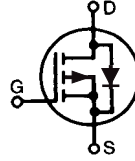


TrenchP™ Power MOSFETs

IXTA24P085T
IXTP24P085T

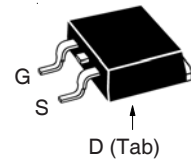
V_{DSS} = - 85V
I_{D25} = - 24A
R_{DS(on)} ≤ 65mΩ

P-Channel Enhancement Mode
Avalanche Rated

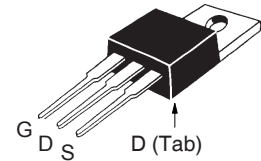


Symbol	Test Conditions	Maximum Ratings	
V _{DSS}	T _J = 25°C to 150°C	- 85	V
V _{DGR}	T _J = 25°C to 150°C, R _{GS} = 1MΩ	- 85	V
V _{GSS}	Continuous	±15	V
V _{GSM}	Transient	±25	V
I _{D25}	T _C = 25°C	- 24	A
I _{DM}	T _C = 25°C, Pulse Width Limited by T _{JM}	- 80	A
I _A	T _C = 25°C	- 24	A
E _{AS}	T _C = 25°C	200	mJ
P _D	T _C = 25°C	83	W
T _J		-55 ... +150	°C
T _{JM}		150	°C
T _{stg}		-55 ... +150	°C
T _L	1.6mm (0.062 in.) from Case for 10s	300	°C
T _{SOLD}	Plastic Body for 10s	260	°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 AA (IXTA)



TO-220AB (IXTP)



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

Features

- International Standard Packages
- Avalanche Rated
- Extended FBSOA
- Fast Intrinsic Diode
- Low R_{DS(ON)} and Q_G

Advantages

- Easy to Mount
- Space Savings
- High Power Density

Applications

- High-Side Switching
- Push Pull Amplifiers
- DC Choppers
- Automatic Test Equipment
- Current Regulators
- Battery Charger Applications

Symbol	Test Conditions (T _J = 25°C, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV _{DSS}	V _{GS} = 0V, I _D = - 250μA	- 85		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = - 250μA	- 2.5		V
I _{GSS}	V _{GS} = ±15V, V _{DS} = 0V			±50 nA
I _{DSS}	V _{DS} = V _{DSS} , V _{GS} = 0V T _J = 125°C			- 3 μA -100 μA
R _{DS(on)}	V _{GS} = -10V, I _D = 0.5 • I _{D25} , Note 1			65 mΩ

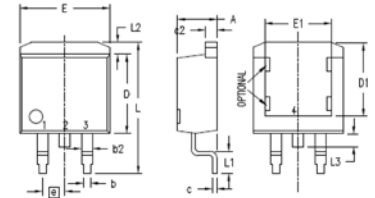
Symbol	Test Conditions (T _J = 25°C, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
g _{fs}	V _{DS} = -10V, I _D = 0.5 • I _{D25} , Note 1	10	16	S
C _{iss}	V _{GS} = 0V, V _{DS} = -25V, f = 1MHz		2090	pF
C _{oss}			243	pF
C _{rss}			117	pF
t _{d(on)}	Resistive Switching Times V _{GS} = -10V, V _{DS} = 0.5 • V _{DSS} , I _D = 0.5 • I _{D25} R _G = 10Ω (External)		18	ns
t _r			26	ns
t _{d(off)}			53	ns
t _f			26	ns
Q _{g(on)}	V _{GS} = -10V, V _{DS} = 0.5 • V _{DSS} , I _D = 0.5 • I _{D25}		41	nC
Q _{gs}			17	nC
Q _{gd}			11	nC
R _{thJC}				1.5 °C/W
R _{thCS}	TO-220	0.50		°C/W

Source-Drain Diode

Symbol	Test Conditions (T _J = 25°C, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
I _s	V _{GS} = 0V			-24 A
I _{SM}	Repetitive, Pulse Width Limited by T _{JM}			-96 A
V _{SD}	I _F = -24A, V _{GS} = 0V, Note 1			-1.5 V
t _{rr}	I _F = -12A, -di/dt = -100A/μs V _R = -43V, V _{GS} = 0V		40	ns
Q _{RM}			72	nC
I _{RM}			-3.6	A

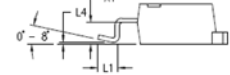
Note 1. Pulse test, t ≤ 300μs, duty cycle, d ≤ 2%.

