



81XX

LINEAR INTEGRATED CIRCUIT

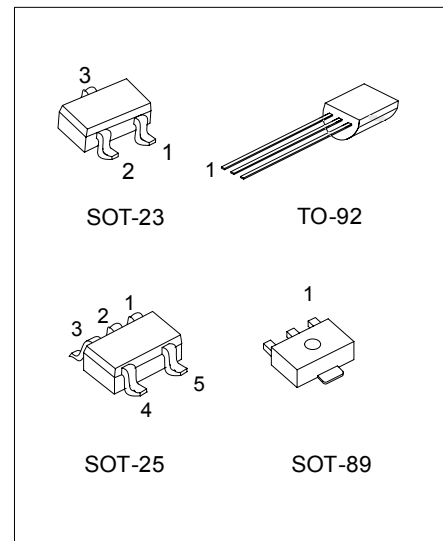
POWER RESET IC

DESCRIPTION

The function of UTC **81XX** is to accurately reset system after detecting the supply voltage at the time of switching power on and instantaneous power off in various CPU and other logic systems. Further, this IC, with its super low consumption current and high precision voltage detection capacity, is most suited as a voltage check circuit for a number of products which use batteries.

FEATURES

- *High precision voltage detection. ($V_{SS} \pm 3\%$ max)
- *low current consumption.
($I_{CCH} = 15\mu A$ typ. $I_{CCL} = 10\mu A$ typ.)
- *Low operating threshold voltage (0.65V typ.)
- *Hysteresis voltage is provided as a detect voltage.
(50mV typ.)
- *Large output current at the time ON (15mA typ.)
- *The detect voltage can be selected at your discretion at 0.1V step within the range of 1.9V to 4.6V by the following stipulation method.



*Pb-free plating product number: 81XX L

ORDERING INFORMATION

| Order Number | | Package | Pin Assignment | | | | | Packing |
|--------------|-------------------|---------|----------------|----|---|----|----|-----------|
| Normal | Lead Free Plating | | 1 | 2 | 3 | 4 | 5 | |
| 81XX-AB3-D-R | 81XXL-AB3-D-R | SOT-89 | I | G | O | - | - | Tape Reel |
| 81XX-AE3-2-R | 81XXL-AE3-2-R | SOT-23 | I | O | G | - | - | Tape Reel |
| 81XX-AE3-3-R | 81XXL-AE3-3-R | SOT-23 | O | G | I | - | - | Tape Reel |
| 81XX-AE3-5-R | 81XXL-AE3-5-R | SOT-23 | G | O | I | - | - | Tape Reel |
| 81XX-AF5-A-R | 81XXL-AF5-A-R | SOT-25 | NC | NC | G | O | I | Tape Reel |
| 81XX-AF5-B-R | 81XXL-AF5-B-R | SOT-25 | O | I | G | NC | NC | Tape Reel |
| 81XX-T92-D-B | 81XXL-T92-D-B | TO-92 | I | G | O | - | - | Tape Box |
| 81XX-T92-D-K | 81XXL-T92-D-K | TO-92 | I | G | O | - | - | Bulk |
| 81XX-T92-E-B | 81XXL-T92-E-B | TO-92 | O | I | G | - | - | Tape Box |
| 81XX-T92-E-K | 81XXL-T92-E-K | TO-92 | O | I | G | - | - | Bulk |

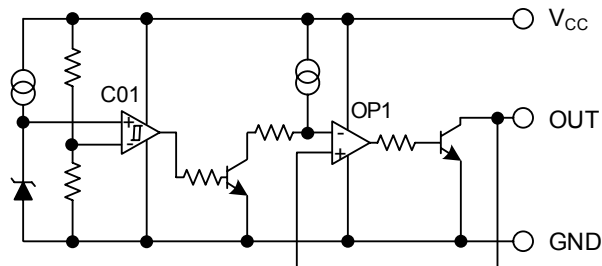
Note: Pin Assignment: I: V_{CC} O: V_{OUT} G: GND
XX: detected voltage value

| | |
|----------------------|--|
| <p>81XXL-AB3-D-R</p> | <p>(1) B: Tape Box, K: Bulk, R: Tape Reel (2) refer to Pin Assignment (3) AB3: SOT-89, AF5: SOT-25, AE3: SOT-23, T92: TO-92 (4) L: Lead Free Plating, Blank: Pb/Sn</p> |
|----------------------|--|

MARKING INFORMATION

| PACKAGE | MARKING | PACKAGE | MARKING |
|---------|---------|---------|---------|
| SOT-23 | | SOT-89 | |
| SOT-25 | | TO-92 | |

BLOCK DIAGRAM



The Pin2 this product is SUB, so connect the pin to Ground.

