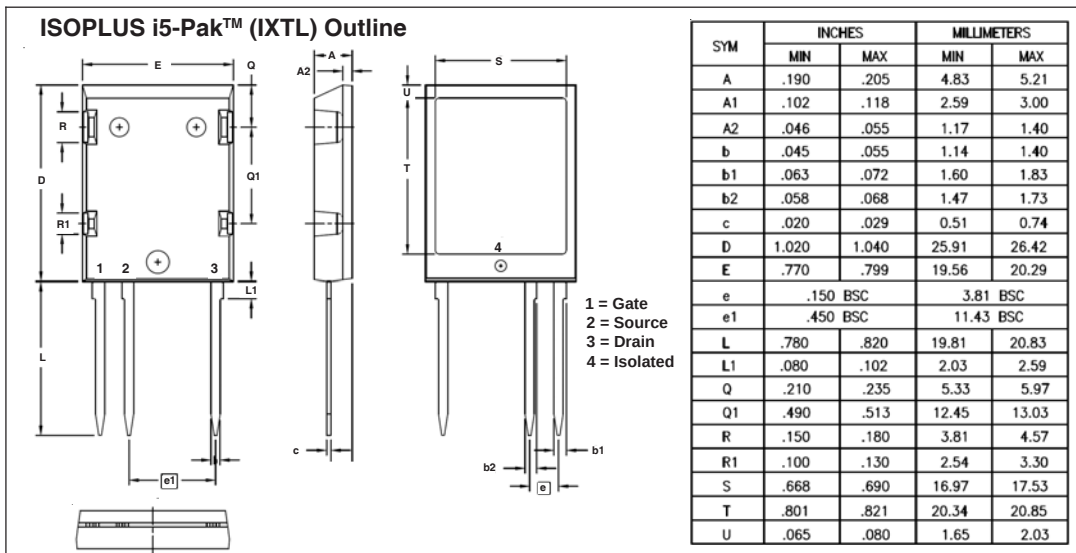


| Symbol       | Test Conditions<br>( $T_J = 25^\circ\text{C}$ , Unless Otherwise Specified)                                                         | Characteristic Values |      |                    |
|--------------|-------------------------------------------------------------------------------------------------------------------------------------|-----------------------|------|--------------------|
|              |                                                                                                                                     | Min.                  | Typ. | Max.               |
| $g_{fs}$     | $V_{DS} = 60\text{V}$ , $I_D = 0.5 \cdot I_{D25}$ , Note 1                                                                          | 2.1                   | 3.5  | S                  |
| $C_{iss}$    | $V_{GS} = 0\text{V}$ , $V_{DS} = 25\text{V}$ , $f = 1\text{MHz}$                                                                    |                       | 6860 | pF                 |
| $C_{oss}$    |                                                                                                                                     |                       | 267  | pF                 |
| $C_{rss}$    |                                                                                                                                     |                       | 105  | pF                 |
| $R_{Gi}$     | Integrated Gate Input Resistance                                                                                                    |                       | 4.0  | $\Omega$           |
| $t_{d(on)}$  | <b>Resistive Switching Times</b><br>$V_{GS} = 10\text{V}$ , $V_{DS} = 1\text{kV}$ , $I_D = 1\text{A}$<br>$R_G = 0\Omega$ (External) |                       | 40   | ns                 |
| $t_r$        |                                                                                                                                     |                       | 34   | ns                 |
| $t_{d(off)}$ |                                                                                                                                     |                       | 123  | ns                 |
| $t_f$        |                                                                                                                                     |                       | 205  | ns                 |
| $Q_{g(on)}$  | $V_{GS} = 10\text{V}$ , $V_{DS} = 1\text{kV}$ , $I_D = 0.5 \cdot I_{D25}$                                                           |                       | 180  | nC                 |
| $Q_{gs}$     |                                                                                                                                     |                       | 34   | nC                 |
| $Q_{gd}$     |                                                                                                                                     |                       | 83   | nC                 |
| $R_{thJC}$   |                                                                                                                                     |                       | 0.56 | $^\circ\text{C/W}$ |
| $R_{thCS}$   |                                                                                                                                     | 0.15                  |      | $^\circ\text{C/W}$ |

