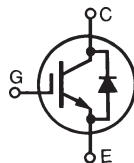


**BiMOSFET™ Monolithic
Bipolar MOS Transistor**
IXBN75N170

$$V_{CES} = 1700V$$

$$I_{C90} = 75A$$

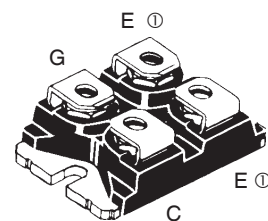
$$V_{CE(sat)} \leq 3.1V$$



Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ C$ to $150^\circ C$	1700	V
V_{CGR}	$T_J = 25^\circ C$ to $150^\circ C$, $R_{GE} = 1M\Omega$	1700	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ C$	145	A
I_{C90}	$T_C = 90^\circ C$	75	A
I_{CM}	$T_C = 25^\circ C$, 1ms	680	A
SSOA (RBSOA)	$V_{GE} = 15V$, $T_{VJ} = 125^\circ C$, $R_G = 1\Omega$ Clamped Inductive Load	$I_{CM} = 150$ $V_{CE} \leq 0.8 \cdot V_{CES}$	A
P_C	$T_C = 25^\circ C$	625	W
T_J		-55 ... +150	$^\circ C$
T_{JM}		150	$^\circ C$
T_{stg}		-55 ... +150	$^\circ C$
T_L T_{SOLD}	Maximum Lead Temperature for Soldering 1.6 mm (0.062 in.) from Case for 10	300 260	$^\circ C$ $^\circ C$
V_{ISOL}	50/60Hz $I_{ISOL} \leq 1mA$	$t = 1min$ $t = 1s$	2500 3000 V~ V~
M_d	Mounting Torque Terminal Connection Torque (M4)	1.5/13 1.3/11.5	Nm/lb.in. Nm/lb.in.
Weight		30	g

SOT-227B, miniBLOC

E153432



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

Features

- International Standard Package
- High Blocking Voltage
- Isolation Voltage 3000 V~
- High Current Handling Capability
- Anti-Parallel Diode

Advantages

- High Power Density
- Low Gate Drive Requirement
- Easy to Mount with 2 Screws
- Intergrated Diode Can Be Used for Protection

Applications

- Capacitor Discharge
- AC Switches
- Switch-Mode and Resonant-Mode Power Supplies
- UPS
- AC Motor Drives

Symbol	Test Conditions ($T_J = 25^\circ C$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 250\mu A$, $V_{GE} = 0V$	1700		V
$V_{GE(th)}$	$I_C = 1.5mA$, $V_{CE} = V_{GE}$	2.5		5.5 V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$, $V_{GE} = 0V$ $T_J = 125^\circ C$			25 μA 2 mA
I_{GES}	$V_{CE} = 0V$, $V_{GE} = \pm 20V$			± 100 nA
$V_{CE(sat)}$	$I_C = I_{C90}$, $V_{GE} = 15V$, Note 1 $T_J = 125^\circ C$		2.6 3.1	3.1 V V

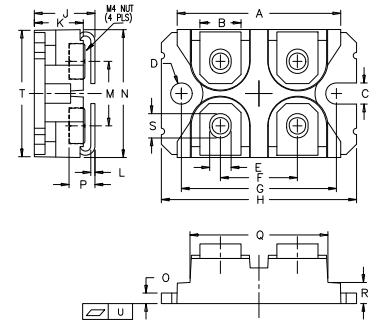
Symbol Test Conditions

($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)

