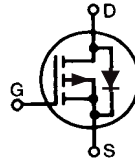


TrenchP™ Power MOSFET

IXTA140P05T
IXTP140P05T
IXTH140P05T

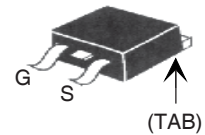
$V_{DSS} = -50V$
 $I_{D25} = -140A$
 $R_{DS(on)} \leq 8m\Omega$

P-Channel Enhancement Mode
Avalanche Rated

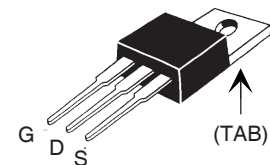


| Symbol | Test Conditions | Maximum Ratings | |
|---------------|---|-----------------|------------|
| V_{DSS} | $T_J = 25^\circ C$ to $150^\circ C$ | - 50 | V |
| V_{DGR} | $T_J = 25^\circ C$ to $150^\circ C$, $R_{GS} = 1M\Omega$ | - 50 | V |
| V_{GSS} | Continuous | ± 20 | V |
| V_{GSM} | Transient | ± 30 | V |
| I_{D25} | $T_C = 25^\circ C$ | -140 | A |
| I_{LRMS} | Lead Current Limit, RMS | - 75 | A |
| I_{DM} | $T_C = 25^\circ C$, pulse width limited by T_{JM} | - 420 | A |
| I_A | $T_C = 25^\circ C$ | - 70 | A |
| E_{AS} | $T_C = 25^\circ C$ | 1 | J |
| P_D | $T_C = 25^\circ C$ | 298 | W |
| T_J | | -55 ... +150 | $^\circ C$ |
| T_{JM} | | 150 | $^\circ C$ |
| T_{stg} | | -55 ... +150 | $^\circ C$ |
| T_L | 1.6mm (0.062 in.) from case for 10s | 300 | $^\circ C$ |
| T_{SOLD} | Plastic body for 10s | 260 | $^\circ C$ |
| M_d | Mounting torque (TO-220)(TO-247) | 1.13/10 | Nm/lb.in. |
| Weight | TO-263 | 2.5 | g |
| | TO-220 | 3.0 | g |
| | TO-247 | 6.0 | g |

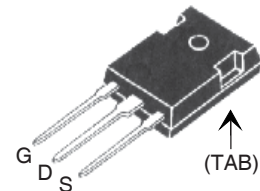
TO-263 (IXTA)



TO-220 (IXTP)



TO-247 (IXTH)



G = Gate D = Drain
S = Source TAB = Drain

Features

- International standard packages
- Fast intrinsic diode
- Avalanche Rated
- Low Q_G and $R_{ds(on)}$
- Extended FBSOA

Advantages

- Low gate drive requirement
- High power density
- Fast switching

Applications

- Load switches
- High side switches
- Low voltage applications such as automotive, DC & DC converters
- SMPS
- Inverters and battery chargers
- Audio and Medical applications

| Symbol | Test Conditions ($T_J = 25^\circ C$, unless otherwise specified) | Characteristic Values | | |
|--------------|---|-----------------------|------|---------------|
| | | Min. | Typ. | Max. |
| BV_{DSS} | $V_{GS} = 0V$, $I_D = -250\mu A$ | - 50 | | V |
| $V_{GS(th)}$ | $V_{DS} = V_{GS}$, $I_D = -250\mu A$ | - 2.0 | | V |
| I_{GSS} | $V_{GS} = \pm 20V$, $V_{DS} = 0V$ | | | ± 100 nA |
| I_{DSS} | $V_{DS} = V_{DSS}$ | | | -10 μA |
| | $V_{GS} = 0V$ $T_J = 125^\circ C$ | | | - 750 μA |
| $R_{DS(on)}$ | $V_{GS} = -10V$, $I_D = 0.5 \cdot I_{D25}$, Note 1 | | | 8 m Ω |

