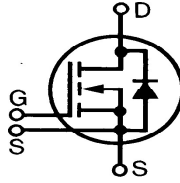


**GigaMOS™ TrenchT2**  
**HiperFET™**  
**Power MOSFET**

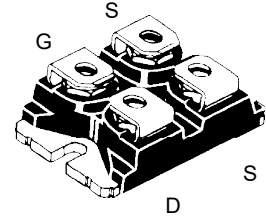
**IXFN360N15T2**

N-Channel Enhancement Mode  
 Avalanche Rated  
 Fast Intrinsic Diode



$V_{DSS} = 150V$   
 $I_{D25} = 310A$   
 $R_{DS(on)} \leq 4.0m\Omega$   
 $t_{rr} \leq 150ns$

miniBLOC, SOT-227  
 E153432



G = Gate      D = Drain  
 S = Source

Either Source Terminal S can be used as the Source Terminal or the Kelvin Source ( Gate Return ) Terminal.

Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ C$ to $175^\circ C$	150	V
$V_{DGR}$	$T_J = 25^\circ C$ to $175^\circ C$ , $R_{GS} = 1M\Omega$	150	V
$V_{GSS}$	Continuous	$\pm 20$	V
$V_{GSM}$	Transient	$\pm 30$	V
$I_{D25}$	$T_C = 25^\circ C$ (Chip Capability)	310	A
$I_{L(RMS)}$	External Lead Current Limit	200	A
$I_{DM}$	$T_C = 25^\circ C$ , Pulse Width Limited by $T_{JM}$	900	A
$I_A$	$T_C = 25^\circ C$	100	A
$E_{AS}$	$T_C = 25^\circ C$	2.5	J
$dv/dt$	$I_S \leq I_{DM}$ , $V_{DD} \leq V_{DSS}$ , $T_J \leq 175^\circ C$	20	V/ns
$P_D$	$T_C = 25^\circ C$	1070	W
$T_J$		-55 ... +175	$^\circ C$
$T_{JM}$		175	$^\circ C$
$T_{stg}$		-55 ... +175	$^\circ C$
$V_{ISOL}$	50/60 Hz, RMS $t = 1$ minute	2500	V~
	$I_{ISOL} \leq 1mA$ $t = 1$ second	3000	V~
$M_d$	Mounting Torque	1.5/13	Nm/lb.in.
	Terminal Connection Torque	1.3/11.5	Nm/lb.in.
<b>Weight</b>		30	g

**Features**

- International Standard Package
- miniBLOC, with Aluminium Nitride Isolation
- Isolation voltage 2500 V~
- High Current Handling Capability
- Fast Intrinsic Diode
- Avalanche Rated
- Low  $R_{DS(on)}$

**Advantages**

- Easy to Mount
- Space Savings
- High Power Density

**Applications**

- Synchronous Rectification
- DC-DC Converters
- Battery Chargers
- Switched-Mode and Resonant-Mode Power Supplies
- DC Choppers
- AC Motor Drives
- Uninterruptible Power Supplies
- High Speed Power Switching Applications

Symbol	Test Conditions ( $T_J = 25^\circ C$ , Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
$BV_{DSS}$	$V_{GS} = 0V$ , $I_D = 3mA$	150		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 8mA$	2.5		5.0 V
$I_{GSS}$	$V_{GS} = \pm 20V$ , $V_{DS} = 0V$			$\pm 200$ nA
$I_{DSS}$	$V_{DS} = V_{DSS}$ , $V_{GS} = 0V$ $T_J = 150^\circ C$			50 $\mu A$ 5 mA
$R_{DS(on)}$	$V_{GS} = 10V$ , $I_D = 60A$ , Note 1			4.0 $m\Omega$