Characteristic Values

		Characteristic Values			
		Min.	Typ.	Max.	
g_{fs}	$I_C = I_{C90}, V_{CE} = 10V$, Note 1	34	56	S	
C_{ies}	$V_{CE} = 25V, V_{GE} = 0V, f = 1\text{MHz}$		6930	pF	
C_{oes}			400	pF	
C_{res}			150	pF	
Q_g	$I_C = I_{C90}, V_{GE} = 15V, V_{CE} = 0.5 \cdot V_{CES}$		350	nC	
Q_{ge}			50	nC	
Q_{gc}			160	nC	
$t_{d(on)}$	Resistive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C90}, V_{GE} = 15V$		46	ns	
t_r			160	ns	
$t_{d(off)}$		$R_G = 1\Omega, V_{CE} = 0.5 \cdot V_{CES}$		260	ns
t_f				440	ns
$t_{d(on)}$	Resistive load, $T_J = 125^\circ\text{C}$ $I_C = I_{C90}, V_{GE} = 15V$		47	ns	
t_r			230	ns	
$t_{d(off)}$		$R_G = 1\Omega, V_{CE} = 0.5 \cdot V_{CES}$		260	ns
t_f				580	ns
R_{thJC}				0.20 $^\circ\text{C/W}$	
R_{thCS}		0.05		$^\circ\text{C/W}$	

SOT-227B miniBLOC (IXBN)



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	1.240	1.255	31.50	31.88
B	.307	.323	7.80	8.20
C	.161	.169	4.09	4.29
D	.161	.169	4.09	4.29
E	.161	.169	4.09	4.29
F	.587	.595	14.91	15.11
G	1.186	1.193	30.12	30.30
H	1.496	1.505	38.00	38.23
J	.460	.481	11.68	12.22
K	.351	.378	8.92	9.60
L	.030	.033	0.76	0.84
M	.496	.506	12.60	12.85
N	.990	1.001	25.15	25.42
O	.078	.084	1.98	2.13
P	.195	.235	4.95	5.97
Q	1.045	1.059	26.54	26.90
R	.155	.174	3.94	4.42
S	.186	.191	4.72	4.85
T	.968	.987	24.59	25.07
U	-.002	.004	-0.05	0.1

Reverse Diode

Symbol Test Conditions

($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)

Characteristic Values

		Characteristic Values		
		Min.	Typ.	Max
V_F	$I_F = I_{C90}, V_{GE} = 0V$, Note 1			3.0 V
t_{rr}	$I_F = 37V, V_{GE} = 0V, -di_F/dt = 100A/\mu s$		1.5	μs
I_{RM}			50	A
Q_{RM}		$V_R = 100V, V_{GE} = 0V$		38.2

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

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.

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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

