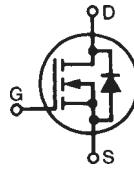
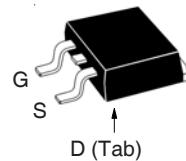
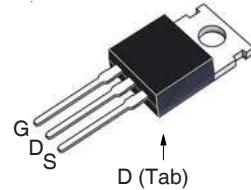


**TrenchT2™ HiperFET
Power MOSFET**
**IXFA110N15T2
IXFP110N15T2**
 $V_{DSS} = 150V$
 $I_{D25} = 110A$
 $R_{DS(on)} \leq 13m\Omega$
**N-Channel Enhancement Mode
Avalanche Rated**

**TO-263
(IXFA)**

**TO-220
(IXFP)**

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

Symbol	Test Conditions	Maximum Ratings		
V_{DSS}	$T_J = 25^\circ C$ to $175^\circ C$	150		V
V_{DGR}	$T_J = 25^\circ C$ to $175^\circ C$, $R_{GS} = 1M\Omega$	150		V
V_{GSS}	Continuous	± 20		V
V_{GSM}	Transient	± 30		V
I_{D25}	$T_C = 25^\circ C$	110		A
I_{DM}	$T_C = 25^\circ C$, Pulse Width Limited by T_{JM}	300		A
I_A	$T_C = 25^\circ C$	50		A
E_{AS}	$T_C = 25^\circ C$	800		mJ
dV/dt	$I_S \leq I_{DM}$, $V_{DD} \leq V_{DSS}$, $T_J \leq 175^\circ C$	15		V/ns
P_D	$T_C = 25^\circ C$	480		W
T_J		-55 ... +175		$^\circ C$
T_{JM}		175		$^\circ C$
T_{stg}		-55 ... +175		$^\circ C$
T_L	Maximum Lead Temperature for Soldering	300		$^\circ C$
T_{SOLD}	1.6 mm (0.062in.) from Case for 10s	260		$^\circ C$
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

Symbol	Test Conditions ($T_J = 25^\circ C$ unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
BV_{DSS}	$V_{GS} = 0V$, $I_D = 250\mu A$	150		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$, $I_D = 250\mu A$	2.5		V
I_{GSS}	$V_{GS} = \pm 20V$, $V_{DS} = 0V$		± 200	nA
I_{DSS}	$V_{DS} = V_{DSS}$, $V_{GS} = 0V$ $T_J = 150^\circ C$		5	μA
			150	μA
$R_{DS(on)}$	$V_{GS} = 10V$, $I_D = 0.5 \cdot I_{D25}$, Notes 1, 2	11	13	$m\Omega$

Features

- International standard packages
- $175^\circ C$ Operating Temperature
- High current handling capability
- Fast intrinsic Rectifier
- Dynamic dV/dt rated
- Low $R_{DS(on)}$

Advantages

- Easy to mount
- Space savings
- High power density

Applications

- DC-DC converters
- Battery chargers
- Switched-mode and resonant-mode power supplies
- DC choppers
- AC motor drives
- Uninterruptible power supplies
- High speed power switching applications

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
g_{fs}	$V_{DS} = 10\text{V}$, $I_D = 55\text{A}$, Note 1	75	115	S
C_{iss}	$V_{GS} = 0\text{V}$, $V_{DS} = 25\text{V}$, $f = 1\text{MHz}$	8600		pF
C_{oss}		685		pF
C_{rss}		77		pF
$t_{d(on)}$	Resistive Switching Times $V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{D25}$ $R_G = 3.3\Omega$ (External)	33		ns
t_r		16		ns
$t_{d(off)}$		33		ns
t_f		18		ns
$Q_{g(on)}$	$V_{GS} = 10\text{V}$, $V_{DS} = 0.5 \cdot V_{DSS}$, $I_D = 0.5 \cdot I_{D25}$	150		nc
Q_{gs}		42		nc
Q_{gd}		46		nc
R_{thJC}			0.31	$^\circ\text{C}/\text{W}$
R_{thCH}	TO-220	0.50		$^\circ\text{C}/\text{W}$