Fig. 1. Output Characteristics @ 25°C

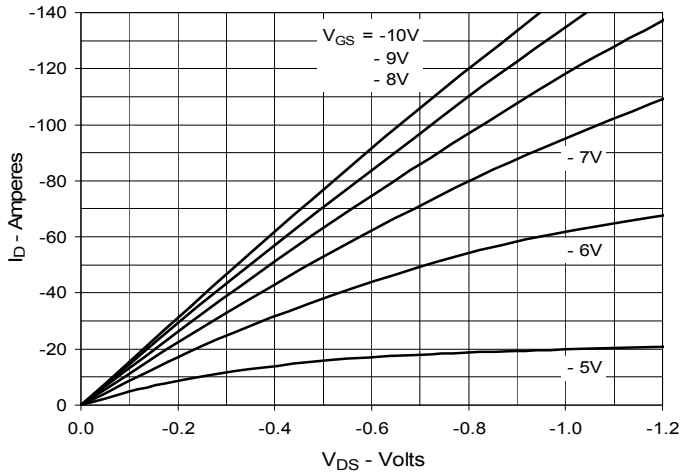


Fig. 2. Extended Output Characteristics @ 25°C

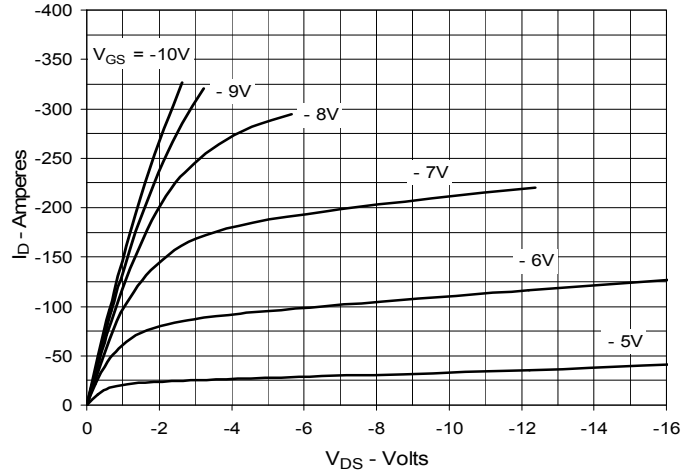


Fig. 3. Output Characteristics @ 125°C

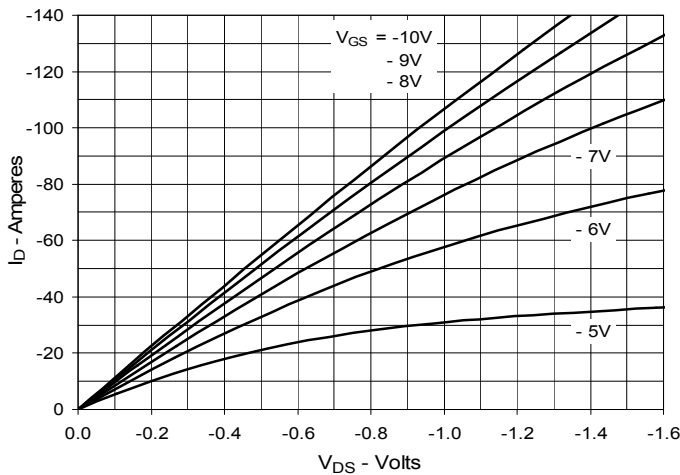


Fig. 4. $R_{DS(on)}$ Normalized to $I_D = -70A$ vs. Junction Temperature

