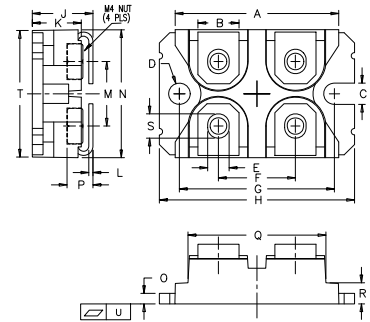


Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$I_C = 60\text{A}$, $V_{CE} = 10\text{V}$, Note 1	65	108	S
C_{ies}	$V_{CE} = 25\text{V}$, $V_{GE} = 0\text{V}$, $f = 1\text{MHz}$		14.8	nF
C_{oes}			800	pF
C_{res}			140	pF
$Q_{g(on)}$	$I_C = I_{C110}$, $V_{GE} = 15\text{V}$, $V_{CE} = 0.5 \cdot V_{CES}$		450	nC
Q_{ge}			67	nC
Q_{gc}			130	nC
$t_{d(on)}$	Inductive Load, $T_J = 25^\circ\text{C}$ $I_C = 100\text{A}$, $V_{GE} = 15\text{V}$ $V_{CE} = 480\text{V}$, $R_G = 1.5\Omega$, Note 2		39	ns
t_{ri}			82	ns
E_{on}			2.7	mJ
$t_{d(off)}$			295	ns
t_{fi}			260	ns
E_{off}			6.6	mJ
$t_{d(on)}$	Inductive Load, $T_J = 125^\circ\text{C}$ $I_C = 100\text{A}$, $V_{GE} = 15\text{V}$ $V_{CE} = 480\text{V}$, $R_G = 1.5\Omega$, Note 2		40	ns
t_{ri}			83	ns
E_{on}			3.5	mJ
$t_{d(off)}$			420	ns
t_{fi}			410	ns
E_{off}			10.4	mJ
R_{thJC}				0.21 $^\circ\text{C/W}$
R_{thCK}			0.05	$^\circ\text{C/W}$

SOT-227B miniBLOC



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 (FRED)

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min	Typ.	Max.
V_F	$I_F = 60\text{A}$, Note 1 $V_{GE} = 0\text{V}$ $T_J = 150^\circ\text{C}$		1.4	2.1 V
I_{RM}	$I_F = 60\text{A}$, $V_{GE} = 0\text{V}$, $-di_F/dt = 100\text{A}/\mu\text{s}$ $V_R = 300\text{V}$, $T_J = 100^\circ\text{C}$			8.0 A
t_{rr}				175 ns
R_{thJC}				0.85 $^\circ\text{C/W}$

- Note: 1. Pulse Test, $t \leq 300\mu\text{s}$; Duty Cycle, $d \leq 2\%$.
 2. Remarks: Switching Times may Increase for
 $V_{CE}(\text{Clamp}) > 0.8 \cdot V_{CES}$, Higher T_J or Increased R_G .
 3. Parts must be HeatSunk for High Temperature I_{CES} Measurements.

IXYS Reserves the Right to Change Limits, Test Conditions, and Dimensions.

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 7,157,338B2
 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

