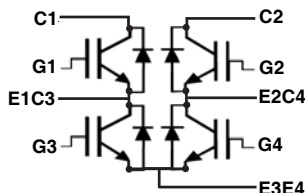


High Voltage, High Gain BIMOSFET™ Monolithic Bipolar MOS Transistor

MMIX4B20N300



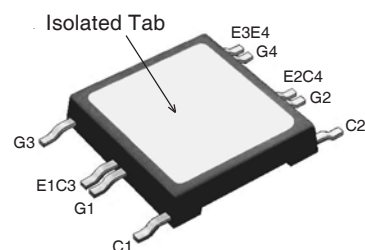
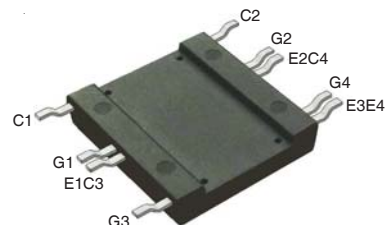
$$V_{CES} = 3000V$$

$$I_{C110} = 14A$$

$$V_{CE(sat)} \leq 3.2V$$

(Electrically Isolated Tab)

Symbol	Test Conditions	Maximum Ratings	
V_{CES}	$T_C = 25^\circ C$ to $150^\circ C$	3000	V
V_{CGR}	$T_J = 25^\circ C$ to $150^\circ C$, $R_{GE} = 1M\Omega$	3000	V
V_{GES}	Continuous	± 20	V
V_{GEM}	Transient	± 30	V
I_{C25}	$T_C = 25^\circ C$	34	A
I_{C110}	$T_C = 110^\circ C$	14	A
I_{CM}	$T_C = 25^\circ C$, $V_{GE} = 19V$, 1ms	150	A
		74	A
SSOA (RBSOA)	$V_{GE} = 15V$, $T_{VJ} = 125^\circ C$, $R_G = 20\Omega$ Clamped Inductive Load	$I_{CM} = 130$	A
		1500	V
P_C	$T_C = 25^\circ C$	150	W
T_J		-55 ... +150	$^\circ C$
T_{JM}		150	$^\circ C$
T_{stg}		-55 ... +150	$^\circ C$
T_L	1.6mm (0.062 in.) from Case for 10s	300	$^\circ C$
T_{SOLD}	Plastic Body for 10 seconds	260	$^\circ C$
F_C	Mounting Force	50..200 / 11..45	Nm/lb.in.
V_{ISOL}	50/60Hz, 1 Minute	4000	V~
Weight		8	g



G = Gate E = Emitter
C = Collector

Features

- Silicon Chip on Direct-Copper Bond (DCB) Substrate
- Isolated Mounting Surface
- 4000V~ Electrical Isolation
- High Blocking Voltage
- High Peak Current Capability
- Low Saturation Voltage

Advantages

- Low Gate Drive Requirement
- High Power Density

Applications

- Switch-Mode and Resonant-Mode Power Supplies
- Capacitor Discharge Circuits

Symbol	Test Conditions ($T_J = 25^\circ C$ Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{CES}	$I_C = 250\mu A$, $V_{GE} = 0V$	3000		V
$V_{GE(th)}$	$I_C = 250\mu A$, $V_{CE} = V_{GE}$	2.5		5.0 V
I_{CES}	$V_{CE} = 0.8 \cdot V_{CES}$, $V_{GE} = 0V$ Note 2, $T_J = 125^\circ C$			35 μA 1.5 mA
I_{GES}	$V_{CE} = 0V$, $V_{GE} = \pm 20V$			± 100 nA
$V_{CE(sat)}$	$I_C = 20A$, $V_{GE} = 15V$, Note 1 $T_J = 125^\circ C$		2.7	3.2 V
			3.2	V

