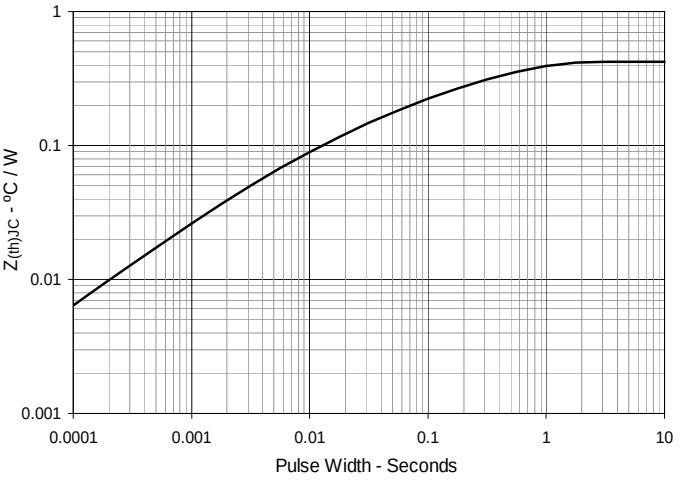


Fig. 13. Forward-Bias Safe Operating Area @ T_C = 25ºC

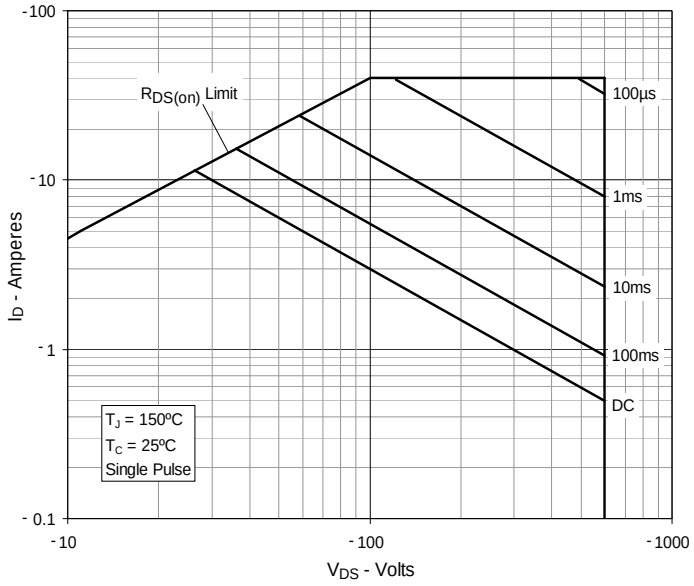


Fig. 14. Forward-Bias Safe Operating Area @ T_C = 75ºC