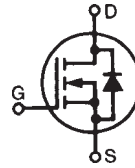


Polar3™ HiperFET™ Power MOSFETs

IXFT50N60P3
IXFQ50N60P3
IXFH50N60P3

V_{DSS} = 600V
I_{D25} = 50A
R_{DS(on)} ≤ 145mΩ

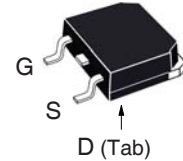
N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Rectifier



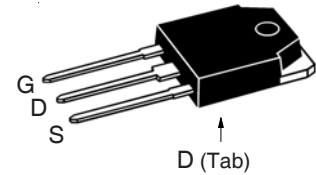
Symbol	Test Conditions	Maximum Ratings	
V _{DSS}	T _J = 25°C to 150°C	600	V
V _{DGR}	T _J = 25°C to 150°C, R _{GS} = 1MΩ	600	V
V _{GSS}	Continuous	± 30	V
V _{GSM}	Transient	± 40	V
I _{D25}	T _C = 25°C	50	A
I _{DM}	T _C = 25°C, Pulse Width Limited by T _{JM}	125	A
I _A	T _C = 25°C	25	A
E _{AS}	T _C = 25°C	1	J
dv/dt	I _S ≤ I _{DM} , V _{DD} ≤ V _{DSS} , T _J ≤ 150°C	35	V/ns
P _D	T _C = 25°C	1040	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 & TO-3P)	1.13 / 10	Nm/lb.in.
Weight	TO-268	4.0	g
	TO-3P	5.5	g
	TO-247	6.0	g

Symbol	Test Conditions (T _J = 25°C Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV _{DSS}	V _{GS} = 0V, I _D = 1mA	600		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 4mA	3.0		5.0 V
I _{GSS}	V _{GS} = ±30V, V _{DS} = 0V			±100 nA
I _{DSS}	V _{DS} = V _{DSS} , V _{GS} = 0V T _J = 125°C			25 μA 2 mA
R _{DS(on)}	V _{GS} = 10V, I _D = 0.5 • I _{D25} , Note 1			145 mΩ

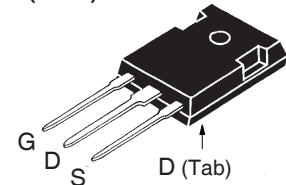
TO-268 (IXFT)



TO-3P (IXFQ)



TO-247 (IXFH)



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

Features

- Fast Intrinsic Rectifier
- Avalanche Rated
- Low R_{DS(ON)} and Q_G
- Low Package Inductance

Advantages

- High Power Density
- Easy to Mount
- Space Savings

Applications

- Switch-Mode and Resonant-Mode Power Supplies
- DC-DC Converters
- Laser Drivers
- AC and DC Motor Drives
- Robotics and Servo Controls

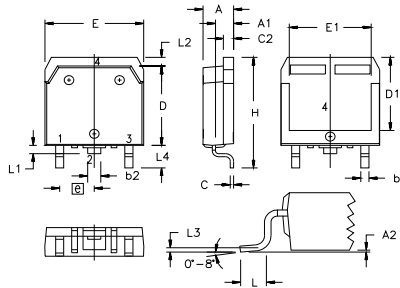
Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 20V, I_D = 0.5 \cdot I_{D25}, \text{ Note 1}$	32	55	S
C_{iss}	$V_{GS} = 0V, V_{DS} = 25V, f = 1MHz$		6300	pF
C_{oss}			630	pF
C_{rss}			2.5	pF
R_{Gi}	Gate Input Resistance		1.0	Ω
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 10V, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$ $R_G = 1\Omega \text{ (External)}$		31	ns
t_r			20	ns
$t_{d(off)}$			62	ns
t_f			17	ns
$Q_{g(on)}$	$V_{GS} = 10V, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$		94	nC
Q_{gs}			27	nC
Q_{gd}			23	nC
R_{thJC}	(TO-247 & TO-3P)			0.12 $^{\circ}C/W$
R_{thCS}		0.25		$^{\circ}C/W$

