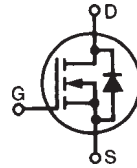


TrenchT2™ GigaMOS™ Power MOSFET

IXTZ550N055T2

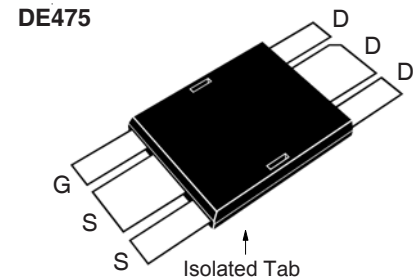
(Electrically Isolated Tab)

N-Channel Enhancement Mode
Avalanche Rated
Fast Intrinsic Diode



$$\begin{aligned} V_{DSS} &= 55V \\ I_{D25} &= 550A \\ R_{DS(on)} &\leq 1.0m\Omega \end{aligned}$$

Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 175°C	55	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 175°C , $R_{GS} = 1M\Omega$	55	V
V_{GSS}	Continuous	± 20	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	550	A
I_{DM}	$T_C = 25^\circ\text{C}$, Pulse Width Limited by T_{JM}	1650	A
I_A	$T_C = 25^\circ\text{C}$	200	A
E_{AS}	$T_C = 25^\circ\text{C}$	3	J
P_D	$T_C = 25^\circ\text{C}$	600	W
T_J		-55 ... +175	$^\circ\text{C}$
T_{JM}		175	$^\circ\text{C}$
T_{stg}		-55 ... +175	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, RMS	$t = 1$ minute	2500 V~
	$I_{ISOL} \leq 1\text{mA}$	$t = 1$ second	3000 V~
T_L	1.6mm (0.062 in.) from Case for 10s	300	$^\circ\text{C}$
T_{SOLD}	Plastic Body for 10s	260	$^\circ\text{C}$
V_{ISOL}	50/60 Hz, 1 Minute	2500	V~
F_C	Mounting Force	20..120 / 4.5..27	N/lb.
Weight		3	g



G = Gate D = Drain
S = Source

Features

- Silicon Chip on Direct-Copper Bond (DCB) Substrate
- Isolated Substrate
 - Excellent Thermal Transfer
 - Increased Temperature and Power Cycling Capability
 - High Isolation Voltage (2500V~)
- 175°C Operating Temperature
- Very High Current Handling Capability
- Fast Intrinsic Diode
- Avalanche Rated
- Very Low $R_{DS(on)}$

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- DC-DC Converters and Off-Line UPS
- Primary-Side Switch
- High Speed Power Switching Applications

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0V$, $I_D = 250\mu A$	55		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	2.0		4.0 V
I_{GSS}	$V_{GS} = \pm 20V$, $V_{DS} = 0V$			± 200 nA
I_{DSS}	$V_{DS} = V_{DSS}$, $V_{GS} = 0V$ $T_J = 150^\circ\text{C}$			10 μA 1.5 mA
$R_{DS(on)}$	$V_{GS} = 10V$, $I_D = 100A$, Note 1			1.0 m Ω

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	95	160	S
C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$		40	nF
C_{oss}			4970	pF
C_{rss}			1020	pF
R_{GI}	Gate Input Resistance		1.36	Ω
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 200\text{A}$ $R_G = 1\Omega$ (External)		45	ns
t_r			40	ns
$t_{d(off)}$			90	ns
t_f			230	ns
$Q_{g(on)}$	$V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{DSS}$		595	nC
Q_{gs}			150	nC
Q_{gd}			163	nC
R_{thJC}				0.25 $^\circ\text{C/W}$
R_{thCS}			0.15	$^\circ\text{C/W}$

Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
I_S	$V_{GS} = 0\text{V}$			550 A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			1700 A
V_{SD}	$I_F = 100\text{A}$, $V_{GS} = 0\text{V}$, Note 1			1.2 V
t_{rr}	$I_F = 100\text{A}$, $V_{GS} = 0\text{V}$ $-di/dt = 100\text{A}/\mu\text{s}$ $V_R = 27.5\text{V}$		100	ns
I_{RM}			5	A
Q_{RM}			250	nC

