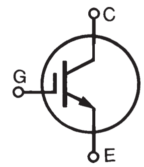
![IXYS]

GenX3™ 600V IGBT

IXGB200N60B3

V_{CES} = 600V
I_{C110} = 200A
$V_{CE(sat)}$ ≤ 1.5V
$t_{fi(typ)}$ = 183ns

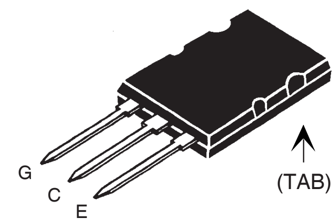
Medium speed low Vsat PT
IGBTs 5-40 kHz switching



Symbol	Test Conditions	Maximum Ratings	
V_{CES}	T_J = 25°C to 150°C	600	V
V_{CGR}	T_J = 25°C to 150°C, R_{GE} = 1 MΩ	600	V
V_{GES}	Continuous	±20	V
V_{GEM}	Transient	±30	V
I_{C25}	T_C = 25°C (limited by leads)	75	A
I_{C110}	T_C = 110°C (chip capability)	200	A
I_{CM}	T_C = 25°C, 1ms	600	A
SSOA (RBSOA)	V_{GE} = 15V, T_{VJ} = 125°C, R_G = 1Ω Clamped inductive load @ V_{CE} ≤ 600V	I_{CM} = 300	A
P_C	T_C = 25°C	1250	W
T_J		-55 ... +150	°C
T_{JM}		150	°C
T_{stg}		-55 ... +150	°C
T_L	Maximum lead temperature for soldering	300	°C
T_{SOLD}	Plastic body for 10s	260	°C
F_C	Mounting force	30..120/6.7..27	N/lb.
Weight		10	g

Symbol	Test Conditions (T_J = 25°C, unless otherwise specified)		Characteristic Values Min.	Typ.	Max.	
BV_{CES}	I_C = 250μA, V_{GE} = 0V		600			V
$V_{GE(th)}$	I_C = 250μA, V_{CE} = V_{GE}		3.0		5.0	V
I_{CES}	V_{CE} = V_{CES}				25	μA
	V_{GE} = 0V	T_J = 125°C			5.0	mA
I_{GES}	V_{CE} = 0V, V_{GE} = ±20V				±100	nA
$V_{CE(sat)}$	I_C = 100A, V_{GE} = 15V, Note 1			1.35	1.50	V
	I_C = 200A			1.65		V
		T_J = 125°C		1.75		V

PLUS264™ (IXGB)



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

Features

- NPT IGBT technology
- Low switching losses
- Low tail current
- No latch up
- Short circuit capability
- Positive temperature coefficient for easy paralleling
- MOS input, voltage controlled
- Optional ultra fast diode
- International standard package

Advantages

- Space savings
- High power density power supplies
- Low gate charge results in simple drive requirement

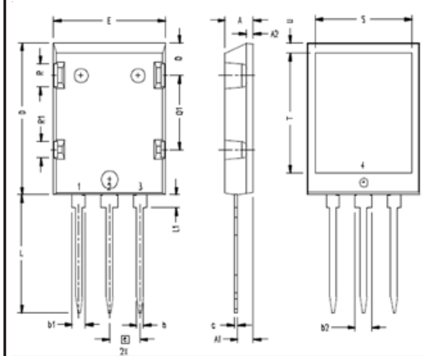
Applications

- High Frequency Inverters
- UPS and Welding
- AC and DC Motor Controls
- Power Supplies and Drivers for Solenoids, Relays and Connectors
- PFC Circuits
- Battery Chargers

