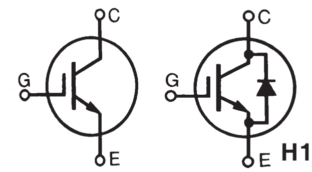
IXYS

High Voltage IGBT

IXGH 16N170A
IXGT 16N170A
IXGH 16N170AH1
IXGT 16N170AH1

V_{CES} = 1700 V
I_{C25} = 16 A
$V_{CE(sat)}$ = 5.0 V
$t_{fi(typ)}$ = 70 ns

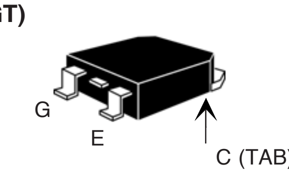
Preliminary Data Sheet



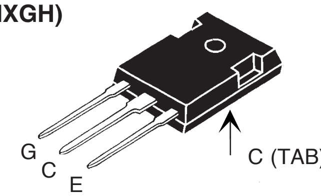
Symbol	Test Conditions		Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C		1700	V
V_{CGR}	T_J = 25°C to 150°C; R_{GE} = 1 MΩ		1700	V
V_{GES}	Continuous		±20	V
V_{GEM}	Transient		±30	V
I_{C25}	T_C = 25°C		16	A
I_{C90}	T_C = 90°C		11	A
I_{F90}	T_C = 90°C, Diode		17	A
I_{CM}	T_C = 25°C, 1 ms		40	A
SSOA (RBSOA)	V_{GE} = 15 V, T_{VJ} = 125°C, R_G = 10Ω Clamped inductive load		I_{CM} = 40 @ 0.8 V_{CES}	A
t_{SC}	T_J = 125°C, V_{CE} = 1200 V; V_{GE} = 15 V, R_G = 22Ω		10	µs
P_C	T_C = 25°C		190	W
T_J			-55 ... +150	°C
T_{JM}			150	°C
T_{stg}			-55 ... +150	°C
M_d	Mounting torque (M3)	TO-247	1.13/10	Nm/lb.in.
Maximum lead temperature for soldering 1.6 mm (0.062 in.) from case for 10 s			300	°C
Plastic body for 10s			260	°C
Weight		TO-247	6	g
		TO-268	4	g

Symbol	Test Conditions		Characteristic Values (T_J = 25°C, unless otherwise specified) min.	typ.	max.	
BV_{CES}	I_C = 250 µA, V_{GE} = 0 V		1700			V
$V_{GE(th)}$	I_C = 250 µA, V_{CE} = V_{GE}		3.0		5.0	V
I_{CES}	V_{CE} = 0.8 • V_{CES}	16N170A			50	µA
	V_{GE} = 0 V, Note 1	16N170AH1			100	µA
	T_J = 125°C	16N170A			750	µA
		16N170AH1			1.5	mA
I_{GES}	V_{CE} = 0 V, V_{GE} = ±20 V				±100	nA
$V_{CE(sat)}$	I_C = I_{C90}, V_{GE} = 15 V			4.0	5.0	V
	T_J = 125°C			4.8		V

TO-268 (IXGT)



TO-247 (IXGH)



G = Gate C = Collector,
E = Emitter TAB = Collector

Features
- High blocking voltage
- High current handling capability
- MOS Gate turn-on
  - drive simplicity
- Rugged NPT structure
- Molding epoxies meet UL 94 V-0 flammability classification
- SONIC-FRD™ fast recovery copack diode
- International standard packages JEDEC TO-268 and JEDEC TO-247 AD

Applications
- Capacitor discharge & pulser circuits
- AC motor speed control
- DC servo and robot drives
- DC choppers
- Uninterruptible power supplies (UPS)
- Switched-mode and resonant-mode power supplies

Advantages
- High power density
- Suitable for surface mounting
- Easy to mount with 1 screw, (isolated mounting screw hole)