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

ADVANCE TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from a subjective evaluation of the design, based upon prior knowledge and experience, and constitute a "considered reflection" of the anticipated result. 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	

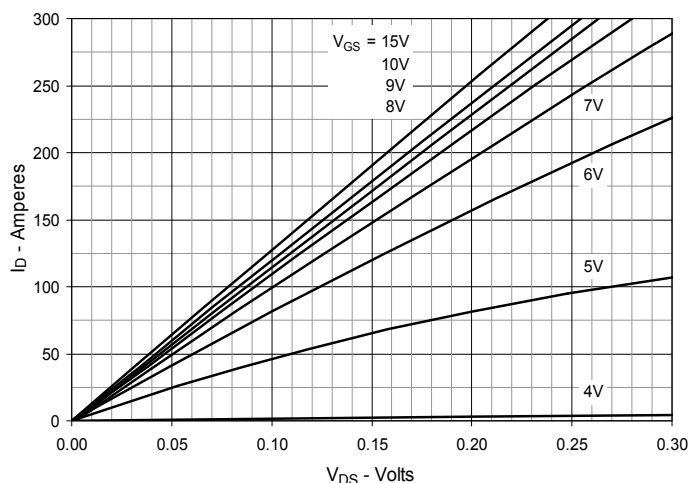
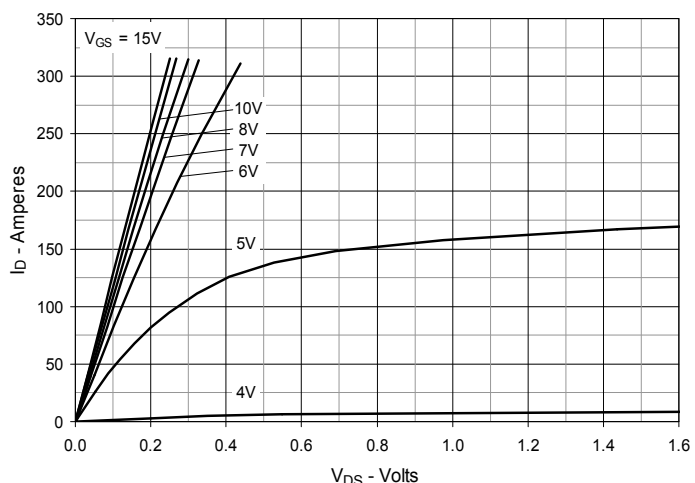
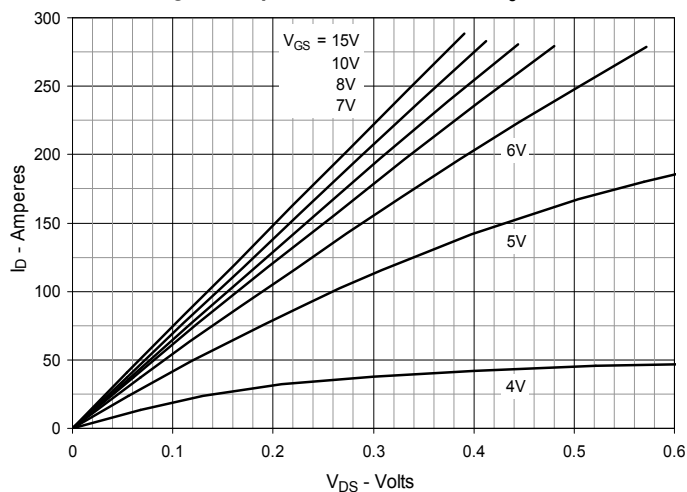
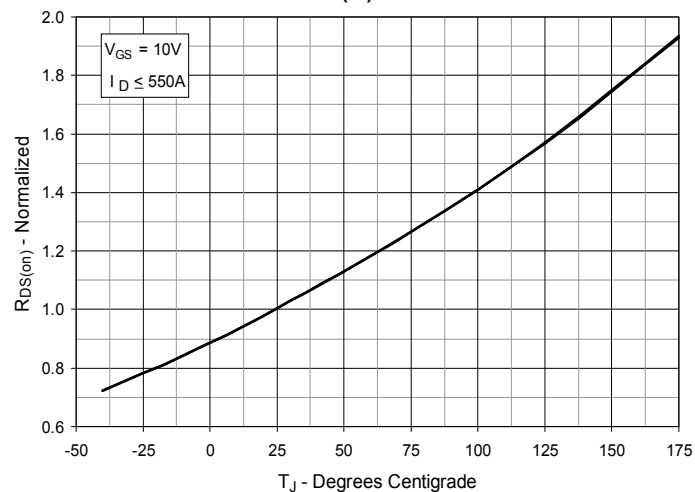
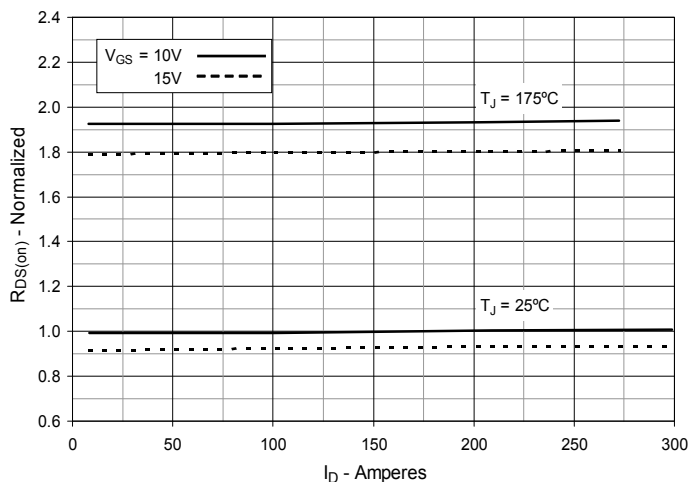
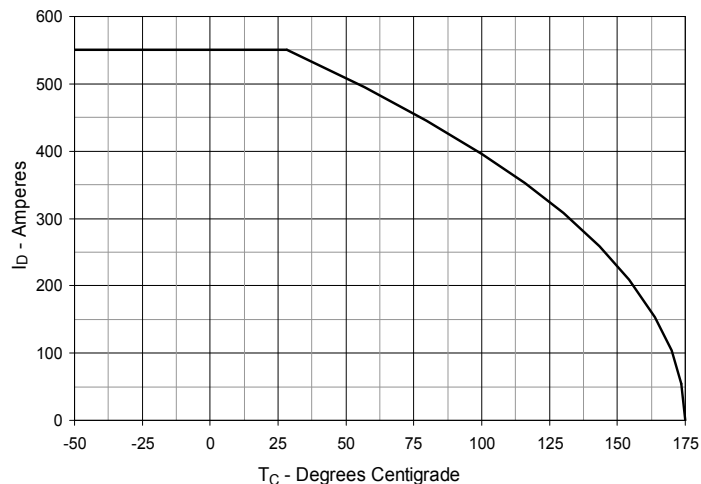
Fig. 1. Output Characteristics @ $T_J = 25^\circ\text{C}$

