

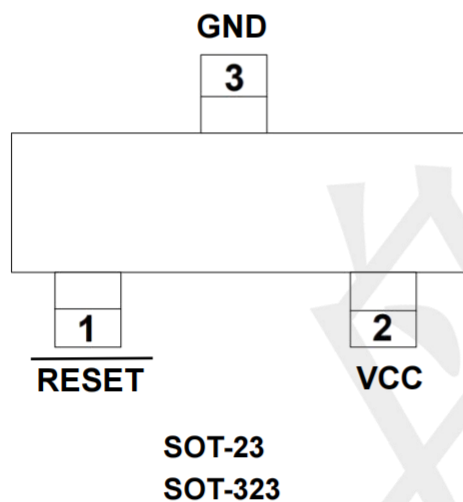
### Features

- High Accurate  $\pm 2\%$
- Precision VCC Monitoring of +2.5V, +3V, +3.3V and +5V Supplies
- Power Supply Transient Immunity
- Guaranteed Reset Valid to  $VCC = +1V$
- Fully Specified Over Temperature
- 2 $\mu A$  Supply Current
- Available in One Output Configuration: Open-Drain Active-Low  $\overline{RESET}$  Output
- Packages SOT-23, SOT-323

### Applications

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

### Pin Definition



### Ordering Information

TPMCP121T-xxxE/xx

RESET VOLTAGE:

475=4.63V  
450=4.38V  
315=3.08V  
300=2.93V  
270=2.63V  
240=2.32V

PACKAGE TYPE

TT:SOT-23  
LB:SOT-323

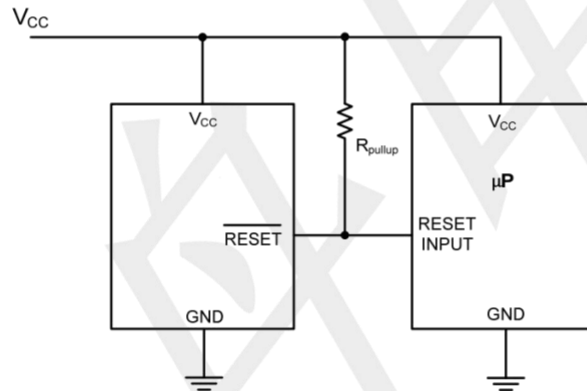
### PIN CONFIGURATION

| PIN | NAME               | FUNCTION                                                                                                                                        |
|-----|--------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| 1   | GND                | Ground                                                                                                                                          |
| 2   | $\overline{RESET}$ | $\overline{RESET}$ Output remains low while VCC is below the reset threshold, and for at least 140ms after VCC rises above the reset threshold. |
| 3   | VCC                | +5V, +3.3V, +3V or +2.5V Supply Voltage .                                                                                                       |

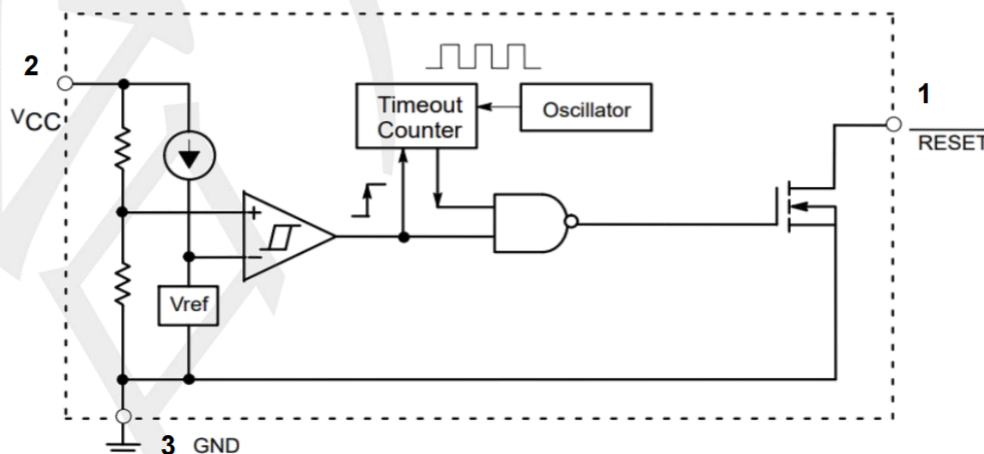
### Absolute Maximum Ratings

| Symbol          | Parameter                                                | Value        | UNIT       |
|-----------------|----------------------------------------------------------|--------------|------------|
| VCC             | Supply Voltage                                           | -0.3 to +6.0 | V          |
|                 | $\overline{\text{RESET}}$                                | -0.3 to +6.0 | V          |
| ICC             | Input Current, VCC                                       | 20           | mA         |
| IO              | Output Current, $\overline{\text{RESET}}$                | 20           | mA         |
|                 | Rate of Rise, VCC                                        | 100          | V/ $\mu$ s |
| PD              | Continuous Power Dissipation<br>Derate 4mW/°C above 70°C | 320          | mW         |
| TA              | Operating Temperature Range                              | -40 to +105  | °C         |
| TSTG            | Storage Temperature Range                                | -65 to +150  | °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



