

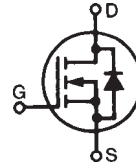
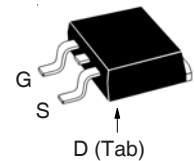
**TrenchT4™**  
**Power MOSFET**
**IXTA340N04T4**  
**IXTA340N04T4-7**

$$V_{DSS} = 40V$$

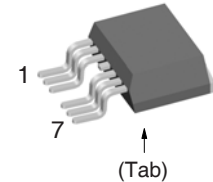
$$I_{D25} = 340A$$

$$R_{DS(on)} \leq 1.7m\Omega$$

N-Channel Enhancement Mode  
 Avalanche Rated  
 Fast Intrinsic Rectifier


**TO-263 AA**


G = Gate      D = Drain  
 S = Source    Tab = Drain

**TO-263 (7-Leads)**


Pins: 1 - Gate  
 2, 3, 5, 6, 7 - Source  
 4 (Tab) - Drain

Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ\text{C}$ to $175^\circ\text{C}$	40	V
$V_{DGR}$	$T_J = 25^\circ\text{C}$ to $175^\circ\text{C}$ , $R_{GS} = 1M\Omega$	40	V
$V_{GSM}$	Transient	$\pm 15$	V
$I_{D25}$	$T_C = 25^\circ\text{C}$	340	A
$I_{LRMS}$	Lead Current Limit, RMS	160	A
$I_{DM}$	$T_C = 25^\circ\text{C}$ , Pulse Width Limited by $T_{JM}$	750	A
$I_A$	$T_C = 25^\circ\text{C}$	170	A
$E_{AS}$	$T_C = 25^\circ\text{C}$	1.2	J
$I_A$	$T_C = 25^\circ\text{C}$	340	A
$E_{AS}$	$T_C = 25^\circ\text{C}$	500	mJ
$P_D$	$T_C = 25^\circ\text{C}$	480	W
$T_J$		-55 ... +175	$^\circ\text{C}$
$T_{JM}$		175	$^\circ\text{C}$
$T_{stg}$		-55 ... +175	$^\circ\text{C}$
$T_L$	Maximum Lead Temperature for Soldering	300	$^\circ\text{C}$
$T_{SOLD}$	Plastic Body for 10s	260	$^\circ\text{C}$
$F_C$	Mounting Force	10..65 / 2.2..14.6	N/lb
<b>Weight</b>	TO-263	2.5	g
	TO-263 (7Leads)	3.0	g

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
$BV_{DSS}$	$V_{GS} = 0V$ , $I_D = 250\mu\text{A}$	40		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 250\mu\text{A}$	2.0		4.0 V
$I_{GSS}$	$V_{GS} = \pm 15V$ , $V_{DS} = 0V$			$\pm 200$ nA
$I_{DSS}$	$V_{DS} = V_{DSS}$ , $V_{GS} = 0V$  $T_J = 150^\circ\text{C}$			5 $\mu\text{A}$
				750 $\mu\text{A}$
$R_{DS(on)}$	$V_{GS} = 10V$ , $I_D = 100A$ , Notes 1, 2			1.7 m $\Omega$

**Features**

- International Standard Packages
- $175^\circ\text{C}$  Operating Temperature
- High Current Handling Capability
- Avalanche Rated
- Fast Intrinsic Rectifier
- Low  $R_{DS(on)}$

**Advantages**

- Easy to Mount
- Space Savings
- High Power Density

**Applications**

- DC-DC Converters & 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	115	195	S
$C_{iss}$	$V_{GS} = 0\text{V}$ , $V_{DS} = 25\text{V}$ , $f = 1\text{MHz}$		13	nF
$C_{oss}$			1850	pF
$C_{rss}$			1226	pF
$R_{Gi}$	Gate Input Resistance		1.1	$\Omega$
$t_{d(on)}$	<b>Resistive Switching Times</b> $V_{GS} = 10\text{V}$ , $V_{DS} = 0.5 \cdot V_{DSS}$ , $I_D = 0.5 \cdot I_{D25}$ $R_G = 3\Omega$ (External)		23	ns
$t_r$			55	ns
$t_{d(off)}$			113	ns
$t_f$			40	ns
$Q_{g(on)}$	$V_{GS} = 10\text{V}$ , $V_{DS} = 0.5 \cdot V_{DSS}$ , $I_D = 0.5 \cdot I_{D25}$		256	nC
$Q_{gs}$			64	nC
$Q_{gd}$			86	nC
$R_{thJC}$				0.31 $^\circ\text{C/W}$

