



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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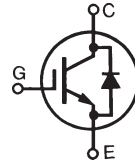
BiMOSFET™ Monolithic Bipolar MOS Transistor

IXBK75N170 IXBX75N170

$$V_{CES} = 1700V$$

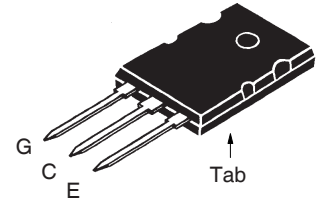
$$I_{C110} = 75A$$

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

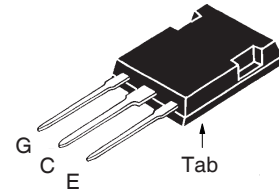


Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_J = 25^\circ C$ to $150^\circ C$	1700	V
V_{CGR}	$T_J = 25^\circ C$ to $150^\circ C$, $R_{GE} = 1M\Omega$	1700	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ C$ (Chip Capability)	200	A
I_{LRMS}	$T_C = 25^\circ C$ (Lead RMS Limit)	160	A
I_{C110}	$T_C = 110^\circ C$	75	A
I_{CM}	$T_C = 25^\circ C$, 1ms	580	A
SSOA	$V_{GE} = 15V$, $T_{VJ} = 125^\circ C$, $R_G = 1\Omega$	$I_{CM} = 150$	A
(RBSOA)	Clamped Inductive Load	$V_{CE} \leq 0.8 \cdot V_{CES}$	
P_C	$T_C = 25^\circ C$	1040	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 (TO-264)	1.13/10	Nm/lb.in.
F_c	Mounting Force (PLUS247)	20..120/4.5..27	N/lb.
Weight	TO-264	10	g
	PLUS247	6	g

TO-264 (IXBK)



PLUS247™ (IXBX)



G = Gate C = Collector
E = Emitter Tab = Collector

Features

- International Standard Packages
- High Blocking Voltage
- High Current Handling Capability
- Anti-Parallel Diode

Advantages

- High Power Density
- Low Gate Drive Requirement
- 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
$V_{CE(sat)}$	$I_C = I_{C110}$, $V_{GE} = 15V$, 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

		Min.	Typ.	Max.		
g_{fs}	$I_C = I_{C110}, V_{CE} = 10V, \text{Note 1}$	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	$I_C = I_{C110}, V_{GE} = 15V, V_{CE} = 0.5 \cdot V_{CES}$		350		nC	
Q_{ge}			50		nC	
Q_{gc}			160		nC	
$t_{d(on)}$	Resistive load, $T_J = 25^\circ\text{C}$ $I_C = I_{C110}, V_{GE} = 15V$		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, $T_J = 125^\circ\text{C}$ $I_C = I_{C110}, V_{GE} = 15V$		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}				0.12	$^\circ\text{C/W}$	
R_{thCS}		0.15			$^\circ\text{C/W}$	

Reverse Diode

Symbol Test Conditions

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

Characteristic Values

		Min.	Typ.	Max	
V_F	$I_F = I_{C110}, V_{GE} = 0V, \text{Note 1}$			3.0	V
t_{rr}	$I_F = 37A, V_{GE} = 0V, -di_F/dt = 100A/\mu\text{s}$		1.5		μs
I_{RM}			50		A
Q_{RM}		$V_R = 100V, V_{GE} = 0V$		38.2	

Note

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

Additional provisions for lead-to-lead isolation are required at $V_{CE} > 1200V$.

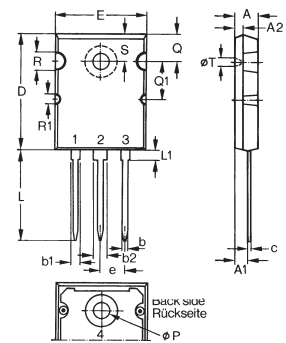
PRELIMINARY TECHNICAL INFORMATION

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.

