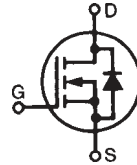


**Trench™
Power MOSFET**

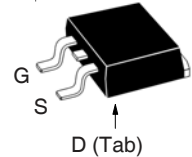
**IXTA80N10T
IXTP80N10T**

V_{DSS} = 100V
I_{D25} = 80A
R_{DS(on)} ≤ 14mΩ

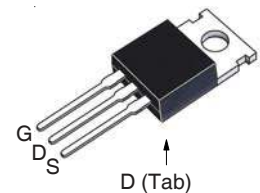
N-Channel Enhancement Mode
Avalanche Rated



**TO-263
(IXTA)**



**TO-220
(IXTP)**



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

Symbol	Test Conditions	Maximum Ratings	
V _{DSS}	T _J = 25°C to 175°C	100	V
V _{DGR}	T _J = 25°C to 175°C, R _{GS} = 1MΩ	100	V
V _{GSS}	Continuous	± 20	V
V _{GSM}	Transient	± 30	V
I _{D25}	T _C = 25°C	80	A
I _{DM}	T _C = 25°C, Pulse Width Limited by T _{JM}	220	A
I _A	T _C = 25°C	25	A
E _{AS}	T _C = 25°C	400	mJ
dv/dt	I _S ≤ I _{DM} , V _{DD} ≤ V _{DSS} , T _J ≤ 175°C	10	V/ns
P _D	T _C = 25°C	230	W
T _J		-55 ... +175	°C
T _{JM}		175	°C
T _{stg}		-55 ... +175	°C
T _L	Maximum Lead Temperature for Soldering	300	°C
T _{SOLD}	1.6 mm (0.062in.) from Case for 10s	260	°C
F _C	Mounting Force (TO-263)	10..65 / 2.2..14.6	N/lb
M _d	Mounting Torque (TO-220)	1.13 / 10	Nm/lb.in
Weight	TO-263	2.5	g
	TO-220	3.0	g

Features

- Ultra-Low On Resistance
- Avalanche Rated
- Low Package Inductance
 - Easy to Drive and to Protect
- 175°C Operating Temperature
- Fast Intrinsic Diode

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°C Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
BV _{DSS}	V _{GS} = 0V, I _D = 250μA	105		V
V _{GS(th)}	V _{DS} = V _{GS} , I _D = 50μA	2.5		4.5 V
I _{GSS}	V _{GS} = ± 20V, V _{DS} = 0V			±200 nA
I _{DSS}	V _{DS} = 105V, V _{GS} = 0V T _J = 150°C			5 μA
				150 μA
R _{DS(on)}	V _{GS} = 10V, I _D = 25A, Notes 1 & 2			14 mΩ

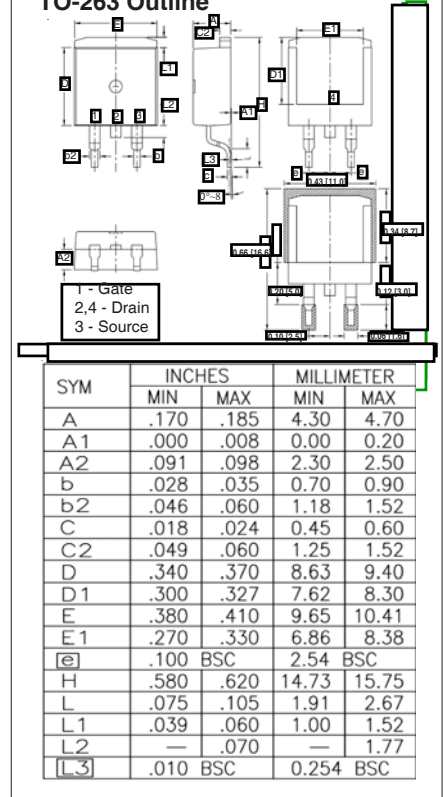
Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 10\text{V}$, $I_D = 40\text{A}$, Note 1	33	55	S
C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$		3040	pF
C_{oss}			420	pF
C_{rss}			90	pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 10\text{A}$ $R_G = 15\Omega$ (External)		31	ns
t_r			54	ns
$t_{d(off)}$			40	ns
t_f			48	ns
$Q_{g(on)}$	$V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 10\text{A}$		60	nC
Q_{gs}			21	nC
Q_{gd}			15	nC
R_{thJC}	TO-220	0.50	0.65 °C/W	
R_{thCH}			°C/W	

