Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!


## Contact us

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IXYS

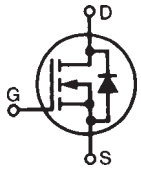
Preliminary Technical Information

# TrenchMV™ Power MOSFET

# IXTN200N10T

$V_{DSS}$ = 100V
$I_{D25}$ = 200A
$R_{DS(on)}$ ≤ 5.5mΩ

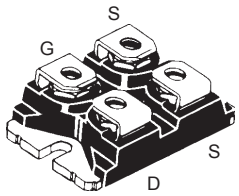
N-Channel Enhancement Mode
Avalanche Rated




| 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 | 200 | A |
| $I_{LRMS}$ | External lead current limit | 100 | A |
| $I_{DM}$ | $T_C$ = 25°C, pulse width limited by $T_{JM}$ | 500 | A |
| $I_A$ | $T_C$ = 25°C | 40 | A |
| $E_{AS}$ | $T_C$ = 25°C | 1.5 | J |
| $P_D$ | $T_C$ = 25°C | 550 | W |
| $T_J$ | | -55 ... +175 | °C |
| $T_{JM}$ | | 175 | °C |
| $T_{stg}$ | | -55 ... +175 | °C |
| $T_L$ | 1.6mm (0.062 in.) from case for 10s | 300 | °C |
| $V_{ISOL}$ | 50/60 Hz, RMS t = 1min | 2500 | V~ |
| | $I_{ISOL}$ ≤ 1mA t = 1s | 3000 | V~ |
| $M_d$ | Mounting torque | 1.5/13 | Nm/lb.in. |
| | Terminal connection torque | 1.3/11.5 | Nm/lb.in. |
| Weight | | 30 | g |

| Symbol | Test Conditions ($T_J$ = 25°C, unless otherwise specified) | Characteristic Values Min. | Typ. | Max. | |
|---|---|---|---|---|---|
| $BV_{DSS}$ | $V_{GS}$ = 0V, $I_D$ = 250μA | 100 | | | V |
| $V_{GS(th)}$ | $V_{DS}$ = $V_{GS}$, $I_D$ = 250μA | 2.5 | | 4.5 | V |
| $I_{GSS}$ | $V_{GS}$ = ±20V, $V_{DS}$ = 0V | | | ±200 | nA |
| $I_{DSS}$ | $V_{DS}$ = $V_{DSS}$ | | | 5 | μA |
| | $V_{GS}$ = 0V $T_J$ = 150°C | | | 250 | μA |
| $R_{DS(on)}$ | $V_{GS}$ = 10V, $I_D$ = 50A, Note 1 | | | 5.5 | mΩ |

**miniBLOC, SOT-227 B**
**E153432**




G = Gate D = Drain
S = Source

Either Source terminal at miniBLOC can be used as Main or Kelvin Source

### Features

- International standard package
- miniBLOC, with Aluminium nitride isolation
- Avalanche Rated
- Low $R_{DS(ON)}$ and $Q_G$
- Low package inductance
- Fast intrinsic Rectifier

### Advantages

- Low gate charge drive requirement
- High power density

### Applications

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

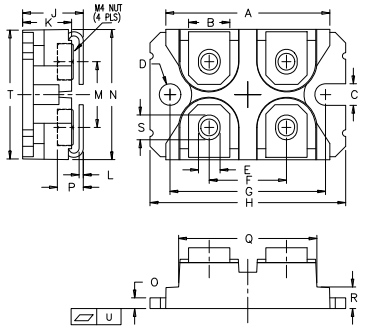
| Symbol | Test Conditions ($T_J$ = 25°C, unless otherwise specified) | Characteristic Values Min. | Typ. | Max. | |
|---|---|---|---|---|---|
| $g_{fs}$ | $V_{DS}$ = 10V, $I_D$ = 60A, Note 1 | 60 | 96 | | S |
| $C_{iss}$ | $V_{GS}$ = 0V, $V_{DS}$ = 25V, f = 1MHz | | 9400 | | pF |
| $C_{oss}$ | | | 1087 | | pF |
| $C_{rss}$ | | | 140 | | pF |
| $t_{d(on)}$ | **Resistive Switching Times** | | 35 | | ns |
| $t_r$ | $V_{GS}$ = 10V, $V_{DS}$ = 0.5 • $V_{DSS}$, $I_D$ = 50A | | 31 | | ns |
| $t_{d(off)}$ | $R_G$ = 3.3Ω (External) | | 45 | | ns |
| $t_f$ | | | 34 | | ns |
| $Q_{g(on)}$ | $V_{GS}$ = 10V, $V_{DS}$ = 0.5 • $V_{DSS}$, $I_D$ = 25A | | 152 | | nC |
| $Q_{gs}$ | | | 47 | | nC |
| $Q_{gd}$ | | | 47 | | nC |
| $R_{thJC}$ | | | | 0.27 | °C/W |
| $R_{thCS}$ | | | 0.05 | | °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 | | | 200 | A |
| $I_{SM}$ | Repetitive, pulse width limited by $T_{JM}$ | | | 500 | A |
| $V_{SD}$ | $I_F$ = 50A, $V_{GS}$ = 0V, Note 1 | | | 1.0 | V |
| $t_{rr}$ | $I_F$ = 100A, -di/dt = 100A/μs, $V_R$ = 50V | | 76 | | ns |
| $I_{RM}$ | $V_{GS}$ = 0V | | 5.4 | | A |
| $Q_{RM}$ | | | 205 | | nC |