#### Source-Drain Diode

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
$I_S$	$V_{GS} = 0\text{V}$			340 A
$I_{SM}$	Repetitive, Pulse Width Limited by $T_{JM}$			1360 A
$V_{SD}$	$I_F = 100\text{A}$ , $V_{GS} = 0\text{V}$ , Note 1			1.4 V
$t_{rr}$	$I_F = 150\text{A}$ , $V_{GS} = 0\text{V}$ , $-di/dt = 100\text{A}/\mu\text{s}$ , $V_R = 30\text{V}$		43	ns
$I_{RM}$			10	A
$Q_{RM}$			210	nC

- Notes: 1. Pulse test,  $t \leq 300\mu\text{s}$ , duty cycle,  $d \leq 2\%$ .  
 2. On through-hole packages,  $R_{DS(on)}$  Kelvin test contact location must be 5mm or less from the package body.

#### PRELIMINARY 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.

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

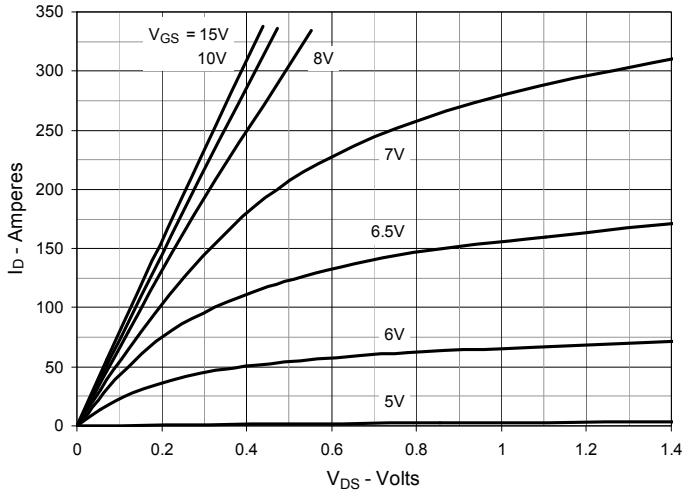


Fig. 2. Extended Output Characteristics @  $T_J = 25^\circ\text{C}$

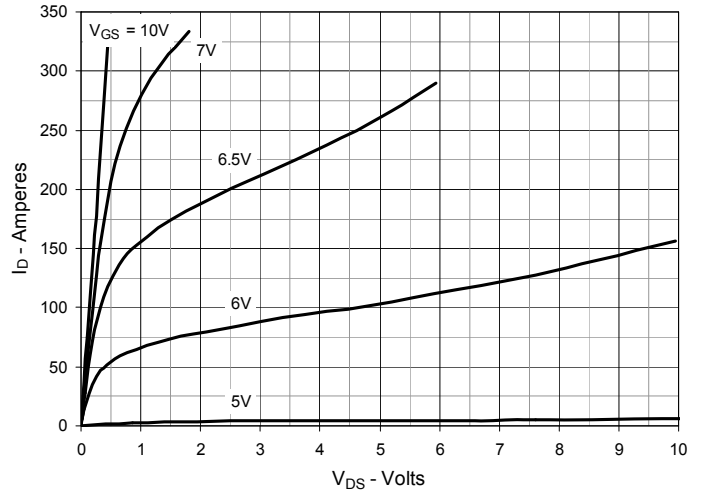


Fig. 3. Output Characteristics @  $T_J = 150^\circ\text{C}$

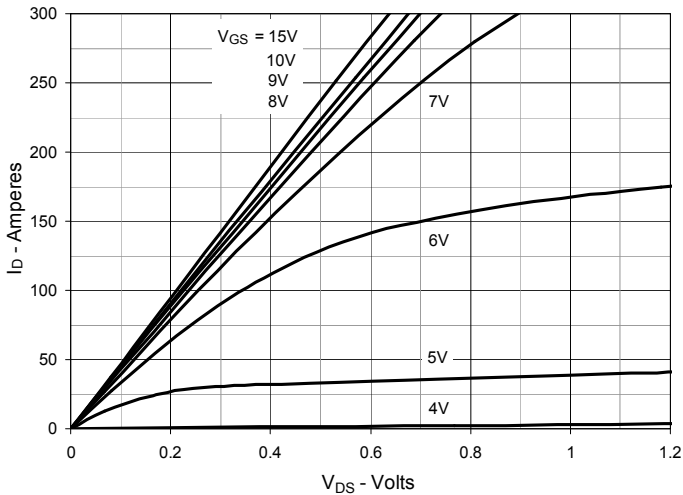


Fig. 4. Normalized  $R_{DS(on)}$  to  $I_D = 170\text{A}$  Value vs. Junction Temperature

