



## UU6047B

Preliminary

LINEAR INTEGRATED CIRCUIT

### REAR WINDOW HEATING TIMER

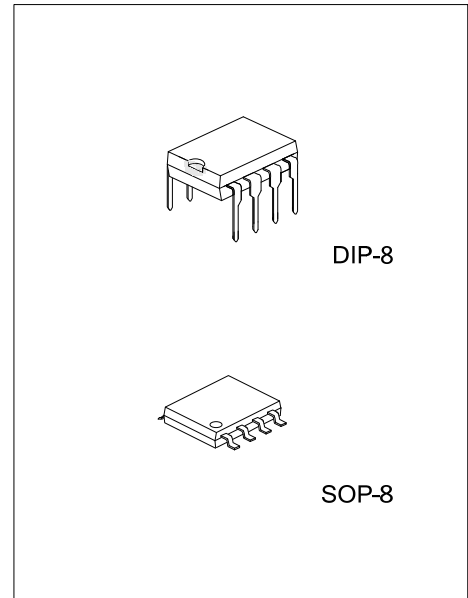
#### DESCRIPTION

The bipolar integrated circuit UTC **UU6047B** is designed as a window heating timer. Due to time controlled functions, they reduce the current consumptions of high loads i.e., heating resistors.

An ON-relay can be switched off after a preset delay time. The relay time can be interrupted manually, whereas a retrigger function is not provided.

#### FEATURES

- \* Delay time range: 3.7s to 20h
- \* Relay driver with Z-diode
- \* RC oscillator determines switching characteristics
- \* Debounced input for toggle switch
- \* Two debounced inputs: ON and OFF
- \* Load-dump protection
- \* RF interference protected
- \* Inputs switched to ground



#### ORDERING INFORMATION

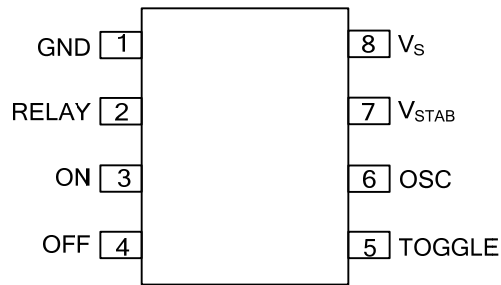
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UU6047BL-D08-T	UU6047BG-D08-T	DIP-8	Tube
UU6047BL-S08-R	UU6047BG-S08-R	SOP-8	Tape Reel

<p>UU6047BG-D08-T</p> <p>(1) Packing Type</p> <p>(2) Package Type</p> <p>(3) Green Package</p>	<p>(1) T: Tube, R: Tape Reel</p> <p>(2) D08: DIP-8, S08: SOP-8</p> <p>(3) G: Halogen Free and Lead Free, L: Lead Free</p>
--	---

#### MARKING

DIP-8	SOP-8
<p>8 7 6 5</p> <p>UTC □ □ □ □ → Date Code</p> <p>UU6047B □ → L: Lead Free</p> <p>□ □ → G: Halogen Free</p> <p>□ □ → Lot Code</p> <p>1 2 3 4</p>	<p>8 7 6 5</p> <p>UTC □ □ □ □ → Date Code</p> <p>L: Lead Free</p> <p>UU6047B □ → G: Halogen Free</p> <p>□ □ → Lot Code</p> <p>1 2 3 4</p>

