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[IXTA160N10T7](#)

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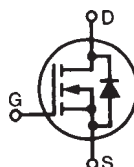
sales@integrated-circuit.com

TrenchMV™ Power MOSFET

IXTA160N10T7

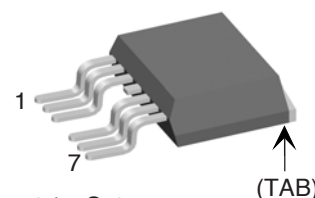
$V_{DSS} = 100 \text{ V}$
 $I_{D25} = 160 \text{ A}$
 $R_{DS(on)} \leq 7.0 \text{ m}\Omega$

N-Channel Enhancement Mode
Avalanche Rated



Symbol	Test Conditions	Maximum Ratings	
V_{DSS}	$T_J = 25^\circ\text{C}$ to 175°C	100	V
V_{DGR}	$T_J = 25^\circ\text{C}$ to 175°C ; $R_{GS} = 1 \text{ M}\Omega$	100	V
V_{GSM}	Transient	± 30	V
I_{D25}	$T_C = 25^\circ\text{C}$	160	A
I_{LRMS}	Lead Current Limit, RMS	120	A
I_{DM}	$T_C = 25^\circ\text{C}$, pulse width limited by T_{JM}	430	A
I_{AR}	$T_C = 25^\circ\text{C}$	25	A
E_{AS}	$T_C = 25^\circ\text{C}$	500	mJ
dv/dt	$I_S \leq I_{DM}$, $di/dt \leq 100 \text{ A}/\mu\text{s}$, $V_{DD} \leq V_{DSS}$ $T_J \leq 175^\circ\text{C}$, $R_G = 5 \Omega$	3	V/ns
P_D	$T_C = 25^\circ\text{C}$	430	W
T_J		-55 ... +175	$^\circ\text{C}$
T_{JM}		175	$^\circ\text{C}$
T_{stg}		-55 ... +175	$^\circ\text{C}$
T_L	1.6 mm (0.062 in.) from case for 10 s	300	$^\circ\text{C}$
T_{SOLD}	Plastic body for 10 seconds	260	$^\circ\text{C}$
Weight		3	g

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



Pin-out: 1 - Gate
 2, 3 - Source
 4 - NC (cut)
 5,6,7 - Source
 TAB (8) - Drain

Features

- Ultra-low On Resistance
- Unclamped Inductive Switching (UIS) rated
- Low package inductance
- easy to drive and to protect
- 175 °C Operating Temperature

Advantages

- Easy to mount
- Space savings
- High power density

Applications

- Automotive
- Motor Drives
- 42V Power Bus
- ABS Systems
- DC/DC Converters and Off-line UPS
- Primary Switch for 24V and 48V Systems
- Distributed Power Architectures and VRMs
- Electronic Valve Train Systems
- High Current Switching Applications
- High Voltage Synchronous Rectifier

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0 \text{ V}$, $I_D = 250 \mu\text{A}$	100		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 1 \text{ mA}$	2.5		V
I_{GSS}	$V_{GS} = \pm 20 \text{ V}$, $V_{DS} = 0 \text{ V}$			$\pm 200 \text{ nA}$
I_{DSS}	$V_{DS} = V_{DSS}$ $V_{GS} = 0 \text{ V}$ $T_J = 150^\circ\text{C}$			5 μA 250 μA
$R_{DS(on)}$	$V_{GS} = 10 \text{ V}$, $I_D = 25 \text{ A}$, Notes 1	5.8	7.0	m Ω

Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
$(T_j = 25^\circ\text{C unless otherwise specified})$				
g_{fs}	$V_{DS} = 10\text{ V}; I_D = 60\text{ A, Note 1}$	65	102	S
C_{iss}			6600	pF
C_{oss}	$V_{GS} = 0\text{ V}, V_{DS} = 25\text{ V}, f = 1\text{ MHz}$		880	pF
C_{rss}			135	pF
$t_{d(on)}$	Resistive Switching Times		33	ns
t_r	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 25\text{ A}$		61	ns
$t_{d(off)}$	$R_G = 5\ \Omega$ (External)		49	ns
t_f			42	ns
$Q_{g(on)}$			132	nC
Q_{gs}	$V_{GS} = 10\text{ V}, V_{DS} = 0.5 V_{DSS}, I_D = 25\text{ A}$		37	nC
Q_{gd}			40	nC
R_{thJC}				0.35°C/W