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
$g_{fs}$	$V_{DS} = 10\text{V}, I_D = 60\text{A}$ , Note 1	140	230	S
$C_{iss}$	$V_{GS} = 0\text{V}, V_{DS} = 25\text{V}, f = 1\text{MHz}$		47.5	nF
$C_{oss}$			3060	pF
$C_{rss}$			665	pF
$R_{GI}$	Gate Input Resistance		2.7	$\Omega$
$t_{d(on)}$	<b>Resistive Switching Times</b> $V_{GS} = 10\text{V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 100\text{A}$ $R_G = 1\Omega$ (External)		50	ns
$t_r$			170	ns
$t_{d(off)}$			115	ns
$t_f$			265	ns
$Q_{g(on)}$	$V_{GS} = 10\text{V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 180\text{A}$		715	nC
$Q_{gs}$			185	nC
$Q_{gd}$			200	nC
$R_{thJC}$				0.14 $^\circ\text{C/W}$
$R_{thCS}$		0.05		$^\circ\text{C/W}$

**Source-Drain Diode**

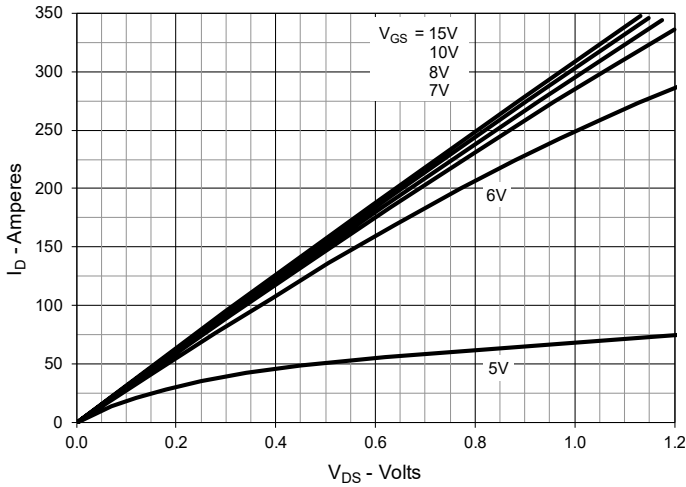
Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
$I_S$	$V_{GS} = 0\text{V}$			360 A
$I_{SM}$	Repetitive, Pulse Width Limited by $T_{JM}$			1440 A
$V_{SD}$	$I_F = 60\text{A}, V_{GS} = 0\text{V}$ , Note 1			1.2 V
$t_{rr}$	$I_F = 160\text{A}, V_{GS} = 0\text{V}$ $-di/dt = 100\text{A}/\mu\text{s}$ $V_R = 60\text{V}$			150 ns
$Q_{RM}$			500	nC
$I_{RM}$			9	A

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

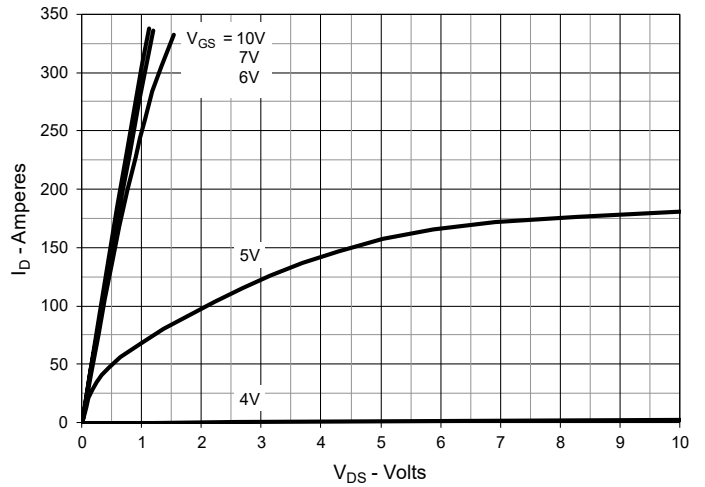
Littelfuse reserves the right to change limits, test conditions, and dimensions.