Fig. 1. Output Characteristics
@ 25°C

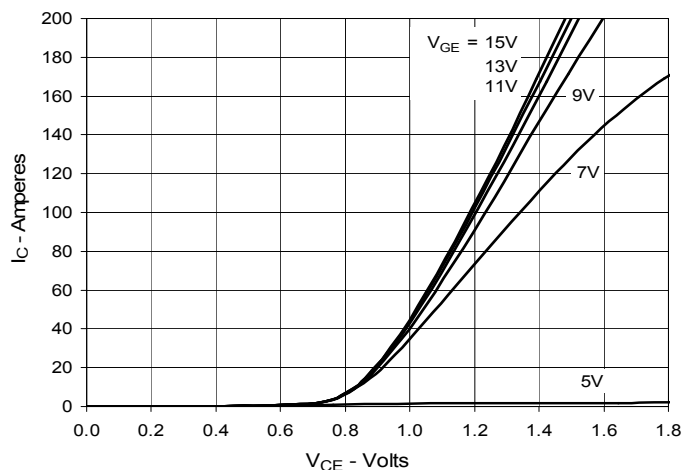


Fig. 2. Extended Output Characteristics
@ 25°C

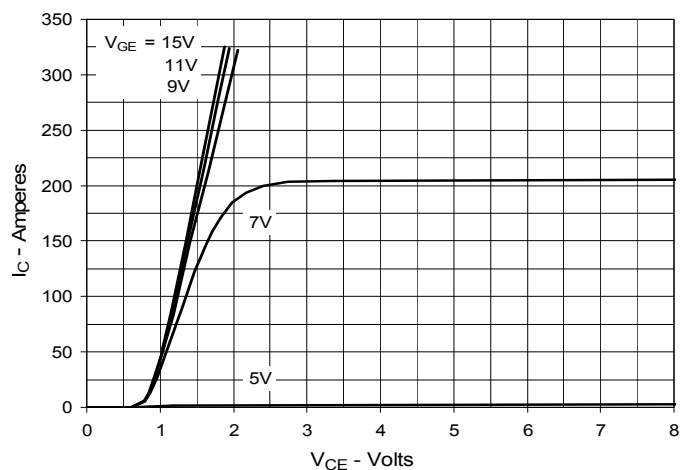


Fig. 3. Output Characteristics
@ 125°C

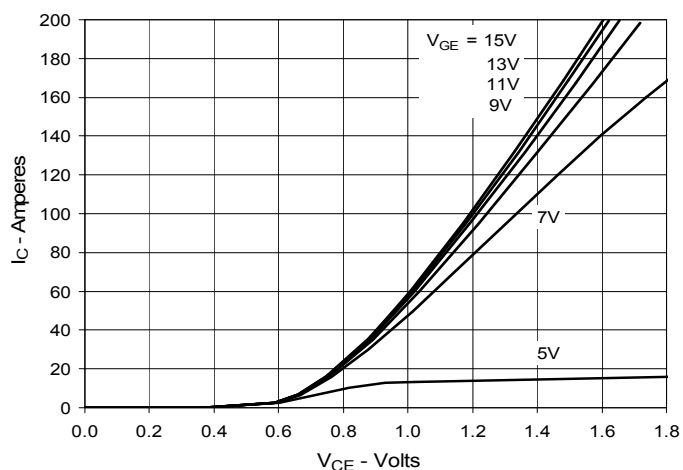


Fig. 4. Dependence of $V_{CE(sat)}$ on
