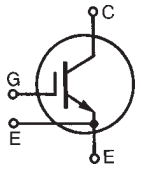
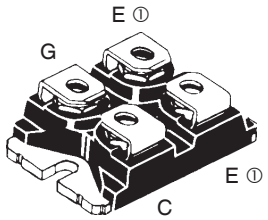
High Voltage IGBT

IXGN100N170

V_{CES} = 1700V
I_{C90} = 95A
$V_{CE(sat)}$ ≤ 3.0V



SOT-227B, miniBLOC
E153432



G = Gate, C = Collector, E = Emitter
① either emitter terminal can be used as Main or Kelvin Emitter

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} = 1MΩ		1700	V
V_{GES}	Continuous		±20	V
V_{GEM}	Transient		±30	V
I_{C25}	T_C = 25°C		160	A
I_{C90}	T_C = 90°C		95	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		I_{CM} = 200 @0.8 • V_{CES}	A
t_{sc} **(SCSOA)**	V_{GE} = 15V, V_{CE} = 1250V, T_J = 125°C R_G = 10Ω, Non Repetitive		10	μs
P_C	T_C = 25°C		735	W
T_J			-55 ... +150	°C
T_{JM}			150	°C
T_{stg}			-55 ... +150	°C
V_{ISOL}	50/60Hz I_{ISOL} ≤ 1mA	t = 1min t = 1s	2500 3000	V~ V~
M_d	Mounting Torque Terminal Connection Torque		1.5/13 1.3/11.5	Nm/lb.in. Nm/lb.in.
Weight			30	g

Symbol	Test Conditions (T_J = 25°C, Unless Otherwise Specified)	Characteristic Values Min.	Typ.	Max.	
BV_{CES}	I_C = 3mA, V_{GE} = 0V	1700			V
$V_{GE(th)}$	I_C = 8mA, V_{CE} = V_{GE}	3.0		5.0	V
I_{CES}	V_{CE} = V_{CES}, V_{GE} = 0V			50	μA
	T_J = 125°C			3	mA
I_{GES}	V_{CE} = 0V, V_{GE} = ±20V			±200	nA
$V_{CE(sat)}$	I_C = 100A, V_{GE} = 15V, Note 1		2.5	3.0	V

Features

- Optimized for Low Conduction and Switching Losses
- Isolation Voltage 2500V~
- Short Circuit Capability
- International Standard Package
- High Current Handling Capability

Advantages

- High Power Density
- Low Gate Drive Requirement

Applications

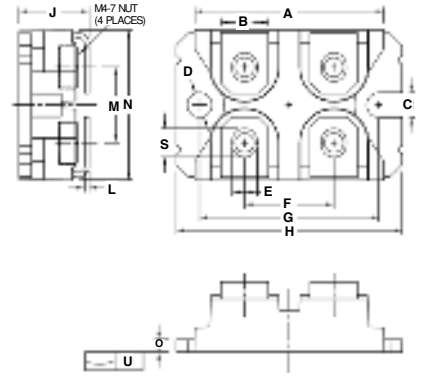
- Power Inverters
- UPS
- Motor Drives
- SMPS
- PFC Circuits
- Welding Machines

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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	36	64	S
C_{ies}	V_{CE} = 25V, V_{GE} = 0V, f = 1MHz		9200	pF
C_{oes}			455	pF
C_{res}			150	pF
Q_g	I_C = 100A, V_{GE} = 15V, V_{CE} = 0.5 • V_{CES}		425	nC
Q_{ge}			65	nC
Q_{gc}			186	nC
$t_{d(on)}$	**Resistive load, T_J = 25°C**		35	ns
t_r	I_C = 100A, V_{GE} = 15V		192	ns
$t_{d(off)}$	V_{CE} = 0.5 • V_{CES}, R_G = 1Ω		285	ns
t_f			395	ns
$t_{d(on)}$	**Resistive load, T_J = 125°C**		35	ns
t_r	I_C = 100A, V_{GE} = 15V		250	ns
$t_{d(off)}$	V_{CE} = 0.5 • V_{CES}, R_G = 1Ω		285	ns
t_f			435	ns
R_{thJC}				0.17 °C/W
R_{thCS}			0.05	°C/W