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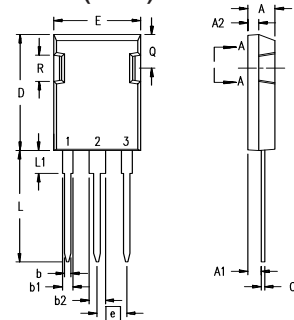
IXYS MOSFETs and IGBTs are covered 4,835,592 4,931,844 5,049,961 5,237,481 6,162,665 6,404,065 B1 6,683,344 6,727,585 7,005,734 B2 7,157,338 B2
by one or more of the following U.S. patents: 4,850,072 5,017,508 5,063,307 5,381,025 6,259,123 B1 6,534,343 6,710,405 B2 6,759,692 7,063,975 B2
4,881,106 5,034,796 5,187,117 5,486,715 6,306,728 B1 6,583,505 6,710,463 6,771,478 B2 7,071,537

TO-264 AA (IXBK) Outline



Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.82	5.13	.190	.202
A1	2.54	2.89	.100	.114
A2	2.00	2.10	.079	.083
b	1.12	1.42	.044	.056
b1	2.39	2.69	.094	.106
b2	2.90	3.09	.114	.122
c	0.53	0.83	.021	.033
D	25.91	26.16	1.020	1.030
E	19.81	19.96	.780	.786
e	5.46 BSC		.215 BSC	
J	0.00	0.25	.000	.010
K	0.00	0.25	.000	.010
L	20.32	20.83	.800	.820
L1	2.29	2.59	.090	.102
P	3.17	3.66	.125	.144
Q	6.07	6.27	.239	.247
Q1	8.38	8.69	.330	.342
R	3.81	4.32	.150	.170
R1	1.78	2.29	.070	.090
S	6.04	6.30	.238	.248
T	1.57	1.83	.062	.072