Source-Drain Diode

Symbol	Test Conditions	Characteristic Values		
		Min.	Typ.	Max.
$T_j = 25^\circ\text{C unless otherwise specified})$				
I_s	$V_{GS} = 0\text{ V}$			160 A
I_{SM}	Pulse width limited by T_{JM}			430 A
V_{SD}	$I_F = 25\text{ A}, V_{GS} = 0\text{ V, Note 1}$			1.0 V
t_{rr}	$I_F = 25\text{ A}, -di/dt = 100\text{ A}/\mu\text{s}$ $V_R = 50\text{ V}, V_{GS} = 0\text{ V}$		100	ns

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

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

Pins: 1 - Gate
 2, 3 - Source
 4 - Drain
 5,6,7 - Source
 Tab (8) - Drain

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

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.

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Fig. 1. Output Characteristics
@ 25°C

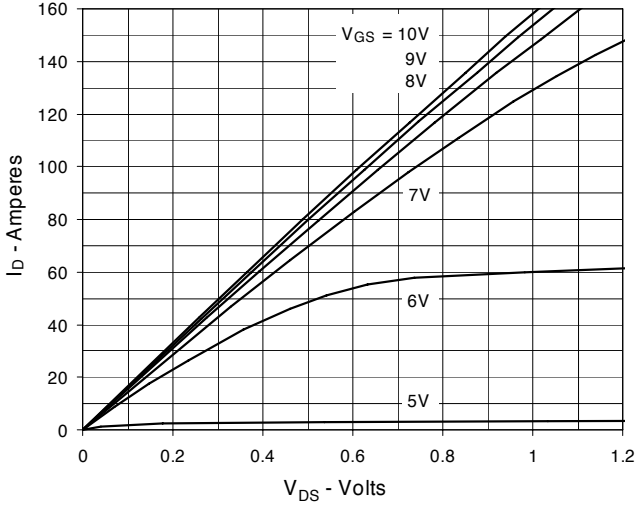


Fig. 2. Extended Output Characteristics
@ 25°C

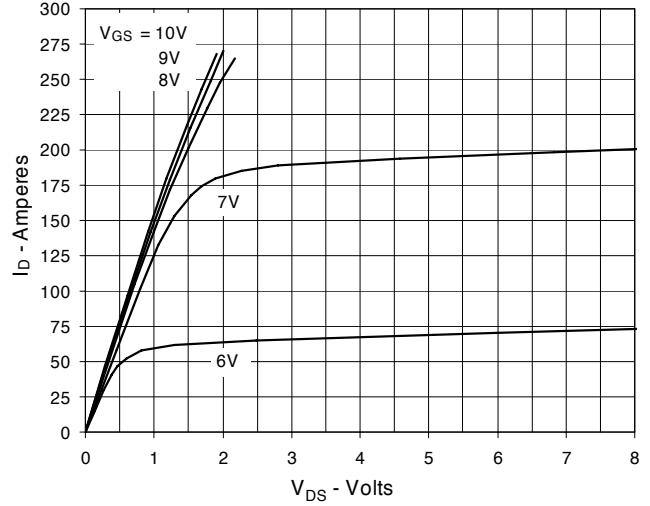


Fig. 3. Output Characteristics
@ 150°C

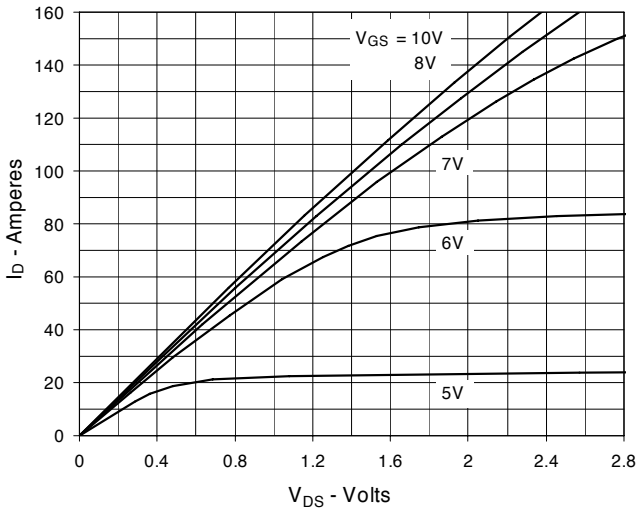


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 160A$ Value vs. Junction Temperature

