



4-PIN μ P VOLTAGE MONITORS WITH MANUAL RESET INPUT

DESCRIPTION

The UTC **UIC812** is microprocessor (μ P) supervisory circuits used to monitor the power supplies in μ P and digital systems. They provide excellent circuit reliability and low cost by eliminating external components and adjustments when used with +3V, +3.3V, +5V, powered circuits. The UTC **UIC812** also provides a debounced manual reset input.

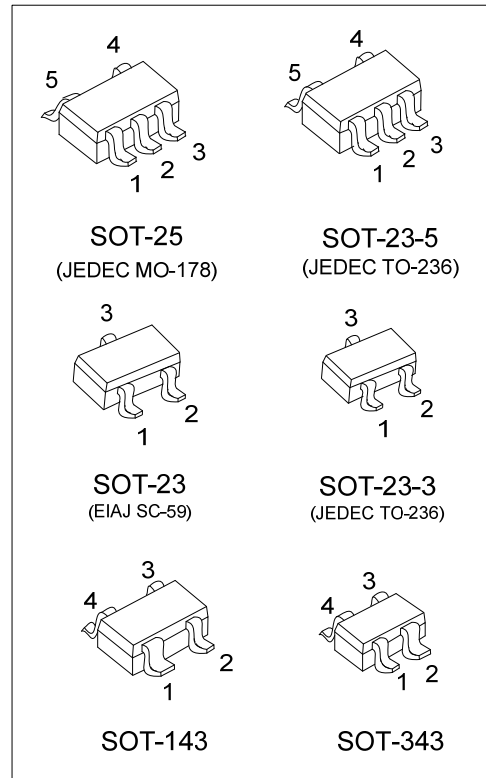
These circuits perform a single function: they assert a reset signal whenever the V_{CC} supply voltage declines below a preset threshold, keeping it asserted for at least 140 ms after V_{CC} has risen above the reset threshold. Reset thresholds suitable for operation with a variety of supply voltages are available.

The UTC **UIC812** has an active-low $\overline{\text{RESET}}$ output stage. The UTC **UIC812**'s open-drain $\overline{\text{RESET}}$ output requires a pull-up resistor that can be connected to a voltage higher than V_{CC} .

Low supply current makes the UTC **UIC812** ideal for use in portable equipment.

FEATURES

- * Precision Monitoring of +3V, +3.3VB and +5V Power-Supply Voltages
- * Typical supply current: 5 μ A
- * 140 mS Min Power-On Reset Pulse Width
- * Guaranteed Reset Valid to $V_{CC}=+1V$
- * Power Supply Transient Immunity
- * Manual Reset Input
- * 2% Threshold Accuracy
- * Open-Drain $\overline{\text{RESET}}$ Active Low Output



ORDERING INFORMATION

Ordering Number		Package	Pin Assignment					Packing
Lead Free	Halogen Free		1	2	3	4	5	
UIC812L-x-AD4-R	UIC812G-x-AD4-R	SOT-143	GND	RESET	MR	V _{CC}	-	Tape Reel
UIC812L-x-AE2-2-R	UIC812G-x-AE2-2-R	SOT-23-3	RESET	V _{CC}	GND	-	-	Tape Reel
UIC812L-x-AE2-3-R	UIC812G-x-AE2-3-R	SOT-23-3	GND	RESET	V _{CC}	-	-	Tape Reel
UIC812L-x-AE2-5-R	UIC812G-x-AE2-5-R	SOT-23-3	RESET	GND	V _{CC}	-	-	Tape Reel
UIC812L-x-AE3-2-R	UIC812G-x-AE3-2-R	SOT-23	RESET	V _{CC}	GND	-	-	Tape Reel
UIC812L-x-AE3-3-R	UIC812G-x-AE3-3-R	SOT-23	GND	RESET	V _{CC}	-	-	Tape Reel
UIC812L-x-AE3-5-R	UIC812G-x-AE3-5-R	SOT-23	RESET	GND	V _{CC}	-	-	Tape Reel
UIC812L-x-AE5-R	UIC812G-x-AE5-R	SOT-23-5	GND	NC	RESET	MR	V _{CC}	Tape Reel
UIC812L-x-AF5-R	UIC812G-x-AF5-R	SOT-25	GND	NC	RESET	MR	V _{CC}	Tape Reel
UIC812L-x-AL4-R	UIC812G-x-AL4-R	SOT-343	GND	RESET	MR	V _{CC}	-	Tape Reel