Source-Drain Diode

Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
I_S	$V_{GS} = 0V$			50 A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			200 A
V_{SD}	$I_F = I_S, V_{GS} = 0V, \text{ Note 1}$			1.4 V
t_{rr}	$I_F = 25A, -di/dt = 100A/\mu s$ $V_R = 100V, V_{GS} = 0V$			250 ns
I_{RM}			11	A
Q_{RM}			1.1	μC

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

TO-268 Outline



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

SYM	INCHES		MILLIMETERS	
	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
b1	.075	.083	1.90	2.10
b2	.016	.026	0.40	0.65
C	.057	.063	1.45	1.60
C2	.543	.551	13.80	14.00
D	.488	.500	12.40	12.70
D1	.624	.632	15.85	16.05
E	.524	.535	13.30	13.60
E1	.215 BSC		5.45 BSC	
L	.736	.752	18.70	19.10
L1	.094	.106	2.40	2.70
L2	.047	.055	1.20	1.40
L3	.039	.045	1.00	1.15
L4	.010 BSC		0.25 BSC	
L5	.150	.161	3.80	4.10

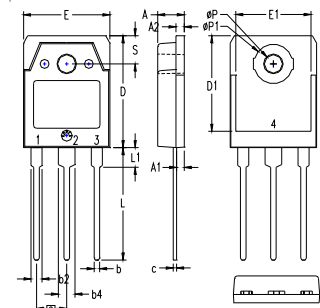
PRELIMINARY TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from data gathered during objective characterizations of preliminary engineering lots; but also may yet contain some information supplied during a pre-production design evaluation. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

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
	4,850,072	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	

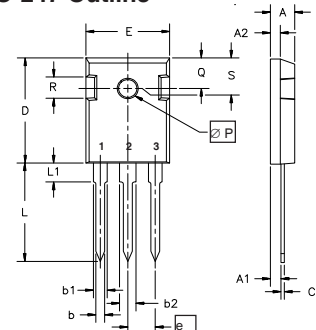
TO-3P Outline



1 - GATE
2 - DRAIN
3 - SOURCE
4 - DRAIN

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.185	.193	4.70	4.90
A1	.051	.059	1.30	1.50
A2	.057	.065	1.45	1.65
b	.035	.045	0.90	1.15
b1	.075	.087	1.90	2.20
b2	.114	.126	2.90	3.20
c	.022	.031	0.55	0.80
D	.780	.799	19.80	20.30
D1	.665	.677	16.90	17.20
E	.610	.622	15.50	15.80
E1	.531	.539	13.50	13.70
e	.215 BSC		5.45 BSC	
L	.779	.795	19.80	20.20
L1	.134	.142	3.40	3.60
ØP	.126	.134	3.20	3.40
ØP1	.272	.280	6.90	7.10
S	.193	.201	4.90	5.10

TO-247 Outline



Terminals: 1 - Gate
3 - Source
2 - Drain

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A1	2.2	2.54	.087	.102
A2	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b1	1.65	2.13	.065	.084
b2	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	

