

3-Pin Microprocessor Reset Circuits

UM809/810 SOT323/SOT23-3

General Description

The UM809/810 series are ultra low current, cost effective system supervisory circuits designed to monitor the power supplies in digital systems. They provide a reset signal to the host processor when necessary, offer excellent circuit reliability & low cost by eliminating external component and adjustment when used with +5V, +3.3V, +3.0V or other voltage powered circuits.

The reset output is driven active within 10 μ s of power supply falling through the reset voltage threshold. Reset is keeping active for a minimum of 140ms after system power supply has risen above the reset threshold. Reset threshold suitable for operation with variety of supply voltage are available.

UM809 has an active-low reset output while UM810 has an active-high reset output. The UM809/810 are optimized to reject fast transient glitches on the power supply line, and the reset output are guaranteed to be in the correct logic state for power supply V_{CC} down to 1V.

Each of these ICs consists of a voltage reference comparator, resistors for detector threshold setting, delay generator, output driver & hysteresis circuit. The reset threshold & time delay are fixed with high accuracy internally and does not require any external adjustment.

Low supply current of 3 μ A ($V_{CC}=3V$) makes UM809/810 ideal for low power application. Both devices are available in 3 Pin SOT323 or SOT23 packages.

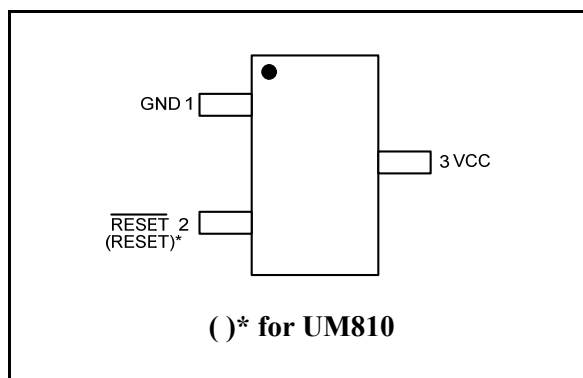
Applications

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

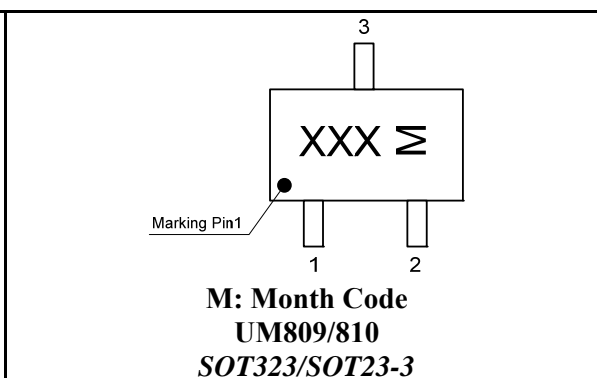
Features

- Wide Operation Voltage Range of 1V to 10V
- Typical Quiescent Current of 3 μ A
- No External Components
- 3-Pin Small SOT323 and SOT23 Packages
- V_{CC} Transient Immunity
- Correct Logic Output Guaranteed to $V_{CC}=1.0V$
- Precision V_{CC} Monitor for 2.5V, 3.0V, 3.3V, and 5.0V Supplies
- Available in 2 Output Configurations
Push-Pull Low Active Reset Output (UM809)
Push-Pull High Active Reset Output (UM810)
- Wide Operation Temperature: -40 $^{\circ}$ C to +85 $^{\circ}$ C

Pin Configurations



Top View



Ordering Information

UM8 XX ZZ P

XX: Output Type

=09 Push-Pull Active Low

=10 Push-Pull Active High

ZZ: Reset Threshold (V)

P: Package Type

=S SOT23-3

=P SOT323

Absolute Maximum Ratings (Note 1)

| Symbol | Parameter | Value | Unit |
|-----------|--|----------------------|--------------|
| V_{CC} | Supply Voltage | -0.3 to +10 | V |
| | RESET, $\overline{\text{RESET}}$ (Push-Pull) | -0.3 to $V_{CC}+0.3$ | V |
| I_{CC} | Input Current, V_{CC} | 20 | mA |
| I_O | Output Current, RESET, $\overline{\text{RESET}}$ | 20 | mA |
| | Rate of Rise, V_{CC} | 100 | V/ μ s |
| P_D | Continuous Power Dissipation | SOT323 | 174 |
| | | SOT23-3 | 320 |
| T_J | Operating Junction Temperature | -40 to +85 | $^{\circ}$ C |
| T_{STG} | Storage Temperature Range | -65 to +150 | $^{\circ}$ C |
| | Lead Temperature (Soldering, 10s) | 300 | $^{\circ}$ C |

Note 1: Stresses beyond those listed under “Absolute maximum Ratings” may cause permanent damage to the device. These are stress ratings only and functional operation of the device at these or any other conditions beyond those indicated in the operational sections of the specifications are not implied. Exposure to absolute maximum rating conditions for extended periods may affect device reliability.

