3-Pin Microprocessor Reset Circuits
UM809/810 SC70-3/*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 μs 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 μA (V_{CC}=3V) makes UM809/810 ideal for low power application. Both devices are available in 3 Pin SC70 or SOT23 packages.

Applications

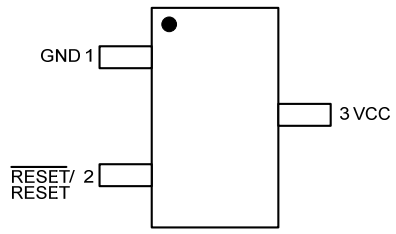
- CPU and logic circuit Reset
- Power fail detector
- Computers
- Embedded system
- Battery powered equipment
- Intelligent instrument

Features

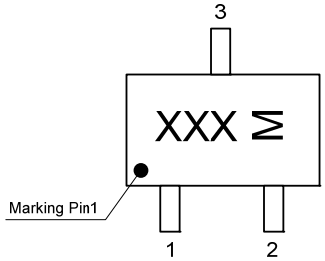
- Wide operation voltage range of 1V to 10V
- Typical Quiescent current of 3μA
- No External components
- 3-Pin small SC70 and SOT23 packages
- V_{CC} Transient immunity
- Correct logic output guaranteed to V_{CC}=1.0V
- Precision V_{CC} monitor for 2.5V, 3.0V, 3.3V, and 5.0V supplies
- Available in 2 output configurations
  Push-pull low active Reset output(UM809)
  Push-pull high active Reset output(UM810)
- Wide operation Temperature: -40℃ to 105℃

Pin Configurations

Top View



Top View



UM809/810
M: Monthly Code
SC70-3/SOT23-3

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 SC70-3

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/us
P_D	Continuous Power Dissipation	SC70-3	174	mW
		SOT23-3	320	
T_J	Operating Junction Temperature	SC70-3	-40 to +125	°C
		SOT23-3	-40 to +105	
T_{STG}	Storage Temperature Range		-65 to +150	°C
	Lead Temperature (soldering, 10s)		300	°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 +105°C (SOT23) or T_A = -40°C to +125°C (SC70), 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℃ to + 70℃		1.0		10	V
		T_A=-40℃ to + 105℃ (SOT23)		1.2		10	
		T_A=-40℃ to + 125℃ (SC70)		1.2		10	
I_{CC}	Supply Current (SOT23)	T_A=-40℃ to + 85℃	V_{CC}<5.5V, UM8_L/M/J		3	5	uA
			V_{CC}<3.6V, UM8_R/S/T/Z		3	5	
		T_A=-40℃ to + 105℃	V_{CC}<5.5V, UM8_L/M/J		3	6	
			V_{CC}<3.6V, UM8_R/S/T/Z		3	6	
I_{CC}	Supply Current (SC70)	T_A=-40℃ to + 85℃	V_{CC}<5.5V, UM8_L/M/J		3	5	
			V_{CC}<3.6V,UM 8_R/S/T/Z		3	5	
		T_A=-40℃ to + 105℃	V_{CC}<5.5V, UM8_L/M/J		***3***	6	
			V_{CC}<3.6V, UM8_R/S/T/Z		3	6	
V_{TH}	Reset Threshold (SOT23 only)	UM8_L	T_A=+25℃	4.56	4.63	4.70	V
			T_A=-40℃ to + 85℃	4.50		4.75	
			T_A=-40℃ to + 105℃	4.40		4.86	
		UM8_M	T_A=+25℃	4.31	4.38	4.45	
			T_A=-40℃ to + 85℃	4.25		4.50	
			T_A=-40℃ to + 105℃	4.16		4.56	
		UM8_J	T_A=+25℃	3.93	4.00	4.06	
			T_A=-40℃ to + 85℃	3.89		4.10	
			T_A=-40℃ to + 105℃	3.80		4.20	
		UM8_T	T_A=+25℃	3.04	3.08	3.11	
			T_A=-40℃ to + 85℃	3.00		3.15	
			T_A=-40℃ to + 105℃	2.92		3.23	
		UM8_S	T_A=+25℃	2.89	2.93	2.96	
			T_A=-40℃ to + 85℃	2.85		3.00	
			T_A=-40℃ to + 105℃	2.78		3.08	
		UM8_R	T_A=+25℃	2.59	2.63	2.66	
			T_A=-40℃ to + 85℃	2.55		2.70	
			T_A=-40℃ to + 105℃	2.50		2.76	
		UM8_Z	TA=+25℃	2.28	2.32	2.35	
			TA=-40℃ to + 85℃	2.25		2.38	
			TA=-40℃ to + 105℃	2.20		2.44	