Junction Temperature

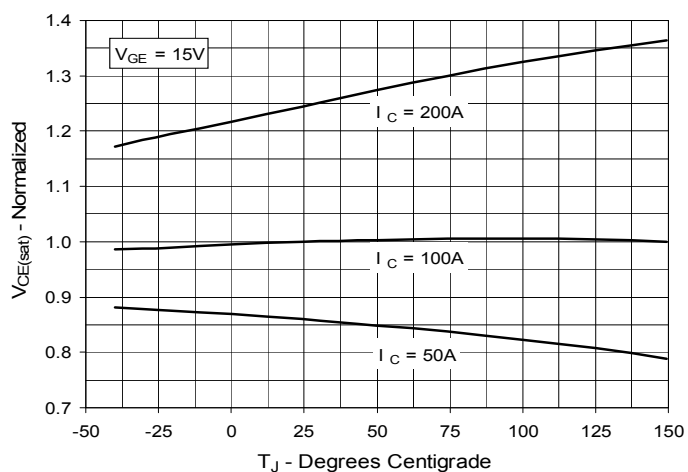


Fig. 5. Collector-to-Emitter Voltage
vs. Gate-to-Emitter Voltage

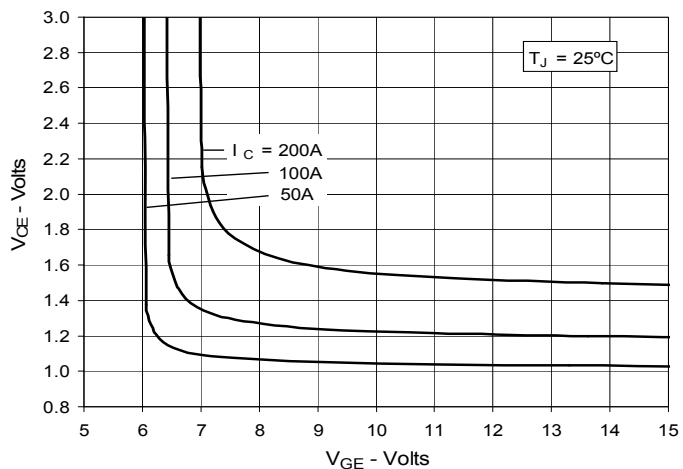


Fig. 6. Input Admittance

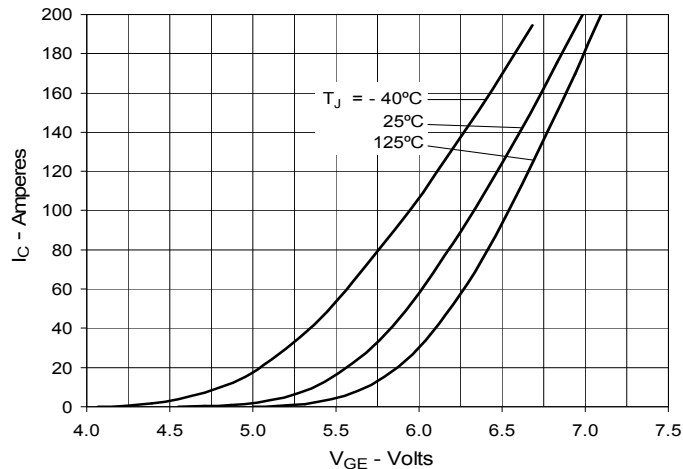


Fig. 7. Transconductance

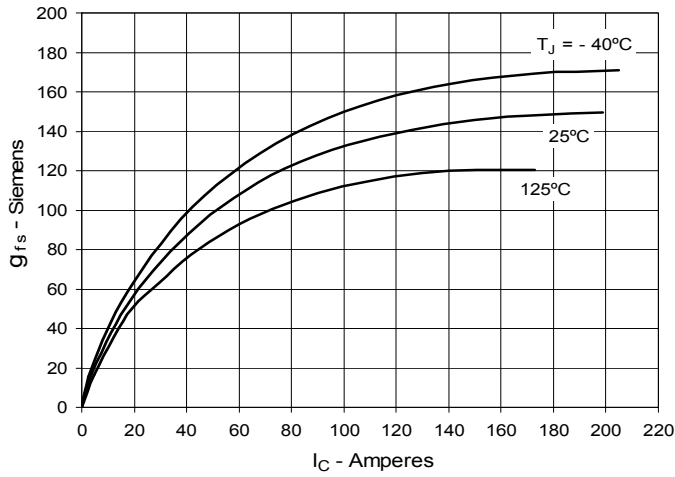