PLUS247™ (IXBX) 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

Fig. 1. Output Characteristics @ 25°C

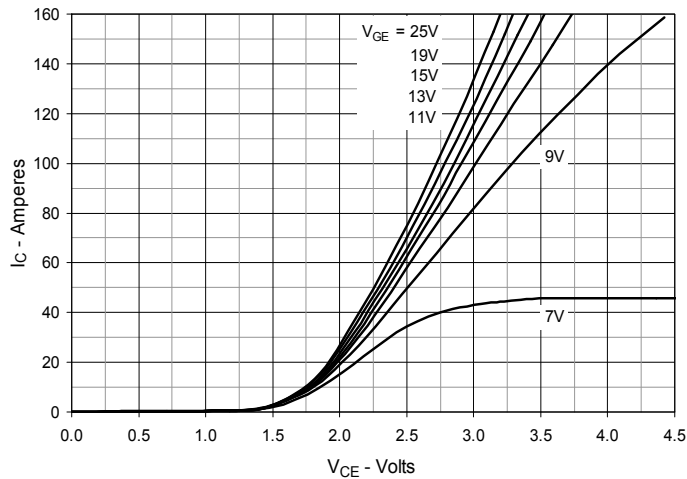


Fig. 2. Extended Output Characteristics @ 25°C

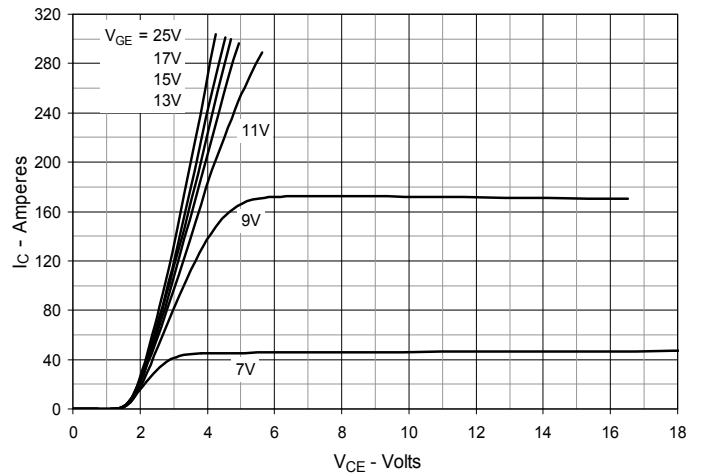


Fig. 3. Output Characteristics @ 125°C