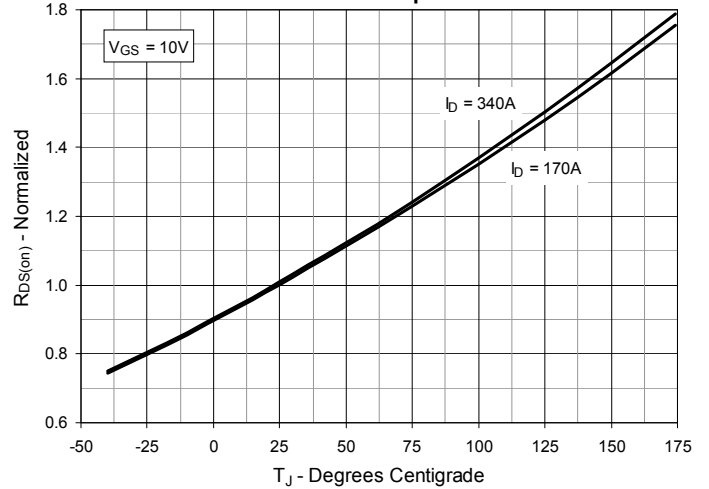


Fig. 5. Normalized  $R_{DS(on)}$  to  $I_D = 170\text{A}$  vs. Drain Current

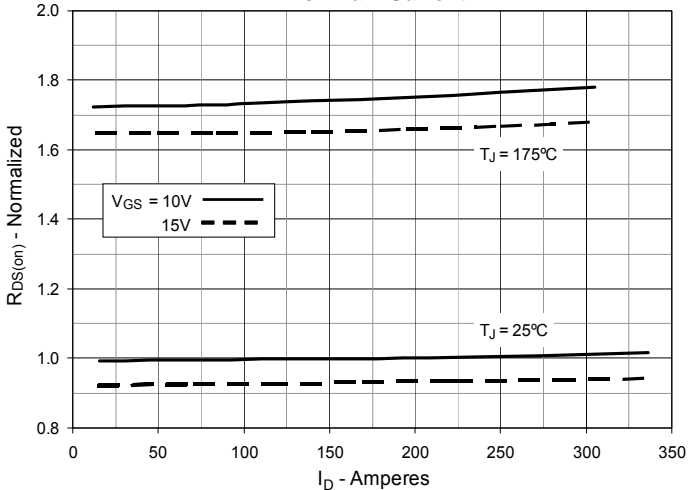


Fig. 6. Drain Current vs. Case Temperature

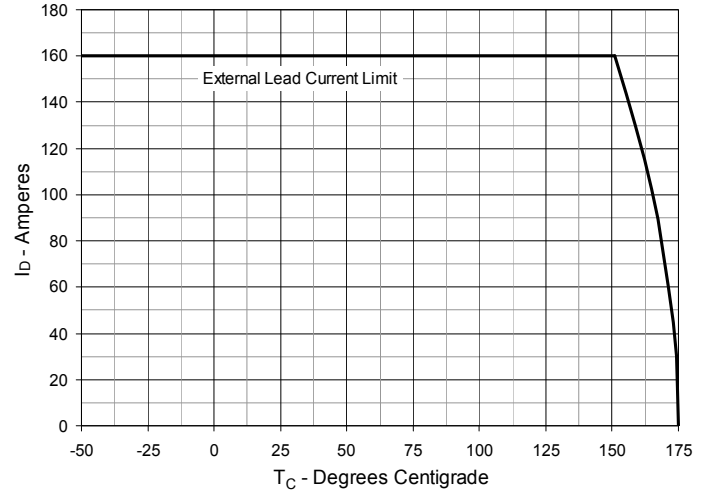