■ ABSOLUTE MAXIMUM RATINGS

| PARAMETER | SYMBOL | RATINGS | UNIT |
|-----------------------|-----------|----------|------|
| Power supply voltage | V_{CC} | -0.3~+10 | V |
| Operating temperature | T_{OPR} | -20~+75 | °C |
| Storage temperature | T_{STG} | -40~+125 | °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

($T_a=25^{\circ}\text{C}$, The unit of resistance is Ω unless otherwise indicated.)

| PARAMETER | SYMBOL | (*1) | TEST CONDITIONS | MIN | TYP | MAX | UNIT | |
|---|-------------------|-------|--|----------|------------|-----------|---------------|---|
| Detection Voltage | V_{SS} | 1 | $R_L=470\Omega$ $V_{CC}=H \rightarrow L$ $V_{OUT}=V_{CC}$ | UTC 8150 | 4.850 | 5.000 | 5.150 | V |
| | | | | UTC 8146 | 4.462 | 4.600 | 4.738 | |
| | | | | UTC 8145 | 4.365 | 4.500 | 4.635 | |
| | | | | UTC 8144 | 4.268 | 4.400 | 4.532 | |
| | | | | UTC 8143 | 4.171 | 4.300 | 4.429 | |
| | | | | UTC 8142 | 4.074 | 4.200 | 4.326 | |
| | | | | UTC 8141 | 3.977 | 4.100 | 4.223 | |
| | | | | UTC 8140 | 3.880 | 4.000 | 4.120 | |
| | | | | UTC 8139 | 3.783 | 3.900 | 4.017 | |
| | | | | UTC 8138 | 3.686 | 3.800 | 3.914 | |
| | | | | UTC 8137 | 3.589 | 3.700 | 3.811 | |
| | | | | UTC 8136 | 3.492 | 3.600 | 3.708 | |
| | | | | UTC 8135 | 3.395 | 3.500 | 3.605 | |
| | | | | UTC 8134 | 3.298 | 3.400 | 3.502 | |
| | | | | UTC 8133 | 3.201 | 3.300 | 3.399 | |
| | | | | UTC 8132 | 3.104 | 3.200 | 3.296 | |
| | | | | UTC 8131 | 3.007 | 3.100 | 3.193 | |
| | | | | UTC 8130 | 2.910 | 3.000 | 3.090 | |
| | | | | UTC 8129 | 2.813 | 2.900 | 2.987 | |
| | | | | UTC 8128 | 2.716 | 2.800 | 2.884 | |
| UTC 8127 | 2.619 | 2.700 | 2.781 | | | | | |
| UTC 8126 | 2.522 | 2.600 | 2.678 | | | | | |
| UTC 8125 | 2.425 | 2.500 | 2.575 | | | | | |
| UTC 8124 | 2.328 | 2.400 | 2.472 | | | | | |
| UTC 8123 | 2.231 | 2.300 | 2.369 | | | | | |
| UTC 8122 | 2.134 | 2.200 | 2.266 | | | | | |
| UTC 8121 | 2.037 | 2.100 | 2.163 | | | | | |
| UTC 8120 | 1.940 | 2.000 | 2.060 | | | | | |
| UTC 8119 | 1.843 | 1.900 | 1.957 | | | | | |
| UTC 8118 | 1.746 | 1.800 | 1.854 | | | | | |
| Hysteresis Voltage | ΔV_{SS} | 1 | $R_L=470\Omega$, $V_{CC}=L \rightarrow H \rightarrow L$, $V_{OUT}=V_{CC}$ | 30 | 50 | 100 | mV | |
| Detection Voltage Temperature Coefficient | $V_{SS}/\Delta T$ | 1 | $R_L=470\Omega$, $T_a=-20 \sim +75^{\circ}\text{C}$ $V_{OUT}=V_{CC}$ | | ± 0.01 | | %/°C | |
| Low Level Output Voltage | V_{OL} | 1 | $V_{CC}=V_{SS} \text{ min. } -0.05\text{V}$, $R_L=470\Omega$ | | 0.2 | 0.4 | V | |
| Output Leakage Current | I_{OH} | 2 | $V_{CC}=10\text{V}$, $V_{OUT}=V_{CC}$ | | | ± 0.1 | μA | |
| Circuit Current at ON Time | I_{CCL} | 3 | $V_{CC}=V_{SS} \text{ min. } -0.05\text{V}$, $R_L=\infty$ | | 3 | 5 | μA | |
| Circuit Current at OFF Time | I_{CCH} | 3 | $V_{CC}=V_{SS} \text{ typ. } /0.85$, $R_L=\infty$ | | 3 | 5 | μA | |

■ ELECTRICAL CHARACTERISTICS(Cont.)

