



## UU4793

Preliminary

LINEAR INTEGRATED CIRCUIT

### 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  $V_Z = 22 \text{ V}$ .

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

#### FEATURES

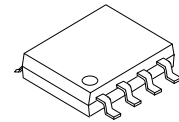
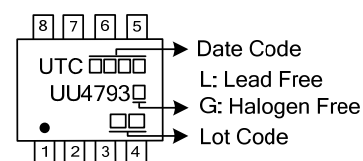
- \* Two common reference comparators
- \* Tight threshold tolerance
- \* Constant threshold
- \* Output with NPN
- \* 8 kV - ESD protection
- \* Protection of reverse polarity
- \* Load-dump protection

#### ORDERING INFORMATION

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

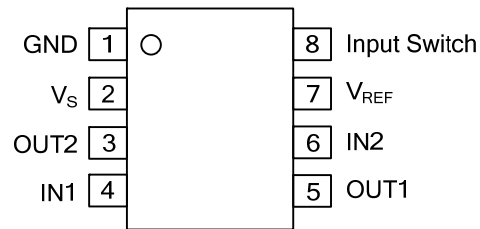
<p>UU4793G-S08-R</p> <ul style="list-style-type: none"><li>(1) Packing Type</li><li>(2) Package Type</li><li>(3) Green Package</li></ul>	<p>(1) R: Tape Reel</p> <p>(2) S08: SOP-8</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
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#### MARKING



SOP-8

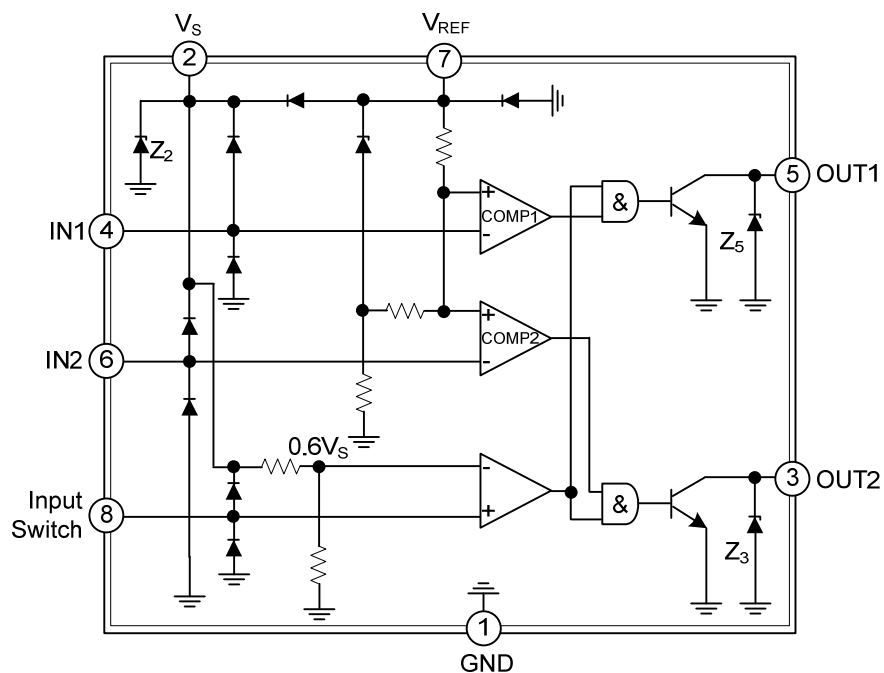
## ■ PIN CONFIGURATION



## ■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	GND	Ground
2	$V_s$	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	Pin 2, 7	$V_S$	16.5	V
Current Consumption ( $t = 2\text{ms}$ , measured at Pin 1 (GND))	Pin 1	$I_1$	1.5	A
Output Current	Pin 3, 5	$I_{3,5}$	20	mA
Input Voltage (reference point Pin 7)	Pin 4, 6	$-V_{4,6}$	6	V
Power Dissipation	$T_A = 95^\circ\text{C}$	$P_D$	360	mW
	$T_A = 60^\circ\text{C}$		560	
Ambient Temperature		$T_A$	$-40 \sim +95$	$^\circ\text{C}$
Junction Temperature		$T_J$	150	$^\circ\text{C}$
Storage Temperature		$T_{\text{STG}}$	$-55 \sim +125$	$^\circ\text{C}$

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.