Fig. 7. Input Admittance

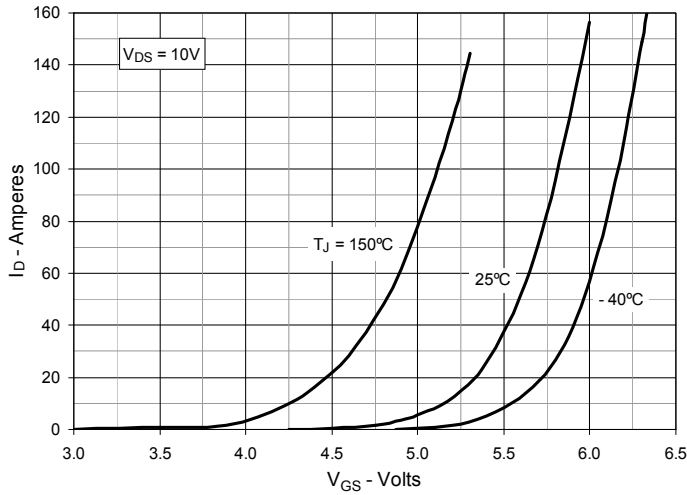


Fig. 8. Transconductance

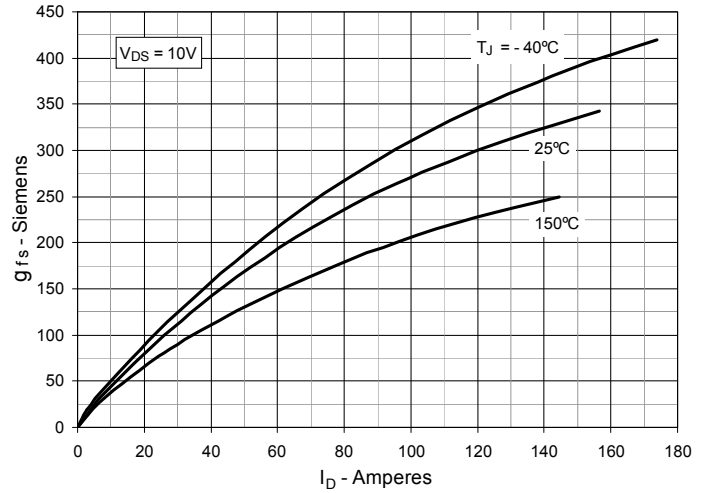


Fig. 9. Forward Voltage Drop of Intrinsic Diode

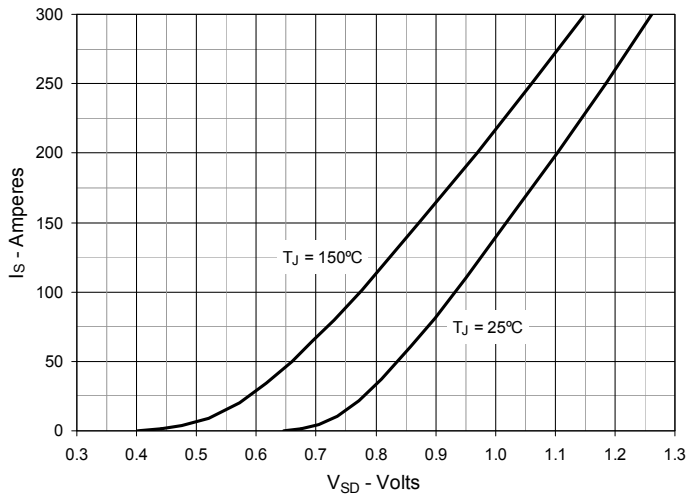


