



# UIC812

## LINEAR INTEGRATED CIRCUIT

### 4-PIN $\mu$ P VOLTAGE MONITORS WITH MANUAL RESET INPUT

#### DESCRIPTION

The UTC **UIC812** is microprocessor ( $\mu$ P) supervisory circuits used to monitor the power supplies in  $\mu$ 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.

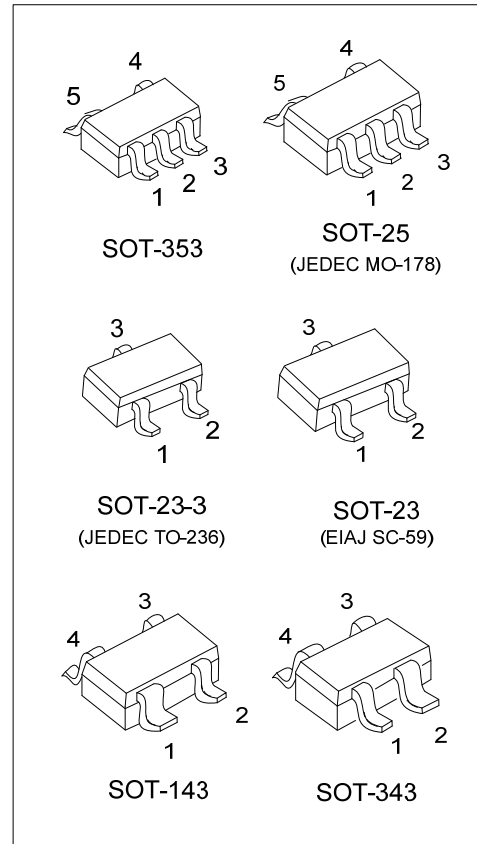
These circuits perform a single function: they assert a reset signal whenever the  $V_{CC}$  supply voltage declines below a preset threshold, keeping it asserted for at least 140 ms after  $V_{CC}$  has risen above the reset threshold. Reset thresholds suitable for operation with a variety of supply 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, +3.3V and +5V Power-Supply Voltages
- \* Typical supply current: 5 $\mu$ A
- \* 140 mS Min Power-On Reset Pulse Width
- \* Guaranteed Reset Valid to  $V_{CC}=+1V$
- \* Manual Reset Input
- \* 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 <sub>CC</sub>	-	Tape Reel
UIC812L-x-AE2-2-R	UIC812G-x-AE2-2-R	SOT-23-3	RESET	V <sub>CC</sub>	GND	-	-	Tape Reel
UIC812L-x-AE2-3-R	UIC812G-x-AE2-3-R	SOT-23-3	GND	RESET	V <sub>CC</sub>	-	-	Tape Reel
UIC812L-x-AE2-5-R	UIC812G-x-AE2-5-R	SOT-23-3	RESET	GND	V <sub>CC</sub>	-	-	Tape Reel
UIC812L-x-AE3-2-R	UIC812G-x-AE3-2-R	SOT-23	RESET	V <sub>CC</sub>	GND	-	-	Tape Reel
UIC812L-x-AE3-3-R	UIC812G-x-AE3-3-R	SOT-23	GND	RESET	V <sub>CC</sub>	-	-	Tape Reel
UIC812L-x-AE3-5-R	UIC812G-x-AE3-5-R	SOT-23	RESET	GND	V <sub>CC</sub>	-	-	Tape Reel
UIC812L-x-AF5-R	UIC812G-x-AF5-R	SOT-25	GND	NC	RESET	MR	V <sub>CC</sub>	Tape Reel
UIC812L-x-AL4-R	UIC812G-x-AL4-R	SOT-343	GND	RESET	MR	V <sub>CC</sub>	-	Tape Reel
UIC812L-x-AL5-R	UIC812G-x-AL5-R	SOT-353	GND	NC	RESET	MR	V <sub>CC</sub>	Tape Reel