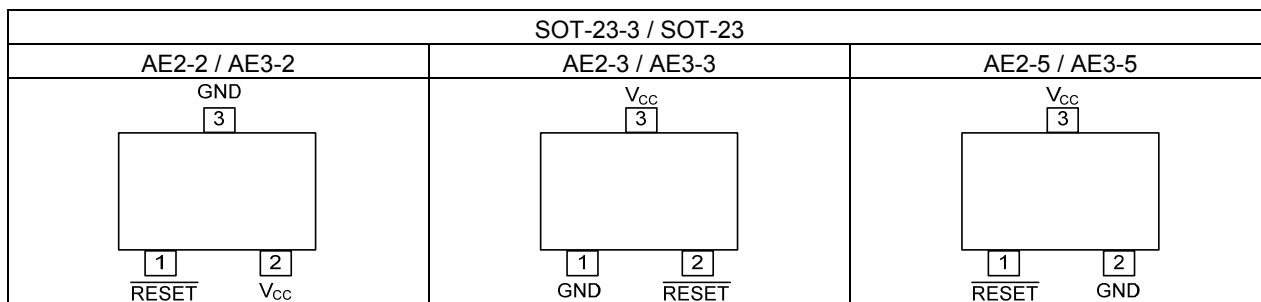
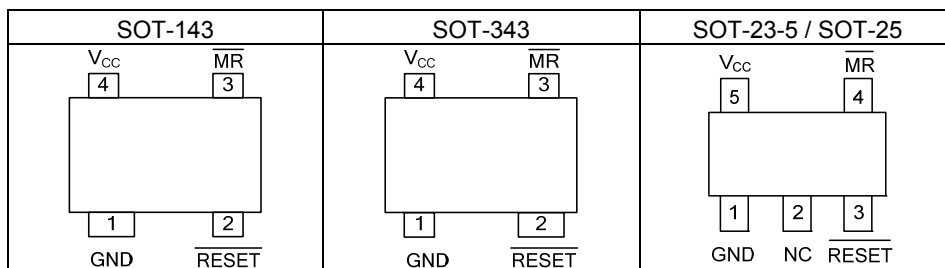
Note: Pin Assignment : x: Output Voltage, refer to Marking Information.

<p>UIC812G-x-AE2-2-R</p>	<p>(1) R: Tape Reel (2) refer to Pin Assignment (3) AD4: SOT-143, AE2: SOT-23-3, AE3: SOT-23, AE5: SOT-23-5, AF5: SOT-25, AL4: SOT-343 (4) x: Refer to Marking Information (5) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT-23 SOT-23-3	A : 2.63V B : 2.93V C : 3.08V D : 4.00V E : 4.38V F : 4.63V J : 5.00V	
SOT-23-5 SOT-25		
SOT-143		
SOT-343		