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

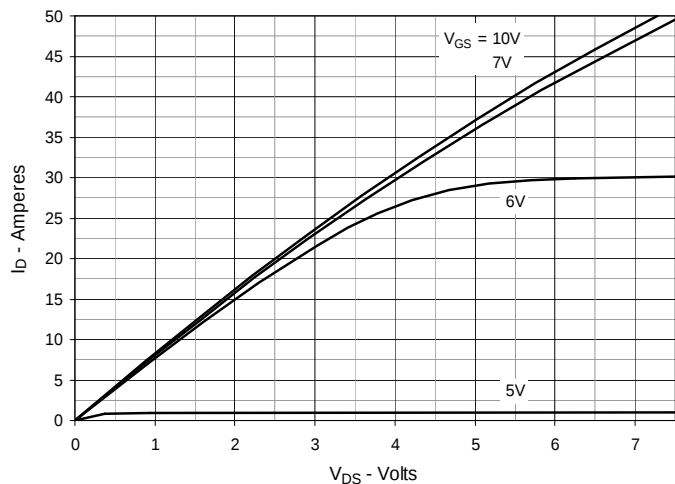


Fig. 2. Extended Output Characteristics @ $T_J = 25^\circ\text{C}$

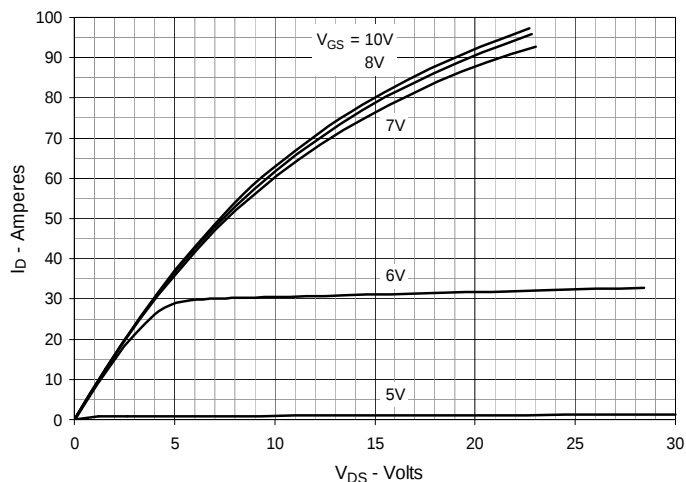


Fig. 3. Output Characteristics @ $T_J = 125^\circ\text{C}$

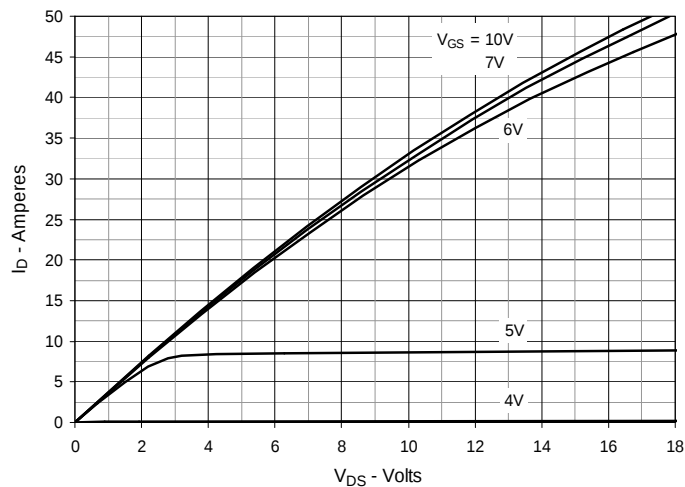


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 25\text{A}$ Value vs. Junction Temperature

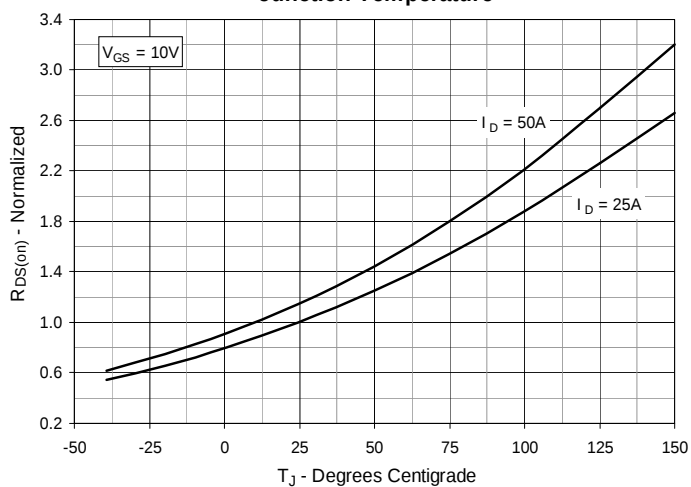


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 25\text{A}$ Value vs. Drain Current