Electrical Characteristics

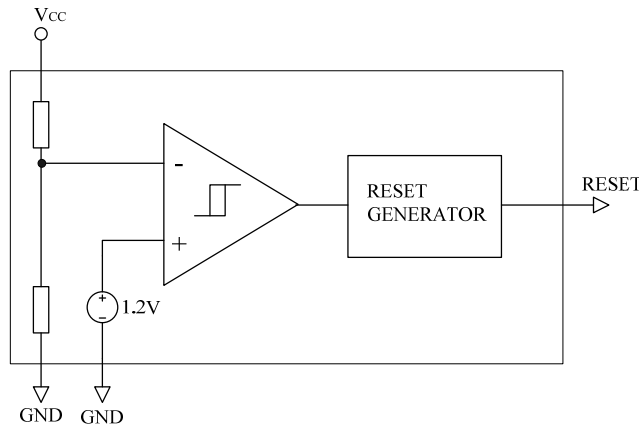
V_{CC} =full range, T_A =-40°C to +85°C, unless otherwise noted. Typical values are at T_A =+25°C, V_{CC} =5V for L/M/J versions, V_{CC} =3.3V for T/S versions, V_{CC} =3V for R version, and V_{CC} =2.5V for Z version. (Note 1)

| Symbol | Parameter | Conditions | Min | Typ | Max | Unit | |
|----------|--|---|--|------|------|---------------|---|
| | V_{CC} Range | $T_A=0^\circ\text{C}$ to $+70^\circ\text{C}$ | 1.0 | | 10 | V | |
| | | $T_A=-40^\circ\text{C}$ to $+85^\circ\text{C}$ | 1.2 | | 10 | | |
| I_{CC} | Supply Current | $V_{CC}<5.5\text{V}$, UM8_L/M/J | | 3 | 5 | μA | |
| | | $V_{CC}<3.6\text{V}$, UM8_R/S/T/Z | | 3 | 5 | | |
| V_{TH} | Reset Threshold | UM8_L | $T_A=+25^\circ\text{C}$ | 4.49 | 4.63 | 4.72 | V |
| | | | $T_A=-40^\circ\text{C}$ to $+85^\circ\text{C}$ | 4.44 | | 4.76 | |
| | | UM8_M | $T_A=+25^\circ\text{C}$ | 4.29 | 4.38 | 4.51 | |
| | | | $T_A=-40^\circ\text{C}$ to $+85^\circ\text{C}$ | 4.25 | | 4.55 | |
| | | UM8_J | $T_A=+25^\circ\text{C}$ | 3.90 | 4.00 | 4.10 | |
| | | | $T_A=-40^\circ\text{C}$ to $+85^\circ\text{C}$ | 3.86 | | 4.14 | |
| | | UM8_T | $T_A=+25^\circ\text{C}$ | 3.02 | 3.08 | 3.18 | |
| | | | $T_A=-40^\circ\text{C}$ to $+85^\circ\text{C}$ | 2.99 | | 3.21 | |
| | | UM8_S | $T_A=+25^\circ\text{C}$ | 2.83 | 2.93 | 2.97 | |
| | | | $T_A=-40^\circ\text{C}$ to $+85^\circ\text{C}$ | 2.80 | | 3.00 | |
| | | UM8_R | $T_A=+25^\circ\text{C}$ | 2.54 | 2.63 | 2.67 | |
| | | | $T_A=-40^\circ\text{C}$ to $+85^\circ\text{C}$ | 2.51 | | 2.69 | |
| | | UM8_Z | $T_A=+25^\circ\text{C}$ | 2.24 | 2.32 | 2.36 | |
| | | | $T_A=-40^\circ\text{C}$ to $+85^\circ\text{C}$ | 2.22 | | 2.38 | |
| | Reset Threshold Tempo | | | 30 | | ppm/°C | |
| | V_{CC} to Reset Delay (Note 2) | $V_{CC}=V_{TH}$ to $(V_{TH}-100\text{mV})$ | | 10 | | μs | |
| | Reset Active Timeout Period | $T_A=-40^\circ\text{C}$ to $+85^\circ\text{C}$ | 140 | 240 | 360 | ms | |
| V_{OL} | RESET Output Voltage Low (Push-Pull Active Low, UM809) | $V_{CC}=V_{TH}$ min, $I_{SINK}=1.2\text{mA}$, UM809R/S/T/Z | | | 0.3 | V | |
| | | $V_{CC}=V_{TH}$ min, $I_{SINK}=3.2\text{mA}$, UM809J/L/M | | | 0.4 | | |
| | | $V_{CC}\leq 1.0\text{V}$, $I_{SINK}=50\mu\text{A}$ | | | 0.3 | | |
| V_{OH} | RESET Output Voltage High (Push-Pull Active Low, UM809) | $V_{CC}>V_{TH}$ max, $I_{SOURCE}=500\mu\text{A}$, UM809R/S/T/Z | $0.8V_{CC}$ | | | V | |
| | | $V_{CC}>V_{TH}$ max, $I_{SOURCE}=800\mu\text{A}$, UM809J/L/M | $V_{CC}-1.5$ | | | | |
| V_{OL} | RESET Output Voltage Low (Push-Pull Active High, UM810) | $V_{CC}=V_{TH}$ max, $I_{SINK}=1.2\text{mA}$, UM810R/S/T/Z | | | 0.3 | V | |
| | | $V_{CC}=V_{TH}$ max, $I_{SINK}=3.2\text{mA}$, UM810J/L/M | | | 0.4 | | |
| V_{OH} | RESET Output Voltage High (Push-Pull Active High, UM810) | $1.8\text{V}<V_{CC}<V_{TH}$ min, $I_{SOURCE}=150\mu\text{A}$ | $0.8V_{CC}$ | | | V | |

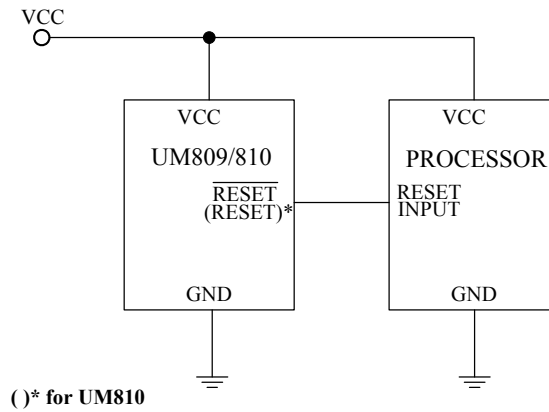
Note 1: Production testing done at $T_A=+25^\circ\text{C}$; limits over temperature guaranteed by design only.