Source-Drain Diode

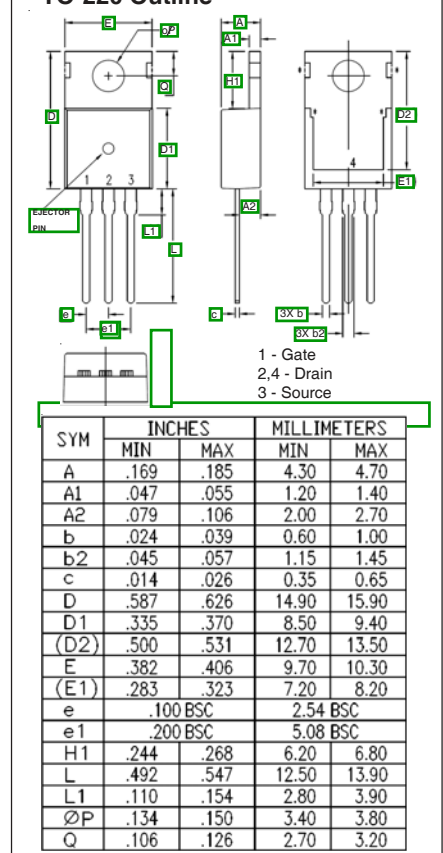
Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
I_S	$V_{GS} = 0\text{V}$			80 A
I_{SM}	Repetitive, Pulse Width Limited by T_{JM}			220 A
V_{SD}	$I_F = 25\text{A}$, $V_{GS} = 0\text{V}$, Note 1			1.1 V
t_{rr}	$I_F = 25\text{A}$, $V_{GS} = 0\text{V}$ $-di/dt = 100\text{A}/\mu\text{s}$, $V_R = 50\text{V}$		100	ns

- 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.

TO-263 Outline



TO-220 Outline



IXYS reserves the right to change limits, test conditions, and dimensions.