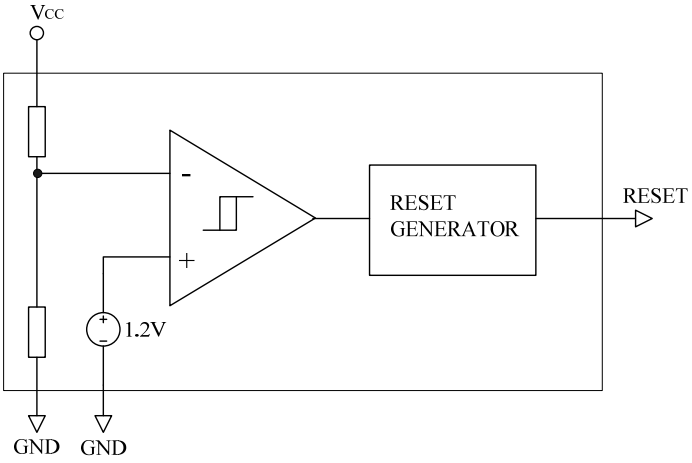
Electrical Characteristics (Continued)

V_{CC} = full range, T_A = -40°C to +105°C (SOT23) or T_A = -40°C to +125°C (SC70), 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)

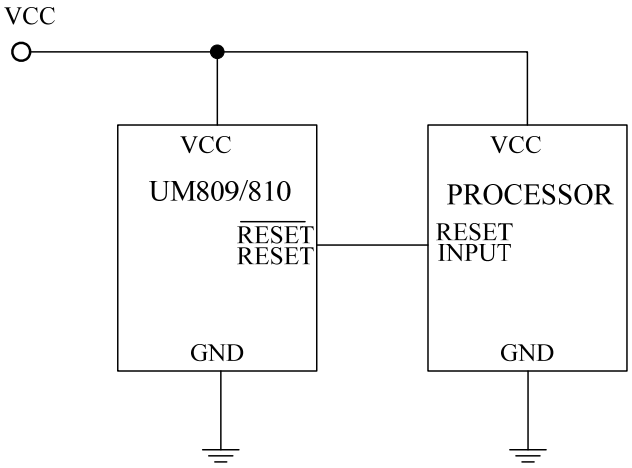
Symbol	Parameter	Conditions		Min.	Typ.	Max.	Unit
V_{TH}	Reset Threshold (SC70 only)	UM8_L	TA=+25℃	4.56	4.63	4.70	V
			TA=-40℃ to + 85℃	4.50		4.75	
			TA=-40℃ to + 125℃	4.44		4.82	
		UM8_M	TA=+25℃	4.31	4.38	4.45	
			TA=-40℃ to + 85℃	4.25		4.50	
			TA=-40℃ to + 125℃	4.20		4.56	
		UM8_J	TA=+25℃	3.93	4.00	4.06	
			TA=-40℃ to + 85℃	3.89		4.10	
			TA=-40℃ to + 125℃	3.84		4.16	
		UM8_T	TA=+25℃	3.04	3.08	3.11	
			TA=-40℃ to + 85℃	3.00		3.15	
			TA=-40℃ to + 125℃	2.92		3.23	
		UM8_S	TA=+25℃	2.89	2.93	2.96	
			TA=-40℃ to + 85℃	2.85		3.00	
			TA=-40℃ to + 125℃	2.81		3.05	
		UM8_R	TA=+25℃	2.59	2.63	2.66	
			TA=-40℃ to + 85℃	2.55		2.70	
			TA=-40℃ to + 125℃	2.52		2.74	
		UM8_Z	TA=+25℃	2.28	2.32	2.35	
			TA=-40℃ to + 85℃	2.25		2.38	
			TA=-40℃ to + 125℃	2.22		2.42	
	Reset Threshold Tempco				30		ppm /℃
	V_{CC} to Reset Delay（Note 2）	$V_{CC}=V_{TH}$ to (V_{TH} – 100mV)			10		us
	Reset Active Timeout Period （SOT23 Version）	T_A=-40℃ to + 85℃		140	240	560	ms
		T_A=+85℃ to + 105℃		140		840	
	Reset Active Timeout Period （SC70 Version）	T_A=-40℃ to + 85℃		140	240	460	ms
		T_A=+85℃ to + 125℃		140		840	
V_{OL}	$\overline{RESET}$ Output Voltage Low (push-pull active low UM809)	$V_{CC}=V_{TH}$ min, I_{SINK}=1.2mA, UM809R/S/T/Z				0.3	V
		$V_{CC}=V_{TH}$ min, I_{SINK}=3.2mA, UM809J/L/M				0.4	
		V_{CC}≤1.0V, I_{SINK}=50μA				0.3	
V_{OH}	$\overline{RESET}$ Output Voltage High (push-pull active low UM809)	$V_{CC}>V_{TH}$ max, I_{SOURCE}=500μA, UM809R/S/T/Z		$0.8V_{CC}$			V
		$V_{CC}>V_{TH}$ max, I_{SOURCE}=800μA, 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}=1.2mA, UM810R/S/T/Z				0.3	V
		$V_{CC}=V_{TH}$ max, I_{SINK}=3.2mA, UM810J/L/M				0.4	
V_{OH}	RESET Output Voltage High (push-pull active high, UM810)	1.8V < V_{CC} < V_{TH} min, I_{SOURCE} = 150μA		$0.8V_{CC}$			V