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

**SOT-227B Outline**




| SYM | INCHES MIN | INCHES MAX | MILLIMETERS MIN | MILLIMETERS MAX |
|---|---|---|---|---|
| A | 1.240 | 1.255 | 31.50 | 31.88 |
| B | .307 | .323 | 7.80 | 8.20 |
| C | .161 | .169 | 4.09 | 4.29 |
| D | .161 | .169 | 4.09 | 4.29 |
| E | .161 | .169 | 4.09 | 4.29 |
| F | .587 | .595 | 14.91 | 15.11 |
| G | 1.186 | 1.193 | 30.12 | 30.30 |
| H | 1.496 | 1.505 | 38.00 | 38.23 |
| J | .460 | .481 | 11.68 | 12.22 |
| K | .351 | .378 | 8.92 | 9.60 |
| L | .030 | .033 | 0.76 | 0.84 |
| M | .496 | .506 | 12.60 | 12.85 |
| N | .990 | 1.001 | 25.15 | 25.42 |
| O | .078 | .084 | 1.98 | 2.13 |
| P | .195 | .235 | 4.95 | 5.97 |
| Q | 1.045 | 1.059 | 26.54 | 26.90 |
| R | .155 | .174 | 3.94 | 4.42 |
| S | .186 | .191 | 4.72 | 4.85 |
| T | .968 | .987 | 24.59 | 25.07 |
| U | -.002 | .004 | -0.05 | 0.1 |