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

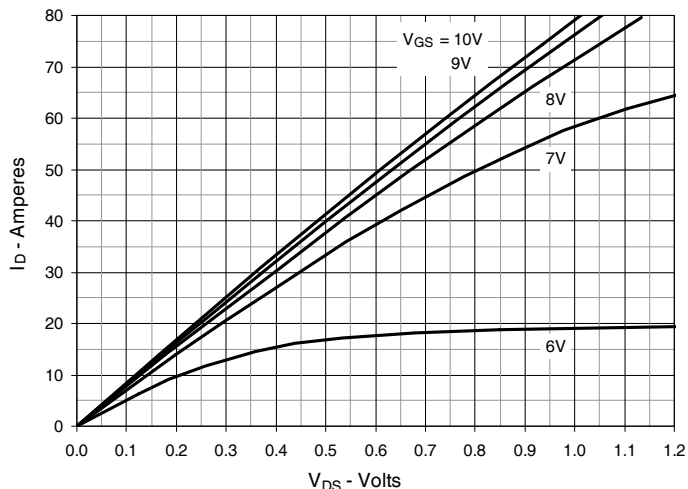


Fig. 2. Extended Output Characteristics @ $T_J = 25^\circ\text{C}$

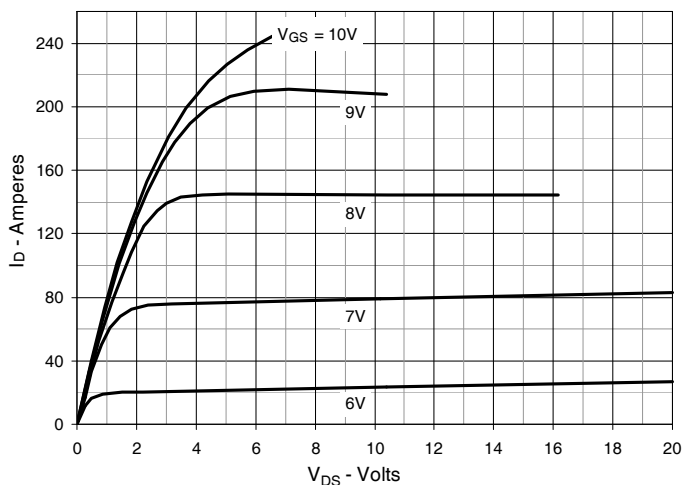


Fig. 3. Output Characteristics @ $T_J = 150^\circ\text{C}$

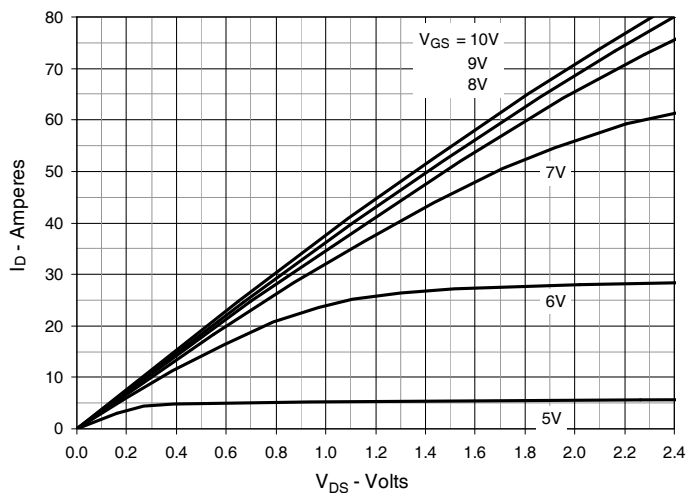


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 40\text{A}$ Value vs. Junction Temperature

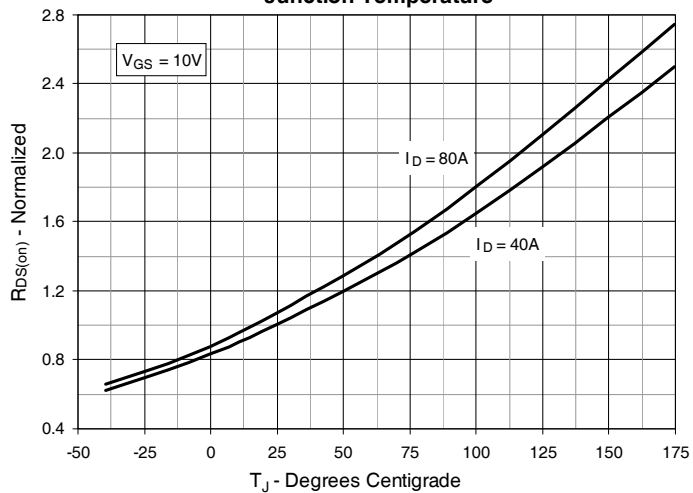


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 40\text{A}$ Value vs. Drain Current

