



● Product Summary

● $V_{DSS} = -20V, I_D = -2.8A$

$R_{DS(on)}$ 80mΩ@-2.5V(Typ)

110mΩ@-4.5V(Typ)

- High Power and current handing capability
- Lead free product is acquired
- Surface Mount Package

Application

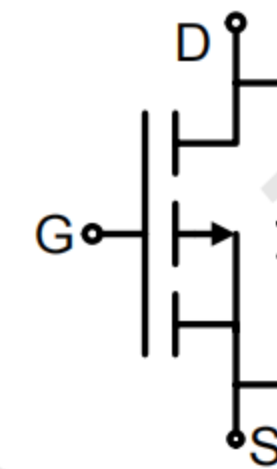
- PWM applications
- Load switch
- Power management

Package and Pin Configuration

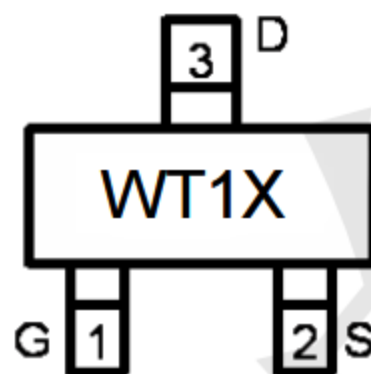
SOT-23



Circuit diagram



Marking:



Marking: WTIX
 "WTI" is part number, fixed
 "X" is internal code

ABSOLUTE MAXIMUM RATINGS(TA=25°C unless otherwise noted)

| Parameter | Symbol | Limit | Unit |
|---|----------------|------------|------|
| Drain-Source Voltage | V_{DS} | -20 | V |
| Gate-Source Voltage | V_{GS} | ±8 | V |
| Drain Current-Continuous@ Current-Pulsed (Note 1) | I_D | -2.8 | A |
| | I_{DM} | -10 | A |
| Maximum Power Dissipation | P_D | 1.25 | W |
| Operating Junction and Storage Temperature Range | T_J, T_{STG} | -55 To 150 | °C |

THERMAL CHARACTERISTICS

| | | | |
|--|-----------------|-----|------|
| Thermal Resistance, Junction-to-Ambient (Note 2) | $R_{\theta JA}$ | 100 | °C/W |
|--|-----------------|-----|------|



ELECTRICAL CHARACTERISTICS (TA=25°C unless otherwise noted)

| Parameter | Symbol | Condition | Min | Typ | Max | Unit |
|---|--------------|---|-------|------|-----------|---------|
| OFF CHARACTERISTICS | | | | | | |
| Drain-Source Breakdown Voltage | BV_{DSS} | $V_{GS}=0V, I_D=-250\mu A$ | -20 | | | V |
| Zero Gate Voltage Drain Current | I_{DSS} | $V_{DS}=-20V, V_{GS}=0V$ | | | -1 | μA |
| Gate-Body Leakage Current | I_{GSS} | $V_{GS}=\pm 8V, V_{DS}=0V$ | | | ± 100 | nA |
| ON CHARACTERISTICS (Note 3) | | | | | | |
| Gate Threshold Voltage | $V_{GS(th)}$ | $V_{DS}=V_{GS}, I_D=-250\mu A$ | -0.45 | | -1 | V |
| Drain-Source On-State Resistance | $R_{DS(on)}$ | $V_{GS}=-4.5V, I_D=-2.8A$ | | 80 | 100 | |
| | | $V_{GS}=-2.5V, I_D=-2A$ | | 110 | 150 | |
| Forward Transconductance | g_{FS} | $V_{DS}=-5V, I_D=-2.8A$ | | 9 | | S |
| DYNAMIC CHARACTERISTICS (Note4) | | | | | | |
| Input Capacitance | C_{iss} | $V_{DS}=-10V, V_{GS}=0V, F=1.0MHz$ | | 1160 | | PF |
| Output Capacitance | C_{oss} | | | 210 | | PF |
| Reverse Transfer Capacitance | C_{rss} | | | 125 | | PF |
| SWITCHING CHARACTERISTICS (Note 4) | | | | | | |
| Turn-on Delay Time | $t_{d(on)}$ | $V_{DD}=-10V, I_D=-2.8A, V_{GS}=-4.5V, R_{GEN}=3\Omega$ | | 13.6 | 27.2 | nS |
| Turn-on Rise Time | t_r | | | 8.6 | 17.2 | nS |
| Turn-Off Delay Time | $t_{d(off)}$ | | | 73.6 | 147.2 | nS |
| Turn-Off Fall Time | t_f | | | 34.6 | 69.2 | nS |
| Total Gate Charge | Q_g | $V_{DS}=-10V, I_D=-2.8A, V_{GS}=-4.5V$ | | 9.6 | 12.7 | nC |
| Gate-Source Charge | Q_{gs} | | | 1.1 | | nC |
| Gate-Drain Charge | Q_{gd} | | | 2.6 | | nC |
| DRAIN-SOURCE DIODE CHARACTERISTICS | | | | | | |
| Diode Forward Voltage (Note 3) | V_{SD} | $V_{GS}=0V, I_S=-0.75A$ | | | -1.2 | V |
| Diode Forward Current (Note 2) | I_S | | | | -2.8 | A |