Symbol	Test Conditions ($T_J = 25°C$, unless otherwise specified)	Characteristic Values Min.	Typ.	Max.	
g_{fs}	I_C = 60A, V_{CE} = 10V, Note 1	95	160		S
C_{ies}	V_{CE} = 25V, V_{GE} = 0V, f = 1MHz		26		nF
C_{oes}			1260		pF
C_{res}			97		pF
$Q_{g(on)}$	I_C = 100A, V_{GE} = 15V, V_{CE} = 0.5 • V_{CES}		750		nC
Q_{ge}			115		nC
Q_{gc}			245		nC
$t_{d(on)}$	**Inductive load, T_J = 25°C**		44		ns
t_{ri}	I_C = 100A, V_{GE} = 15V		83		ns
E_{on}	V_{CE} = 300V, R_G = 1Ω		1.6		mJ
$t_{d(off)}$			310	450	ns
t_{fi}			183	300	ns
E_{off}			2.9	4.5	mJ
$t_{d(on)}$	**Inductive load, T_J = 125°C**		42		ns
t_{ri}	I_C = 100A, V_{GE} = 15V		80		ns
E_{on}	V_{CE} = 300V, R_G = 1Ω		2.4		mJ
$t_{d(off)}$			430		ns
t_{fi}			300		ns
E_{off}			4.2		mJ
R_{thJC}				0.10	°C/W
R_{thCS}			0.13		°C/W

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

ISOPLUS264™ (IXGB) Outline



Note: Bottom heatsink meets 2500Vrms Isolation to the other

SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	190	205	4.83	5.21
A1	.102	.118	2.59	3.00
A2	.046	.055	1.17	1.40
b	.045	.055	1.14	1.40
b1	.087	.102	2.21	2.59
b2	.111	.126	2.82	3.20
c	.020	.029	0.51	0.74
D	1.020	1.040	25.91	26.42
E	.770	.799	19.56	20.29
e	215 BSC		5.46 BSC	
L	.780	.820	19.81	20.83
L1	.080	.102	2.03	2.59
Q	.210	.235	5.33	5.97
Q1	.490	.513	12.45	13.03
R	150	180	3.81	4.57
R1	.100	.130	2.54	3.30
S	668	690	16 97	17 53
T	.801	.821	20.34	20.85
U	.065	.080	1.65	2.03

Ref: IXYS CO 0128

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.

