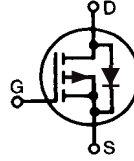


**TrenchP™  
Power MOSFET**
**IXTA18P10T  
IXTP18P10T**

$$V_{DSS} = -100V$$

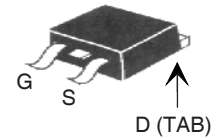
$$I_{D25} = -18A$$

$$R_{DS(on)} \leq 120m\Omega$$

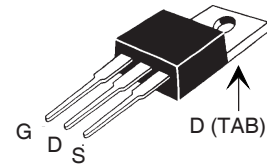
 P-Channel Enhancement Mode  
Avalanche Rated


Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ C$ to $150^\circ C$	-100	V
$V_{DGR}$	$T_J = 25^\circ C$ to $150^\circ C$ , $R_{GS} = 1M\Omega$	-100	V
$V_{GSS}$	Continuous	$\pm 20$	V
$V_{GSM}$	Transient	$\pm 30$	V
$I_{D25}$	$T_C = 25^\circ C$	-18	A
$I_{DM}$	$T_C = 25^\circ C$ , pulse width limited by $T_{JM}$	-60	A
$I_{AR}$	$T_C = 25^\circ C$	-18	A
$E_{AS}$	$T_C = 25^\circ C$	200	mJ
$P_D$	$T_C = 25^\circ C$	83	W
$T_J$		-55 ... +150	$^\circ C$
$T_{JM}$		150	$^\circ C$
$T_{stg}$		-55 ... +150	$^\circ C$
$T_L$	1.6mm (0.062 in.) from case for 10s	300	$^\circ C$
$T_{SOLD}$	Plastic body for 10s	260	$^\circ C$
$M_d$	Mounting torque (TO-220)	1.13 / 10	Nm/lb.in.
Weight	TO-220	3.0	g
	TO-263	2.5	g

TO-263 (IXTA)



TO-220 (IXTP)


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

**Features**

- International standard packages
- Fast intrinsic diode
- Avalanche Rated
- Low  $Q_G$  and  $R_{ds(on)}$
- Extended FBSOA

**Applications**

- Load Switches
- High side switches
- Low voltage applications such as automotive, DC/DC converters
- High efficiency switching power supplies for portable and battery operated systems
- Inverters and battery chargers
- Audio and Medical applications

**Advantages**

- Low gate charge results in simple drive requirement
- High power density
- Fast switching

Symbol	Test Conditions ( $T_J = 25^\circ C$ , unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
$BV_{DSS}$	$V_{GS} = 0V$ , $I_D = -250\mu A$	-100		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = -250\mu A$	-2.5		-4.5 V
$I_{GSS}$	$V_{GS} = \pm 20V$ , $V_{DS} = 0V$			$\pm 50$ nA
$I_{DSS}$	$V_{DS} = V_{DSS}$ $V_{GS} = 0V$ $T_J = 125^\circ C$			-3 $\mu A$ -100 $\mu A$
$R_{DS(on)}$	$V_{GS} = -10V$ , $I_D = 0.5 \cdot I_{D25}$ , Note 1			120 m $\Omega$

Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
$g_{fs}$	$V_{DS} = -10V, I_D = 0.5 \cdot I_{D25}$ , Note 1	8	13	S
$C_{iss}$	$V_{GS} = 0V, V_{DS} = -25V, f = 1MHz$		2100	pF
$C_{oss}$			185	pF
$C_{rss}$			80	pF
$t_{d(on)}$	<b>Resistive Switching Times</b> $V_{GS} = -10V, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$ $R_G = 10\Omega$ (External)		19	ns
$t_r$			26	ns
$t_{d(off)}$			44	ns
$t_f$			22	ns
$Q_{g(on)}$	$V_{GS} = -10V, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$		39	nC
$Q_{gs}$			17	nC
$Q_{gd}$			9	nC
$R_{thJC}$				1.5 °C/W
$R_{thCS}$	(TO-220)	0.50		°C/W

### Source-Drain Diode

Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
$I_s$	$V_{GS} = 0V$			-18 A
$I_{SM}$	Repetitive, pulse width limited by $T_{JM}$			-72 A
$V_{SD}$	$I_F = -18A, V_{GS} = 0V$ , Note 1			-1.5 V
$t_{rr}$	$I_F = -9A, -di/dt = -100A/\mu s$ $V_R = -50V, V_{GS} = 0V$		62	ns
$Q_{RM}$			164	nC
$I_{RM}$			-5.3	A

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

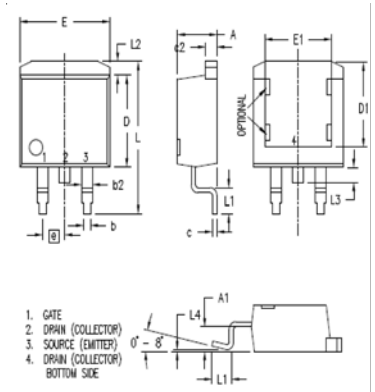
### PRELIMINARY TECHNICAL INFORMATION

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.