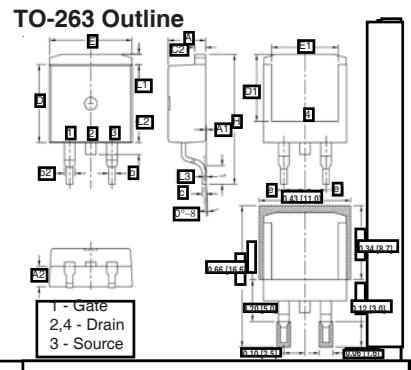
Source-Drain Diode

Symbol	Test Conditions ($T_J = 25^\circ\text{C}$, unless otherwise specified)	Characteristic Values		
		Min.	Typ.	Max.
I_s	$V_{GS} = 0\text{V}$		110	A
I_{SM}	Repetitive, Pulse width limited by T_{JM}		440	A
V_{SD}	$I_F = 100\text{A}$, $V_{GS} = 0\text{V}$, Note 1		1.3	V
t_{rr}	$I_F = 55\text{A}$, $V_{GS} = 0\text{V}$ $-di/dt = 100\text{A}/\mu\text{s}$ $V_R = 75\text{V}$	85		ns
I_{RM}		6.8		A
Q_{RM}		290		nc

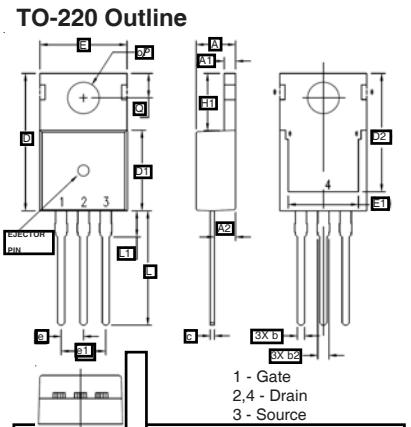
Notes: 1. Pulse test, $t \leq 300\mu\text{s}$; duty cycle, $d \leq 2\%$.
 2. On through-hole packages, $R_{DS(on)}$ Kelvin test contact location must be 5mm or less from the package body.

PRELIMINARY TECHNICAL INFORMATION

The product presented herein is under development. The Technical Specifications offered are derived from 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.



SYM	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	.170	.185	4.30	4.70
A1	.000	.008	0.00	0.20
A2	.091	.098	2.30	2.50
b	.028	.035	0.70	0.90
b2	.046	.060	1.18	1.52
C	.018	.024	0.45	0.60
C2	.049	.060	1.25	1.52
D	.340	.370	8.63	9.40
D1	.300	.327	7.62	8.30
E	.380	.410	9.65	10.41
E1	.270	.330	6.86	8.38
e	.100	BSC	2.54	BSC
H	.580	.620	14.73	15.75
L	.075	.105	1.91	2.67
L1	.039	.060	1.00	1.52
L2	—	.070	—	1.77
L3	.010	BSC	0.254	BSC



SYM	INCHES		MILLIMETERS	
	MIN	MAX	MIN	MAX
A	.169	.185	4.30	4.70
A1	.047	.055	1.20	1.40
A2	.079	.106	2.00	2.70
b	.024	.039	0.60	1.00
b2	.045	.057	1.15	1.45
c	.014	.026	0.35	0.65
D	.587	.626	14.90	15.90
D1	.335	.370	8.50	9.40
(D2)	.500	.531	12.70	13.50
E	.382	.406	9.70	10.30
(E1)	.283	.323	7.20	8.20
e	.100	BSC	2.54	BSC
e1	.200	BSC	5.08	BSC
H1	.244	.268	6.20	6.80
L	.492	.547	12.50	13.90
L1	.110	.154	2.80	3.90
ØP	.134	.150	3.40	3.80
Q	.106	.126	2.70	3.20