Note 2: RESET output for UM809; RESET output for UM810.

Block Diagram



Typical Operating Circuit



Typical Characteristics

The following data is given for UM809 threshold levels: 2.63V, 3.08V, 4.00V and 4.38V.
 UM810 threshold levels: 2.63V, 2.93V, 3.08V, 4.38V and 4.63V.

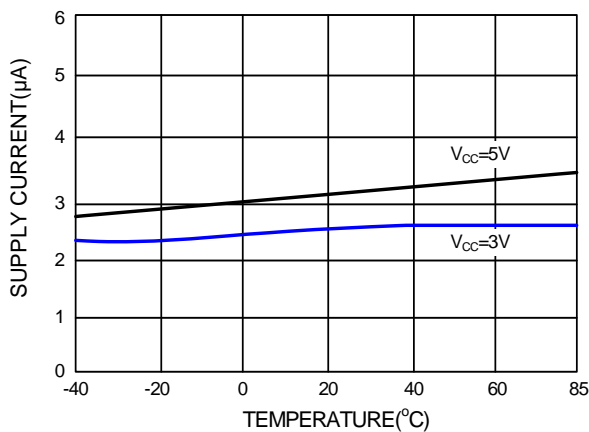


Figure 1. Supply Current vs. Temperature (No Load, SOT323)

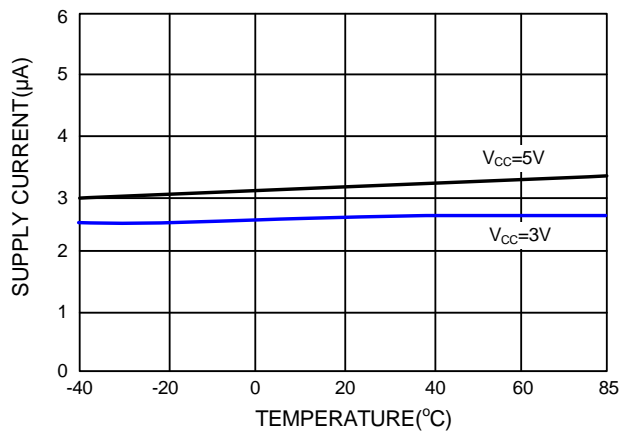


Figure 2. Supply Current vs. Temperature (No Load, SOT23-3)

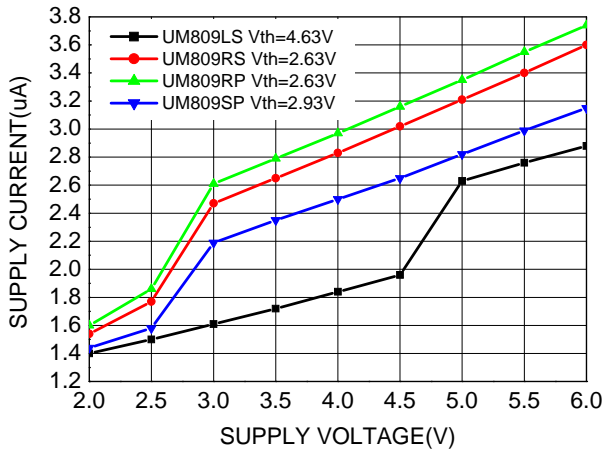


Figure 3. Supply Current vs. Supply Voltage

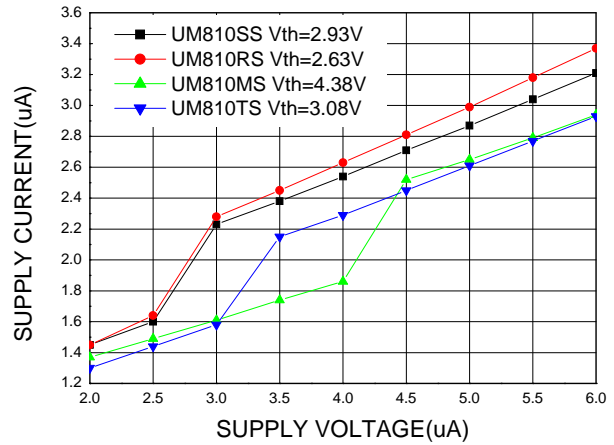


Figure 4. Supply Current vs. Supply Voltage

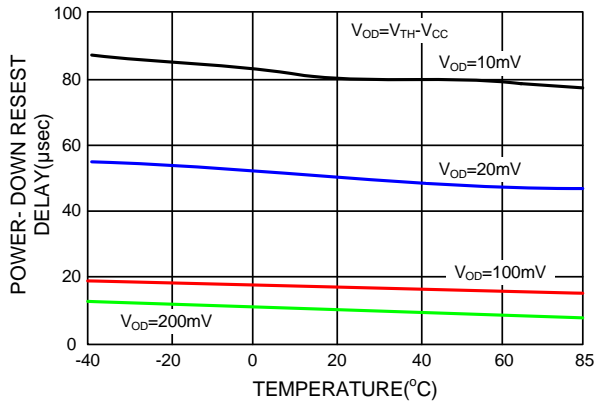


Figure 5. Power-Down Reset Delay vs. Temperature and Overdrive (UM8xxR/S/T)