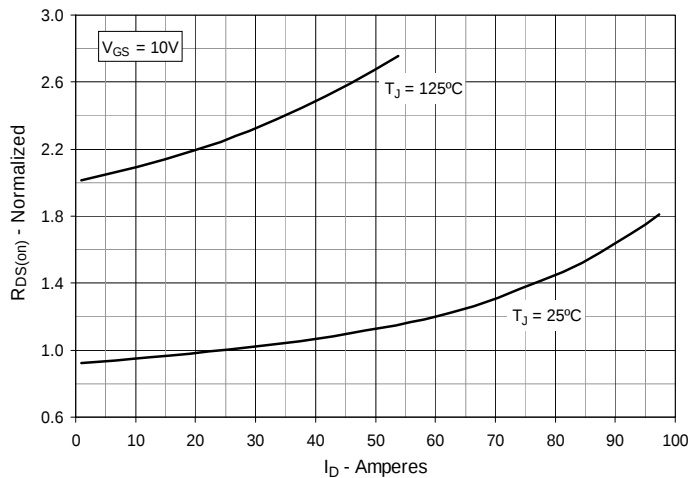


Fig. 6. Maximum Drain Current vs. Case Temperature

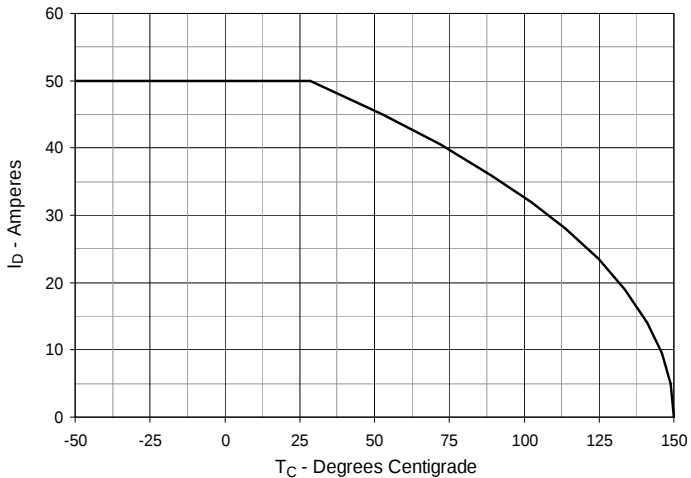


Fig. 7. Input Admittance

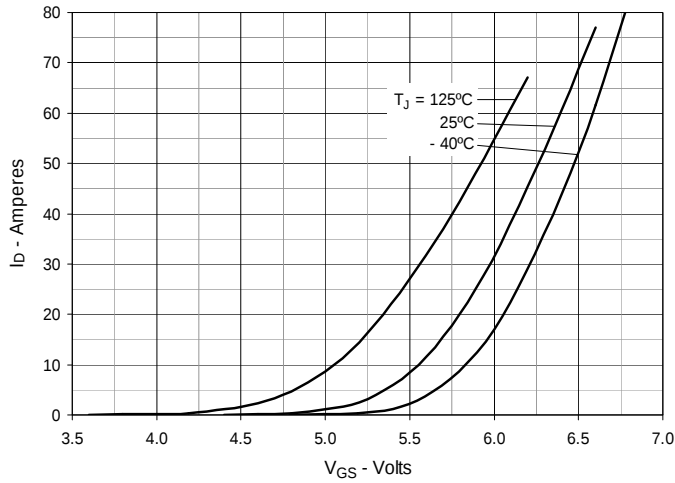


Fig. 8. Transconductance

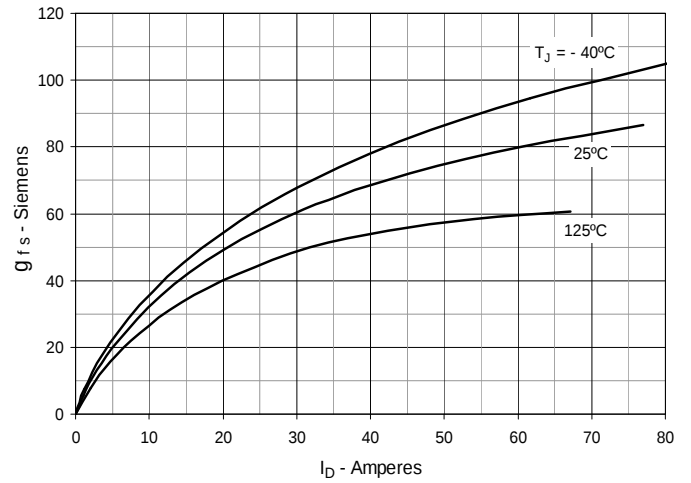