Note 1: Production testing done at T_A = +25°C; limits over temperature guaranteed by design only.
Note 2: $\overline{RESET}$ 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.

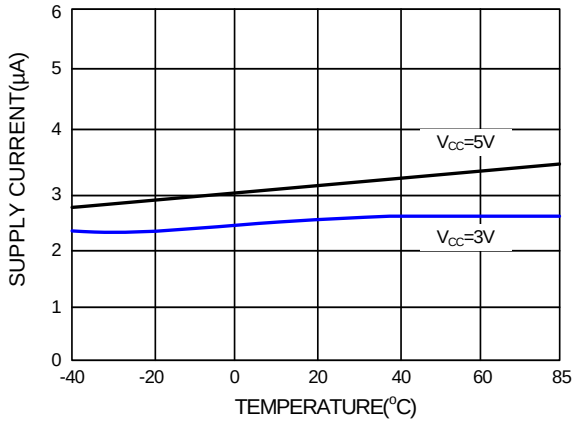


Figure 1. Supply Current vs Temperature (No Load,SC70)

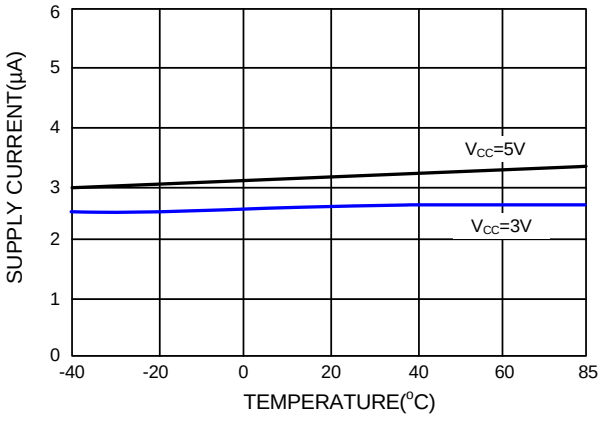


Figure 2. Supply Current vs Temperature (No Load,SOT23-3)

