

## Excellent Integrated System Limited

Stocking Distributor

Click to view price, real time Inventory, Delivery & Lifecycle Information:

[IXYS Corporation](#)

[IXTV110N25TS](#)

For any questions, you can email us directly:

[sales@integrated-circuit.com](mailto:sales@integrated-circuit.com)

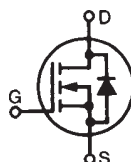

**Trench™  
Power MOSFETs**
**IXTH110N25T  
IXTV110N25TS**

$$V_{DSS} = 250V$$

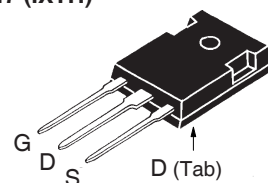
$$I_{D25} = 110A$$

$$R_{DS(on)} \leq 24m\Omega$$

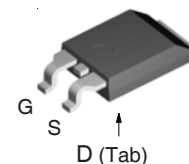
N-Channel Enhancement Mode  
Avalanche Rated  
Fast Intrinsic Rectifier



TO-247 (IXTH)



PLUS220SMD(IXTV\_S)



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

Symbol	Test Conditions	Maximum Ratings	
$V_{DSS}$	$T_J = 25^\circ C$ to $150^\circ C$	250	V
$V_{DGR}$	$T_J = 25^\circ C$ to $150^\circ C$ , $R_{GS} = 1M\Omega$	250	V
$V_{GSS}$	Continuous	$\pm 20$	V
$V_{GSM}$	Transient	$\pm 30$	V
$I_{D25}$	$T_C = 25^\circ C$	110	A
$I_{L(RMS)}$	External Lead Current Limit	75	A
$I_{DM}$	$T_C = 25^\circ C$ , Pulse Width Limited by $T_{JM}$	300	A
$I_A$	$T_C = 25^\circ C$	25	A
$E_{AS}$	$T_C = 25^\circ C$	1	J
$P_D$	$T_C = 25^\circ C$	694	W
dv/dt	$I_S \leq I_{DM}$ , $V_{DD} \leq V_{DSS}$ , $T_J \leq 150^\circ C$	10	V/ns
$T_J$		-55 to +150	$^\circ C$
$T_{JM}$		+150	$^\circ C$
$T_{stg}$		-55 to +150	$^\circ C$
$T_L$	1.6mm (0.063in) from Case for 10s	300	$^\circ C$
$T_{SOLD}$	Plastic Body for 10s	260	$^\circ C$
$M_d$	Mounting Torque (to-247)	1.13/10	Nm/lb.in.
$F_C$	Mounting force (PLUS220SMD)	11..65/2.5..14.6	N/lb.
Weight	TO-247	6	g
	PLUS220SMD	4	g

Symbol	Test Conditions ( $T_J = 25^\circ C$ , Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
$BV_{DSS}$	$V_{GS} = 0V$ , $I_D = 250\mu A$	250		V
$V_{GS(th)}$	$V_{DS} = V_{GS}$ , $I_D = 1mA$	3.0		5.0 V
$I_{GSS}$	$V_{GS} = \pm 20V$ , $V_{DS} = 0V$			$\pm 200$ nA
$I_{DSS}$	$V_{DS} = V_{DSS}$ , $V_{GS} = 0V$ $T_J = 125^\circ C$			5 $\mu A$
				250 $\mu A$
$R_{DS(on)}$	$V_{GS} = 10V$ , $I_D = 0.5 \cdot I_{D25}$ , Notes 1, 2			24 m $\Omega$

**Features**

- International Standard Packages
- Avalanche Rated
- High Current Handling Capability
- Fast Intrinsic Rectifier
- Low  $R_{DS(on)}$

**Advantages**

- Easy to Mount
- Space Savings
- High Power Density

**Applications**

- DC-DC Converters
- Battery Chargers
- Switch-Mode and Resonant-Mode Power Supplies
- DC Choppers
- AC Motor Drives
- Uninterruptible Power Supplies