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

SOT-227B (IXGN) OUTLINE



SYM	INCHES MIN	INCHES MAX	MILLIMETERS MIN	MILLIMETERS MAX
A	1.224	1.260	31.10	32.00
B	.303	.327	7.70	8.30
C	.161	.173	4.10	4.40
D	.161	.173	4.10	4.40
E	.161	.173	4.10	4.40
F	.587	.598	14.90	15.20
G	1.181	1.201	30.00	30.50
H	1.488	1.508	37.80	38.30
J	.461	.484	11.70	12.30
L	.030	.033	0.75	0.85
M	.492	.512	12.50	13.00
N	.984	1.004	25.00	25.50
O	.075	.087	1.90	2.20
S	.181	.193	4.60	4.90
U	.000	.005	0.00	0.13

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 4,860,072 4,881,106 4,931,844 5,017,508 5,034,796 5,049,961 5,063,307 5,187,117 5,237,481 5,381,025 5,486,715 6,162,665 6,259,123 B1 6,306,728 B1 6,404,065 B1 6,534,343 6,583,505 6,683,344 6,710,405 B2 6,710,463 6,727,585 6,759,692 6,771,478 B2 7,005,734 B2 7,063,975 B2 7,071,537 7,157,338B2

Fig. 1. Output Characteristics @ T_J = 25ºC

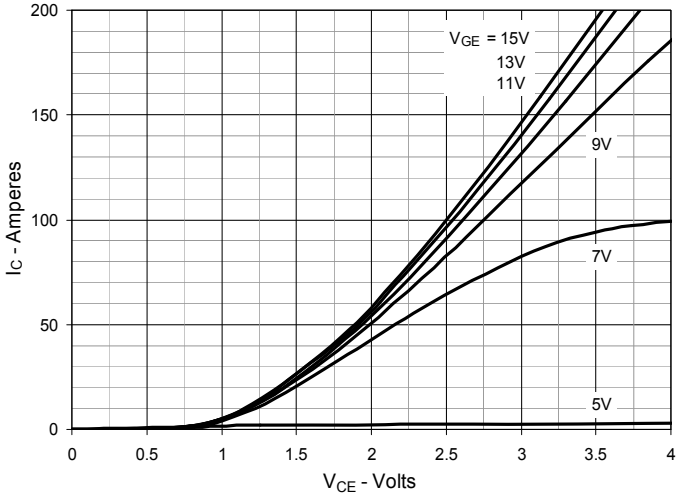


Fig. 2. Extended Output Characteristics @ T_J = 25ºC

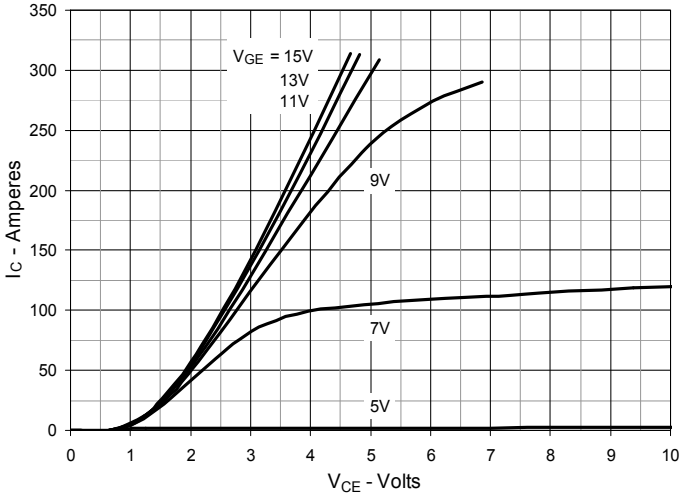


Fig. 3. Output Characteristics @ T_J = 125ºC

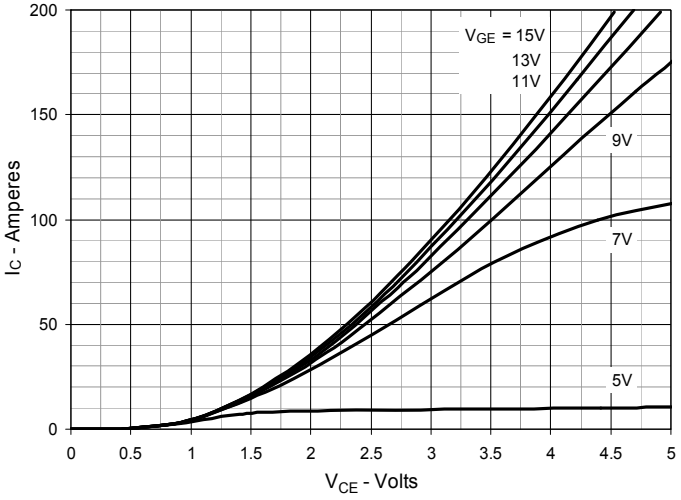


Fig. 4. Dependence of $V_{CE(sat)}$ on Junction Temperature

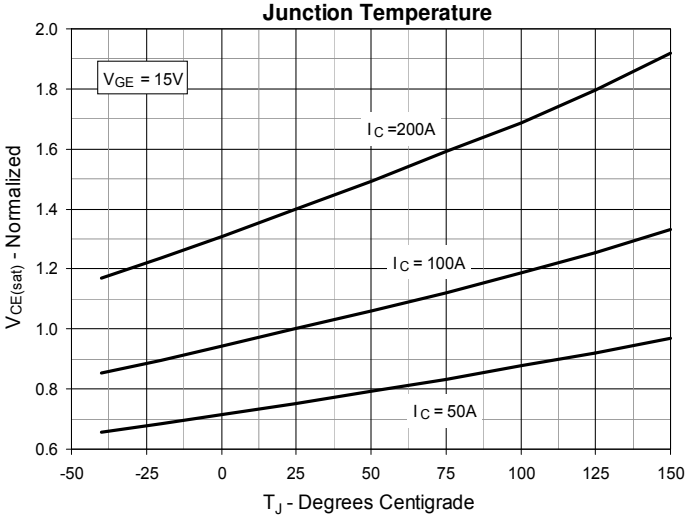


Fig. 5. Collector-to-Emitter Voltage vs. Gate-to-Emitter Voltage

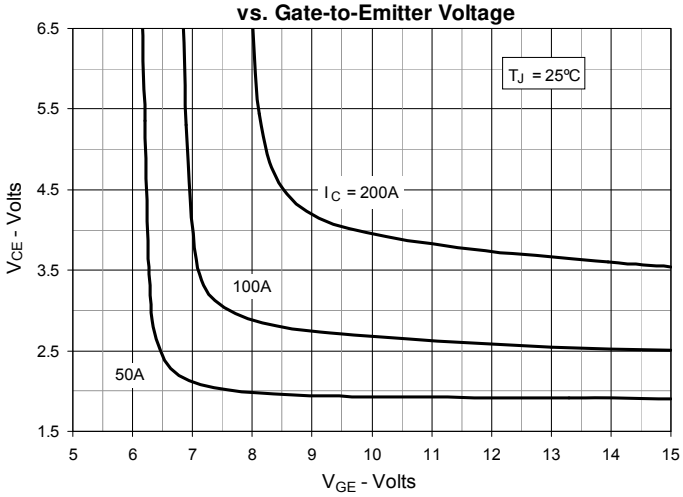
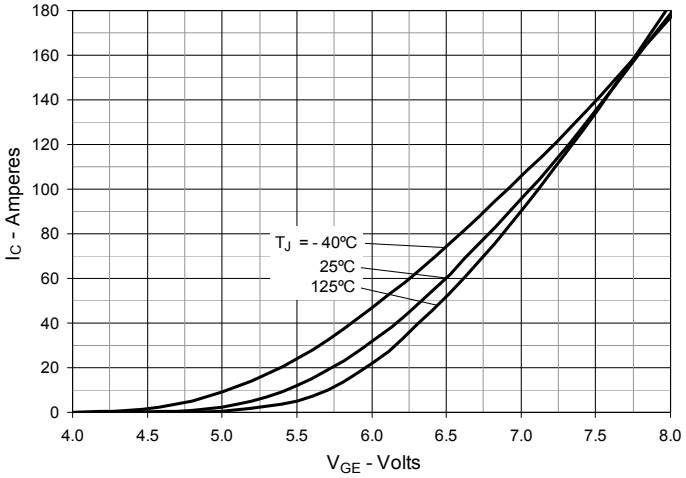