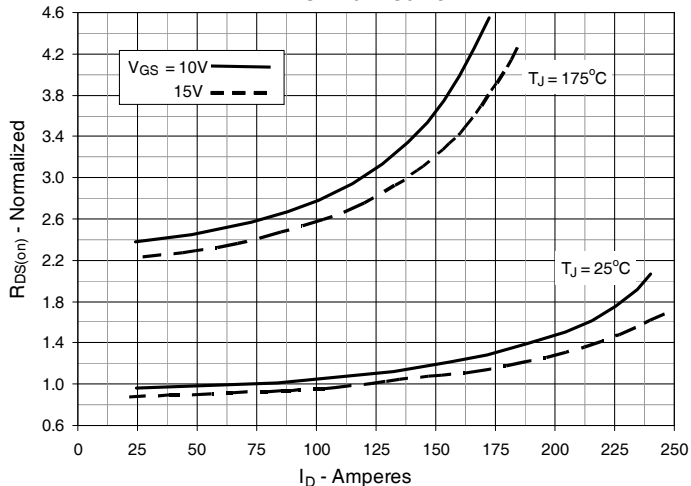


Fig. 6. Drain Current vs. Case Temperature

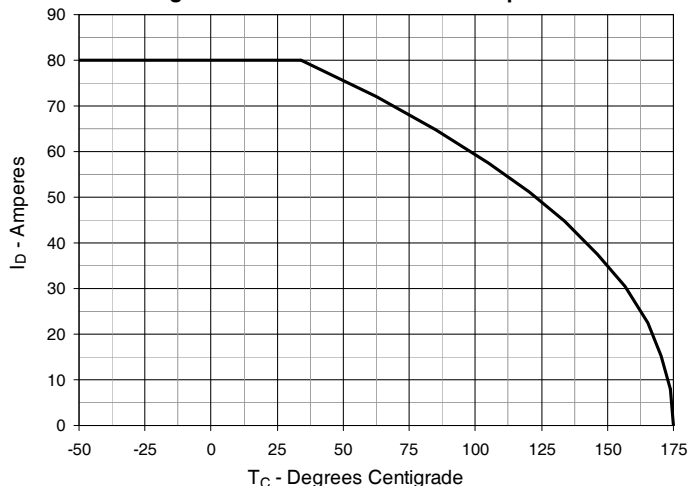


Fig. 7. Input Admittance

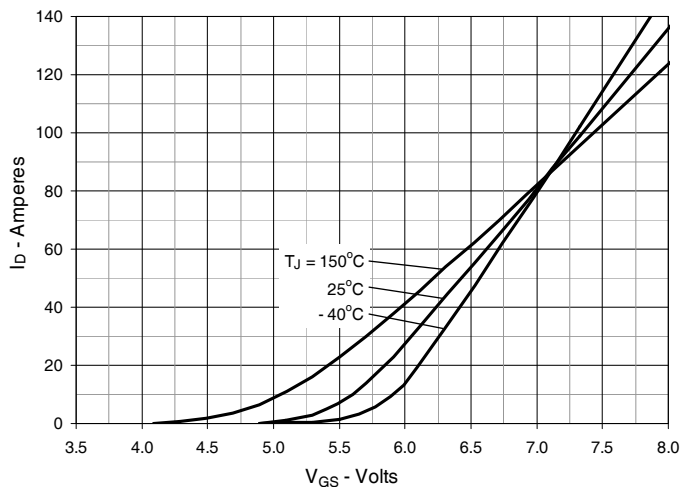


Fig. 8. Transconductance

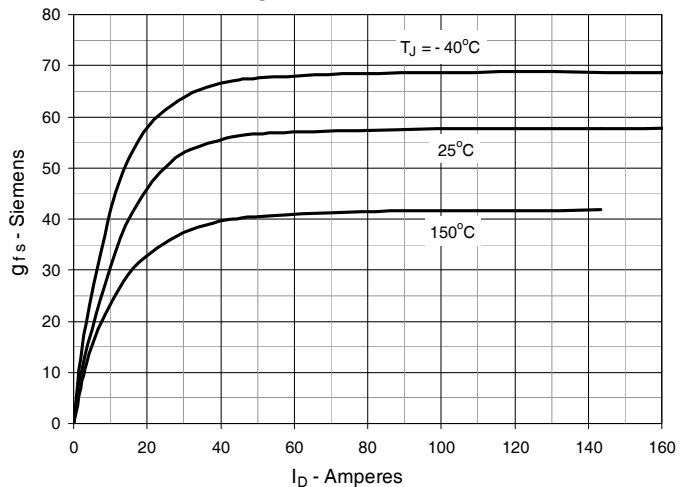


Fig. 9. Forward Voltage Drop of Intrinsic Diode