Fig. 8. Gate Charge

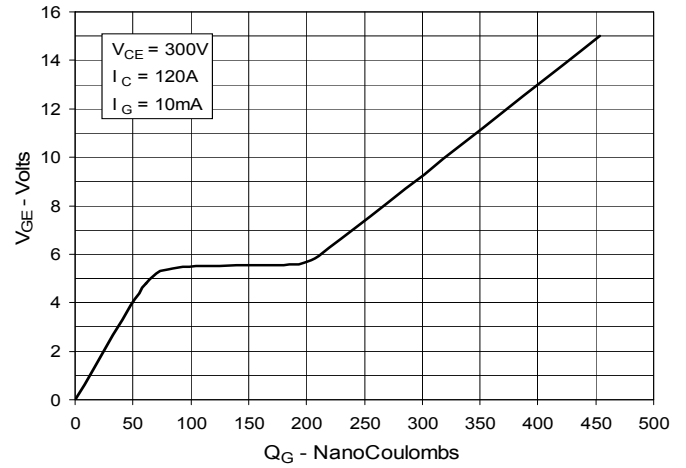


Fig. 9. Capacitance

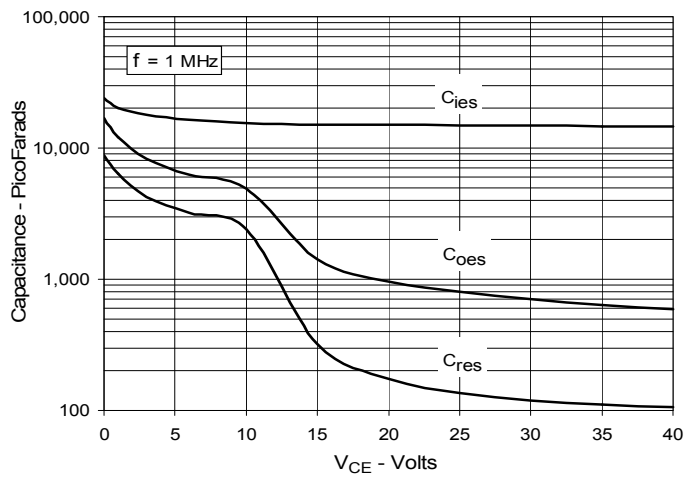


Fig. 10. Reverse-Bias Safe Operating Area

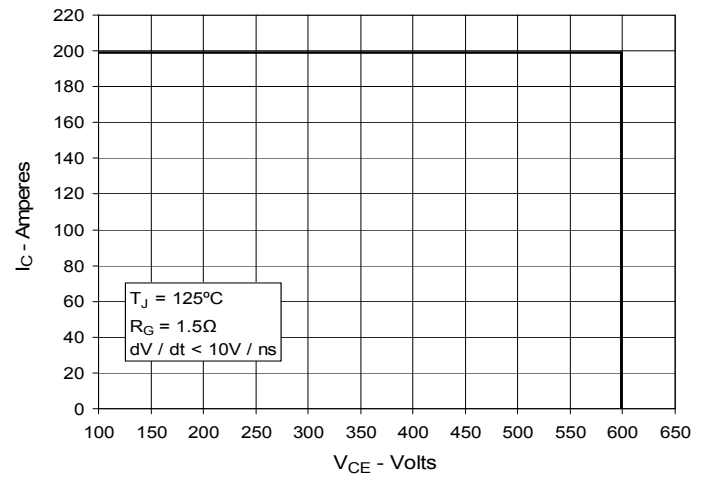
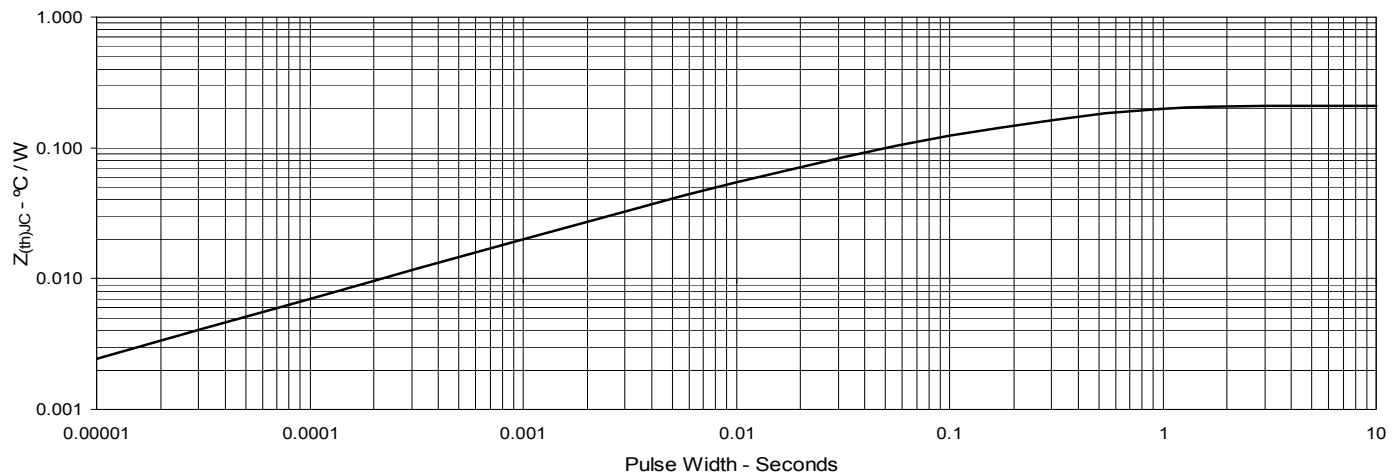
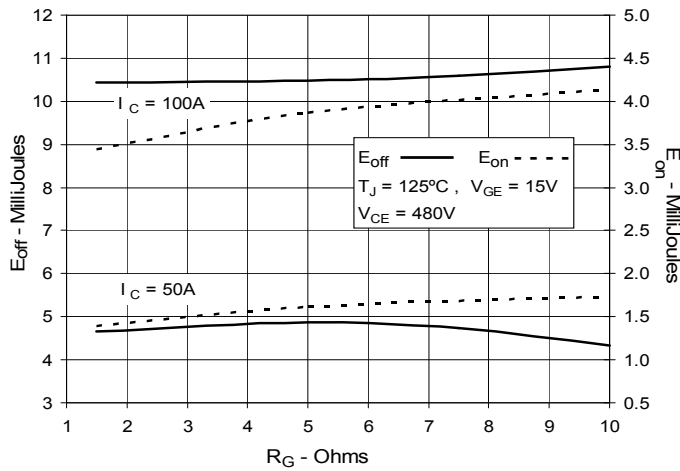