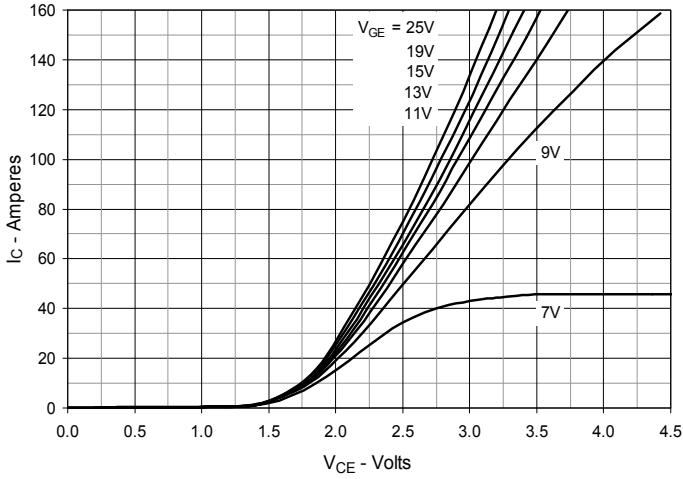


Fig. 2. Extended Output Characteristics @ 25°C

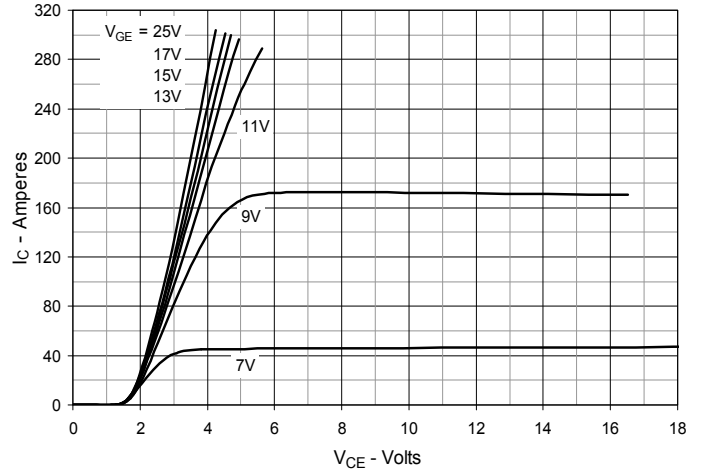


Fig. 3. Output Characteristics @ 125°C

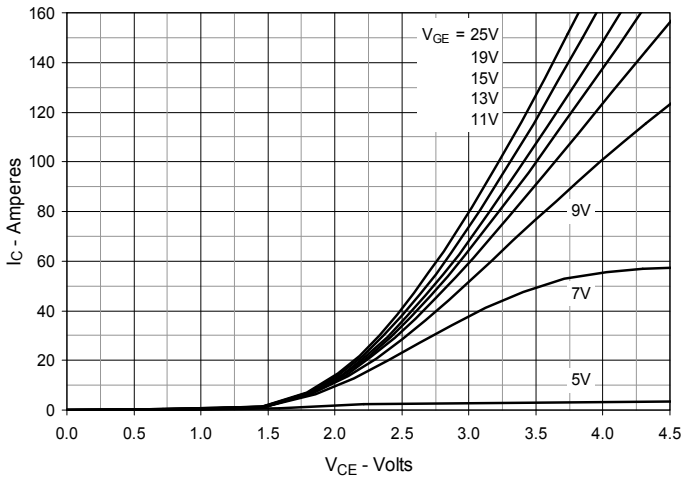


Fig. 4. Dependence of $V_{CE(sat)}$ on Junction Temperature

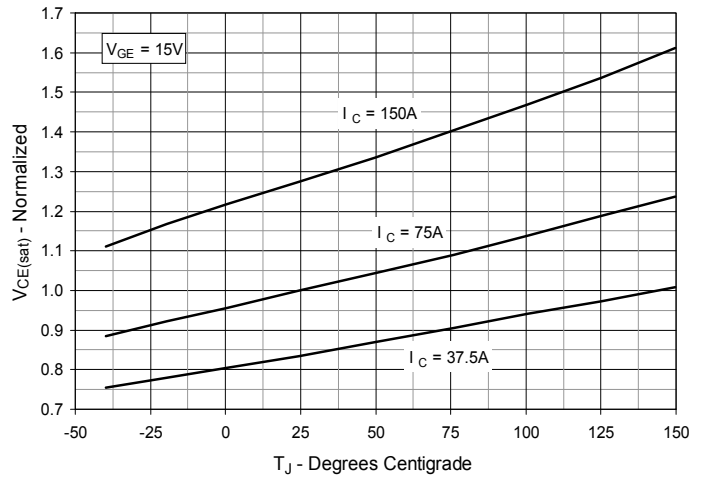


