

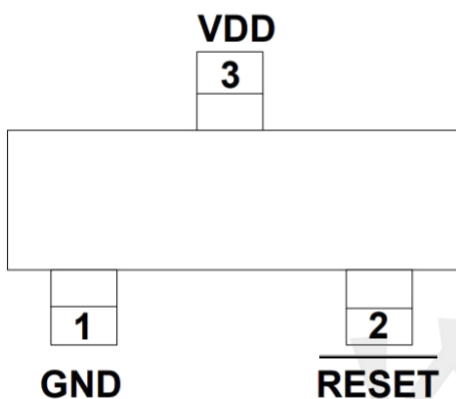
### Features

- Typical Quiescent Current of 3 $\mu$ A
- No External Components
- V<sub>CC</sub> Transient Immunity
- Correct Logic Output Guaranteed to V<sub>CC</sub>=1.0V
- Push-Pull Low Active Reset Output
- Packages SOT323

### Applications

- Computers
- Embedded Systems
- Battery-Powered Equipments
- Intelligent Instruments
- CPU and Logic Circuit Reset
- Power Fail Detectors
- Automotive

### Pin Definition



SOT323

### Ordering Information

MAX809SQ293T1G-TP

#### RESET VOLTAGE:

463=4.63V  
438=4.38V  
400=4.00V  
308=3.08V  
293=2.93V  
263=2.63V  
232=2.32V

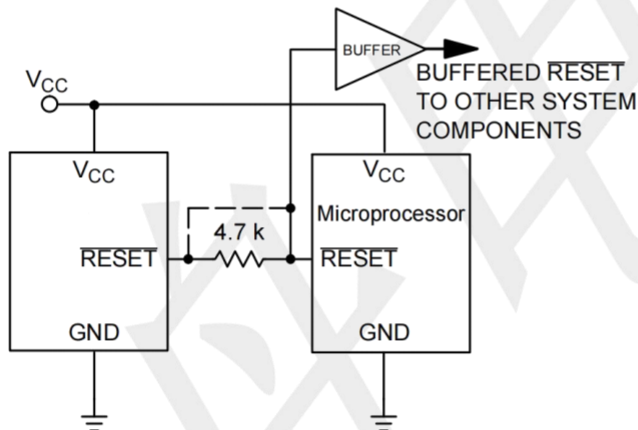
### PIN CONFIGURATION

| PIN | NAME  | FUNCTION                                                                                                                                      |
|-----|-------|-----------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | GND   | Ground                                                                                                                                        |
| 2   | RESET | RESET output remains low while VCC is below the reset voltage threshold, and for a reset timeout period after VCC rises above reset threshold |
| 3   | VCC   | Supply Voltage .                                                                                                                              |

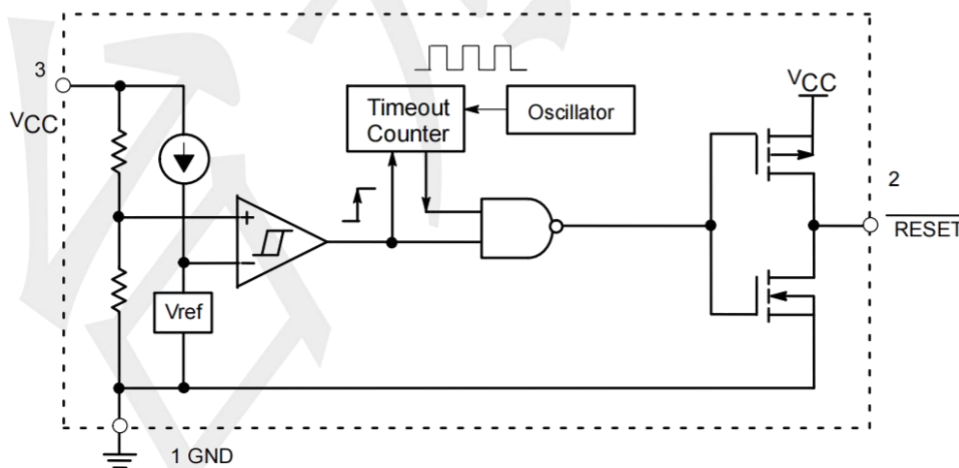
### Absolute Maximum Ratings (Note 1)

| Symbol        | Parameter                                   | Value        | UNIT       |
|---------------|---------------------------------------------|--------------|------------|
| VCC           | Any pin with respect to ground              | -0.3 to +6.0 | V          |
| ICC           | Input Current, VCC                          | 20           | mA         |
| IO            | Output Current, RESET                       | 20           | mA         |
|               | Rate of Rise, VCC                           | 100          | V/ $\mu$ s |
| PD            | Continuous Power Dissipation                | 250          | mW         |
| TA            | Operating Temperature Range                 | -40 to +85   | °C         |
| TSTG          | Storage Temperature Range                   | -65 to +105  | °C         |
| R $\theta$ JC | Thermal Resistance from Junction to Case    | 110          | °C/W       |
| R $\theta$ JA | Thermal Resistance from Junction to Ambient | 250          | °C/W       |