Fig. 11. Maximum Transient Thermal Impedance

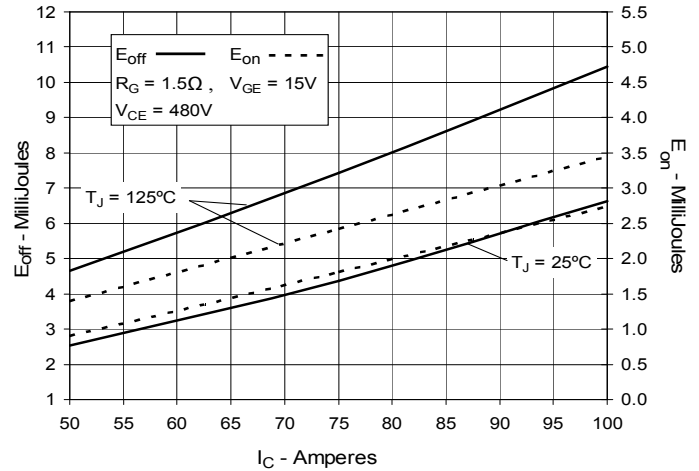


IXYS Reserves the Right to Change Limits, Test Conditions, and Dimensions.

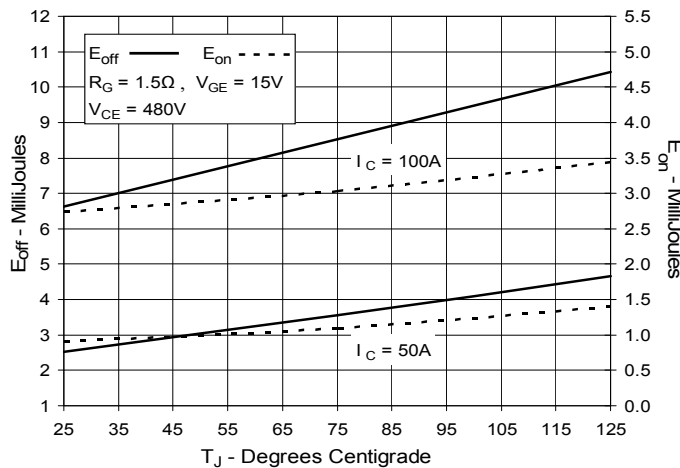
**Fig. 12. Inductive Switching
Energy Loss vs. Gate Resistance**



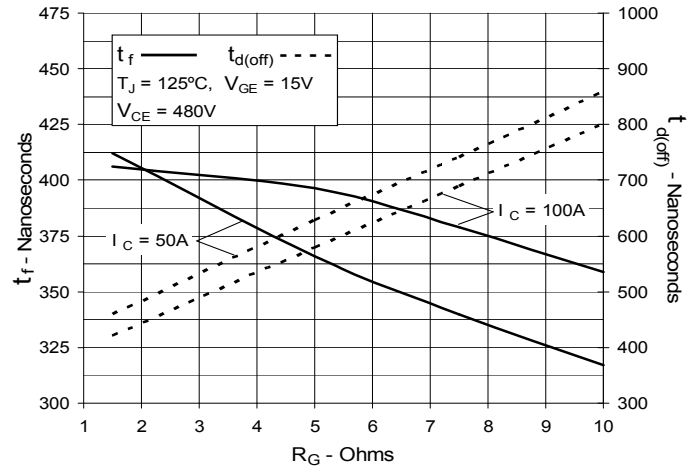
**Fig. 13. Inductive Switching
Energy Loss vs. Collector Current**