**IXTH110N25T**  
**IXTV110N25TS**

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
$g_{fs}$	$V_{DS} = 10\text{V}, I_D = 0.5 \cdot I_{D25}$ , Note 1	65	110	S
$C_{iss}$	$V_{GS} = 0\text{V}, V_{DS} = 25\text{V}, f = 1\text{MHz}$		9400	pF
$C_{oss}$			850	pF
$C_{rss}$			55	pF
$t_{d(on)}$	<b>Resistive Switching Times</b> $V_{GS} = 15\text{V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 0.5 \cdot I_{D25}$ $R_G = 2\Omega$ (External)		19	ns
$t_r$			27	ns
$t_{d(off)}$			60	ns
$t_f$			27	ns
$Q_{g(on)}$		$V_{GS} = 10\text{V}, V_{DS} = 0.5 \cdot V_{DSS}, I_D = 25\text{A}$		157
$Q_{gs}$			40	nC
$Q_{gd}$			50	nC
$R_{thJC}$			0.18	$^\circ\text{C/W}$
$R_{thCS}$		0.25		$^\circ\text{C/W}$

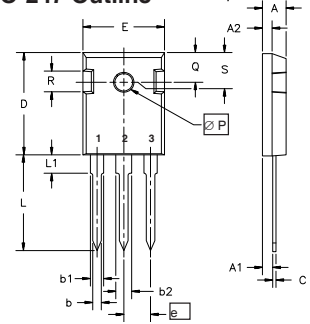
**Source-Drain Diode**

Symbol	Test Conditions ( $T_J = 25^\circ\text{C}$ , Unless Otherwise Specified)	Characteristic Values		
		Min.	Typ.	Max.
$I_S$	$V_{GS} = 0\text{V}$			110 A
$I_{SM}$	Repetitive, Pulse Width Limited by $T_{JM}$			350 A
$V_{SD}$	$I_F = 55\text{A}, V_{GS} = 0\text{V}$ , Note 1			1.2 V
$t_{rr}$	$I_F = 55\text{A}, -di/dt = 250\text{A}/\mu\text{s},$ $V_R = 100\text{V}, V_{GS} = 0\text{V}$		170	ns
$I_{RM}$			27	A
$Q_{RM}$			2.3	$\mu\text{C}$

**Notes:**

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

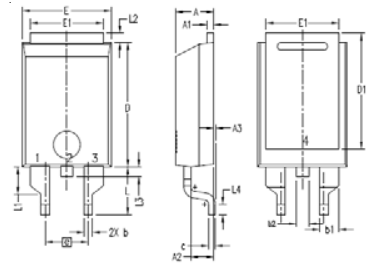
**TO-247 Outline**



Terminals: 1 - Gate 2 - Drain  
3 - Source

Dim.	Millimeter		Inches	
	Min.	Max.	Min.	Max.
A	4.7	5.3	.185	.209
A <sub>1</sub>	2.2	2.54	.087	.102
A <sub>2</sub>	2.2	2.6	.059	.098
b	1.0	1.4	.040	.055
b <sub>1</sub>	1.65	2.13	.065	.084
b <sub>2</sub>	2.87	3.12	.113	.123
C	.4	.8	.016	.031
D	20.80	21.46	.819	.845
E	15.75	16.26	.610	.640
e	5.20	5.72	0.205	0.225
L	19.81	20.32	.780	.800
L1		4.50		.177
∅P	3.55	3.65	.140	.144
Q	5.89	6.40	0.232	0.252
R	4.32	5.49	.170	.216
S	6.15	BSC	242	BSC