TO-263 Outline



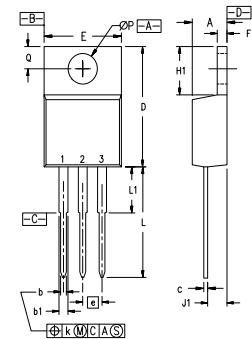
Pins:

- 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-220 Outline



- Pins: 1 - Gate 2 - Drain
3 - Source

SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.170	.190	4.32	4.83
b	.025	.040	0.64	1.02
b1	.045	.065	1.15	1.65
c	.014	.022	0.35	0.56
D	.580	.630	14.73	16.00
E	.390	.420	9.91	10.66
e	.100 BSC		2.54 BSC	
F	.045	.055	1.14	1.40
H1	.230	.270	5.85	6.85
J1	.090	.110	2.29	2.79
k	0	.015	0	0.38
L	.500	.550	12.70	13.97
L1	.110	.230	2.79	5.84
∅P	.139	.161	3.53	4.08
Q	.100	.125	2.54	3.18

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
	4,860,072	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 @ $T_J = 25^\circ\text{C}$

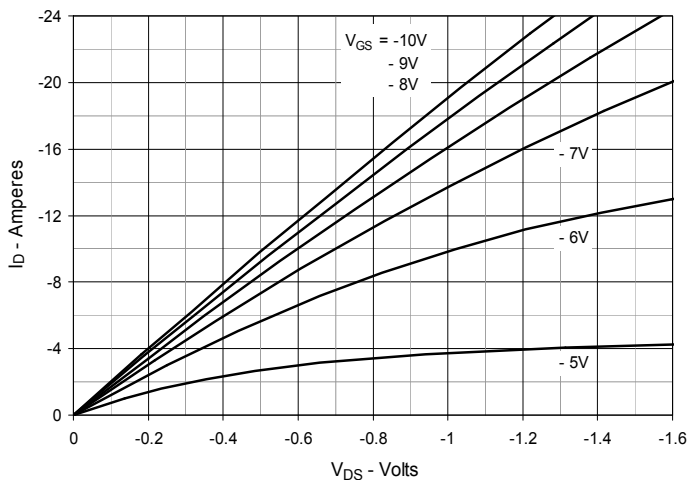


Fig. 2. Extended Output Characteristics @ $T_J = 25^\circ\text{C}$

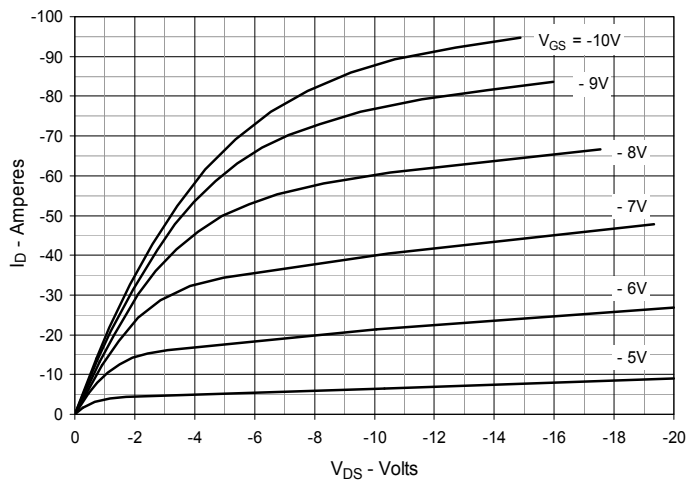


Fig. 3. Output Characteristics @ $T_J = 125^\circ\text{C}$

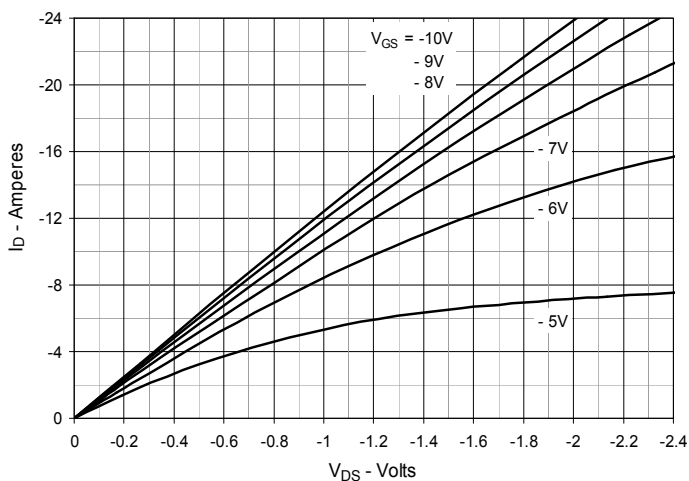


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = -12\text{A}$ Value vs. Junction Temperature

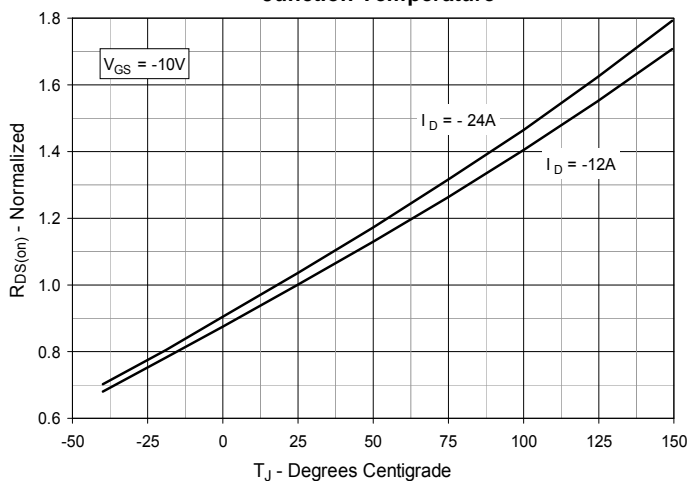


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = -12\text{A}$ Value vs. Drain Current