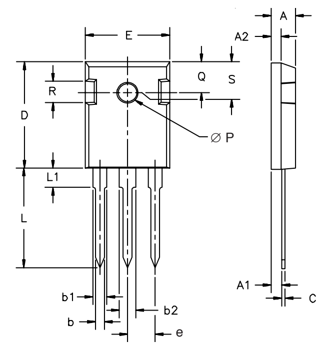
Symbol	Test Conditions	Characteristic Values (T_J = 25°C unless otherwise specified) min.	typ.	max.	
g_{fs}	$I_C = I_{C25}$; V_{CE} = 10 V Note 2	7	13		S
C_{ies}			1620		pF
C_{oes}	V_{CE} = 25 V, V_{GE} = 0 V, f = 1 MHz	16N170A	83		pF
		16N170AH1	110		pF
C_{res}			31		pF
Q_g			83		nC
Q_{ge}	$I_C = I_{C90}$, V_{GE} = 15 V, $V_{CE} = 0.5\ V_{CES}$		10		nC
Q_{gc}			31		nC
$t_{d(on)}$	**Inductive load, T_J = 25°C**		36		ns
t_{ri}	$I_C = I_{C25}$, V_{GE} = 15 V, R_G = 10 Ω		57		ns
$t_{d(off)}$	$V_{CE} = 0.5\ V_{CES}$,Note 3		160	300	ns
t_{fi}			70	150	ns
E_{off}			0.85	1.5	mJ
$t_{d(on)}$	**Inductive load, T_J = 125°C**		38		ns
t_{ri}	$I_C = I_{C25}$, V_{GE} = 15 V, R_G = 10 Ω		59		ns
E_{on}	$V_{CE} = 0.5\ V_{CES}$,Note 3	16N170A	1.5		mJ
		16N170AH1	2.5		mJ
$t_{d(off)}$			175		ns
t_{fi}			155		ns
E_{off}			2.0		mJ
R_{thJC}				0.65	K/W
R_{thCK}	(TO-247)		0.25		K/W

Reverse Diode (FRED) — **Characteristic Values**

Symbol	Test Conditions (T_J = 25°C unless otherwise specified)	min.	typ.	max.	
V_F	I_F = 20A, V_{GE} = 0 V, Note 2		2.5	2.9	V
	T_J = 125°C		2.5		V
t_{rr}	I_F = 20A, V_{GE} = 0 V, $-di_F/dt$ = 450 A/µs		230		ns
	V_R = 1200 V, T_J = 125°C		400		ns
I_{RM}			23		A
	T_J = 125°C		27		A
R_{thJC}				0.9	K/W

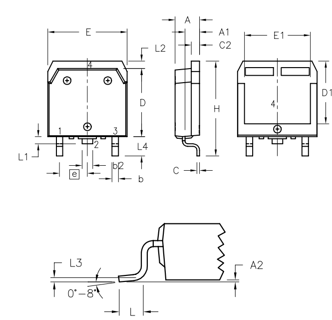
Notes: 1. Device must be heatsunk for high temperature leakage current measurements to avoid thermal runaway.
2. Pulse test, t ≤ 300 µs, duty cycle ≤ 2 %
3. Switching times may increase for V_{CE} (Clamp) > 0.8 • V_{CES}, higher T_J or increased R_G.

TO-247 AD Outline



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
∅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



Dim.	Millimeter Min.	Max.	Inches Min.	Max.
A	4.9	5.1	.193	.201
A_1	2.7	2.9	.106	.114
A_2	.02	.25	.001	.010
b	1.15	1.45	.045	.057
b_2	1.9	2.1	.75	.83
C	.4	.65	.016	.026
D	13.80	14.00	.543	.551
E	15.85	16.05	.624	.632
E_1	13.3	13.6	.524	.535
e	5.45 BSC		.215 BSC	
H	18.70	19.10	.736	.752
L	2.40	2.70	.094	.106
L1	1.20	1.40	.047	.055
L2	1.00	1.15	.039	.045
L3	0.25 BSC		.010 BSC	
L4	3.80	4.10	.150	.161