Fig. 6. Input Admittance



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Fig. 7. Transconductance

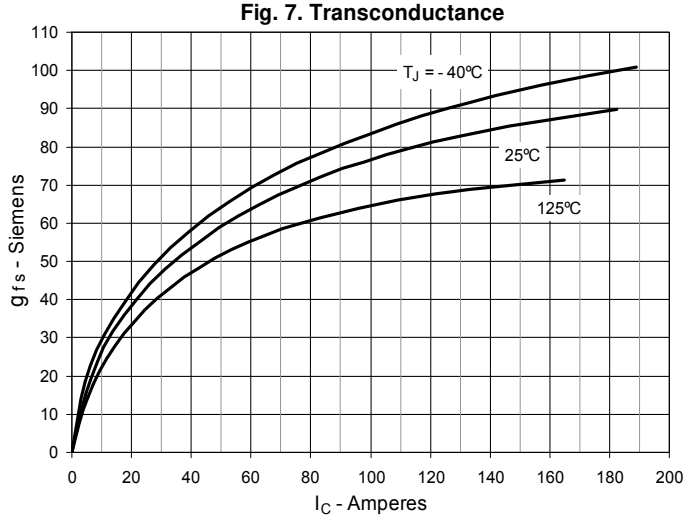


Fig. 8. Gate Charge

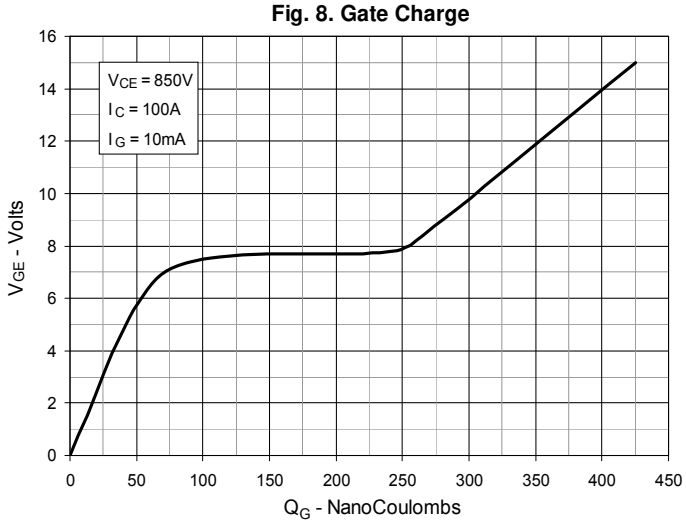