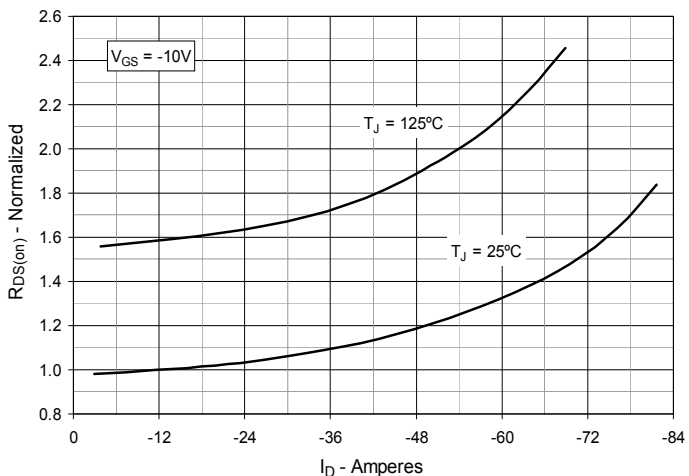


Fig. 6. Maximum Drain Current vs. Case Temperature

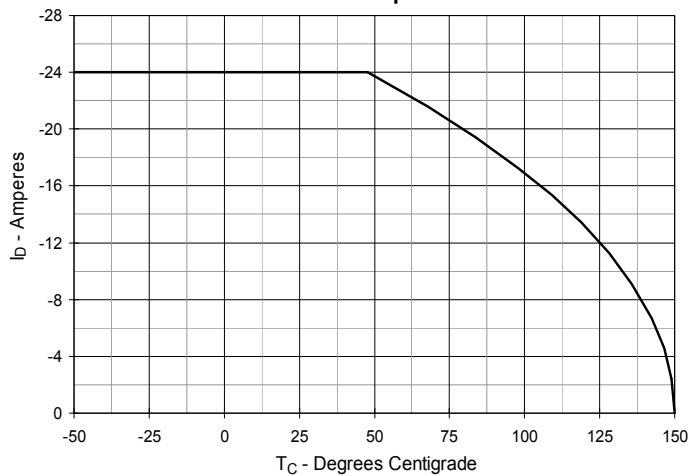


Fig. 7. Input Admittance

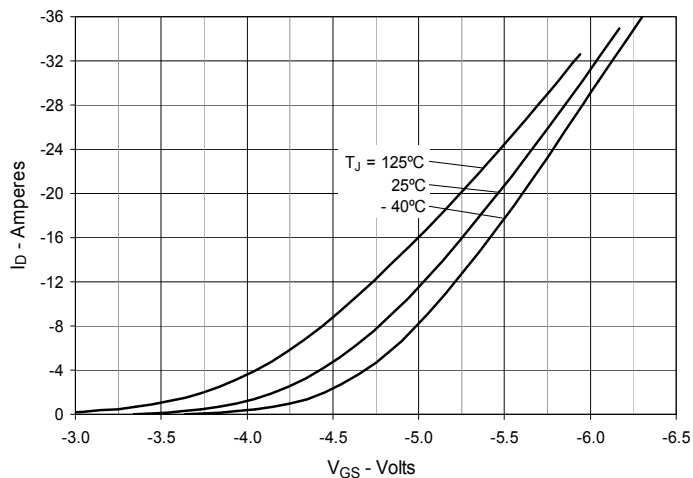


Fig. 8. Transconductance

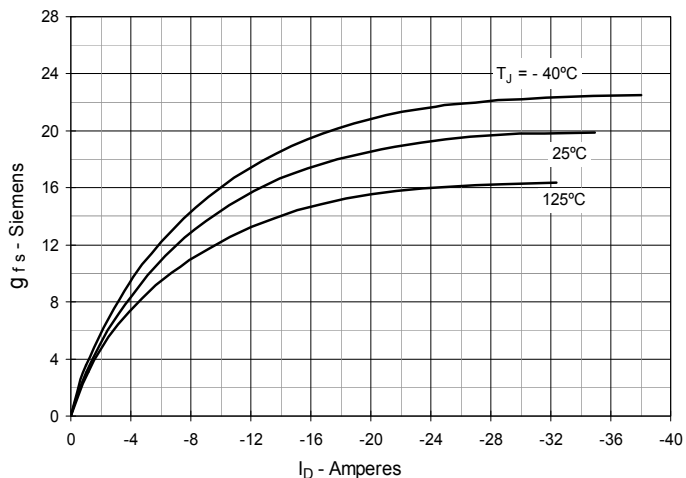