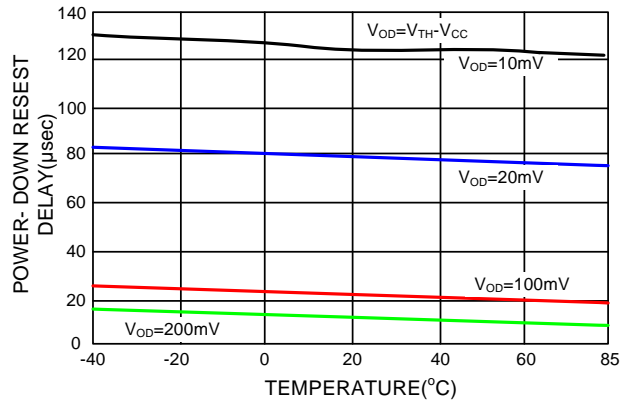


Figure 6. Power-Down Reset Delay vs. Temperature and Overdrive (UM8xxL/M/J)

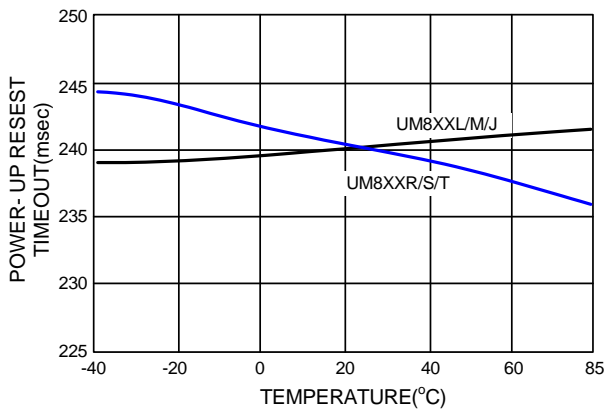


Figure 7. Power-Up Reset Timeout vs. Temperature

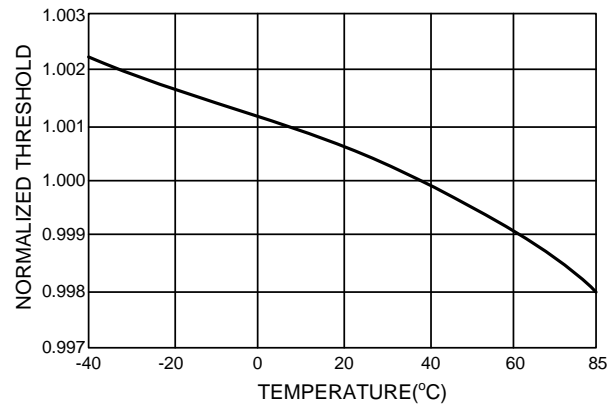


Figure 8. Normalized Reset Threshold vs. Temperature

Detailed Description

A microprocessor's (μP 's) reset input starts the μP in a known state. The UM809/810 asserts reset to prevent code-execution errors during power-up, power-down, or brownout conditions. They assert a reset signal whenever the V_{CC} supply voltage declines below a preset threshold, keeping it asserted for at least 140ms after V_{CC} has risen above the reset threshold. The UM809/810 has a push-pull output stage.

Applications Information

V_{CC} Transient Rejection

In addition to issuing a reset to the μP during power-up, power-down, and brownout conditions, the UM809/810 is relatively immune to short-duration negative-going V_{CC} transients (glitches). Figure 9 shows typical transient duration vs. reset comparator overdrive, for which the UM809/810 do not generate a reset pulse. The graph was generated using a negative-going pulse applied to V_{CC} , starting 0.5V above the actual reset threshold and ending below it by the magnitude indicated (reset comparator overdrive). The graph indicates the maximum pulse width a negative-going V_{CC} transient can have without causing a reset pulse. As the magnitude of the transient increases (goes farther below the reset threshold), the maximum allowable pulse width decreases. Typically, for the UM8_L and UM8_M, a V_{CC} transient that goes 100mV below the reset threshold and lasts 20 μs or less will not cause a reset pulse. A 0.1 μF bypass capacitor mounted as close as possible to the V_{CC} pin provides additional transient immunity.