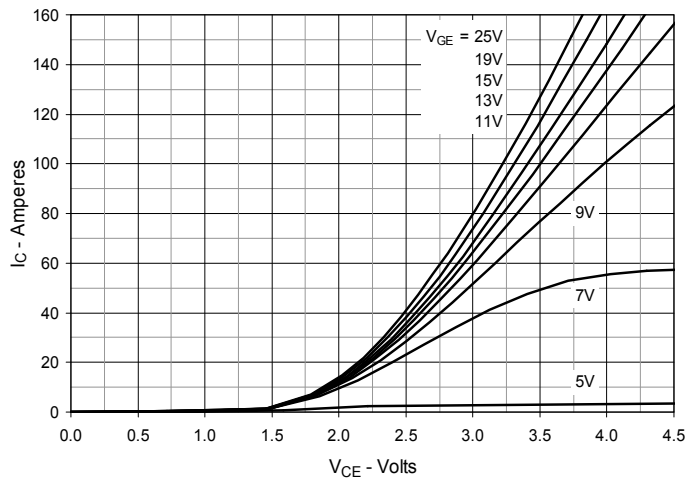


Fig. 4. Dependence of VCE(sat) on Junction Temperature

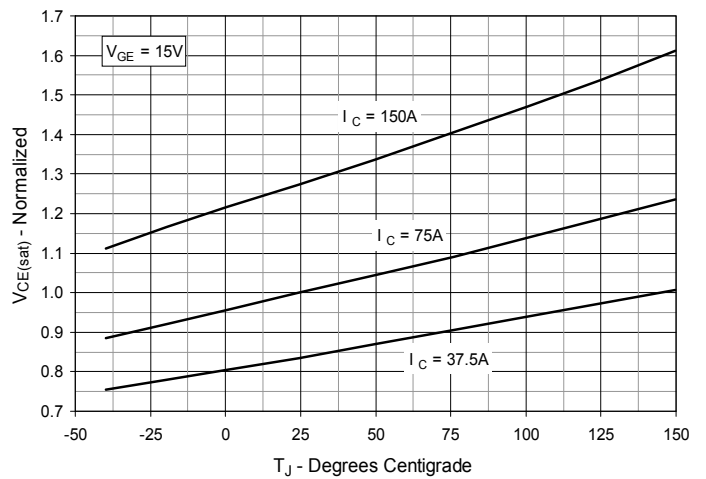


Fig. 5. Collector-to-Emitter Voltage vs. Gate-to-Emitter Voltage

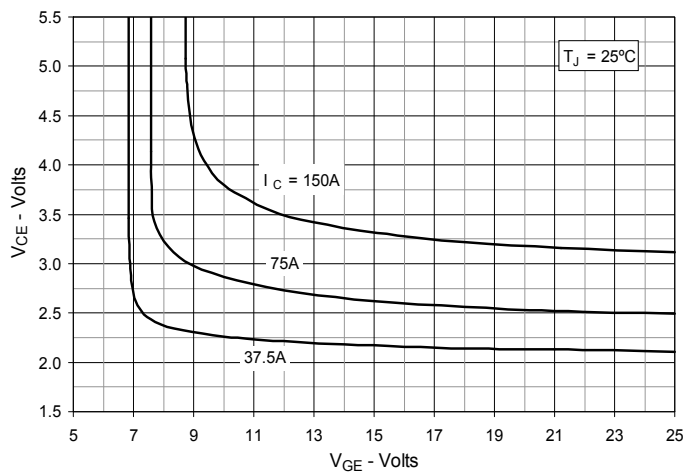


Fig. 6. Input Admittance

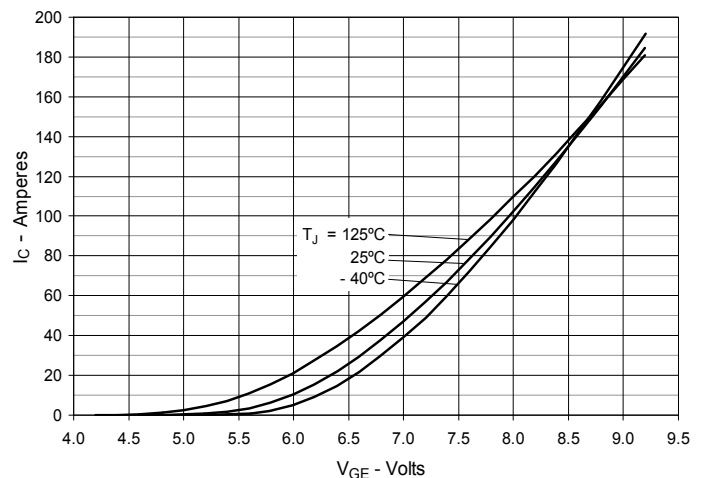