Typical Electrical and Thermal Characteristics

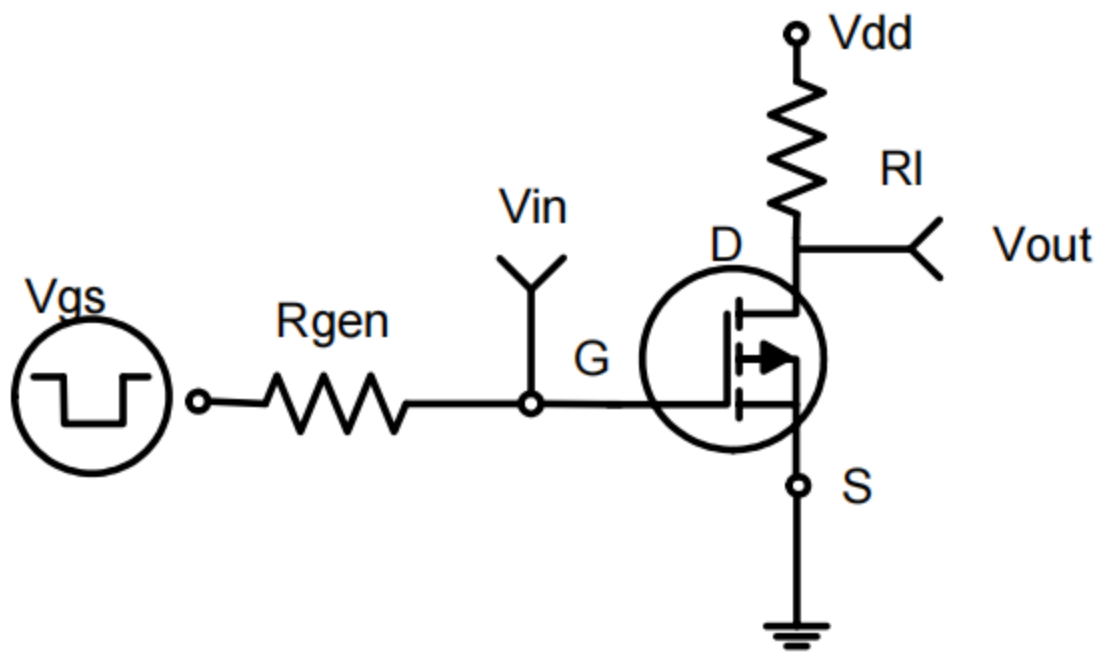


Figure 1: Switching Test Circuit

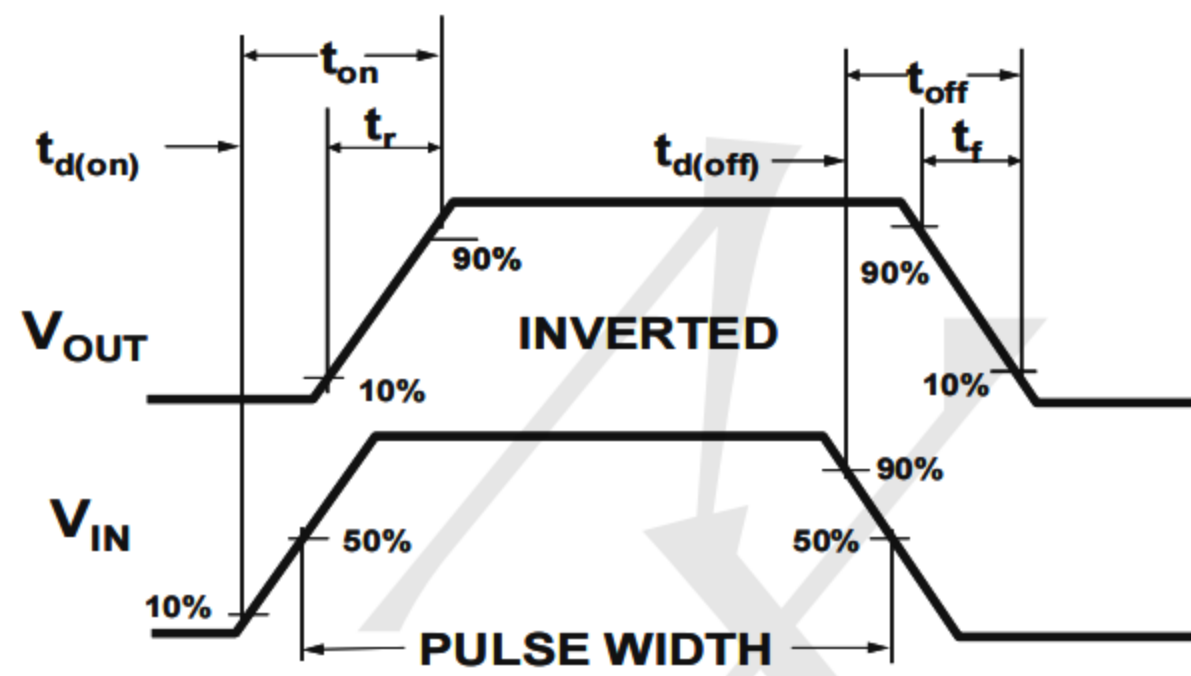