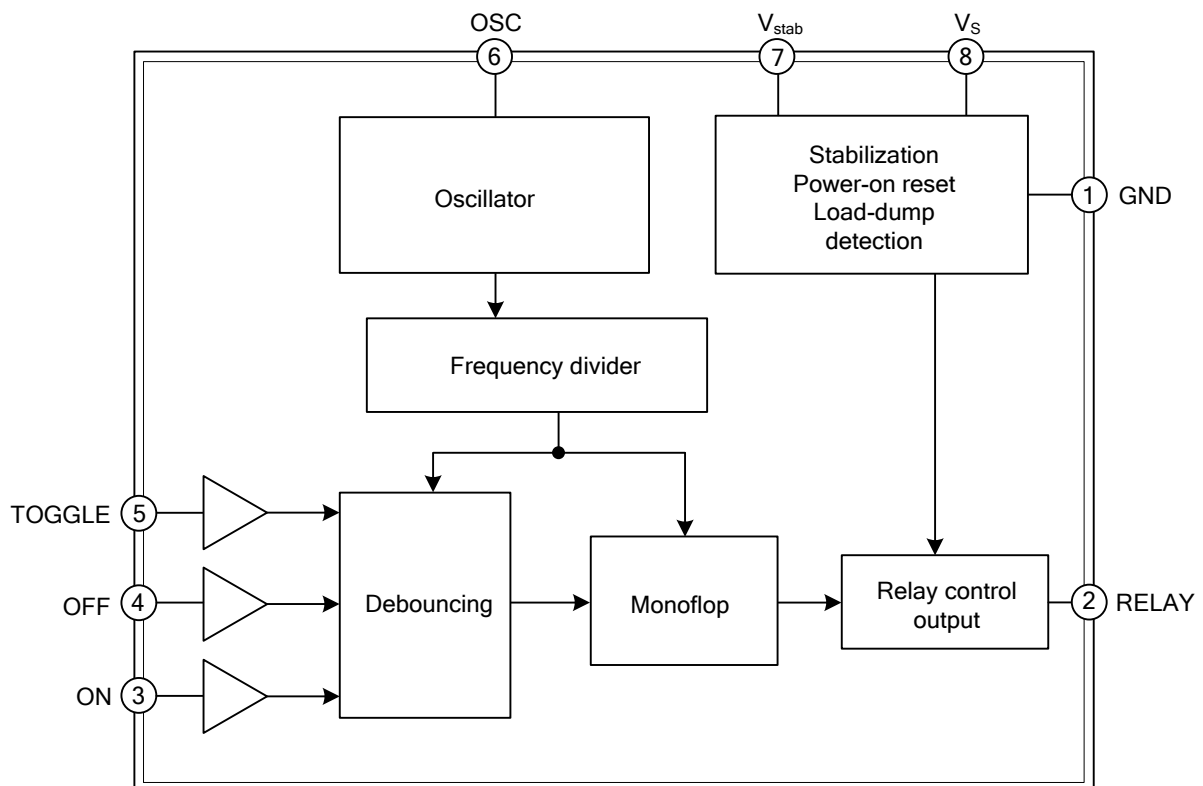
## ■ PIN CONFIGURATION



## ■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	GND	Ground
2	RELAY	Relay control output
3	ON	Switch-on input
4	OFF	Switch-off input
5	TOGGLE	Toggle input
6	OSC	RC oscillator input
7	$V_{STAB}$	Stabilized voltage
8	$V_S$	Supply voltage

## ■ BLOCK DIAGRAM



## ■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Operating Voltage, Static, 5 min	$V_{Batt}$	24	V
Ambient Temperature Range	$T_A$	-40 ~ +125	°C
Junction Temperature	$T_J$	150	°C
Storage Temperature Range	$T_{STG}$	-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	DIP-8	$\theta_{JA}$	110	°C/W
	SOP-8		160	°C/W

■ ELECTRICAL CHARACTERISTICS  $V_{Batt}=13.5V$ ,  $T_{AMB}=25^{\circ}C$ , reference point ground, unless otherwise specified