Fig. 1. Output Characteristics @ 25ºC

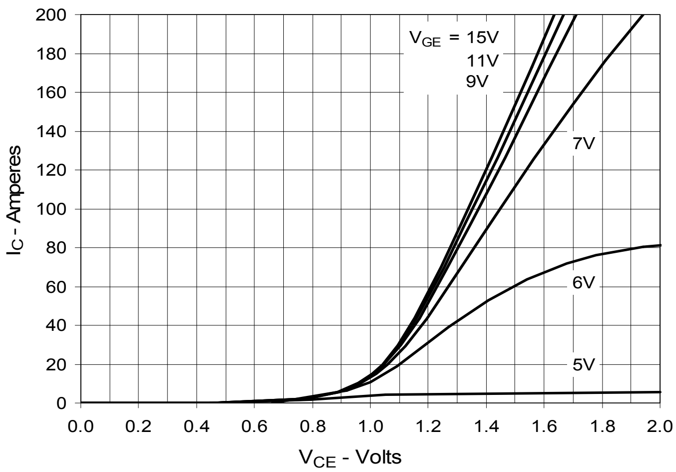


Fig. 2. Extended Output Characteristics @ 25ºC

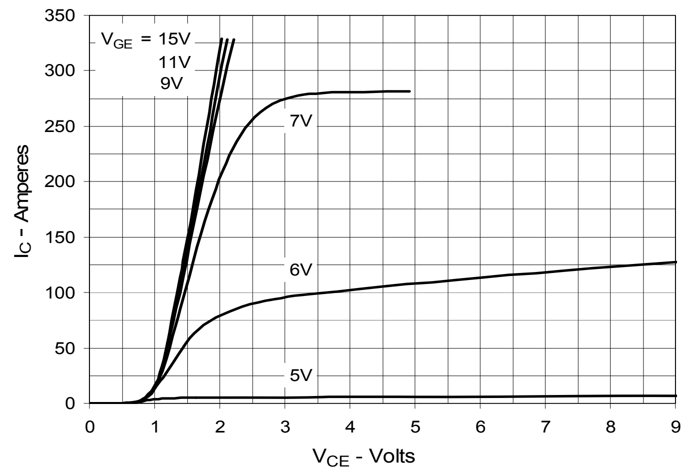


Fig. 3. Output Characteristics @ 125ºC

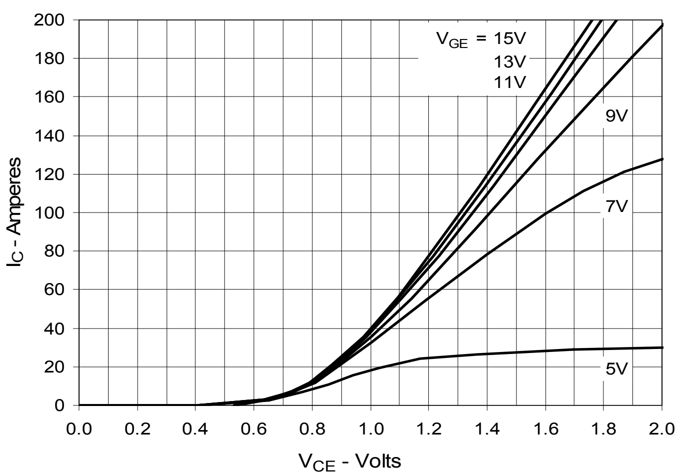


Fig. 4. Dependence of $V_{CE(sat)}$ on Junction Temperature

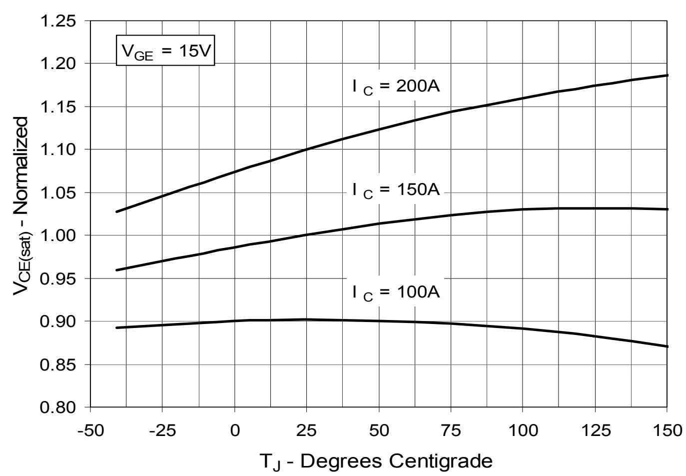