Figure 2: Switching Waveforms

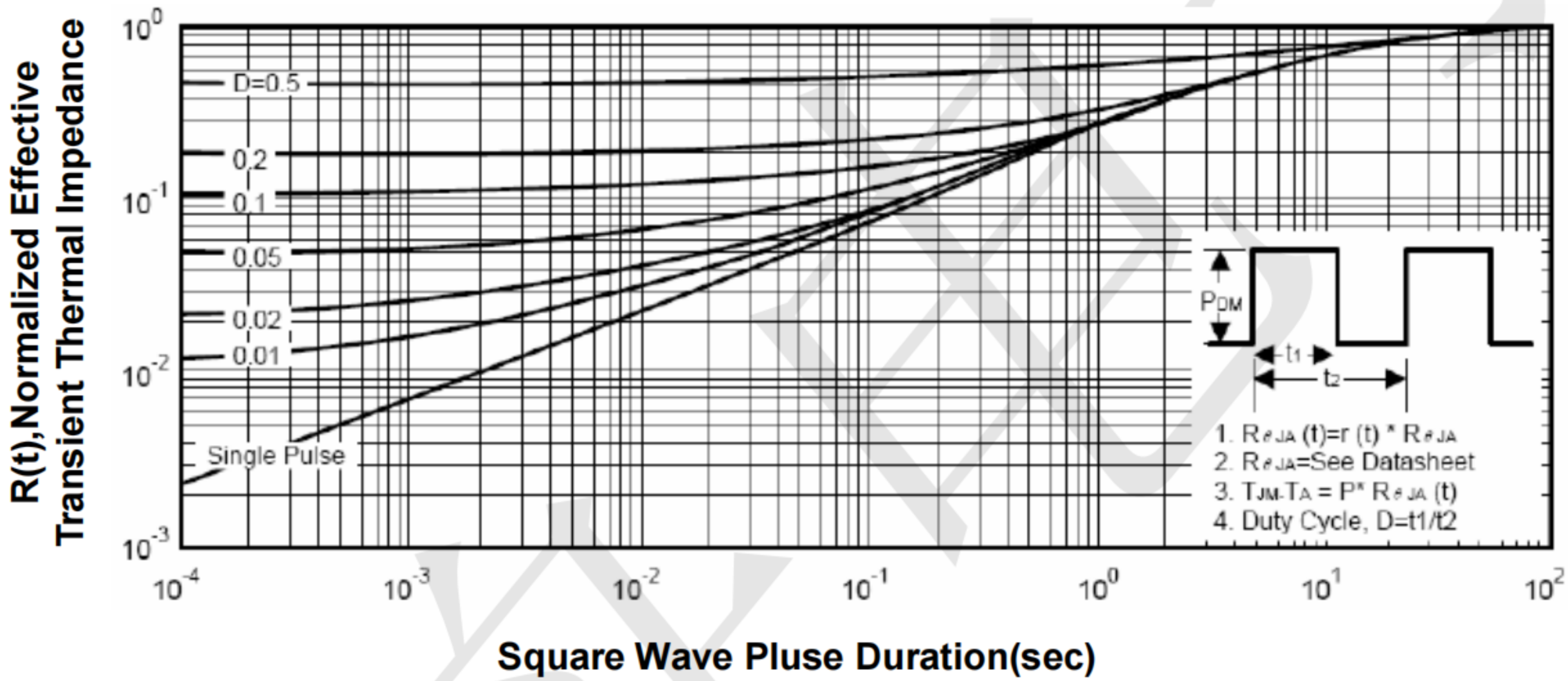
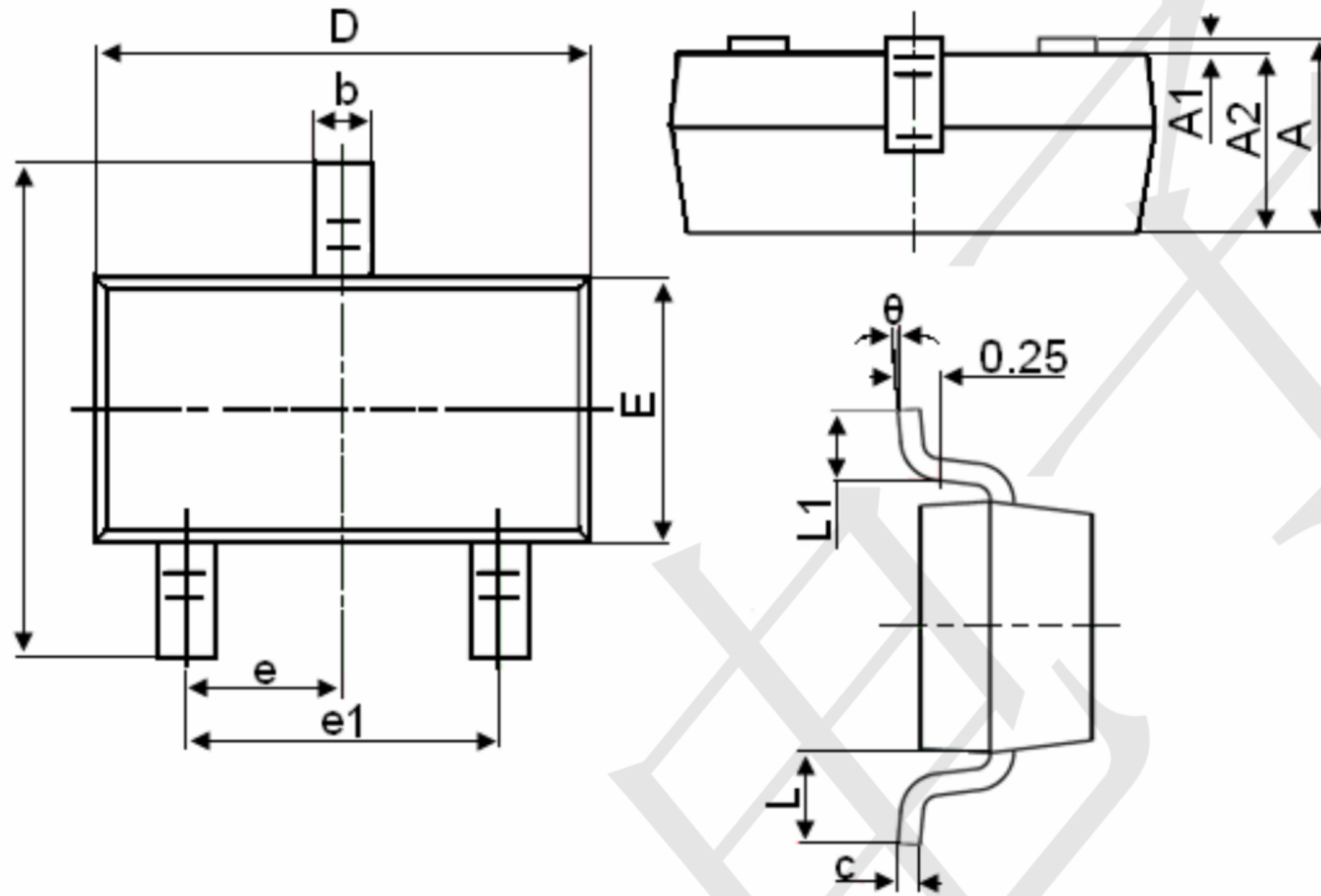


Figure 3: Normalized Maximum Transient Thermal Impedance



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° |

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