**PLUS220SMD Outline**



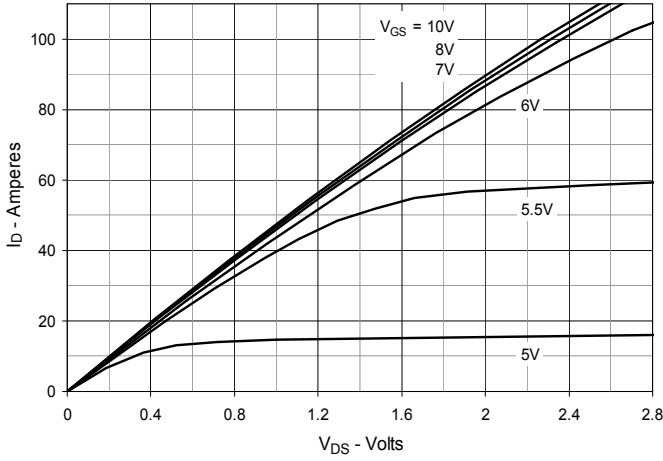
Terminals: 1 - Gate 2,4 - Drain  
3 - Source

SYM	INCHES		MILLIMETER	
	MIN	MAX	MIN	MAX
A	.169	.185	4.30	4.70
A1	.028	.035	0.70	0.90
A2	.098	.118	2.50	3.00
A3	.000	.010	0.00	0.25
b	.035	.047	0.90	1.20
b1	.080	.095	2.03	2.41
b2	.054	.064	1.37	1.63
c	.028	.035	0.70	0.90
D	.551	.591	14.00	15.00
D1	.512	.539	13.00	13.70
E	.394	.433	10.00	11.00
E1	.331	.346	8.40	8.80
e	.200BSC 5.08 BSC			
L	.209	.228	5.30	5.80
L1	.118	.138	3.00	3.50
L2	.035	.051	0.90	1.30
L3	.047	.059	1.20	1.50
L4	.039	.059	1.00	1.50

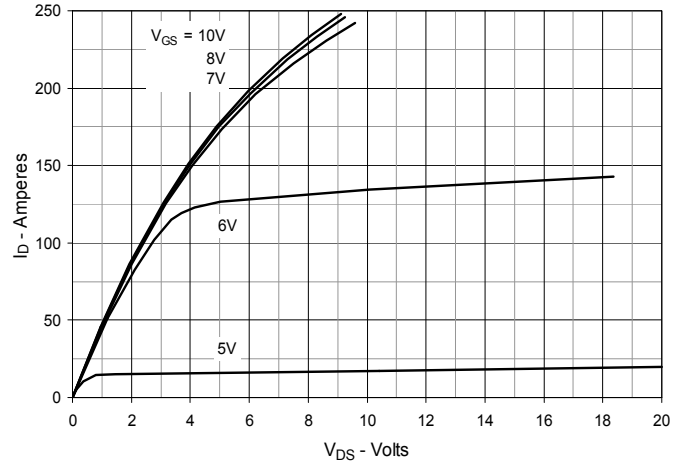
IXYS Reserves the Right to Change Limits, Test Conditions, and Dimensions.

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	

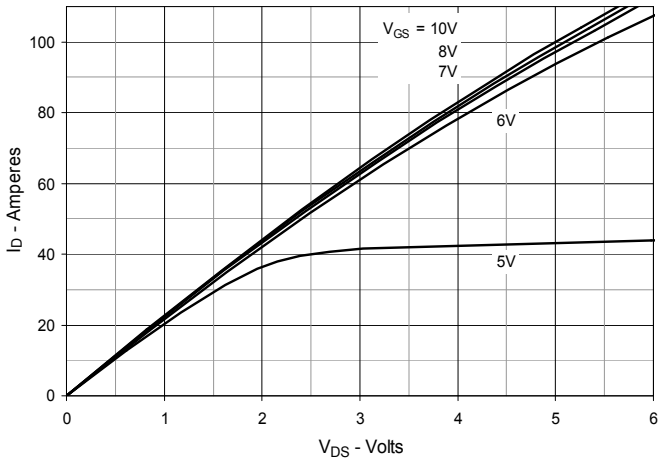
**Fig. 1. Output Characteristics @  $T_J = 25^\circ\text{C}$**