Fig. 5. Collector-to-Emitter Voltage vs. Gate-to-Emitter Voltage

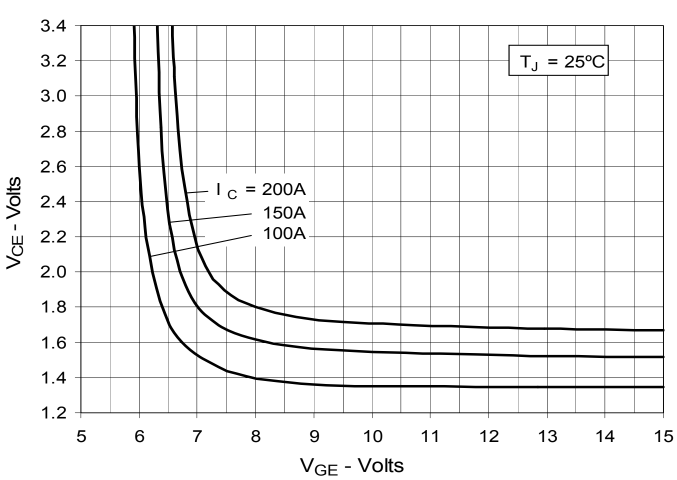


Fig. 6. Input Admittance

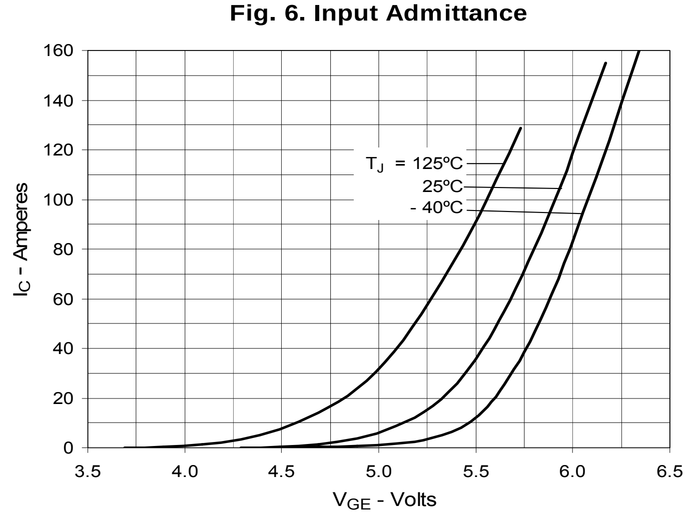


Fig. 7. Transconductance

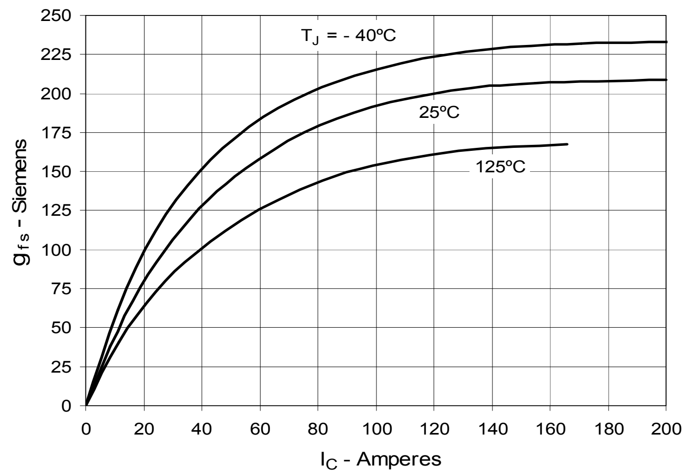


Fig. 8. Gate Charge

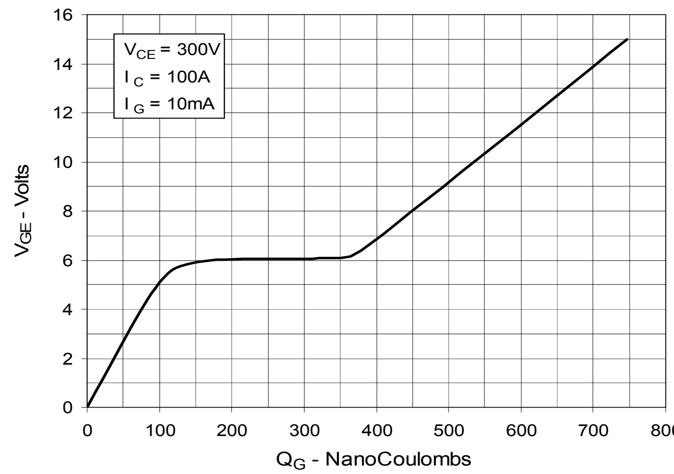


Fig. 9. Capacitance

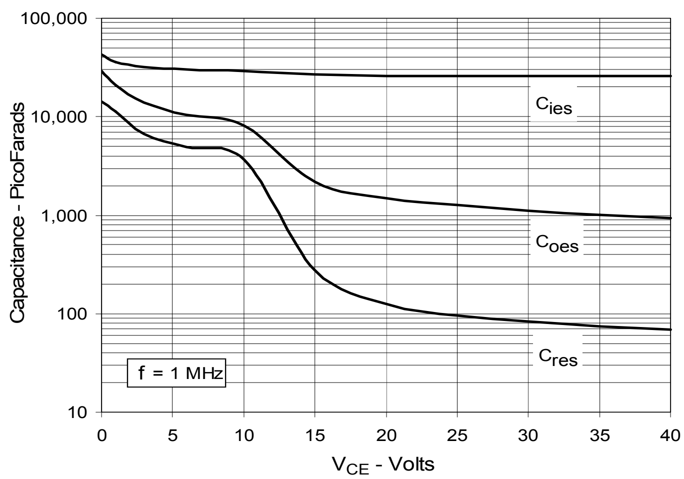


