



## UIC813

Preliminary

CMOS IC

### 3-PIN MICROPROCESSOR RESET CIRCUITS

#### DESCRIPTION

The UTC **UIC813** series are resetting circuits which can monitor power supplies especially in microprocessor based systems.

In normal operation, the UTC **UIC813** series can assert a reset under any of the following situation: the power supply drops below a designated reset threshold level (which is available for 3V or 3.3V or 5V system).

There is an internal active high RESET output which has already been guaranteed to remain asserted for at 140ms least while  $V_{CC}$  rises above the designed threshold level.

#### FEATURES

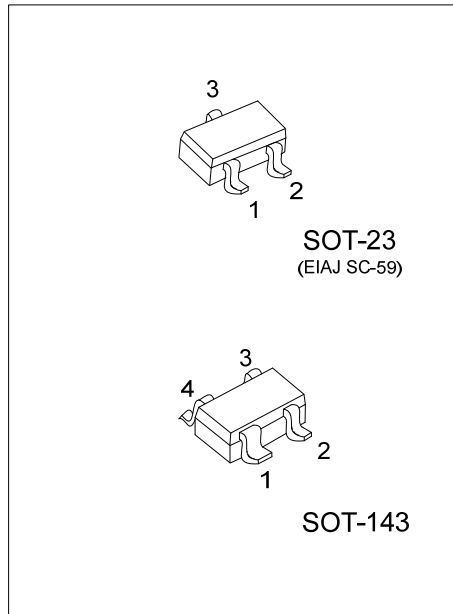
- \* Voltage monitor for 3V or 3.3V or 5V power supplies
- \* Valid RESET remains with  $V_{CC}$  as low as 1V
- \* Typical supply current: 10 $\mu$ A
- \* Fixed 140ms minimum reset pulse width
- \* Push-Pull Reset Active High Optput.

#### ORDERING INFORMATION

Ordering Number		Package	Pin Assignment				Packing
Lead Free	Halogen Free		1	2	3	4	
UIC813L-x-AE3-3-R	UIC813G-x-AE3-3-R	SOT-23	GND	RESET	$V_{CC}$	-	Tape Reel
UIC813L-x-AE3-5-R	UIC813G-x-AE3-5-R	SOT-23	RESET	GND	$V_{CC}$	-	Tape Reel
UIC813L-x-AD4-R	UIC813G-x-AD4-R	SOT-143	GND	RESET	MR	$V_{CC}$	Tape Reel

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

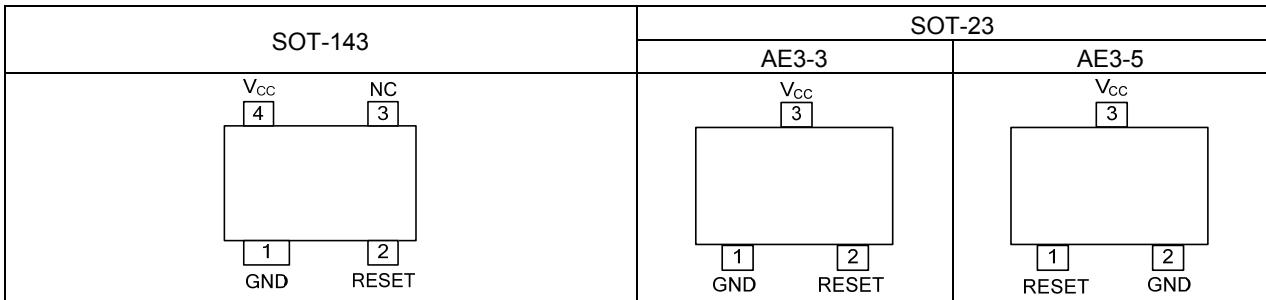
<p>UIC813G-x-AE3-x-R</p>	<p>(1) R: Tape Reel  (2) refer to Pin Assignment  (3) AE3: SOT-23, AD4: SOT-143  (4) x: Refer to Marking Information  (5) G: Halogen Free and Lead Free, L: Lead Free</p>
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MARKING INFORMATION