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$I_C = 20\text{A}, V_{CE} = 10\text{V}$, Note 1	11	18	S
C_{ies}	$V_{CE} = 25\text{V}, V_{GE} = 0\text{V}, f = 1\text{MHz}$		2230	pF
C_{oes}			92	pF
C_{res}			33	pF
Q_g	$I_C = 20\text{A}, V_{GE} = 15\text{V}, V_{CE} = 1000\text{V}$		105	nC
Q_{ge}			13	nC
Q_{gc}			45	nC
$t_{d(on)}$	Resistive Switching Times, $T_J = 25^\circ\text{C}$ $I_C = 20\text{A}, V_{GE} = 15\text{V}$ $V_{CE} = 1250\text{V}, R_G = 10\Omega$		64	ns
t_r			210	ns
$t_{d(off)}$			300	ns
t_f			504	ns
$t_{d(on)}$	Resistive Switching Times, $T_J = 125^\circ\text{C}$ $I_C = 20\text{A}, V_{GE} = 15\text{V}$ $V_{CE} = 1250\text{V}, R_G = 10\Omega$		68	ns
t_r			540	ns
$t_{d(off)}$			300	ns
t_f			395	ns
R_{thJC}			0.83	$^\circ\text{C/W}$
R_{thCS}		0.05		$^\circ\text{C/W}$
R_{thJA}		30		$^\circ\text{C/W}$

Reverse Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
V_F	$I_F = 20\text{A}, V_{GE} = 0\text{V}$			2.1 V
t_{rr}	$I_F = 10\text{A}, V_{GE} = 0\text{V}, -di_F/dt = 100\text{A}/\mu\text{s}$		1.35	μs
I_{RM}		$V_R = 100\text{V}, V_{GE} = 0\text{V}$		30

Notes:

1. Pulse test, $t \leq 300\mu\text{s}$, duty cycle, $d \leq 2\%$.
2. Device must be heatsunk for high temperature leakage current measurements to avoid thermal runaway.

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.

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
4,860,072 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