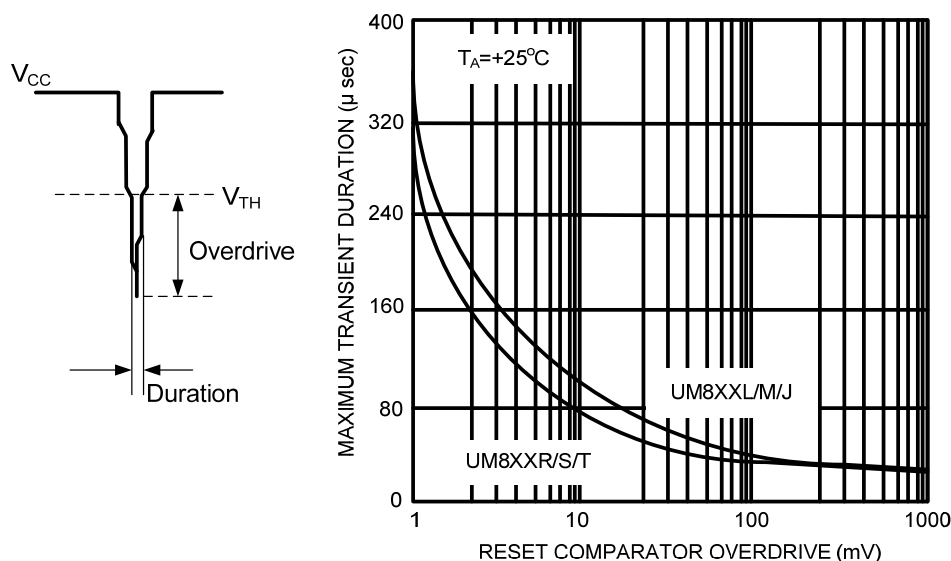


Figure 9. Maximum Transient Duration vs. Overdrive for Glitch Rejection at 25°C

Output Signal Integrity during Power-Down

When V_{CC} falls below 1V, the UM809 $\overline{\text{RESET}}$ output no longer sinks current—it becomes an open circuit. Therefore, high-impedance CMOS logic inputs connected to $\overline{\text{RESET}}$ can drift to undetermined voltages. This presents no problem in most applications since most μP and other circuitry is inoperative with V_{CC} below 1V. However, in applications where $\overline{\text{RESET}}$ must be valid down to 0V, adding a pull-down resistor to $\overline{\text{RESET}}$ causes any stray leakage currents to flow to ground, holding $\overline{\text{RESET}}$ low (Figure 10). R1's value is not critical; 100k Ω is large

enough not to load $\overline{\text{RESET}}$ and small enough to pull $\overline{\text{RESET}}$ to ground. A 100k Ω pull-up resistor to V_{CC} is also recommended for the UM810 if RESET is required to remain valid for $V_{CC} < 1V$.

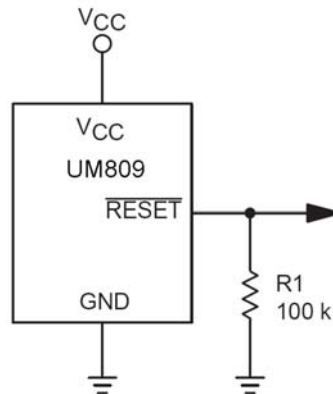
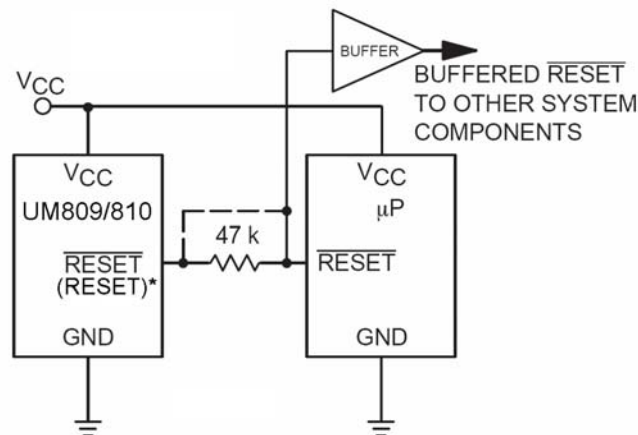


Figure 10. $\overline{\text{RESET}}$ Valid to $V_{CC}=\text{Ground}$ Circuit

Interfacing to μP s with Bidirectional Reset Pins

Some μP 's (such as Motorola 68HC11) have bi-directional reset pins. Depending on the current drive capability of the processor pin, an indeterminate logic level may result in series with the output of the UM809 (Figure 11). If there are other components in the system which requires a reset signal, they should be buffered so as not to load the reset line. If the other components are required to follow the reset I/O of the μP , the buffer should be connected as shown with the solid line.



(*) for UM810

Figure 11. Interfacing to Bidirectional Reset I/O

Benefits of Highly Accurate Reset Threshold

Most μP supervisor circuits have reset threshold voltages between 5% and 10% below the value of nominal supply voltages. This ensures a reset will not occur within 5% of the nominal supply, but will occur when the supply is 10% below nominal.

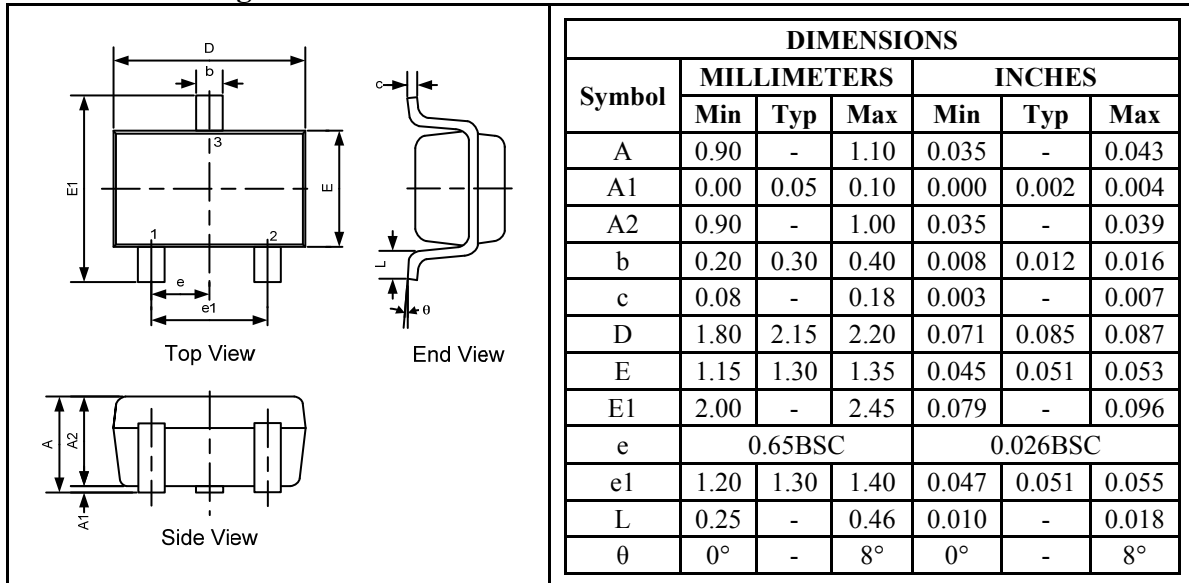
When using ICs rated at only the nominal supply $\pm 5\%$, this leaves a zone of uncertainty where the supply is between 5% and 10% low, and where the reset may or may not be asserted.