Fig. 9. Forward Voltage Drop of Intrinsic Diode

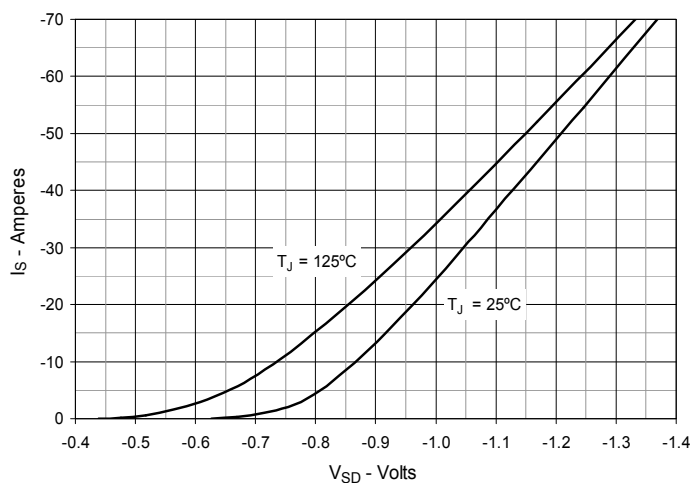


Fig. 10. Gate Charge

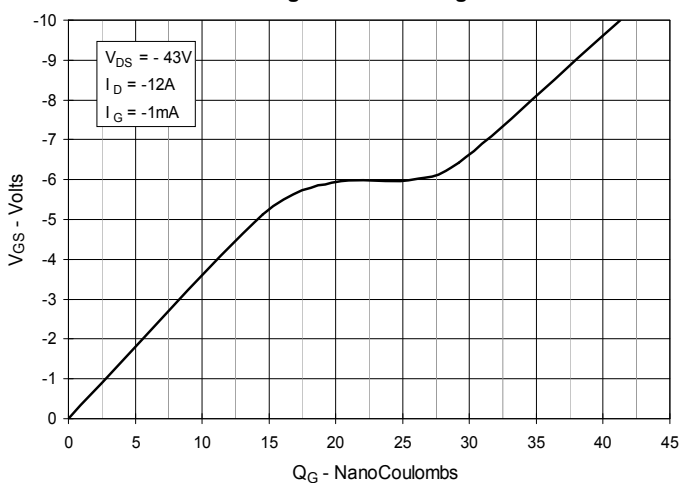


Fig. 11. Capacitance

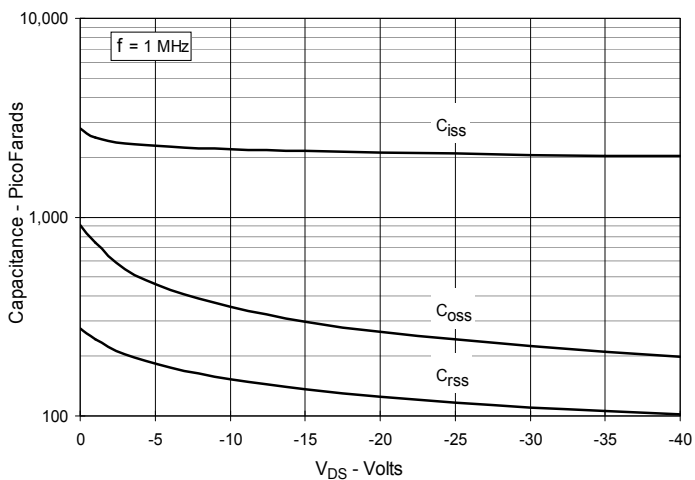


Fig. 12. Forward-Bias Safe Operating Area