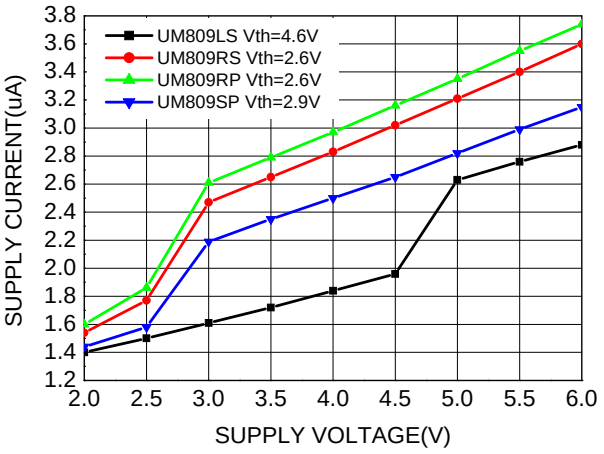


Figure 3. Supply Current vs Supply Voltage

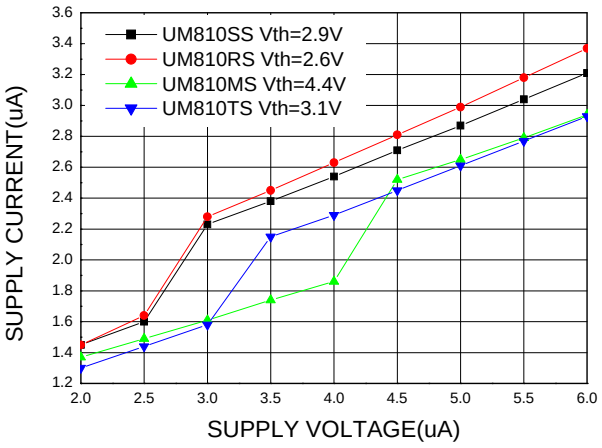


Figure 4. Supply Current vs Supply Voltage

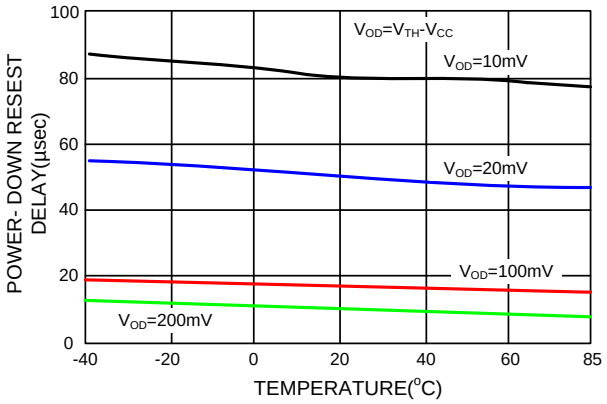


Figure 5. Power-Down Reset Delay vs Temperature and Overdrive(UM8xxR/S/T)

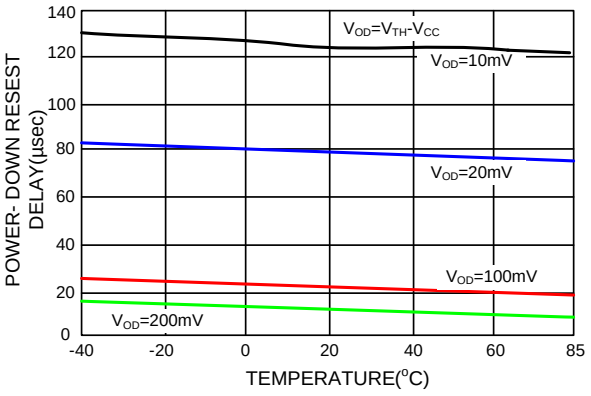


Figure 6. Power-Down Reset Delay vs Temperature and Overdrive(UM8xxL/M/J)