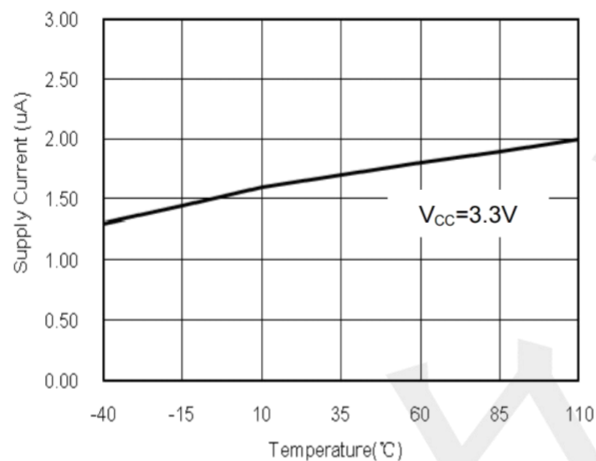
### Electrical Characteristics

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

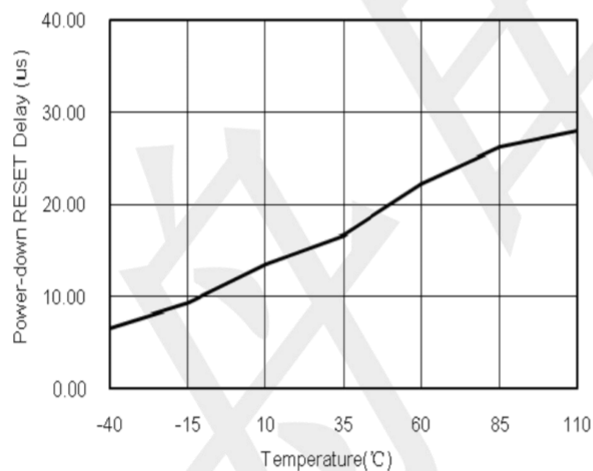
| Symbol | Parameter                               | Conditions                          | MIN  | Typ  | MAX  | UNIT   |
|--------|-----------------------------------------|-------------------------------------|------|------|------|--------|
| VCC    | Supply Voltage Range                    | TA=0°C to +70°C                     | 1.0  | --   | 5.5  | V      |
| ICC    | Supply Current                          |                                     | --   | 2.0  | --   | uA     |
| VTH    | Reset Threshold                         | TPMCP121T 475E/xx TA=+25°C          | 4.56 | 4.63 | 4.70 | V      |
|        |                                         | TPMCP121T 475E/xx TA=-40°C to +85°C | 4.50 | --   | 4.75 |        |
|        |                                         | TPMCP121T 450E/xx TA=+25°C          | 4.31 | 4.38 | 4.45 |        |
|        |                                         | TPMCP121T 450E/xx TA=-40°C to +85°C | 4.25 | --   | 4.50 |        |
|        |                                         | TPMCP121T 315E/xx TA=+25°C          | 3.04 | 3.08 | 3.11 |        |
|        |                                         | TPMCP121T 315E/xx TA=-40°C to +85°C | 3.00 | --   | 3.15 |        |
|        |                                         | TPMCP121T 300E/xx TA=+25°C          | 2.89 | 2.93 | 2.96 |        |
|        |                                         | TPMCP121T 300E/xx TA=-40°C to +85°C | 2.85 | --   | 3.00 |        |
|        |                                         | TPMCP121T 270E/xx TA=+25°C          | 2.59 | 2.63 | 2.66 |        |
|        |                                         | TPMCP121T 270E/xx TA=-40°C to +85°C | 2.55 | --   | 2.70 |        |
|        | Reset Threshold Tempco                  | TPMCP121T 240E/xx TA=+25°C          | 2.28 | 2.32 | 2.35 | V      |
|        |                                         | TPMCP121T 240E/xx TA=-40°C to +85°C | 2.25 | --   | 2.38 |        |
|        | Reset Threshold Tempco                  |                                     | --   | 150  | --   | ppm/°C |
|        | VCC to Reset Delay                      | VCC=VTH to (VTH-100mV)              | --   | 10   | --   | μS     |
| TRP    | Reset Active Timeout Period             |                                     | 140  | 240  | 560  | mS     |
| VOL    | RESET Output Voltage Low                | VCC=VTH min, ISINK=1.2mA            | --   | --   | 0.3  | V      |
|        |                                         | VCC=VTH min, ISINK=3.2mA            | --   | --   | 0.4  |        |
|        |                                         | VCC>1.0V, ISINK=50μA                | --   | --   | 0.3  |        |
|        | RESET Open-Drain Output Leakage Current | VCC>VTH, RESET Deasserted           | --   | --   | 1    | μA     |