### TYPICAL APPLICATION CIRCUIT



### FUNCTIONAL BLOCK DIAGRAM



Series Complementary Active-Low Output

### Electrical Characteristics

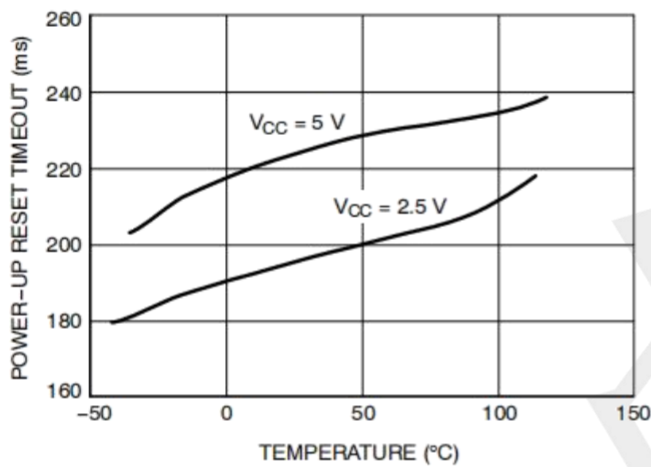
(V<sub>CC</sub>=full range, T<sub>A</sub>=-40°C to +85°C, unless otherwise noted. Typical values are at T<sub>A</sub>=+25°C, V<sub>CC</sub>=5V for L/M/J versions, V<sub>CC</sub>=3.3V for T/S versions, V<sub>CC</sub>=3V for R version, and V<sub>CC</sub>=2.5V for Z version. ) Note1

| Symbol                         | Parameter                                        | Conditions                                                              |                                | Min                  | Typ  | Max  | Unit   |
|--------------------------------|--------------------------------------------------|-------------------------------------------------------------------------|--------------------------------|----------------------|------|------|--------|
|                                | V <sub>CC</sub> Range                            | T <sub>A</sub> =0°C to +70°C                                            |                                | 1.0                  |      | 5.5  | V      |
| I <sub>CC</sub>                | Supply Current                                   | V <sub>CC</sub> <5.5V, L/M/J                                            |                                |                      | 3    | 5    | μA     |
|                                |                                                  | V <sub>CC</sub> <3.6V, R/S/T/Z                                          |                                |                      | 3    | 5    |        |
| V <sub>TH</sub>                | Reset Threshold                                  | L                                                                       | T <sub>A</sub> =+25°C          | 4.49                 | 4.63 | 4.72 | V      |
|                                |                                                  |                                                                         | T <sub>A</sub> =-40°C to +85°C | 4.44                 |      | 4.76 |        |
|                                |                                                  | M                                                                       | T <sub>A</sub> =+25°C          | 4.29                 | 4.38 | 4.51 |        |
|                                |                                                  |                                                                         | T <sub>A</sub> =-40°C to +85°C | 4.25                 |      | 4.55 |        |
|                                |                                                  | J                                                                       | T <sub>A</sub> =+25°C          | 3.90                 | 4.00 | 4.10 |        |
|                                |                                                  |                                                                         | T <sub>A</sub> =-40°C to +85°C | 3.86                 |      | 4.14 |        |
|                                |                                                  | T                                                                       | T <sub>A</sub> =+25°C          | 3.02                 | 3.08 | 3.18 |        |
|                                |                                                  |                                                                         | T <sub>A</sub> =-40°C to +85°C | 2.99                 |      | 3.21 |        |
|                                |                                                  | S                                                                       | T <sub>A</sub> =+25°C          | 2.83                 | 2.93 | 2.97 |        |
|                                |                                                  |                                                                         | T <sub>A</sub> =-40°C to +85°C | 2.80                 |      | 3.00 |        |
|                                |                                                  | R                                                                       | T <sub>A</sub> =+25°C          | 2.54                 | 2.63 | 2.67 |        |
|                                |                                                  |                                                                         | T <sub>A</sub> =-40°C to +85°C | 2.51                 |      | 2.69 |        |
|                                |                                                  | Z                                                                       | T <sub>A</sub> =+25°C          | 2.24                 | 2.32 | 2.36 |        |
|                                |                                                  |                                                                         | T <sub>A</sub> =-40°C to +85°C | 2.22                 |      | 2.38 |        |
| Reset Threshold Tempco         |                                                  |                                                                         |                                |                      | 30   |      | ppm/°C |
| V <sub>CC</sub> to Reset Delay |                                                  | V <sub>CC</sub> =V <sub>TH</sub> to (V <sub>TH</sub> -100mV)            |                                |                      | 10   |      | μs     |
| Reset Active Timeout Period    |                                                  | T <sub>A</sub> =-40°C to +85°C                                          |                                | 140                  | 240  | 360  | ms     |
| V <sub>OL</sub>                | RESET Output Voltage Low (Push-Pull Active Low)  | V <sub>CC</sub> =V <sub>TH</sub> min, I <sub>SINK</sub> =1.2mA, S/T/Z   |                                |                      |      | 0.3  | V      |
|                                |                                                  | V <sub>CC</sub> =V <sub>TH</sub> min, I <sub>SINK</sub> =3.2mA, J/L/M   |                                |                      |      | 0.4  |        |
|                                |                                                  | V <sub>CC</sub> ≤1.0V, I <sub>SINK</sub> =50μA                          |                                |                      |      | 0.3  |        |
| V <sub>OH</sub>                | RESET Output Voltage High (Push-Pull Active Low) | V <sub>CC</sub> >V <sub>TH</sub> max, I <sub>SOURCE</sub> =500μA, S/T/Z |                                | 0.8V <sub>CC</sub>   |      |      | V      |
|                                |                                                  | V <sub>CC</sub> >V <sub>TH</sub> max, I <sub>SOURCE</sub> =800μA, J/L/M |                                | V <sub>CC</sub> -1.5 |      |      |        |