Fig. 10. Reverse-Bias Safe Operating Area

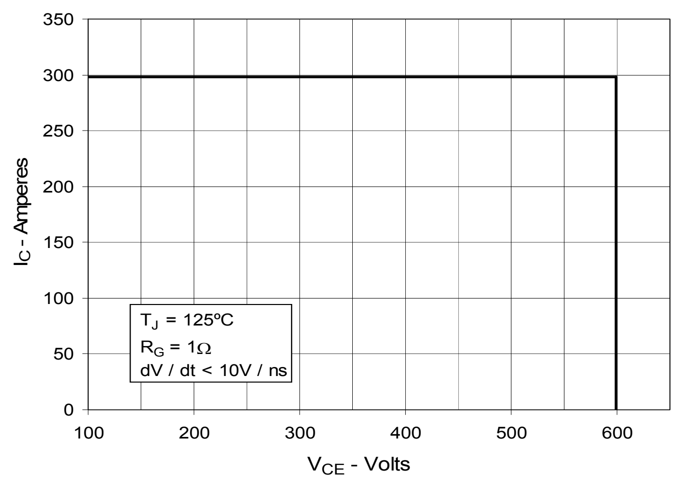


Fig. 11. Maximum Transient Thermal Impedance

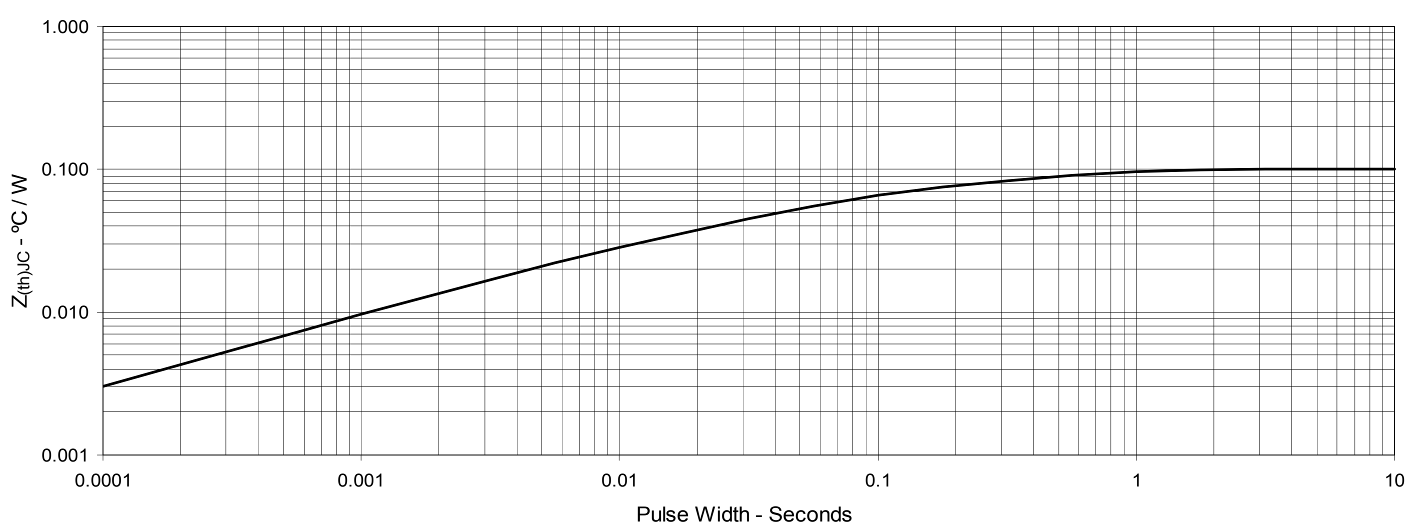


Fig. 12. Inductive Switching Energy Loss vs. Gate Resistance

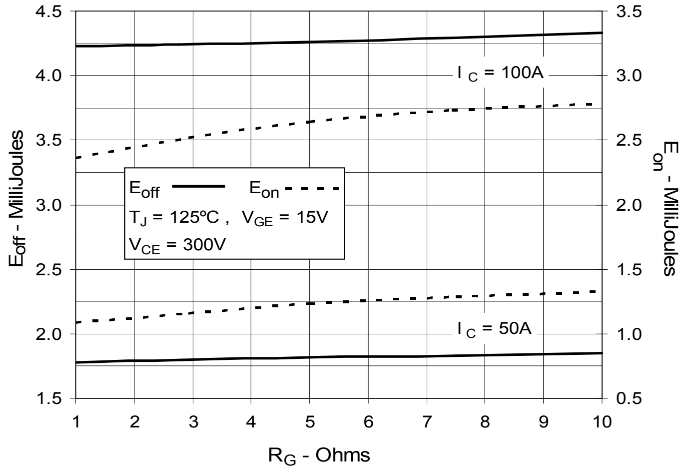


Fig. 13. Inductive Switching Energy Loss vs. Collector Current

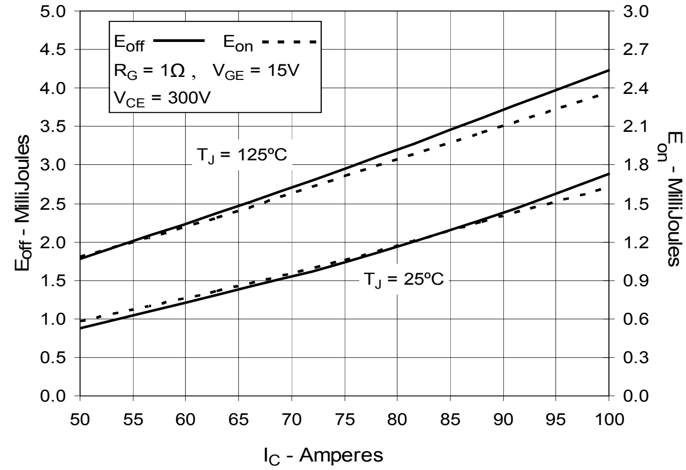