Fig. 5. Collector-to-Emitter Voltage vs. Gate-to-Emitter Voltage

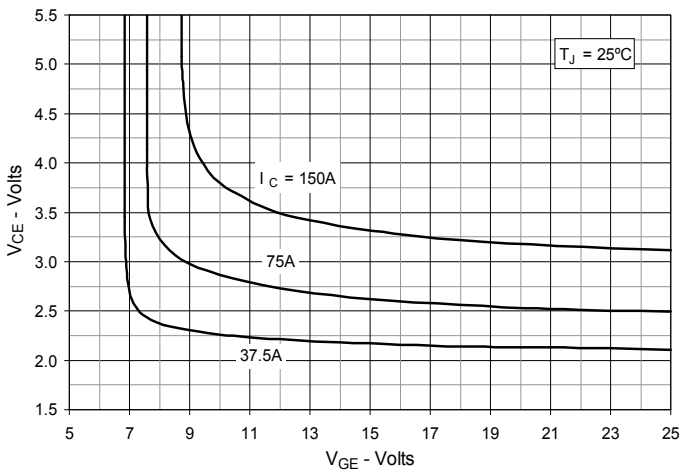


Fig. 6. Input Admittance

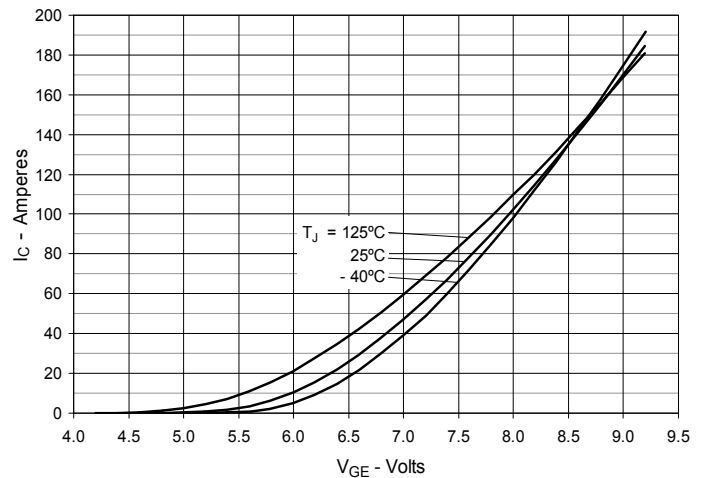


Fig. 7. Transconductance

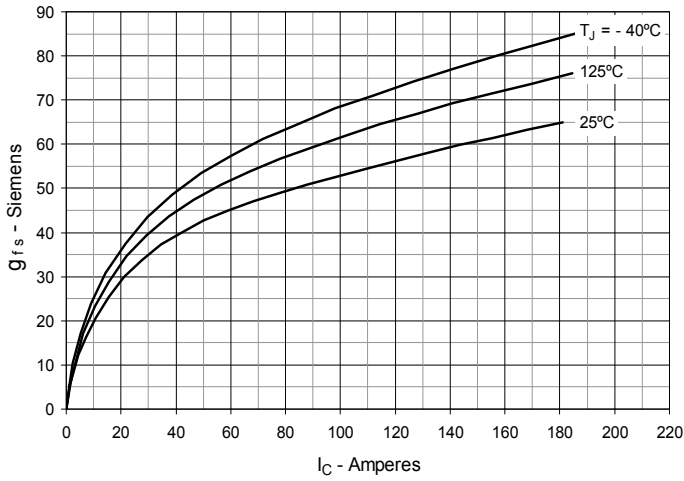


Fig. 8. Forward Voltage Drop of Intrinsic Diode

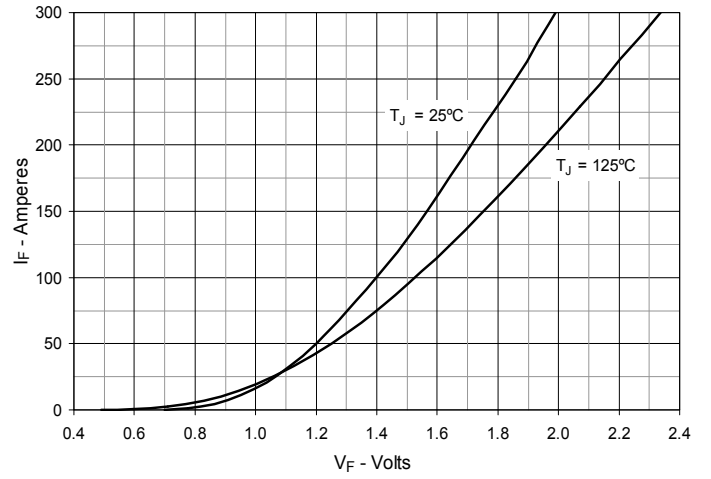