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

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

Fig. 4. Normalized $R_{DS(on)}$ vs. Junction Temperature

Fig. 5. Normalized $R_{DS(on)}$ vs. Drain Current

Fig. 6. Drain Current vs. Case Temperature


Fig. 7. Input Admittance

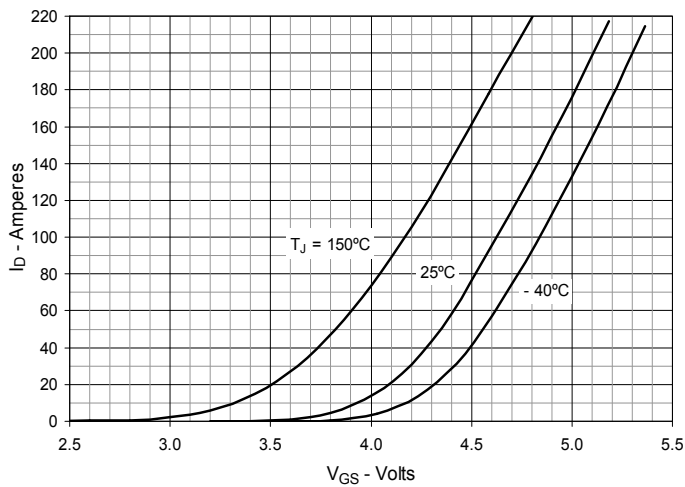


Fig. 8. Transconductance

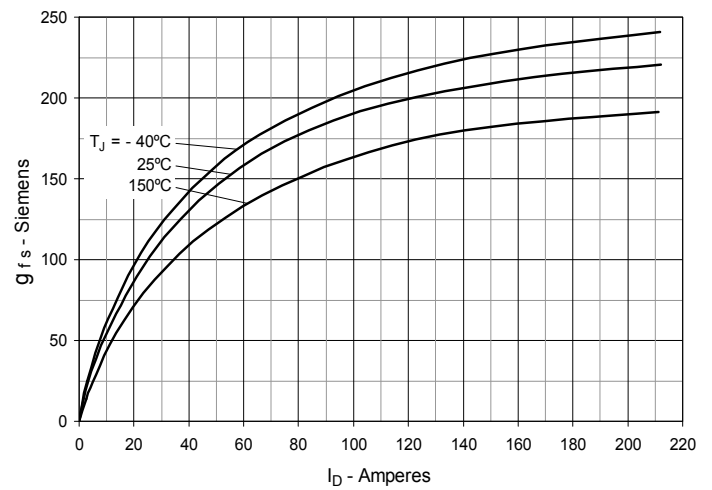


Fig. 9. Forward Voltage Drop of Intrinsic Diode

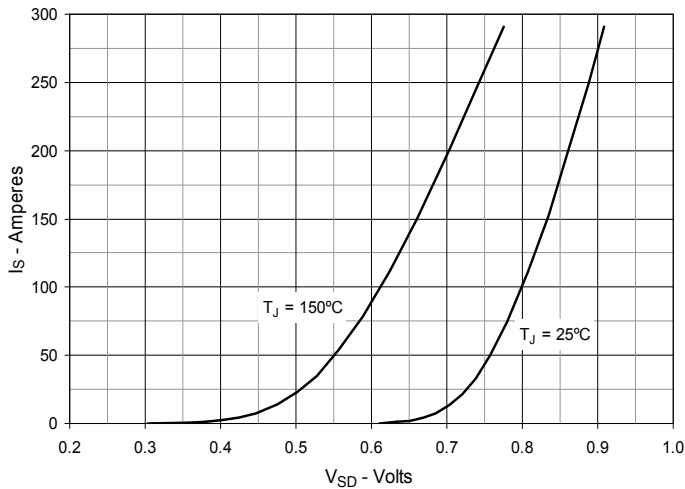


Fig. 10. Gate Charge

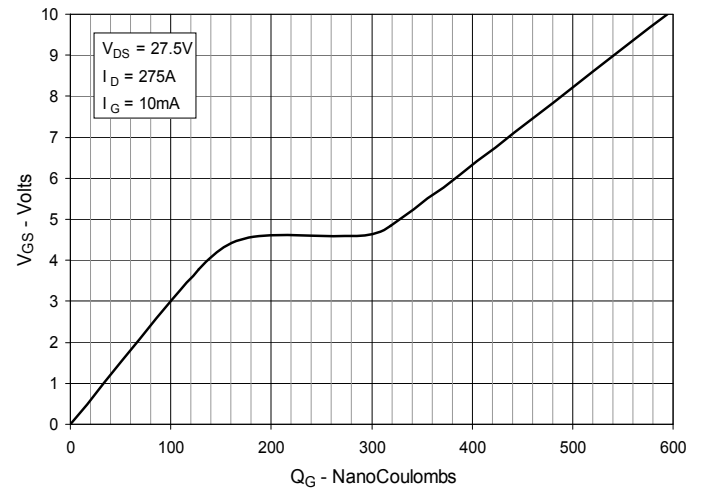


Fig. 11. Capacitance

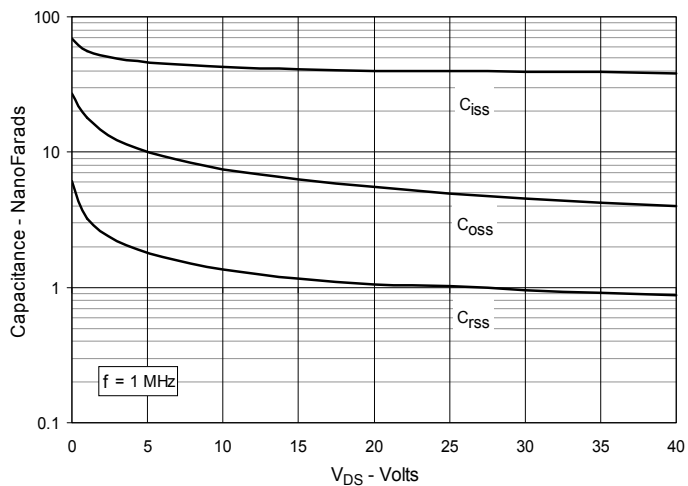


Fig. 12. Forward-Bias Safe Operating Area

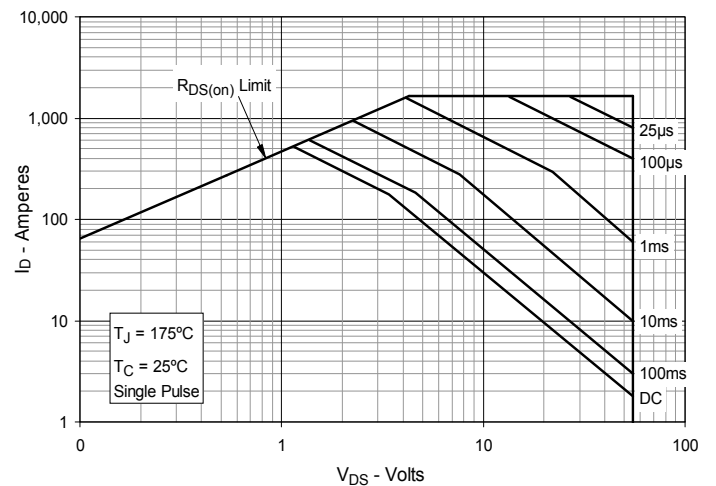