Fig. 9. Forward Voltage Drop of Intrinsic Diode

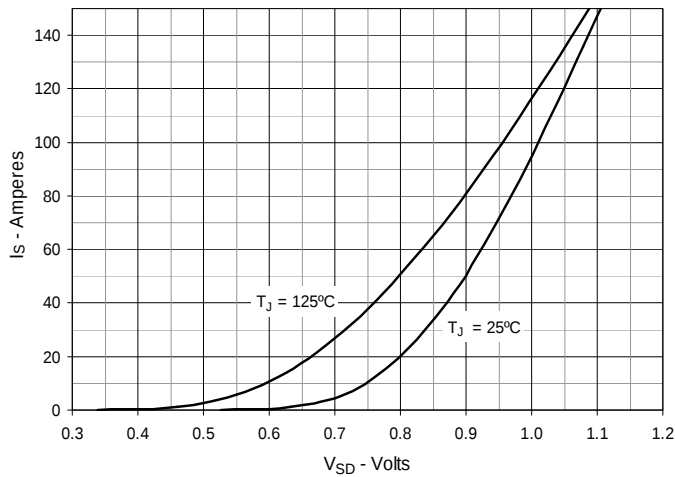


Fig. 10. Gate Charge

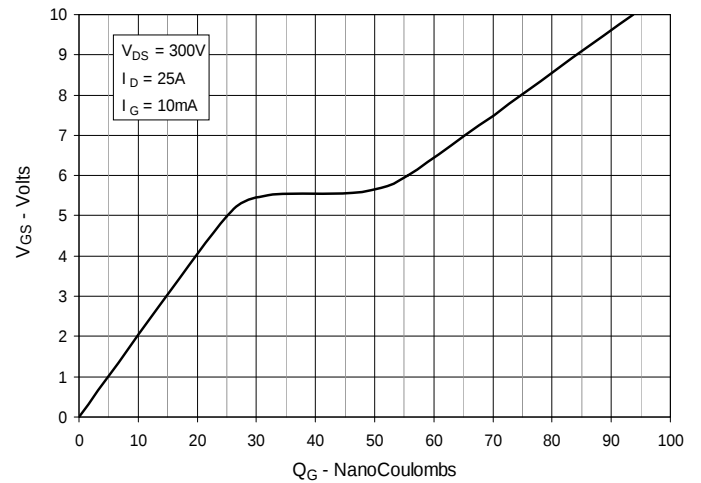


Fig. 11. Capacitance

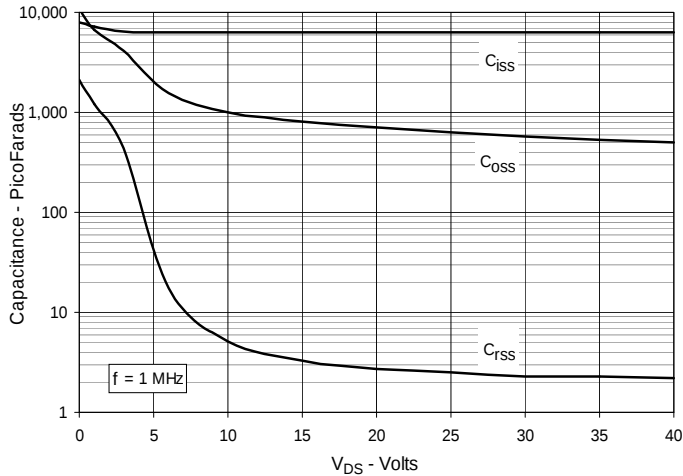


Fig. 12. Forward-Bias Safe Operating Area