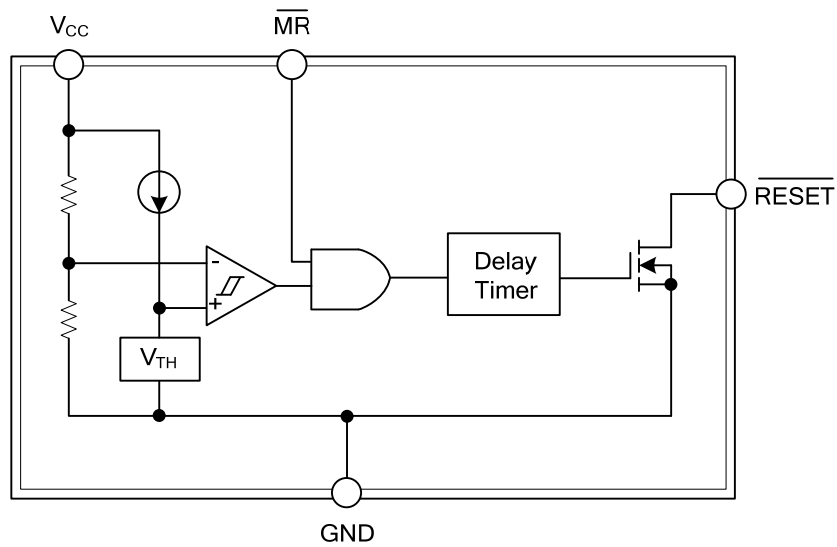
■ PIN CONFIGURATION



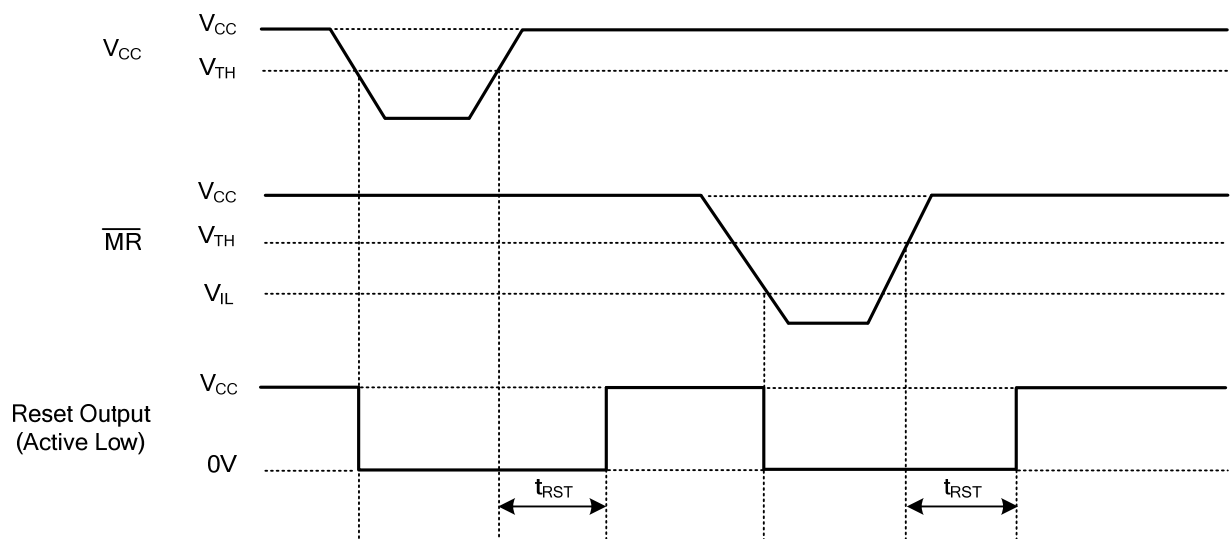
■ PIN DESCRIPTION

PIN NAME	DESCRIPTION
GND	Ground.
NC	No Connection.
$\overline{\text{RESET}}$	$\overline{\text{RESET}}$ Output remains low while V_{CC} is below the reset threshold, and for at least 140ms after V_{CC} rises above the reset threshold.
$\overline{\text{MR}}$	Manual Reset Input. A logic low on $\overline{\text{MR}}$ asserts reset. Reset remains asserted as long as $\overline{\text{MR}}$ is low and for at least 140ms after $\overline{\text{MR}}$ returns high, This active-low input has an internal 20k Ω pull-up resistor. It can be driven from a TTL or CMOS-logic line, or shorted to ground with a switch. Leave open if unused. For SOT-143, SOT-23-5, SOT-25 and SOT-343 only.
V_{CC}	Input of power supply.

