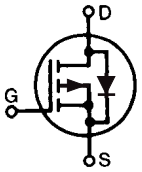
IXYS

PolarP™ Power MOSFET

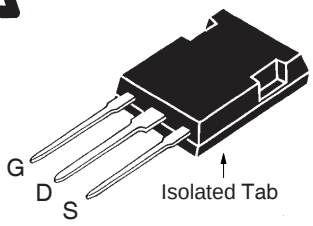
IXTR32P60P

V_{DSS} = - 600V
I_{D25} = - 18A
$R_{DS(on)}$ ≤ 385mΩ

P-Channel Enhancement Mode
Avalanche Rated



ISOPLUS247
E153432



G = Gate D = Drain
S = Source

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	-18	A
I_{DM}	T_C = 25°C, Pulse Width Limited by T_{JM}	- 96	A
I_A	T_C = 25°C	- 32	A
E_{AS}	T_C = 25°C	3.5	J
dv/dt	$I_S \le I_{DM}$, $V_{DD} \le V_{DSS}$, $T_J \le 150°C$	10	V/ns
P_D	T_C = 25°C	310	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
V_{ISOL}	50/60 Hz, 1 Minute	2500	V~
M_d	Mounting Force	20..120/4.5..27	N/lb.
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	- 600			V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, I_D = -1mA	- 2.0		- 4.0	V
I_{GSS}	V_{GS} = ±20V, V_{DS} = 0V			±100	nA
I_{DSS}	$V_{DS} = V_{DSS}$, V_{GS} = 0V			- 50	μA
	T_J = 125°C			- 250	μA
$R_{DS(on)}$	V_{GS} = -10V, I_D = -16A, Note 1			385	mΩ

Features

- Silicon Chip on Direct-Copper Bond (DCB) Substrate
  - UL Recognized Package
  - Isolated Mounting Surface
  - 2500V~ Electrical Isolation
- Avalanche Rated
- The Rugged PolarP™ Process
- Low Q_G
- Low Drain-to-Tab Capacitance
- Low Package Inductance

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- High-Side Switches
- Push Pull Amplifiers
- DC Choppers
- Automatic Test Equipment
- Current Regulators

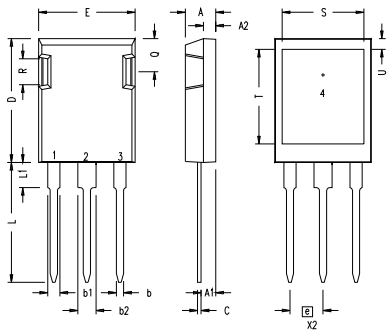
Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	V_{DS} = -10V, I_D = -16A, Note 1	21	32		S
C_{iss}	V_{GS} = 0V, V_{DS} = - 25V, f = 1MHz		11.1		nF
C_{oss}			925		pF
C_{rss}			77		pF
$t_{d(on)}$	**Resistive Switching Times**		37		ns
t_r	V_{GS} = -10V, V_{DS} = 0.5 • V_{DSS}, I_D = -16A		27		ns
$t_{d(off)}$	R_G = 1Ω (External)		95		ns
t_f			33		ns
$Q_{g(on)}$	V_{GS} = -10V, V_{DS} = 0.5 • V_{DSS}, I_D = -16A		196		nC
Q_{gs}			54		nC
Q_{gd}			58		nC
R_{thJC}				0.40	°C/W
R_{thCS}			0.15		°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			- 32	A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			- 128	A
V_{SD}	I_F = -16A, V_{GS} = 0V, Note 1			- 2.8	V
t_{rr}	I_F = -16A, -di/dt = -150A/μs		480		ns
Q_{RM}	V_R = -100V, V_{GS} = 0V		11.4		μC
I_{RM}			- 47.6		A

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

ISOPLUS247 (IXTR) Outline



1 - Gate
2,4 - Drain
3 - Source

SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	.190	.205	4.83	5.21
A1	.090	.100	2.29	2.54
A2	.075	.085	1.91	2.16
b	.045	.055	1.14	1.40
b1	.075	.084	1.91	2.13
b2	.115	.123	2.92	3.12
C	.024	.031	0.61	0.80
D	.819	.840	20.80	21.34
E	.620	.635	15.75	16.13
e	.215 BSC		5.45 BSC	
L	.780	.800	19.81	20.32
L1	.150	.170	3.81	4.32
Q	.220	.244	5.59	6.20
R	.170	.190	4.32	4.83
S	.520	.540	13.21	13.72
T	.620	.640	15.75	16.26
U	.065	.080	1.65	2.03