Fig. 10. Gate Charge

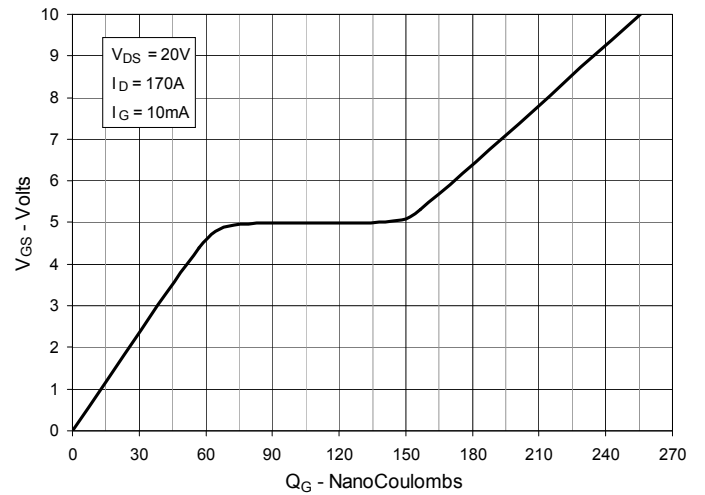


Fig. 11. Capacitance

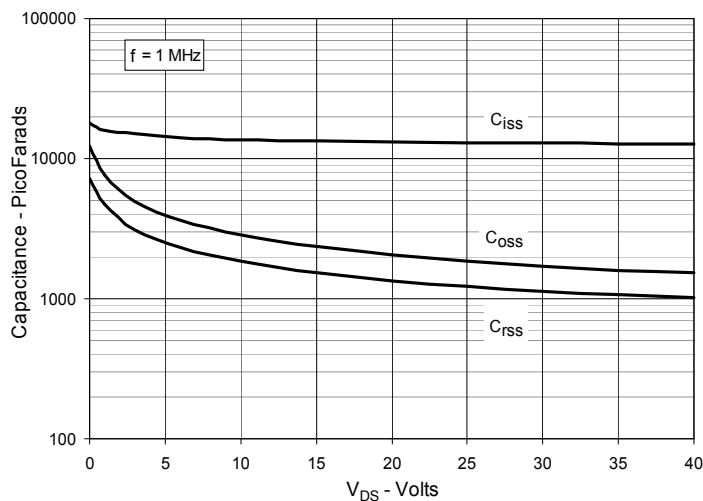
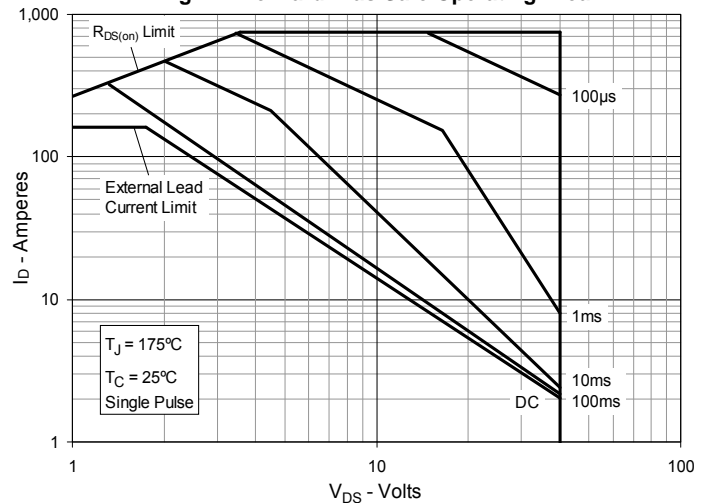
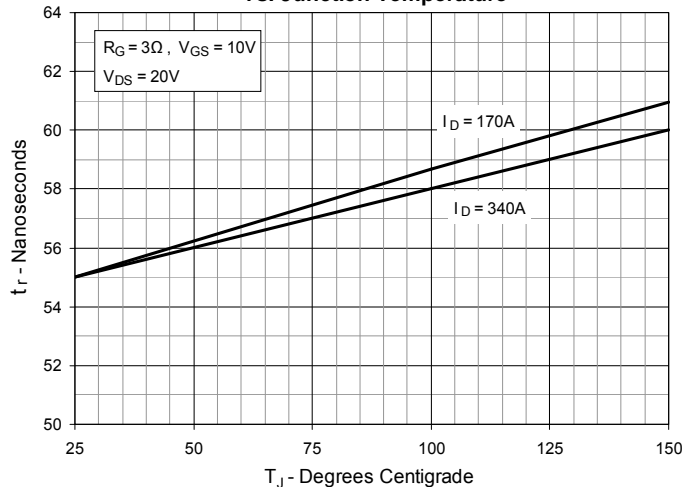