**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.

**Fig. 1. Output Characteristics @ 25ºC**

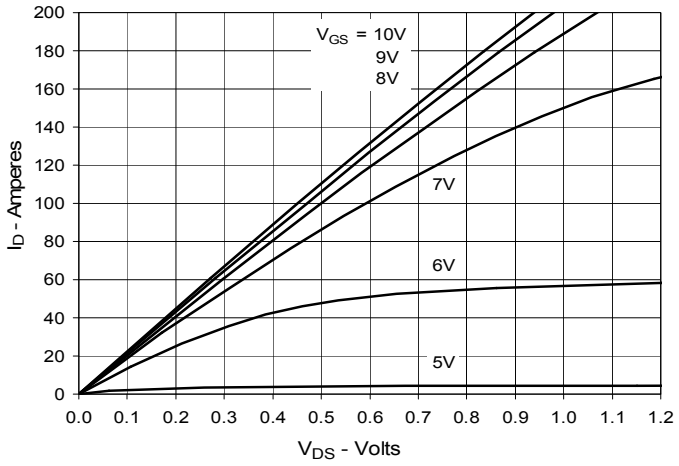



**Fig. 2. Extended Output Characteristics @ 25ºC**

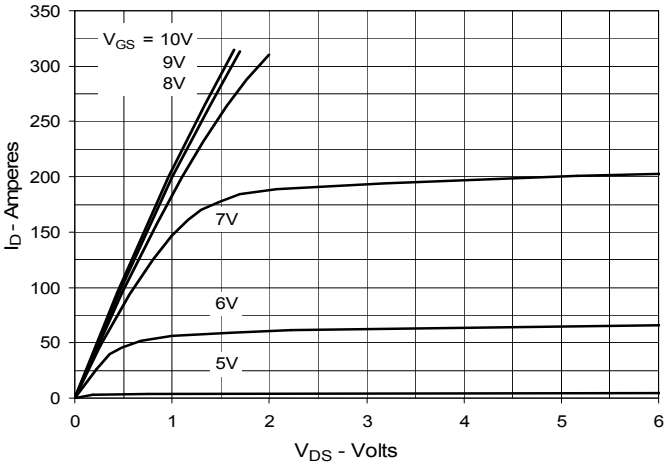



**Fig. 3. Output Characteristics @ 150ºC**

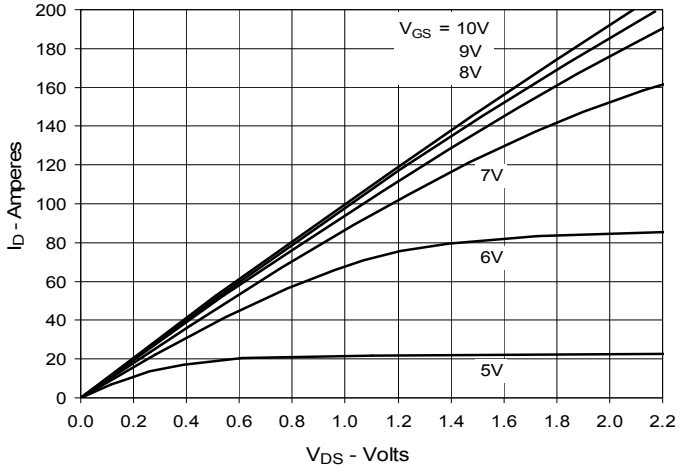



**Fig. 4. $R_{DS(on)}$ Normalized to $I_D$ = 100A Value vs. Junction Temperature**

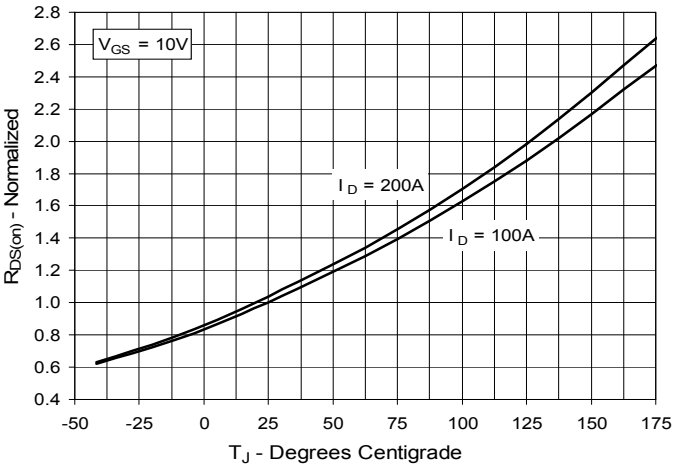