Fig. 1. Output Characteristics @ T_J = 25ºC

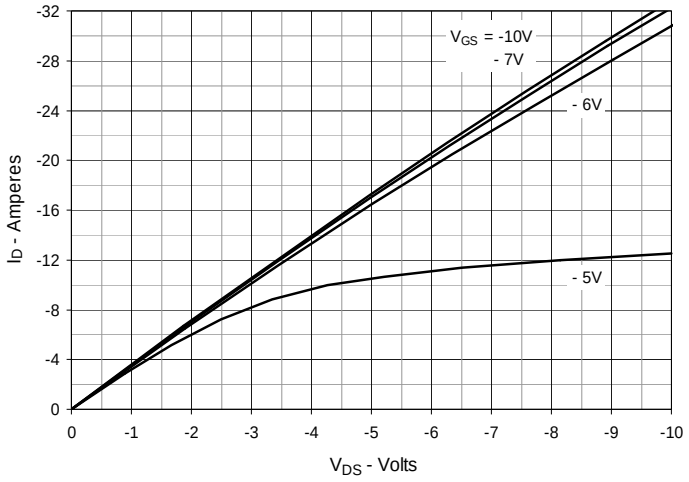


Fig. 2. Extended Output Characteristics @ T_J = 25ºC

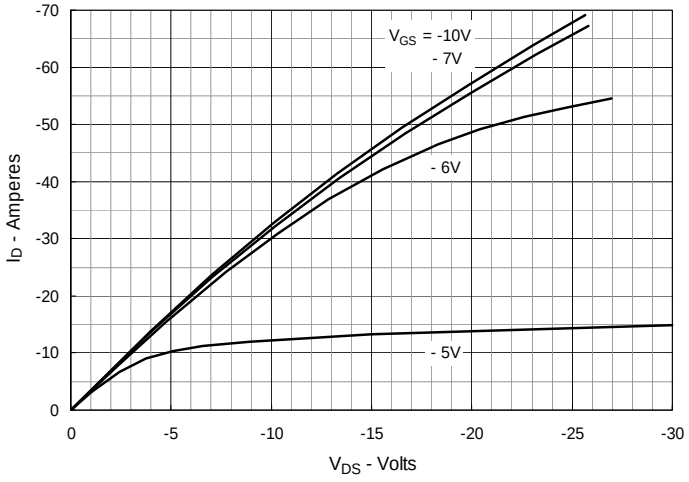


Fig. 3. Output Characteristics @ T_J = 125ºC

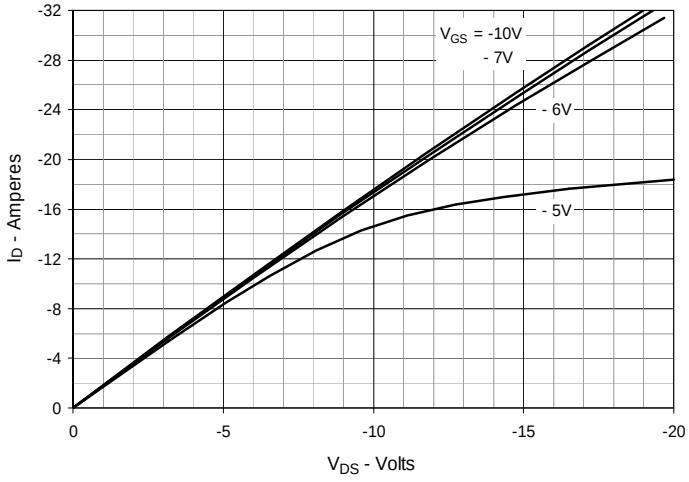


Fig. 4. $R_{DS(on)}$ Normalized to I_D = -16A Value vs. Junction Temperature

