

**GenX3™ 1200V
IGBTs**
**IXGK82N120B3
IXGX82N120B3**

$$V_{CES} = 1200V$$

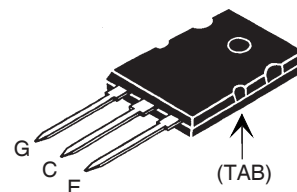
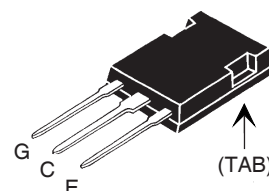
$$I_{C110} = 82A$$

$$V_{CE(sat)} \leq 3.20V$$

 High-Speed Low-Vsat PT IGBTs
for 3 - 20 kHz Switching


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ C$ to $150^\circ C$	1200	V
V_{CGR}	$T_J = 25^\circ C$ to $150^\circ C$, $R_{GE} = 1M\Omega$	1200	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ C$ (Chip Capability)	230	A
I_{C110}	$T_C = 110^\circ C$	82	A
I_{LRMS}	$T_C = 25^\circ C$ (Lead RMS Limit)	120	A
I_{CM}	$T_C = 25^\circ C$, 1ms	500	A
I_A	$T_C = 25^\circ C$	41	A
E_{AS}	$T_C = 25^\circ C$	750	mJ
SSOA (RBSOA)	$V_{GE} = 15V$, $T_{VJ} = 125^\circ C$, $R_G = 2\Omega$ Clamped Inductive Load	$I_{CM} = 164$ $V_{CE} \leq V_{CES}$	A
P_C	$T_C = 25^\circ C$	1250	W
T_J		-55 ... +150	$^\circ C$
T_{JM}		150	$^\circ C$
T_{stg}		-55 ... +150	$^\circ C$
T_L	Maximum Lead Temperature for Soldering	300	$^\circ C$
T_{SOLD}	1.6 mm (0.062 in.) from Case for 10	260	$^\circ C$
M_d	Mounting Torque (IXGK)	1.13/10	Nm/lb.in.
F_C	Mounting Force (IXGX)	20..120/4.5..14.6	N/lb.
Weight	TO-264	10	g
	PLUS247	6	g

Symbol	Test Conditions ($T_J = 25^\circ C$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 250\mu A$, $V_{CE} = 0V$	1200		V
$V_{GE(th)}$	$I_C = 1mA$, $V_{CE} = V_{GE}$	3.0		5.0 V
I_{CES}	$V_{CE} = V_{CES}$, $V_{GE} = 0V$ $T_J = 125^\circ C$, Note 1			50 μA 5 mA
I_{GES}	$V_{CE} = 0V$, $V_{GE} = \pm 20V$			± 100 nA
$V_{CE(sat)}$	$I_C = I_{C110}$, $V_{GE} = 15V$, Note 2 $T_J = 125^\circ C$		2.70 2.64	3.20 V V

TO-264 (IXGK)

PLUS247™ (IXGX)


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

Features

- Optimized for Low Conduction and Switching Losses
- Square RBSOA
- High Avalanche Capability
- International Standard Packages