LF 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	7,157,338 B2
	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	

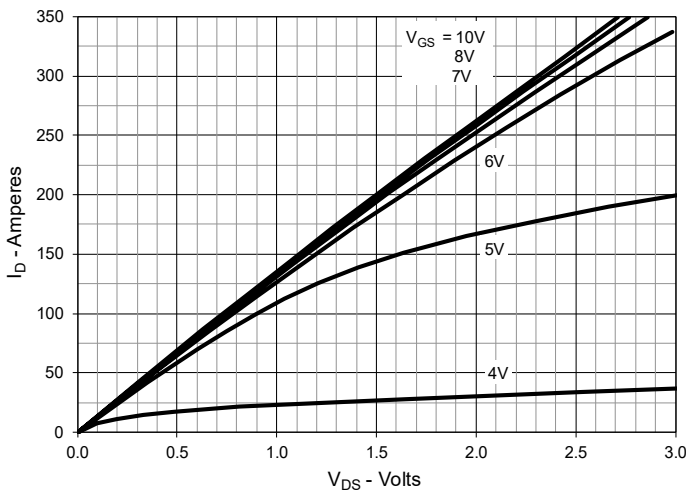
**Fig. 1. Output Characteristics @  $T_J = 25^\circ\text{C}$**



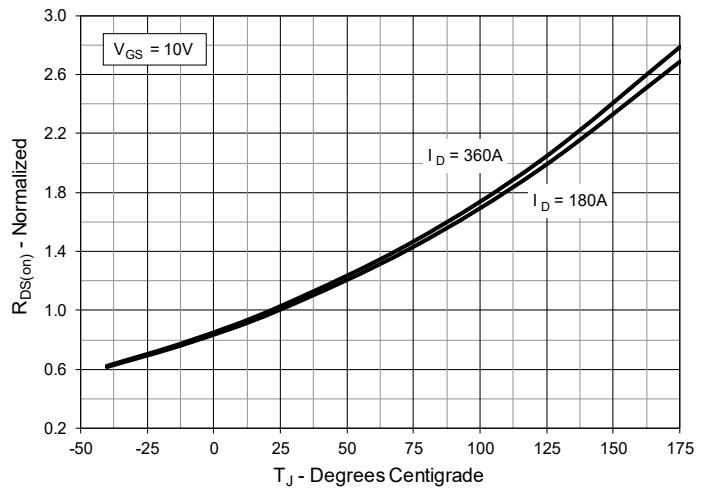
**Fig. 2. Extended Output Characteristics @  $T_J = 25^\circ\text{C}$**



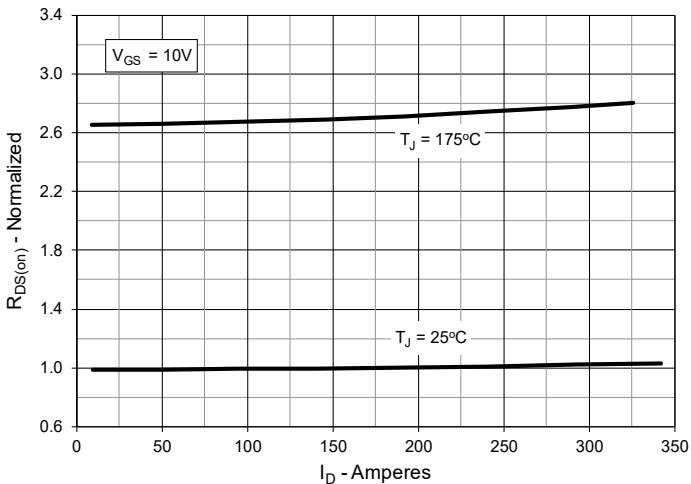
**Fig. 3. Output Characteristics @  $T_J = 150^\circ\text{C}$**