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

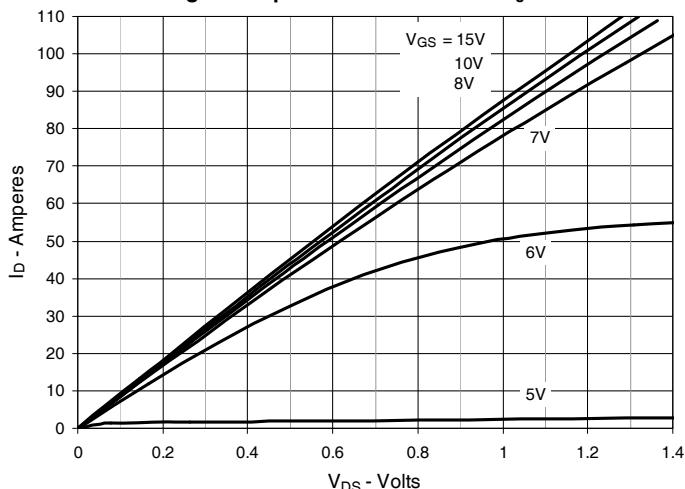
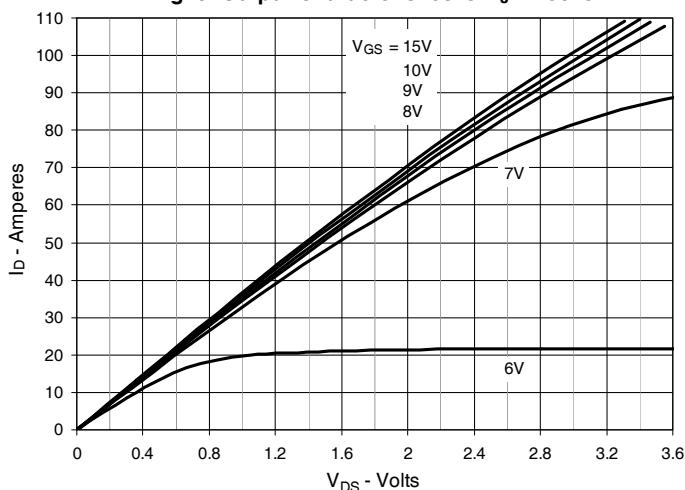
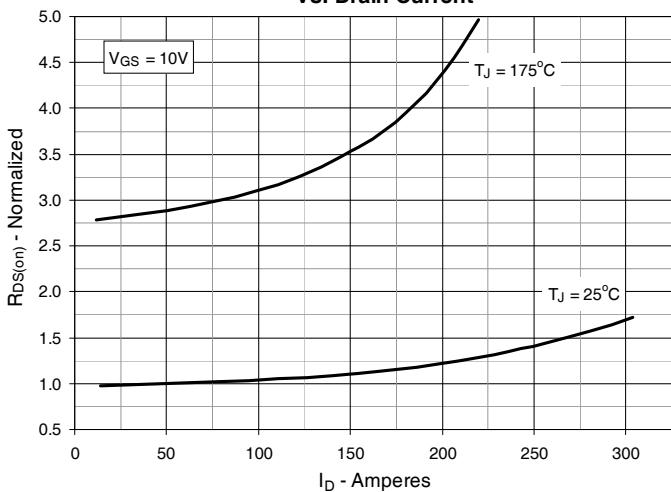
