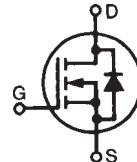


TrenchT2™ Power MOSFET

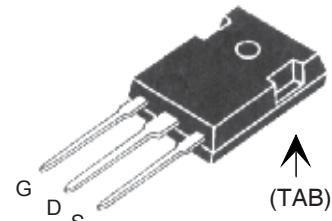
IXTH260N055T2

V_{DSS} = 55V
I_{D25} = 260A
R_{DS(on)} ≤ 3.3mΩ



N-Channel Enhancement Mode
Avalanche Rated

TO-247



G = Gate D = Drain
 S = Source TAB = Drain

Symbol	Test Conditions	Maximum Ratings	
V _{DSS}	T _J = 25°C to 175°C	55	V
V _{DGR}	T _J = 25°C to 175°C, R _{GS} = 1MΩ	55	V
V _{GSM}	Transient	±20	V
I _{D25}	T _C = 25°C	260	A
I _{LRMS}	Lead Current Limit, RMS	160	A
I _{DM}	T _C = 25°C, pulse width limited by T _{JM}	780	A
I _A	T _C = 25°C	100	A
E _{AS}	T _C = 25°C	600	mJ
P _D	T _C = 25°C	480	W
T _J		-55 ... +175	°C
T _{JM}		175	°C
T _{stg}		-55 ... +175	°C
T _L	1.6mm (0.062in.) from case for 10s	300	°C
T _{sold}	Plastic body for 10 seconds	260	°C
M _d	Mounting torque	1.13 / 10	Nm/lb.in.
Weight		6	g

Symbol	Test Conditions (T _J = 25°C unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV _{DSS}	V _{GS} = 0V, I _D = 250μA	55		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 250μA	2.0		4.0 V
I _{GSS}	V _{GS} = ± 20V, V _{DS} = 0V		±200	nA
I _{DSS}	V _{DS} = V _{DSS} V _{GS} = 0V		5	μA
			150	μA
R _{DS(on)}	V _{GS} = 10V, I _D = 50A, Notes 1, 2		3.3	mΩ

Features

- International standard package
- 175°C Operating Temperature
- High current handling capability
- Avalanche rated
- Low R_{DS(on)}

Advantages

- Easy to mount
- Space savings
- High power density

Applications

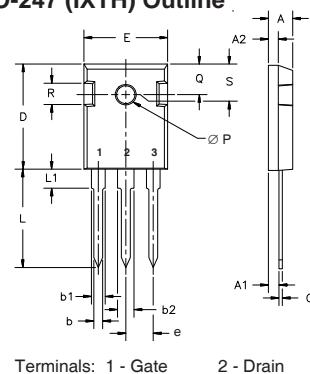
- Automotive
 - Motor Drives
 - 12V Battery
 - ABS Systems
- DC/DC Converters and Off-line UPS
- Primary- Side Switch
- High Current Switching Applications

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	55	94	S
C_{iss} C_{oss} C_{rss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$	10.8	nF	
		1460	pF	
		215	pF	
$t_{d(on)}$ t_r $t_{d(off)}$ t_f	Resistive Switching Times $V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 100\text{A}$ $R_G = 2\Omega$ (External)	20	ns	
		27	ns	
		36	ns	
		24	ns	
$Q_{g(on)}$ Q_{gs} Q_{gd}	$V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{D25}$	140	nc	
		52	nc	
		32	nc	
R_{thJC}			0.31	$^\circ\text{C}/\text{W}$
R_{thCH}		0.21		$^\circ\text{C}/\text{W}$

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
I_s	$V_{GS} = 0\text{V}$		260	A
I_{SM}	Repetitive, Pulse width limited by T_{JM}		1000	A
V_{SD}	$I_F = 100\text{A}$, $V_{GS} = 0\text{V}$, Note 1		1.3	V
t_{rr} I_{RM} Q_{RM}	$I_F = 130\text{A}$, $V_{GS} = 0\text{V}$ -di/dt = $100\text{A}/\mu\text{s}$ $V_R = 27\text{V}$	60	ns	
		3.4	A	
		102	nc	