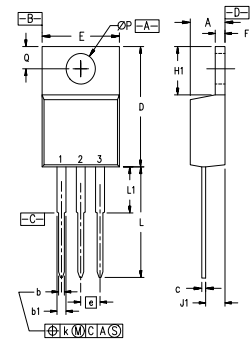
IXYS MOSFETs and IGBTs are covered 4,835,592 4,931,844 5,049,961 5,237,481 6,162,665 6,404,065 B1 6,683,344 6,727,585 7,005,734 B2 7,157,338B2  
by one or more of the following U.S. patents: 4,850,072 5,017,508 5,063,307 5,381,025 6,259,123 B1 6,534,343 6,710,405 B2 6,759,692 7,063,975 B2  
4,881,106 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

### TO-263 (IXTA) Outline

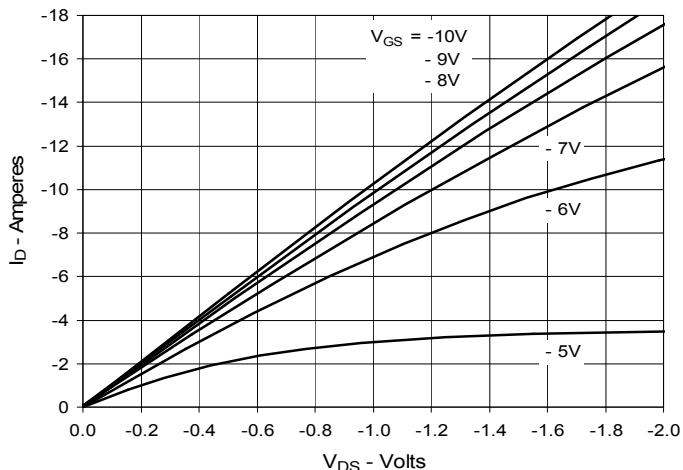


SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.160	.190	4.06	4.83
A1	.080	.110	2.03	2.79
b	.020	.039	0.51	0.99
b2	.045	.055	1.14	1.40
c	.016	.029	0.40	0.74
c2	.045	.055	1.14	1.40
D	.340	.380	8.64	9.65
D1	.315	.350	8.00	8.89
E	.380	.410	9.65	10.41
E1	.245	.320	6.22	8.13
e	.100 BSC		2.54 BSC	
L	.575	.625	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