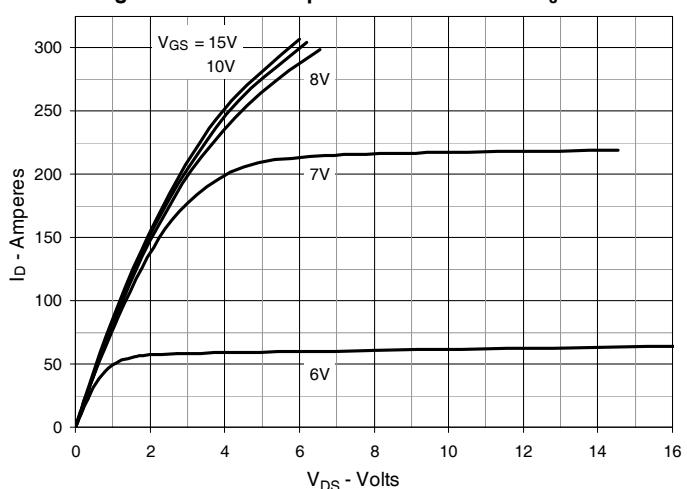
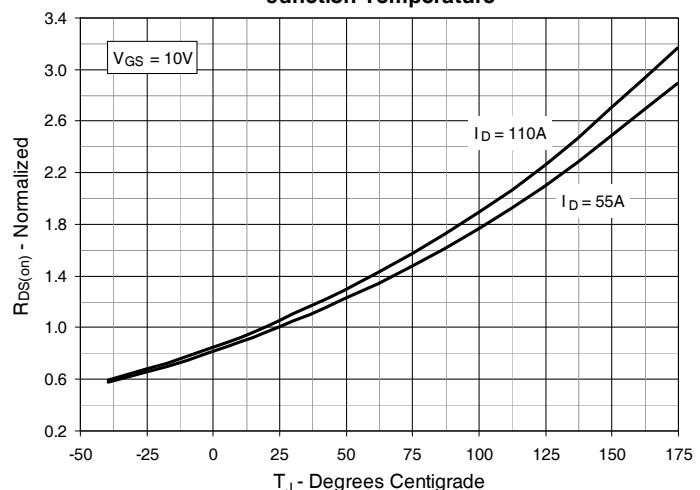
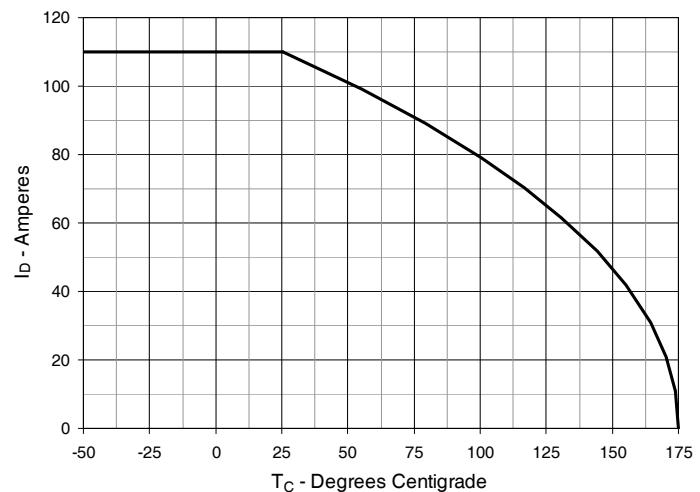
Fig. 1. Output Characteristics @ $T_J = 25^\circ\text{C}$