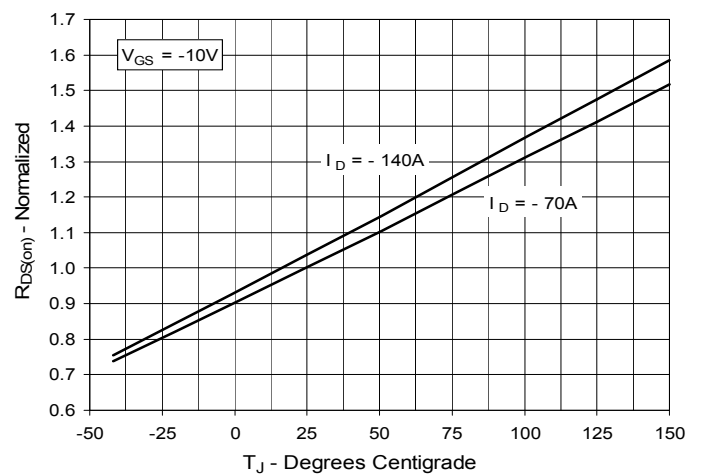


Fig. 5. $R_{DS(on)}$ Normalized to $I_D = -70A$ vs. Drain Current

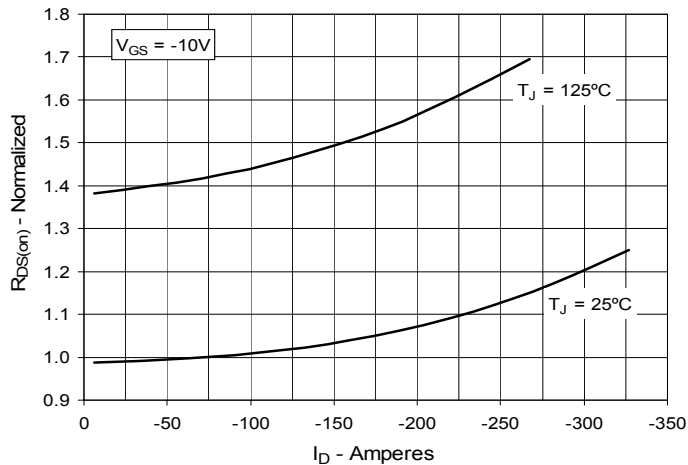


Fig. 6. Maximum Drain Current vs. Case Temperature

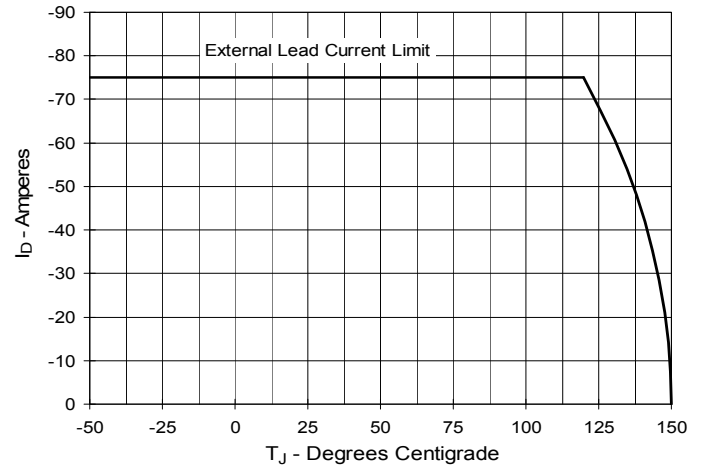


