

| | | | | | | |
|---|--------------|--|-----|------|-----------|------------|
| Gate-Body Leakage Current | I_{GSS} | $V_{GS}=\pm 20V, V_{DS}=0V$ | - | - | ± 100 | nA |
| On Characteristics (Note 3) | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=250\mu A$ | 1.2 | 1.5 | 2.2 | V |
| Drain-Source On-State Resistance | $R_{DS(ON)}$ | $V_{GS}=4.5V, I_D=3.1A$ | - | 58 | 73 | m Ω |
| | | $V_{GS}=10V, I_D=3.6A$ | - | 40 | 58 | m Ω |
| Forward Transconductance | g_{FS} | $V_{DS}=5V, I_D=3.6A$ | - | 11 | - | S |
| Dynamic Characteristics (Note4) | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=15V, V_{GS}=0V,$ $F=1.0MHz$ | - | 230 | - | PF |
| Output Capacitance | C_{oss} | | - | 40 | - | PF |
| Reverse Transfer Capacitance | C_{rss} | | - | 17 | - | PF |
| Switching Characteristics (Note 4) | | | | | | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DD}=10V, I_D=3.6A$ $V_{GS}=4.5V, R_{GEN}=6\Omega$ | - | 10 | - | nS |
| Turn-on Rise Time | t_r | | - | 50 | - | nS |
| Turn-Off Delay Time | $t_{d(off)}$ | | - | 10 | - | nS |
| Turn-Off Fall Time | t_f | | - | 20 | - | nS |
| Total Gate Charge | Q_g | $V_{DS}=15V, I_D=3.6A,$ $V_{GS}=10V$ | - | 4.0 | - | nC |
| Gate-Source Charge | Q_{gs} | | - | 0.75 | - | nC |
| Gate-Drain Charge | Q_{gd} | | - | 0.65 | - | nC |
| Drain-Source Diode Characteristics | | | | | | |
| Diode Forward Voltage (Note 3) | V_{SD} | $V_{GS}=0V, I_S=2.7A$ | - | 0.8 | 1.2 | V |
| Diode Forward Current (Note 2) | I_S | | - | - | 1.6 | A |

Notes:

1. Repetitive Rating: Pulse width limited by maximum junction temperature.
2. Surface Mounted on FR4 Board, $t \leq 10$ sec.
3. Pulse Test: Pulse Width $\leq 300\mu s$, Duty Cycle $\leq 2\%$.
4. Guaranteed by design, not subject to production