TO-247 (IXTH) Outline



Terminals: 1 - Gate 2 - Drain

Dim.	Millimeter Min.	Millimeter Max.	Inches Min.	Inches Max.
A	4.7	5.3	.185	.209
A ₁	2.2	2.54	.087	.102
A ₂	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b ₁	1.65	2.13	.065	.084
b ₂	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	.205	.225
L	19.81	20.32	.780	.800
L ₁		4.50		.177
$\emptyset P$	3.55	3.65	.140	.144
Q	5.89	6.40	.232	.252
R	4.32	5.49	.170	.216

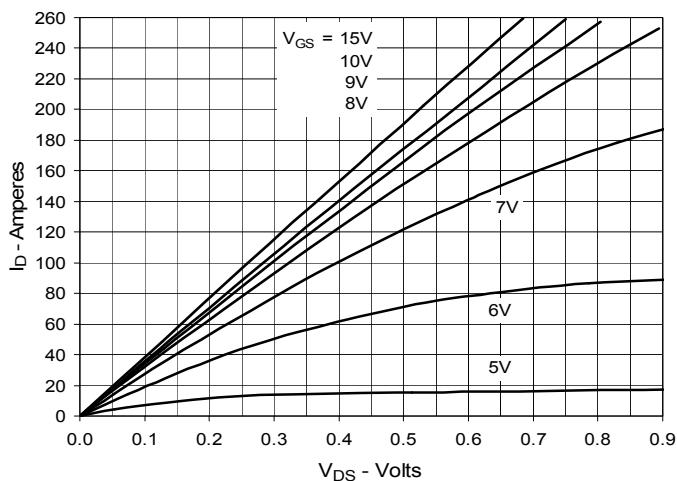
Note 1: Pulse test, $t \leq 300\mu\text{s}$; duty cycle, $d \leq 2\%$.**PRELIMINARY TECHNICAL INFORMATION**

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.

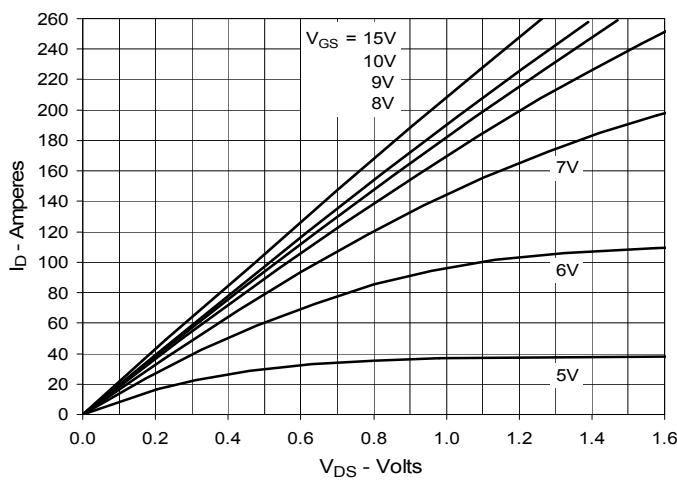
IXYS reserves the right to change limits, test conditions, and dimensions.

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 4,850,072 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

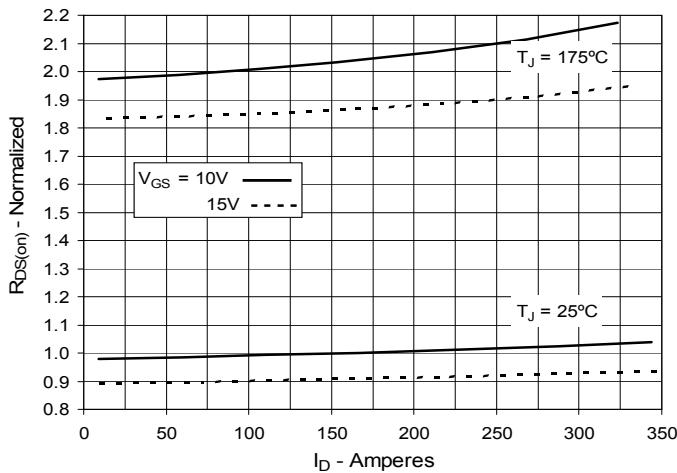
**Fig. 1. Output Characteristics
@ 25°C**