Advantages

- High Power Density
- Low Gate Drive Requirement

Applications

- Power Inverters
- UPS
- SMPS
- PFC Circuits
- Welding Machines
- Lamp Ballasts

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values				
		Min.	Typ.	Max.		
g_{fs}	$I_C = 60\text{A}, V_{CE} = 10\text{V}$, Note 2	35	60	S		
C_{ies}	$V_{CE} = 25\text{V}, V_{GE} = 0\text{V}, f = 1\text{MHz}$		7900	pF		
C_{oes}			640	pF		
C_{res}			170	pF		
$Q_{g(on)}$	$I_C = I_{C110}, V_{GE} = 15\text{V}, V_{CE} = 0.5 \cdot V_{CES}$		350	nC		
Q_{ge}			50	nC		
Q_{gc}			150	nC		
$t_{d(on)}$	Inductive load, $T_J = 25^\circ\text{C}$ $I_C = 80\text{A}, V_{GE} = 15\text{V}$		30	ns		
t_{ri}			77	ns		
E_{on}			5.0	mJ		
$t_{d(off)}$	Note 3	$V_{CE} = 0.5 \cdot V_{CES}, R_G = 2\Omega$		210	ns	
t_{fi}				100	180	ns
E_{off}				3.3	6.2	mJ
$t_{d(on)}$	Inductive load, $T_J = 125^\circ\text{C}$ $I_C = 80\text{A}, V_{GE} = 15\text{V}$		32	ns		
t_{ri}			80	ns		
E_{on}			6.8	mJ		
$t_{d(off)}$	Note 3	$V_{CE} = 0.5 \cdot V_{CES}, R_G = 2\Omega$		240	ns	
t_{fi}				520	ns	
E_{off}				7.1	mJ	
R_{thJC}				0.10 $^\circ\text{C/W}$		
R_{thCK}			0.15	$^\circ\text{C/W}$		

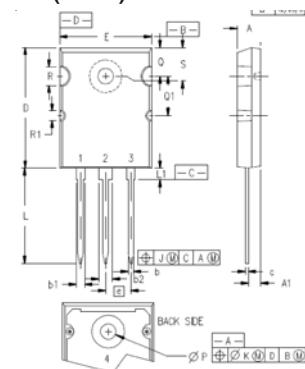
Notes:

1. Part must be heatsunk for high-temp I_{ces} measurement.
2. Pulse test, $t \leq 300\mu\text{s}$; duty cycle, $d \leq 2\%$.
3. Switching times & energy losses may increase for higher $V_{CE}(\text{Clamp})$, T_J or R_G .

ADVANCE TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from a subjective evaluation of the design, based upon prior knowledge and experience, and constitute a "considered reflection" of the anticipated result. IXYS reserves the right to change limits, test conditions, and dimensions without notice.

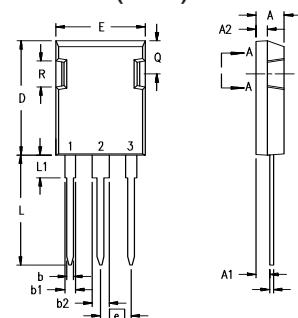
TO-264 (IXGK) Outline



- 1 - GATE
2, 4 - DRAIN (COLLECTOR)
3 - SOURCE (EMITTER)

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.185	.209	4.70	5.31
A1	.102	.118	2.59	3.00
b	.037	.055	0.94	1.40
b1	.087	.102	2.21	2.59
b2	.110	.126	2.79	3.20
c	.017	.029	0.43	0.74
D	1.007	1.047	25.58	26.59
E	.760	.799	19.30	20.29
e	.215BSC		5.46 BSC	
J	.000	.010	0.00	0.25
K	.000	.010	0.00	0.25
L	.779	.842	19.79	21.39
L1	.087	.102	2.21	2.59
ØP	.122	.138	3.10	3.51
Q	.240	.256	6.10	6.50
Q1	.330	.346	8.38	8.79
ØR	.155	.187	3.94	4.75
ØR1	.085	.093	2.16	2.36
S	.243	.253	6.17	6.43

PLUS247™ (IXGX) Outline



- Terminals: 1 - Gate
2 - Drain (Collector)
3 - Source (Emitter)

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.83	5.21	.190	.205
A ₁	2.29	2.54	.090	.100
A ₂	1.91	2.16	.075	.085
b	1.14	1.40	.045	.055
b ₁	1.91	2.13	.075	.084
b ₂	2.92	3.12	.115	.123
C	0.61	0.80	.024	.031
D	20.80	21.34	.819	.840
E	15.75	16.13	.620	.635
e	5.45 BSC		.215 BSC	
L	19.81	20.32	.780	.800
L1	3.81	4.32	.150	.170
Q	5.59	6.20	.220	0.244
R	4.32	4.83	.170	.190