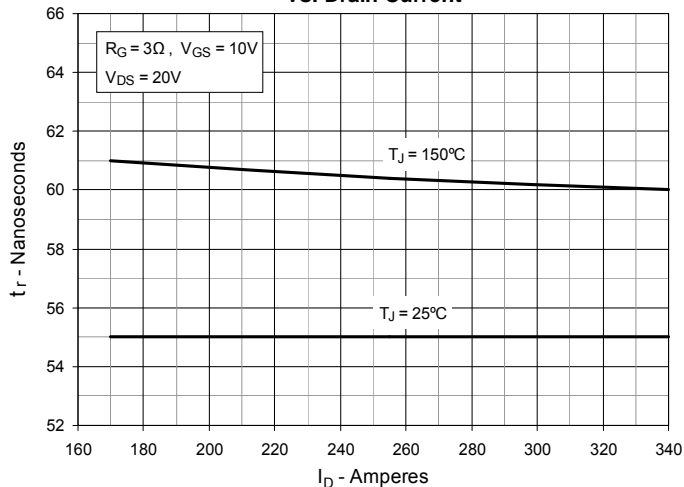
Fig. 12. Forward-Bias Safe Operating Area



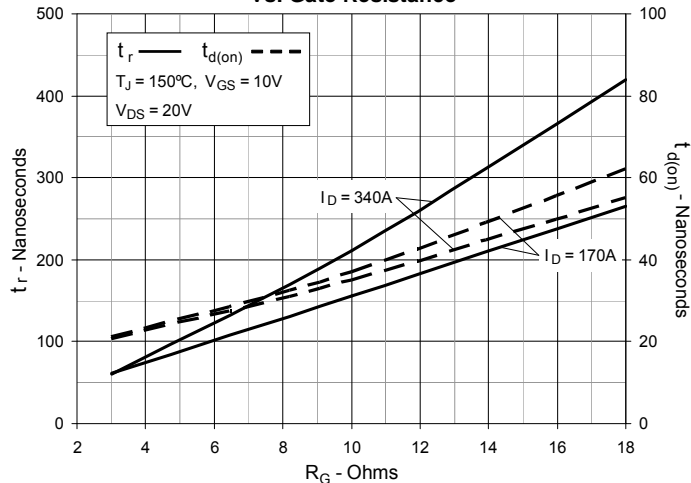
**Fig. 13. Resistive Turn-on Rise Time vs. Junction Temperature**



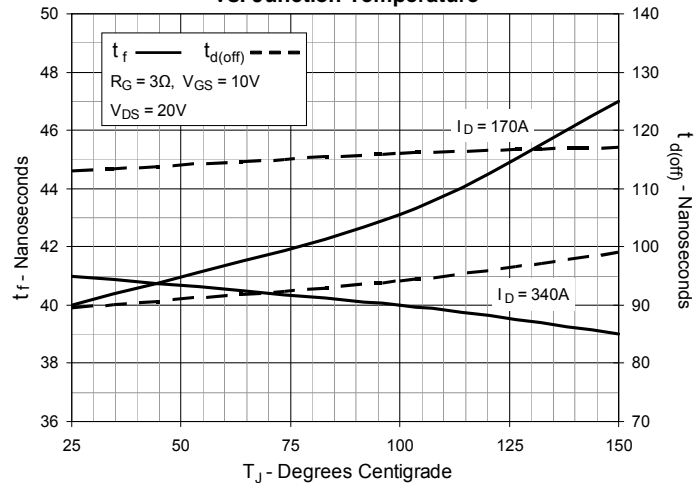
**Fig. 14. Resistive Turn-on Rise Time vs. Drain Current**