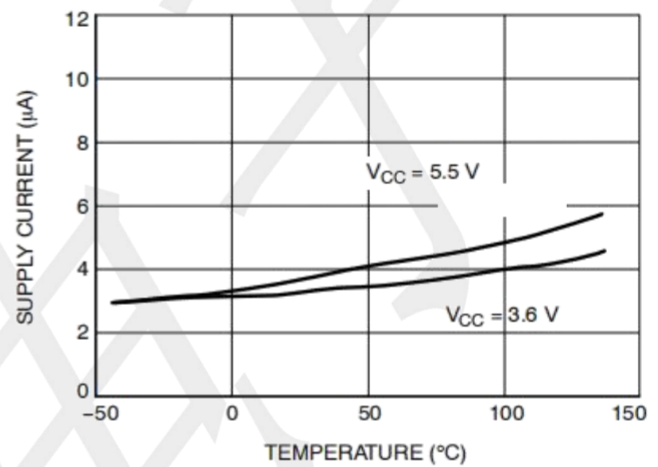
Note 1: Production testing done at T<sub>A</sub>=+25°C; limits over temperature guaranteed by design only.

### Typical Operating Characteristics

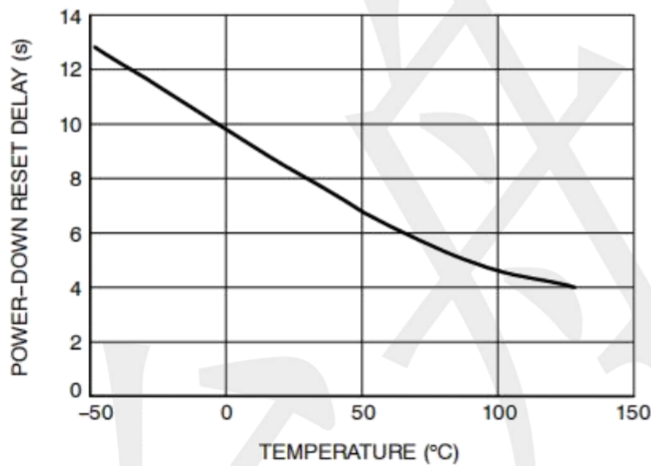
(VCC = Full range, TA = -40°C to +85°C unless otherwise noted. Typical values at TA = +25°C and VCC = 5 V for the L/M/J versions, VCC = 3.3 V for the T/S versions, VCC = 3 V for the R version and VCC = 2.5 V for the Z version.)