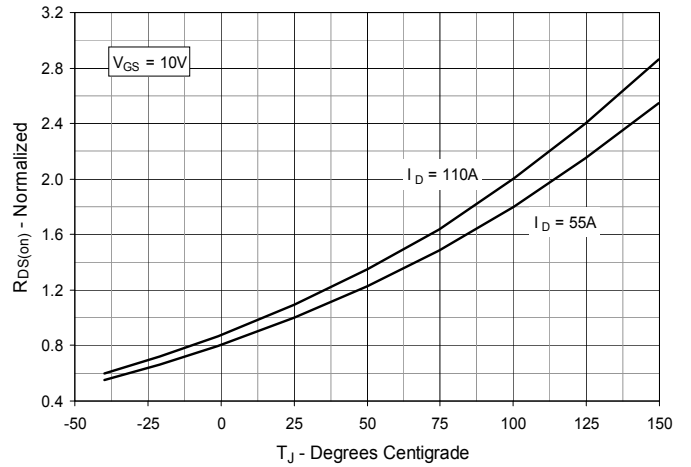
**Fig. 2. Extended Output Characteristics @  $T_J = 25^\circ\text{C}$**



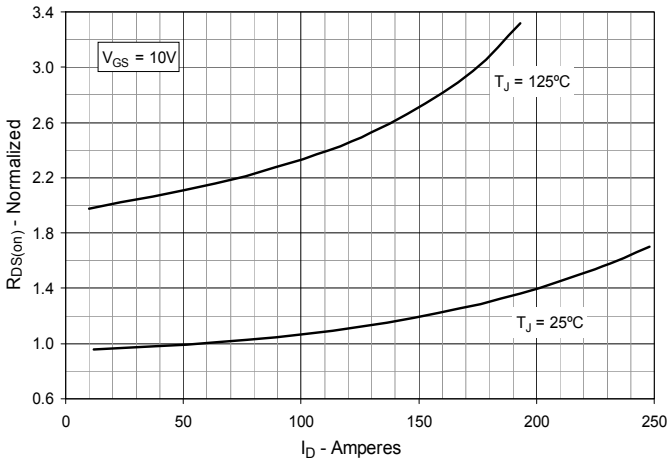
**Fig. 3. Output Characteristics @  $T_J = 125^\circ\text{C}$**



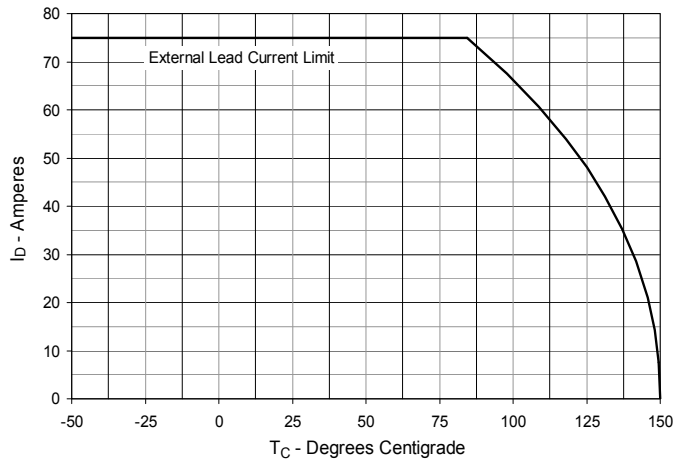
**Fig. 4.  $R_{DS(on)}$  Normalized to  $I_D = 55\text{A}$  Value vs. Junction Temperature**