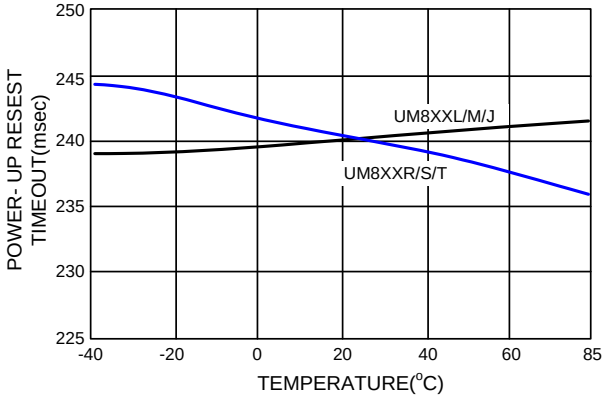


Figure 7. Power-Up Reset Timeout vs Temperature

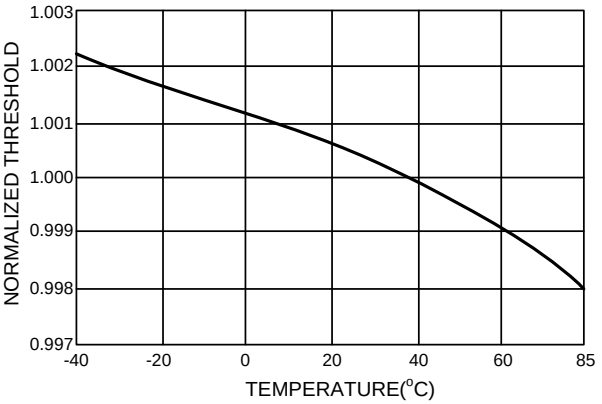


Figure 8. Normalized Reset Threshold vs Temperature

Detailed Description

A microprocessor's (µP's) reset input starts the µP in a known state. The UM809/810 assert 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 have 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 are relatively immune to short-duration negative-going V_{CC} transients (glitches). Figure 7 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 20µs or less will not cause a reset pulse. A 0.1µF bypass capacitor mounted as close as possible to the V_{CC} pin provides additional transient immunity.

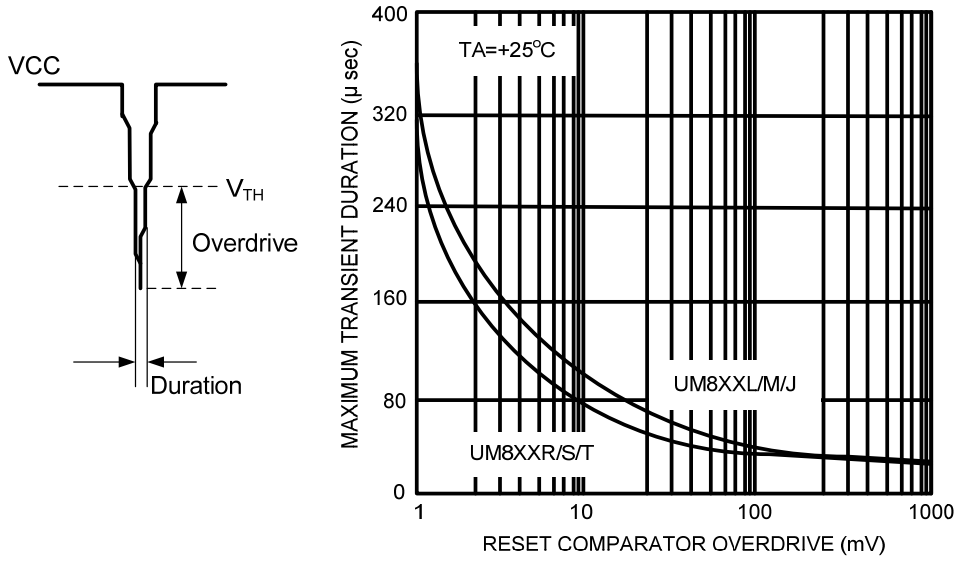


Figure 7. Maximum Transient Duration vs Overdrive for Glitch Rejection at 25℃

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 8). R1's value is not critical; 100kΩ is large enough not to load $\overline{\text{RESET}}$ and small enough to pull $\overline{\text{RESET}}$ to ground.
A 100kΩ pull-up resistor to V_{CC} is also recommended for the UM810 if RESET is required to remain valid for V_{CC} < 1V.