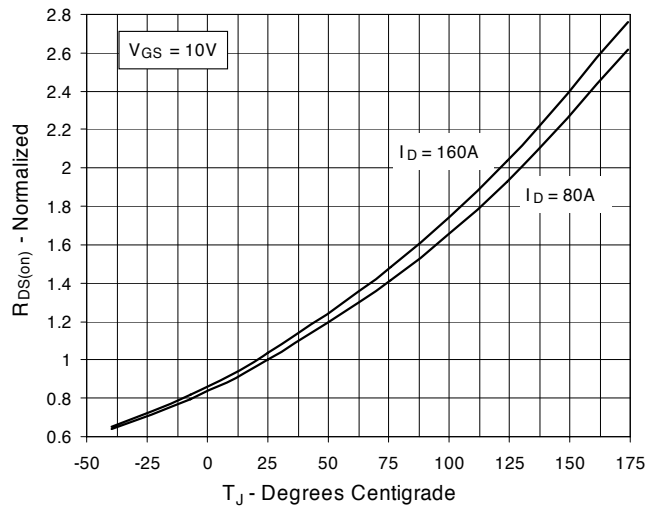


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 80A$ Value vs. Drain Current

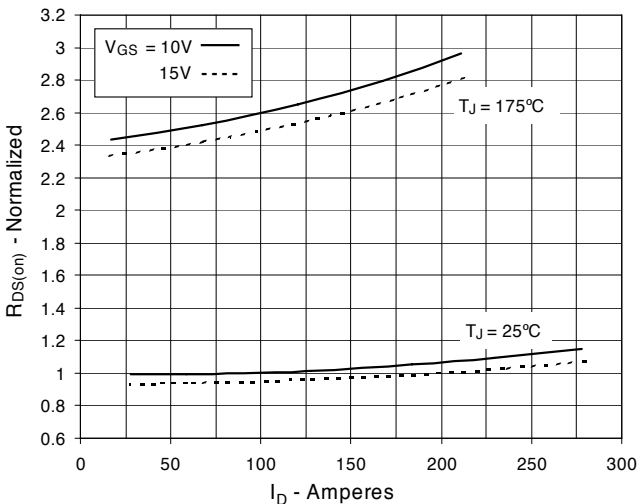


Fig. 6. Drain Current vs. Case Temperature

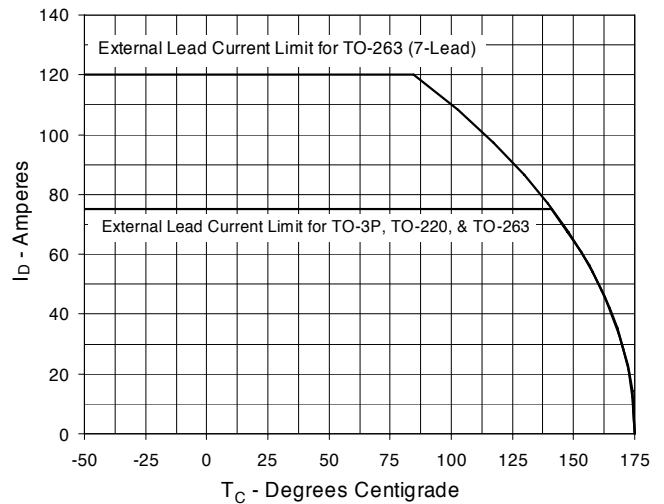


Fig. 7. Input Admittance

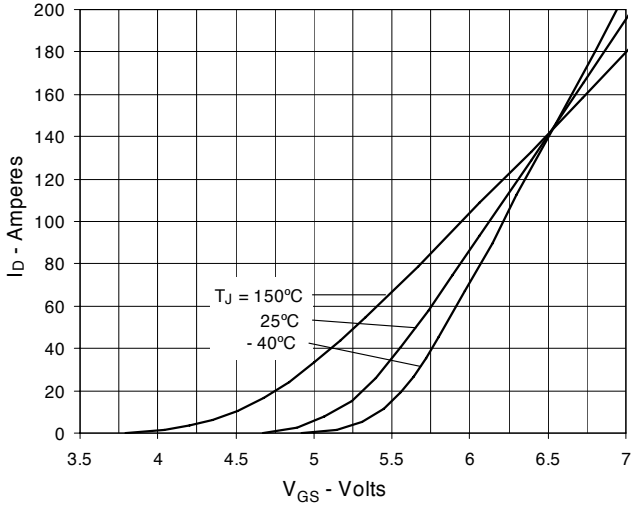