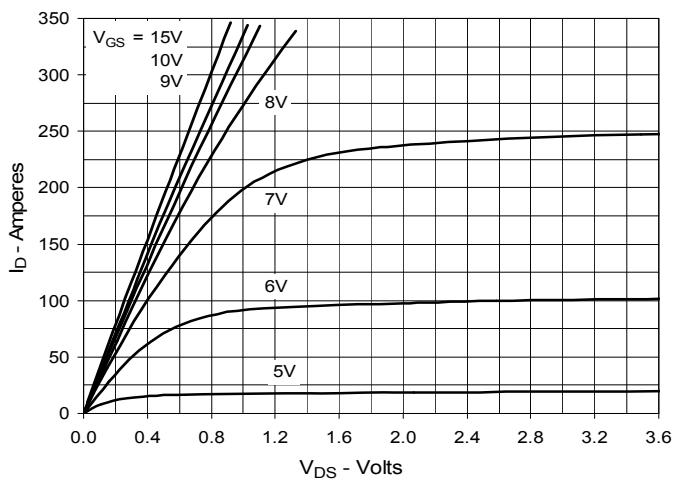
**Fig. 3. Output Characteristics
@ 150°C**



**Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 130A$ Value
vs. Drain Current**



**Fig. 2. Extended Output Characteristics
@ 25°C**



**Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 130A$ Value
vs. Junction Temperature**

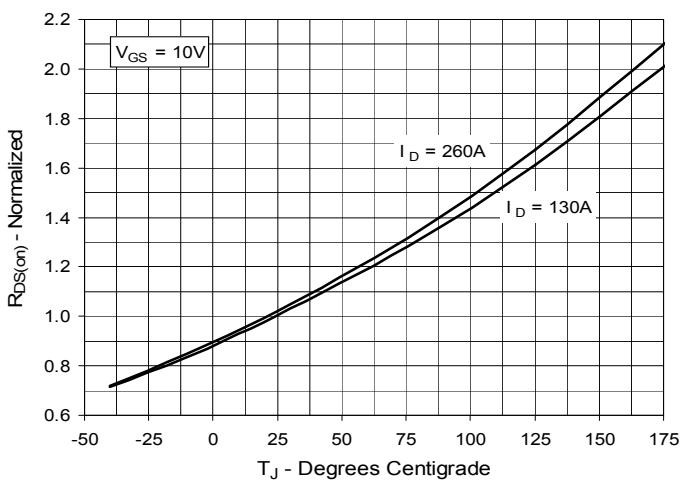


Fig. 6. Drain Current vs. Case Temperature

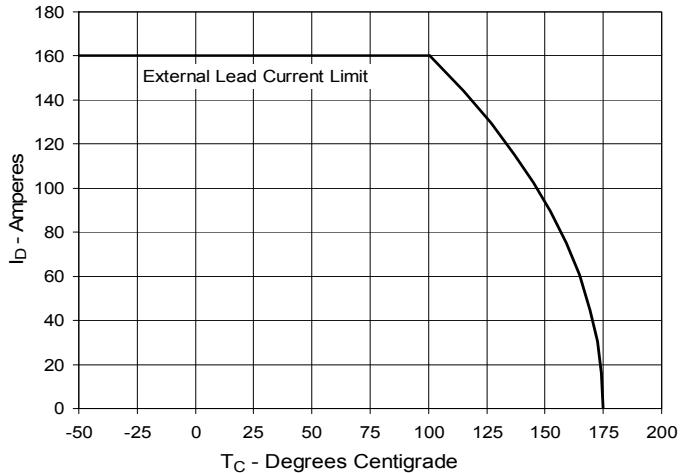
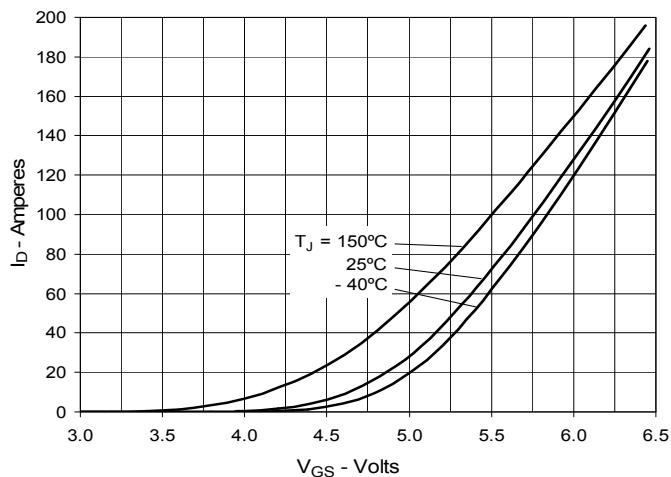
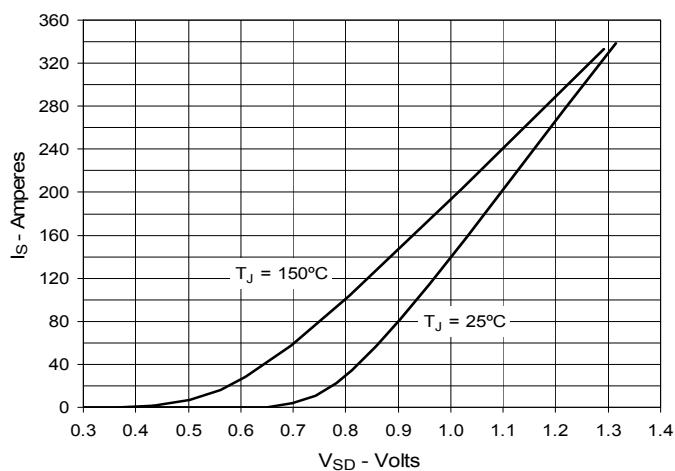