Fig. 1. Output Characteristics @ 25 ºC

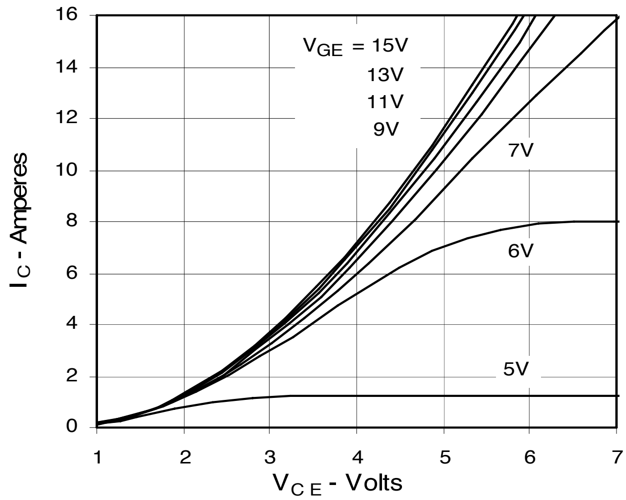


Fig. 2. Extended Output Characteristics @ 25 ºC

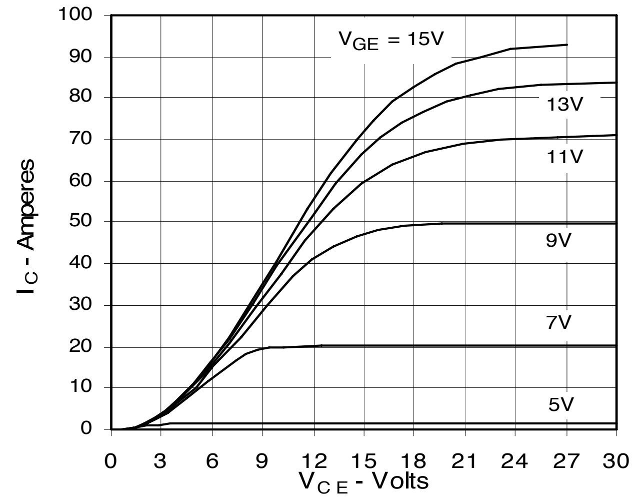


Fig. 3. Output Characteristics @ 125 ºC

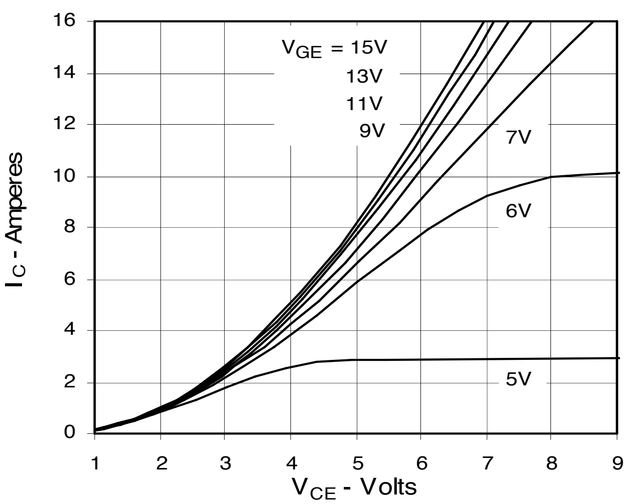


Fig. 4. Dependence of $V_{CE(sat)}$ on Temperature

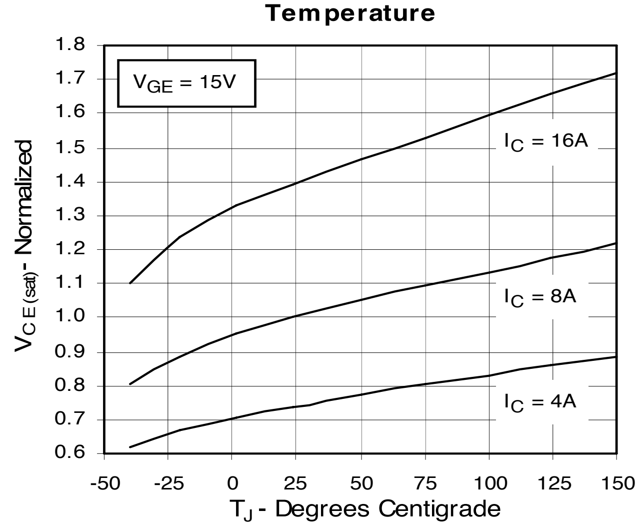


Fig. 5. Collector-to-Emitter Voltage vs. Gate-to-Emitter voltage

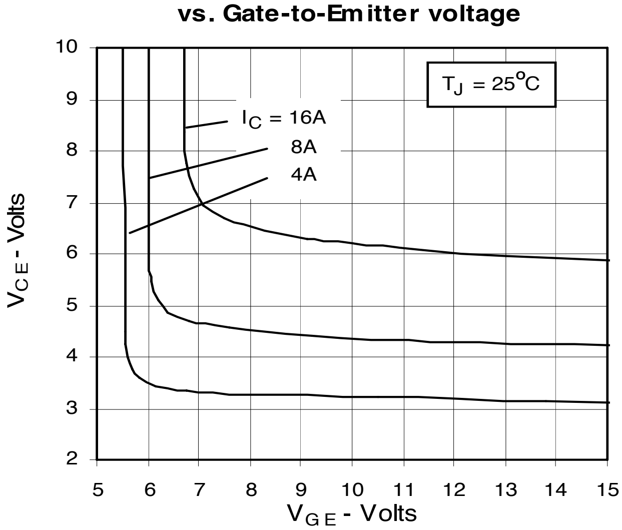


Fig. 6. Input Admittance

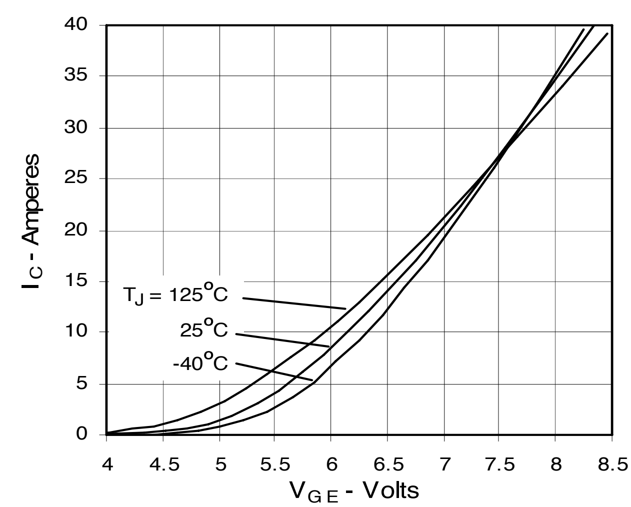


Fig. 7. Transconductance

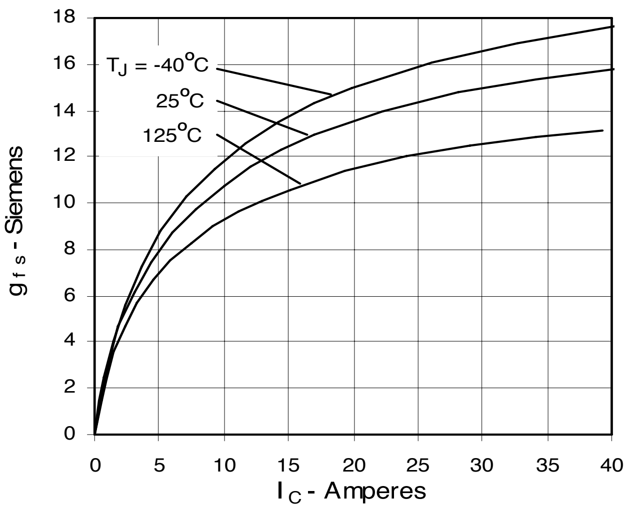