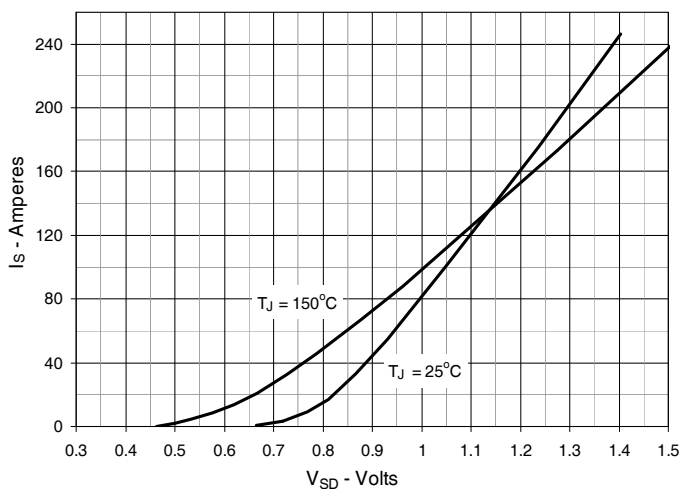


Fig. 10. Gate Charge

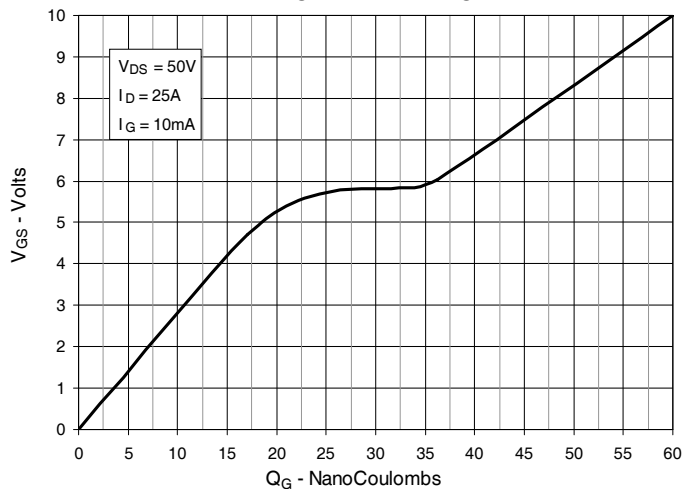


Fig. 11. Capacitance

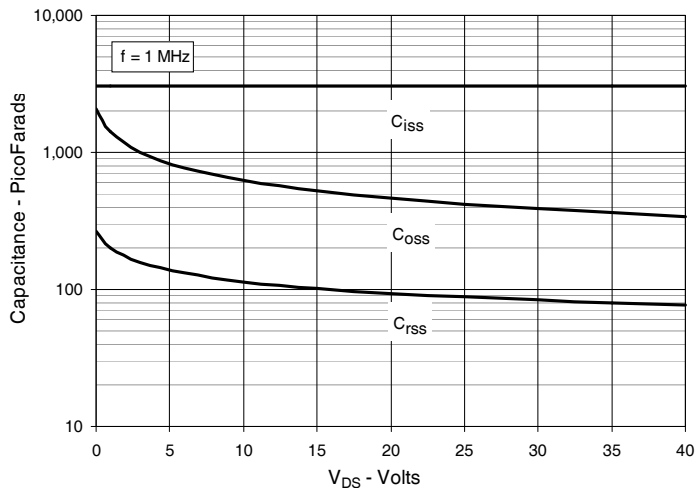


Fig. 12. Maximum Transient Thermal Impedance

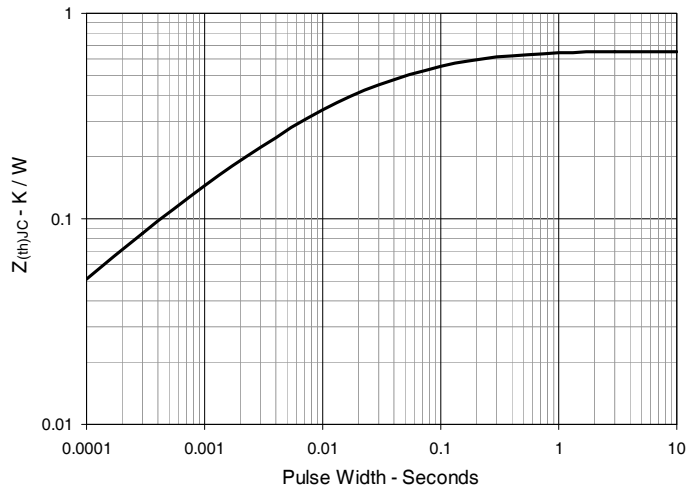


Fig. 13. Resistive Turn-on
Rise Time vs. Junction Temperature