Fig. 9. Gate Charge

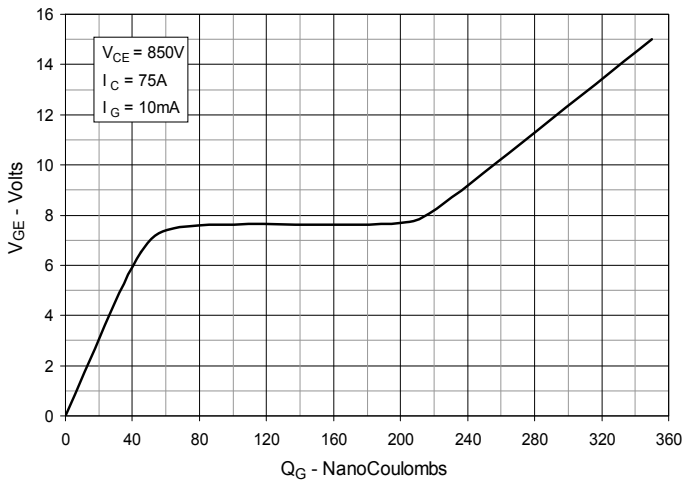


Fig. 10. Capacitance

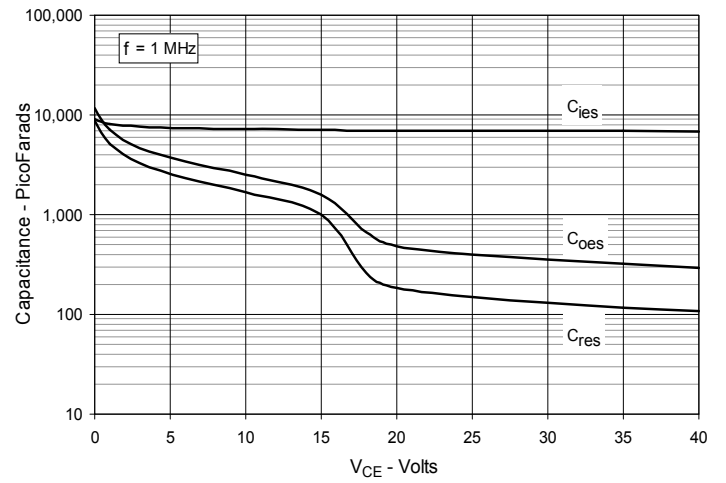


Fig. 11. Reverse-Bias Safe Operating Area

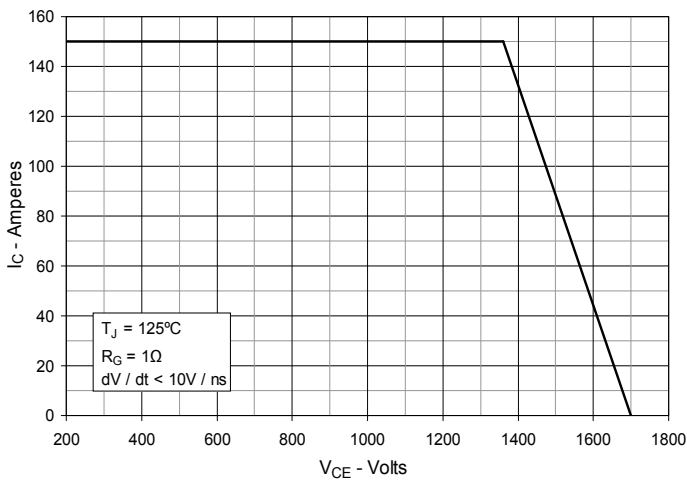


Fig. 12. Maximum Transient Thermal Impedance

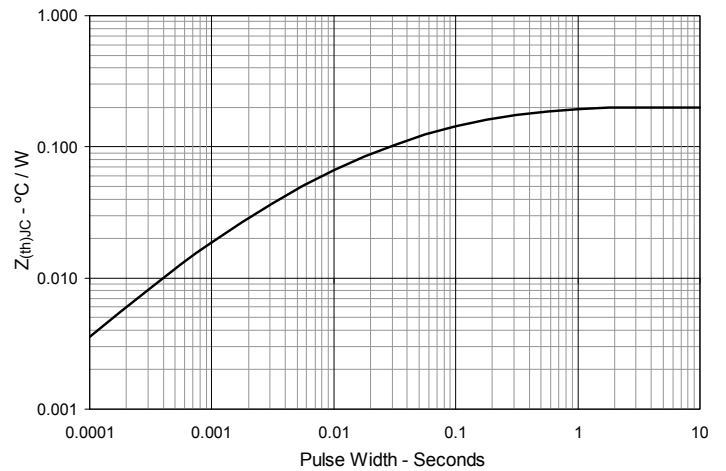


Fig. 13. Resistive Turn-on Rise Time vs. Junction Temperature

