

**Description**

The G3035L uses advanced trench technology to provide excellent  $R_{DS(ON)}$ . This device is suitable for use as a load switch or in PWM applications.

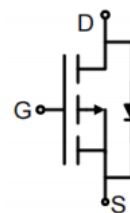
**General Features**

| $V_{DSS}$ | $R_{DS(ON)}$<br>@ -4.5V(Typ) | $R_{DS(ON)}$<br>@ -10V(Typ) | $I_D$ |
|-----------|------------------------------|-----------------------------|-------|
| -30V      | 60m $\Omega$                 | 48m $\Omega$                | -4.1A |

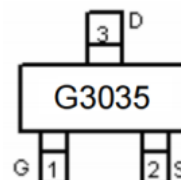
- High power and current handing capability
- RoHS Compliant
- Surface mount package

**Application**

- PWM applications
- Load switch
- Power management



Schematic diagram



Marking and pin assignment



SOT-23-3

**Ordering Information**

| Part Number | Marking | Case     | Packaging    |
|-------------|---------|----------|--------------|
| G3035L      | G3035   | SOT-23-3 | 3000pcs/Reel |

**Absolute Maximum Ratings ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)**

| Parameter                                        | Symbol         | Limit      | Unit               |
|--------------------------------------------------|----------------|------------|--------------------|
| Drain-Source Voltage                             | $V_{DS}$       | -30        | V                  |
| Gate-Source Voltage                              | $V_{GS}$       | $\pm 20$   | V                  |
| Drain Current-Continuous                         | $I_D$          | -4.1       | A                  |
| Drain Current-Pulsed <sup>(Note 1)</sup>         | $I_{DM}$       | -16        | A                  |
| Maximum Power Dissipation                        | $P_D$          | 1.4        | W                  |
| Operating Junction and Storage Temperature Range | $T_J, T_{STG}$ | -55 To 150 | $^{\circ}\text{C}$ |

**Thermal Characteristic**

|                                                             |                 |    |                      |
|-------------------------------------------------------------|-----------------|----|----------------------|
| Thermal Resistance, Junction-to-Ambient <sup>(Note 2)</sup> | $R_{\theta JA}$ | 90 | $^{\circ}\text{C/W}$ |
|-------------------------------------------------------------|-----------------|----|----------------------|

**Electrical Characteristics ( $T_A=25^{\circ}\text{C}$  unless otherwise noted)**

| Parameter                       | Symbol     | Condition                  | Min | Typ | Max  | Unit    |
|---------------------------------|------------|----------------------------|-----|-----|------|---------|
| <b>Off Characteristics</b>      |            |                            |     |     |      |         |
| Drain-Source Breakdown Voltage  | $BV_{DSS}$ | $V_{GS}=0V, I_D=-250\mu A$ | -30 | -   | -    | V       |
| Zero Gate Voltage Drain Current | $I_{DSS}$  | $V_{DS}=-30V, V_{GS}=0V$   | -   | -   | -0.3 | $\mu A$ |