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	

Fig. 1. Output Characteristics
@ 25°C

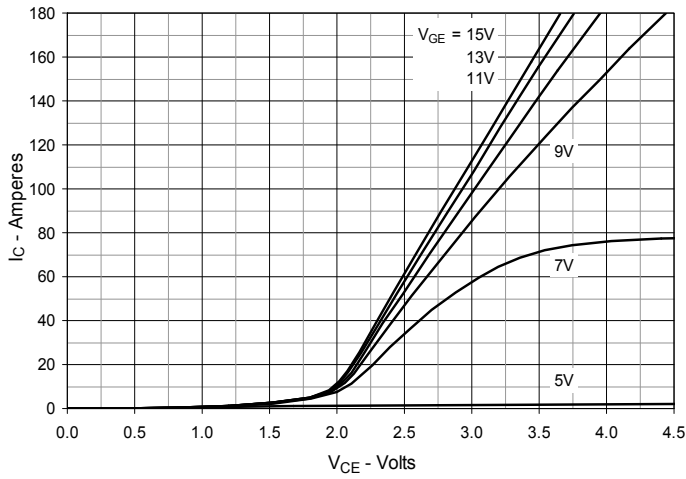


Fig. 2. Extended Output Characteristics
@ 25°C

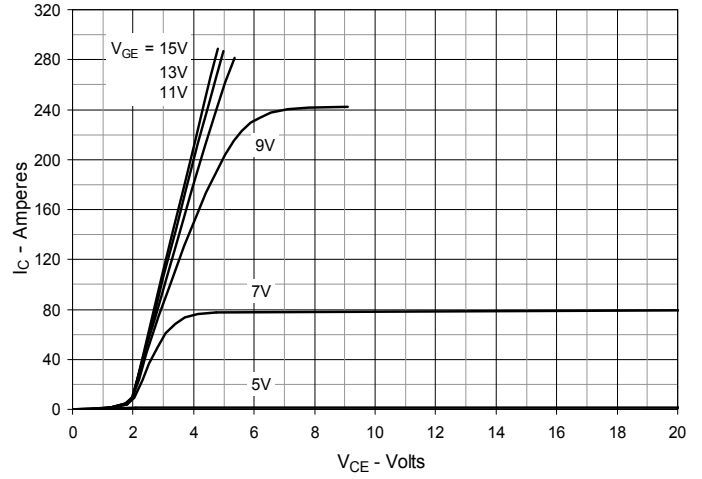


Fig. 3. Output Characteristics