PACKAGE	VOLTAGE CODE	MARKING
SOT23	A: 2.63V B: 2.93V C: 3.08V D: 4.00V E: 4.38V F: 4.63V	
SOT-143		

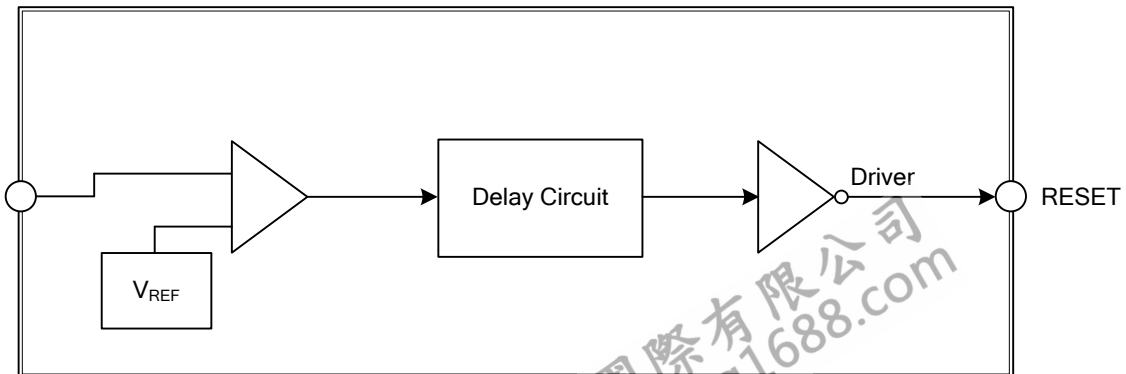
PIN CONFIGURATION



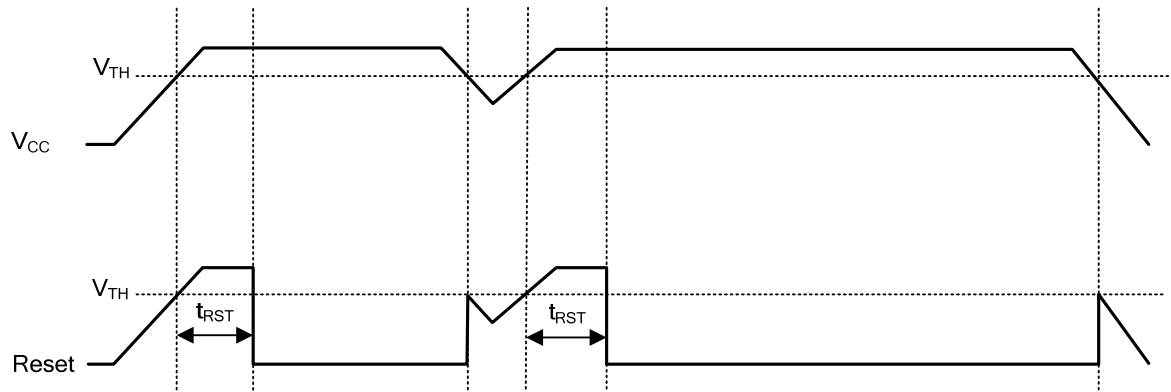
PIN DESCRIPTION

PIN NAME	DESCRIPTION
GND	Ground
RESET	Reset Output Pin
V <sub>CC</sub>	Input of power supply
NC	No Connection

BLOCK DIAGRAM



■ FUNCTIONAL DIAGRAM



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### ■ ABSOLUTE MAXIMUM RATINGS

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	$V_{CC}$	-0.3~+6.0	V
RESET (push-pull)	$V_{RESET}$	-0.3~( $V_{CC}+0.3$ )	V
Input Current, $V_{CC}$	$I_{CC}$	20	mA
Output Current, RESET	$I_{OUT}$	20	mA
Rate of Rise	$V_{CC(RR)}$	100	V/ $\mu$ s
Continuous Power Dissipation ( $T_A=+70^\circ\text{C}$ ), De-rate 4mW/ $^\circ\text{C}$ Above $+70^\circ\text{C}$	SOT-23	$P_D$	360
	SOT-143		320
Operating Junction Temperature Range	$T_{OPR}$	-40 ~ +105	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$	-65 ~ +150	$^\circ\text{C}$

Note: 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.