**Typical Operating Characteristics**( $T_A=+25^{\circ}\text{C}$ , unless otherwise noted.)

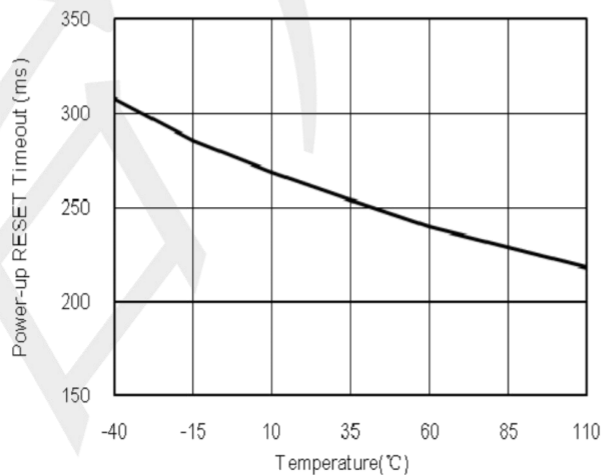
**Supply Current vs. Temperature**



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

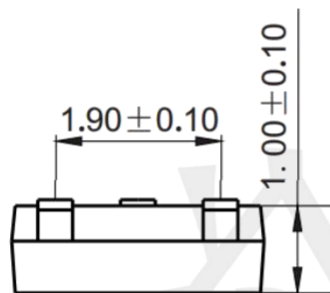
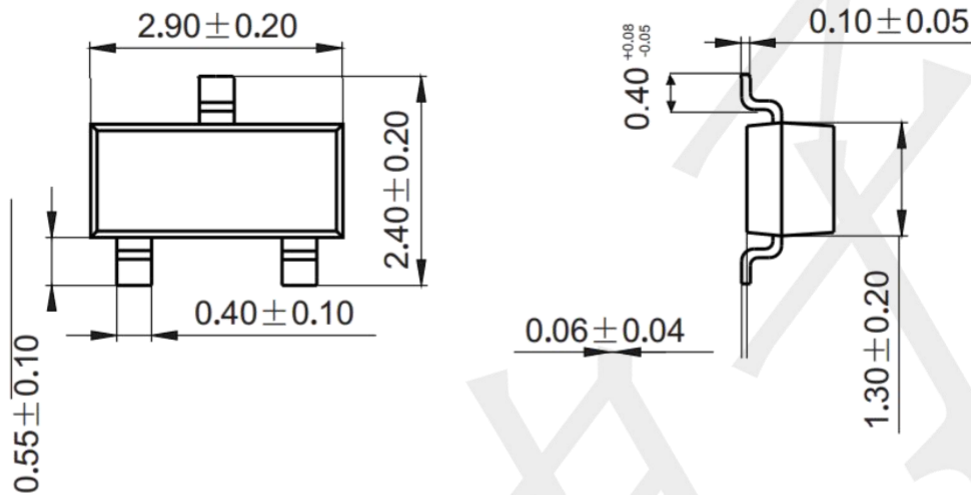