Fig. 7. Input Admittance

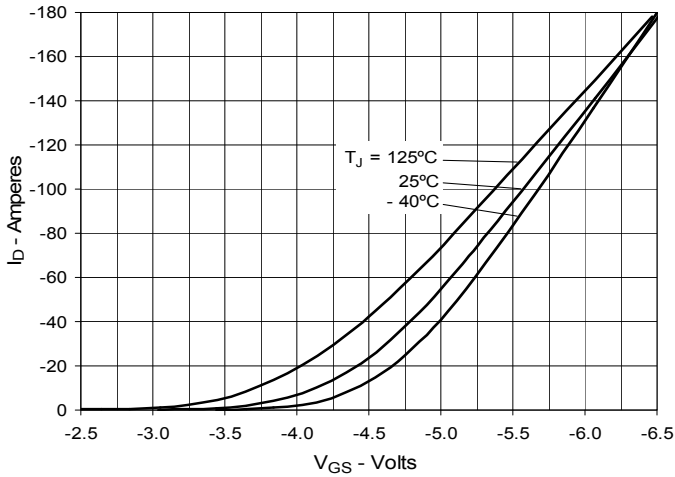


Fig. 8. Transconductance

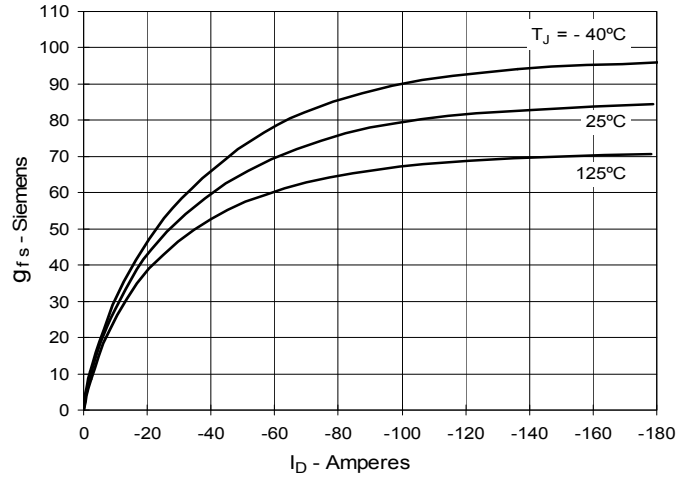


Fig. 9. Forward Voltage Drop of Intrinsic Diode

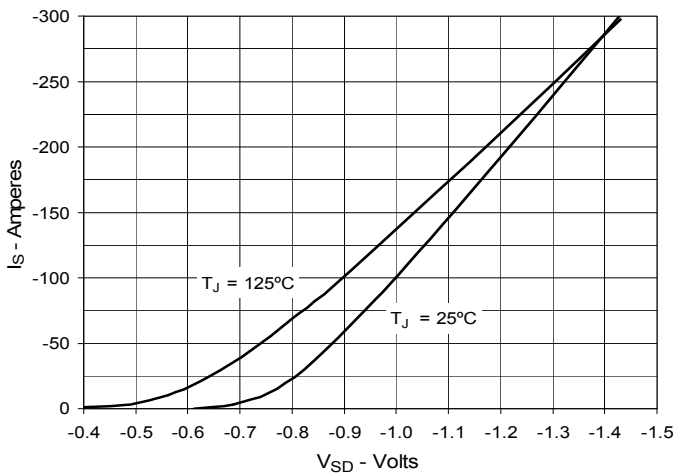


Fig. 10. Gate Charge

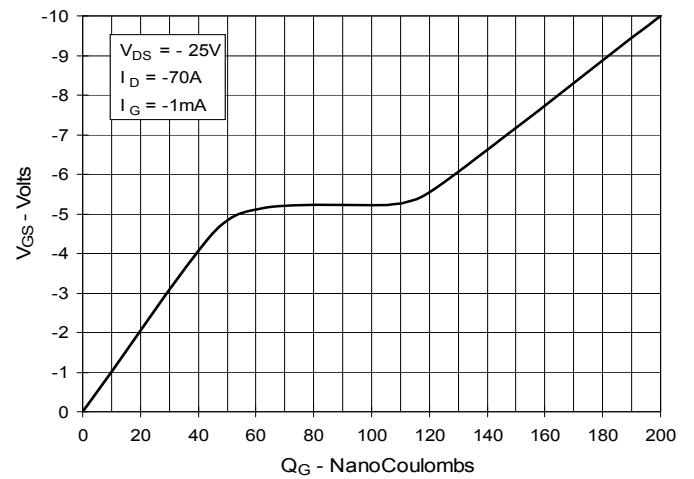


Fig. 11. Capacitance