**Fig. 5. $R_{DS(on)}$ Normalized to $I_D$ = 100A Value vs. Drain Current**

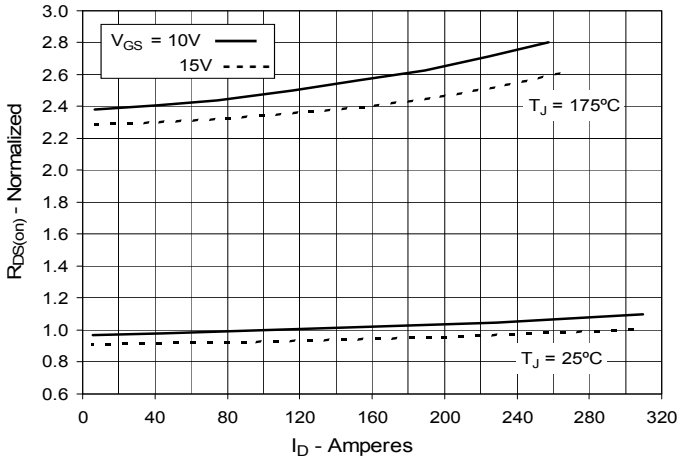



**Fig. 6. Drain Current vs. Case Temperature**

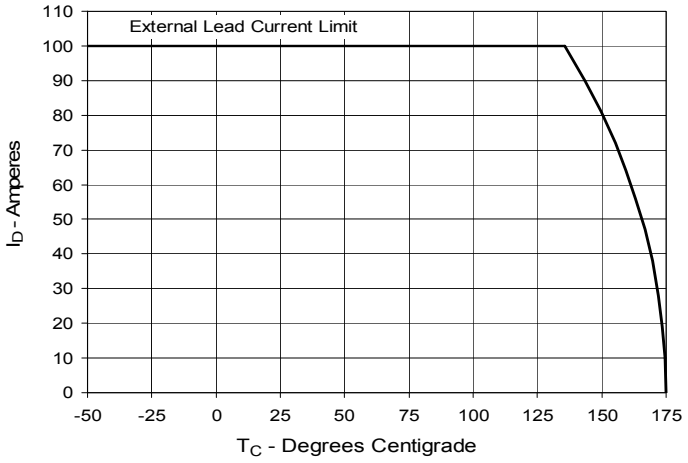


**Fig. 7. Input Admittance**

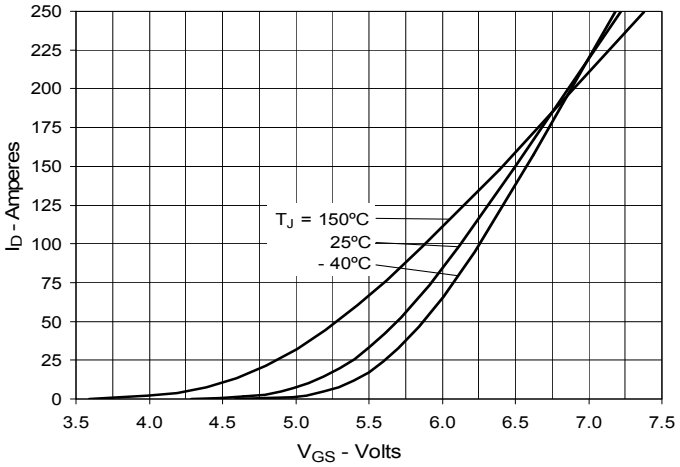



**Fig. 8. Transconductance**

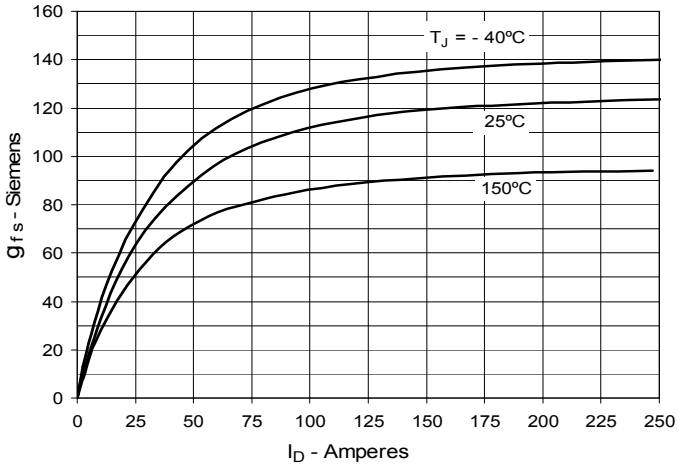



**Fig. 9. Forward Voltage Drop of Intrinsic Diode**

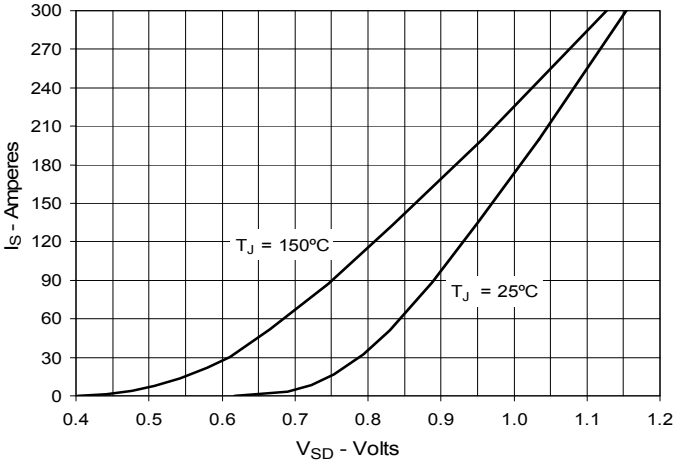