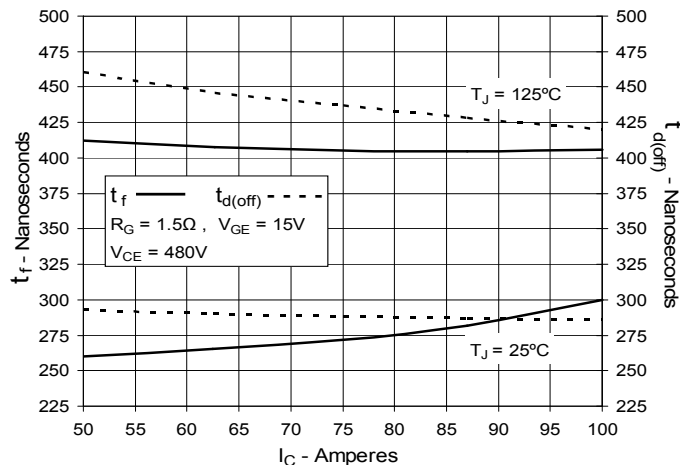
**Fig. 14. Inductive Switching
Energy Loss vs. Junction Temperature**



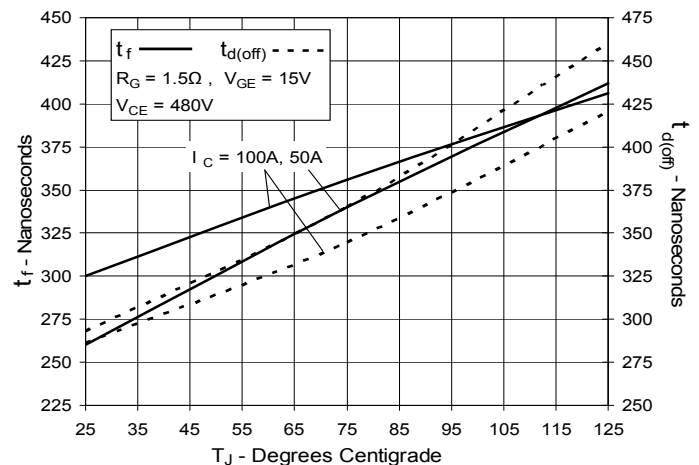
**Fig. 15. Inductive Turn-off
Switching Times vs. Gate Resistance**



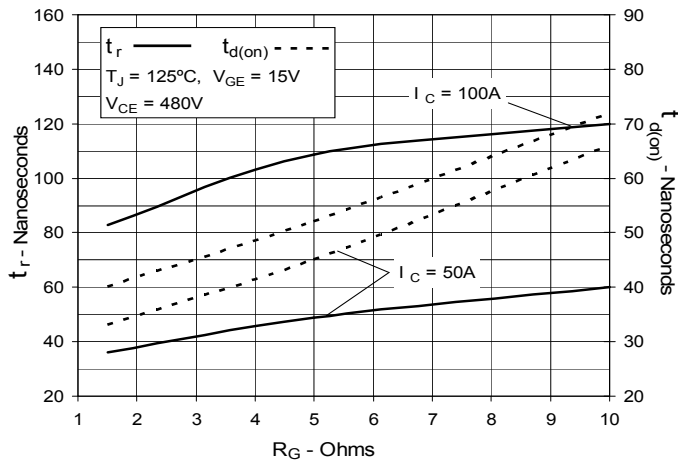
**Fig. 16. Inductive Turn-off
Switching Times vs. Collector Current**



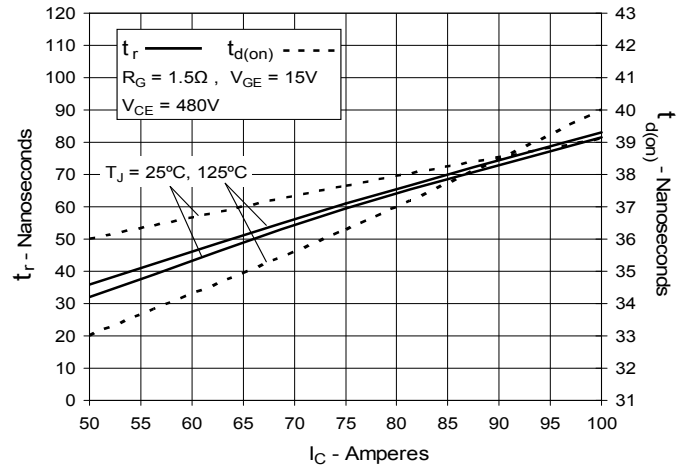
**Fig. 17. Inductive Turn-off
Switching Times vs. Junction Temperature**