Fig. 8. Transconductance

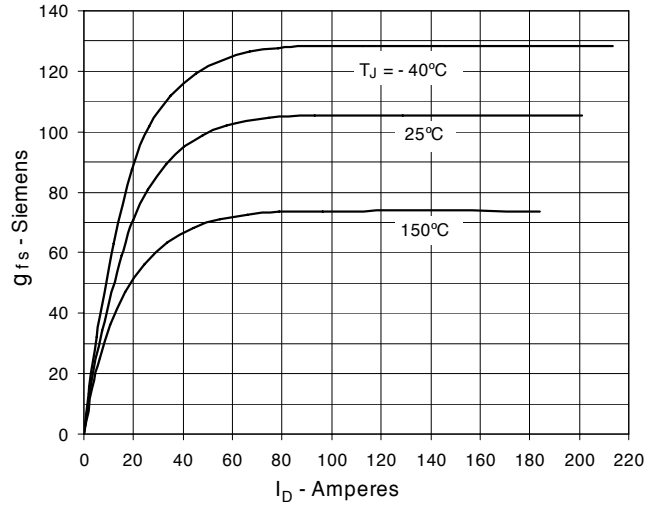


Fig. 9. Forward Voltage Drop of Intrinsic Diode

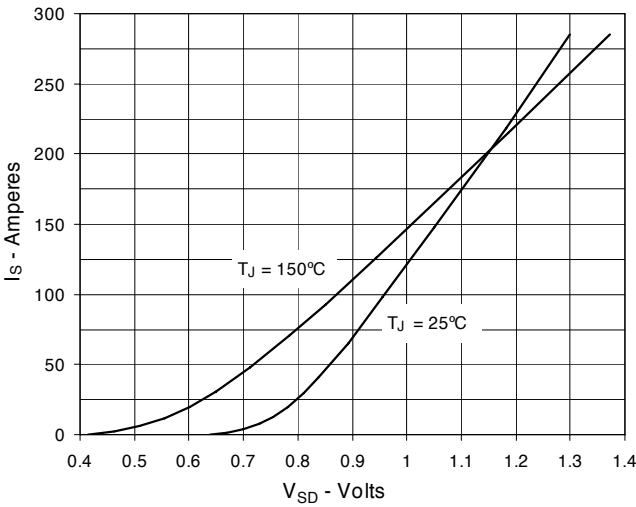


Fig. 10. Gate Charge

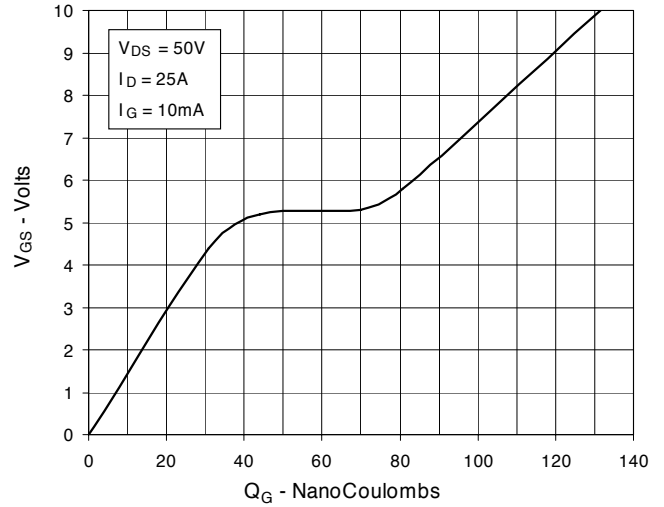


Fig. 11. Capacitance

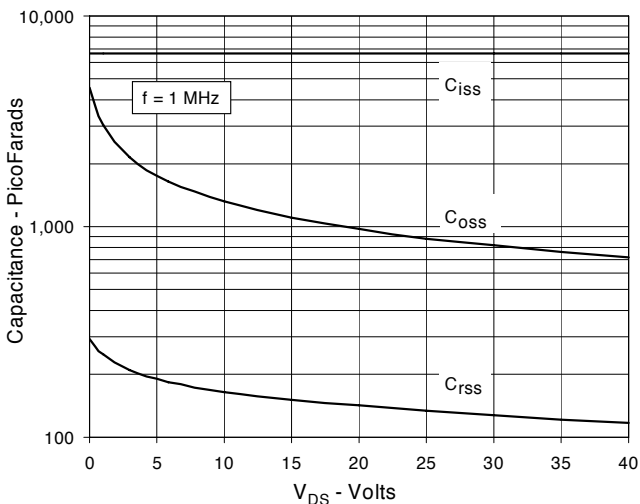


Fig. 12. Maximum Transient Thermal Impedance