Fig. 13. Resistive Turn-on Rise Time vs. Junction Temperature

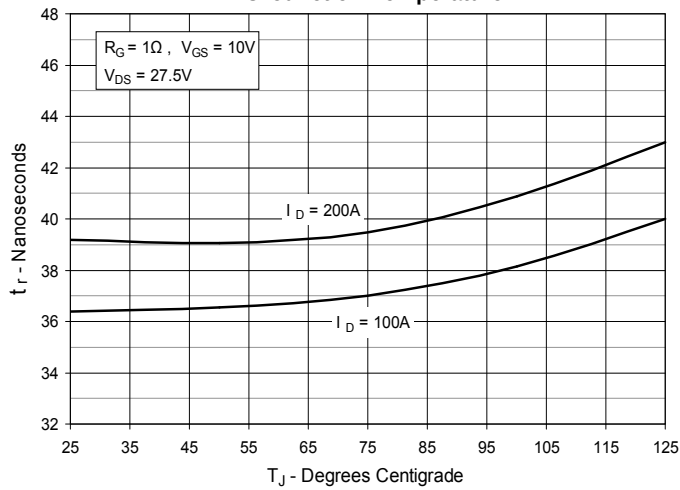


Fig. 14. Resistive Turn-on Rise Time vs. Drain Current

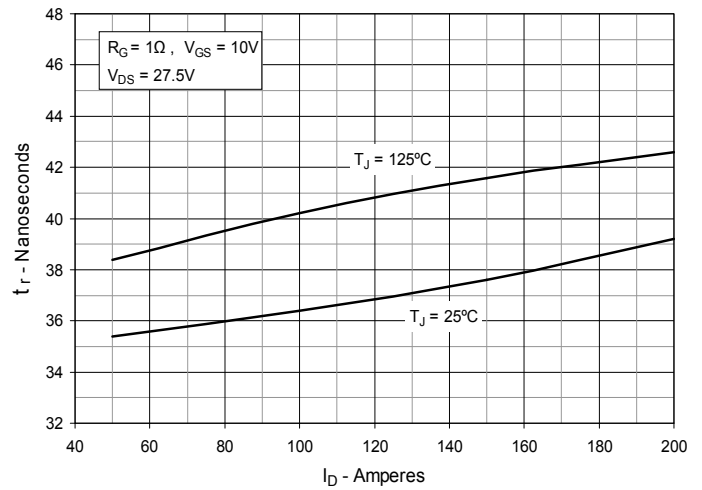


Fig. 15. Resistive Turn-on Switching Times vs. Gate Resistance

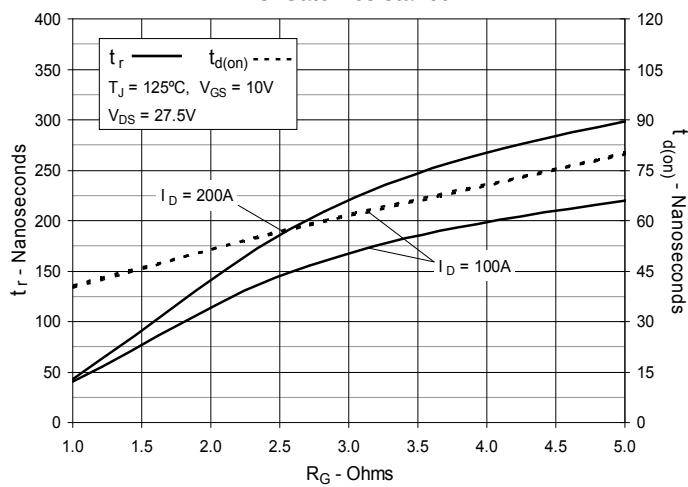


Fig. 16. Resistive Turn-off Switching Times vs. Junction Temperature

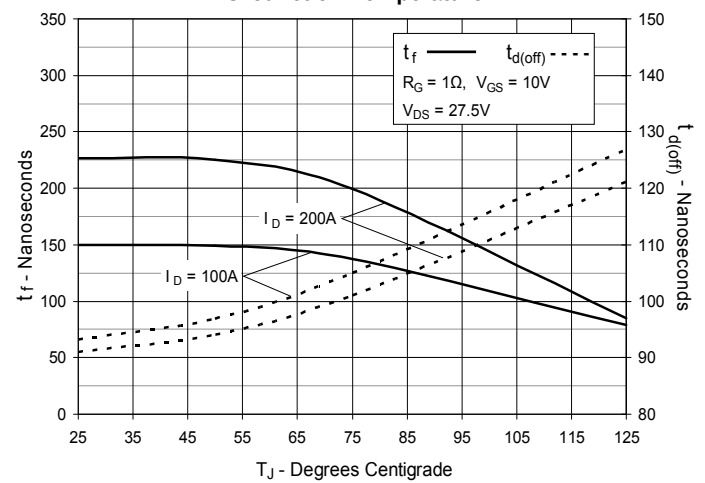


Fig. 17. Resistive Turn-off Switching Times vs. Drain Current

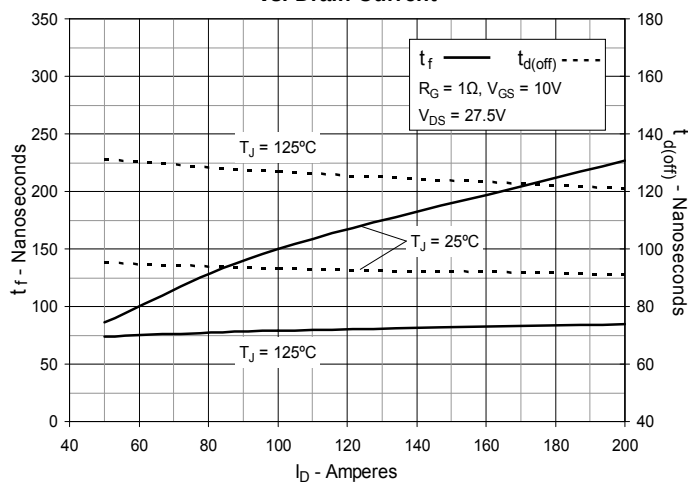
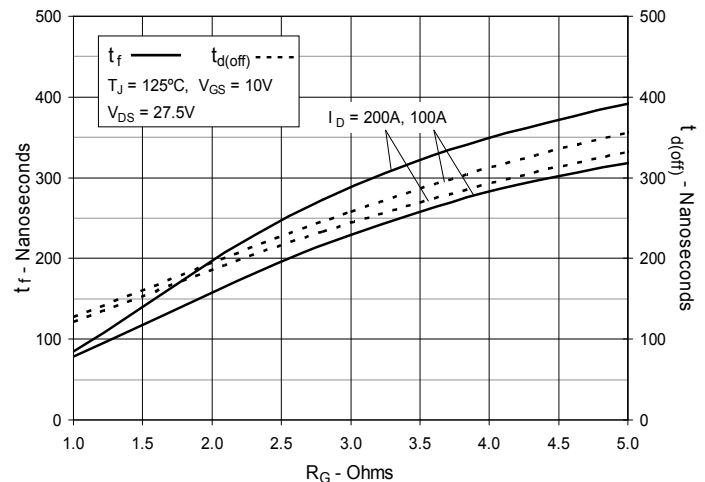


Fig. 18. Resistive Turn-off Switching Times vs. Gate Resistance