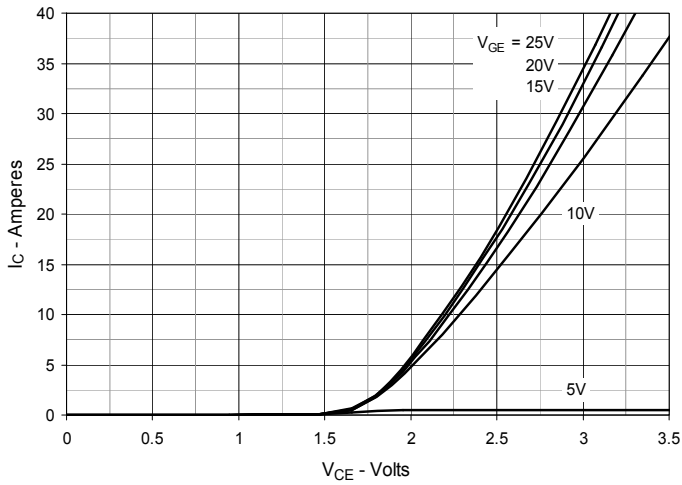
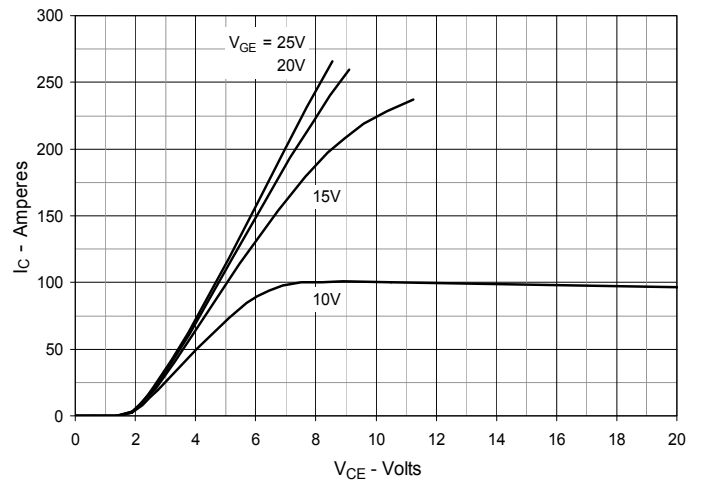
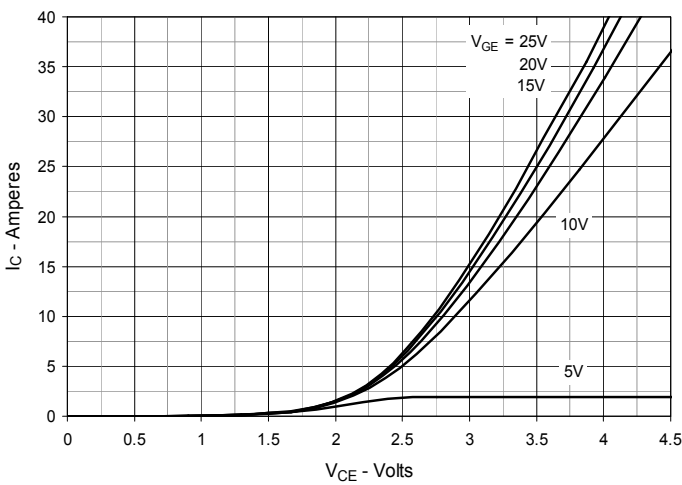
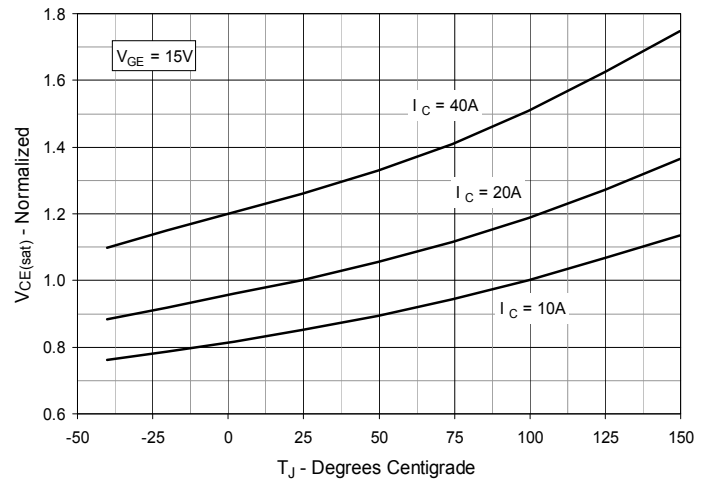