@ 125°C

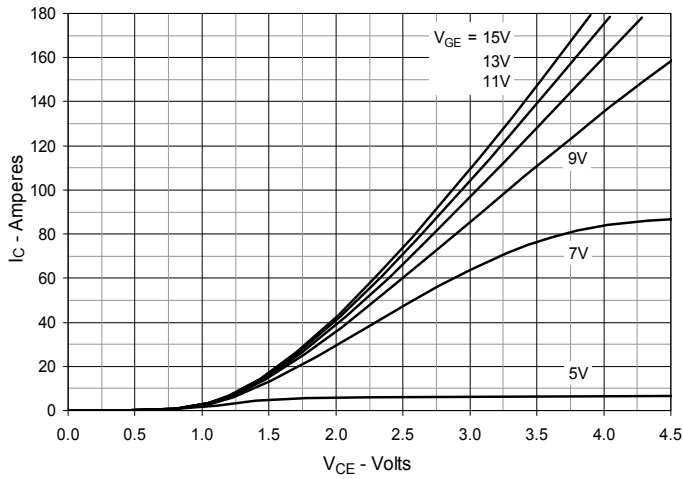


Fig. 4. Dependence of $V_{CE(sat)}$ on Junction Temperature

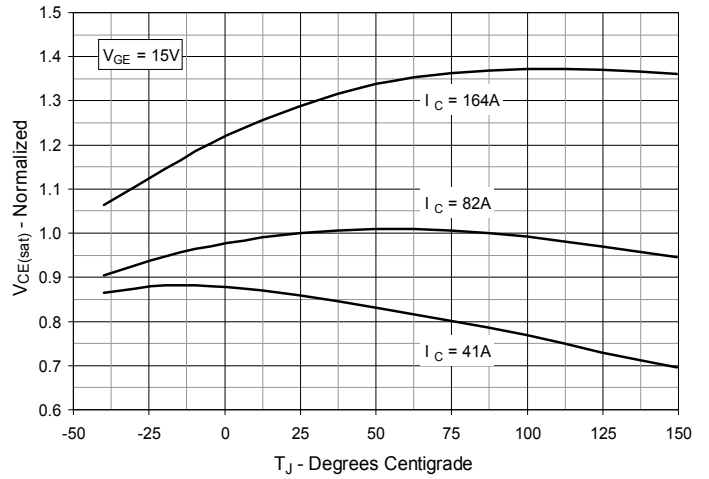


Fig. 5. Collector-to-Emitter Voltage vs. Gate-to-Emitter Voltage

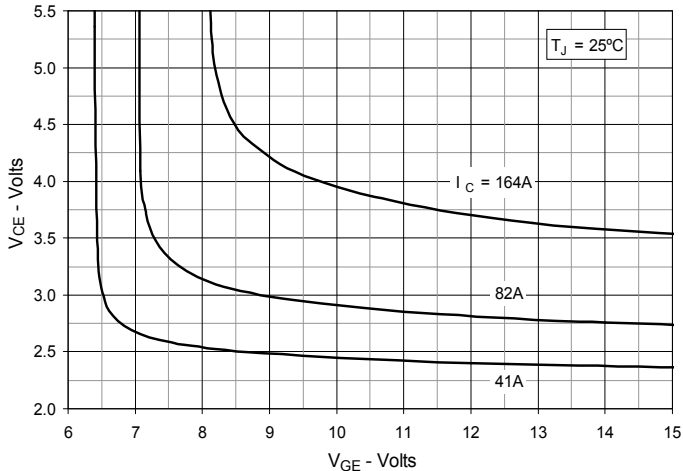