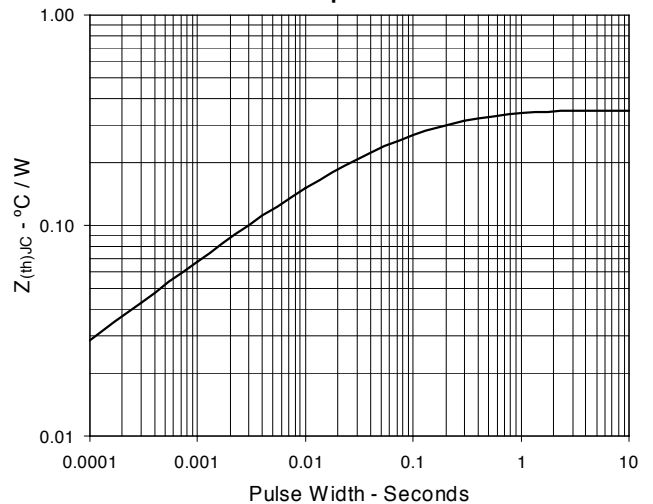


Fig. 13. Resistive Turn-on Rise Time vs. Junction Temperature

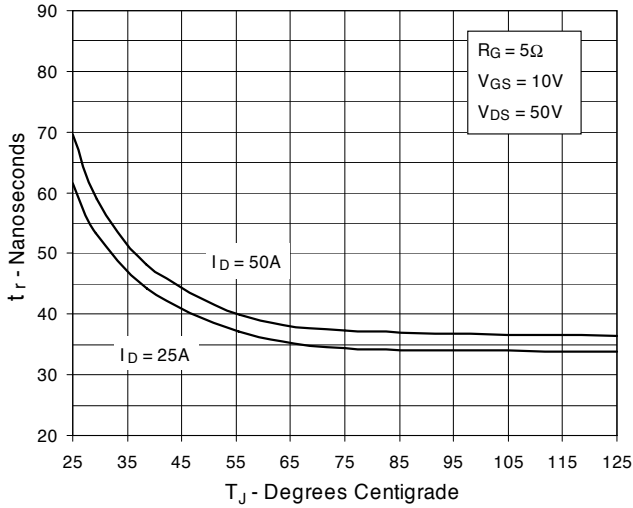


Fig. 14. Resistive Turn-on Rise Time vs. Drain Current

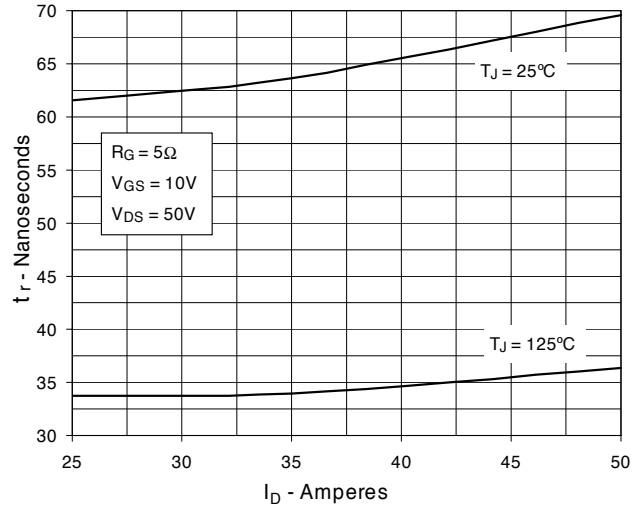


Fig. 15. Resistive Turn-on Switching Times vs. Gate Resistance