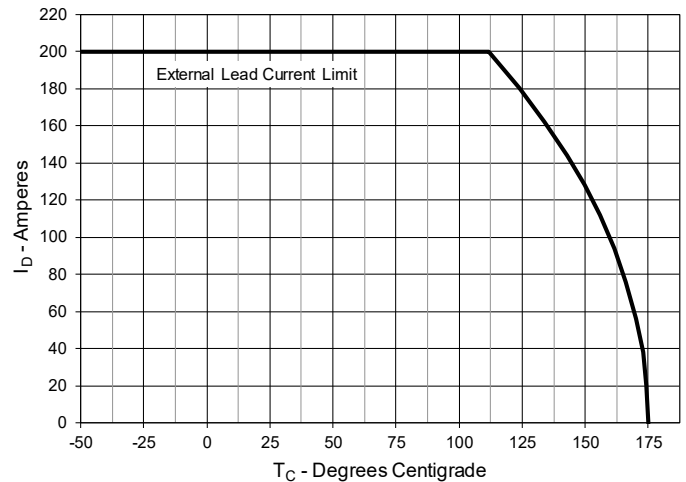
**Fig. 4.  $R_{DS(on)}$  Normalized to  $I_D = 180\text{A}$  Value vs. Junction Temperature**

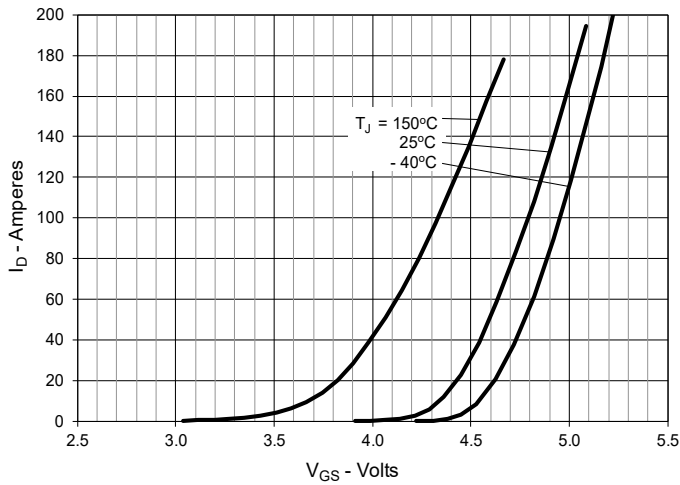