Fig. 6. Input Admittance

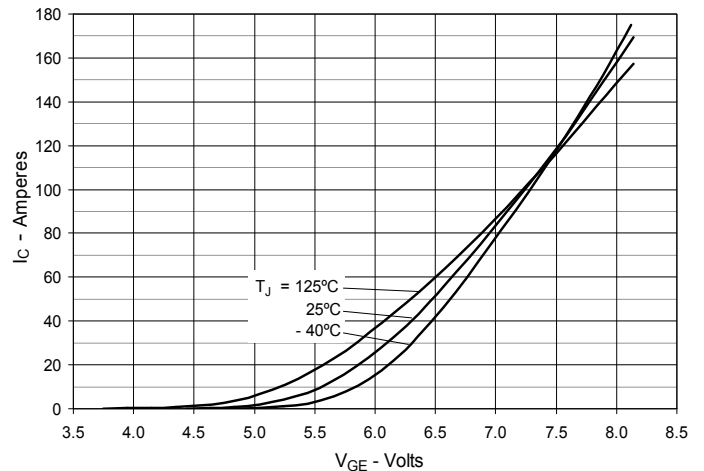


Fig. 7. Transconductance

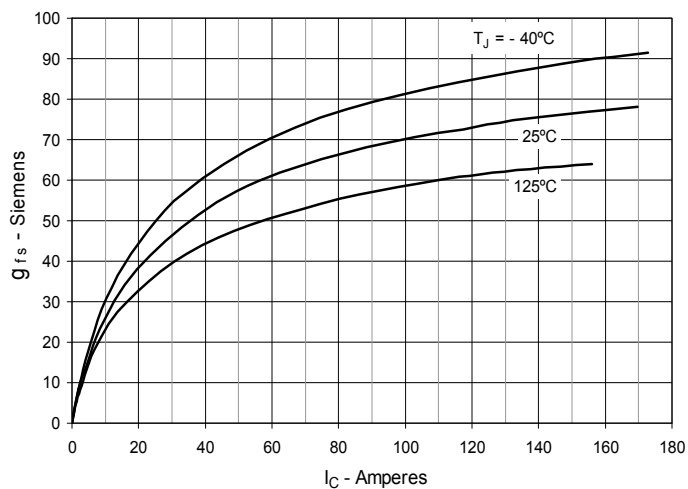


Fig. 8. Gate Charge

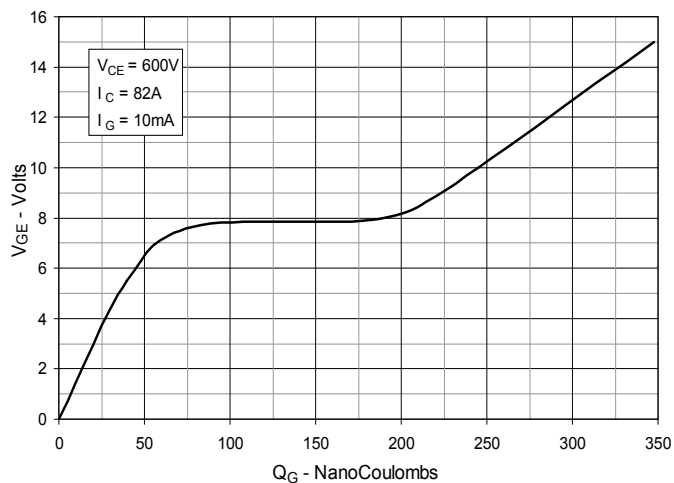


Fig. 9. Capacitance

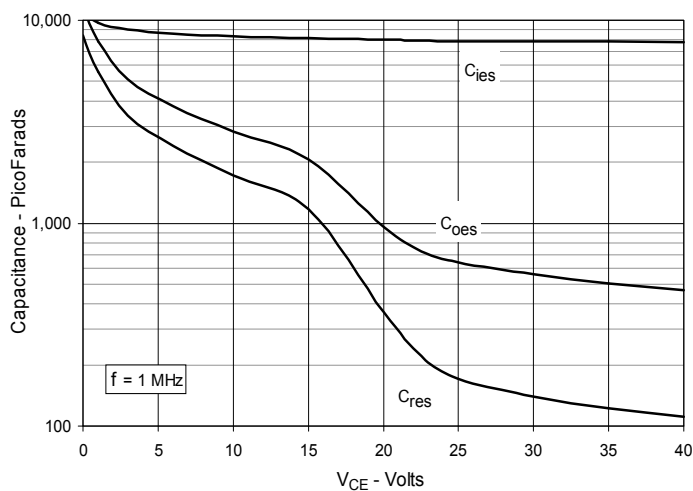