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

Fig. 5. $R_{DS(on)}$ Normalized to $I_D = 55\text{A}$ Value vs. Drain Current

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

Fig. 4. $R_{DS(on)}$ Normalized to $I_D = 55\text{A}$ Value vs. Junction Temperature

Fig. 6. Drain Current vs. Case Temperature


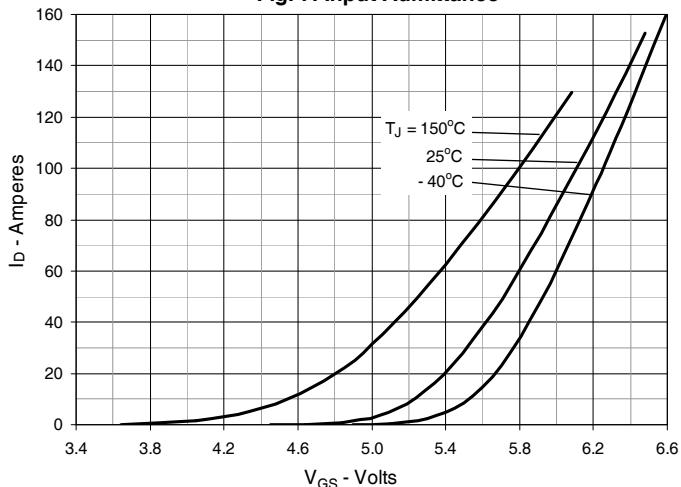
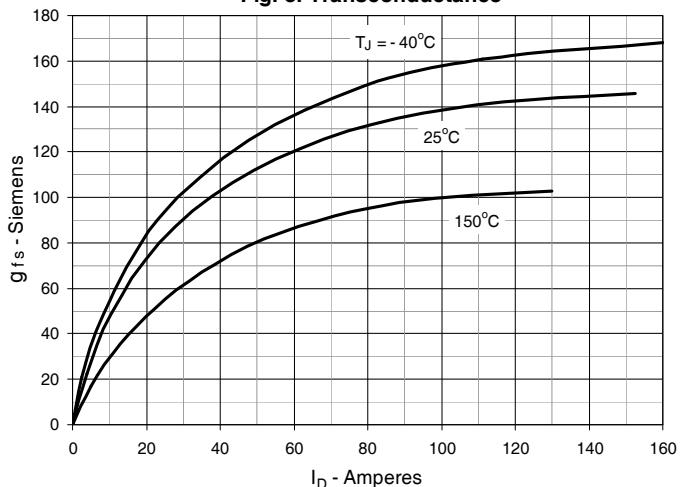
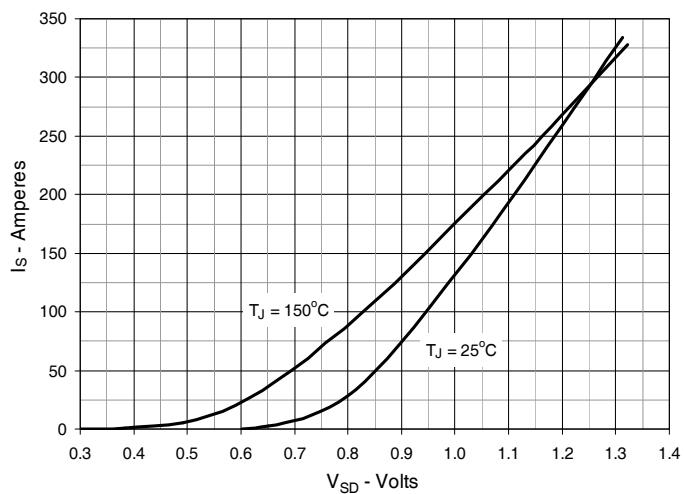
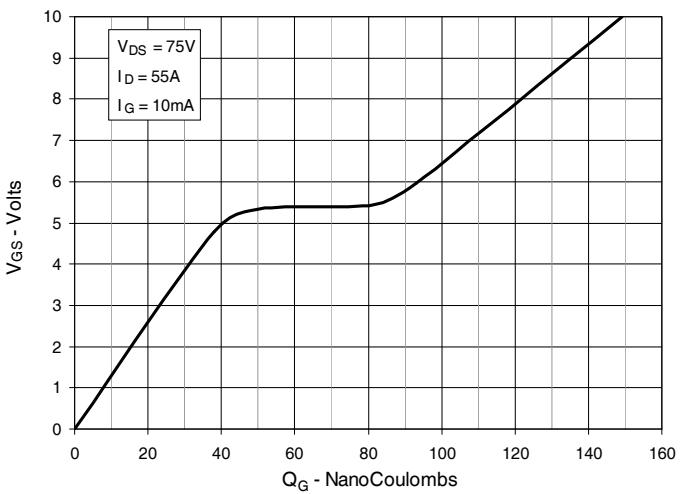
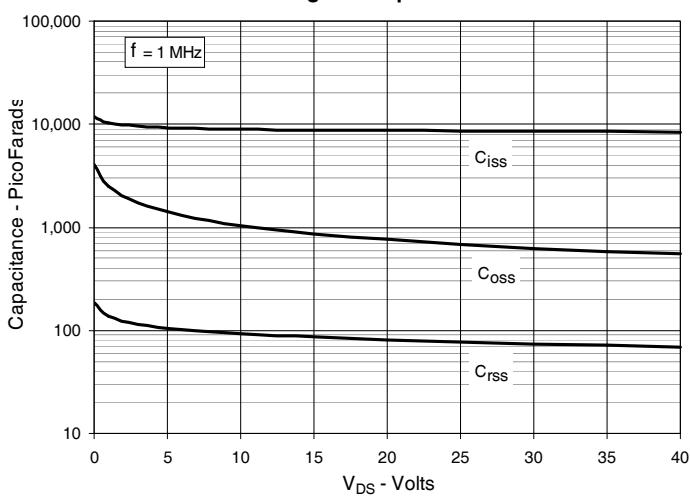
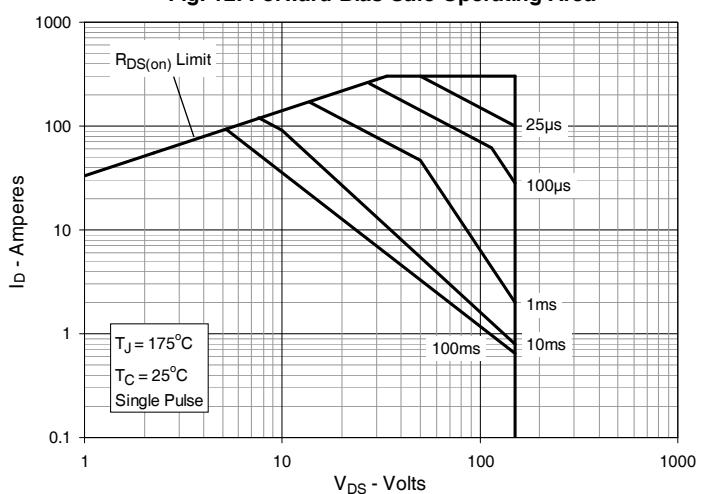
Fig. 7. Input Admittance