| PARAMETER | SYMBOL | (*1) | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|-----------------------------|-----------|------|--|-----|------|------|---------------|
| "H" Transmission Delay Time | TpLH (*2) | 4 | $C_L=100\text{pF}$, $R_L=4.7\text{k}\Omega$ | | 20 | 60 | μS |
| "L" Transmission Delay Time | TpHL (*3) | 4 | $C_L=100\text{pF}$, $R_L=4.7\text{k}\Omega$ | | 20 | 60 | μS |
| Operating Threshold Voltage | V_{OPL} | 1 | $R_L=4.7\text{k}\Omega$, $V_{OL}\leq 0.4\text{V}$ | | 0.65 | 0.85 | V |
| Output current at ON Time 1 | I_{OL1} | 2 | $R_L=0$, $V_{CC}=V_S \text{ min.}-0.05\text{V}$, $V_{OUT}=0.4\text{V}$ | 5 | | | mA |
| Output current at ON Time 2 | I_{OL2} | 2 | $T_a=-20\sim+75^\circ\text{C}$ $R_L=0$, $V_{CC}=V_{SS} \text{ min.}-0.15\text{V}$ $V_{OUT}=0.4\text{V}$ | 3 | | | mA |

Note:

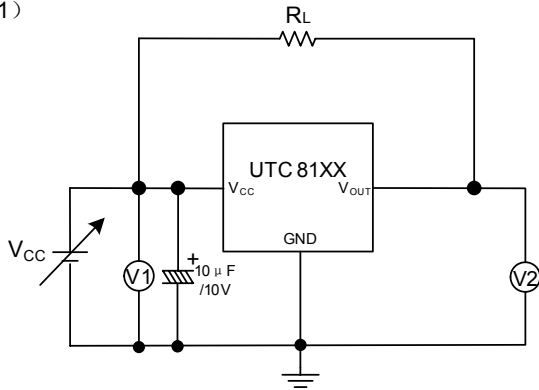
(*1) MEASUREMENT CIRCUIT

(*2) TpLH: $V_{CC}=(V_{SS} \text{ Typ. } -0.4\text{V}) \rightarrow (V_{SS} \text{ Typ. } +0.4\text{V})$

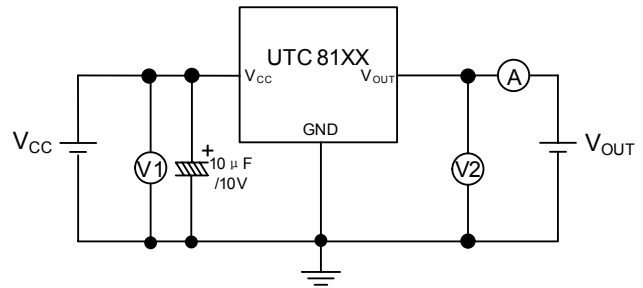
(*3) TpHL: $V_{CC}=(V_{SS} \text{ Typ. } +0.4\text{V}) \rightarrow (V_{SS} \text{ Typ. } -0.4\text{V})$

MEASURING CIRCUITS

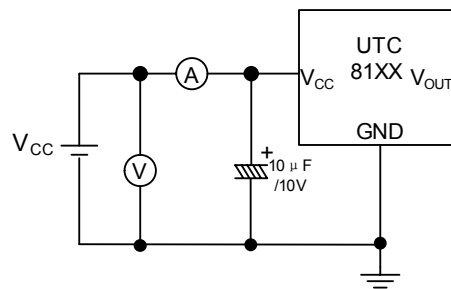
1)



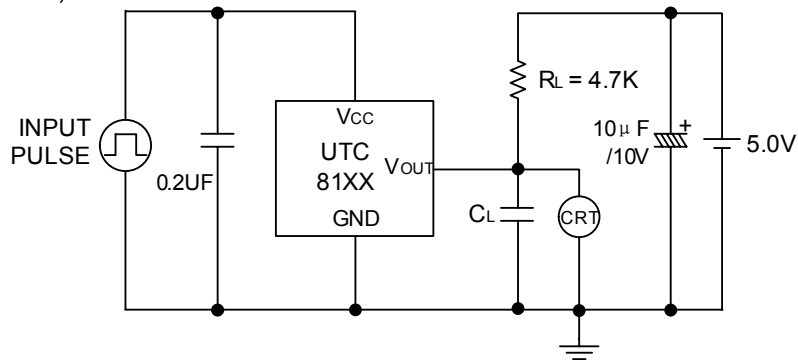
2)



3)

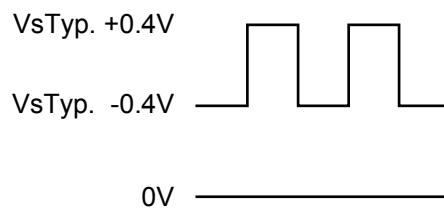


4)



NOTE:

- 1.) A: DC AMMETER V: DC VOLTMETER CRT: OSCILLOSCOPE
 2.) INPUT PULSE



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