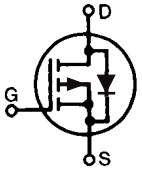
IXYS

Standard Power MOSFET

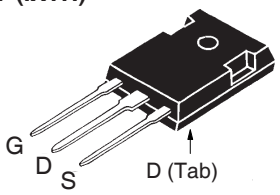
IXTH10P60
IXTT10P60

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

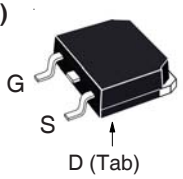
P-Channel Enhancement Mode
Avalanche Rated



TO-247 (IXTH)



TO-268 (IXTT)



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	30	mJ
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 (0.062 in.) from Case for 10s	300	°C
T_{SOLD}	Plastic Body for 10s	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
- Avalanche Rated
- Low Package Inductance
- Rugged Polysilicon Gate Cell Structure

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

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

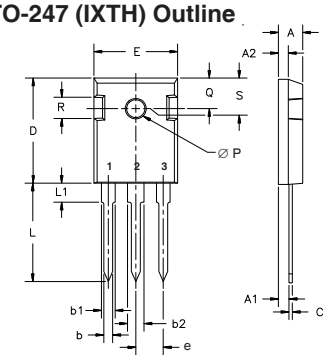
Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	V_{DS} = -10V, I_D = 0.5 • I_{D25}, Note 1	5	9		S
C_{iss}	V_{GS} = 0V, V_{DS} = - 25V, f = 1MHz		4700		pF
C_{oss}			430		pF
C_{rss}			135		pF
$t_{d(on)}$	**Resistive Switching Times**		33		ns
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}		160		nC
Q_{gs}			46		nC
Q_{gd}			92		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	V
t_{rr}	I_F = I_S, -di/dt = -100A/μs		500		ns

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

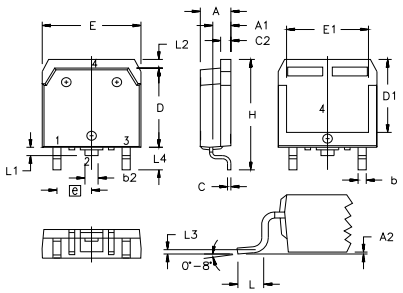
TO-247 (IXTH) Outline



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

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 (IXTT) Outline



Terminals: 1 - Gate 2 - Drain
3 - Source Tab - 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 at 25ºC