Fig. 8. Dependence of Turn-off Energy Loss on R_G

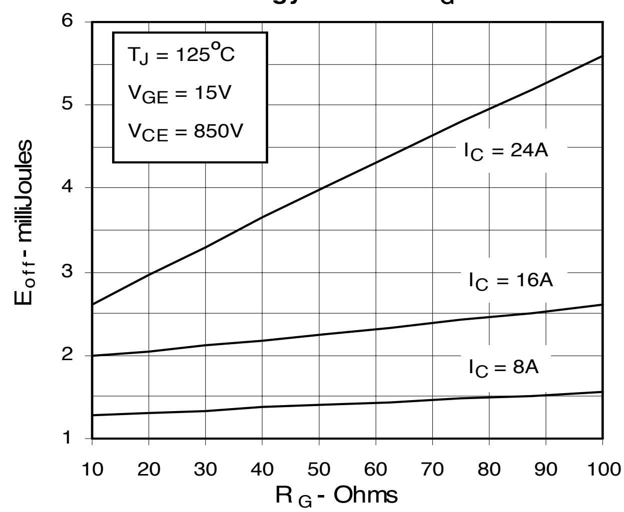


Fig. 9. Dependence of Turn-Off Energy Loss on I_C

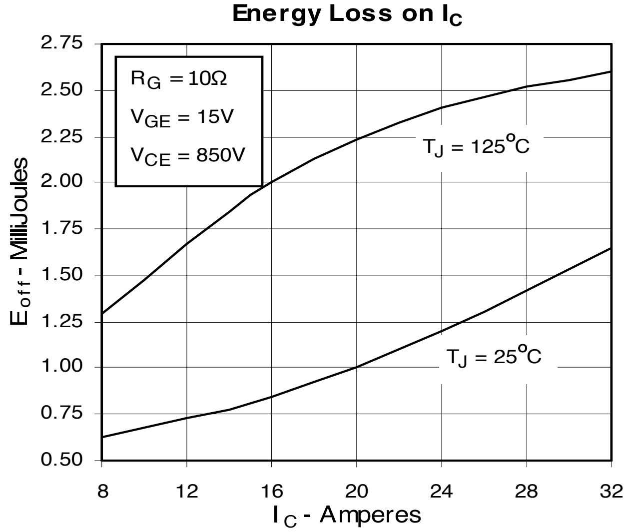


Fig. 10. Dependence of Turn-off Energy Loss on Temperature

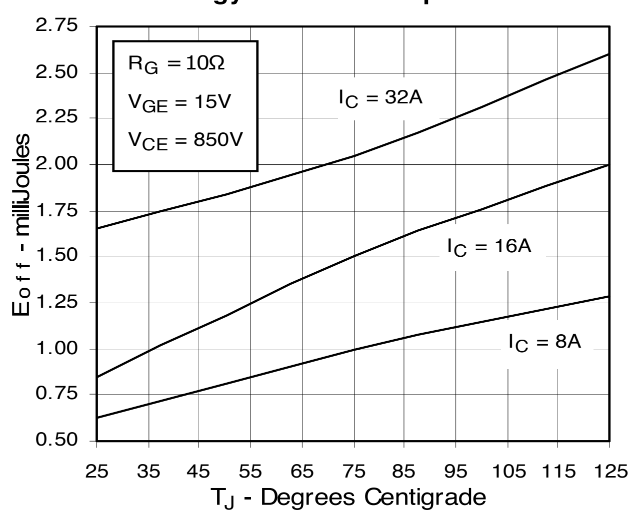


Fig. 11. Dependence of Turn-off Switching Time on R_G

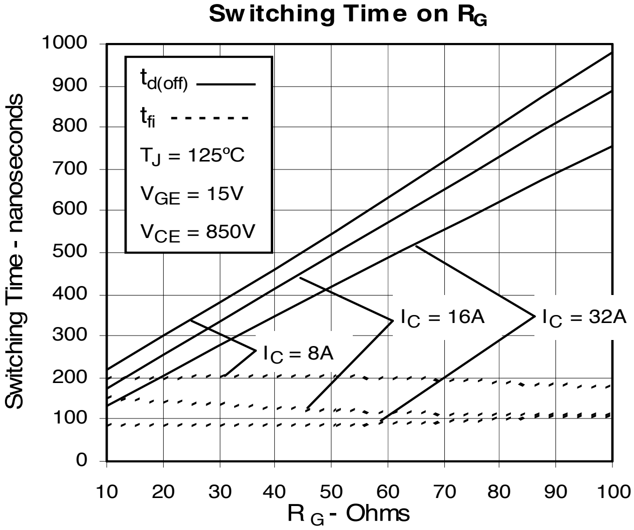


Fig. 12. Dependence of Turn-off Switching Time on I_C

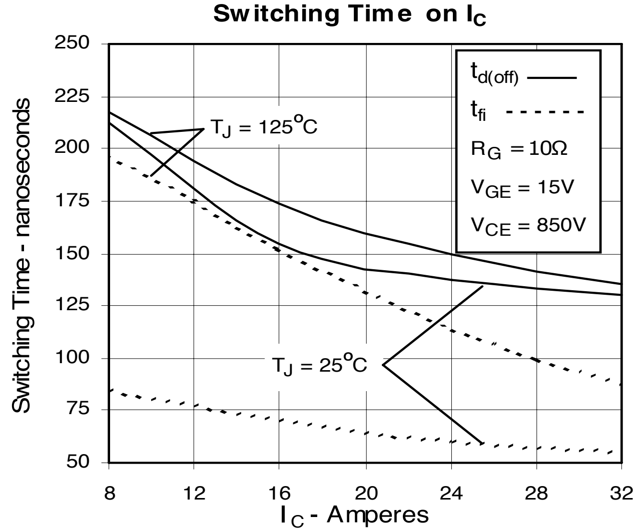


Fig. 13. Dependence of Turn-off Switching Time on Temperature

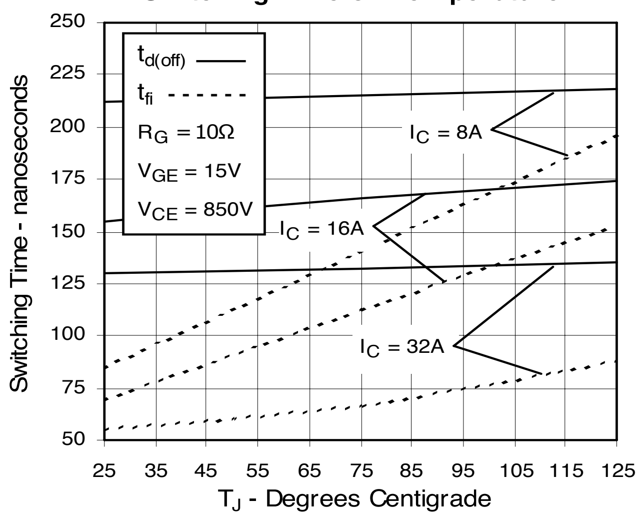


Fig. 14. Gate Charge