## Source-Drain Diode

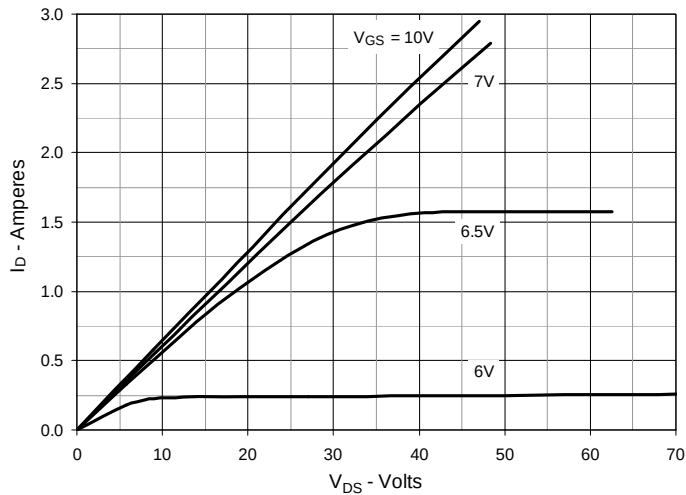
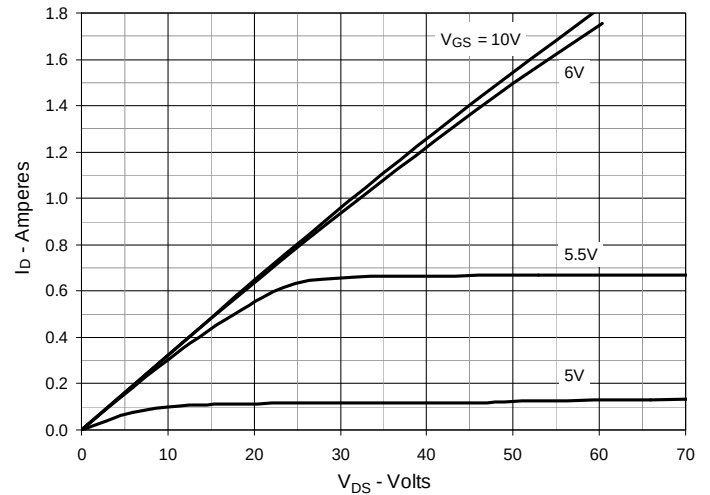
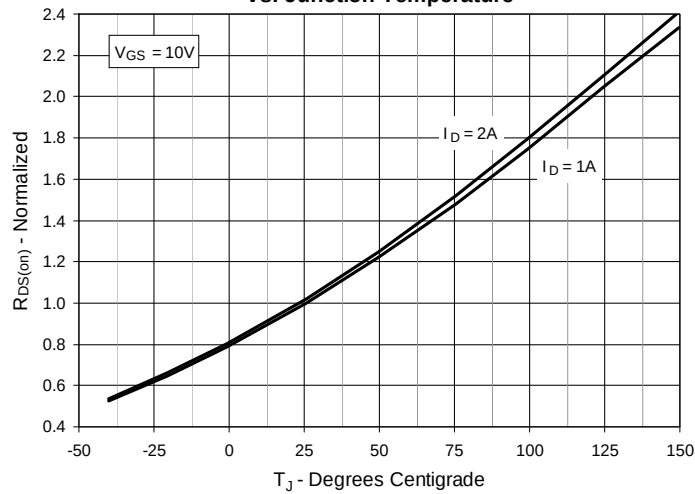
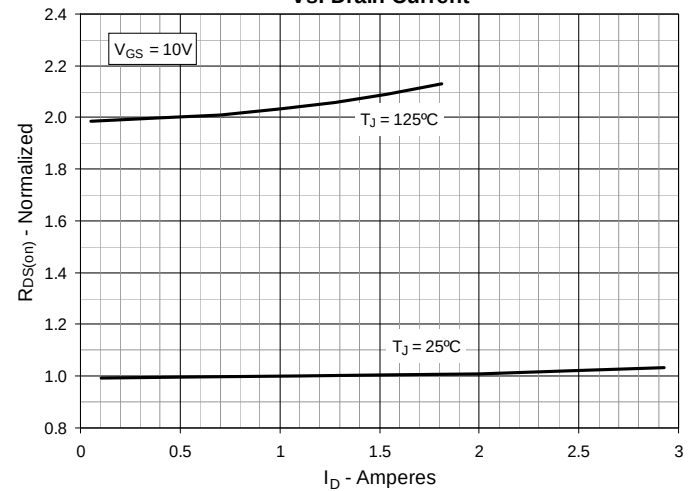
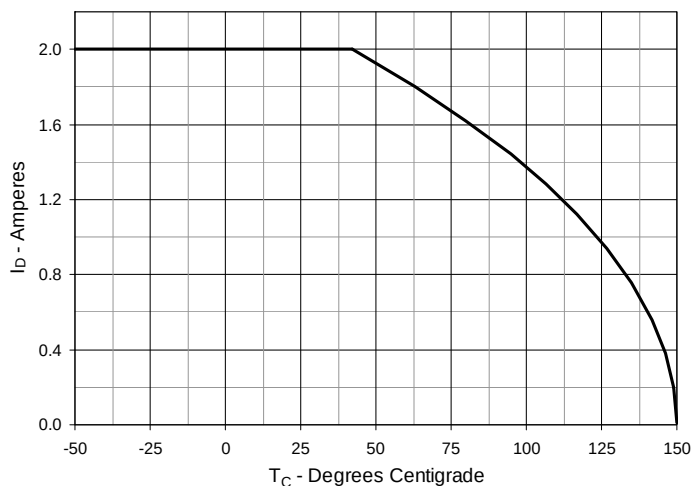
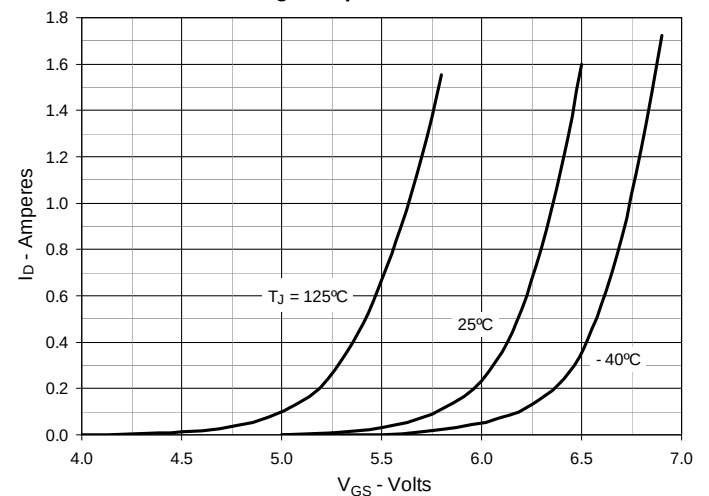
| Symbol   | Test Conditions<br>( $T_J = 25^\circ\text{C}$ , Unless Otherwise Specified)  | Characteristic Values |      |               |
|----------|------------------------------------------------------------------------------|-----------------------|------|---------------|
|          |                                                                              | Min.                  | Typ. | Max.          |
| $I_S$    | $V_{GS} = 0\text{V}$                                                         |                       |      | 2 A           |
| $I_{SM}$ | Repetitive, Pulse Width Limited by $T_{JM}$                                  |                       |      | 8 A           |
| $V_{SD}$ | $I_F = I_S$ , $V_{GS} = 0\text{V}$ , Note 1                                  |                       |      | 3 V           |
| $t_{rr}$ | $I_F = 2\text{A}$ , $-di/dt = 100\text{A}/\mu\text{s}$ , $V_R = 100\text{V}$ | 1.75                  |      | $\mu\text{s}$ |