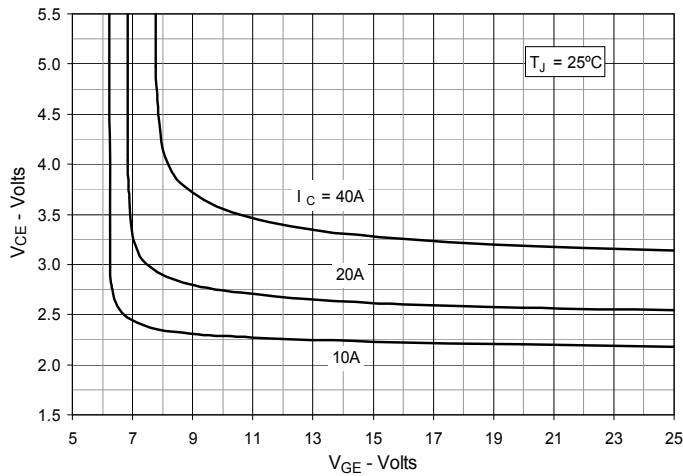
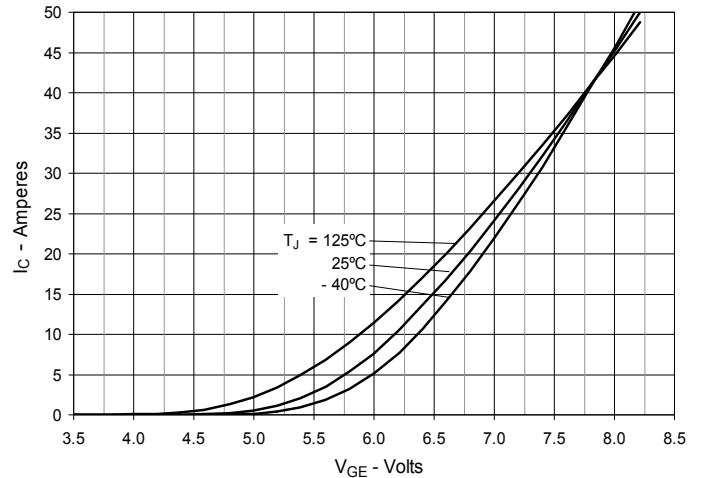
Fig. 1. Output Characteristics @ $T_J = 25^\circ\text{C}$