Typical Electrical and Thermal Characteristics

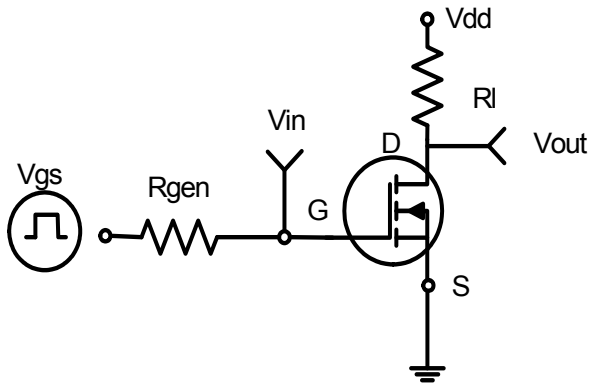


Figure 1: Switching Test Circuit



Figure 2: Switching Waveforms

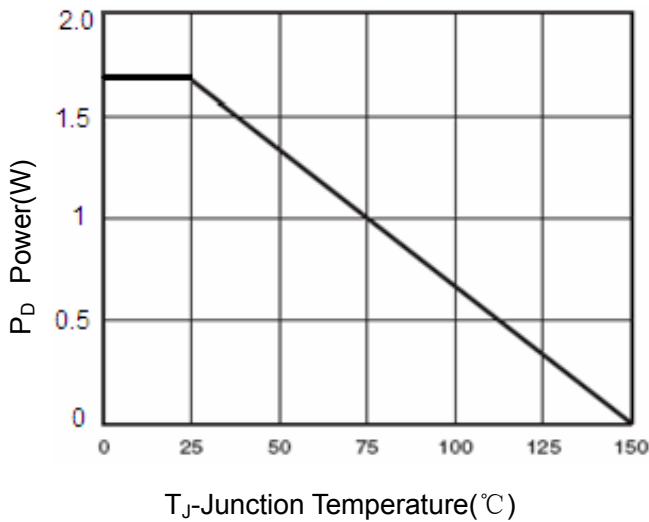


Figure 3 Power Dissipation

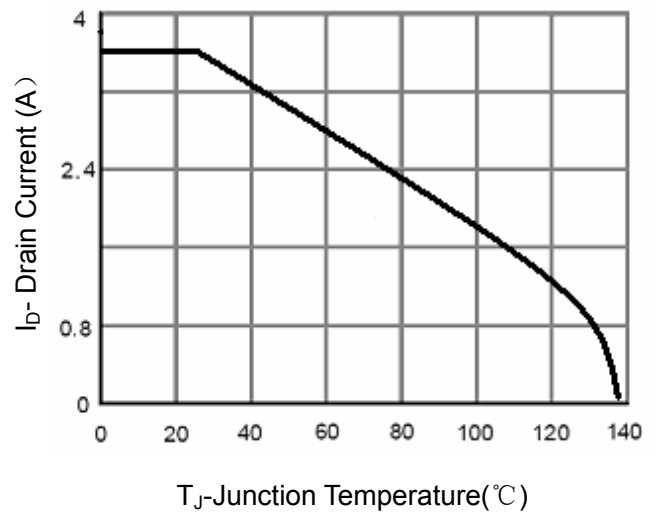


Figure 4 Drain Current

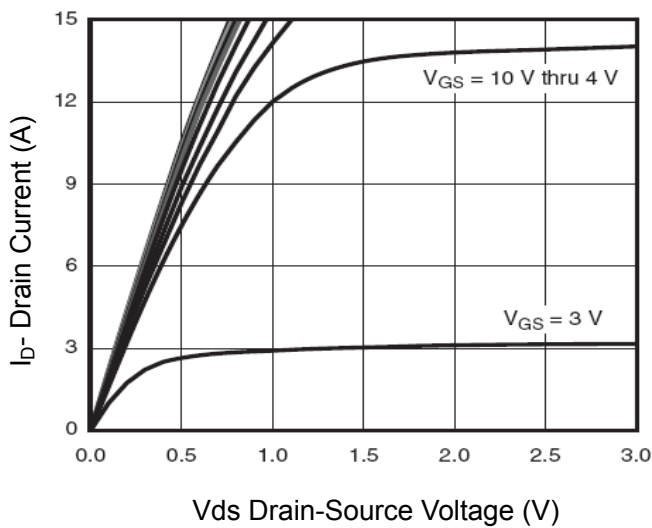


Figure 5 Output Characteristics

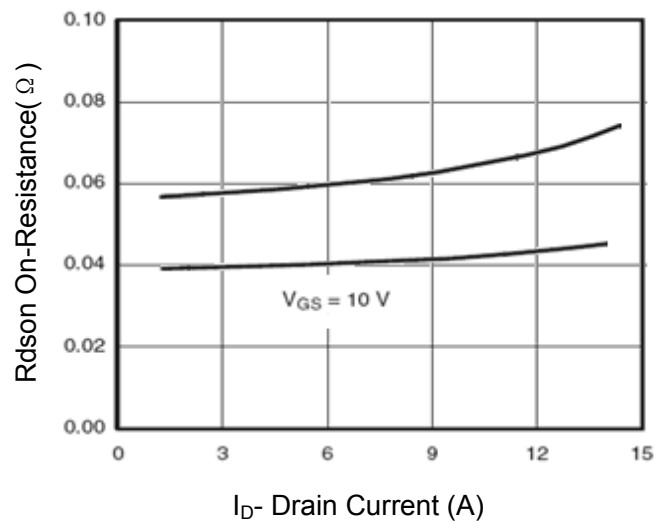


Figure 6 Drain-Source On-Resistance

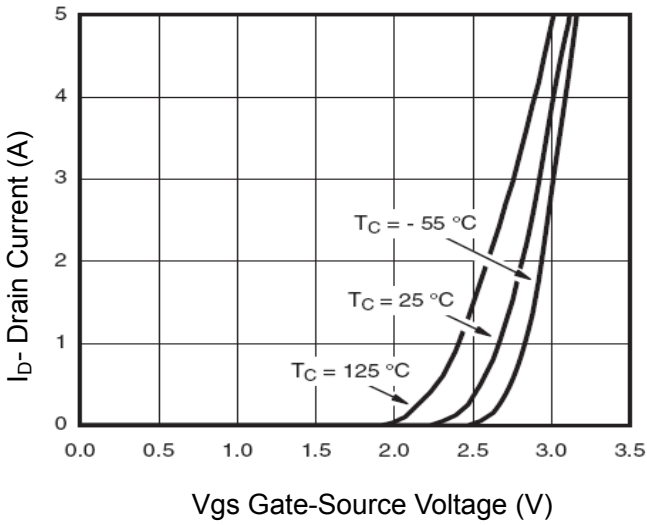