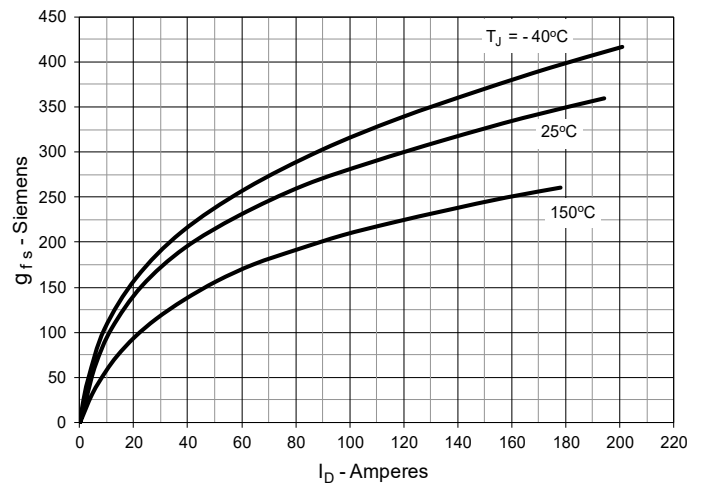
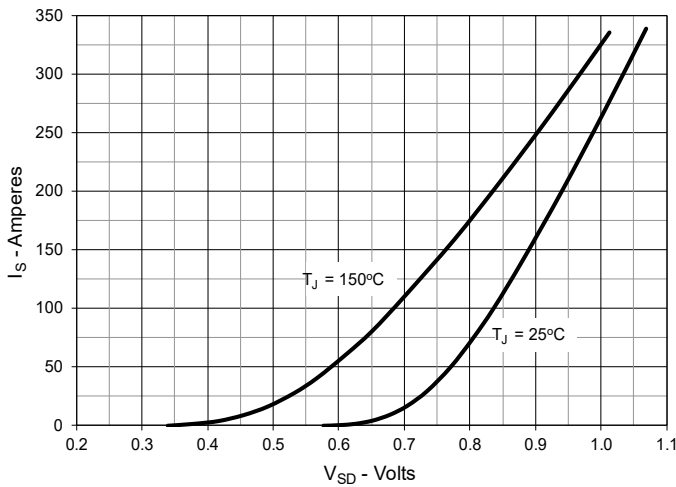
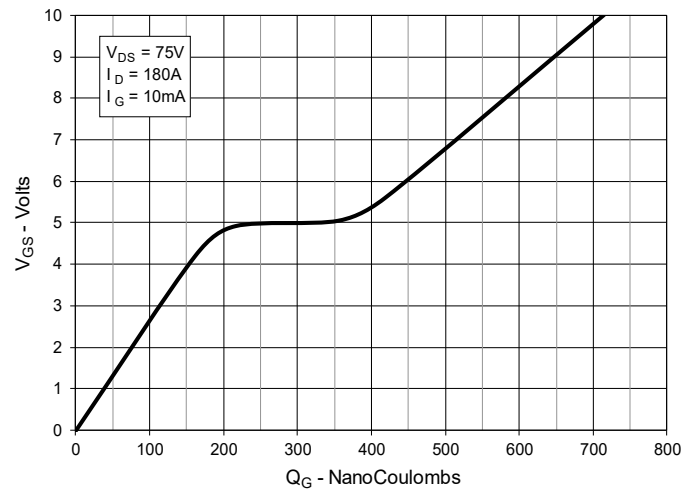
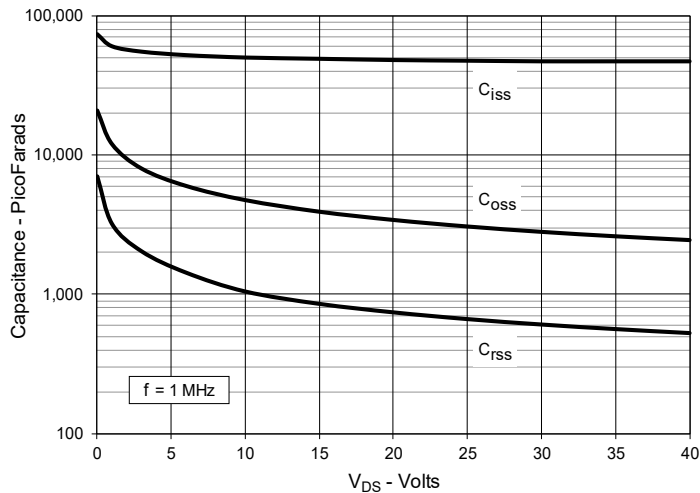
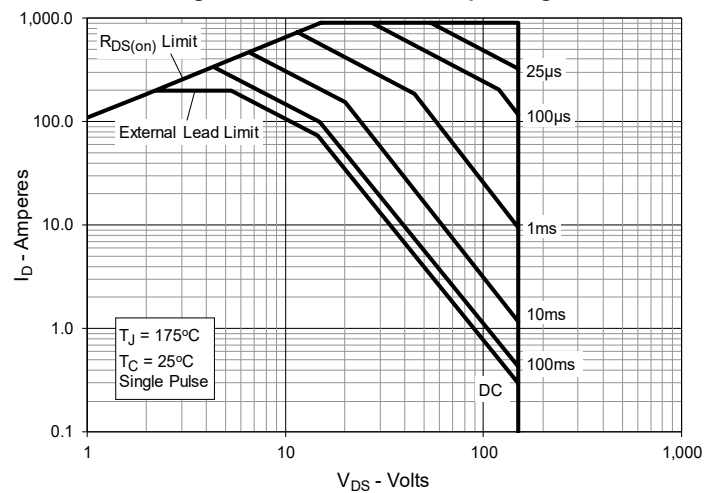