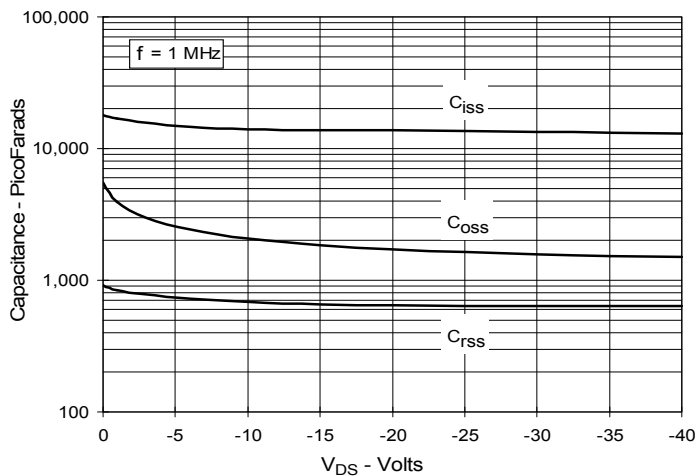
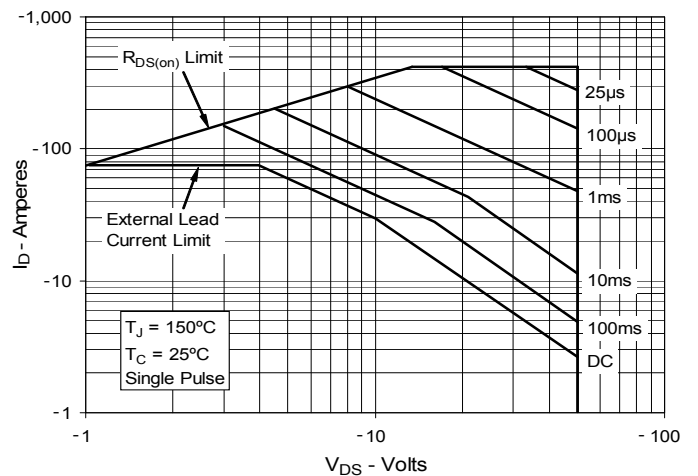
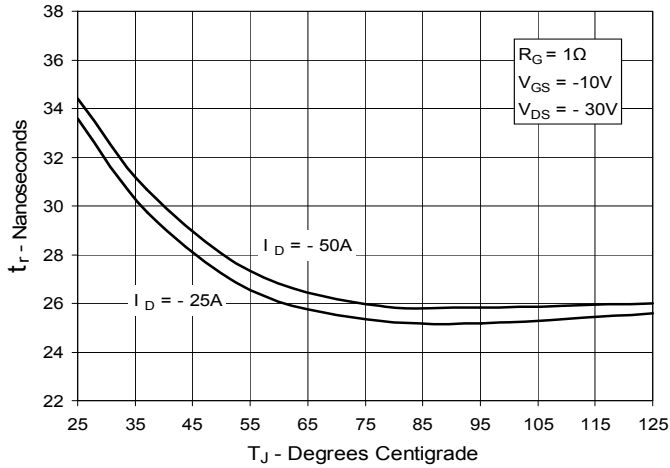


Fig. 12. Forward-Bias Safe Operating Area

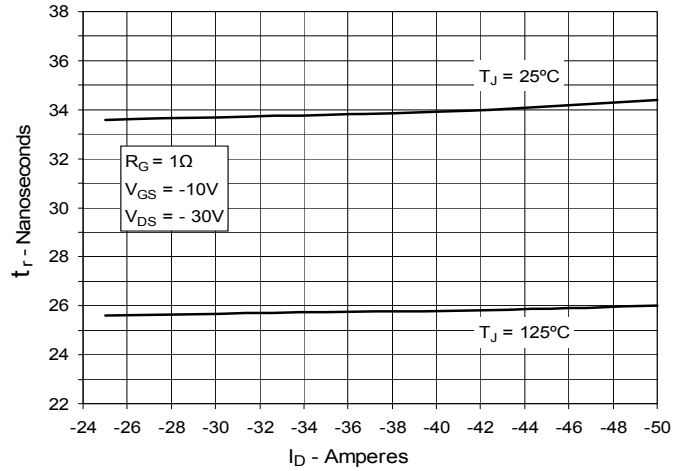


IXYS reserves the right to change limits, test conditions, and dimensions.