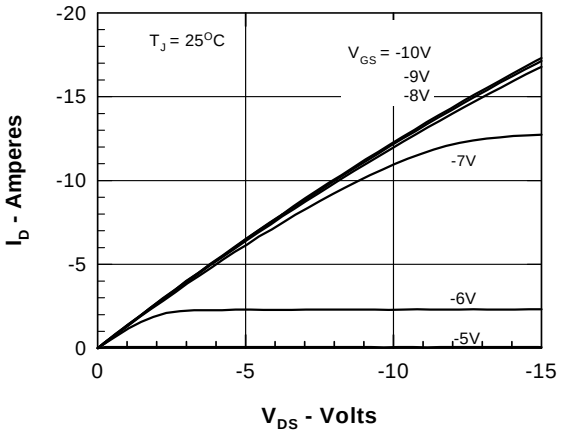


Fig. 2. Output Characteristics at 125ºC

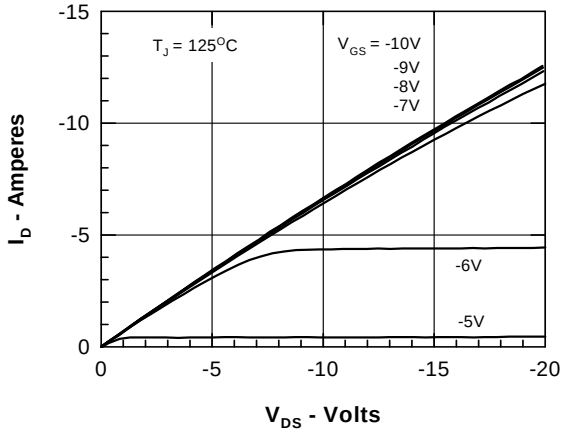


Fig. 3. $R_{DS(ON)}$ vs. Drain Current

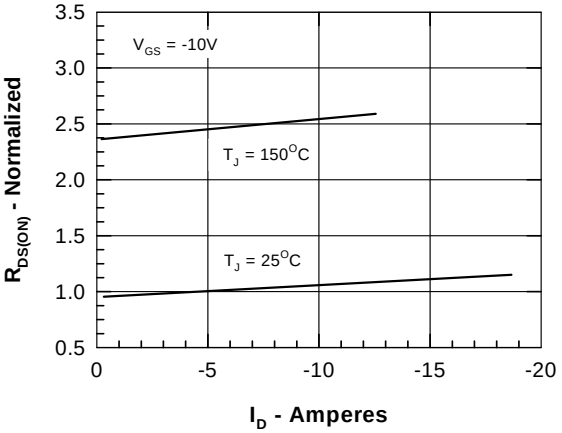


Fig. 4. $R_{DS(ON)}$ vs. T_J

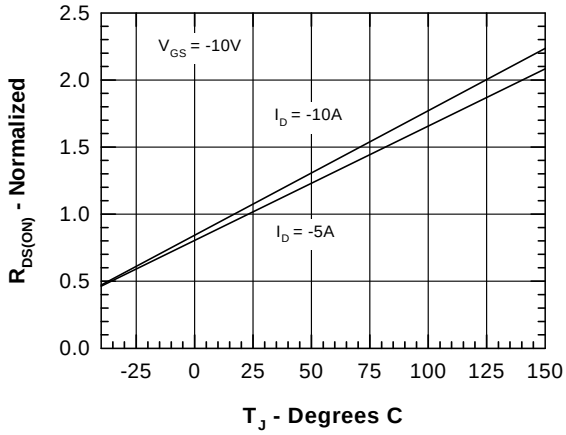


Fig. 5. Drain Current vs. Case Temperature

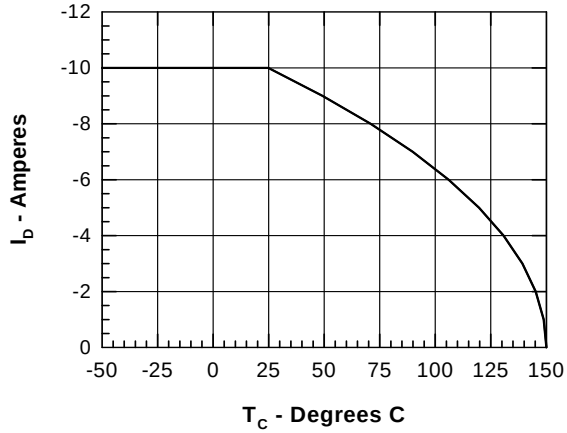


Fig. 6. Admittance Curves