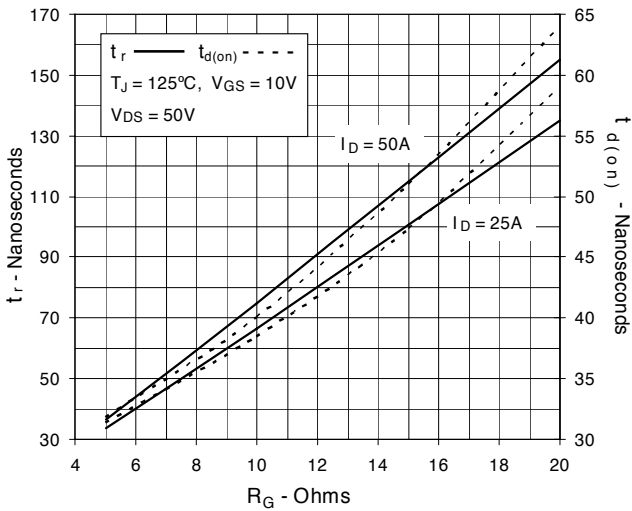


Fig. 16. Resistive Turn-off Switching Times vs. Junction Temperature

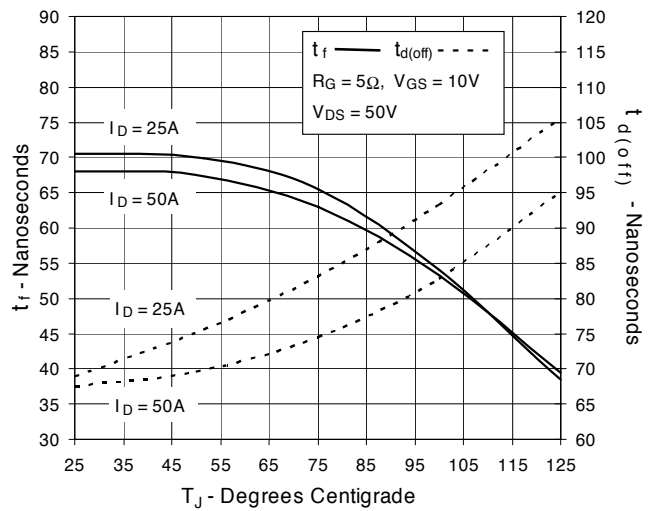


Fig. 17. Resistive Turn-off Switching Times vs. Drain Current

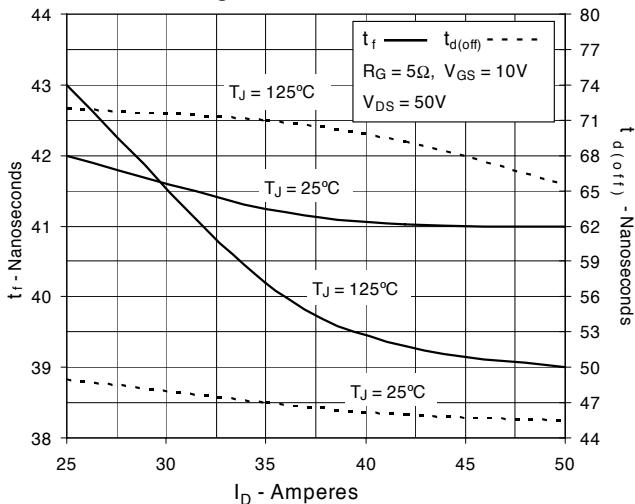


Fig. 18. Resistive Turn-off Switching Times vs. Gate Resistance