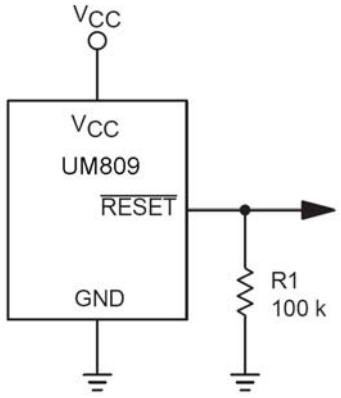


Figure 8. $\overline{\text{RESET}}$ Valid to V_{CC} = Ground Circuit

Interfacing to µPs 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 9). 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.

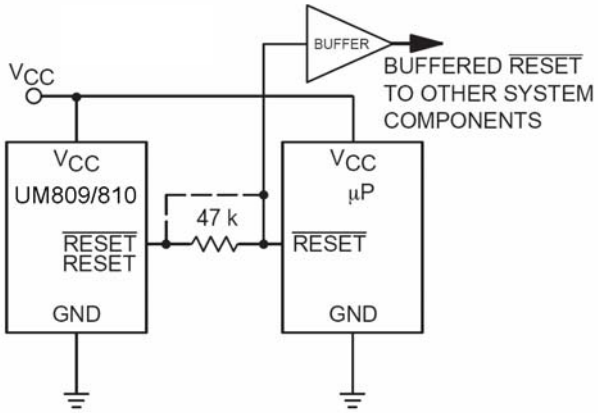


Figure 9. Interfacing to Bidirectional Reset I/O

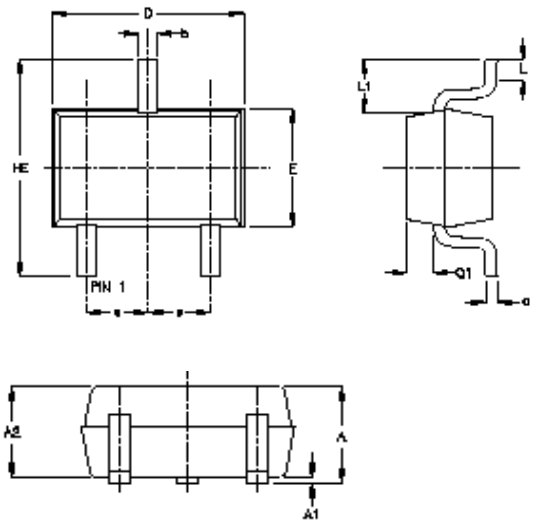
Benefits of Highly Accurate Reset Threshold

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 ±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

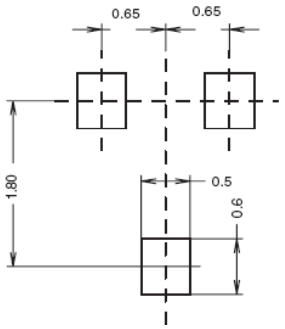
UM809/810 SC70-3

Outline Drawing



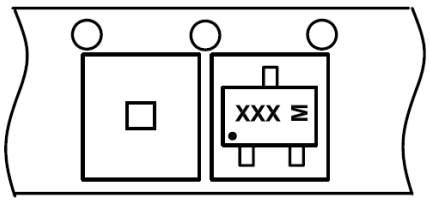
DIMENSIONS				
Symbol	MILLIMETERS		INCHES	
	Min	Max	Min	Max
D	1.80	2.20	0.072	0.088
E	1.15	1.35	0.006	0.054
HE	1.80	2.40	0.072	0.050
b	0.25	0.40	0.010	0.016
e	0.65BSC		0.026BSC	
Q1	0.10	0.40	0.004	0.016
A	0.80	1.10	0.032	0.044
A1	0.00	0.10	0.00	0.004
A2	0.80	1.00	0.032	0.040
c	0.10	0.18	0.004	0.007
L	0.10	0.30	0.004	0.012
L1	0.425TYP.		0.017TYP	