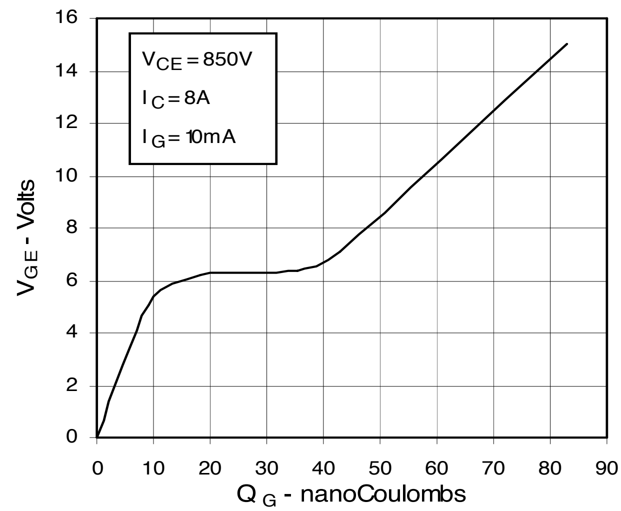


Fig. 15. Capacitance

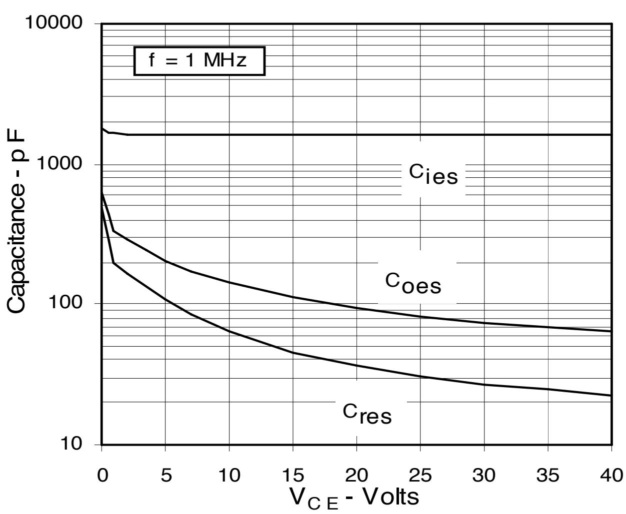


Fig. 16. Reverse-Bias Safe Operating Area

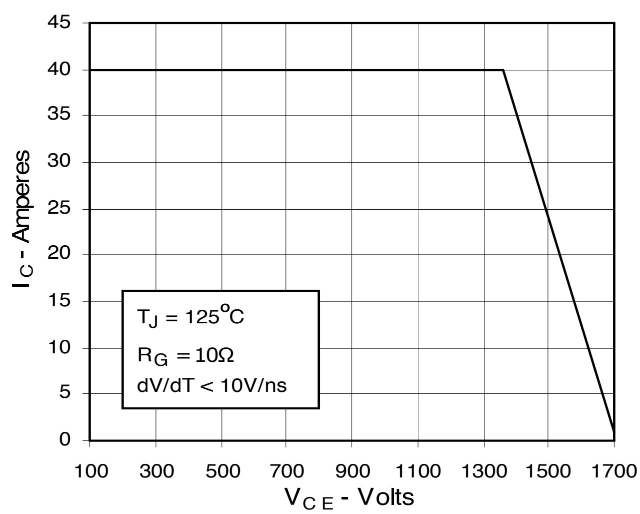
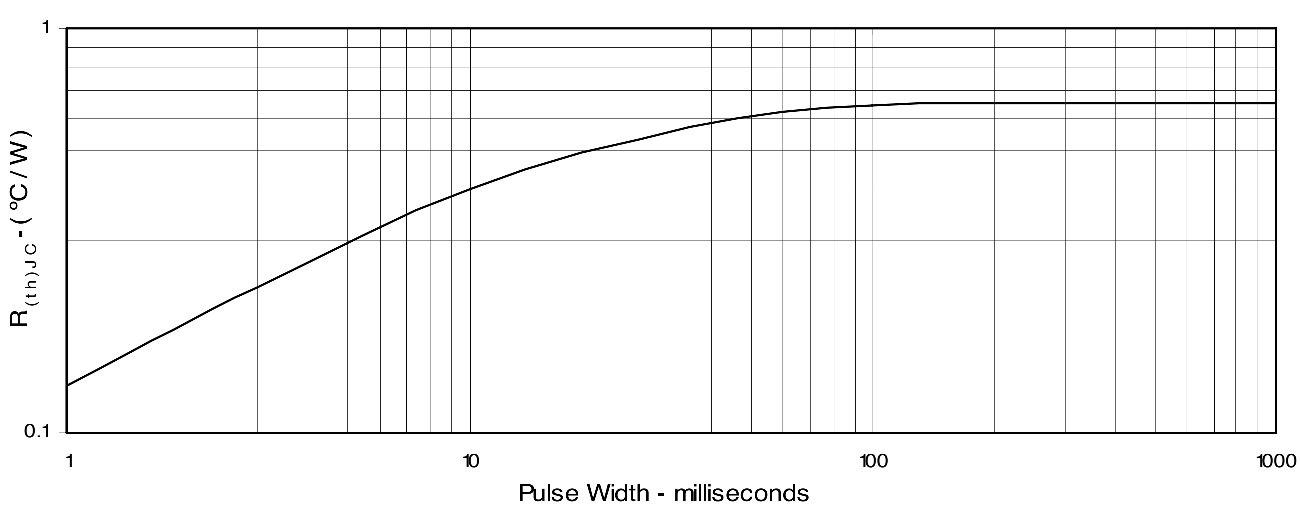


Fig. 17. Maximum Transient Thermal Resistance



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 subjective preproduction design evaluation. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

Стандарт Электрон Связь

Мы молодая и активно развивающаяся компания в области поставок электронных компонентов. Мы поставляем электронные компоненты отечественного и импортного производства напрямую от производителей и с крупнейших складов мира.

Благодаря сотрудничеству с мировыми поставщиками мы осуществляем комплексные и плановые поставки широчайшего спектра электронных компонентов.

Собственная эффективная логистика и склад в обеспечивает надежную поставку продукции в точно указанные сроки по всей России.

Мы осуществляем техническую поддержку нашим клиентам и предпродажную проверку качества продукции. На все поставляемые продукты мы предоставляем гарантию .

Осуществляем поставки продукции под контролем ВП МО РФ на предприятия военно-промышленного комплекса России , а также работаем в рамках 275 ФЗ с открытием отдельных счетов в уполномоченном банке. Система менеджмента качества компании соответствует требованиям ГОСТ ISO 9001.

Минимальные сроки поставки, гибкие цены, неограниченный ассортимент и индивидуальный подход к клиентам являются основой для выстраивания долгосрочного и эффективного сотрудничества с предприятиями радиоэлектронной промышленности, предприятиями ВПК и научно-исследовательскими институтами России.

С нами вы становитесь еще успешнее!

Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург, Промышленная ул, дом № 19, литера Н, помещение 100-Н Офис 331