**Fig. 5.  $R_{DS(on)}$  Normalized to  $I_D = 180\text{A}$  Value vs. Drain Current**

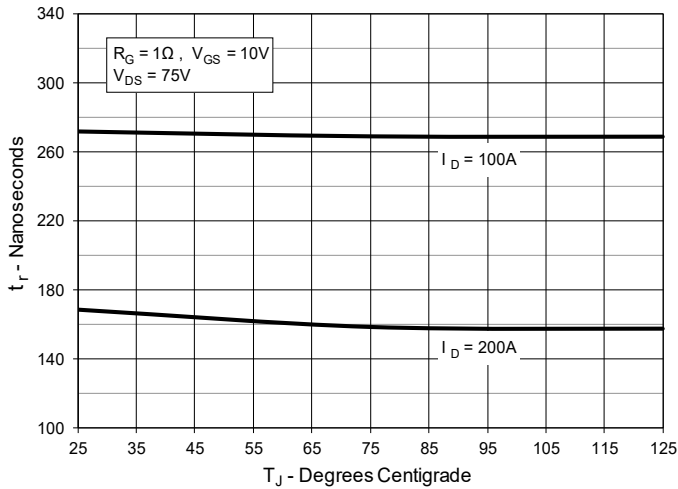


**Fig. 6. Drain Current vs. Case Temperature**

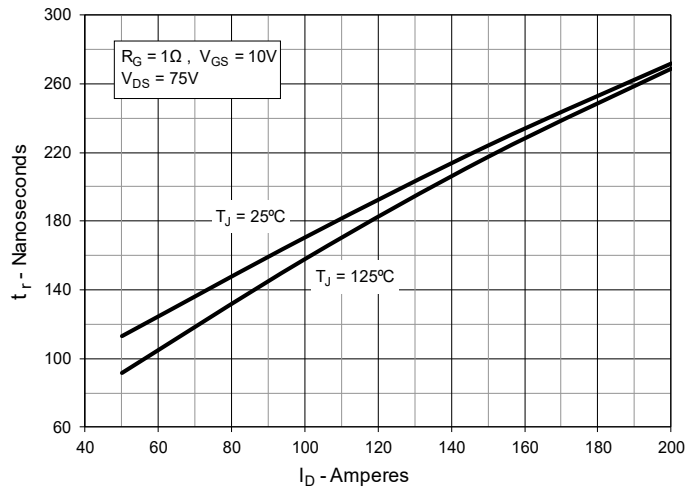


**Fig. 7. Input Admittance**

**Fig. 8. Transconductance**

**Fig. 9. Forward Voltage Drop of Intrinsic Diode**

**Fig. 10. Gate Charge**

**Fig. 11. Capacitance**

**Fig. 12. Forward-Bias Safe Operating Area**


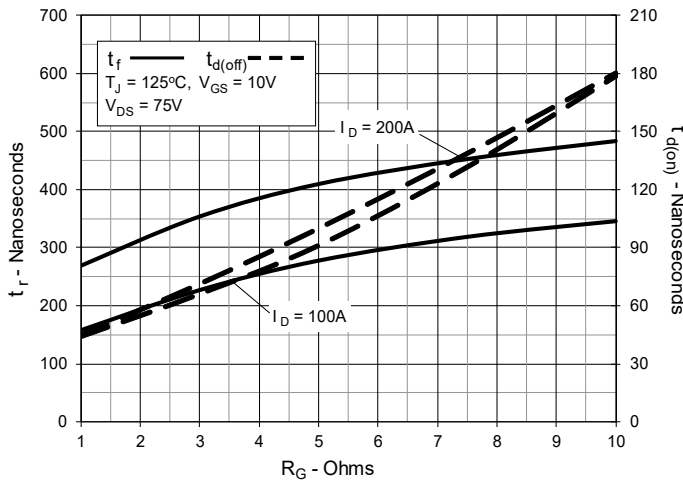
**Fig. 13. Resistive Turn-on Rise Time vs. Junction Temperature**