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage	$V_{Batt}$	$R_1 \geq 510\Omega$	6		16	V
5V Supply	$V_8, V_7$	Without $R_1, C_1$ Pins 7 and 8	4.3		6.0	V
Stabilized Voltage	$V_7$	$V_{Batt}=12V$ , Pin 7		5.0		V
Undervoltage Threshold	$V_S$	Power on Reset	3.0		4.2	V
Supply Current	$I_S$	All Push Buttons Open, Pin8		1.3	2.0	mA
Internal Z-Diode	$V_Z$	$I_8=10mA$ , Pin 8	13.5	14	16	V
<b>Relay control output (Pin 2)</b>						
Saturation Voltage	$V_2$	$I_2=200mA$		1.2		V
		$I_2=300mA$			1.5	V
Leakage Current	$I_{lkq}$	$V_2=14V$		2	100	$\mu A$
Output Current	$I_2$				300	mA
<b>Output pulse current</b>						
Internal Z-Diode	$V_Z$	$I_2=10mA$	20	22	24	V
<b>Oscillator input (f = 0.001~40 kHz, see table 1 Pin 6)</b>						
Internal Discharge Resistance	$R_6$	$V_6=5V$	1.6	2.0	2.4	k $\Omega$
Switching Voltage	$V_{6L}$	Lower	0.9	1.1	1.4	V
	$V_{6H}$	Upper	2.8	3.1	3.5	V
Input Current	$-I_6$	$V_6=0V$			1	$\mu A$
<b>Switching times</b>						
Debounce Time	$t_3$		5		7	cycles
<b>Inputs ON, OFF, TOGGLE (Pins 3, 4 and 5)</b>						
Switching Threshold Voltage	$V_{3,4,5}$		1.6	2.0	2.4	V
Internal Z-Diode	$V_Z$	$I_{3,4,5}=10mA$	6.5	7.1	8.0	V
Pull-Up Resistance	$R_{3,4,5}$	$V_{3,4,5}=0V$		50		k $\Omega$

■ TYPICAL APPLICATION CIRCUIT

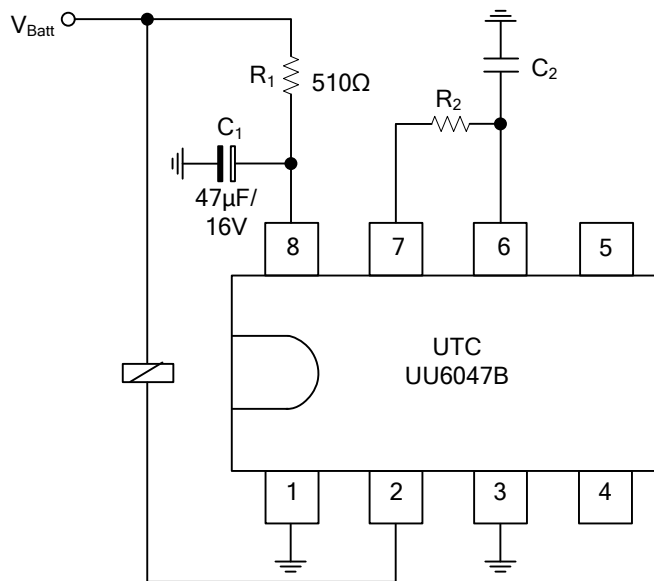


Figure 1. Generation of a monostable delay time,  $t_d$ , caused by applying the operating voltage  $V_{Batt}$ , not externally deactivatable.