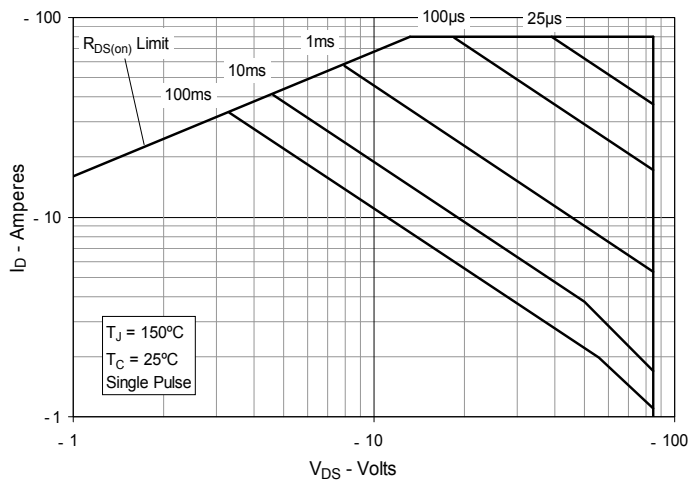


Fig. 13. Resistive Turn-on Rise Time vs. Junction Temperature

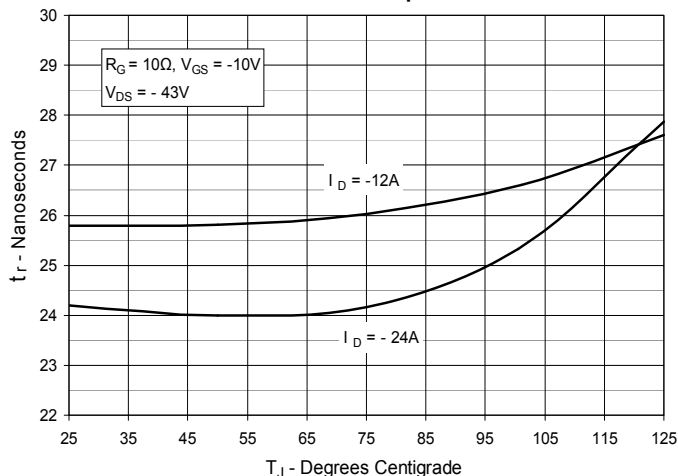


Fig. 14. Resistive Turn-on Rise Time vs. Drain Current

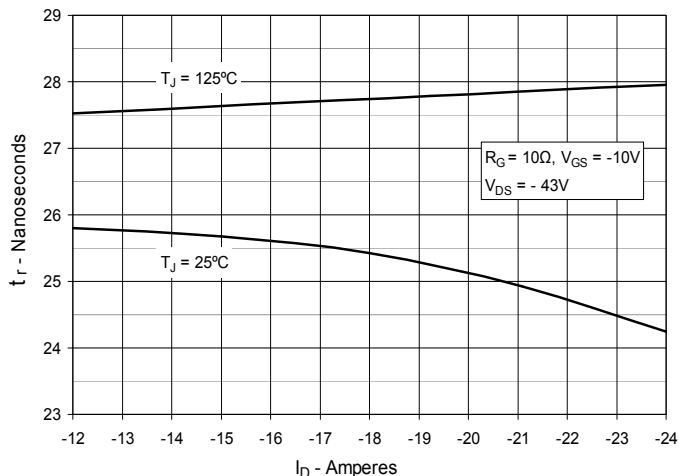