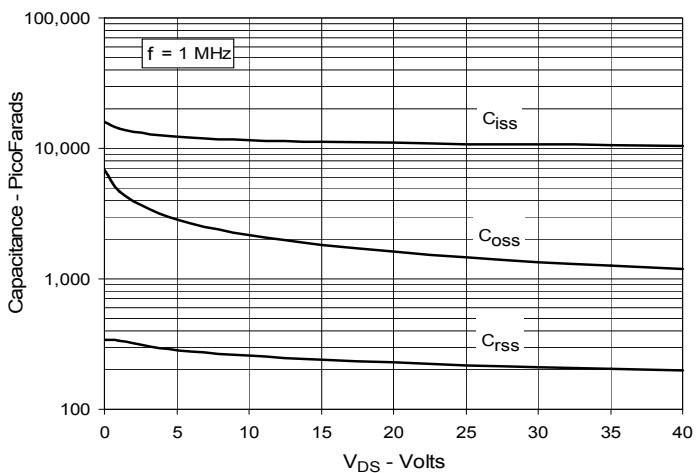
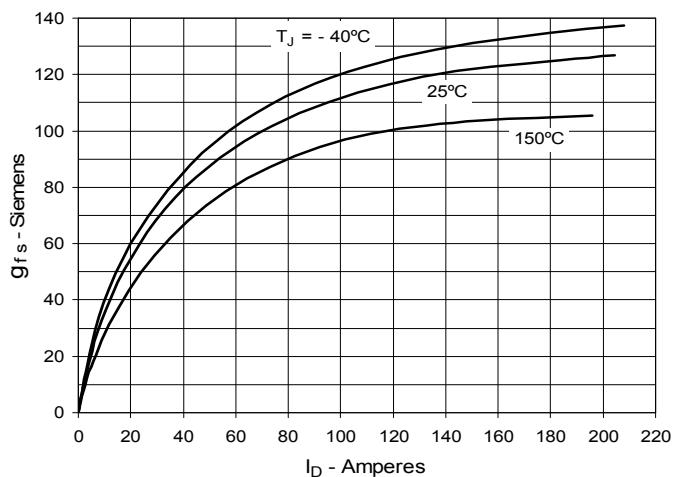
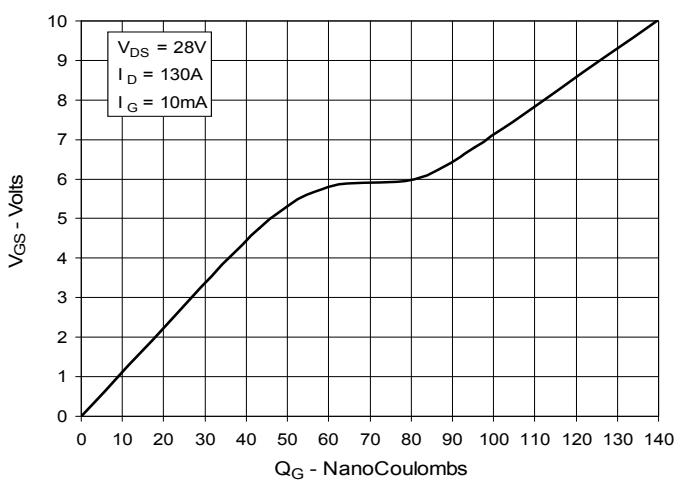
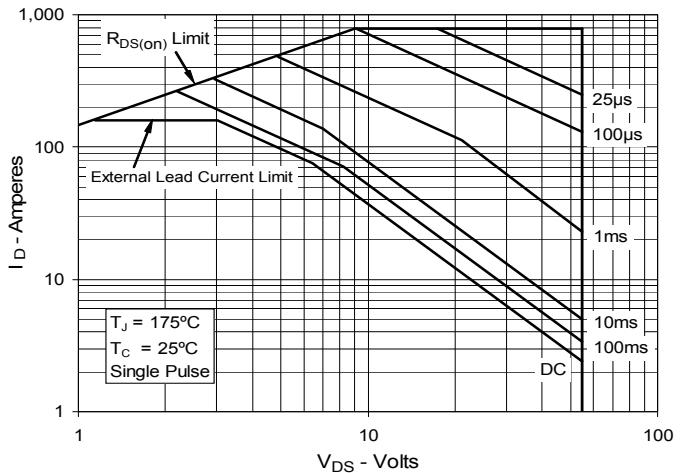
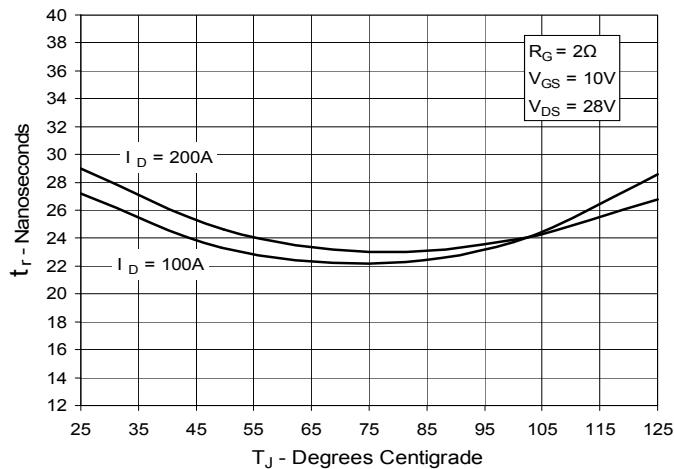
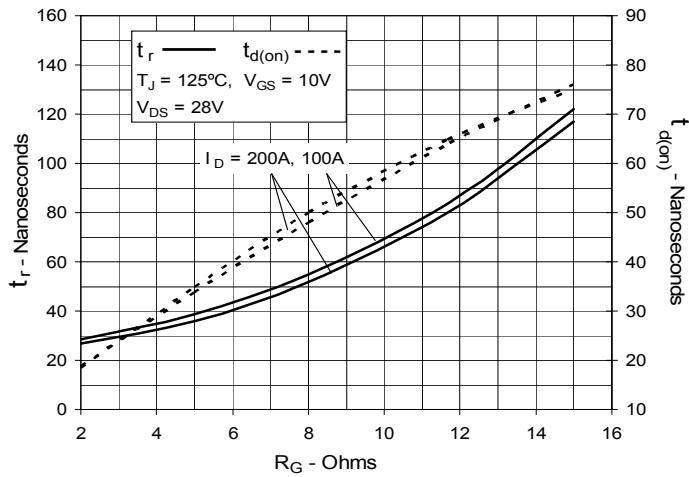