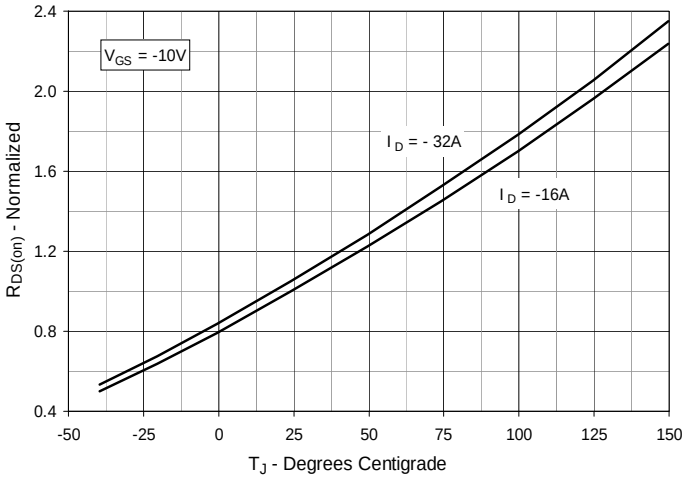


Fig. 5. $R_{DS(on)}$ Normalized to I_D = -16A Value vs. Drain Current

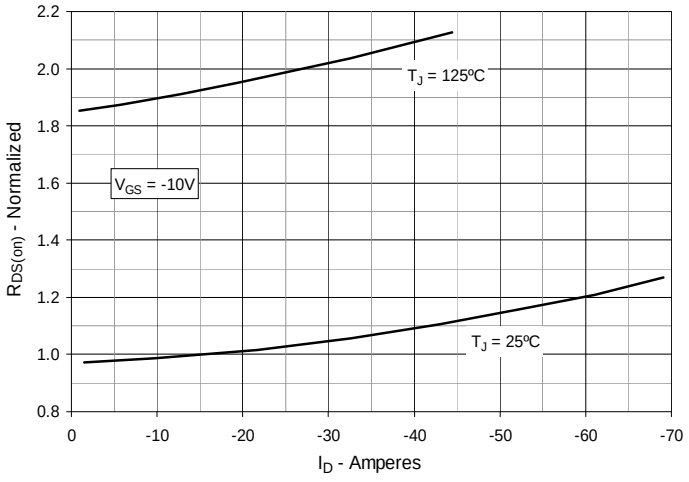


Fig. 6. Maximum Drain Current vs. Case Temperature

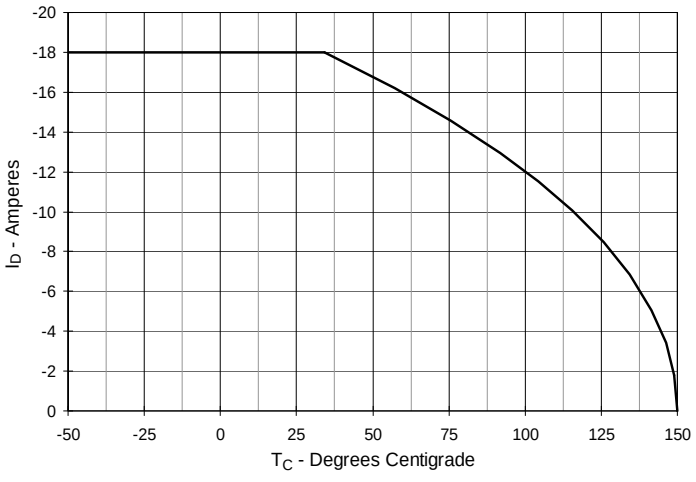


Fig. 7. Input Admittance

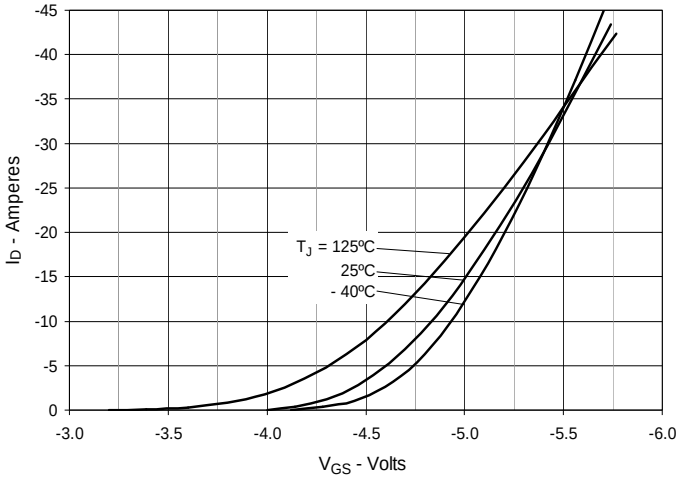


Fig. 8. Transconductance

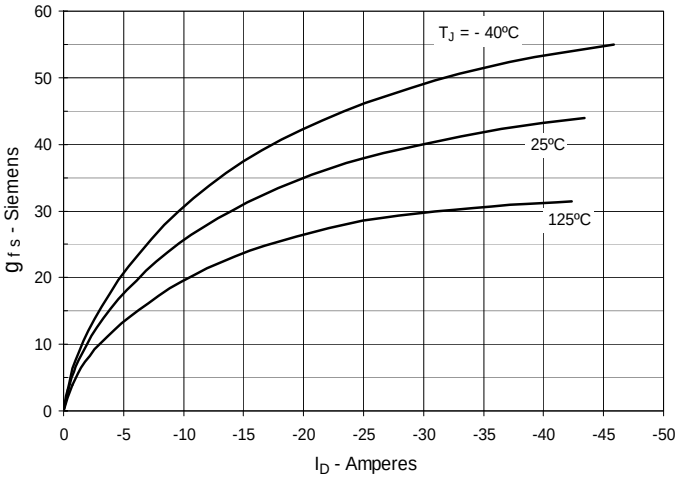