Fig. 15. Resistive Turn-on Switching Times vs. Gate Resistance

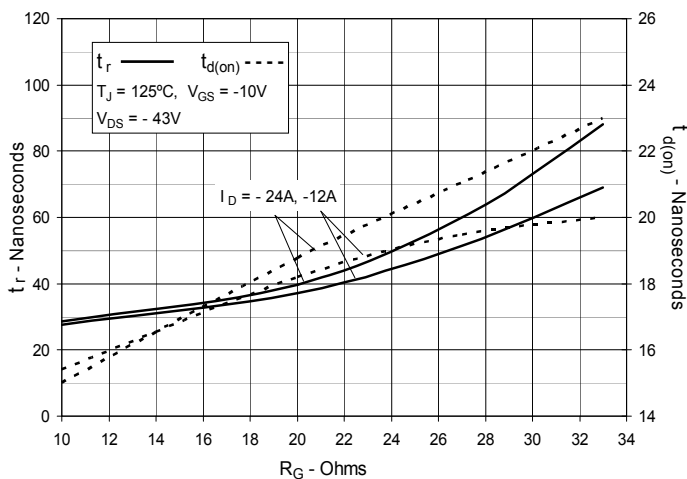


Fig. 16. Resistive Turn-off Switching Times vs. Junction Temperature

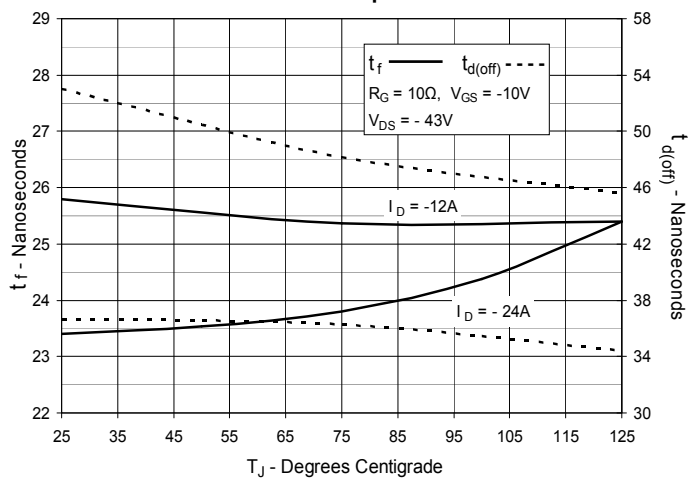


Fig. 17. Resistive Turn-off Switching Times vs. Drain Current

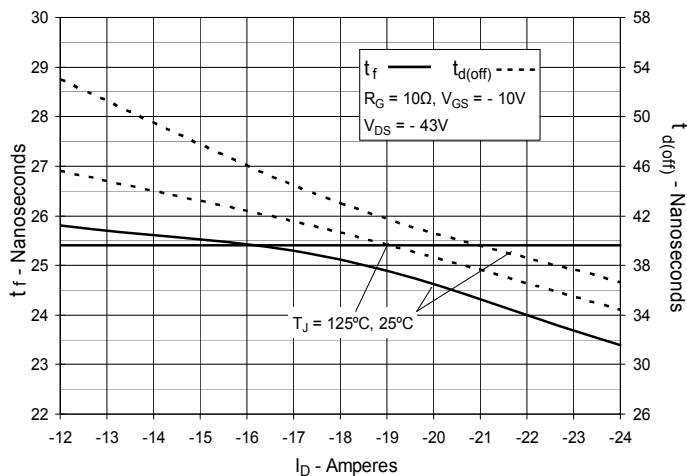