The graph shows the relationship between the normalized junction temperature rise and pulse width. The y-axis, labeled $Z_{(th)JC} - ^\circ C / W$, is on a logarithmic scale from 0.001 to 1.000. The x-axis, labeled Pulse Width - Seconds, is also on a logarithmic scale from 0.00001 to 10. The curve starts at approximately (0.00001, 0.002) and rises to a plateau of about 0.25 for pulse widths greater than 1 second.

Pulse Width - Seconds	$Z_{(th)JC} - ^\circ C / W$
0.00001	0.002
0.0001	0.006
0.001	0.02
0.01	0.07
0.1	0.18
1	0.25
10	0.25

Technical drawing of a shaft-hub assembly. The drawing includes a side view of the shaft and a cross-sectional view of the hub. Dimensions are provided in inches and millimeters.

Shaft Dimensions:

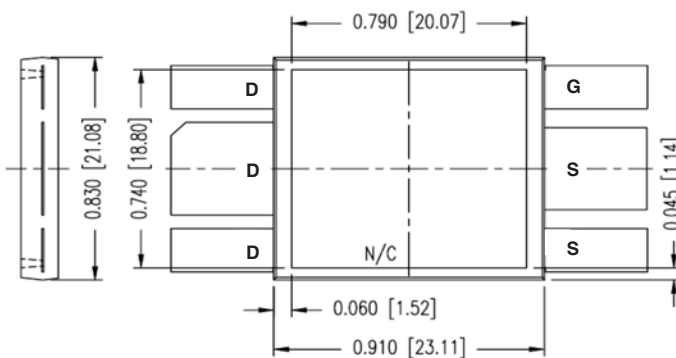
- Overall length: 1.600 [40.64]
- Shaft diameter: 0.125 [3.18]
- Keyway width: 0.049 [1.24]
- Keyway depth: 0.006 [0.15]

Hub Dimensions:

- Overall length: 0.770 [19.56]
- Hub diameter: 0.162 [4.11]
- Keyway width: 0.346 [8.79]
- Keyway depth: 0.050 [1.27]
- Internal thread: 0.306 [7.77]
- Internal thread: 0.070 [1.78]

Assembly Details:

- Keyway fit: C0.050 [1.27]
- Keyway position: 0.162 [4.11]
- Keyway depth: 0.006 [0.15]
- Keyway width: 0.049 [1.24]



N/C - AlN DCB metalized bottom heatsink.
2500 Vrms Isolation between leads

LEADS - Full Silver plating.

AMEYA360

Components Supply Platform

Authorized Distribution Brand :



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