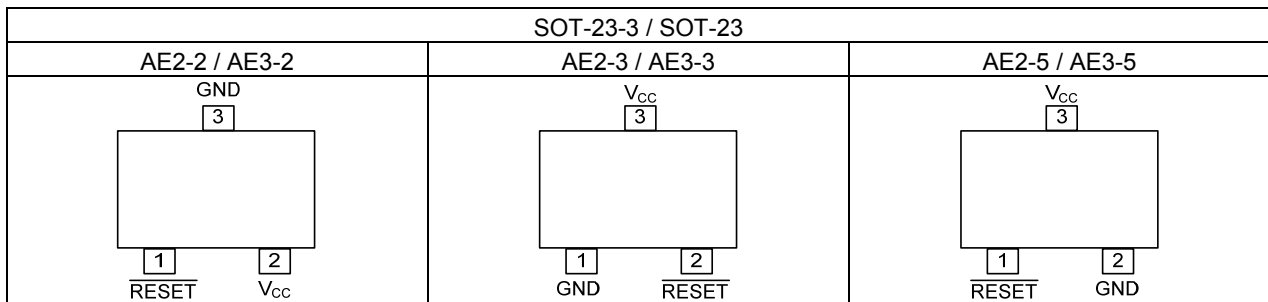
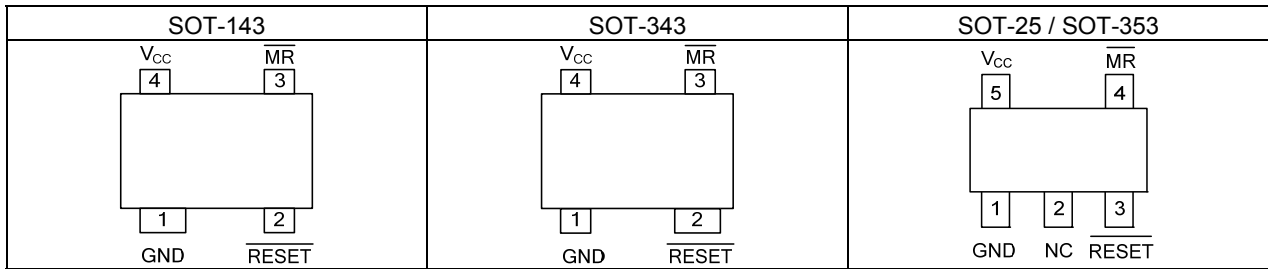
Note: Pin Assignment : x: Output Voltage.

<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, AF5: SOT-25, AL4: SOT-343, AL5: SOT-353                  (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	N: 2.25V A: 2.63V B: 2.93V C: 3.08V D: 4.00V E: 4.38V F: 4.63V J: 5.00V	
SOT-25 SOT-353		
SOT-143		
SOT-343		