**Fig. 10. Gate Charge**

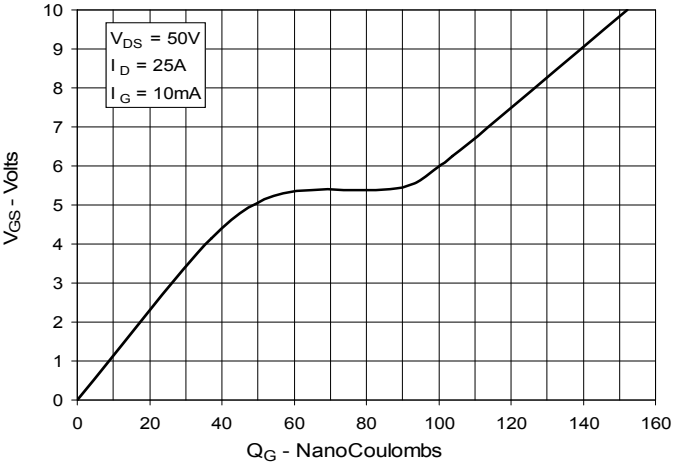



**Fig. 11. Capacitance**

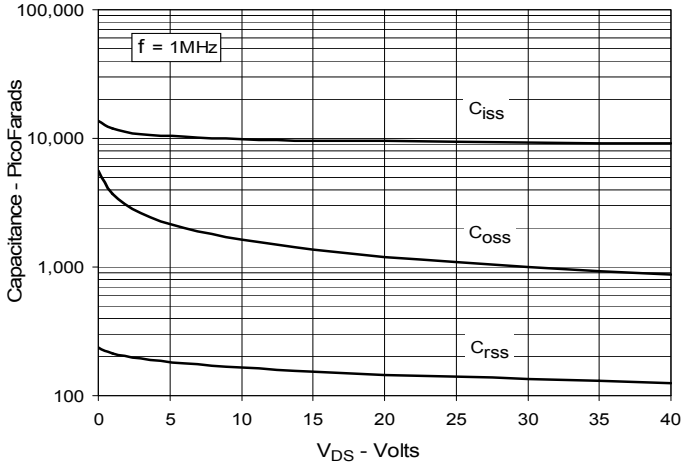



**Fig. 12. Maximum Transient Thermal Impedance**

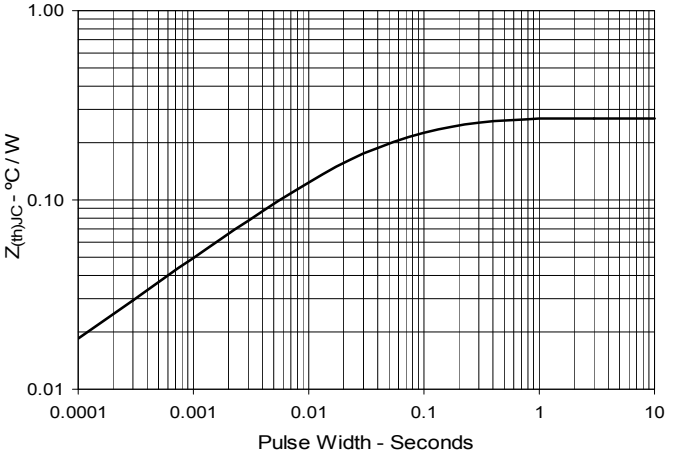


**Fig. 13. Resistive Turn-on Rise Time vs. Junction Temperature**

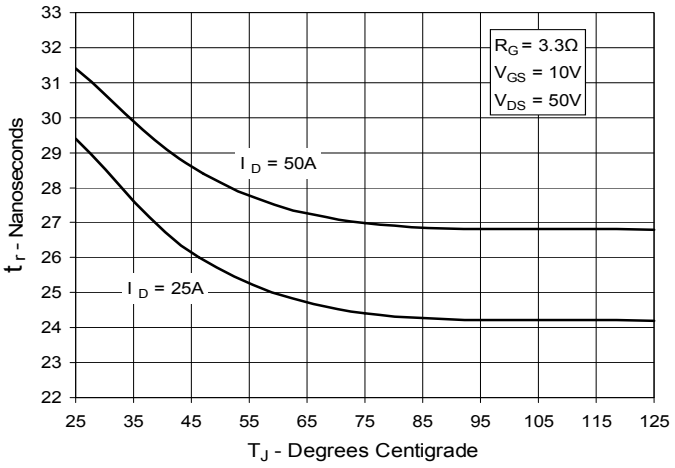



**Fig. 14. Resistive Turn-on Rise Time vs. Drain Current**

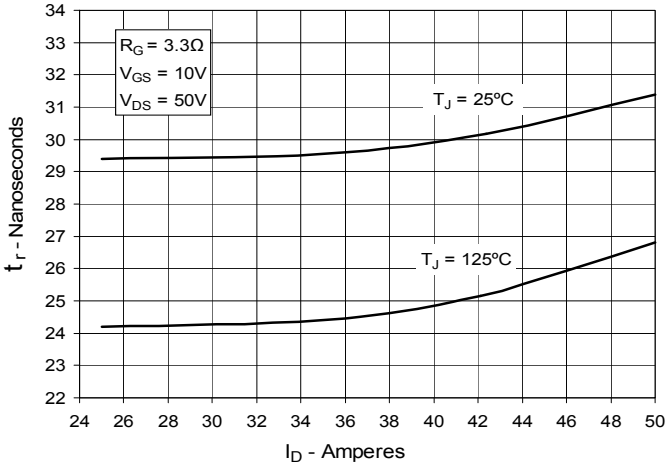