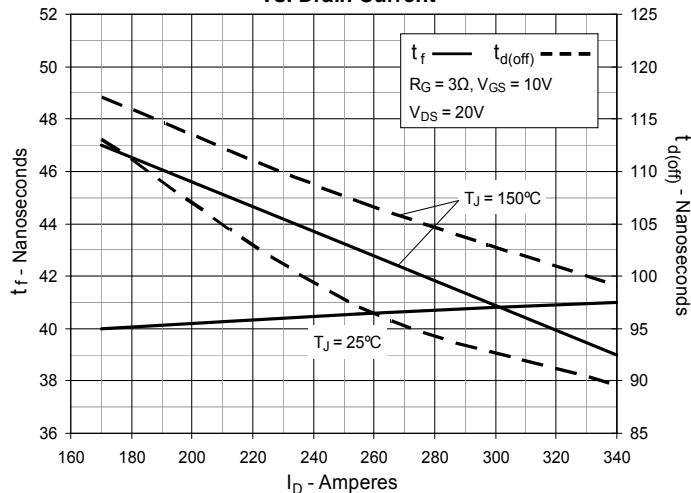
**Fig. 15. Resistive Turn-on Switching Times vs. Gate Resistance**



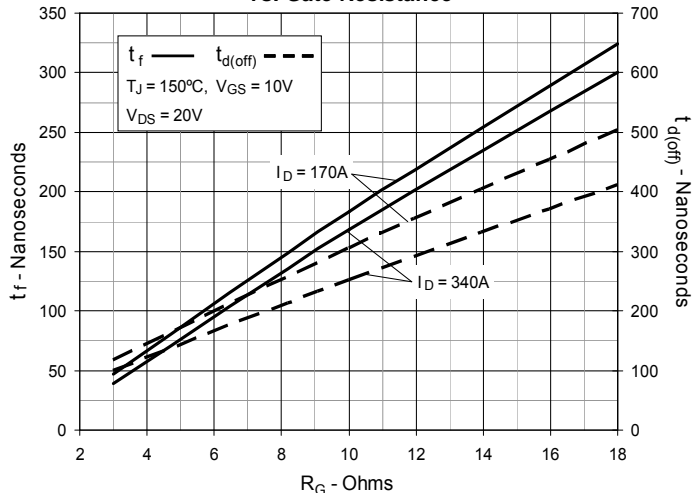
**Fig. 16. Resistive Turn-off Switching Times vs. Junction Temperature**