## ■ THERMAL DATA

PARAMETER	SYMBOL	RATINGS	UNIT
Junction to Ambient	$\theta_{JA}$	160	K/W

■ ELECTRICAL CHARACTERISTICS ( $V_S = 9 \sim 15\text{ V}$ ,  $T_A = -40 \sim +95^\circ\text{C}$ , fig. 1, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	PIN	MIN	TYP	MAX	UNIT
Supply Voltage	$V_S$		2, 7	9		15	V
Internal Z-Diode $Z_2$	$V_Z$		2	20			V
Current Consumption	$I_1$	$V_S = 12\text{V}$ measured at Pin 1 (GND)	1		4.5	6	mA
Output Saturation Voltage	$V_{\text{SAT}}$	$V_S = 9\text{V}$ , $I_{3,5} = 10\text{mA}$ , $T_A = 25^\circ\text{C}$	3, 5			0.5	V
Output Z-Diodes $Z_3$ , $Z_5$	$V_Z$		3, 5	21			V
Control Signal Threshold	$-V_T$	$I_{3,5} = 1\text{mA}$ , $T_A = 25^\circ\text{C}$	4, 6	43	44.5	46	mV
Temperature Coefficient of Control Signal Threshold	$T_C$				15		$\mu\text{V/K}$
Threshold Voltage	$V_8$	Switch identification	8		$0.6 V_S$		V
Input Currents	$I_i$		4, 6		100		nA
			8		5		$\mu\text{A}$
Delay Time	$t_{D(\text{ON})}$	Switch-on High to low	3, 5		6		$\mu\text{s}$
	$t_{D(\text{OFF})}$	Switch-off Low to high			30		$\mu\text{s}$

# ■ TYPICAL APPLICATION CIRCUIT

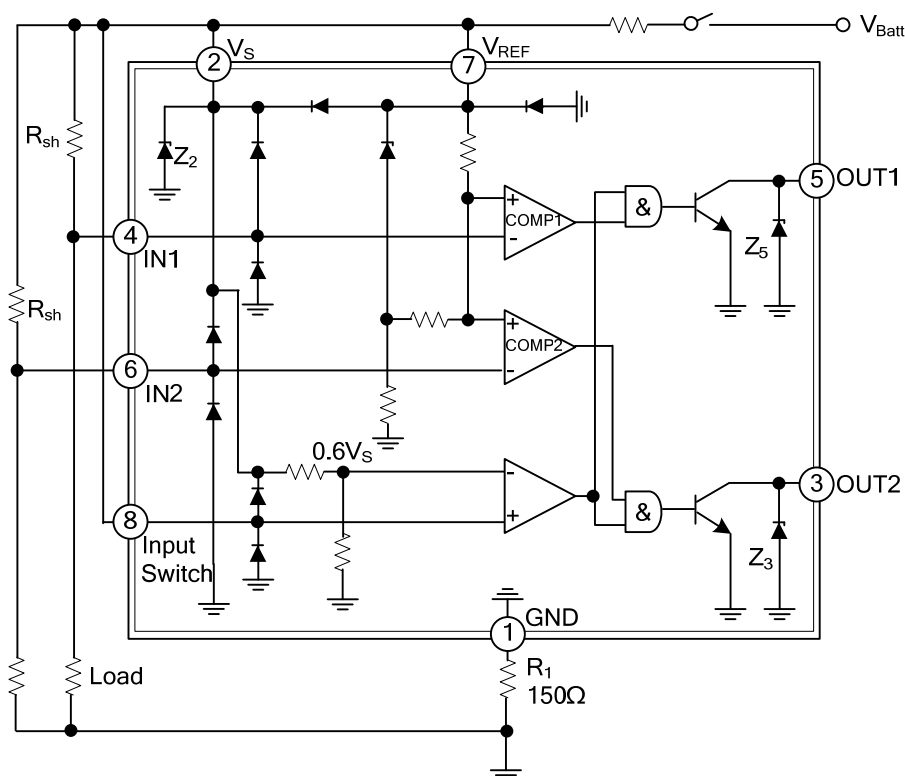


Fig. 1 Schematic and Application circuit

# ■ TIMING DIAGRAM

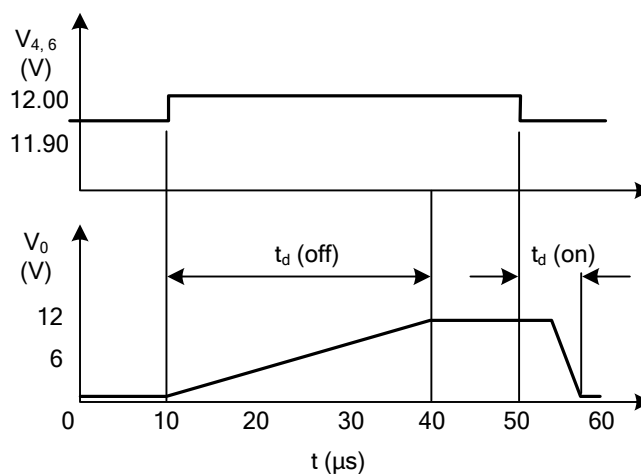


Fig. 2 Timing Diagram

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