Fig. 2. Extended Output Characteristics @ $T_J = 25^\circ\text{C}$

Fig. 3. Output Characteristics @ $T_J = 125^\circ\text{C}$

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


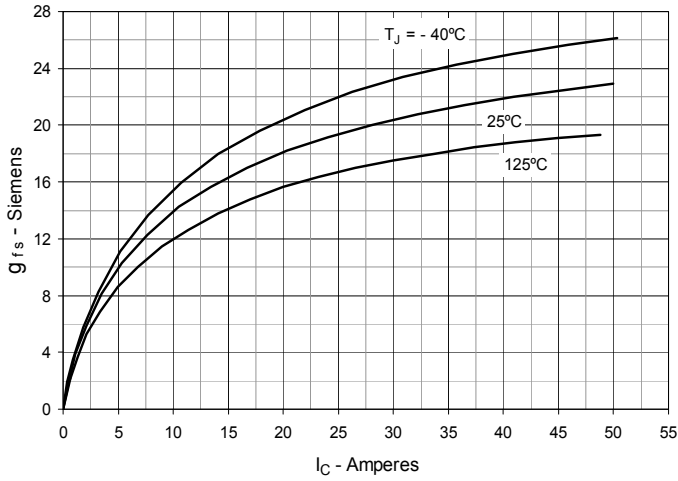
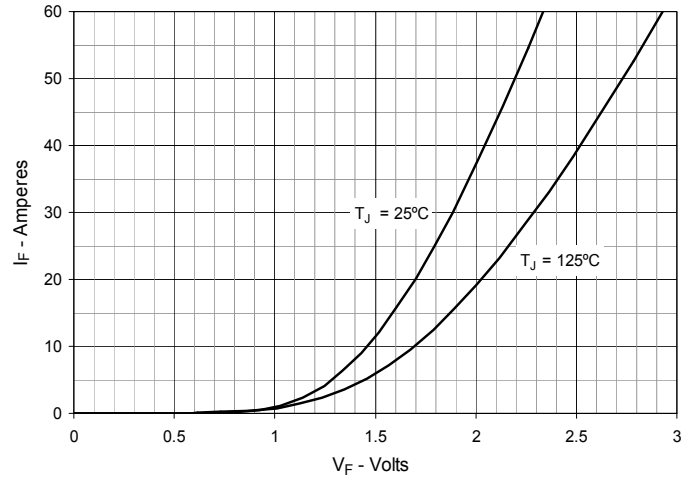
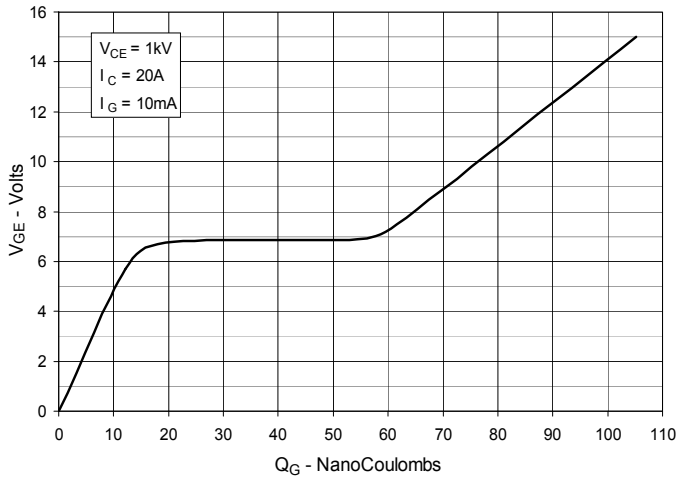
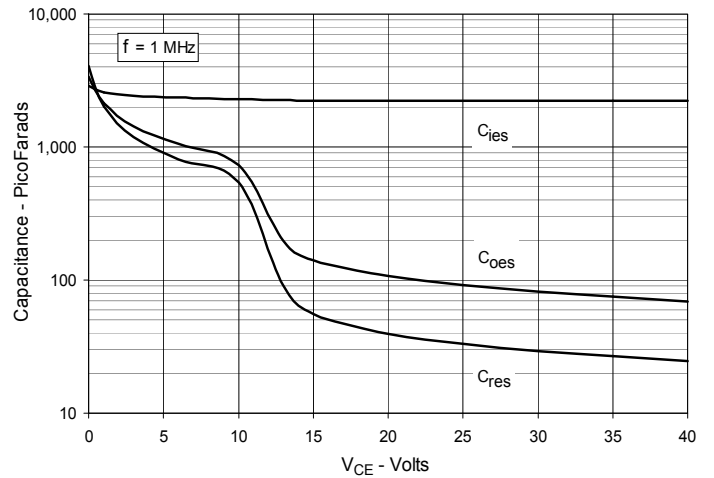
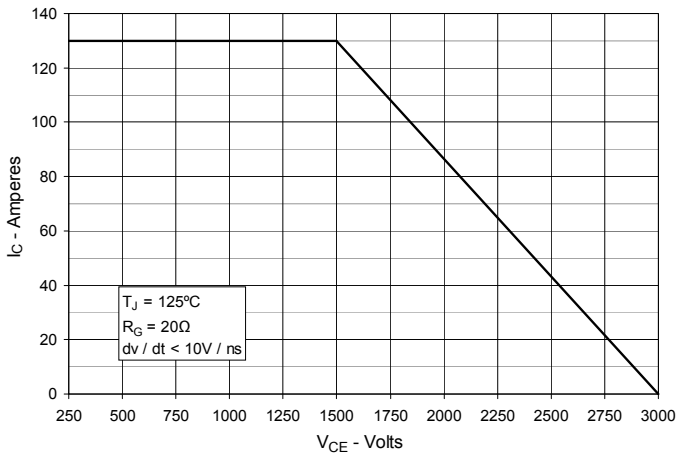
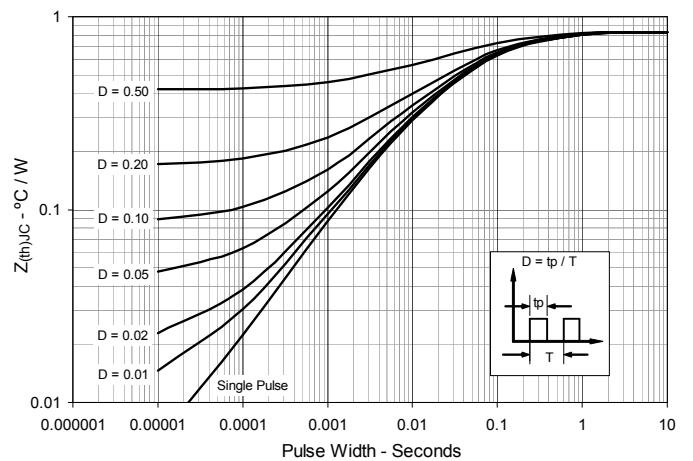
Fig. 7. Transconductance