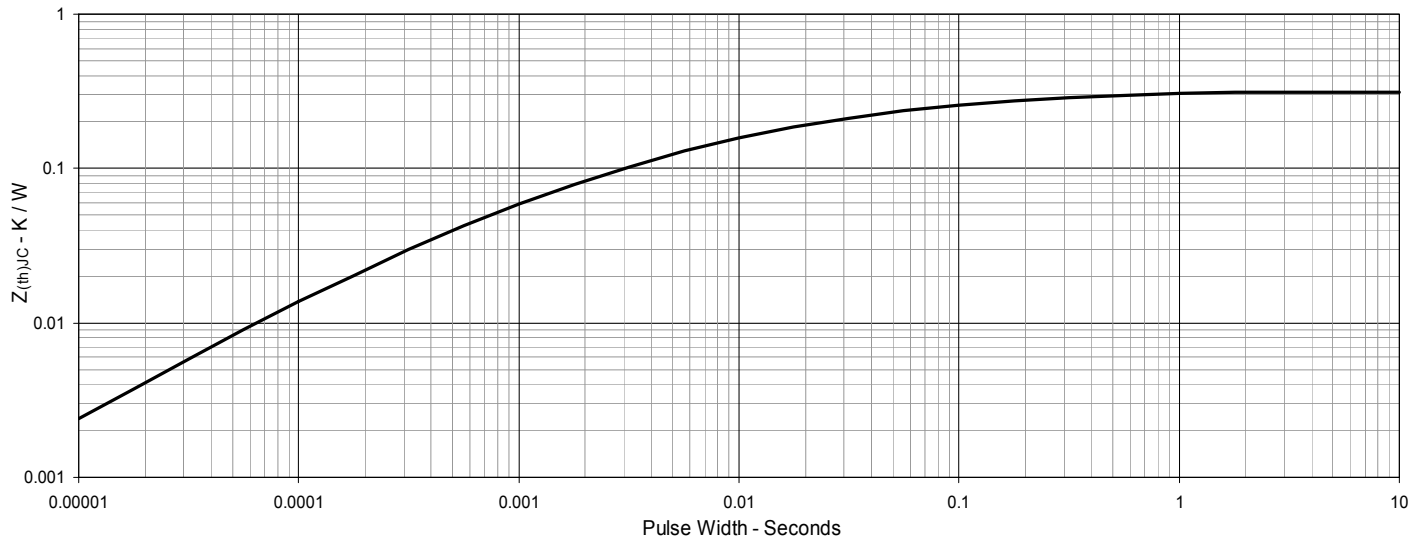
**Fig. 17. Resistive Turn-off Switching Times vs. Drain Current**



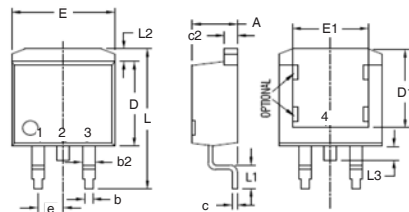
**Fig. 18. Resistive Turn-off Switching Times vs. Gate Resistance**



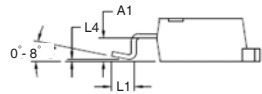
**Fig. 19. Maximum Transient Thermal Impedance**



**TO-263 (IXTA) Outline**

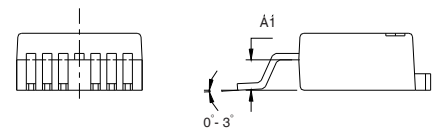
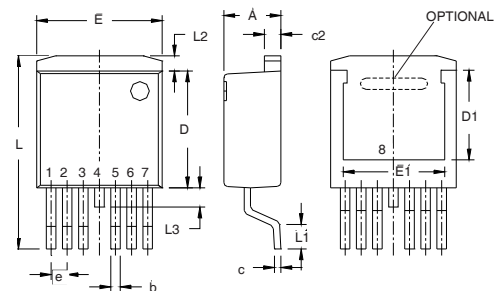


1 = Gate  
2,4 = Drain  
3 = Source



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.160	.190	4.06	4.83
A1	.080	.110	2.03	2.79
b	.020	.039	0.51	0.99
b2	.045	.055	1.14	1.40
c	.016	.029	0.40	0.74
c2	.045	.055	1.14	1.40
D	.340	.380	8.64	9.65
D1	.315	.350	8.00	8.89
E	.380	.410	9.65	10.41
E1	.245	.320	6.22	8.13
e	.100 BSC		2.54 BSC	
L	.575	.625	14.61	15.88
L1	.090	.110	2.29	2.79
L2	.040	.055	1.02	1.40
L3	.050	.070	1.27	1.78
L4	0	.005	0	0.13

**TO-263 (7-lead) (IXTA..7) Outline**



SYM	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	.170	.185	4.30	4.70
A1	.085	.104	2.15	2.65
b	.026	.035	0.65	0.90
c	.016	.024	0.40	0.60
c2	.049	.055	1.25	1.40
D	.355	.370	9.00	9.40
D1	.272	.280	6.90	7.10
E	.386	.402	9.80	10.20
E1	.311	.319	7.90	8.10
e	.050 BSC		1.27 BSC	
L	.591	.614	15.00	15.60
L1	.091	.110	2.30	2.80
L2	.039	.059	1.00	1.50
L3	.000	.059	0.00	1.50



---

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](http://www.littelfuse.com/disclaimer-electronics).