■ BLOCK DIAGRAM



■ FUNCTIONAL DIAGRAM



■ ABSOLUTE MAXIMUM RATING

PARAMETER		SYMBOL	RATINGS	UNIT
Input Voltage		V_{CC}	-0.3 ~ +6.0	V
RESET (Open Drain)		V_{RESET}	-0.3 ~ +6.0	V
Input Current (V_{CC} , MR)		I_{IN}	20	mA
Output Current, RESET		I_{OUT}	20	mA
Power Dissipation ($T_A=70^\circ\text{C}$)	SOT-143	P_D	320	mW
	SOT-343		250	mW
	SOT-23-3/SOT-23		300	mW
	SOT-23-5/SOT-25		350	mW
Junction Temperature		T_J	+150	$^\circ\text{C}$
Operating Temperature Range		T_{OPR}	-40 ~ +105	$^\circ\text{C}$
Storage Temperature Range		T_{STG}	-65 ~ +150	$^\circ\text{C}$

- Notes: 1. Absolute maximum ratings are those values beyond which the device could be permanently damaged. Absolute maximum ratings are stress ratings only and functional device operation is not implied.
 2. The device is not guaranteed to function outside its operating rating.

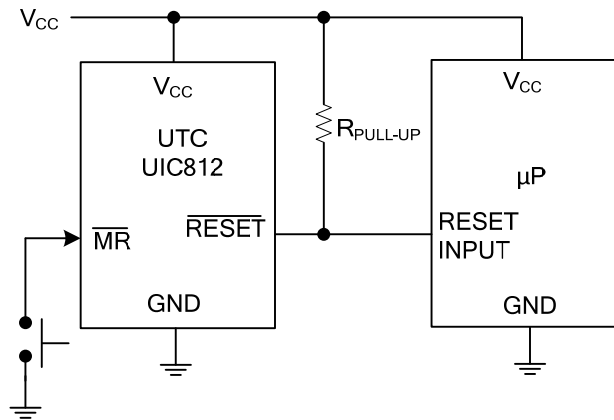
■ ELECTRICAL CHARACTERISTICS

(V_{CC} = full range, $T_A=-40^\circ\text{C}\sim+105^\circ\text{C}$, unless otherwise noted. Typical values are at $T_A=+25^\circ\text{C}$) (Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Operating Voltage Range	V_{CC}	$T_A=-40\sim+85^\circ\text{C}$	1.00		5.5	V	
Supply Current	I_{CC}			5	20	μA	
Reset Voltage Threshold	V_{TH}	$V_{CC}=3\text{V}$	UIC812-A	2.59	2.63	2.69	V
		$V_{CC}=3.3\text{V}$	UIC812-B	2.88	2.93	3.00	V
			UIC812-C	3.02	3.08	3.15	V
		$V_{CC}=5\text{V}$	UIC812-D	3.93	4.00	4.08	V
			UIC812-E	4.31	4.38	4.47	V
			UIC812-F	4.54	4.63	4.72	V
		$V_{CC}=5.5\text{V}$	UIC812-J	4.90	5.00	5.10	V
Reset Active Timeout Period	t_{RST}	$V_{CC}=V_{TH}$ max	140	240	560	ms	
MR Minimum Pulse Width				10		μs	
MR Glitch Immunity (Note 3)				100		ns	
MR to Reset Propagation Delay (Note 2)				0.5		μs	
MR Input Threshold	V_{IH}	$V_{CC}>V_{TH(max)}$	$0.6\times V_{CC}$	$0.7\times V_{CC}$		V	
	V_{IL}			$0.2\times V_{CC}$	$0.3\times V_{CC}$	V	
MR Pull-Up Resistance			10	21	30	K Ω	
RESET Output Current Low (and Open- Drain Active-Low)	I_{OL}	$V_{CC}=2.5\text{V}$, $V_{RESET}=0.5\text{V}$	6			mA	
RESET Open-Drain Output Leakage Current		$V_{CC}>V_{TH}$, RESET deasserted			1	μA	

- Notes: 1. Production testing done at $T_A=+25^\circ\text{C}$; limits over temperature guaranteed by design.
 2. RESET output is for UTC **UIC812**
 3. "Glitches" of 100ns or less typically will not generate a reset pulse.

■ TYPICAL APPLICATION CIRCUIT



UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. UTC reserves the right to make changes to information published in this document, including without limitation specifications and product descriptions, at any time and without notice. This document supersedes and replaces all information supplied prior to the publication hereof.