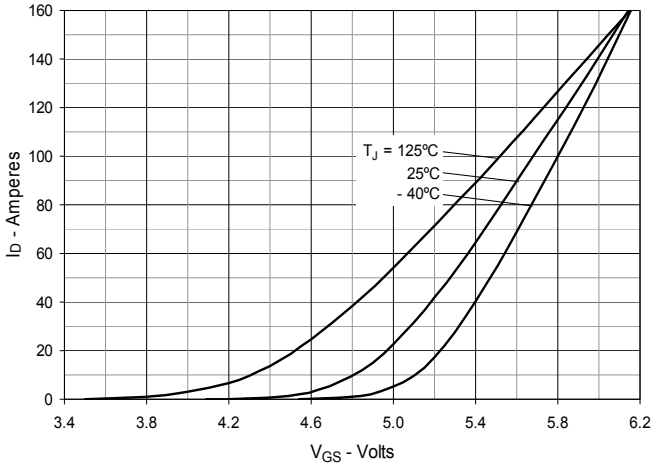
**Fig. 5.  $R_{DS(on)}$  Normalized to  $I_D = 55\text{A}$  Value vs. Drain Current**



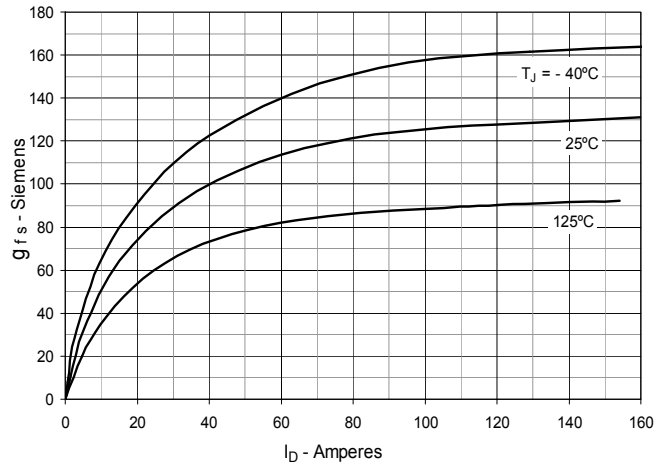
**Fig. 6. Maximum Drain Current vs. Case Temperature**