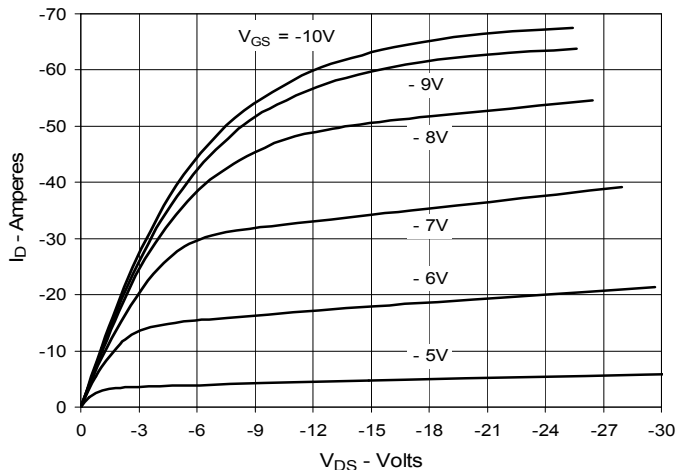
### TO-220 (IXTP) Outline



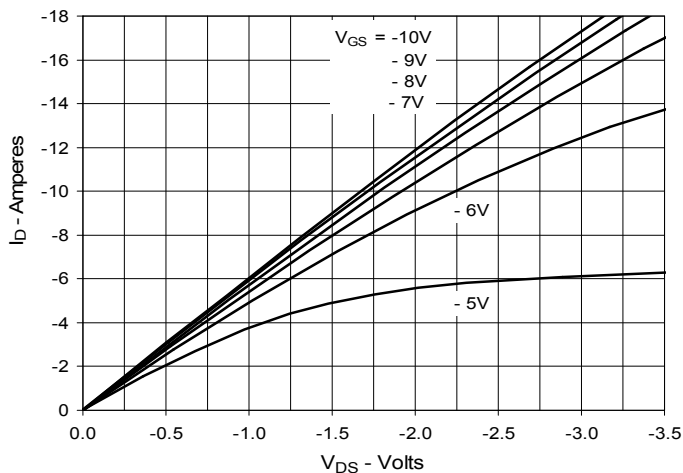
**Fig. 1. Output Characteristics @ 25°C**



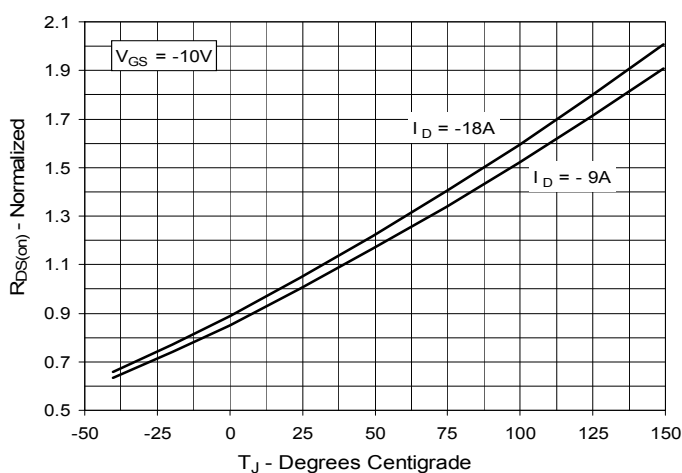
**Fig. 2. Extended Output Characteristics @ 25°C**



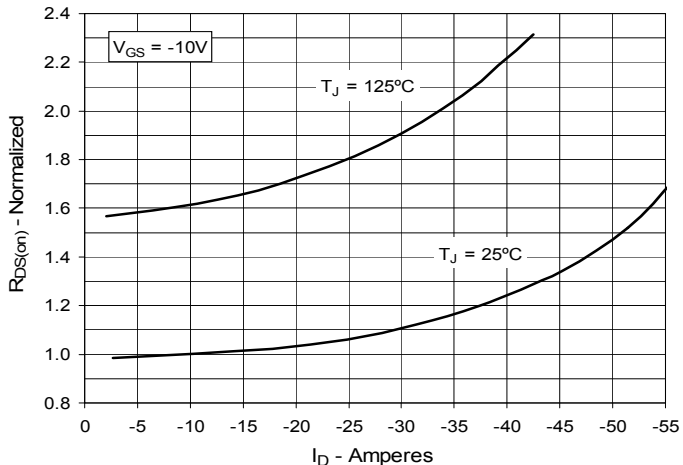
**Fig. 3. Output Characteristics @ 125°C**



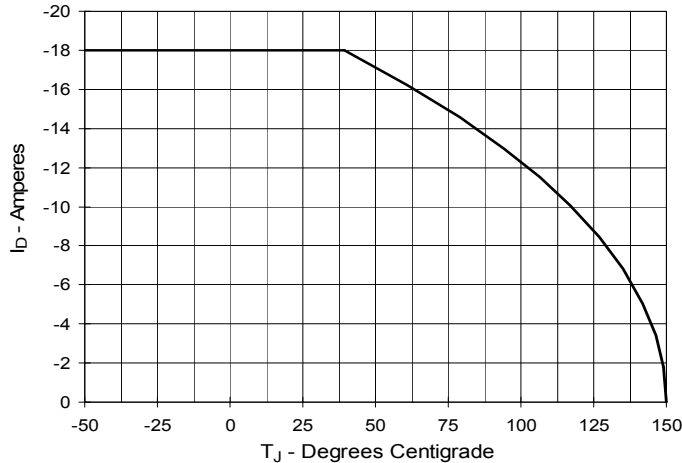
**Fig. 4.  $R_{DS(on)}$  Normalized to  $I_D = -9A$  vs. Junction Temperature**