| Parameter                          | Symbol              | Condition                                                                                | Min | Typ  | Max  | Unit |
|------------------------------------|---------------------|------------------------------------------------------------------------------------------|-----|------|------|------|
| Gate-Body Leakage Current          | I <sub>GSS</sub>    | V <sub>GS</sub> =±20V,V <sub>DS</sub> =0V                                                | -   | -    | ±100 | nA   |
| On Characteristics (Note 3)        |                     |                                                                                          |     |      |      |      |
| Gate Threshold Voltage             | V <sub>GS(th)</sub> | V <sub>DS</sub> =V <sub>GS</sub> ,I <sub>D</sub> =-250μA                                 | -1  | -1.5 | -2   | V    |
| Drain-Source On-State Resistance   | R <sub>DS(ON)</sub> | V <sub>GS</sub> =-10V, I <sub>D</sub> =-2.1A                                             | -   | 48   | 59   | mΩ   |
|                                    |                     | V <sub>GS</sub> =-4.5V, I <sub>D</sub> =-2.1A                                            | -   | 60   | 75   | mΩ   |
| Forward Transconductance           | g <sub>FS</sub>     | V <sub>DS</sub> =-5V,I <sub>D</sub> =-4.1A                                               | 5.5 | -    | -    | S    |
| Dynamic Characteristics (Note4)    |                     |                                                                                          |     |      |      |      |
| Input Capacitance                  | C <sub>iss</sub>    | V <sub>DS</sub> =-15V,V <sub>GS</sub> =0V,<br>F=1.0MHz                                   | -   | 650  | -    | PF   |
| Output Capacitance                 | C <sub>oss</sub>    |                                                                                          | -   | 105  | -    | PF   |
| Reverse Transfer Capacitance       | C <sub>rss</sub>    |                                                                                          | -   | 65   | -    | PF   |
| Switching Characteristics (Note 4) |                     |                                                                                          |     |      |      |      |
| Turn-on Delay Time                 | t <sub>d(on)</sub>  | V <sub>DD</sub> =-15V,R <sub>L</sub> =3.6Ω<br>V <sub>GS</sub> =-10V,R <sub>GEN</sub> =3Ω | -   | 8.5  | -    | nS   |
| Turn-on Rise Time                  | t <sub>r</sub>      |                                                                                          | -   | 4.5  | -    | nS   |
| Turn-Off Delay Time                | t <sub>d(off)</sub> |                                                                                          | -   | 26   | -    | nS   |
| Turn-Off Fall Time                 | t <sub>f</sub>      |                                                                                          | -   | 12.5 | -    | nS   |
| Total Gate Charge                  | Q <sub>g</sub>      | V <sub>DS</sub> =-15V,I <sub>D</sub> =-4A,V <sub>GS</sub> =-10V                          | -   | 12.5 | -    | nC   |
| Gate-Source Charge                 | Q <sub>gs</sub>     |                                                                                          | -   | 2.8  | -    | nC   |
| Gate-Drain Charge                  | Q <sub>gd</sub>     |                                                                                          | -   | 2.7  | -    | nC   |
| Drain-Source Diode Characteristics |                     |                                                                                          |     |      |      |      |
| Diode Forward Voltage (Note 3)     | V <sub>SD</sub>     | V <sub>GS</sub> =0V,I <sub>S</sub> =-2A                                                  | -   | -    | -1.2 | V    |