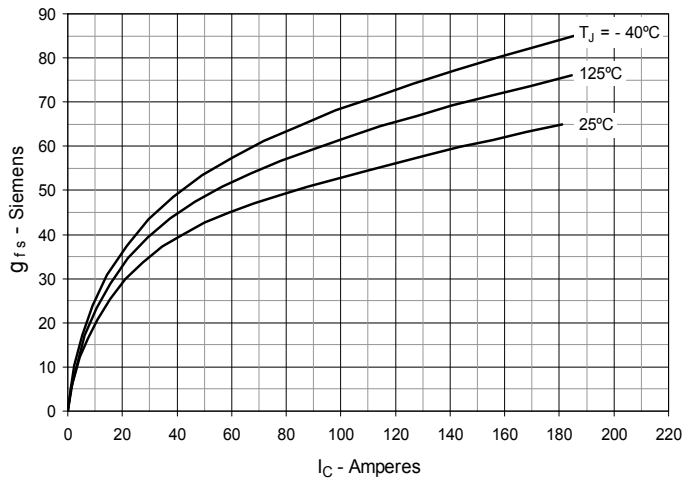
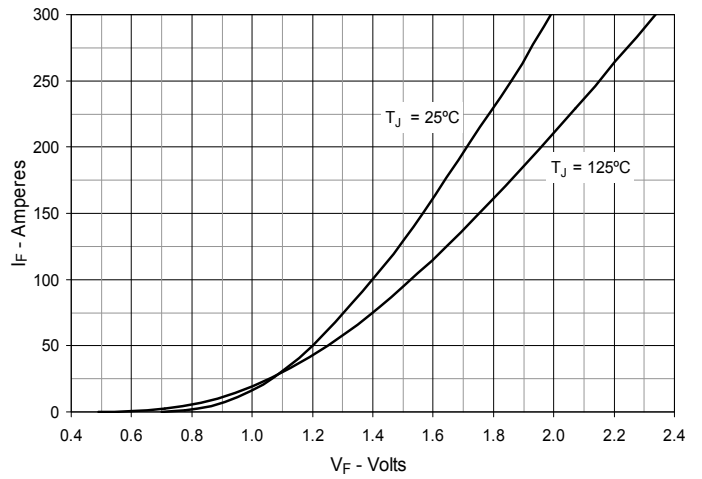
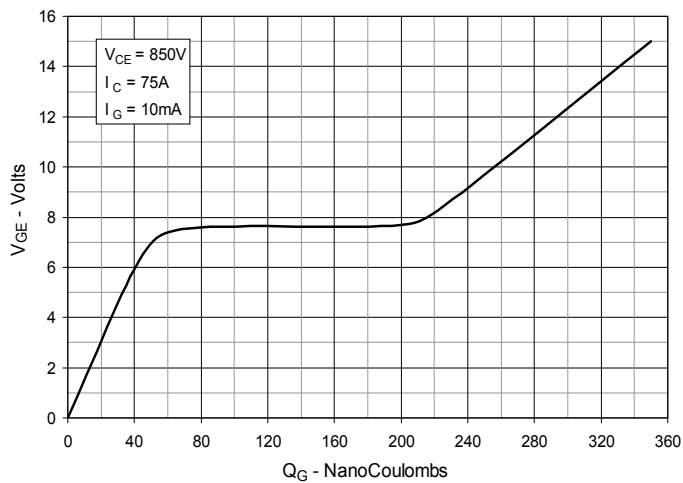
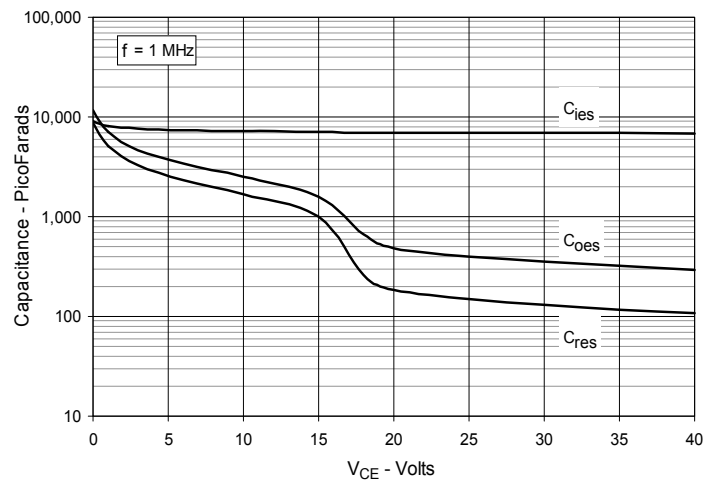
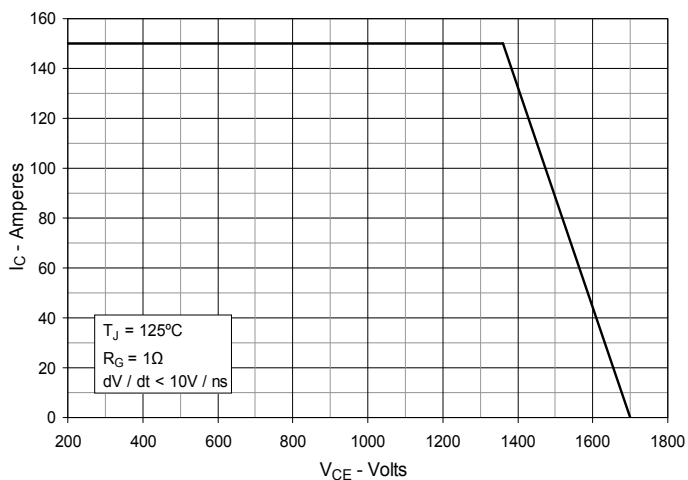
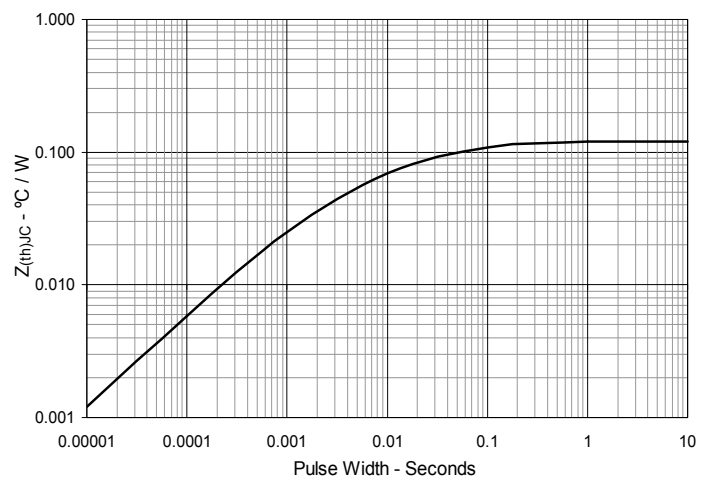
Fig. 7. Transconductance