**Fig. 15. Resistive Turn-on Switching Times vs. Gate Resistance**

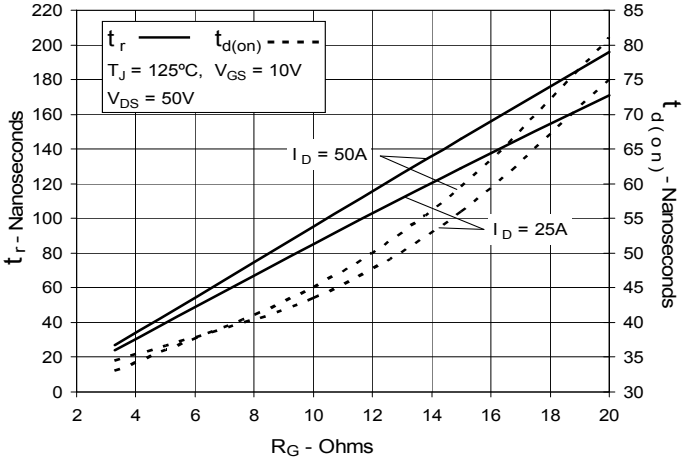



**Fig. 16. Resistive Turn-off Switching Times vs. Junction Temperature**

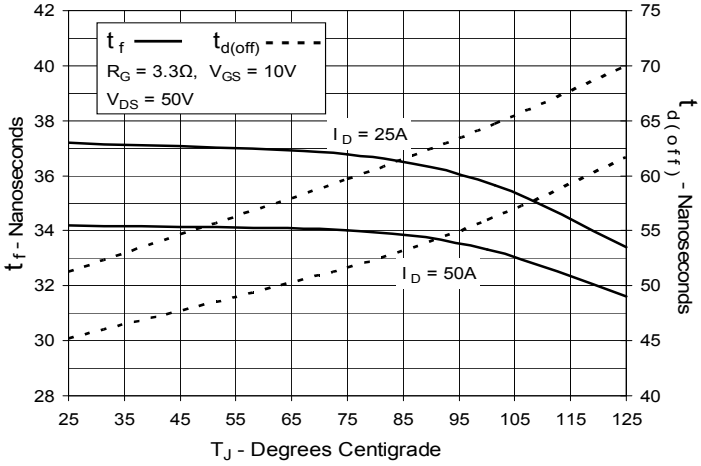



**Fig. 17. Resistive Turn-off Switching Times vs. Drain Current**

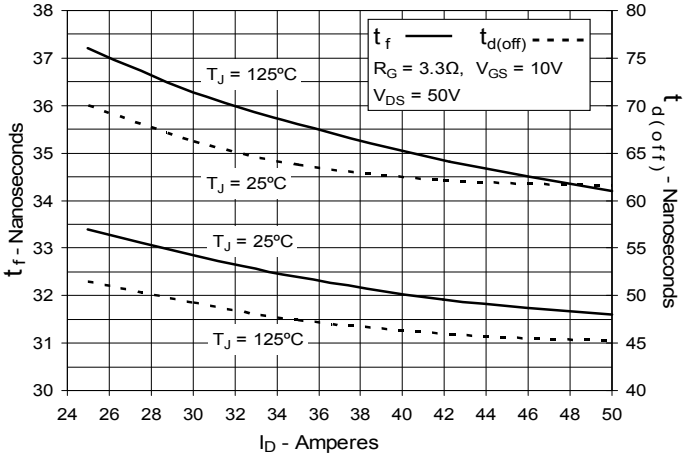



**Fig. 18. Resistive Turn-off Switching Times vs. Gate Resistance**