Fig. 9. Reverse-Bias Safe Operating Area

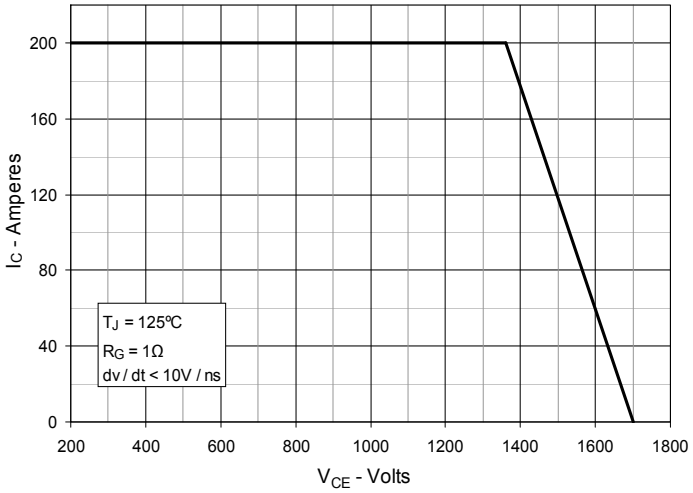


Fig. 10. Capacitance

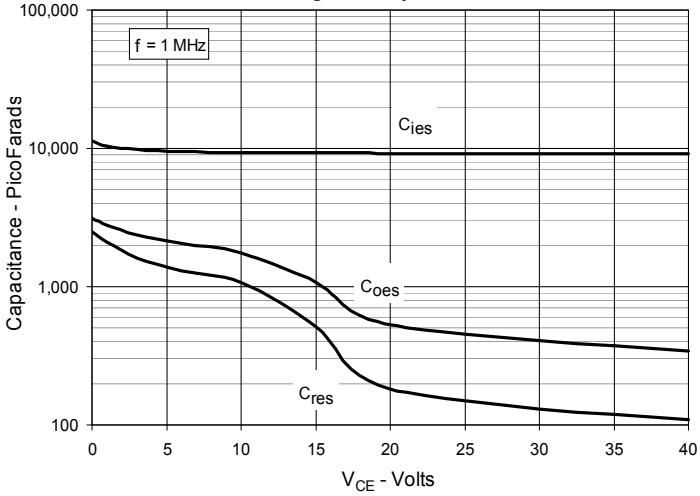
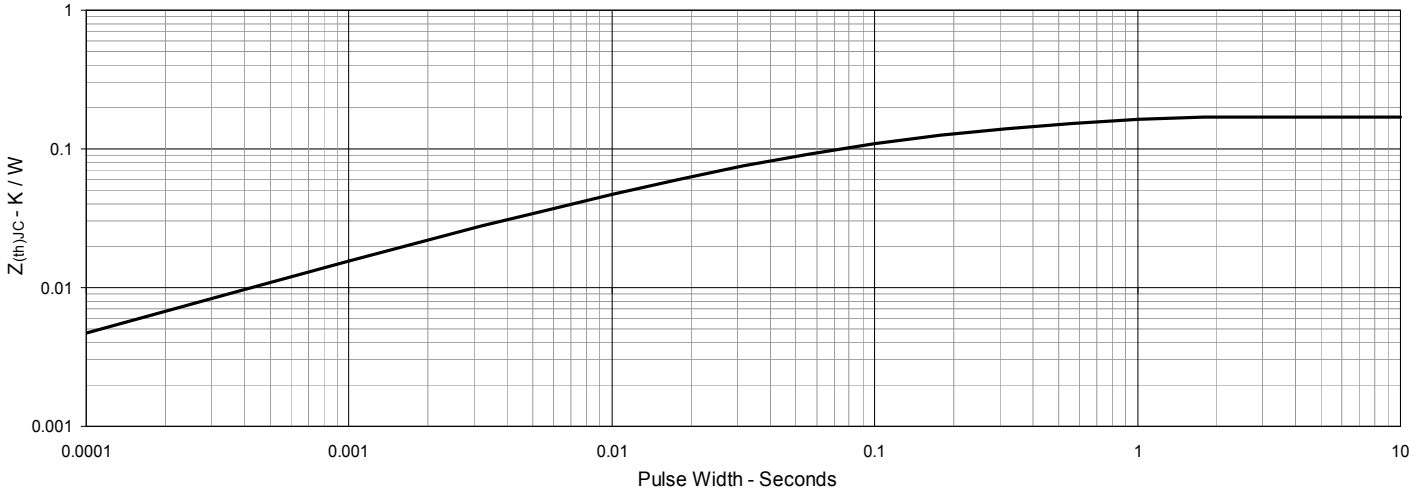