Fig. 18. Resistive Turn-off Switching Times vs. Gate Resistance

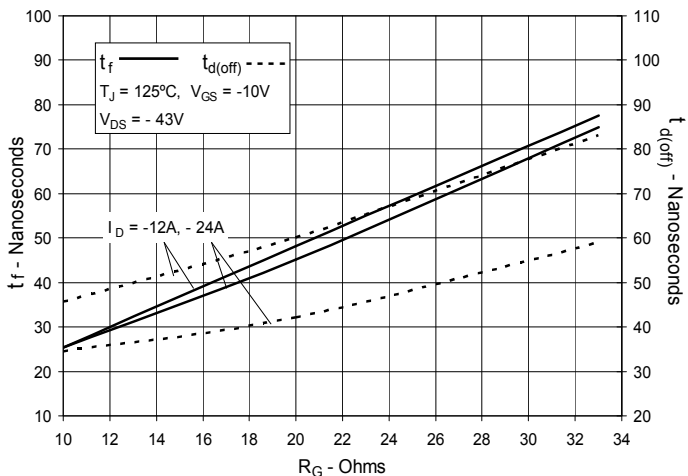
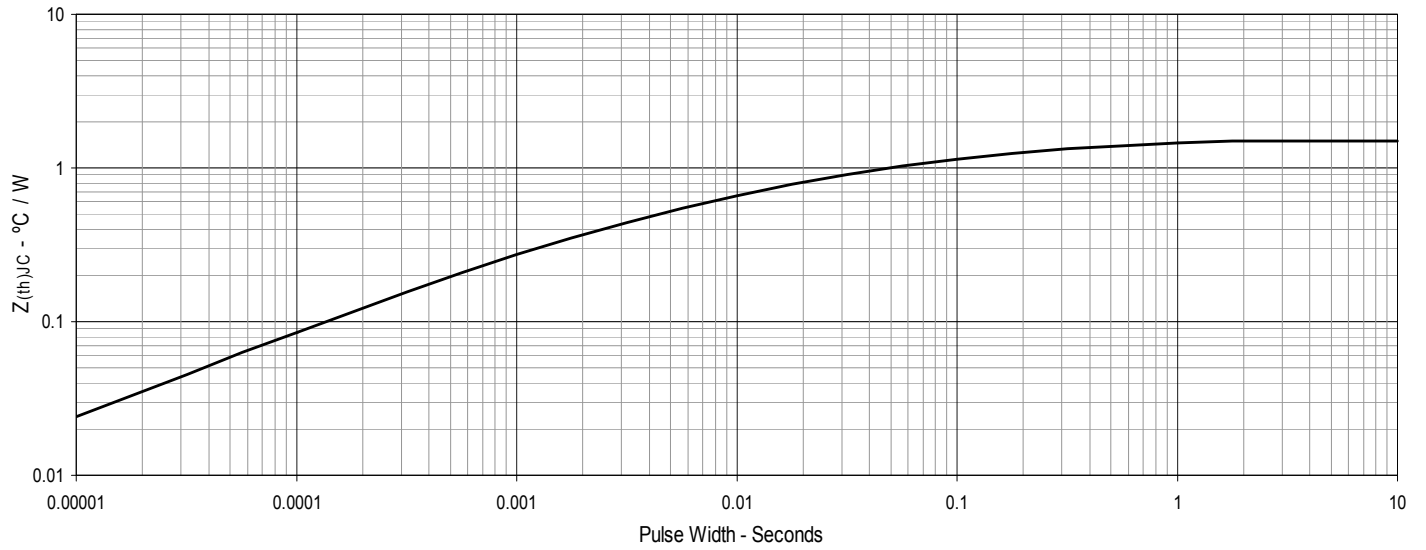


Fig. 19. Maximum Transient Thermal Impedance





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