The UM8_L/T/Z use highly accurate circuitry to ensure that reset is asserted close to the 5% limit, and long before the supply has declined to 10% below nominal.

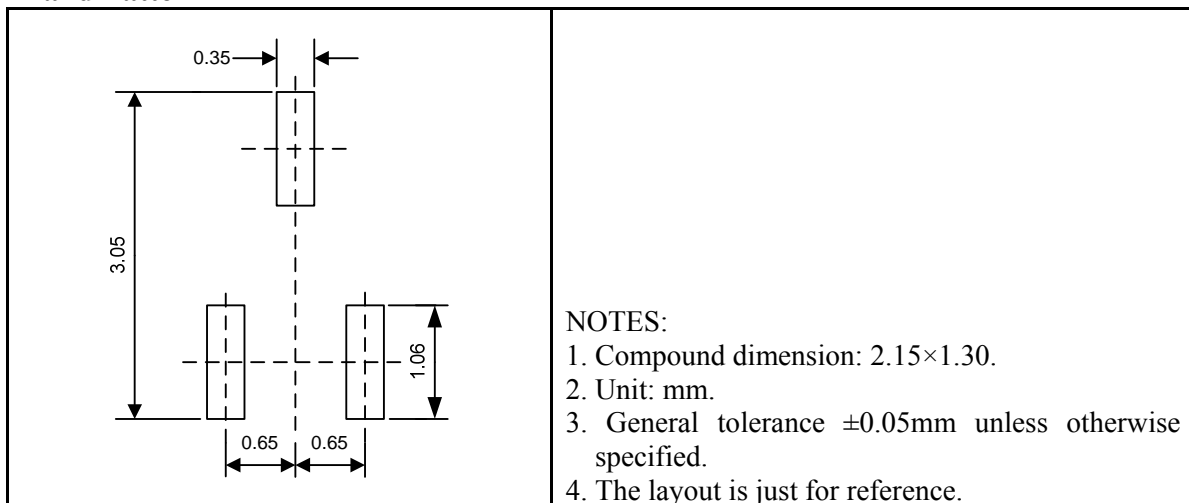
Package Information

UM809/810 SOT323

Outline Drawing



Land Pattern

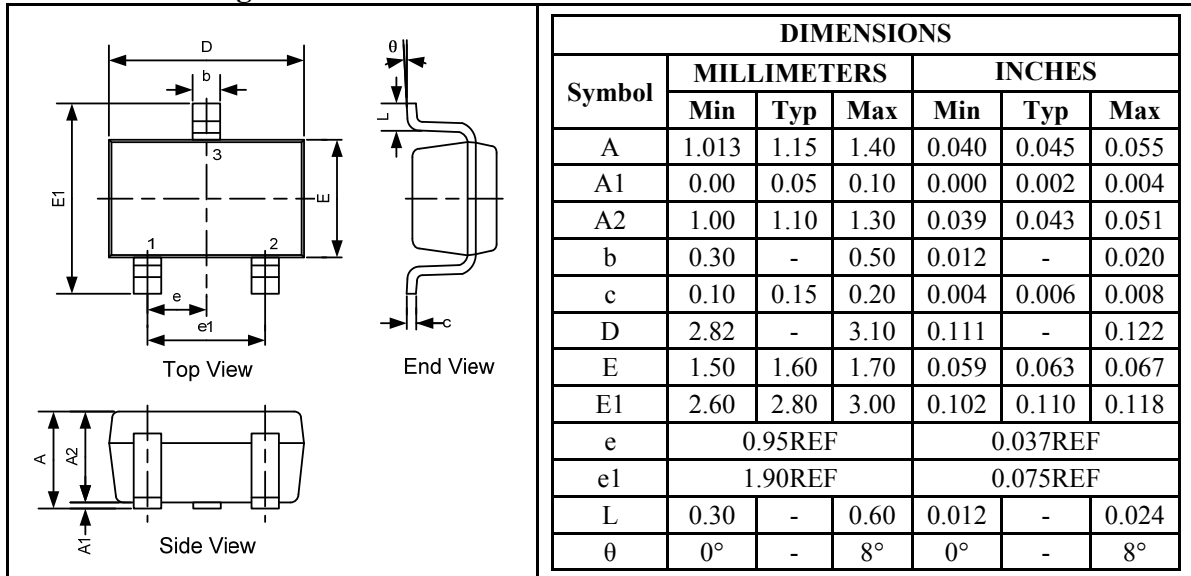


Tape and Reel Orientation

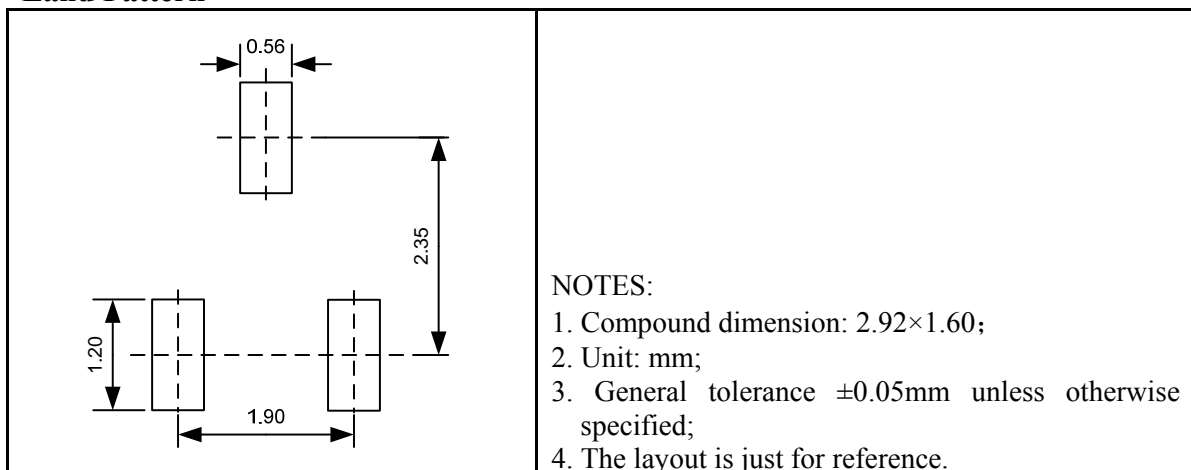


UM809/810 SOT23-3

Outline Drawing



Land Pattern



Tape and Reel Orientation



Selection Table

| Part Number | Top Marking | RESET Threshold (V) | Timeout Period (ms) | Output Type | Package Type |
|-------------|-------------|---------------------|---------------------|-----------------------|--------------|
| UM809AS | 6E2 | 5.00 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809BS | 6E3 | 4.90 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809CS | 6E4 | 4.80 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809DS | 6E5 | 4.70 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809LS | 09L | 4.63 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809ES | 6E7 | 4.50 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809MS | 09M | 4.38 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809FS | 6E9 | 4.30 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809GS | 6EA | 4.20 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809HS | 6EB | 4.10 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809JS | 09J | 4.00 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809IS | 6ED | 3.90 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809KS | 6EE | 3.80 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809NS | 6EF | 3.70 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809OS | 6EH | 3.60 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809PS | 6EL | 3.50 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809QS | 6EM | 3.40 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809US | 6EJ | 3.30 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809VS | 6EK | 3.20 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809TS | 09T | 3.08 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809WS | 6EP | 3.00 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809SS | 09S | 2.93 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809XS | 6ER | 2.80 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809YS | 6ES | 2.70 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809RS | 09R | 2.63 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809AAS | 6EY | 2.50 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809ABS | 6EU | 2.40 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809ZS | 09Z | 2.32 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809ACS | 6F5 | 2.20 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809ADS | 6F6 | 2.10 | 240 | Push-Pull, Active Low | SOT23-3 |