Land Pattern



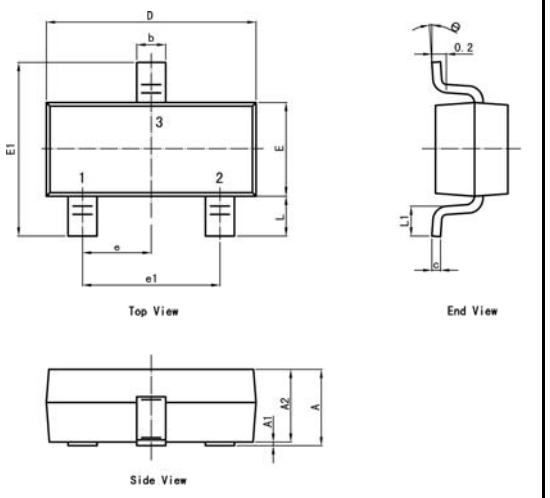
NOTES:
1. Compound dimension: 2.0×1.25；
2. Unit: mm;
3. General tolerance ±0.05mm unless otherwise specified;
4. The layout is just for reference.

Tape and Reel Orientation



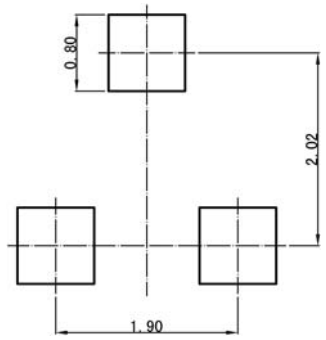
UM809/810 SOT23-3

Outline Drawing



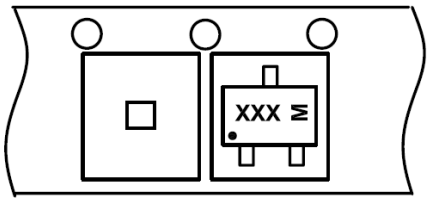
Symbol	DIMENSIONS			
	MILLIMETERS		INCHES	
	Min	Max	Min	Max
A	1.050	1.250	0.041	0.049
A1	0.000	0.100	0.000	0.004
A2	1.050	1.150	0.041	0.045
b	0.300	0.500	0.012	0.020
c	0.100	0.200	0.004	0.008
D	2.820	3.020	0.111	0.119
E	1.500	1.700	0.059	0.067
E1	2.650	2.950	0.104	0.116
e	0.950REF		0.037REF	
e1	1.800	2.000	0.071	0.079
L	0.550REF		0.022REF	
L1	0.300	0.600	0.012	0.024
θ	0°	8°	0°	8°

Land Pattern



NOTES:
1. Compound dimension: 2.92×1.60；
2. Unit: mm;
3. General tolerance ±0.05mm unless otherwise specified;
4. The layout is just for reference.