Figure 7 Transfer Characteristics

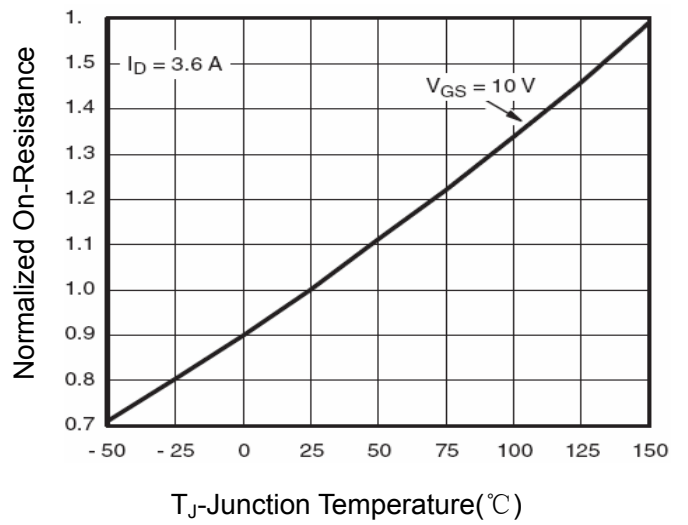


Figure 8 Drain-Source On-Resistance

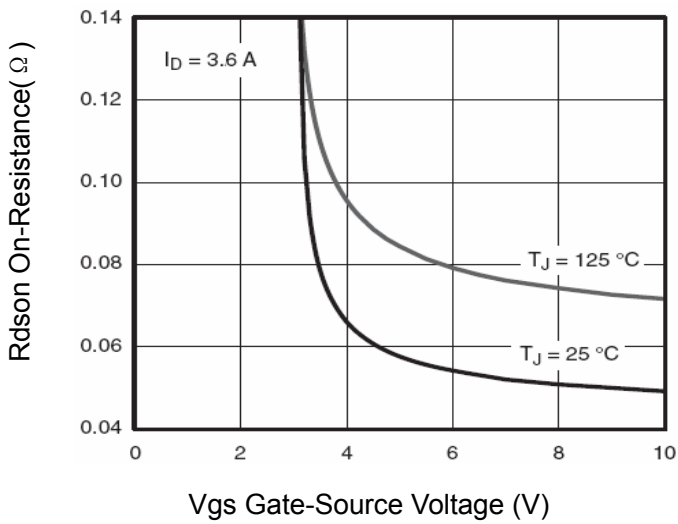


Figure 9 Rdson vs Vgs

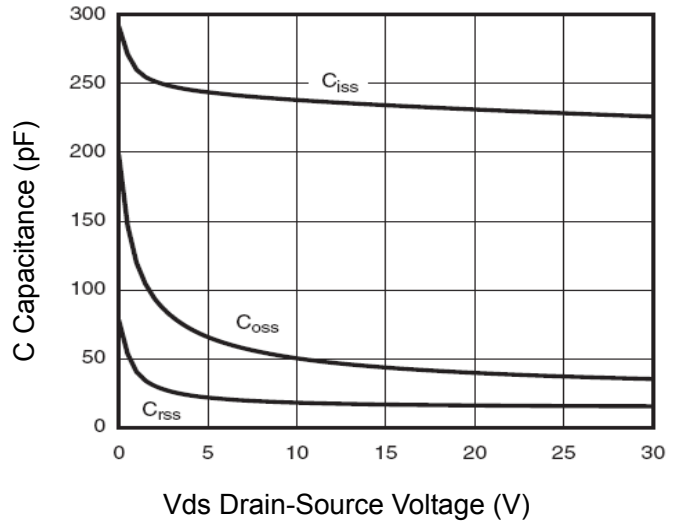


Figure 10 Capacitance vs Vds

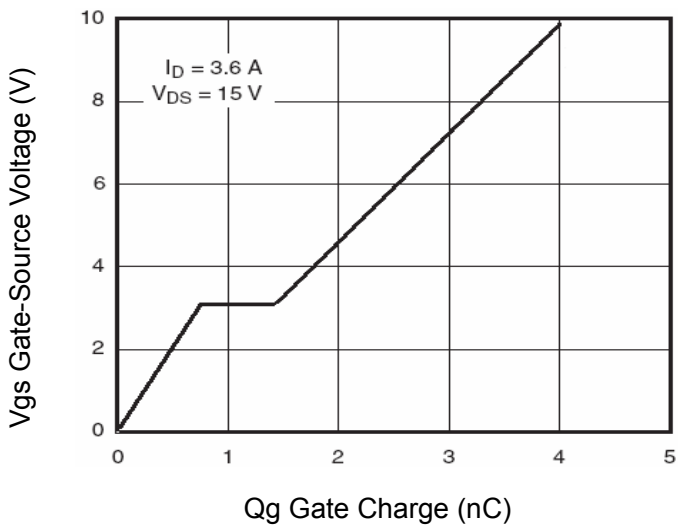


Figure 11 Gate Charge

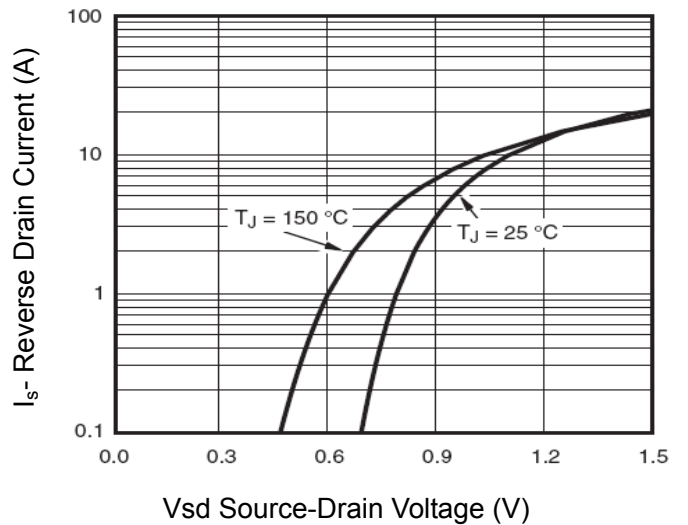


Figure 12 Source-Drain Diode Forward

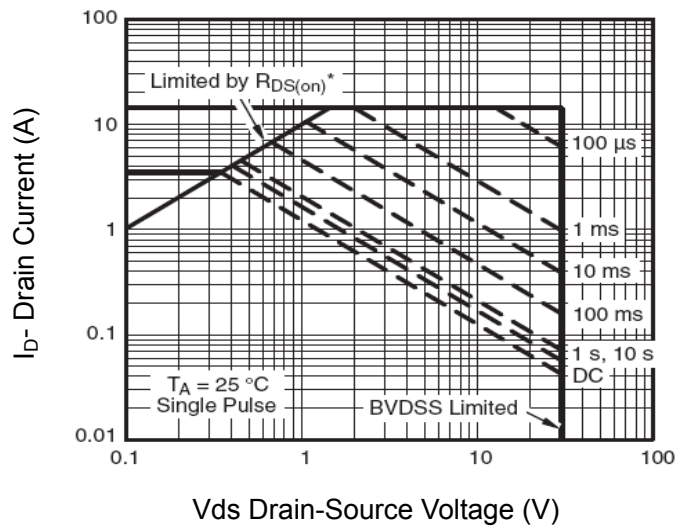


Figure 13 Safe Operation Area

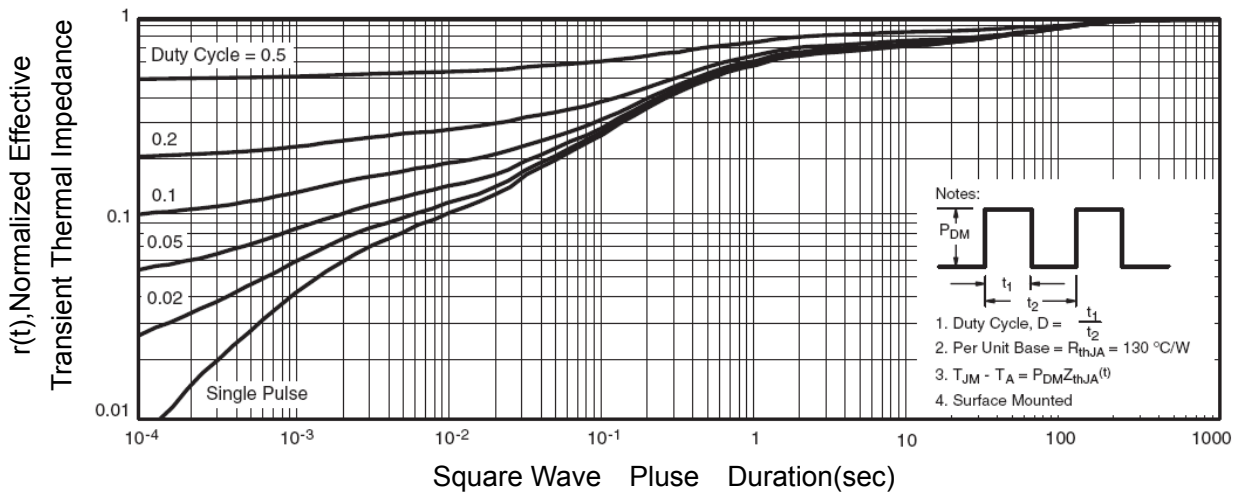