| UM809AES | 6F7 | 2.00 | 240 | Push-Pull, Active Low | SOT23-3 |

Selection Table

| Part Number | Top Marking | RESET Threshold (V) | Timeout Period (ms) | Output Type | Package Type |
|-------------|-------------|---------------------|---------------------|-----------------------|--------------|
| UM809AP | VTM | 5.00 | 240 | Push-Pull, Active Low | SOT323 |
| UM809BP | VTJ | 4.90 | 240 | Push-Pull, Active Low | SOT323 |
| UM809CP | VTK | 4.80 | 240 | Push-Pull, Active Low | SOT323 |
| UM809DP | VTN | 4.70 | 240 | Push-Pull, Active Low | SOT323 |
| UM809LP | VLV | 4.63 | 240 | Push-Pull, Active Low | SOT323 |
| UM809EP | VTQ | 4.50 | 240 | Push-Pull, Active Low | SOT323 |
| UM809MP | VMY | 4.38 | 240 | Push-Pull, Active Low | SOT323 |
| UM809FP | VTS | 4.30 | 240 | Push-Pull, Active Low | SOT323 |
| UM809GP | VTT | 4.20 | 240 | Push-Pull, Active Low | SOT323 |
| UM809HP | VSL | 4.10 | 240 | Push-Pull, Active Low | SOT323 |
| UM809JP | VJY | 4.00 | 240 | Push-Pull, Active Low | SOT323 |
| UM809IP | VSJ | 3.90 | 240 | Push-Pull, Active Low | SOT323 |
| UM809KP | VSK | 3.80 | 240 | Push-Pull, Active Low | SOT323 |
| UM809NP | VSN | 3.70 | 240 | Push-Pull, Active Low | SOT323 |
| UM809OP | VSP | 3.60 | 240 | Push-Pull, Active Low | SOT323 |
| UM809PP | VSQ | 3.50 | 240 | Push-Pull, Active Low | SOT323 |
| UM809QP | VSR | 3.40 | 240 | Push-Pull, Active Low | SOT323 |
| UM809UP | VSS | 3.30 | 240 | Push-Pull, Active Low | SOT323 |
| UM809VP | VST | 3.20 | 240 | Push-Pull, Active Low | SOT323 |
| UM809TP | VTY | 3.08 | 240 | Push-Pull, Active Low | SOT323 |
| UM809WP | VRM | 3.00 | 240 | Push-Pull, Active Low | SOT323 |
| UM809SP | VSY | 2.93 | 240 | Push-Pull, Active Low | SOT323 |
| UM809XP | VRK | 2.80 | 240 | Push-Pull, Active Low | SOT323 |
| UM809YP | VRN | 2.70 | 240 | Push-Pull, Active Low | SOT323 |
| UM809RP | VRY | 2.63 | 240 | Push-Pull, Active Low | SOT323 |
| UM809AAP | VRQ | 2.50 | 240 | Push-Pull, Active Low | SOT323 |
| UM809ABP | VRR | 2.40 | 240 | Push-Pull, Active Low | SOT323 |
| UM809ZP | VZY | 2.32 | 240 | Push-Pull, Active Low | SOT323 |
| UM809ACP | VRT | 2.20 | 240 | Push-Pull, Active Low | SOT323 |
| UM809ADP | VZL | 2.10 | 240 | Push-Pull, Active Low | SOT323 |
| UM809AEP | VZM | 2.00 | 240 | Push-Pull, Active Low | SOT323 |