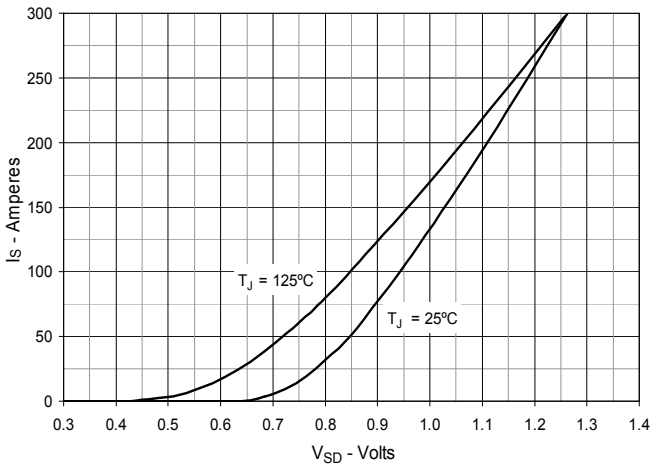
**Fig. 7. Input Admittance**



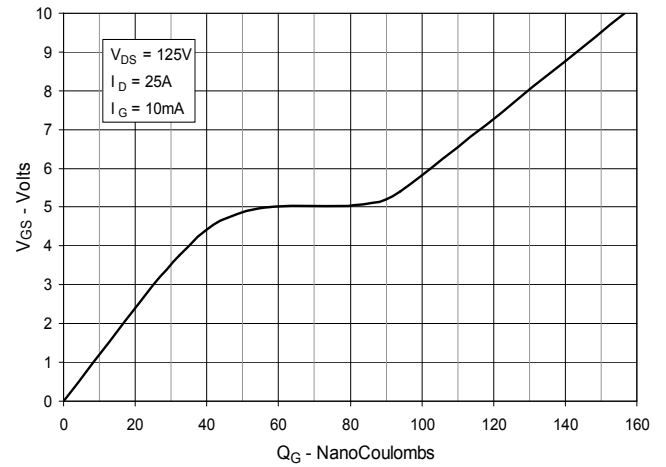
**Fig. 8. Transconductance**



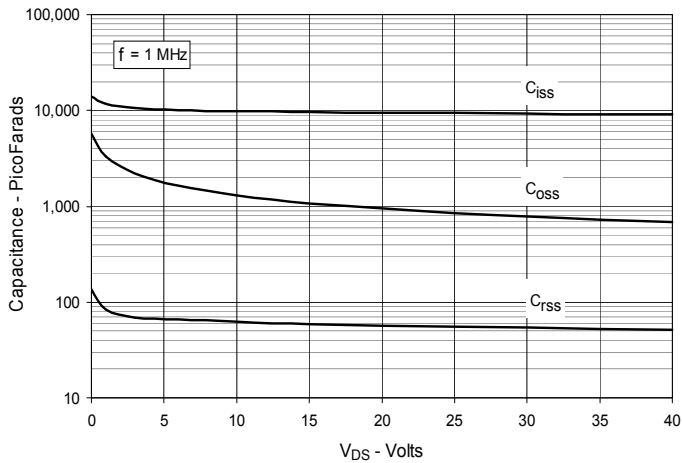
**Fig. 9. Forward Voltage Drop of Intrinsic Diode**



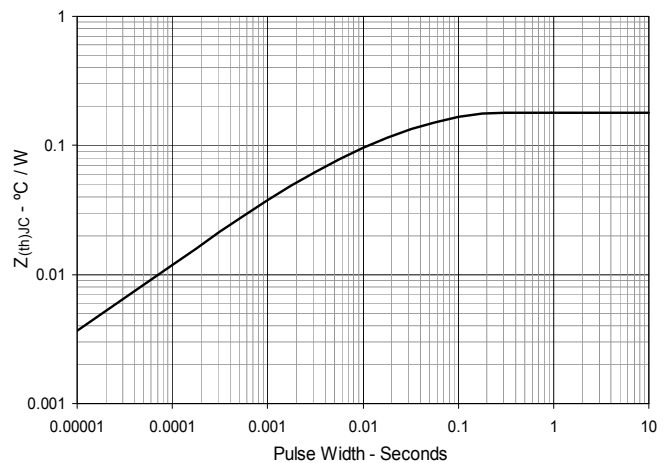
**Fig. 10. Gate Charge**



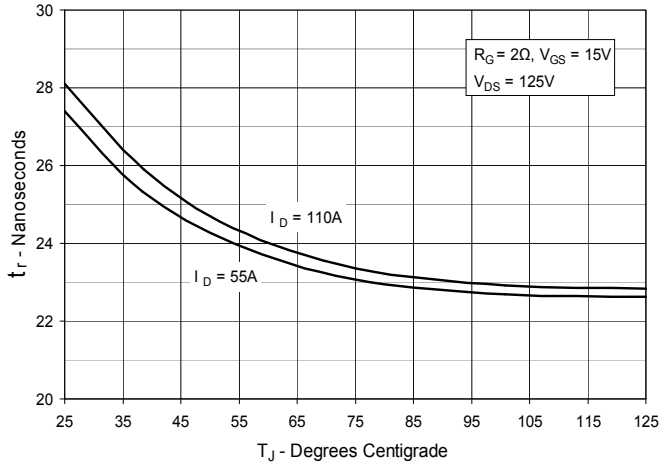
**Fig. 11. Capacitance**



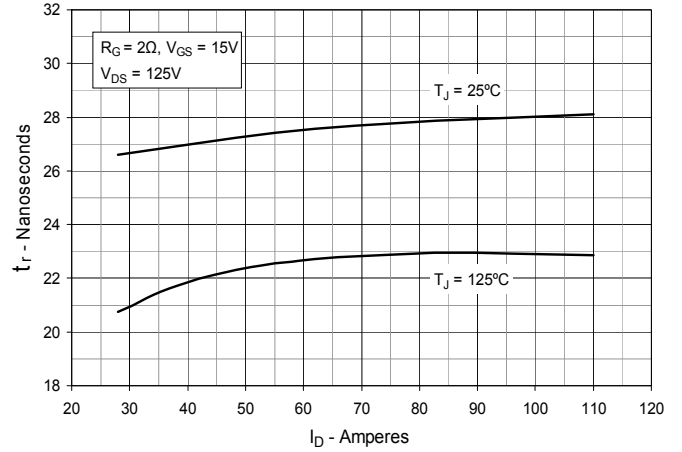
**Fig. 12. Maximum Transient Thermal Impedance**