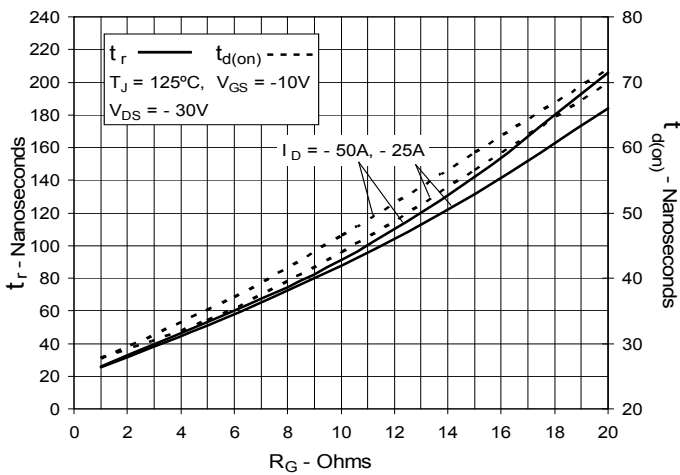
**Fig. 13. Resistive Turn-on
Rise Time vs. Junction Temperature**



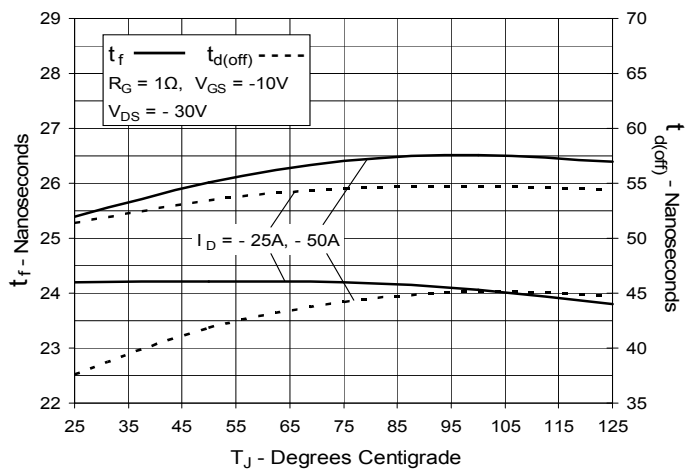
**Fig. 14. Resistive Turn-on
Rise Time vs. Drain Current**



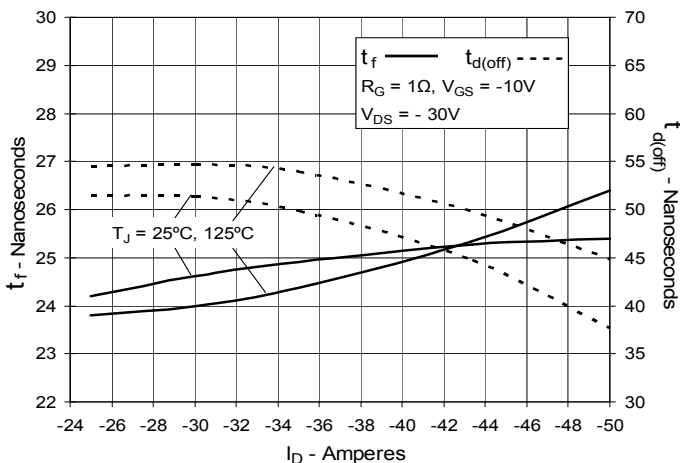
**Fig. 15. Resistive Turn-on
Switching Times vs. Gate Resistance**



**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**

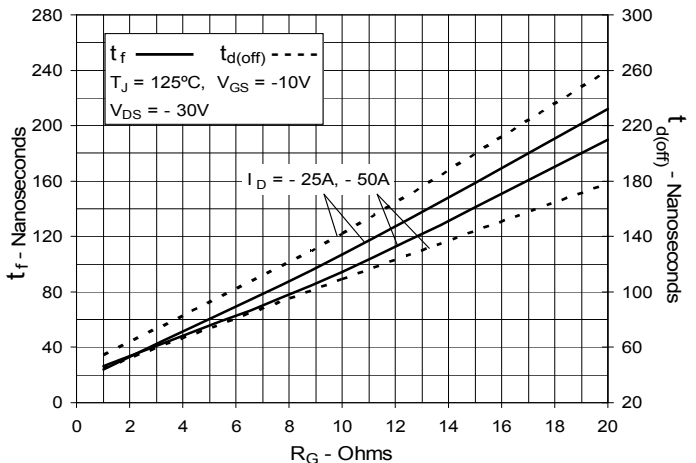


Fig. 19. Maximum Transient Thermal Impedance