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

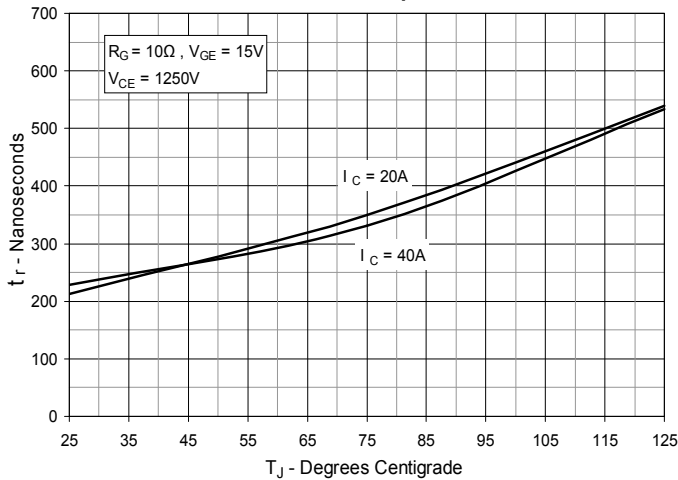


Fig. 14. Resistive Turn-on Rise Time vs. Collector Current

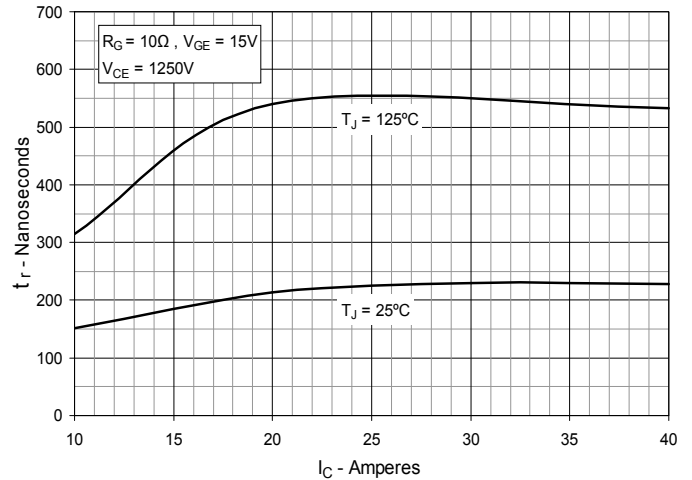


Fig. 15. Resistive Turn-on Switching Times vs. Gate Resistance

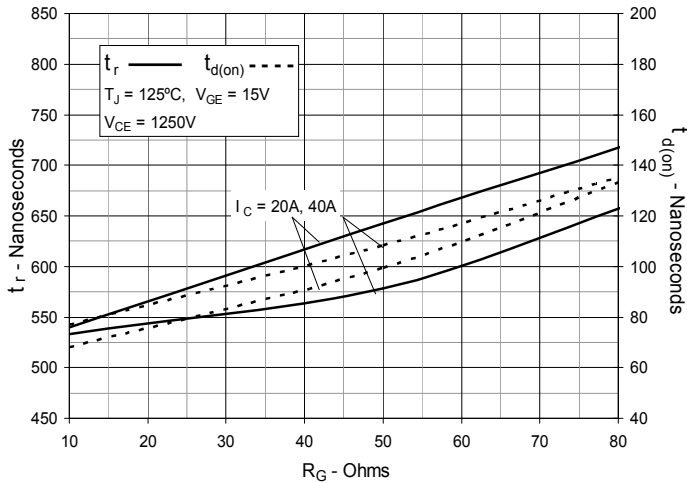


Fig. 16. Resistive Turn-off Switching Times vs. Junction Temperature

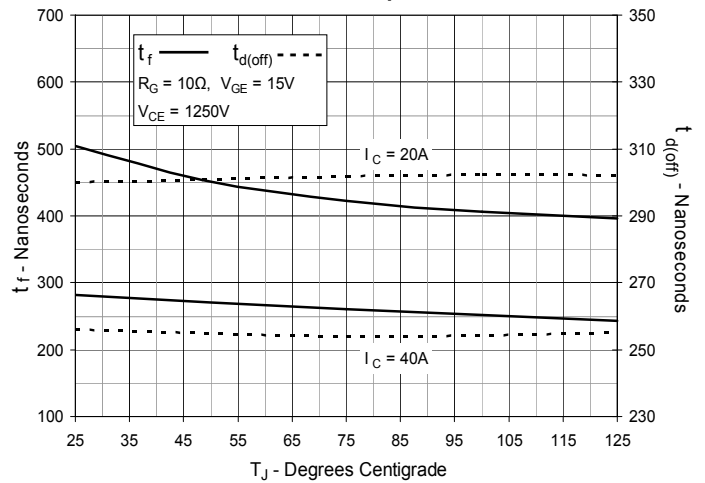


Fig. 17. Resistive Turn-off Switching Times vs. Collector Current

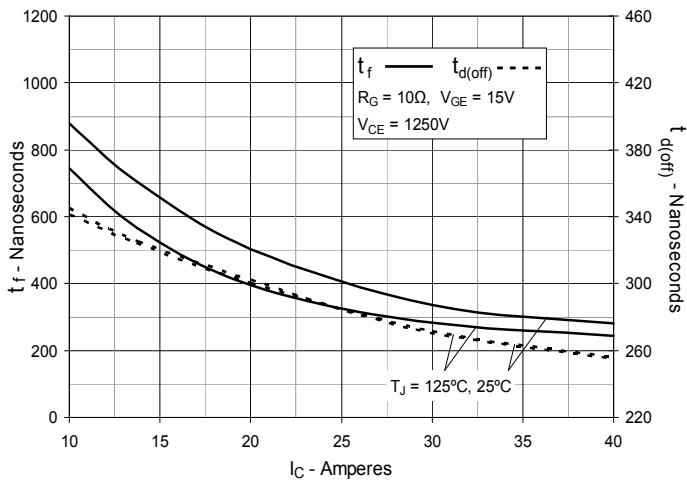
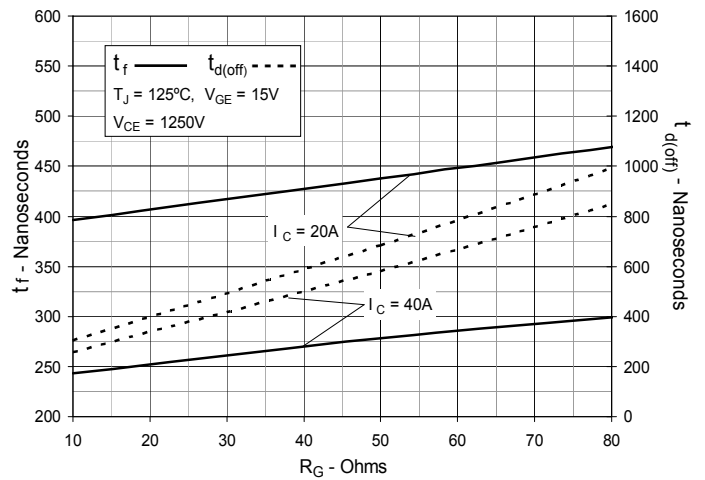
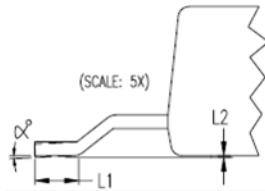
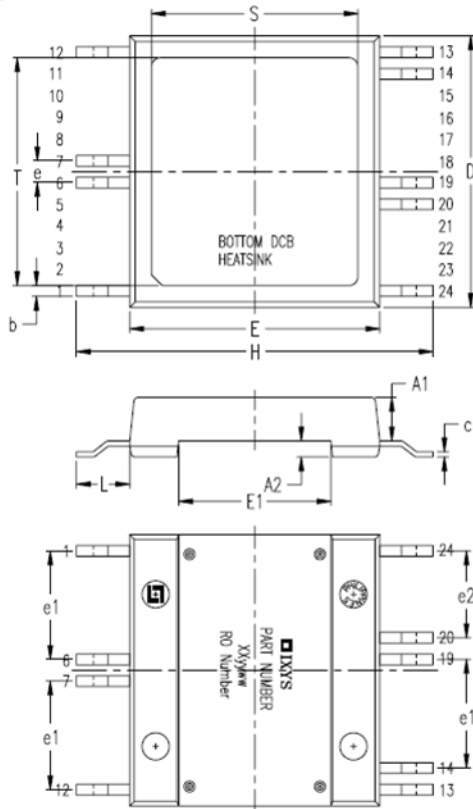


Fig. 18. Resistive Turn-off Switching Times vs. Gate Resistance



Package Outline


SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.209	.224	5.30	5.70
A1	.154	.161	3.90	4.10
A2	.055	.063	1.40	1.60
b	.035	.045	0.90	1.15
c	.018	.026	0.45	0.65
D	.976	.994	24.80	25.25
E	.898	.915	22.80	23.25
E1	.543	.559	13.80	14.20
e	.079 BSC		2.00 BSC	
e1	.394 BSC		10.00 BSC	
e2	.315 BSC		8.00 BSC	
H	1.272	1.311	32.30	33.30
L	.181	.209	4.60	5.30
L1	.051	.067	1.30	1.70
L2	.000	.006	0.00	0.15
S	.736	.760	18.70	19.30
T	.815	.839	20.70	21.30
α	0	4°	0	4°

Компания «Life Electronics» занимается поставками электронных компонентов импортного и отечественного производства от производителей и со складов крупных дистрибьюторов Европы, Америки и Азии.

С конца 2013 года компания активно расширяет линейку поставок компонентов по направлению коаксиальный кабель, кварцевые генераторы и конденсаторы (керамические, пленочные, электролитические), за счёт заключения дистрибьюторских договоров

Мы предлагаем:

- Конкурентоспособные цены и скидки постоянным клиентам.
- Специальные условия для постоянных клиентов.
- Подбор аналогов.
- Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.
- Приемлемые сроки поставки, возможна ускоренная поставка.
- Доставку товара в любую точку России и стран СНГ.
- Комплексную поставку.
- Работу по проектам и поставку образцов.
- Формирование склада под заказчика.
- Сертификаты соответствия на поставляемую продукцию (по желанию клиента).
- Тестирование поставляемой продукции.
- Поставку компонентов, требующих военную и космическую приемку.
- Входной контроль качества.
- Наличие сертификата ISO.

В составе нашей компании организован Конструкторский отдел, призванный помогать разработчикам, и инженерам.

Конструкторский отдел помогает осуществить:

- Регистрацию проекта у производителя компонентов.
- Техническую поддержку проекта.
- Защиту от снятия компонента с производства.
- Оценку стоимости проекта по компонентам.
- Изготовление тестовой платы монтаж и пусконаладочные работы.



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