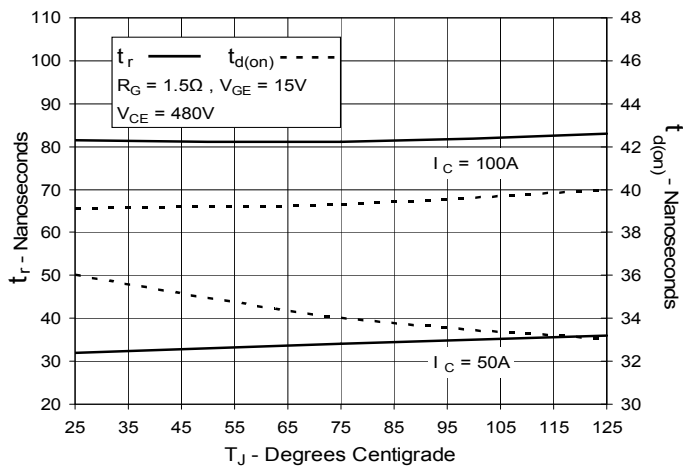
**Fig. 18. Inductive Turn-on
Switching Times vs. Gate Resistance**



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



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



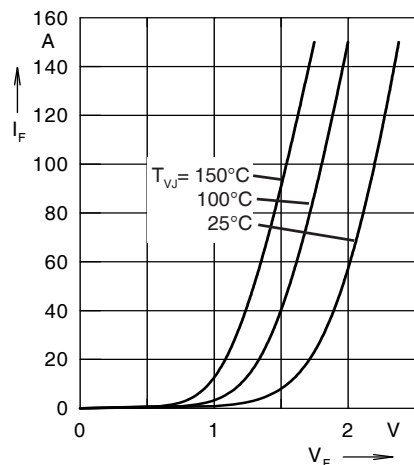


Fig. 21. Forward Current I_F Versus V_F

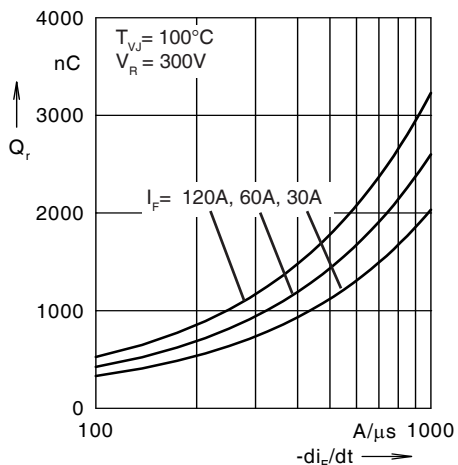


Fig. 22. Reverse Recovery Charge Q_r Versus $-di_F/dt$

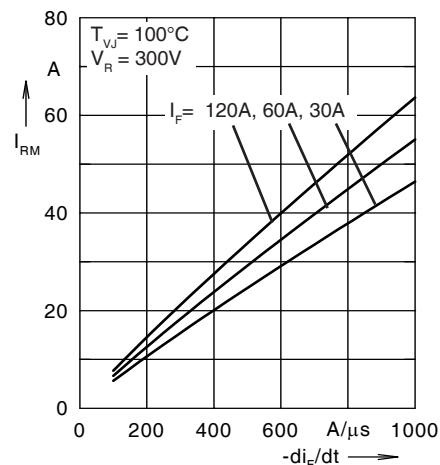


Fig. 23. Peak Reverse Current I_{RM} Versus $-di_F/dt$

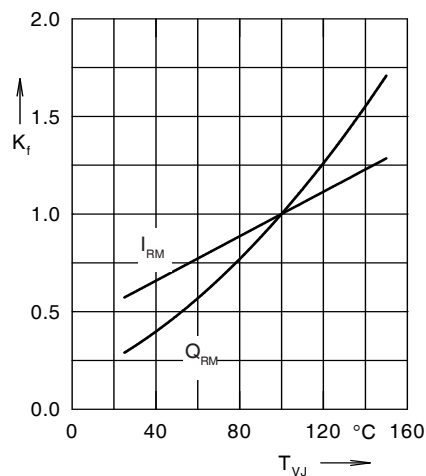


Fig. 24. Dynamic Parameters Q_r , I_{RM} Versus T_{VJ}

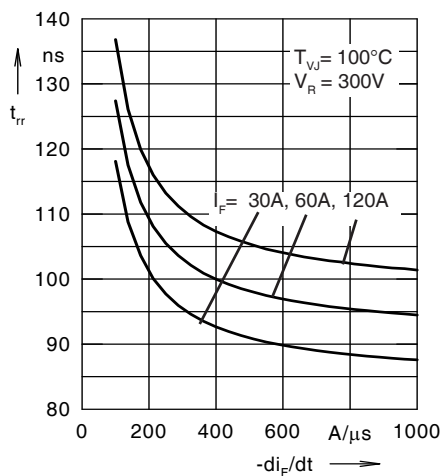