Fig. 7. Input Admittance**Fig. 9. Forward Voltage Drop of Intrinsic Diode****Fig. 11. Capacitance****Fig. 8. Transconductance****Fig. 10. Gate Charge****Fig. 12. Forward-Bias Safe Operating Area**

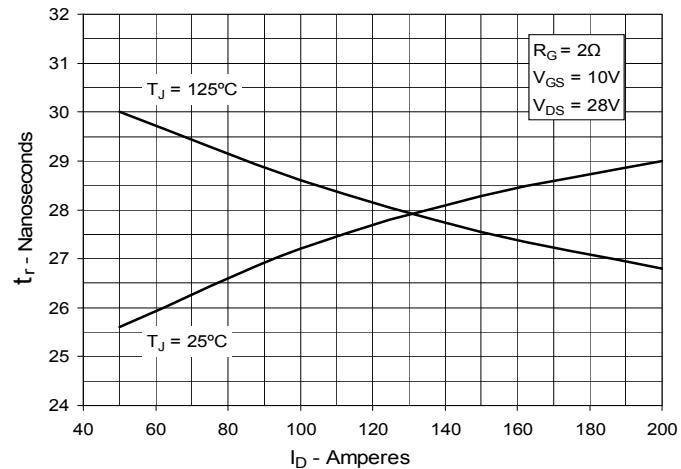
**Fig. 13. Resistive Turn-on
Rise Time vs. Junction Temperature**



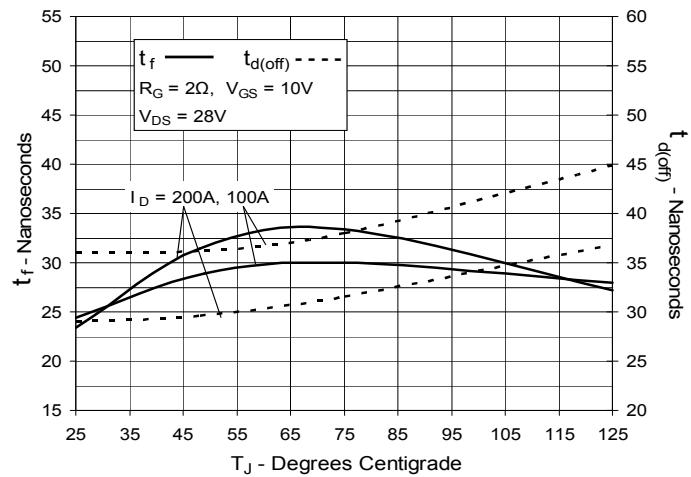
**Fig. 15. Resistive Turn-on
Switching Times vs. Gate Resistance**



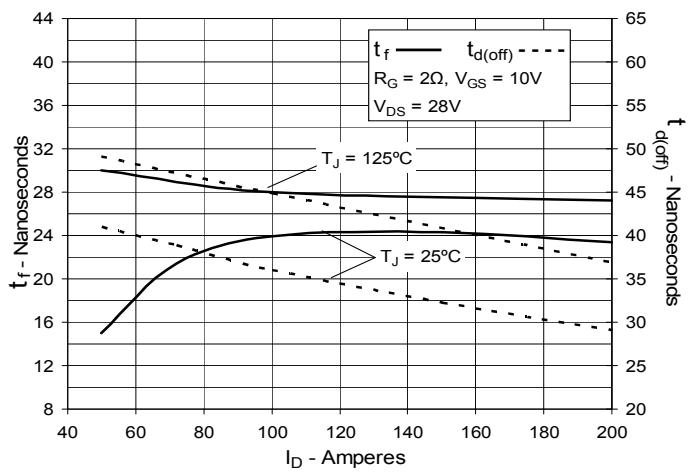
**Fig. 14. Resistive Turn-on
Rise Time vs. Drain Current**