Fig. 14. Inductive Switching Energy Loss vs. Junction Temperature

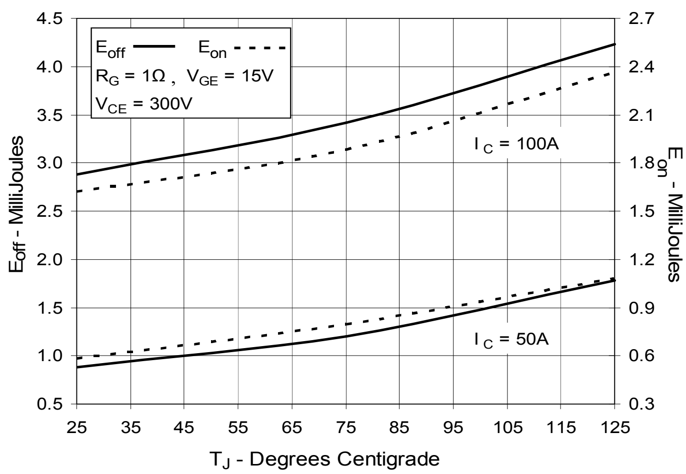


Fig. 15. Inductive Turn-off Switching Times vs. Gate Resistance

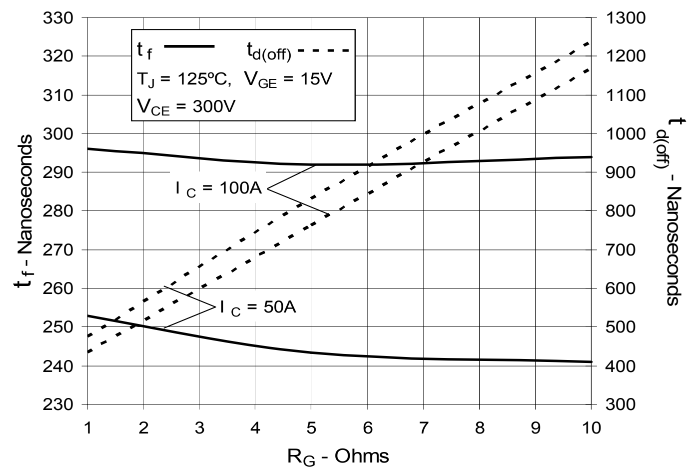


Fig. 16. Inductive Turn-off Switching Times vs. Collector Current

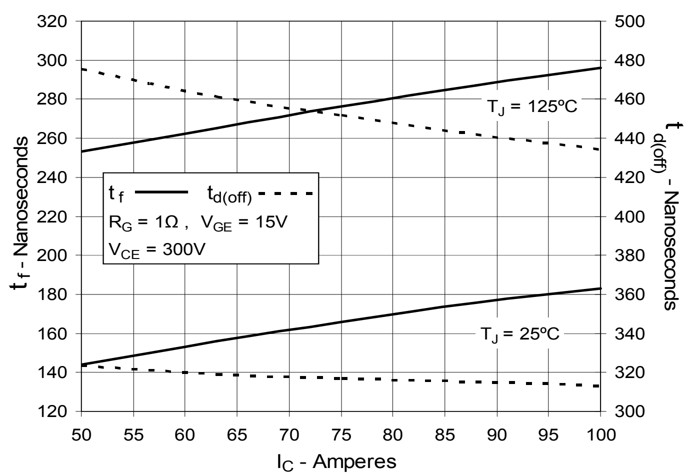