Fig. 10. Reverse-Bias Safe Operating Area

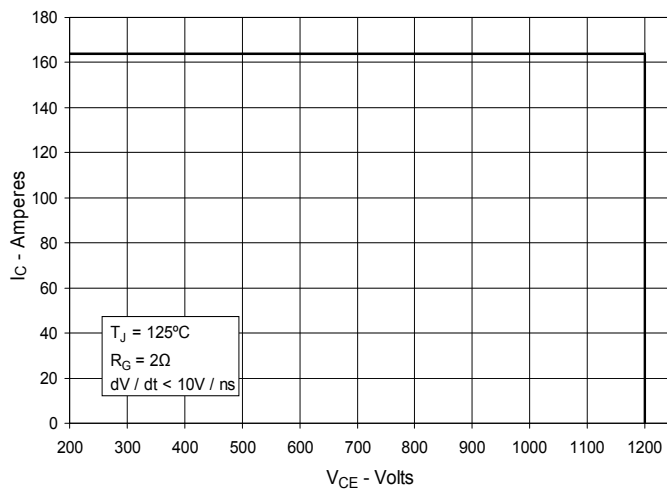
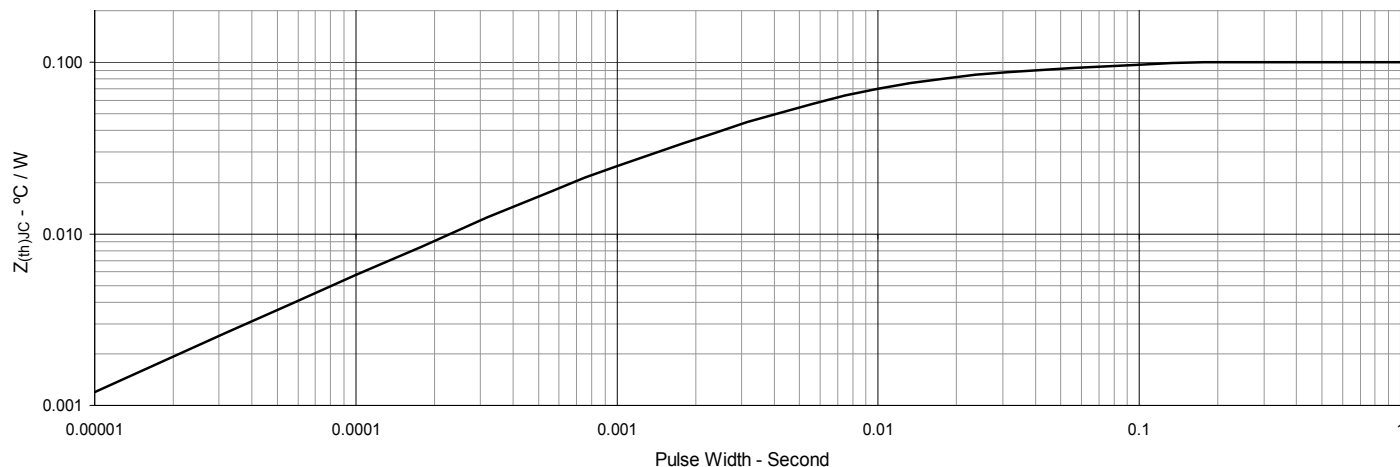
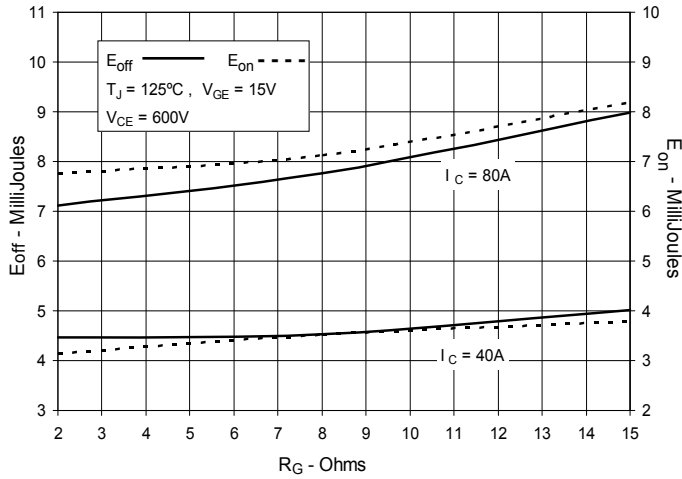


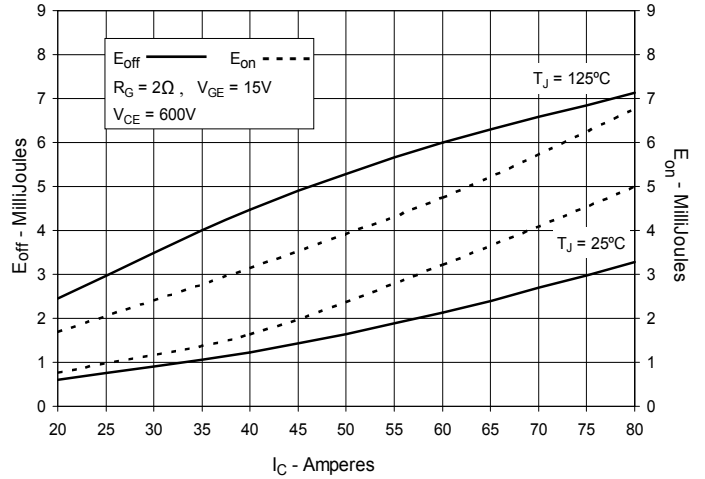
Fig. 11. Maximum Transient Thermal Impedance