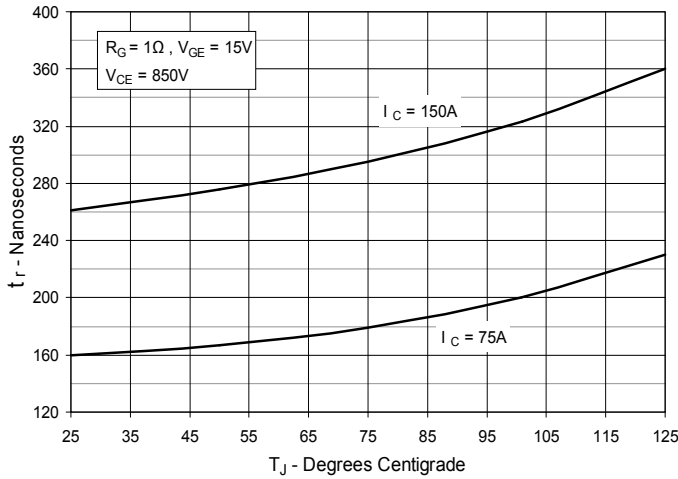


Fig. 14. Resistive Turn-on Rise Time vs. Collector Current

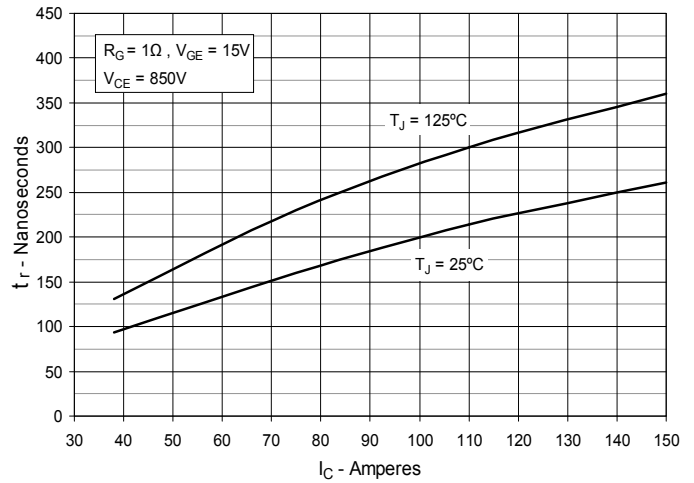


Fig. 15. Resistive Turn-on Switching Times vs. Gate Resistance

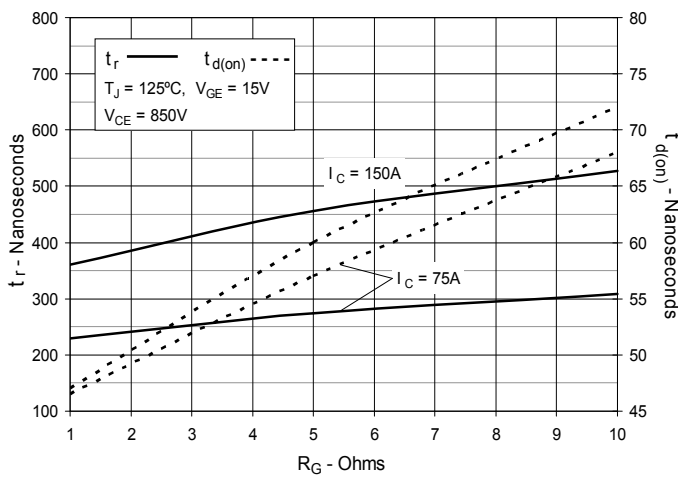


Fig. 16. Resistive Turn-off Switching Times vs. Junction Temperature