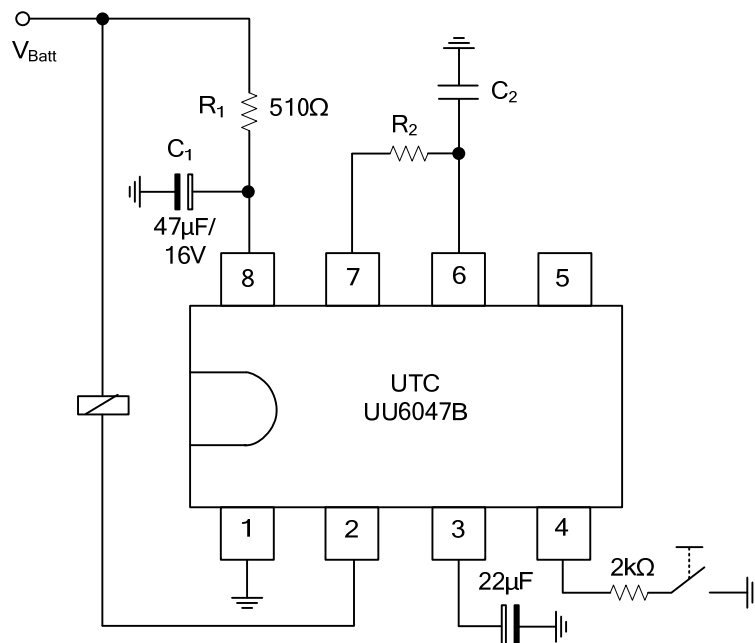


Figure 2. Generation of a monostable delay time,  $t_d$ , by applying the operating voltage  $V_{Batt}$ , deactivatable by the OFF push-button

■ TYPICAL APPLICATION CIRCUIT (Cont.)

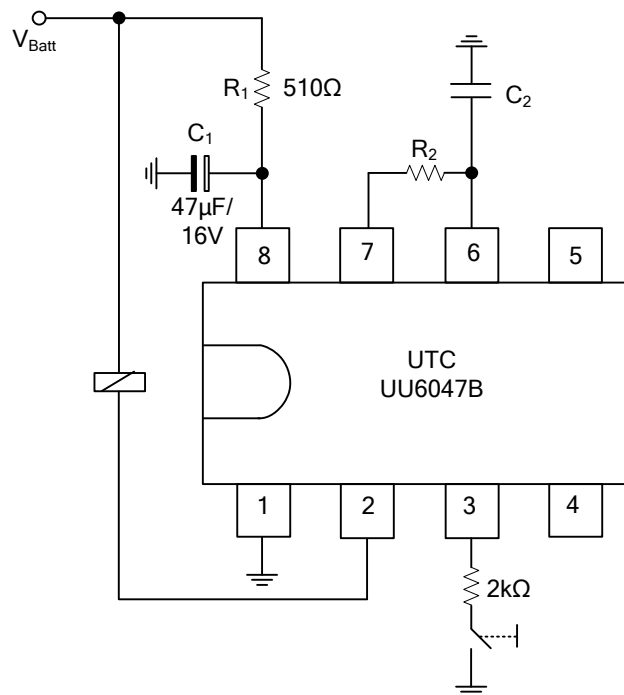


Figure 3. Monostable delay time,  $t_d$ , can be activated by the ON push-button, not externally deactivatable

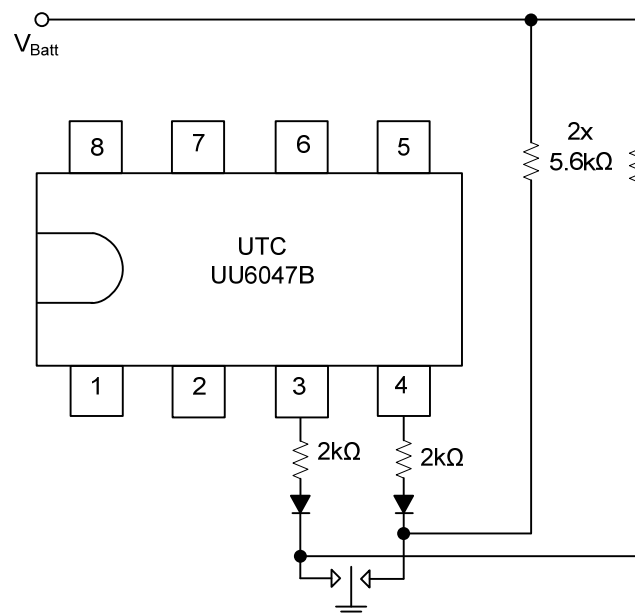


Figure 4. Increasing the contact current by parallel resistors

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.