**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

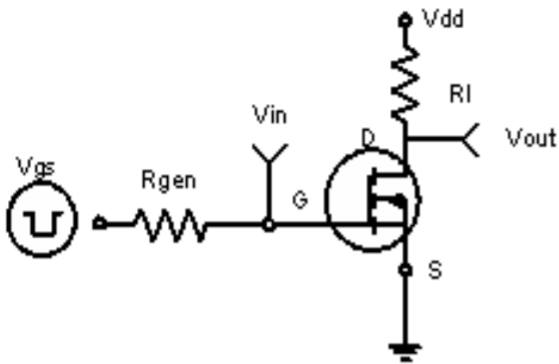


Figure 1: Switching Test Circuit

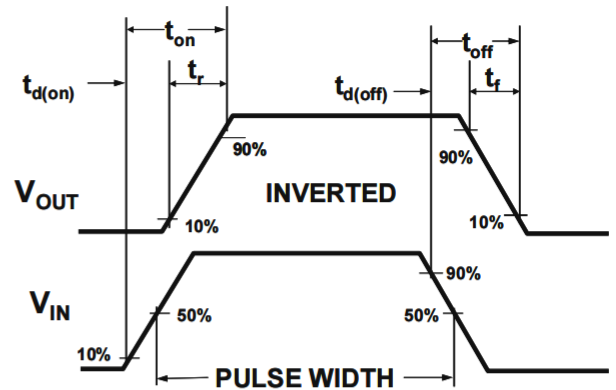


Figure 2: Switching Waveforms

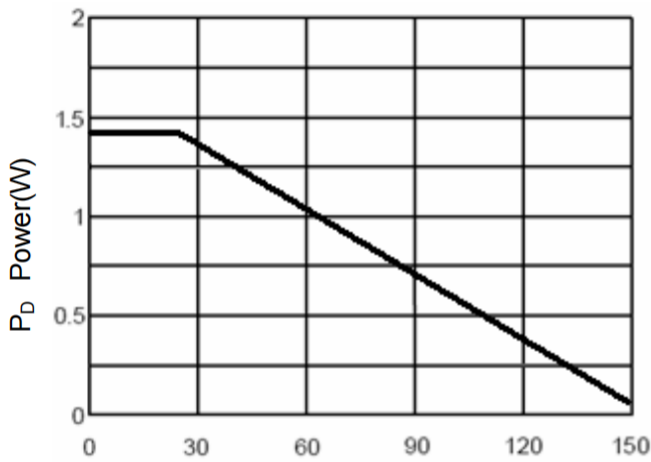


Figure 3 Power Dissipation

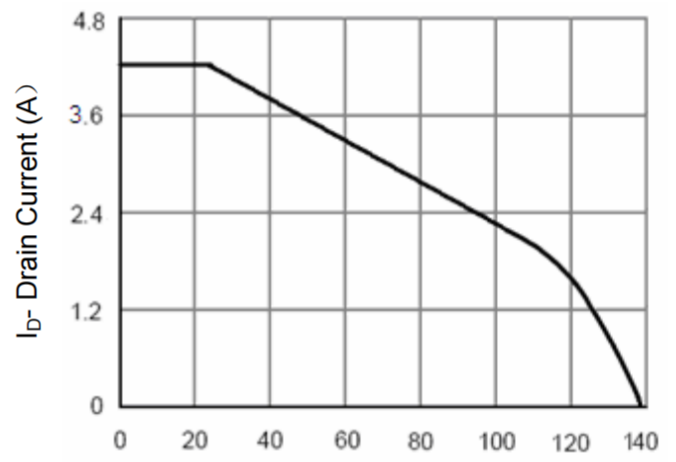


Figure 4 Drain Current

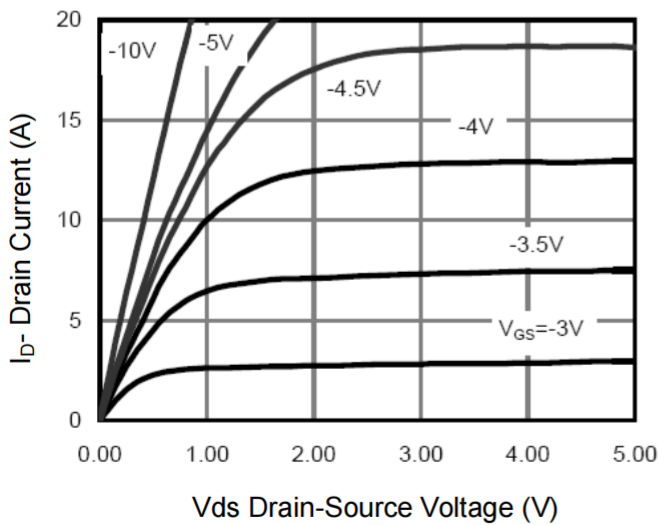


Figure 5 Output Characteristics

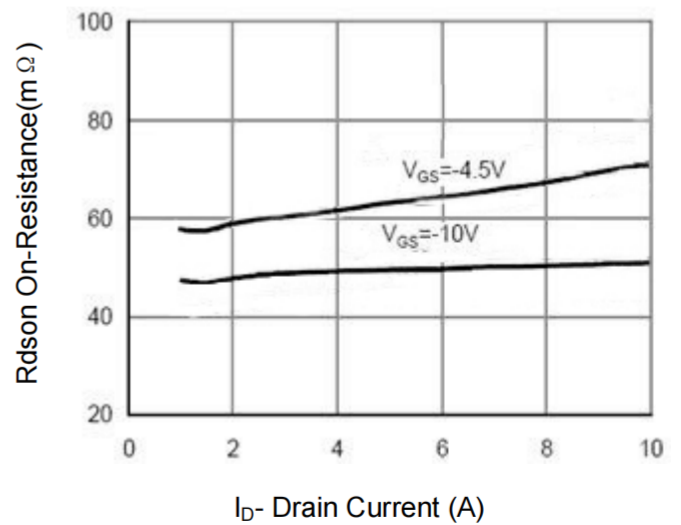