**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**

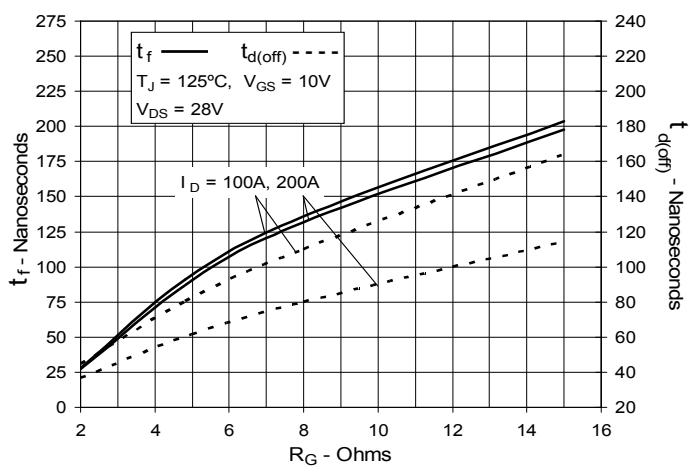
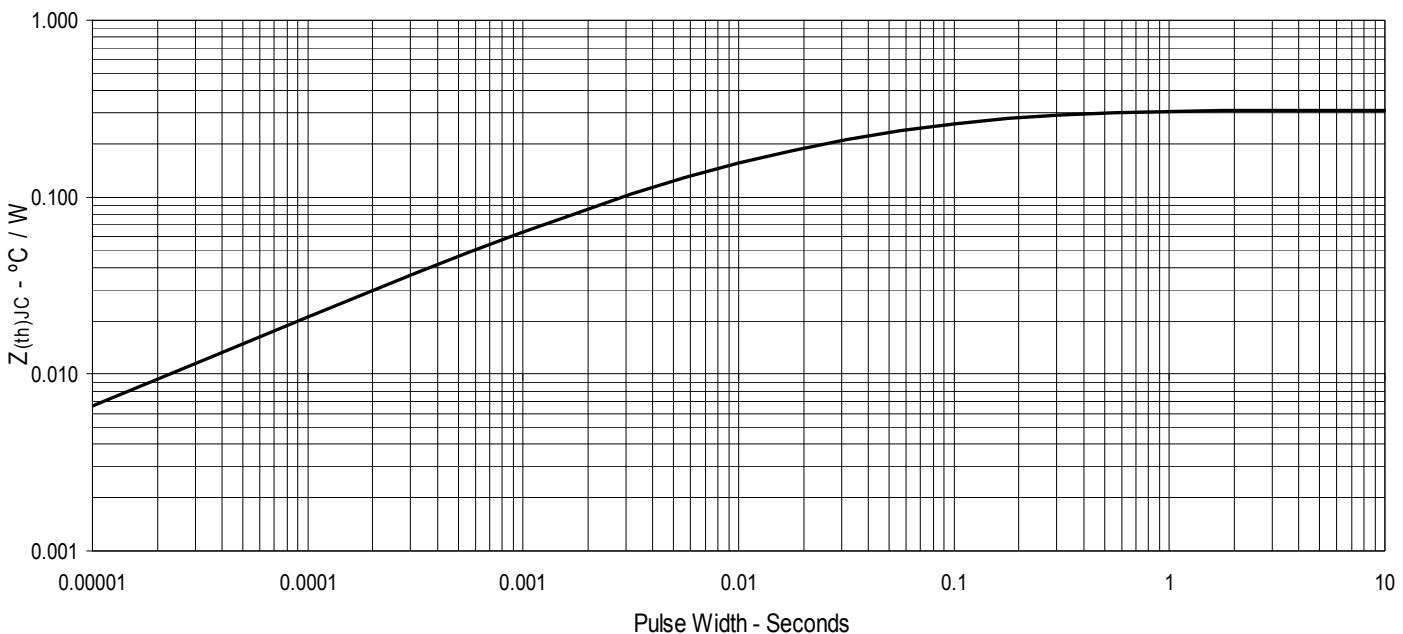


Fig. 19. Maximum Transient Thermal Impedance



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