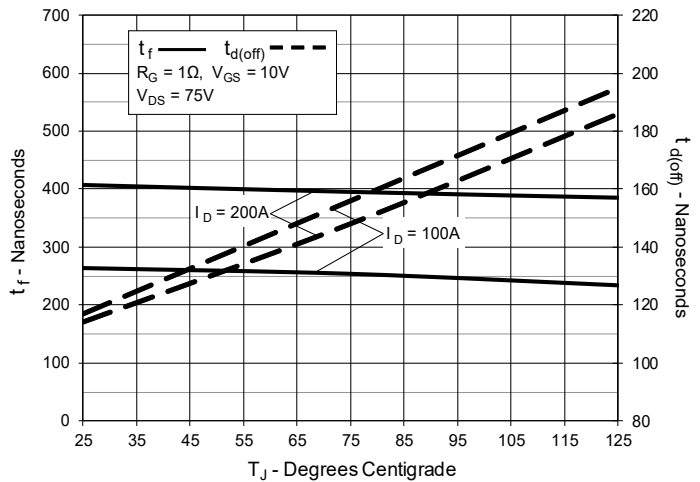
**Fig. 14. Resistive Turn-on Rise Time vs. Drain Current**



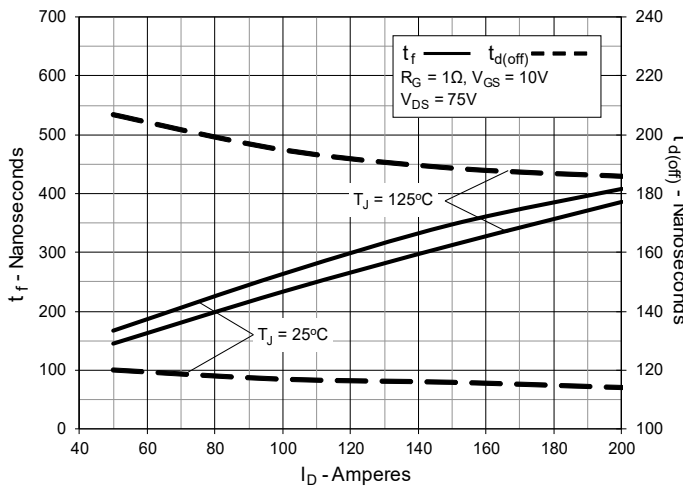
**Fig. 15. Resistive Turn-on Switching Times vs. Gate Resistance**