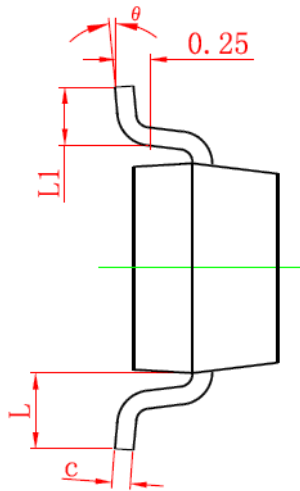
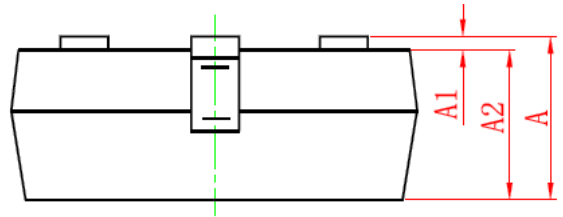
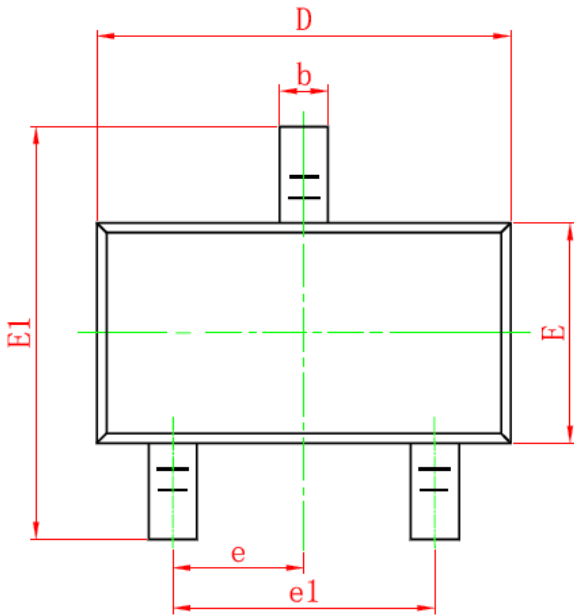


Figure 14 Normalized Maximum Transient Thermal Impedance

SOT-23 Package Information



| Symbol | Dimensions in Millimeters | |
|-----------|---------------------------|--------------|
| | MIN. | MAX. |
| A | 0.900 | 1.150 |
| A1 | 0.000 | 0.100 |
| A2 | 0.900 | 1.050 |
| b | 0.300 | 0.500 |
| c | 0.080 | 0.150 |
| D | 2.800 | 3.000 |
| E | 1.200 | 1.400 |
| E1 | 2.250 | 2.550 |
| e | 0.950TYP | |
| e1 | 1.800 | 2.000 |
| L | 0.550REF | |
| L1 | 0.300 | 0.500 |
| θ | 0° | 8° |

Notes

1. All dimensions are in millimeters.
2. Tolerance $\pm 0.10\text{mm}$ (4 mil) unless otherwise specified
3. Package body sizes exclude mold flash and gate burrs. Mold flash at the non-lead sides should be less than 5 mils.
4. Dimension L is measured in gauge plane.
5. Controlling dimension is millimeter, converted inch dimensions are not necessarily exact.

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