**Power-Up RESET Timeout vs. Temperature**

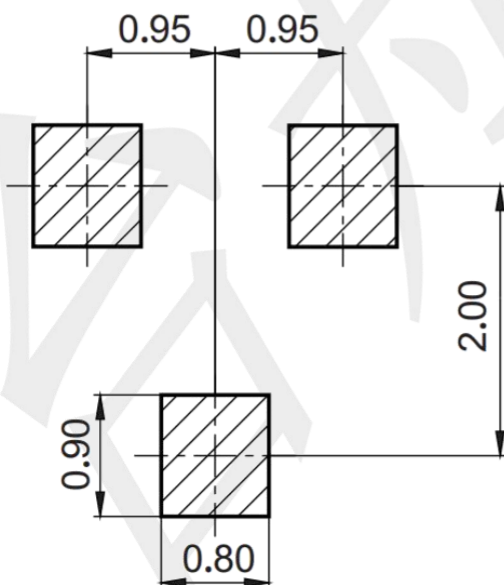


**Package Outline Dimensions (unit: mm)**

**SOT-23**



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

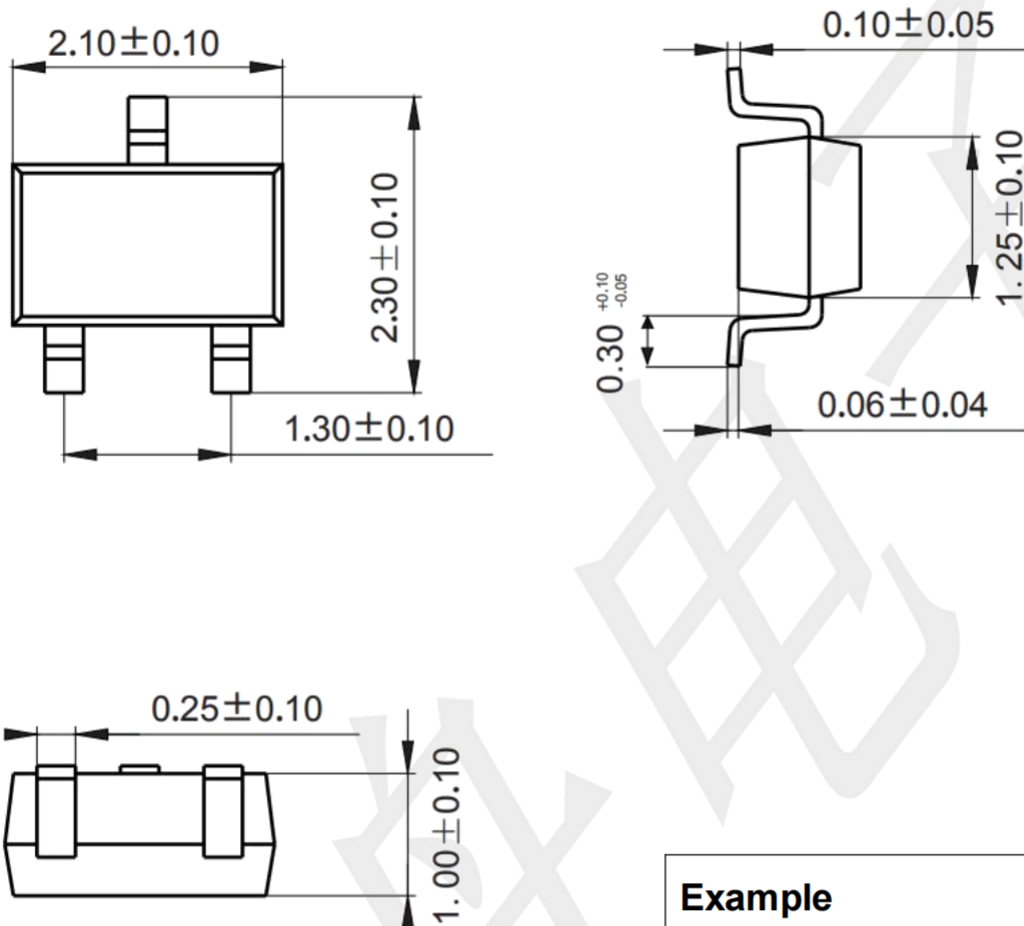


**Example**

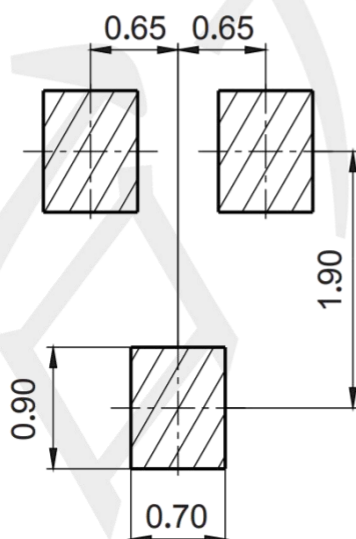
| Part Number       | Reset Threshold | Packages |
|-------------------|-----------------|----------|
| TPMCP121T-240E/TT | 2.32V           | SOT-23   |
| TPMCP121T-270E/TT | 2.63V           | SOT-23   |
| TPMCP121T-300E/TT | 2.93V           | SOT-23   |
| TPMCP121T-315E/TT | 3.08V           | SOT-23   |
| TPMCP121T-450E/TT | 4.38V           | SOT-23   |
| TPMCP121T-475E/TT | 4.63V           | SOT-23   |

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

**SOT-323**



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



**Example**

| Part Number       | Reset Threshold | Packages |
|-------------------|-----------------|----------|
| TPMCP121T-240E/LB | 2.32V           | SOT-323  |
| TPMCP121T-270E/LB | 2.63V           | SOT-323  |
| TPMCP121T-300E/LB | 2.93V           | SOT-323  |
| TPMCP121T-315E/LB | 3.08V           | SOT-323  |
| TPMCP121T-450E/LB | 4.38V           | SOT-323  |
| TPMCP121T-475E/LB | 4.63V           | SOT-323  |