- Notes: 1. Pulse test,  $t \leq 300\mu\text{s}$ , duty cycle,  $d \leq 2\%$ .  
2. Part must be heatsunk for high-temp  $I_{dss}$  measurement.



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 | 7,157,338 B2 |
|                                                                                  | 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. Output Characteristics @  $T_J = 125^\circ\text{C}$** 

**Fig. 3.  $R_{DS(on)}$  Normalized to  $I_D = 1\text{A}$  Value vs. Junction Temperature**

**Fig. 4.  $R_{DS(on)}$  Normalized to  $I_D = 1\text{A}$  Value vs. Drain Current**

**Fig. 5. Maximum Drain Current vs. Case Temperature**

**Fig. 6. Input Admittance**


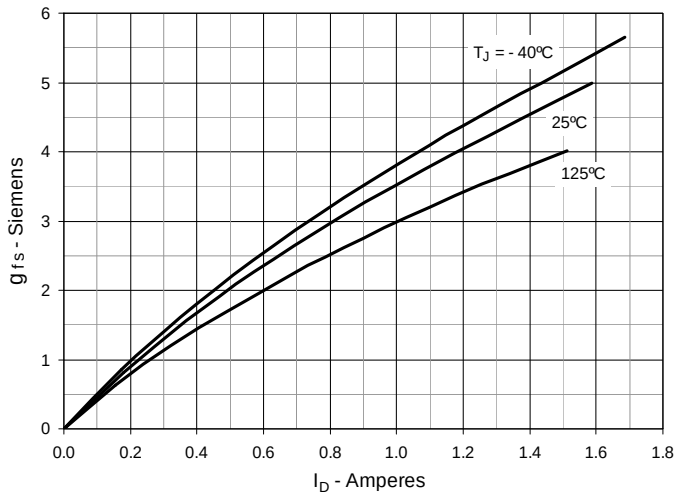