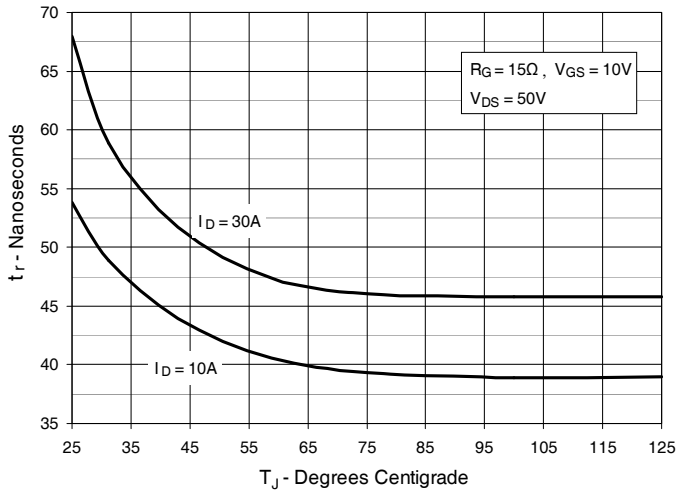


Fig. 14. Resistive Turn-on
Rise Time vs. Drain Current

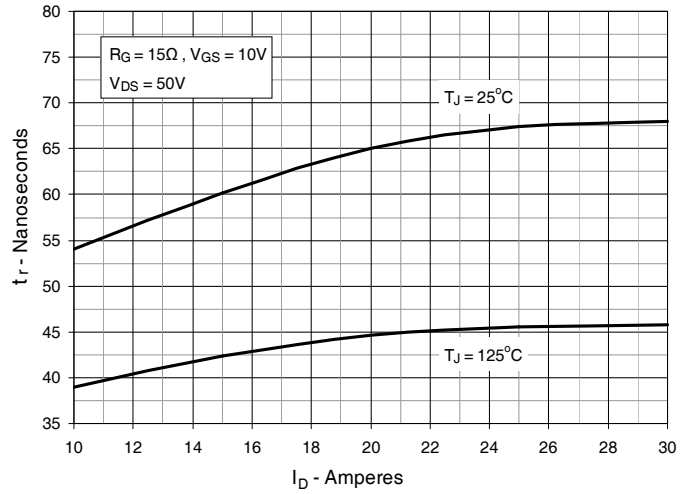


Fig. 15. Resistive Turn-on
Switching Times vs. Gate Resistance

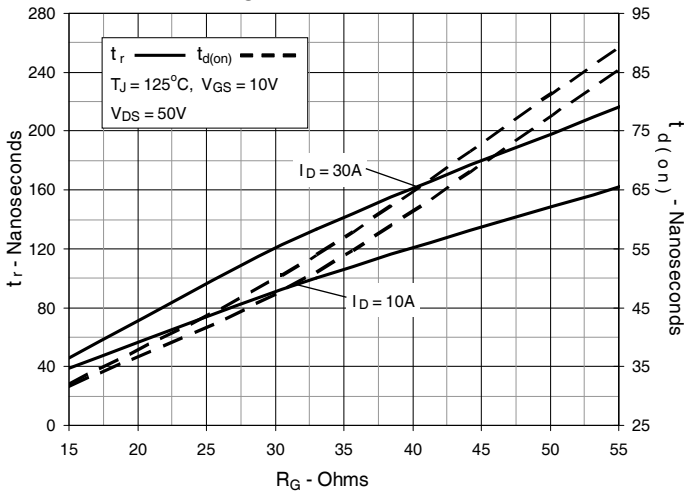


Fig. 16. Resistive Turn-off
Switching Times vs. Junction Temperature