Fig. 17. Inductive Turn-off Switching Times vs. Junction Temperature

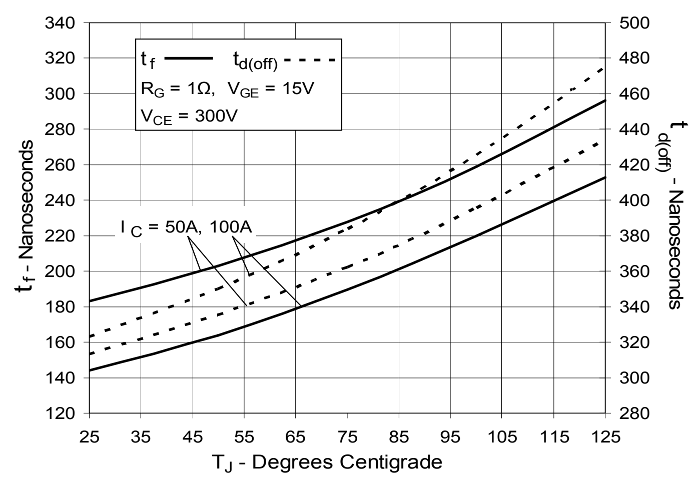


Fig. 18. Inductive Turn-on Switching Times vs. Gate Resistance

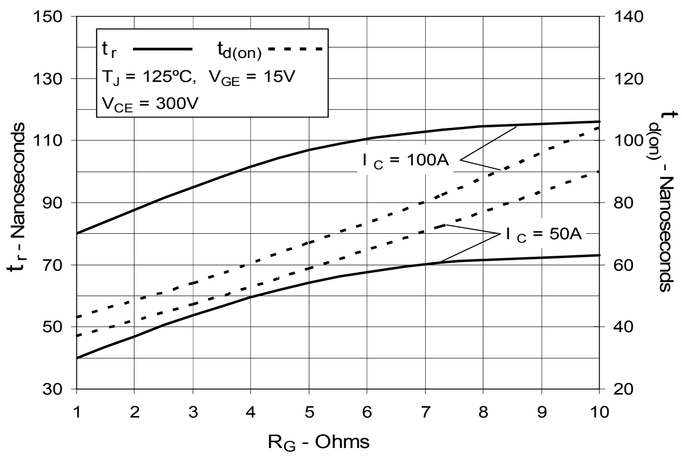


Fig. 19. Inductive Turn-on Switching Times vs. Collector Current

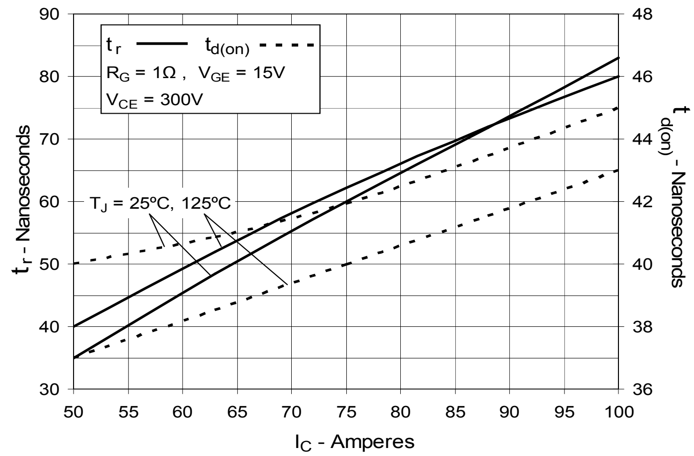


Fig. 20. Inductive Turn-on Switching Times vs. Junction Temperature