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	SC70-3
UM809BP	VTJ	4.90	240	Push-pull, active LOW	SC70-3
UM809CP	VTK	4.80	240	Push-pull, active LOW	SC70-3
UM809DP	VTN	4.70	240	Push-pull, active LOW	SC70-3
UM809LP	VLY	4.63	240	Push-pull, active LOW	SC70-3
UM809EP	VTQ	4.50	240	Push-pull, active LOW	SC70-3
UM809MP	VMY	4.38	240	Push-pull, active LOW	SC70-3
UM809FP	VTS	4.30	240	Push-pull, active LOW	SC70-3
UM809GP	VTT	4.20	240	Push-pull, active LOW	SC70-3
UM809HP	VSL	4.10	240	Push-pull, active LOW	SC70-3
UM809JP	VJY	4.00	240	Push-pull, active LOW	SC70-3
UM809IP	VSJ	3.90	240	Push-pull, active LOW	SC70-3
UM809KP	VSK	3.80	240	Push-pull, active LOW	SC70-3
UM809NP	VSN	3.70	240	Push-pull, active LOW	SC70-3
UM809OP	VSP	3.60	240	Push-pull, active LOW	SC70-3
UM809PP	VSQ	3.50	240	Push-pull, active LOW	SC70-3
UM809QP	VSR	3.40	240	Push-pull, active LOW	SC70-3
UM809UP	VSS	3.30	240	Push-pull, active LOW	SC70-3
UM809VP	VST	3.20	240	Push-pull, active LOW	SC70-3
UM809TP	VTY	3.08	240	Push-pull, active LOW	SC70-3
UM809WP	VRM	3.00	240	Push-pull, active LOW	SC70-3
UM809SP	VSY	2.93	240	Push-pull, active LOW	SC70-3
UM809XP	VRK	2.80	240	Push-pull, active LOW	SC70-3
UM809YP	VRN	2.70	240	Push-pull, active LOW	SC70-3
UM809RP	VRY	2.63	240	Push-pull, active LOW	SC70-3
UM809AAP	VRQ	2.50	240	Push-pull, active LOW	SC70-3
UM809ABP	VRR	2.40	240	Push-pull, active LOW	SC70-3
UM809ZP	VZY	2.32	240	Push-pull, active LOW	SC70-3
UM809ACP	VRT	2.20	240	Push-pull, active LOW	SC70-3
UM809ADP	VZL	2.10	240	Push-pull, active LOW	SC70-3
UM809AEP	VZM	2.00	240	Push-pull, active LOW	SC70-3

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	SC70-3
UM810BP	ZTJ	4.90	240	Push-pull, active HIGH	SC70-3
UM810CP	ZTK	4.80	240	Push-pull, active HIGH	SC70-3
UM810DP	ZTN	4.70	240	Push-pull, active HIGH	SC70-3
UM810LP	ZLY	4.63	240	Push-pull, active HIGH	SC70-3
UM810EP	ZTQ	4.50	240	Push-pull, active HIGH	SC70-3
UM810MP	ZMY	4.38	240	Push-pull, active HIGH	SC70-3
UM810FP	ZTS	4.30	240	Push-pull, active HIGH	SC70-3
UM810GP	ZTT	4.20	240	Push-pull, active HIGH	SC70-3
UM810HP	ZSL	4.10	240	Push-pull, active HIGH	SC70-3
UM810JP	ZJY	4.00	240	Push-pull, active HIGH	SC70-3
UM810IP	ZSJ	3.90	240	Push-pull, active HIGH	SC70-3
UM810KP	ZSK	3.80	240	Push-pull, active HIGH	SC70-3
UM810NP	ZSN	3.70	240	Push-pull, active HIGH	SC70-3
UM810OP	ZSP	3.60	240	Push-pull, active HIGH	SC70-3
UM810PP	ZSQ	3.50	240	Push-pull, active HIGH	SC70-3
UM810QP	ZSR	3.40	240	Push-pull, active HIGH	SC70-3
UM810UP	ZSS	3.30	240	Push-pull, active HIGH	SC70-3
UM810VP	ZST	3.20	240	Push-pull, active HIGH	SC70-3
UM810TP	ZTY	3.08	240	Push-pull, active HIGH	SC70-3
UM810WP	ZRM	3.00	240	Push-pull, active HIGH	SC70-3
UM810SP	ZSY	2.93	240	Push-pull, active HIGH	SC70-3
UM810XP	ZRK	2.80	240	Push-pull, active HIGH	SC70-3
UM810YP	ZRN	2.70	240	Push-pull, active HIGH	SC70-3
UM810RP	ZRY	2.63	240	Push-pull, active HIGH	SC70-3
UM810AAP	ZRQ	2.50	240	Push-pull, active HIGH	SC70-3
UM810ABP	ZRR	2.40	240	Push-pull, active HIGH	SC70-3
UM810ZP	ZZY	2.32	240	Push-pull, active HIGH	SC70-3
UM810ACP	ZRT	2.20	240	Push-pull, active HIGH	SC70-3
UM810ADP	ZZL	2.10	240	Push-pull, active HIGH	SC70-3
UM810AEP	ZZM	2.00	240	Push-pull, active HIGH	SC70-3

IMPORTANT NOTICE

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