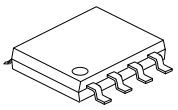
# UWD708

**CMOS IC**

# LOW COST MICROPROCESSOR SUPERVISORY CIRCUITS



SOP-8

## ■ DESCRIPTION

The UTC **UWD708** microprocessor supervisory circuit reduces the complexity and number of components required to monitor power-supply and monitor microprocessor activity. It significantly improves system reliability and accuracy compared to separate ICs or discrete components.

The UTC **UWD708** provides power-supply monitoring circuitry that generates a reset output during power-up, power-down and brownout conditions. The reset output remains operational with $V_{CC}$ as low as 1V.

In addition, there is a 1.25V threshold detector for power-fail warning, low-battery detection, or monitoring an additional power supply. An active-low manual-reset input ( $\overline{MR}$ ) is also included.

## ■ FEATURES

* Precision supply- Voltage Monitor
* Valid $\overline{RESET}$ remains with $V_{CC}$ as low as 1V
* 200ms Reset Pulse Width
* Voltage Monitor for Power-Fail or Low-Battery Warning
* With Manual reset input

## ■ ORDERING INFORMATION

| Ordering Number | | Package | Packing |
|---|---|---|---|
| Lead Free | Halogen Free | | |
| UWD708L-x-S08-R | UWD708G-x-S08-R | SOP-8 | Tape Reel |

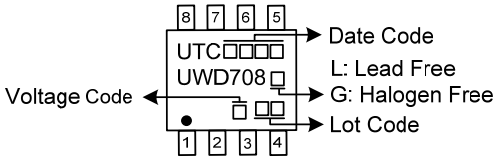
Note: Pin Assignment: x: Output Voltage, refer to Marking Information.

UWD708G-x-S08-R

(1)Packing Type
(2)Package Type
(3)Output Voltage Code
(4)Green Package

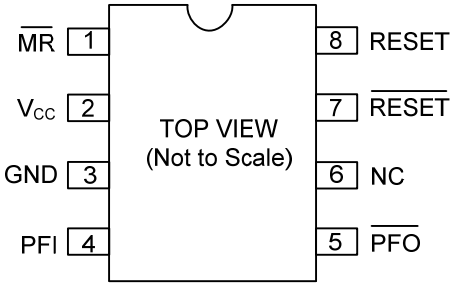
(1) R: Tape Reel
(2) S08: SOP-8
(3) x: refer to Marking Information
(4) G: Halogen Free and Lead Free, L: Lead Free