### ■ ELECTRICAL CHARACTERISTICS

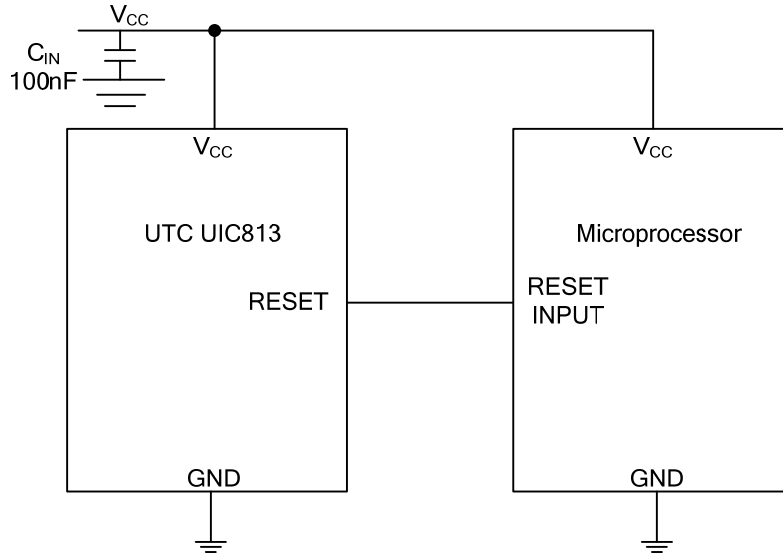
( $T_A=-40\sim 85^\circ\text{C}$  unless otherwise note. Typical values are at  $T_A=+25^\circ\text{C}$ ) (Note 1)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT	
$V_{CC}$ Range	$V_{CC}$	$T_A=0^\circ\text{C}\sim +70^\circ\text{C}$	1.0		5.5	V	
Supply Current	$I_{CC}$	$V_{TH}+0.2\text{V}$		10	30	$\mu\text{A}$	
Reset Threshold	$V_{TH}$	$V_{CC}=3\text{V}$	UIC813-A	2.59	2.63	2.69	V
		$V_{CC}=3.3\text{V}$	UIC813-B	2.88	2.93	3.00	
			UIC813-C	3.02	3.08	3.15	
		$V_{CC}=5\text{V}$	UIC813-D	3.93	4.00	4.08	
			UIC813-E	4.31	4.38	4.47	
			UIC813-F	4.54	4.63	4.72	
Reset Threshold Tempco	$V_{TH}$			30		ppm/ $^\circ\text{C}$	
Set-up Time	$T_S$	$V_{CC}=V_{TH}\sim(V_{TH}-100\text{mV})$		20		$\mu\text{s}$	
Reset Active Timeout Period	$t_{RST}$	$T_A=0^\circ\text{C}\sim +85^\circ\text{C}$	140	320	560	ms	
RESET Output Voltage-Low	$V_{OL}$	$V_{CC}=V_{TH}+0.2, I_{SINK}=1.2\text{mA}$			0.3	V	
		$V_{CC}=V_{TH}+0.2, I_{SINK}=3.2\text{mA}$			0.4		
RESET Output Voltage-High	$V_{OH}$	$1.8\text{V}<V_{CC}<V_{TH}-0.2, I_{SOURCE}=150\mu\text{A}$	$0.8\times V_{CC}$			V	

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

2. Devices mounted on FR-4 substrate PC board, 2oz copper, with minimum recommended pad layout.

■ TYPICAL APPLICATION CIRCUIT



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