Fig. 25. Recovery Time t_{rr} Versus $-di_F/dt$

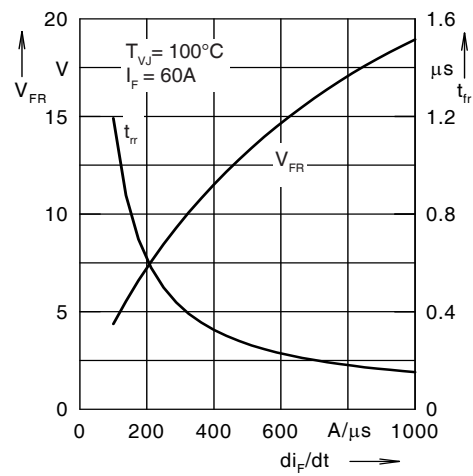


Fig. 26. Peak Forward Voltage V_{FR} and t_{rr} Versus $-di_F/dt$

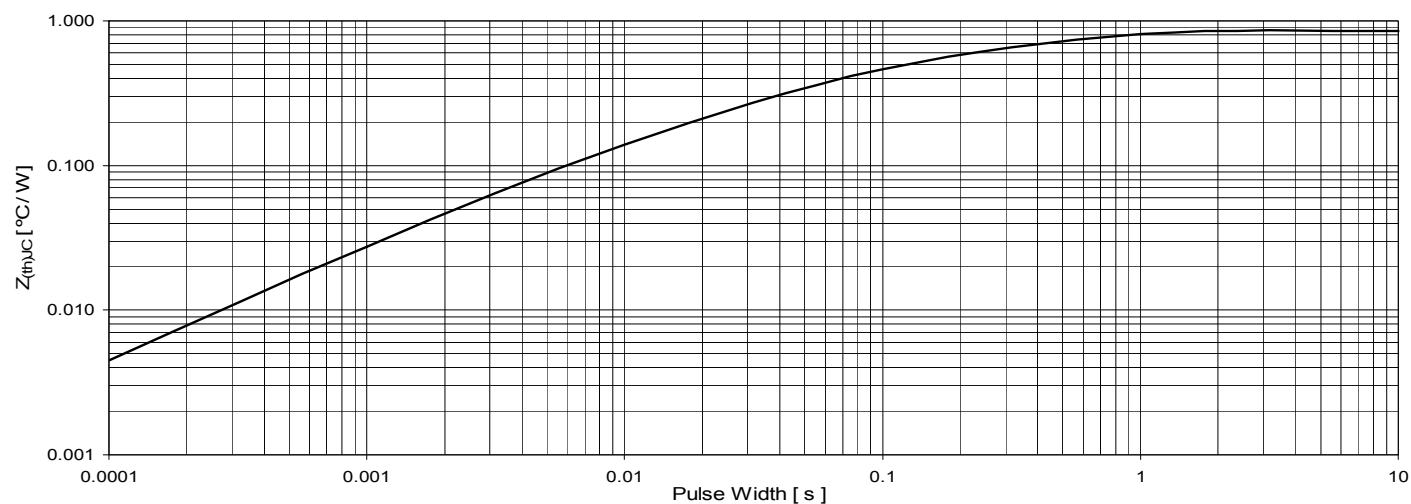


Fig. 27. Maximum Transient Thermal Impedance (for Diode)



Disclaimer Notice - Information furnished is believed to be accurate and reliable. However, users should independently evaluate the suitability of and test each product selected for their own applications. Littelfuse products are not designed for, and may not be used in, all applications. Read complete Disclaimer Notice at www.littelfuse.com/disclaimer-electronics.