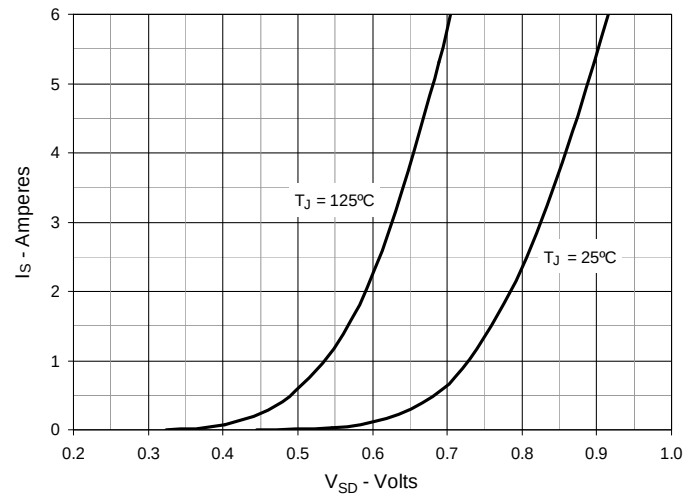
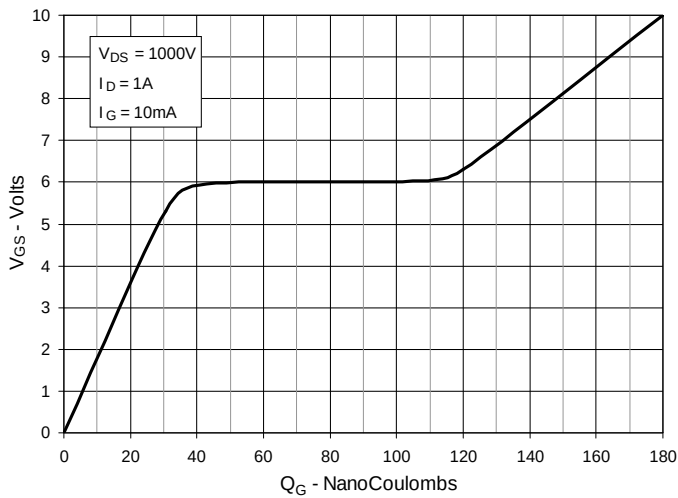
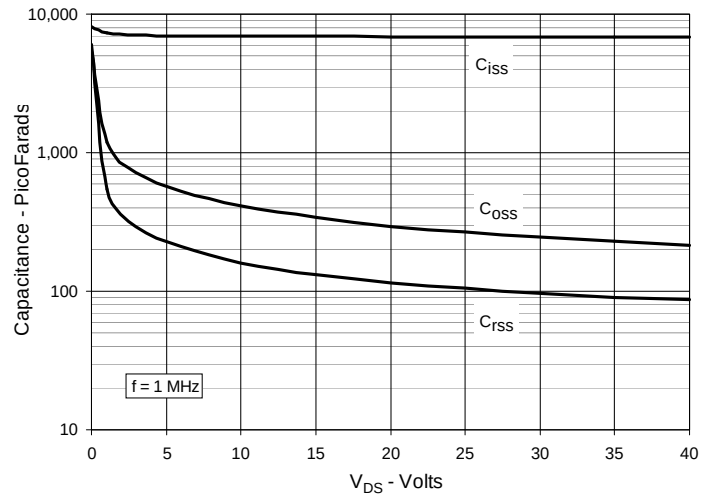
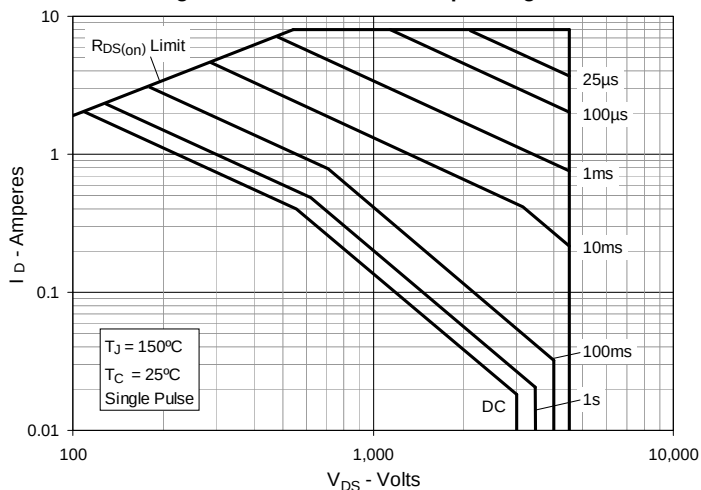
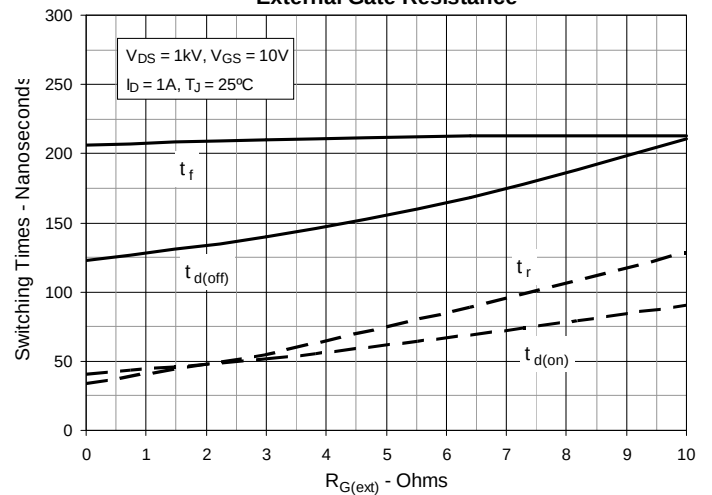
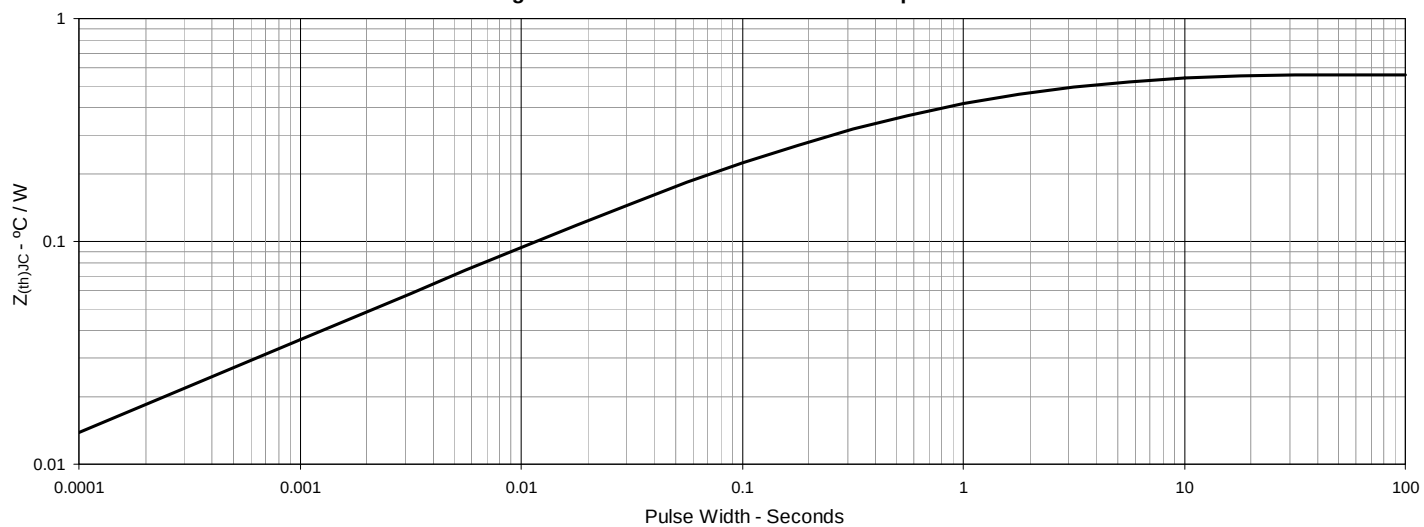
**Fig. 7. Transconductance**

**Fig. 8. Forward Voltage Drop of Intrinsic Diode**

**Fig. 9. Gate Charge**

**Fig. 10. Capacitance**

**Fig. 11. Forward-Bias Safe Operating Area**

**Fig. 12. Resistive Switching Times vs. External Gate Resistance**


Fig. 13. Maximum Transient Thermal Impedance





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