Fig. 11. Maximum Transient Thermal Impedance



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Fig. 12. Resistive Turn-on Rise Time vs. Junction Temperature

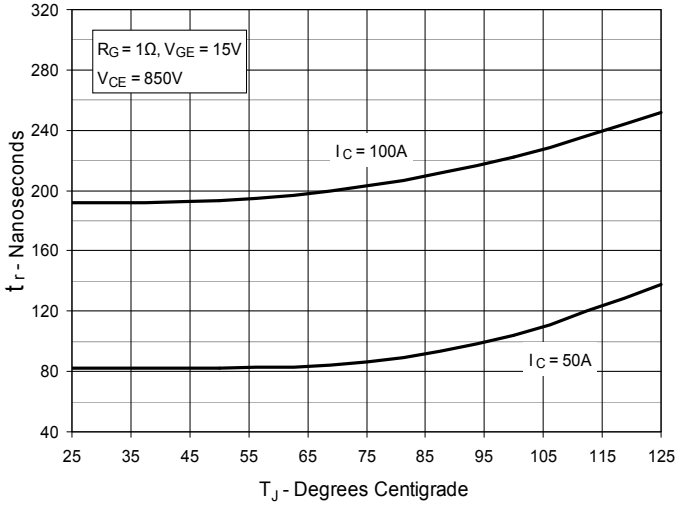


Fig. 13. Resistive Turn-on Rise Time vs. Collector Current

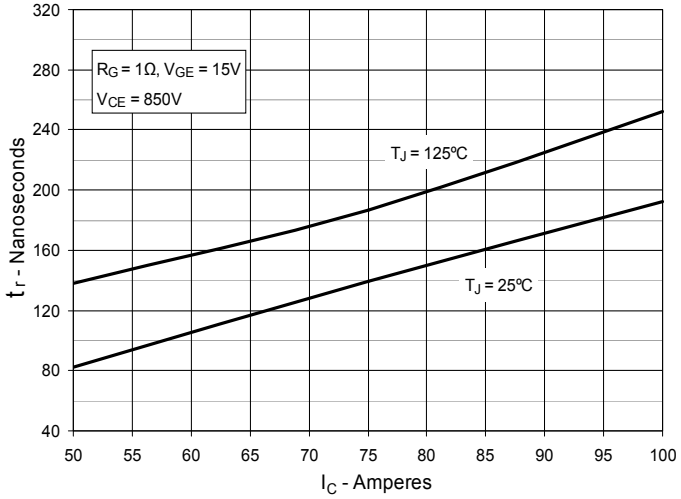


Fig. 14. Resistive Turn-on Switching Times vs. Gate Resistance

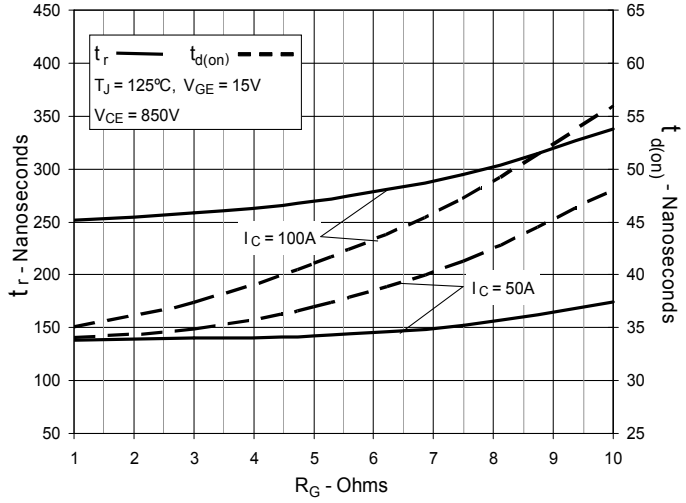