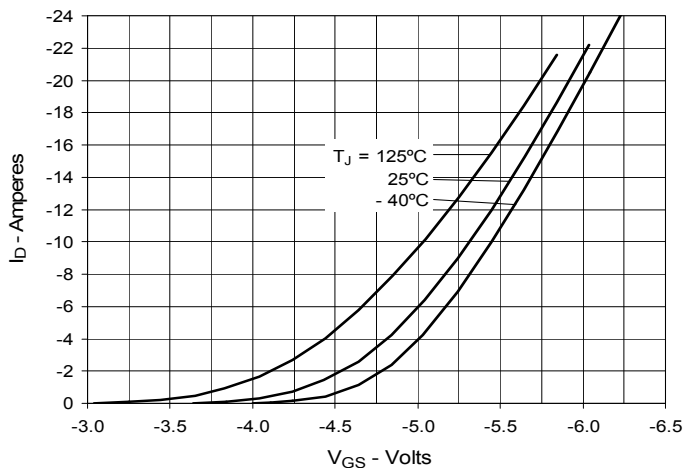
**Fig. 5.  $R_{DS(on)}$  Normalized to  $I_D = -9A$  vs. Drain Current**



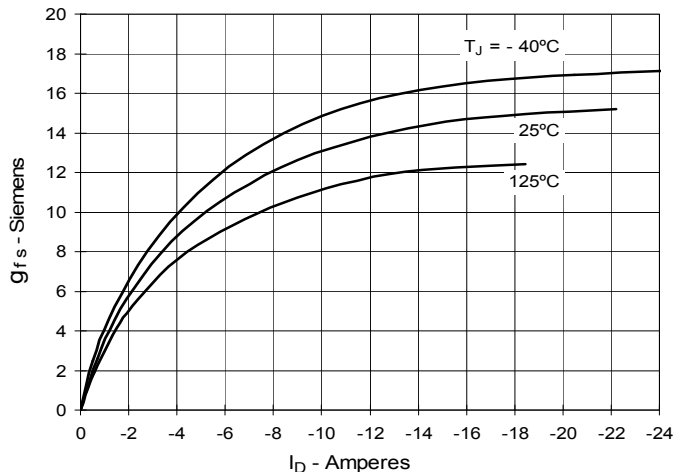
**Fig. 6. Maximum Drain Current vs. Case Temperature**