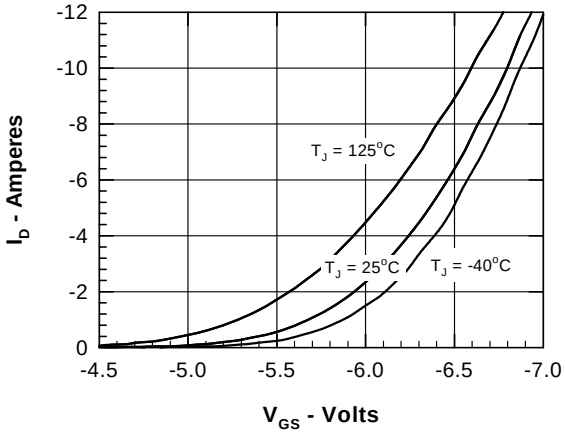


Fig. 7. Source Current vs Source-to-Drain Voltage

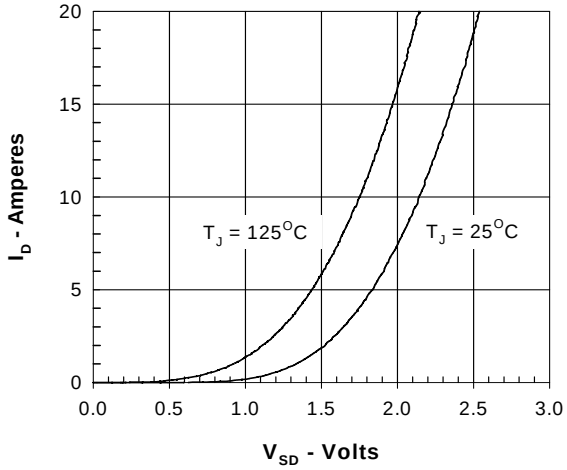


Fig. 8. Capacitance Curves

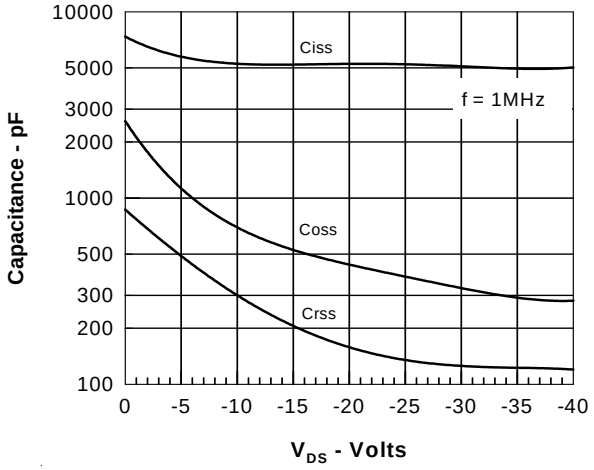


Fig. 9. Gate Charge Characteristic Curve

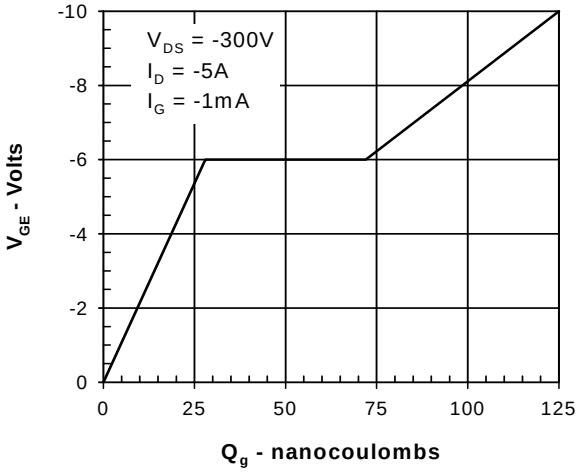


Fig. 10. Forward-Bias Safe Operating Area

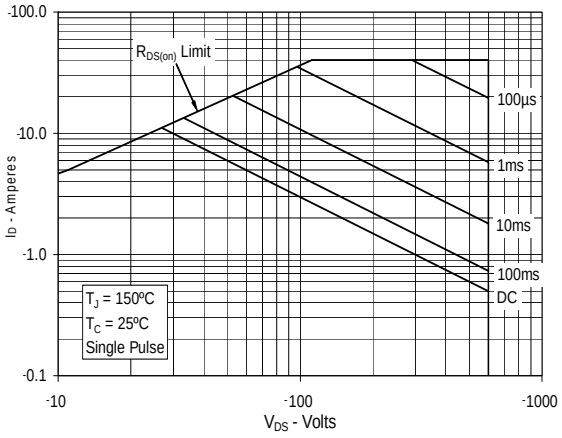


Fig. 11. Maximum Thermal Impedance