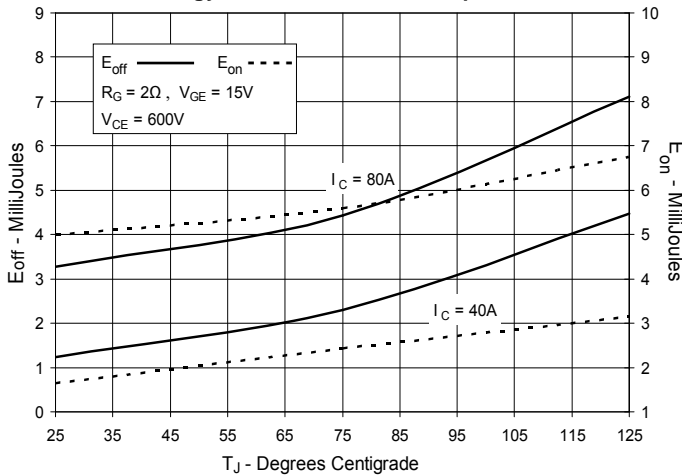
**Fig. 12. Inductive Switching
Energy Loss vs. Gate Resistance**



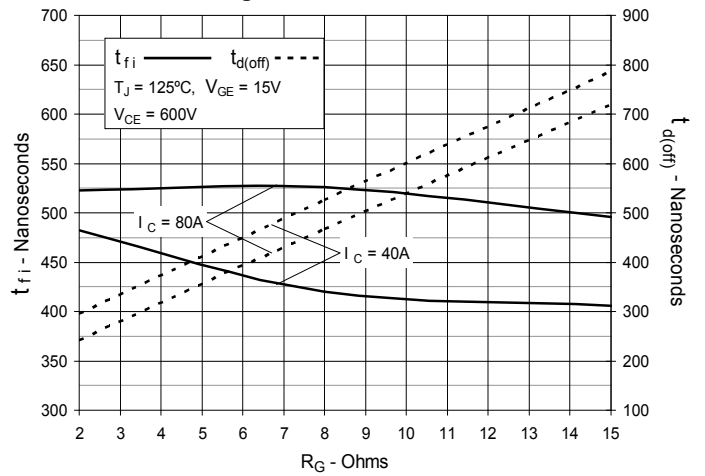
**Fig. 13. Inductive Switching
Energy Loss vs. Collector Current**



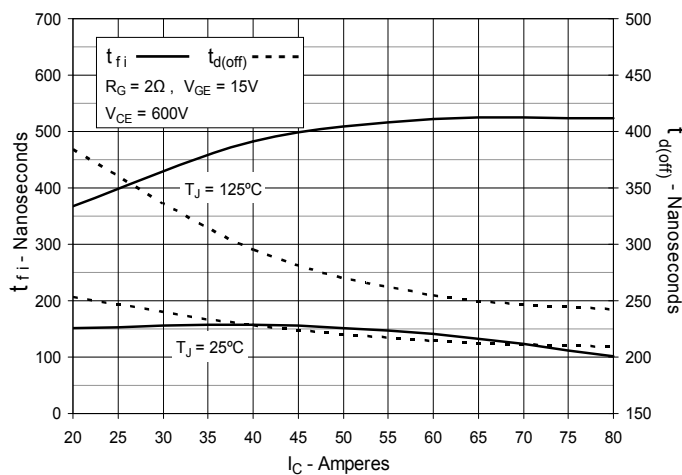
**Fig. 14. Inductive Switching
Energy Loss vs. Junction Temperature**



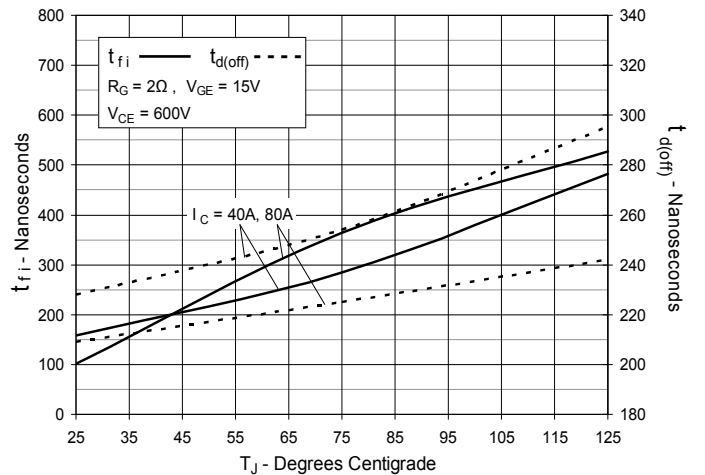
**Fig. 15. Inductive Turn-off
Switching Times vs. Gate Resistance**