Figure 6 Drain-Source On-Resistance

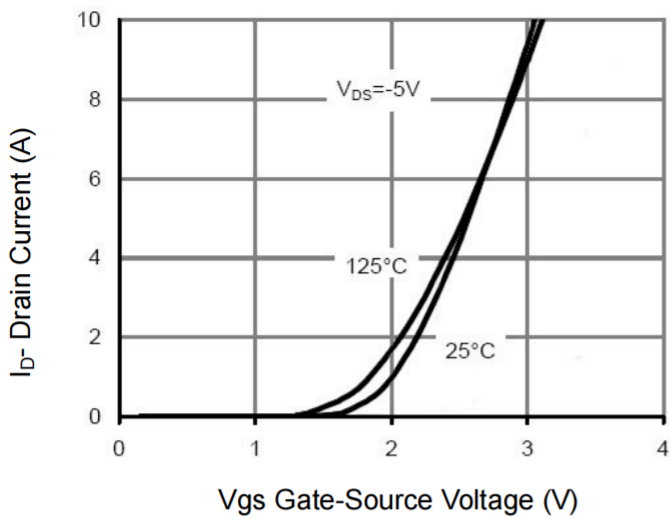


Figure 7 Transfer Characteristics

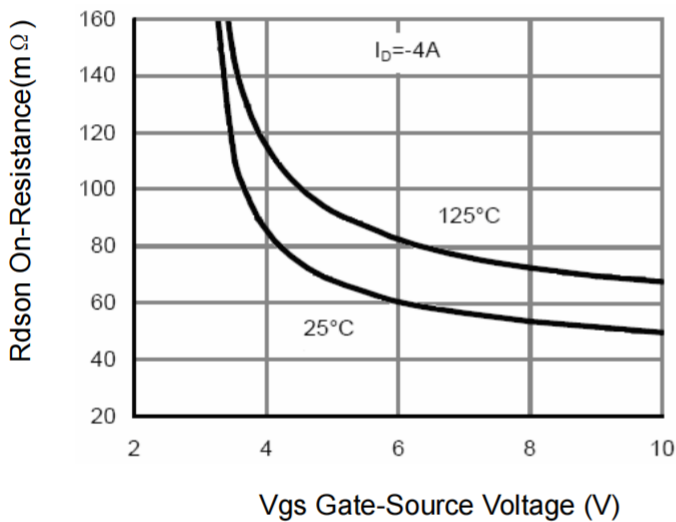


Figure 9  $R_{DS(on)}$  vs  $V_{GS}$

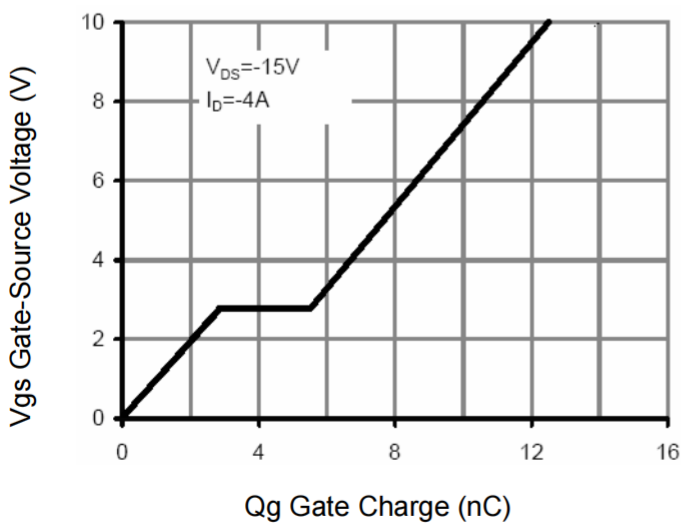


Figure 11 Gate Charge

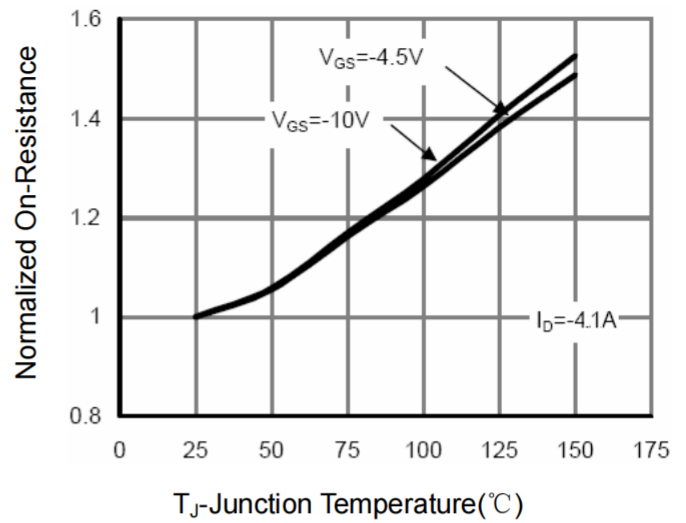


Figure 8 Drain-Source On-Resistance

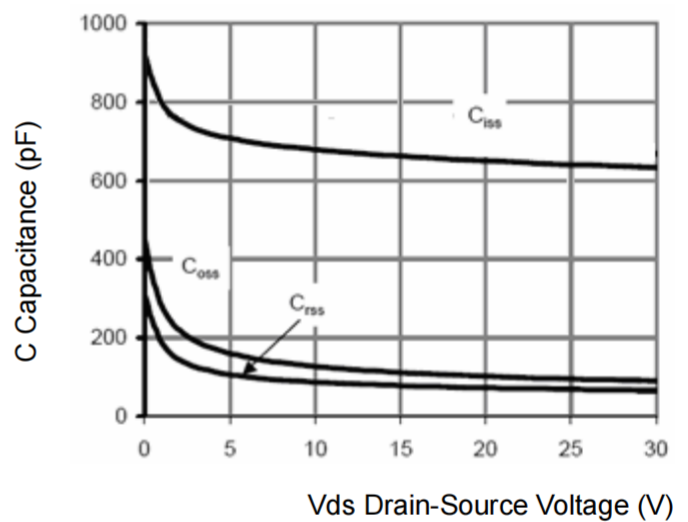


Figure 10 Capacitance vs  $V_{DS}$

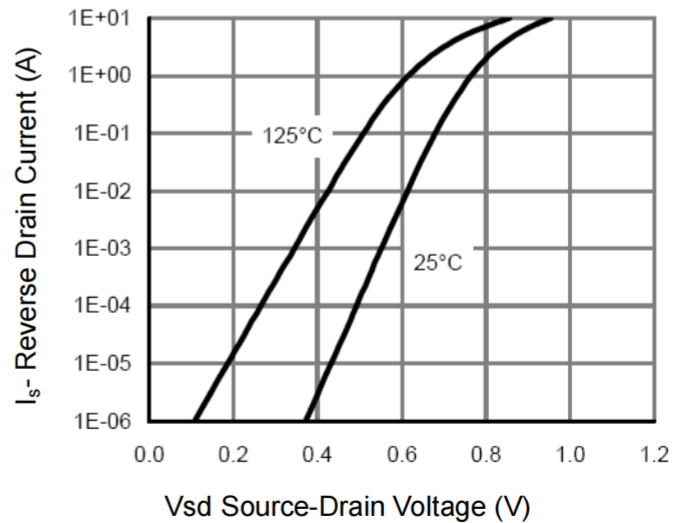