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



**Fig. 17. Resistive Turn-off Switching Times vs. Drain Current**



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

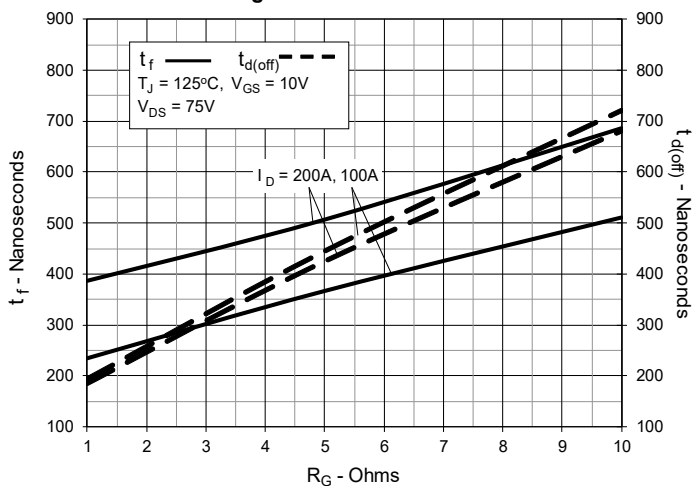
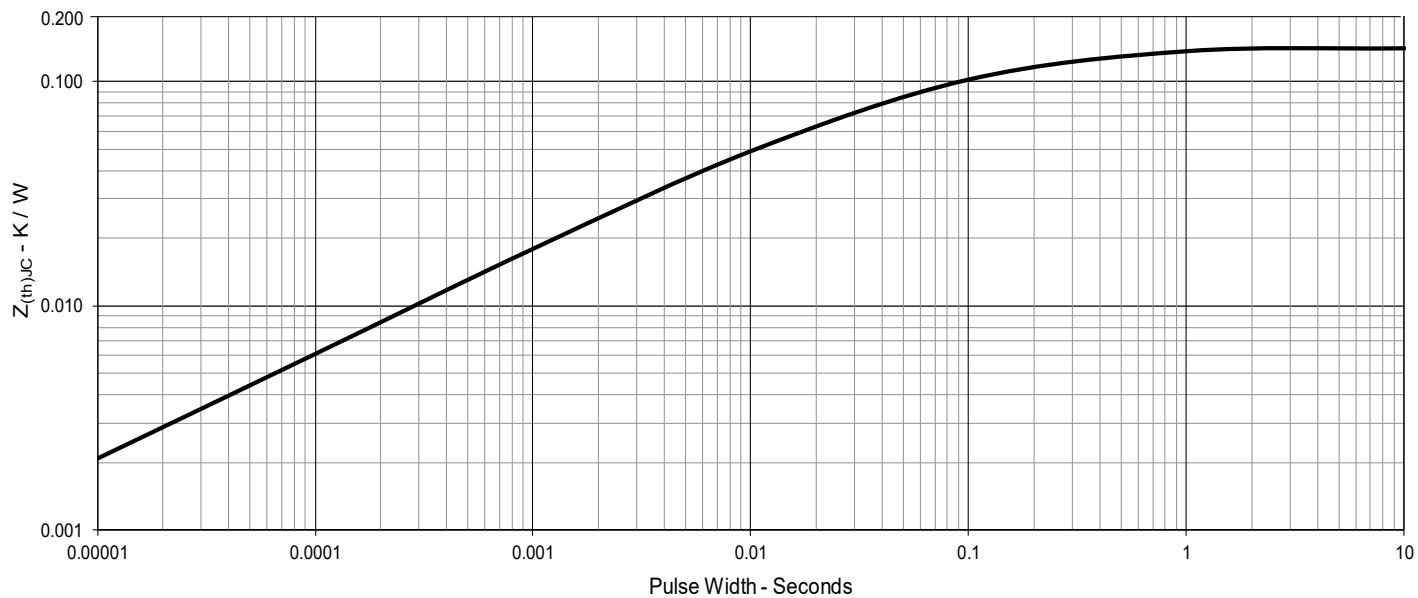
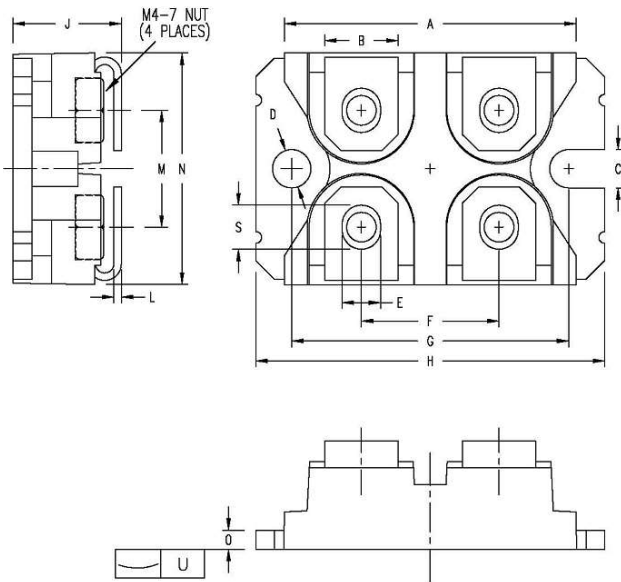


Fig. 19. Maximum Transient Thermal Impedance



**SOT-227 miniBLOC**


SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	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