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

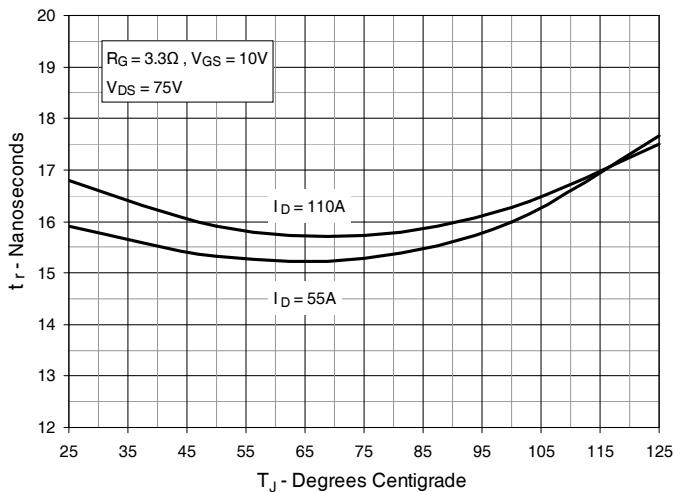


Fig. 15. Resistive Turn-on Switching Times vs. Gate Resistance

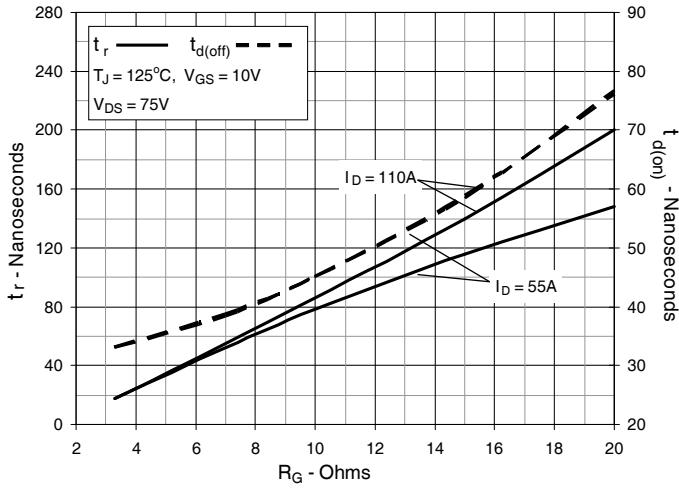


Fig. 17. Resistive Turn-off Switching Times vs. Drain Current

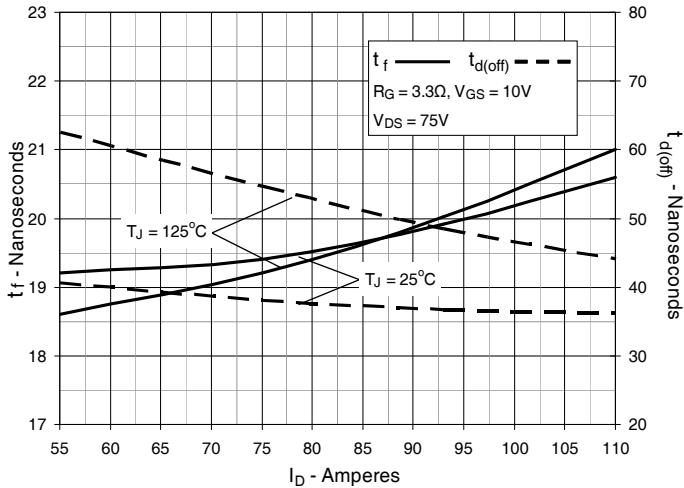


Fig. 14. Resistive Turn-on Rise Time vs. Drain Current