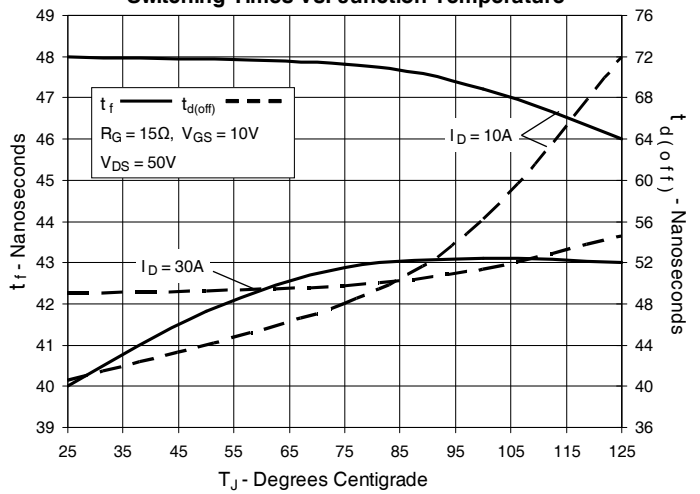


Fig. 17. Resistive Turn-off
Switching Times vs. Drain Current

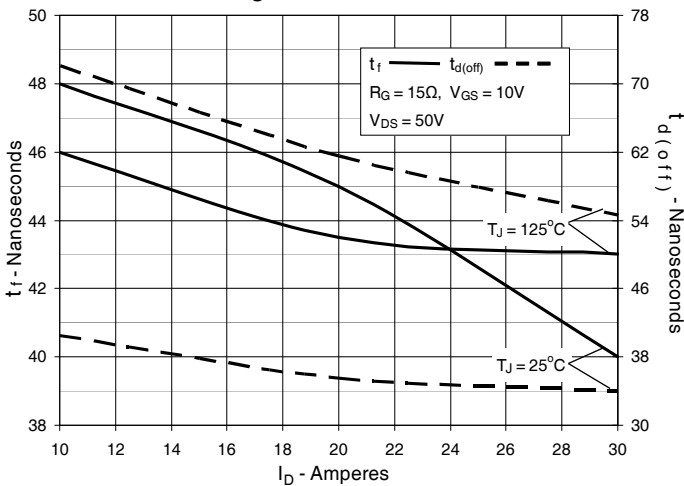
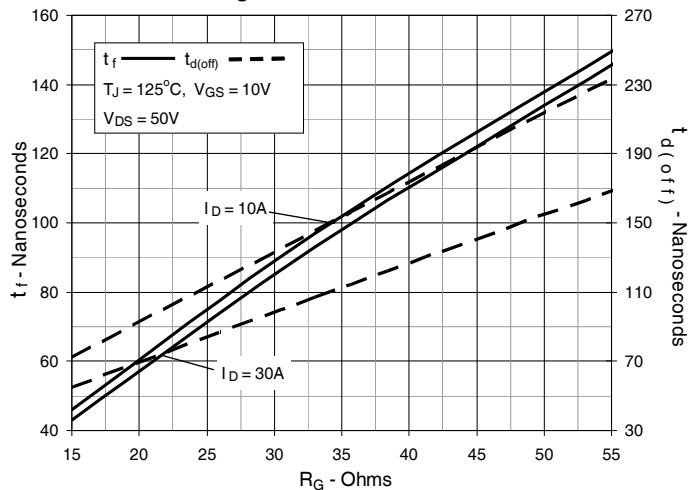


Fig. 18. Resistive Turn-off
Switching Times vs. Gate Resistance





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