

UNISONIC TECHNOLOGIES CO., LTD

UU4793

Preliminary

OVERLOAD MONITORING WITH RESISTIVE LOAD, $V_T = 44.5 \text{ mV}$

DESCRIPTION

The UTC **UU4793** is a bipolar integrated circuit designed for monitoring over loading or short circuit in automotive or industrial applications. The threshold V_T is 44.5 mV and V_{4,6}=V_S-V_T. V_T is not dependent of the power supply voltage V_S. If the voltage developed across shunt resistor R_{SH} exceeds V_T, IC turns on the output, or else turns off the output.

The output is turned off when input switch Pin 8 is open or there is a lack of power supply voltage. The output breakdown voltage is decided by the Z-diodes Z_3 and Z_5 which have a typical value of $V_Z = 22$ V.

A not used of the comparator input have to be connected to Pin 7.

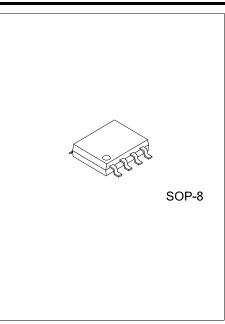
FEATURES

- * Two common reference comparators
- * Tight threshold tolerance
- * Constant threshold
- * Output with NPN
- * 8 kV ESD protection
- * Protection of reverse polarity
- * Load-dump protection

ORDERING INFORMATION

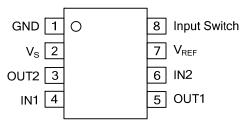
| Ordering Number | | Package | Packing | |
|-----------------|------------------------|---------|-----------|--|
| Lead Free | Lead Free Halogen Free | | | |
| UU4793L-S08-R | UU4793G-S08-R | SOP-8 | Tape Reel | |
| UU4793L-S08-T | UU4793G-S08-T | SOP-8 | Tube | |

| UU4793G-xx-S08-R | |
|---------------------------------------|--------------------------------------|
| ŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢŢ | (1) R: Tape Reel, T: Tube |
| (2)Package Type | (2) S08: SOP-8 |
| (3)Output Voltage Code | (3) xx: Refer to Marking Information |
| (4)Halogen Free | (4) G: Halogen Free, L: Lead Free |



Preliminary

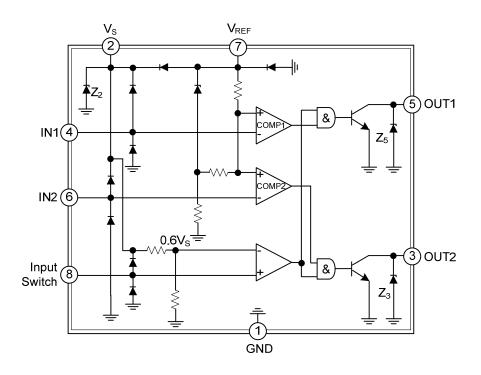
PIN CONFIGURATION



■ PIN DESCRIPTION

| PIN NO. | PIN NAME | DESCRIPTION |
|---------|------------------|----------------------|
| 1 | GND | Ground |
| 2 | Vs | Power supply voltage |
| 3 | OUT2 | Comparator 2 output |
| 4 | IN1 | Comparator 1 input |
| 5 | OUT1 | Comparator 1 output |
| 6 | IN2 | Comparator 2 input |
| 7 | V _{REF} | Reference voltage |
| 8 | Input Switch | Input switch pin |

BLOCK DIAGRAM





ABSOLUTE MAXIMUM RATING

| PARAMETER | | SYMBOL | RATINGS | UNIT |
|--|------------------------|-------------------|------------|------|
| Supply Voltage | Voltage Pin 2, 7 | | 16.5 | V |
| Current Consumption (t =2ms, measured at Pin 1 (GND)) | | | 1.5 | А |
| Output Current Pin 3, 5 | | I _{3,5} | 20 | mA |
| Input Voltage (reference point Pin 7) Pin 4, 6 | | -V _{4,6} | 6 | V |
| Denner Die ein etien | T _A = 95°C | D | 360 | |
| Power Dissipation | T _A = 60 °C | P _D | 560 | mW |
| Ambient Temperature | | T _A | -40 ~ +95 | °C |
| Junction Temperature | | ΤJ | 150 | °C |
| Storage Temperature | | T _{STG} | -55 ~ +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.

THERMAL DATA

| PARAMETER | SYMBOL | RATINGS | UNIT |
|---------------------|---------------|---------|------|
| Junction to Ambient | θ_{JA} | 160 | K/W |

ELECTRICAL CHARACTERISTICS (V_S = 9~15 V, T_A = -40~+95 °C, fig. 1, unless otherwise specified)

| PARAMETER | SYMBOL | TEST CONDITIONS | PIN | MIN | TYP | MAX | UNIT |
|--|---------------------|---|------|-----|-------------|-----|------|
| Supply Voltage | Vs | | 2, 7 | 9 | | 15 | V |
| Internal Z-Diode Z ₂ | Vz | | 2 | 20 | | | V |
| Current Consumption | I ₁ | V _s =12V measured at Pin 1 (GND) | 1 | | 4.5 | 6 | mA |
| Output Saturation Voltage | VSAT | V _S = 9V, I _{3, 5} =10mA, T _A = 25°C | 3, 5 | | | 0.5 | V |
| Output Z-Diodes Z ₃ , Z ₅ | Vz | | 3, 5 | 21 | | | V |
| Control Signal Threshold | -V _T | I _{3, 5} = 1mA, T _A = 25°C | 4, 6 | 43 | 44.5 | 46 | mV |
| Temperature Coefficient of Control Signal Threshold | Tc | | | | 15 | | μV/K |
| Threshold Voltage | V ₈ | Switch identification | 8 | | $0.6 V_{S}$ | | V |
| Input Currents | I, | | 4, 6 | | 100 | | nA |
| | | | 8 | | 5 | | μA |
| | t _{D(ON)} | Switch-on High to low | 3, 5 | | 6 | | μs |
| Delay Time | t _{D(OFF)} | Switch-off Low to high | | | 30 | | μs |



TYPICAL APPLICATION CIRCUIT

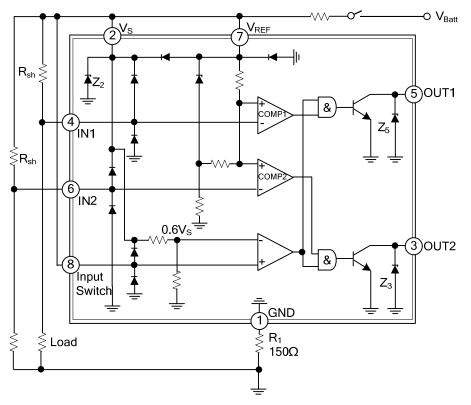


Fig. 1 Schematic and Application circuit

TIMING DIAGRAM

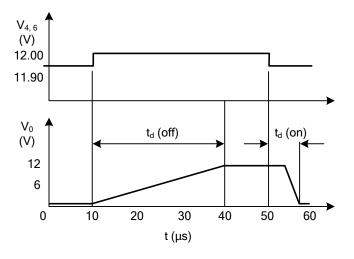


Fig. 2 Timing Diagram



Preliminary

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. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.