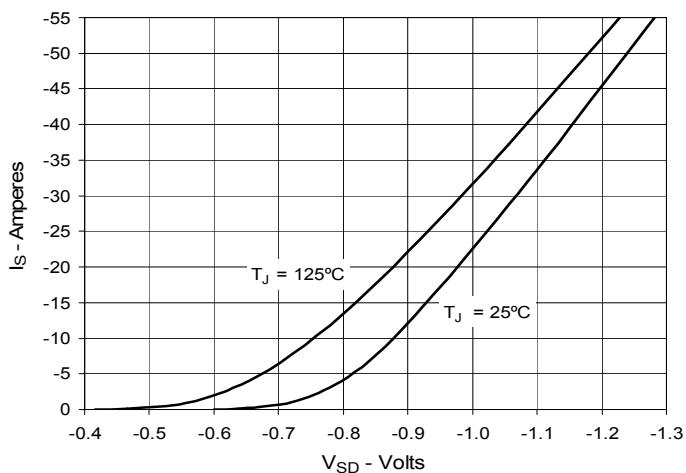
**Fig. 7. Input Admittance**



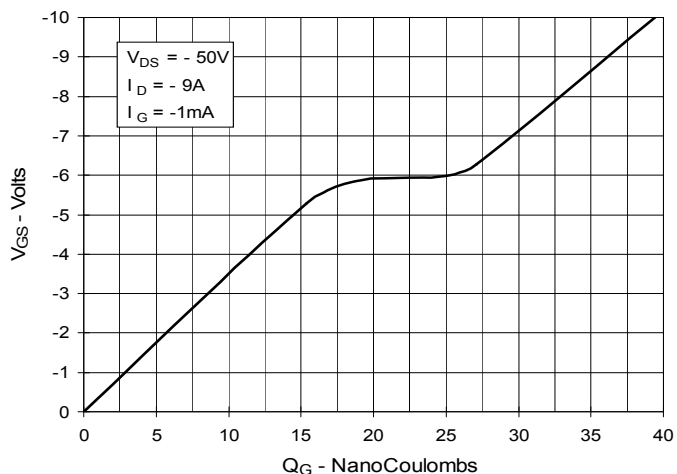
**Fig. 8. Transconductance**



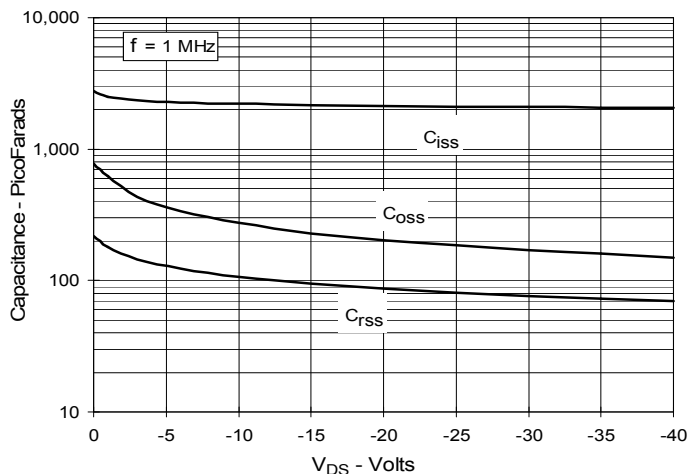
**Fig. 9. Forward Voltage Drop of Intrinsic Diode**



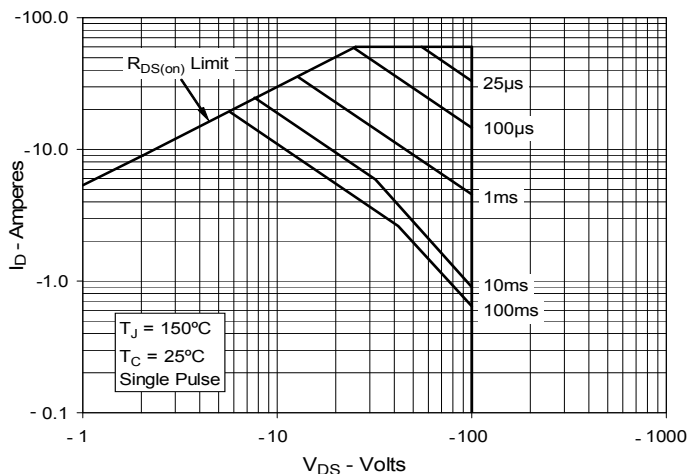
**Fig. 10. Gate Charge**



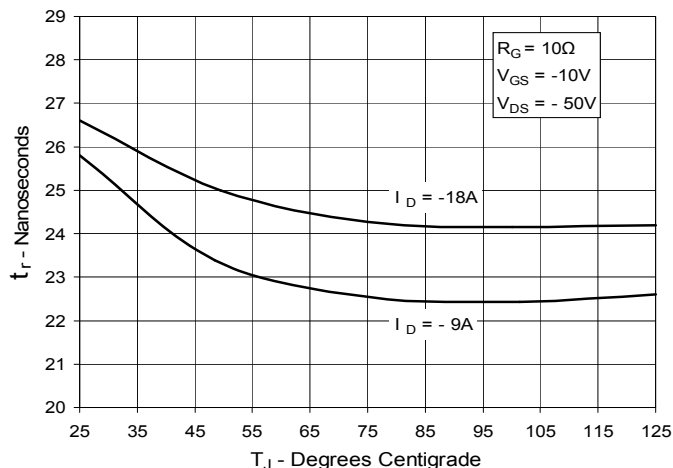
**Fig. 11. Capacitance**



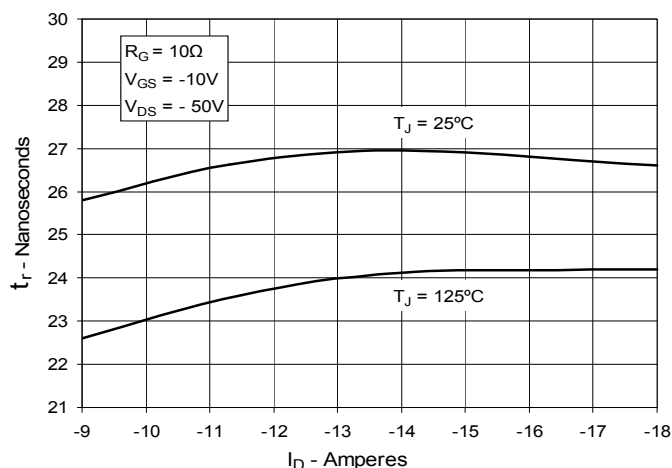
**Fig. 12. Forward-Bias Safe Operating Area**