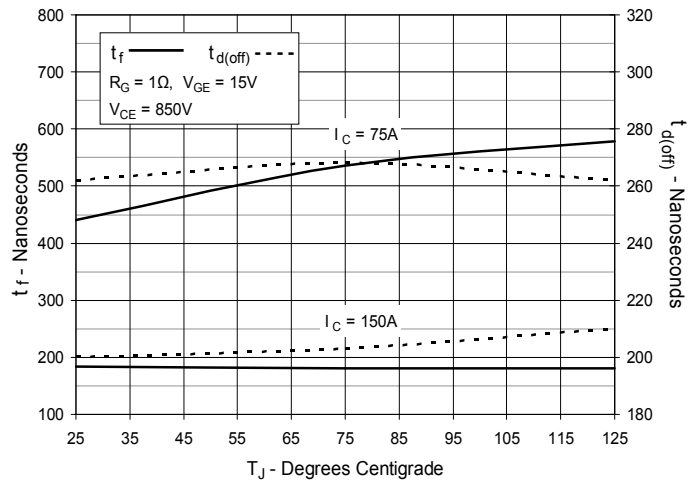


Fig. 17. Resistive Turn-off Switching Times vs. Collector Current

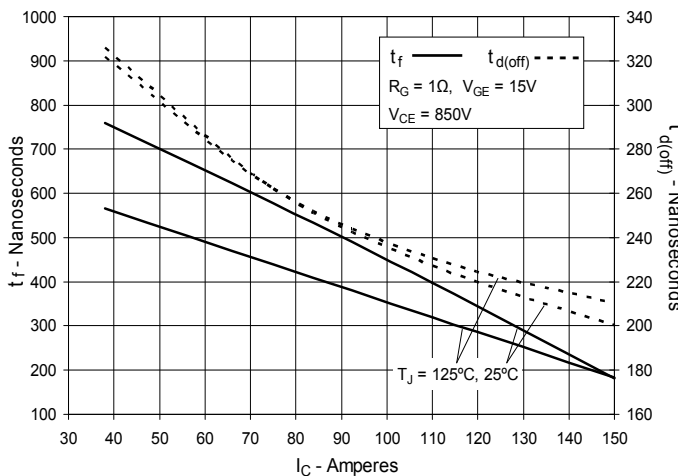
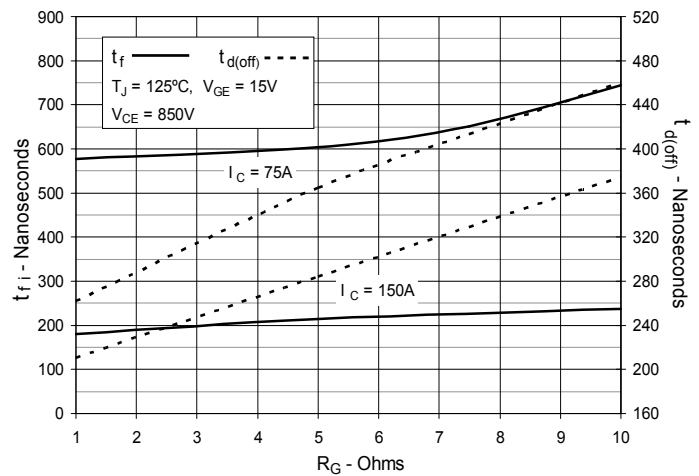


Fig. 18. Resistive Turn-off Switching Times vs. Gate Resistance





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