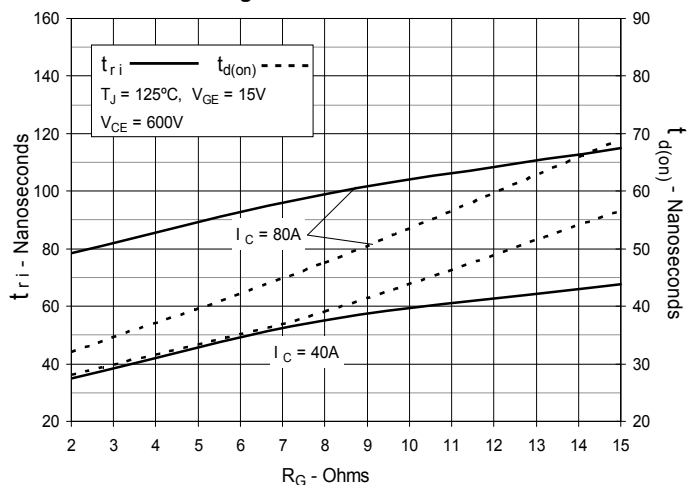
**Fig. 16. Inductive Turn-off
Switching Times vs. Collector Current**



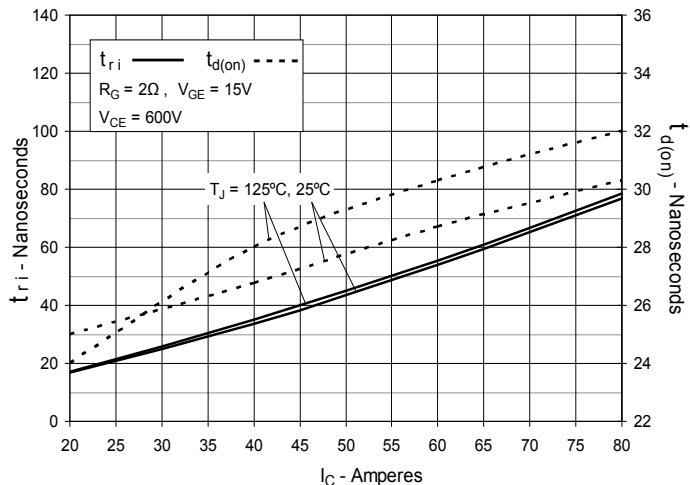
**Fig. 17. Inductive Turn-off
Switching Times vs. Junction Temperature**



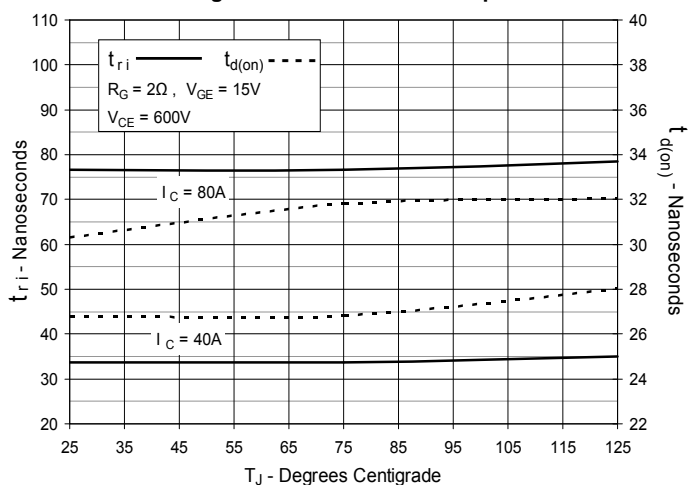
**Fig. 18. Inductive Turn-on
Switching Times vs. Gate Resistance**



**Fig. 19. Inductive Turn-on
Switching Times vs. Collector Current**



**Fig. 20. Inductive Turn-on
Switching Times vs. Junction Temperature**





**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!

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