Fig. 9. Forward Voltage Drop of Intrinsic Diode

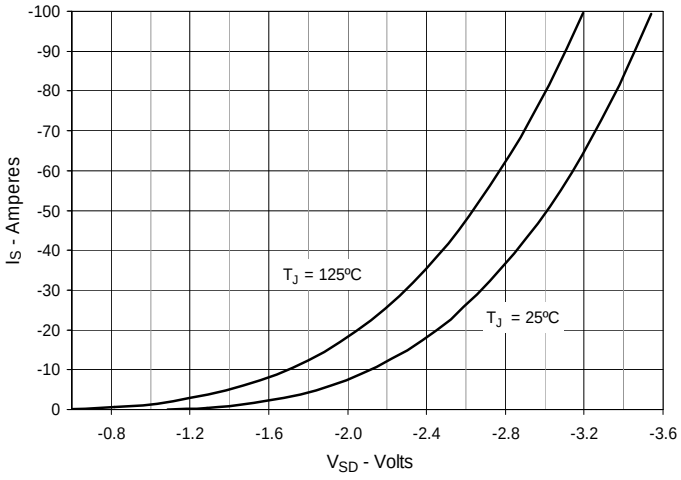


Fig. 10. Gate Charge

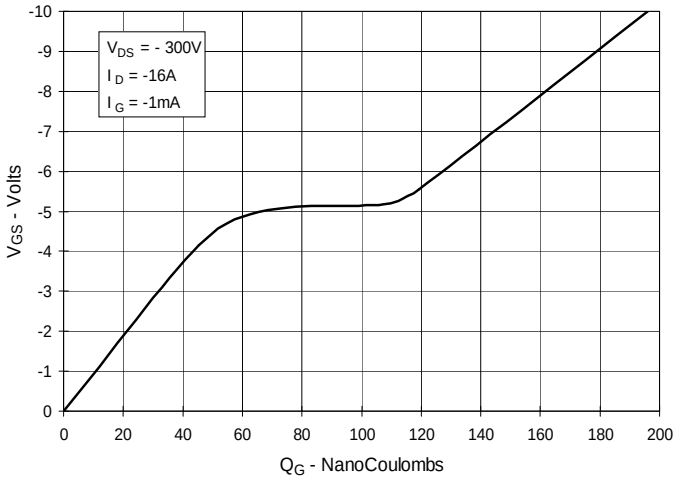


Fig. 11. Capacitance

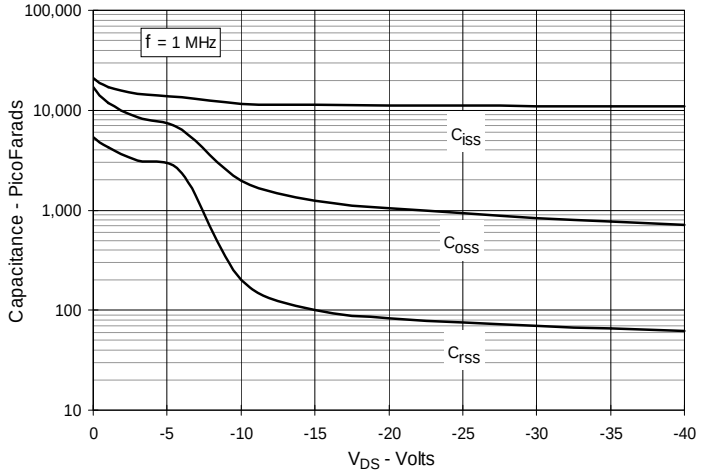


Fig. 12. Forward-Bias Safe Operating Area

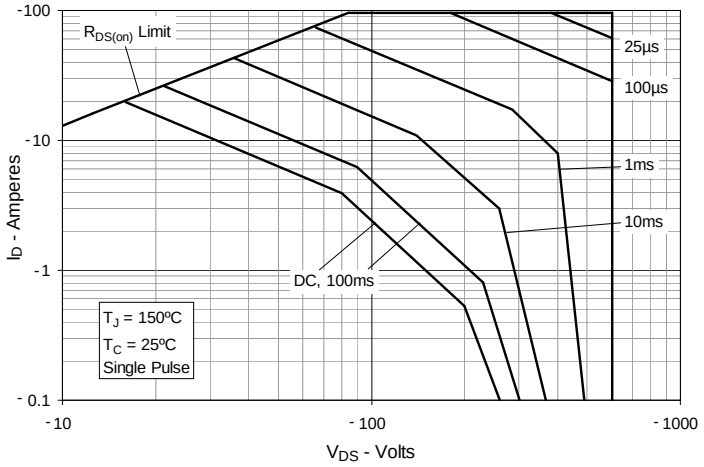


Fig. 13. Maximum Transient Thermal Impedance