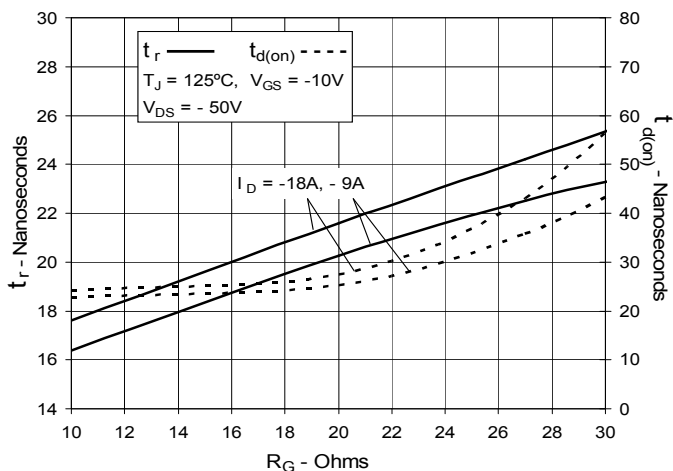
**Fig. 13. Resistive Turn-on  
Rise Time vs. Junction Temperature**



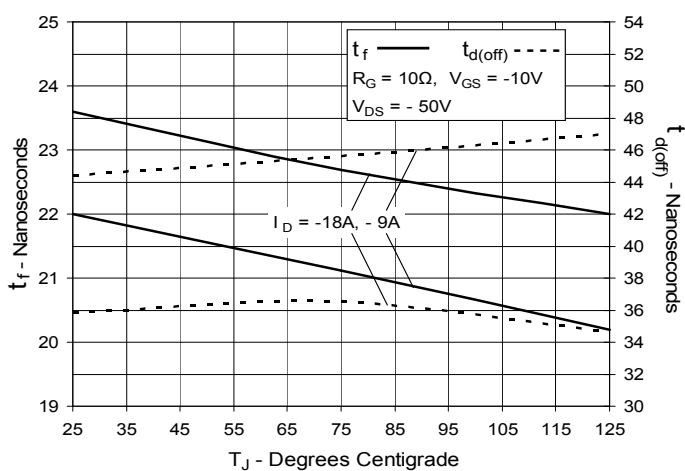
**Fig. 14. Resistive Turn-on  
Rise Time vs. Drain Current**



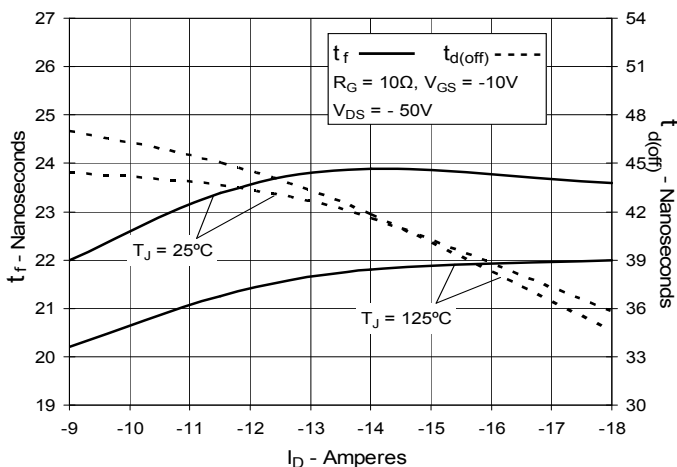
**Fig. 15. Resistive Turn-on  
Switching Times vs. Gate Resistance**



**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**

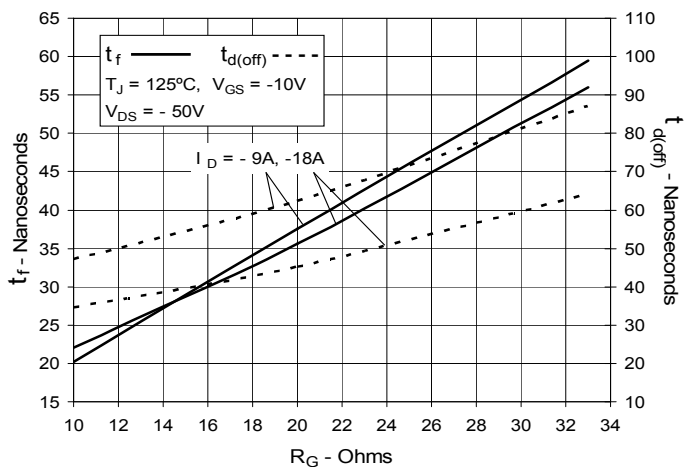


Fig. 19. Maximum Transient Thermal Impedance