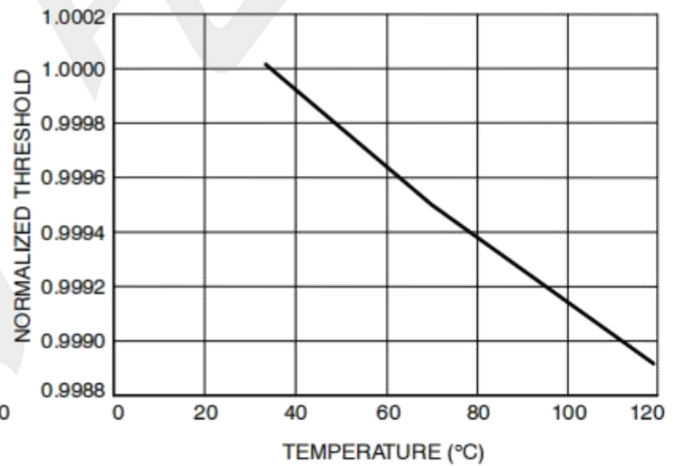
**Power-Up Reset Timeout vs. Temperature**



**Supply Current vs. Temperature (No Load, )**



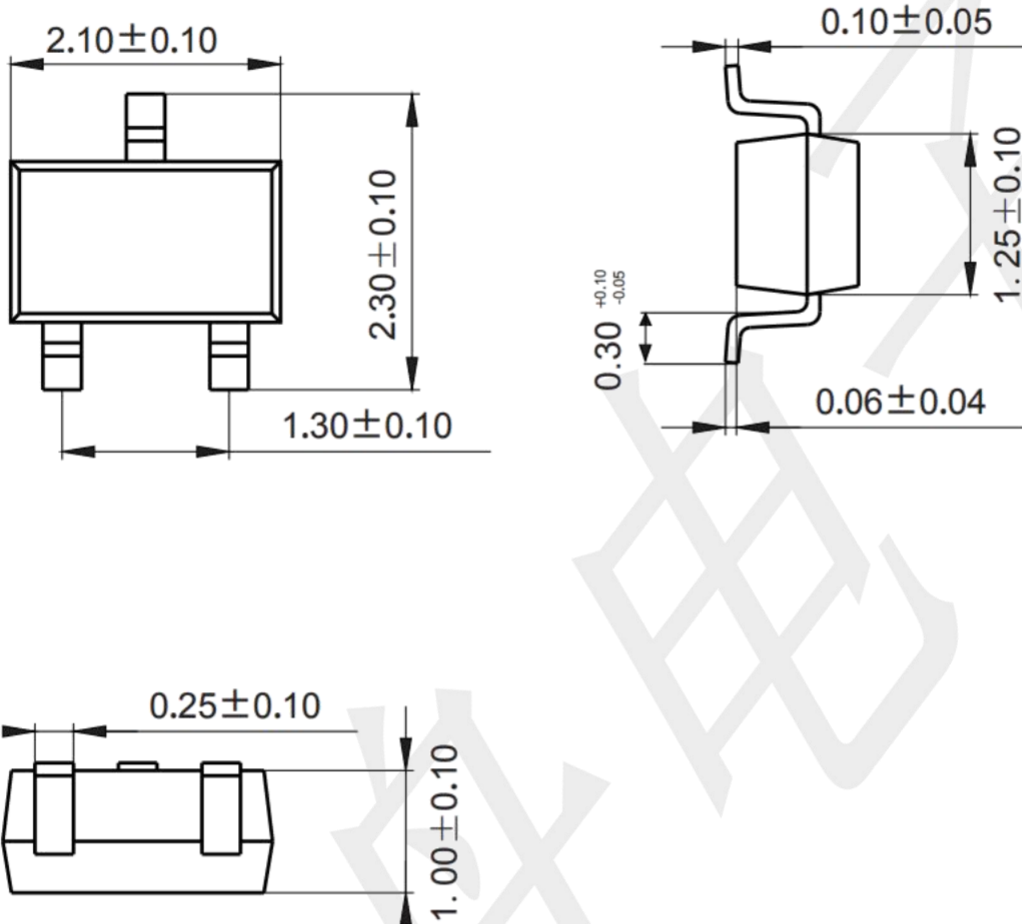
**Power-Down Reset Delay vs. Temperature**



**Normalized Reset Threshold vs. Temperature**

**Package Outline Dimensions (unit: mm)**

SOT323



**Mounting Pad Layout (unit: mm)**