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

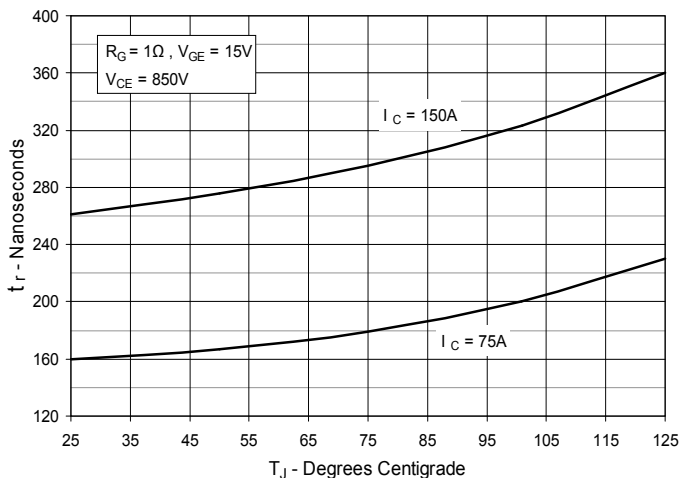


Fig. 14. Resistive Turn-on Rise Time vs. Collector Current

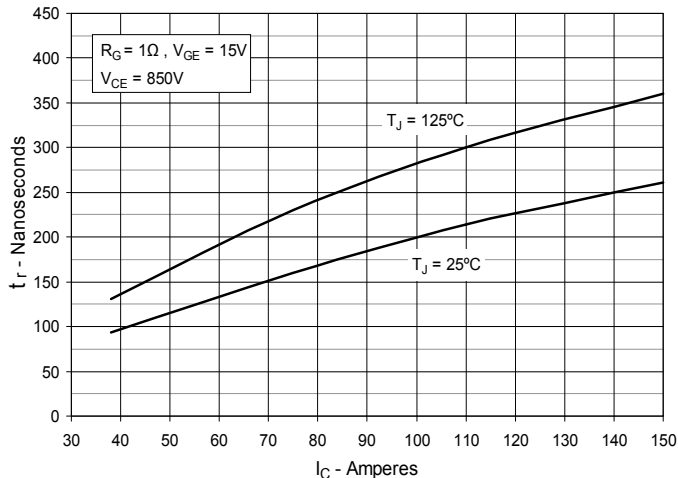


Fig. 15. Resistive Turn-on Switching Times vs. Gate Resistance

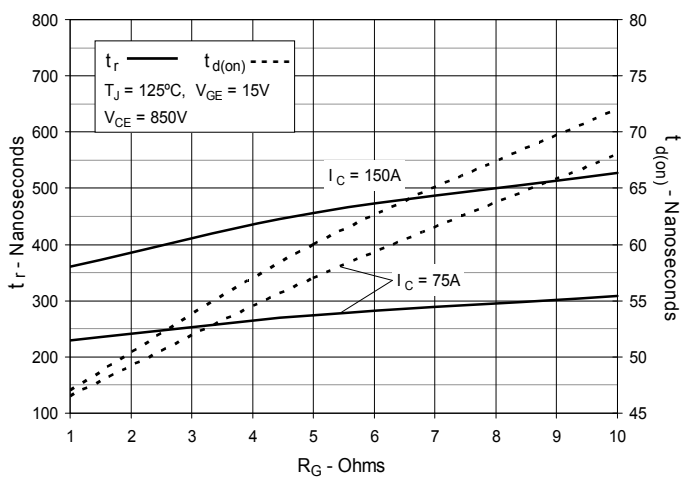


Fig. 16. Resistive Turn-off Switching Times vs. Junction Temperature

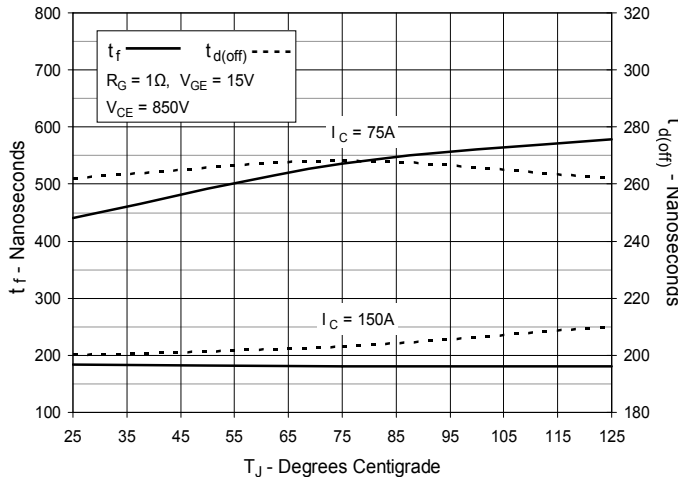


Fig. 17. Resistive Turn-off Switching Times vs. Collector Current

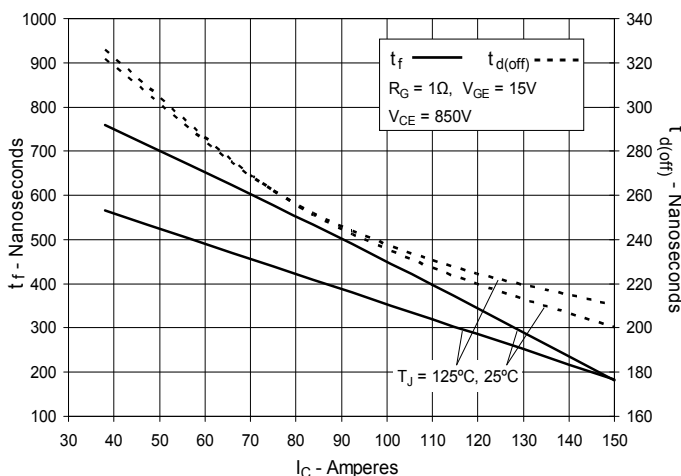


Fig. 18. Resistive Turn-off Switching Times vs. Gate Resistance