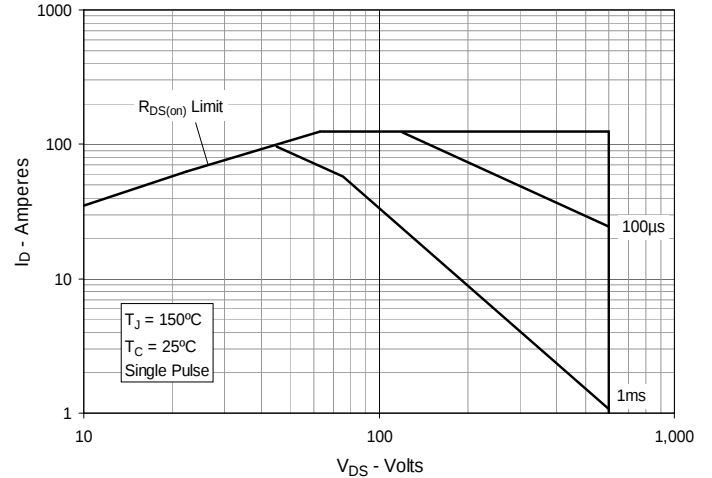
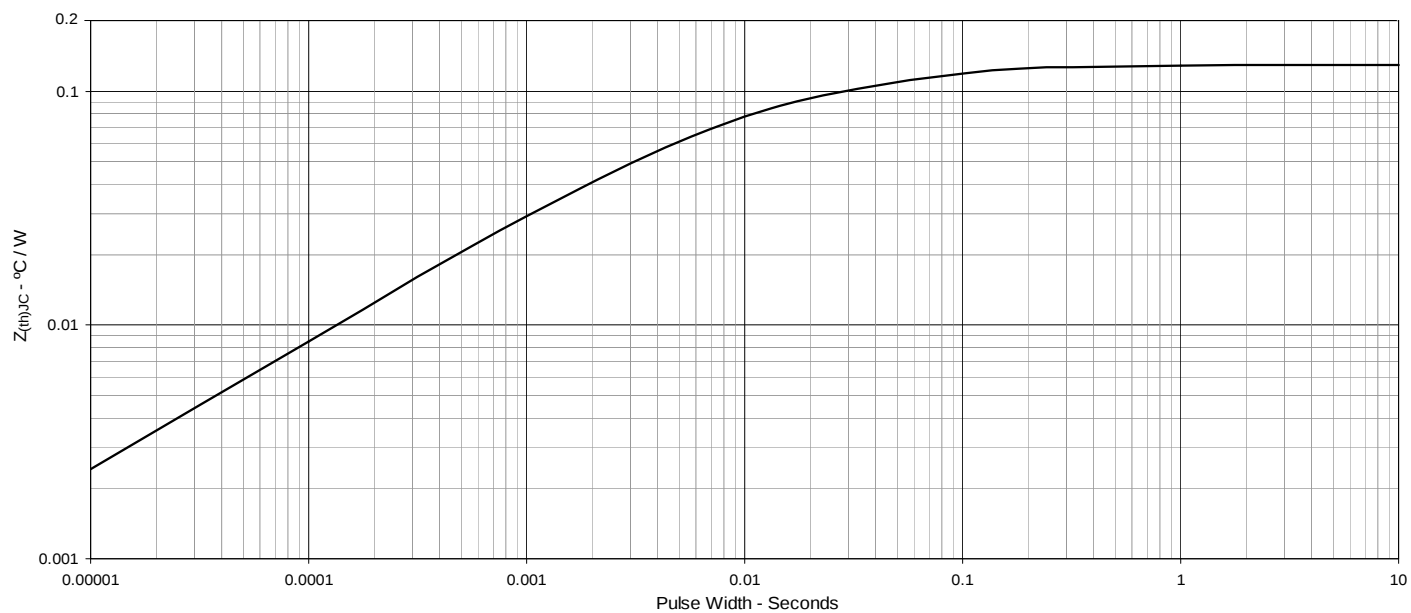


Fig. 13. Maximum Transient Thermal Impedance





Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



Как с нами связаться

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