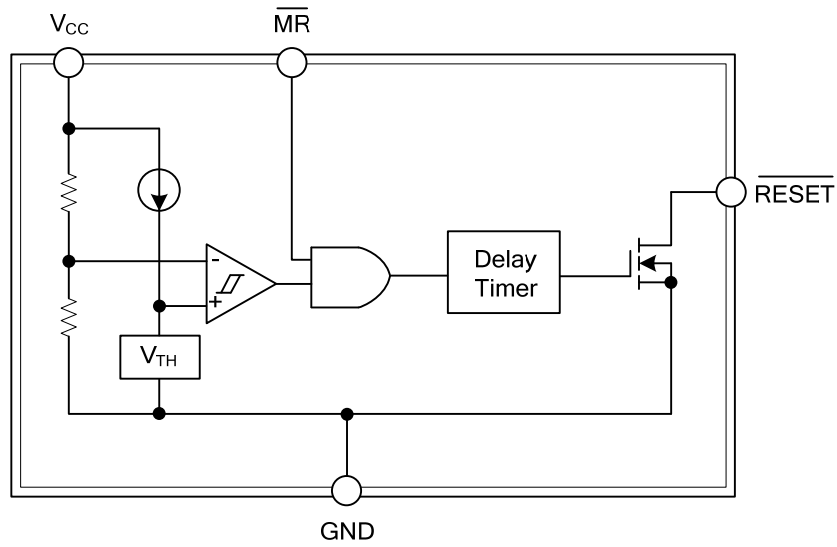
### ■ PIN CONFIGURATION



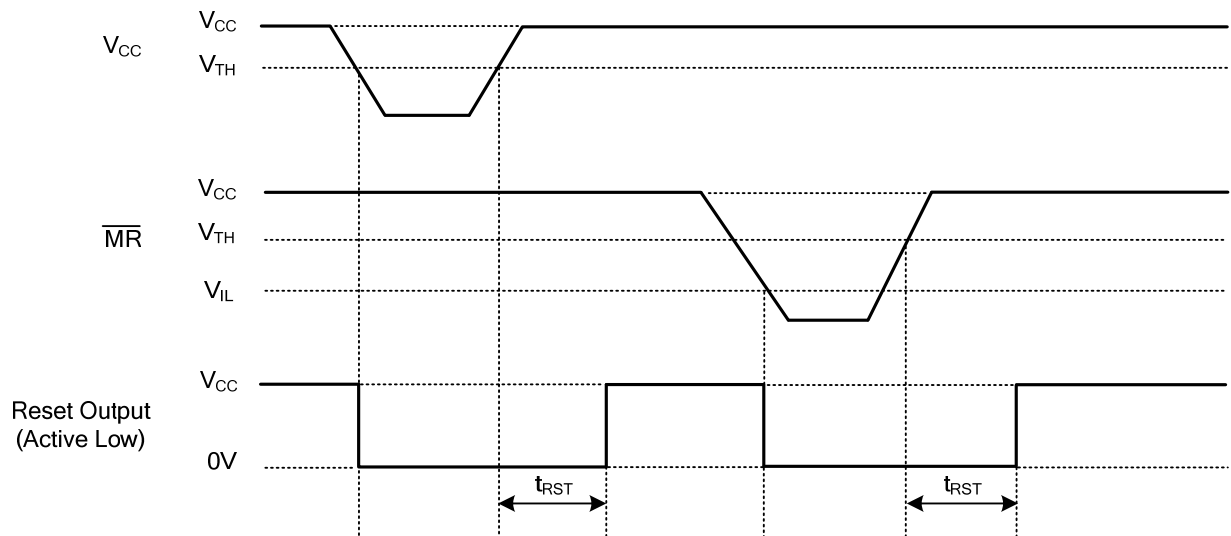
### ■ PIN DESCRIPTION

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 $\Omega$ 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 4 Pin, 5 Pin Packing only.
$V_{CC}$	Input of power supply.

## ■ BLOCK DIAGRAM



## ■ FUNCTIONAL DIAGRAM



### ■ ABSOLUTE MAXIMUM RATING

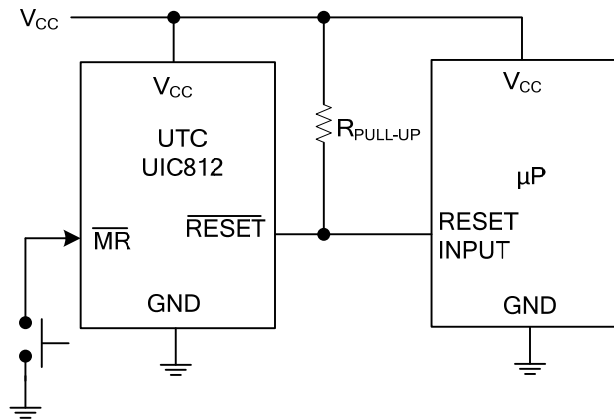
PARAMETER		SYMBOL	RATINGS	UNIT
Input Voltage		$V_{CC}$	-0.3 ~ +6.0	V
RESET (Open Drain)		$V_{RESET}$	-0.3 ~ +6.0	V
Input Current ( $V_{CC}$ , MR)		$I_{IN}$	20	mA
Output Current, RESET		$I_{OUT}$	20	mA
Power Dissipation ( $T_A=70^\circ\text{C}$ )	SOT-23-3/SOT-23	$P_D$	300	mW
	SOT-25		350	mW
	SOT-143		320	mW
	SOT-343		250	mW
	SOT-353		260	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 ( $T_A=25^\circ\text{C}$ , unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
Operating Voltage Range	$V_{CC}$		1.0		5.5	V	
Supply Current	$I_{CC}$			5	20	$\mu\text{A}$	
Reset Voltage Threshold	$V_{TH}$	$V_{CC}=3\text{V}$	UIC812-N	2.19	2.25	2.31	V
			UIC812-A	2.56	2.63	2.70	V
		$V_{CC}=3.3\text{V}$	UIC812-B	2.85	2.93	3.01	V
			UIC812-C	3.00	3.08	3.16	V
			UIC812-D	3.90	4.00	4.10	V
		$V_{CC}=5\text{V}$	UIC812-E	4.26	4.38	4.50	V
			UIC812-F	4.5	4.63	4.76	V
$V_{CC}=5.5\text{V}$	UIC812-J	4.85	5.00	5.15	V		
Reset Timeout Period	$t_{RST}$		140	240	560	ms	
MR Minimum Pulse Width			10			$\mu\text{s}$	
MR Glitch Immunity				100		ns	
MR to Reset Delay				0.5		$\mu\text{s}$	
MR Input Threshold	$V_{IH}$	$V_{CC} > V_{TH(max)}$	$0.7 \times V_{CC}$			V	
	$V_{IL}$				$0.25 \times V_{CC}$	V	
MR Pull-Up Resistance			10	20	40	K $\Omega$	
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	$\mu\text{A}$	

## ■ TYPICAL APPLICATION CIRCUIT



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