Figure 12 Source- Drain Diode Forward

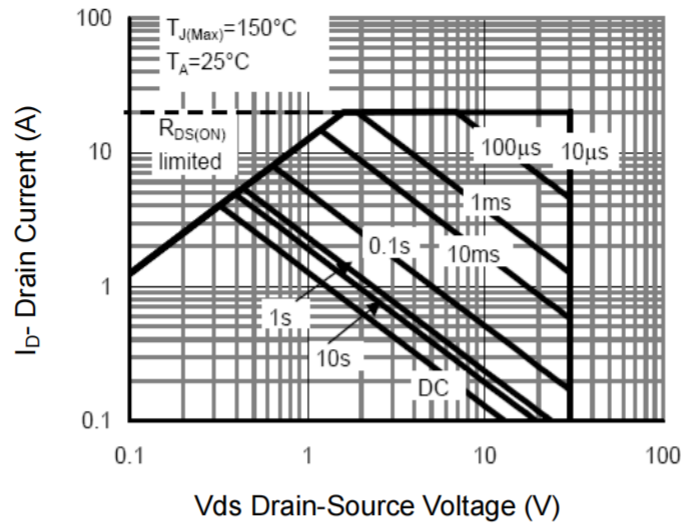


Figure 13 Safe Operation Area

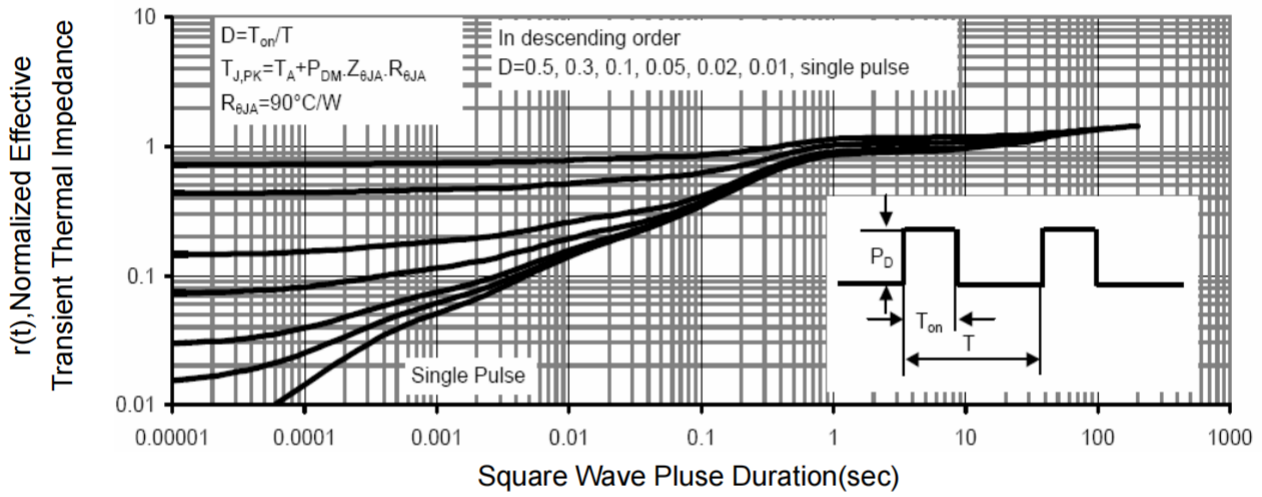
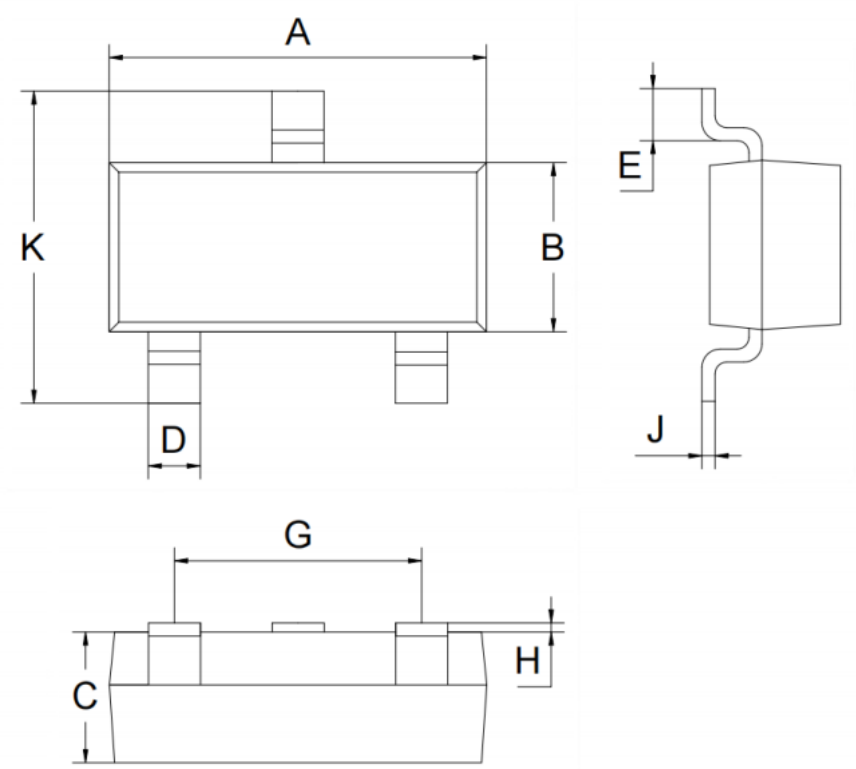


Figure 14 Normalized Maximum Transient Thermal Impedance

SOT-23-3 Package information



| SOT-23-3             |       |       |       |
|----------------------|-------|-------|-------|
| Dim                  | MIN   | NOM   | MAX   |
| A                    | 2.80  | 2.90  | 3.00  |
| B                    | 1.50  | 1.60  | 1.70  |
| C                    | 1.00  | 1.10  | 1.20  |
| D                    | 0.30  | 0.40  | 0.50  |
| E                    | 0.25  | 0.40  | 0.55  |
| G                    | 1.90  |       |       |
| H                    | 0.00  | -     | 0.10  |
| J                    | 0.047 | 0.127 | 0.207 |
| K                    | 2.60  | 2.80  | 3.00  |
| All Dimensions in mm |       |       |       |