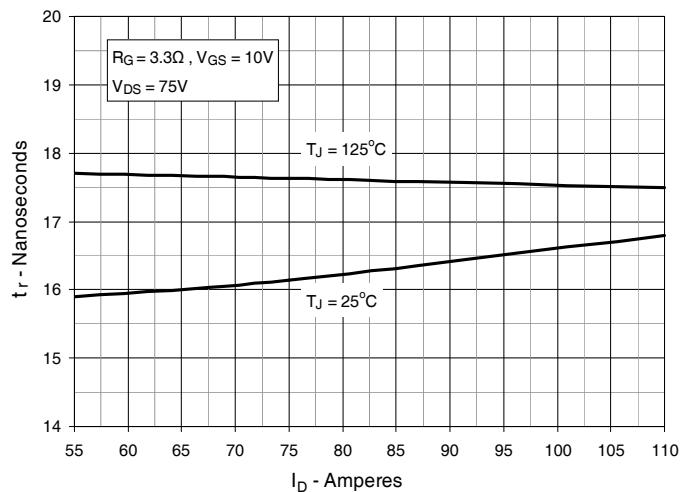


Fig. 16. Resistive Turn-off Switching Times vs. Junction Temperature

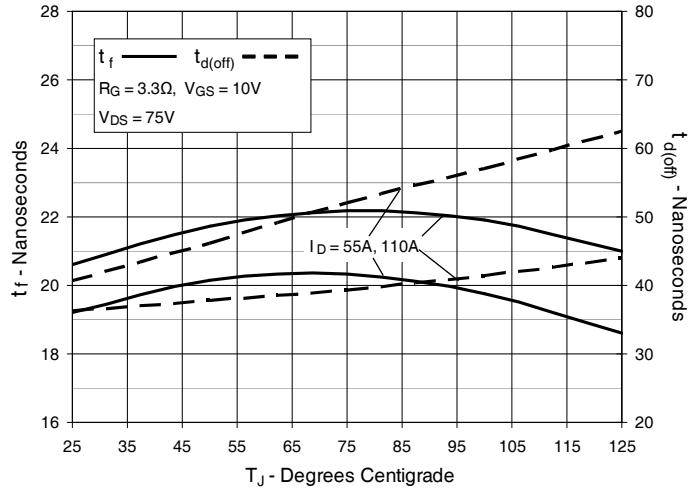


Fig. 18. Resistive Turn-off Switching Times vs. Gate Resistance

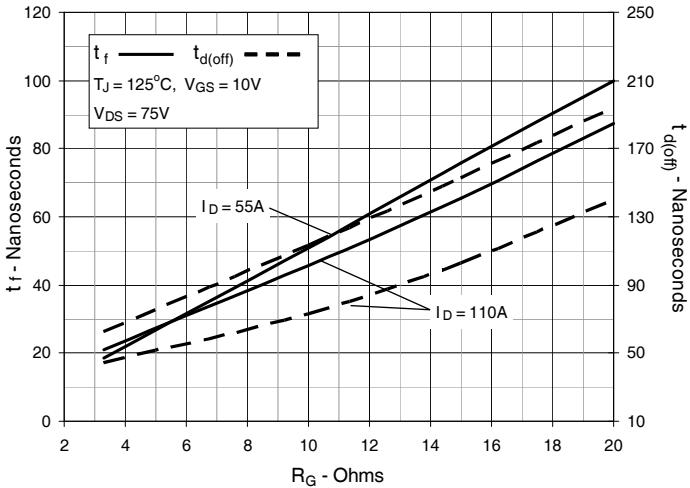
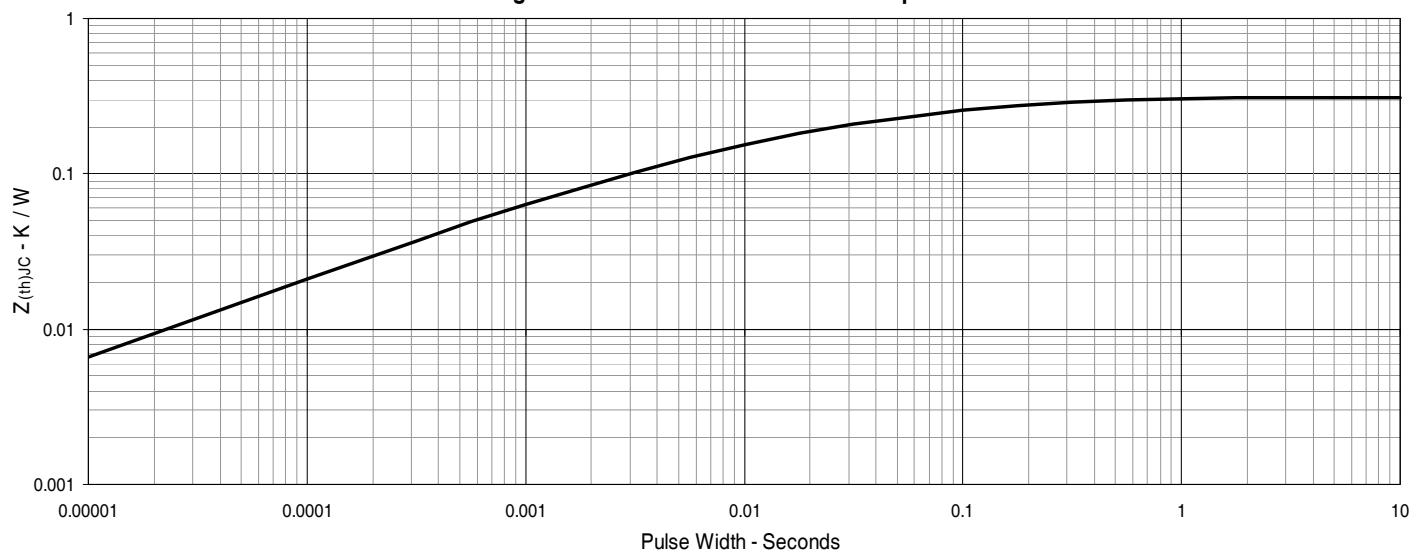


Fig. 19. Maximum Transient Thermal Impedance





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