Selection Table

| Part Number | Top Marking | RESET Threshold (V) | Timeout Period (ms) | Output Type | Package Type |
|-------------|-------------|---------------------|---------------------|------------------------|--------------|
| UM810AS | 5E2 | 5.00 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810BS | 5E3 | 4.90 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810CS | 5E4 | 4.80 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810DS | 5E5 | 4.70 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810LS | 10L | 4.63 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810ES | 5E7 | 4.50 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810MS | 10M | 4.38 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810FS | 5E9 | 4.30 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810GS | 5BA | 4.20 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810HS | 5BB | 4.10 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810JS | 10J | 4.00 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810IS | 5BD | 3.90 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810KS | 5BE | 3.80 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810NS | 5BF | 3.70 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810OS | 5BH | 3.60 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810PS | 5BL | 3.50 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810QS | 5BM | 3.40 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810US | 5BJ | 3.30 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810VS | 5BK | 3.20 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810TS | 10T | 3.08 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810WS | 5BP | 3.00 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810SS | 10S | 2.93 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810XS | 5BR | 2.80 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810YS | 5BS | 2.70 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810RS | 10R | 2.63 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810AAS | 5BY | 2.50 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810ABS | 5BU | 2.40 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810ZS | 10Z | 2.32 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810ACS | 5F5 | 2.20 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810ADS | 5F6 | 2.10 | 240 | Push-Pull, Active High | SOT23-3 |
| UM810AES | 5F7 | 2.00 | 240 | Push-Pull, Active High | SOT23-3 |

Selection Table

| Part Number | Top Marking | RESET Threshold (V) | Timeout Period (ms) | Output Type | Package Type |
|-------------|-------------|---------------------|---------------------|------------------------|--------------|
| UM810AP | ZTM | 5.00 | 240 | Push-Pull, Active High | SOT323 |
| UM810BP | ZTJ | 4.90 | 240 | Push-Pull, Active High | SOT323 |
| UM810CP | ZTK | 4.80 | 240 | Push-Pull, Active High | SOT323 |
| UM810DP | ZTN | 4.70 | 240 | Push-Pull, Active High | SOT323 |
| UM810LP | ZLY | 4.63 | 240 | Push-Pull, Active High | SOT323 |
| UM810EP | ZTQ | 4.50 | 240 | Push-Pull, Active High | SOT323 |
| UM810MP | ZMY | 4.38 | 240 | Push-Pull, Active High | SOT323 |
| UM810FP | ZTS | 4.30 | 240 | Push-Pull, Active High | SOT323 |
| UM810GP | ZTT | 4.20 | 240 | Push-Pull, Active High | SOT323 |
| UM810HP | ZSL | 4.10 | 240 | Push-Pull, Active High | SOT323 |
| UM810JP | ZJY | 4.00 | 240 | Push-Pull, Active High | SOT323 |
| UM810IP | ZSJ | 3.90 | 240 | Push-Pull, Active High | SOT323 |
| UM810KP | ZSK | 3.80 | 240 | Push-Pull, Active High | SOT323 |
| UM810NP | ZSN | 3.70 | 240 | Push-Pull, Active High | SOT323 |
| UM810OP | ZSP | 3.60 | 240 | Push-Pull, Active High | SOT323 |
| UM810PP | ZSQ | 3.50 | 240 | Push-Pull, Active High | SOT323 |
| UM810QP | ZSR | 3.40 | 240 | Push-Pull, Active High | SOT323 |
| UM810UP | ZSS | 3.30 | 240 | Push-Pull, Active High | SOT323 |
| UM810VP | ZST | 3.20 | 240 | Push-Pull, Active High | SOT323 |
| UM810TP | ZTY | 3.08 | 240 | Push-Pull, Active High | SOT323 |
| UM810WP | ZRM | 3.00 | 240 | Push-Pull, Active High | SOT323 |
| UM810SP | ZSY | 2.93 | 240 | Push-Pull, Active High | SOT323 |
| UM810XP | ZRK | 2.80 | 240 | Push-Pull, Active High | SOT323 |
| UM810YP | ZRN | 2.70 | 240 | Push-Pull, Active High | SOT323 |
| UM810RP | ZRY | 2.63 | 240 | Push-Pull, Active High | SOT323 |
| UM810AAP | ZRQ | 2.50 | 240 | Push-Pull, Active High | SOT323 |
| UM810ABP | ZRR | 2.40 | 240 | Push-Pull, Active High | SOT323 |
| UM810ZP | ZZY | 2.32 | 240 | Push-Pull, Active High | SOT323 |
| UM810ACP | ZRT | 2.20 | 240 | Push-Pull, Active High | SOT323 |
| UM810ADP | ZZL | 2.10 | 240 | Push-Pull, Active High | SOT323 |
| UM810AEP | ZZM | 2.00 | 240 | Push-Pull, Active High | SOT323 |

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Union Semiconductor is committed to environmental excellence in all aspects of its operations including meeting or exceeding regulatory requirements with respect to the use of hazardous substances. Numerous successful programs have been implemented to reduce the use of hazardous substances and/or emissions.

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http://www.union-ic.com/index.aspx?cat_code=RoHSDeclaration

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