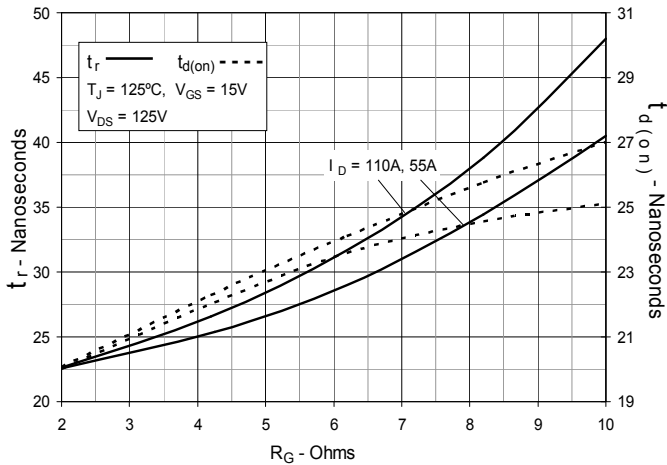
**Fig. 13. Resistive Turn-on**  
Rise Time vs. Junction Temperature



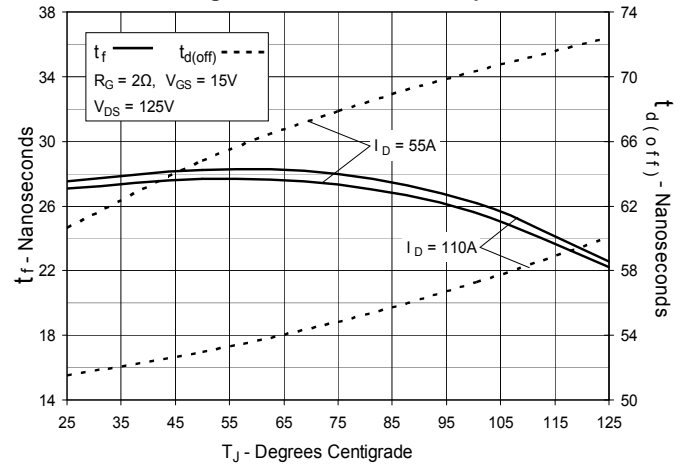
**Fig. 14. Resistive Turn-on**  
Rise Time vs. Drain Current



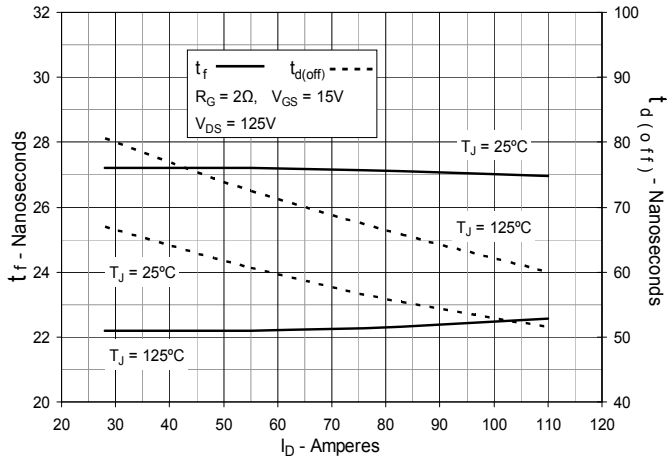
**Fig. 15. Resistive Turn-on**  
Switching Times vs. Gate Resistance



**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