## ■ MARKING INFORMATION

| PACKAGE | VOLTAGE CODE | MARKING |
|---|---|---|
| SOP-8 | B : 2.93V<br>C : 3.08V<br>H: 4.40V |  |



## ■ PIN CONFIGURATION

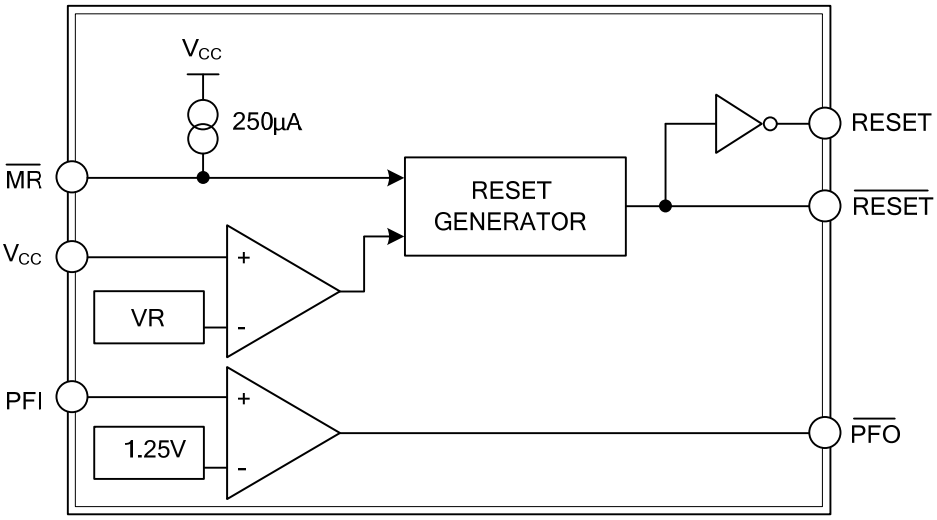




## ■ PIN DESCRIPTION

| PIN NO. | PIN NAME | DESCRIPTION |
|---|---|---|
| 1 | $\overline{MR}$ | Manual-Reset Input triggers a reset pulse when pulled below 0.8V. This active-low input has an internal 500μA ($V_{CC}$=+5V) pull-up current. It can be driven from a TTL or CMOS logic line as well as shorted to ground with a switch. |
| 2 | $V_{CC}$ | Power Supply Voltage that is monitored. |
| 3 | GND | 0V Ground Reference for all signals. |
| 4 | PFI | Power-Fail Voltage Monitor Input. When PFI is less than 1.25V, $\overline{PFO}$ goes low. Connect PFI to GND or $V_{CC}$ when not used. |
| 5 | $\overline{PFO}$ | Power-Fail Output goes low and sinks current when PFI is less than 1.25V; otherwise $\overline{PFO}$ stays high. |
| 6 | NC | NC |
| 7 | $\overline{RESET}$ | Active-Low Reset Output pulses low for 200ms when triggered, and stays low whenever $V_{CC}$ is below the reset threshold. It remains low for 200ms after $V_{CC}$ rises above the reset threshold or $\overline{MR}$ goes from low to high. |
| 8 | RESET | Logic Output. RESET is an active high output suitable for systems that use active high reset logic. It is the inverse of $\overline{RESET}$ . |

## ■ BLOCK DIAGRAM



## ■ ABSOLUTE MAXIMUM RATING

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---|---|---|---|
| Terminal Voltage (with respect to GND) | $V_{CC}$ | -0.3 ~ 6.0 | V |
| All Other Inputs | $V_{IN}$ | -0.3 ~ ($V_{CC}$+0.3V) | V |
| Input Current, $V_{CC}$, GND | $I_{CC}$ | 20 | mA |
| Output Current, (all outputs) | $I_{OUT}$ | 20 | mA |
| Junction Temperature | $T_J$ | +150 | °C |
| Operating Temperature Range | $T_{OPR}$ | -40 ~ +85 | °C |
| Storage Temperature | $T_{STG}$ | -65 ~ +150 | °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°C, unless otherwise specified)

| PARAMETER | | SYMBOL | TEST CONDITIONS | MIN | TYP | MAX | UNIT |
|---|---|---|---|---|---|---|---|
| Operating Voltage Range | | $V_{CC}$ | | 1.0 | | 5.5 | V |
| Supply Current | | $I_{SUPPLY}$ | | | 50 | 150 | μA |
| Reset Threshold | UWD708-B | $V_{RT}$ | | 2.83 | 2.93 | 2.99 | V |
| | UWD708-C | | | 3.01 | 3.08 | 3.15 | V |
| | UWD708-H | | | 4.25 | 4.4 | 4.5 | V |
| Reset Threshold Hysteresis | | | | | 60 | | mV |
| Reset Pulse Width | | $t_{RS}$ | | 110 | 200 | 300 | ms |
| $\overline{RESET}$ 、RESET Output Voltage | | | $I_{SOURCE}$ =800μA | $V_{CC}$-1.5 | | | V |
| | | | $I_{sink}$=3.2mA | | | 0.4 | V |
| | | | $V_{CC}$=1V, $I_{sink}$=50μA | | | 0.3 | V |
| $\overline{MR}$ Pull-Up Current | | | $\overline{MR}$ = 0V | | 500 | | μA |
| $\overline{MR}$ Pulse Width | | $t_{MR}$ | | 250 | | | ns |
| $\overline{MR}$ Input Threshold | Low | | | | | 0.8 | V |
| | High | | | 2 | | | V |
| $\overline{MR}$ to Reset Out Delay | | $t_{MD}$ | | | | 350 | ns |
| PFI Input Threshold | | | | 1.1 | 1.25 | 1.3 | V |
| PFI Input Current | | | $V_{CC}$= 5V | | 0.2 | | nA |
| $\overline{PFO}$ Output Voltage | | | $I_{SOURCE}$=800μA | $V_{CC}$-1.5 | | | V |
| | | | $I_{sink}$=3.2mA | | | 0.4 | V |

## ■ TYPICAL APPLICATION CIRCUIT