Fig. 15. Resistive Turn-off Switching Times vs. Junction Temperature

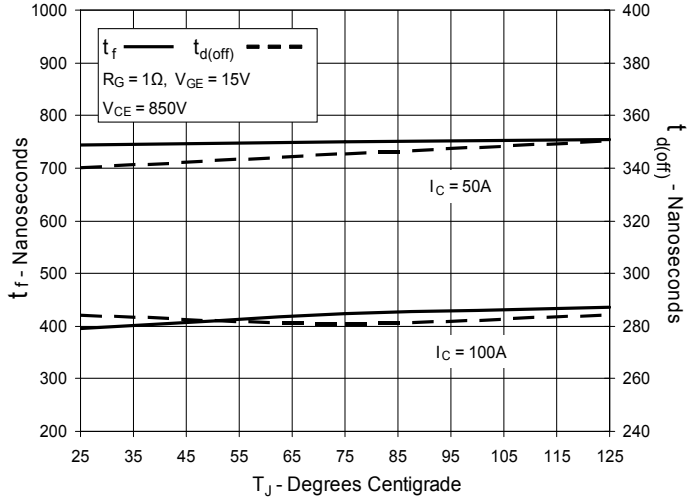


Fig. 16. Resistive Turn-off Switching Times vs. Collector Current

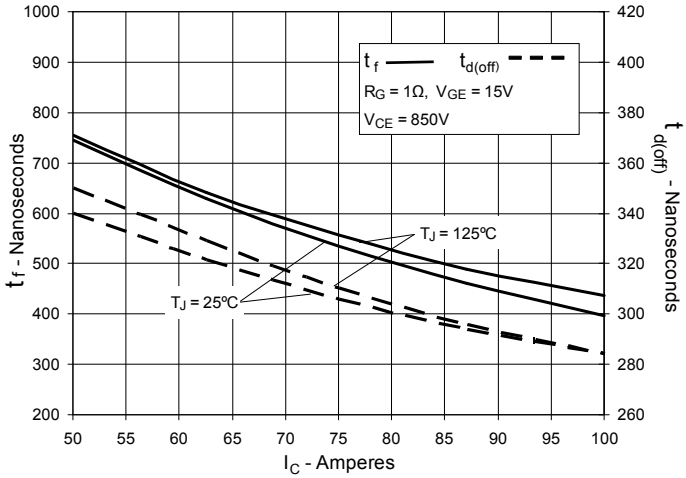
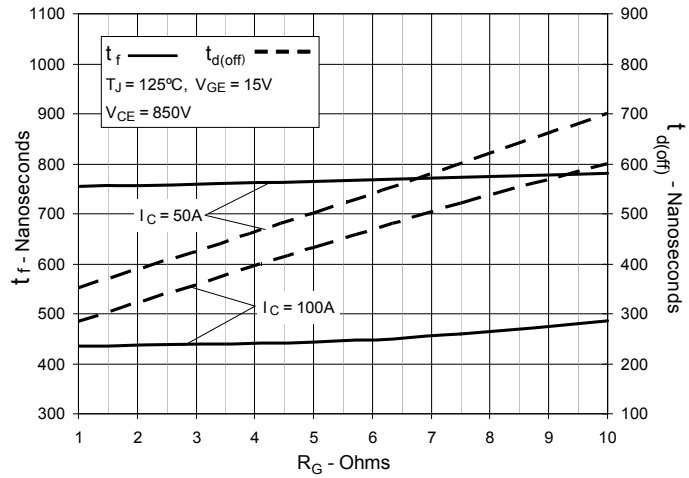


Fig. 17. Resistive Turn-off Switching Times vs. Gate Resistance



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