



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.

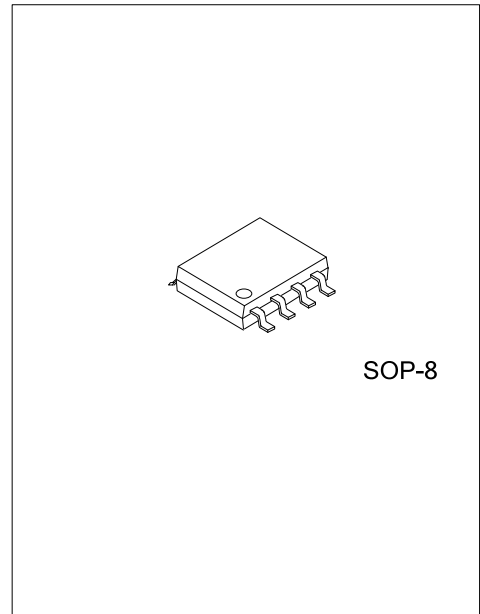
FEATURES

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

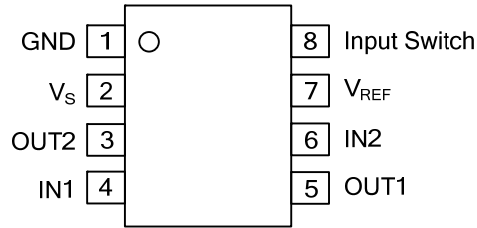
ORDERING INFORMATION

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

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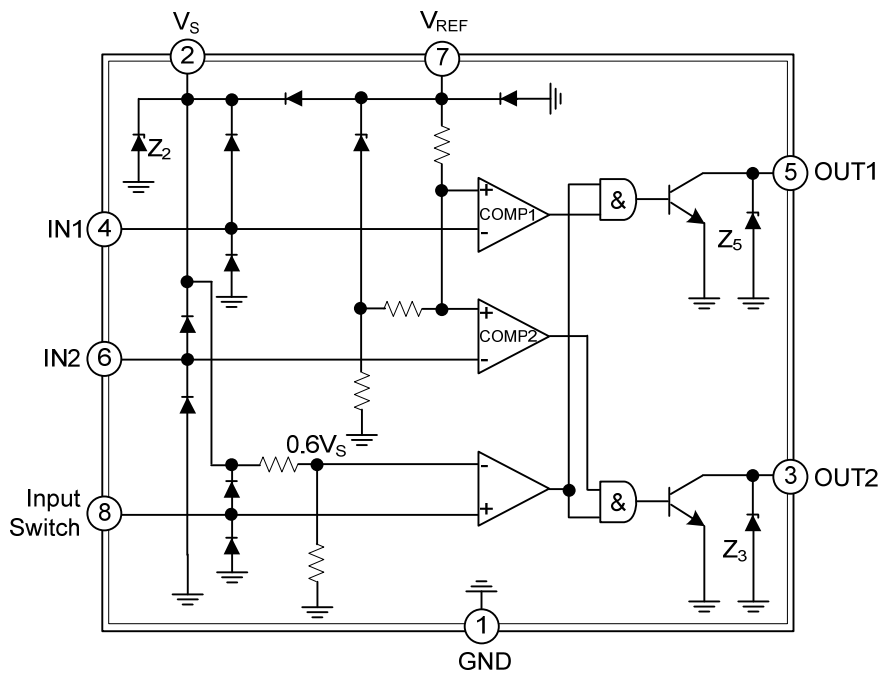
■ PIN CONFIGURATION



■ 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 ~ +95	$^\circ\text{C}$
Junction Temperature		T_J	150	$^\circ\text{C}$
Storage Temperature		T_{STG}	-55 ~ +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	θ_{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_{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		μA
Delay Time	$t_{\text{D(ON)}}$	Switch-on High to low	3, 5		6		μs
	$t_{\text{D(OFF)}}$	Switch-off Low to high			30		μs

■ TYPICAL APPLICATION CIRCUIT

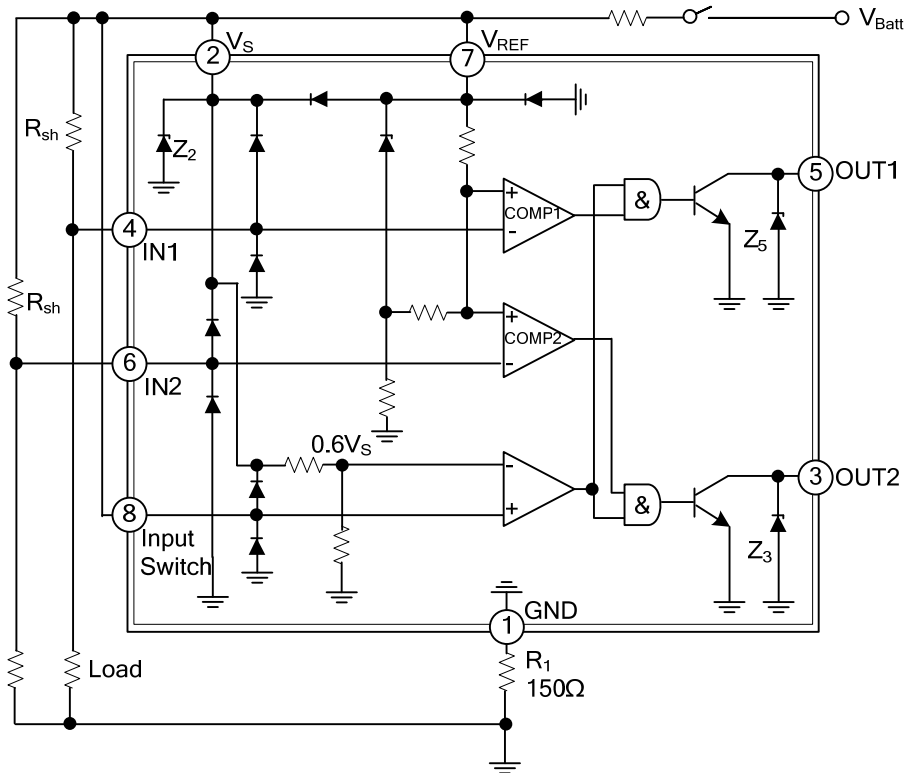


Fig. 1 Schematic and Application circuit

■ TIMING DIAGRAM

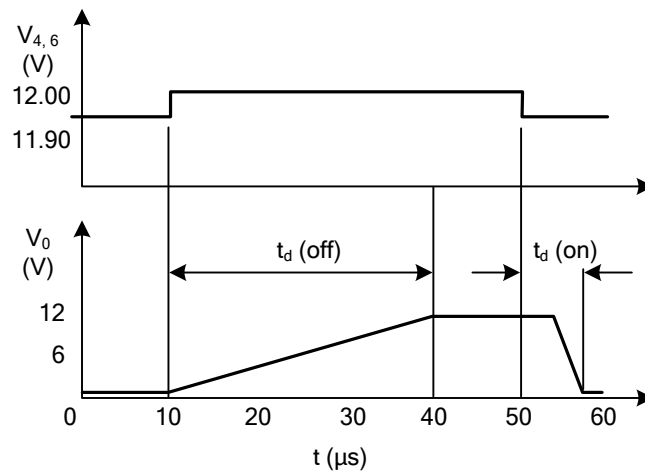


Fig. 2 Timing Diagram

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