



**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

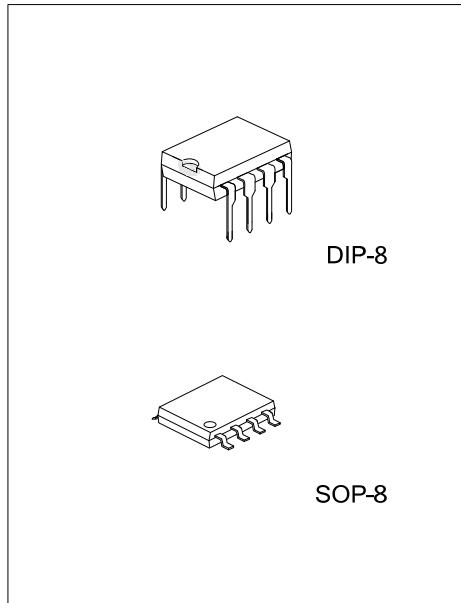
■ ORDERING INFORMATION

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

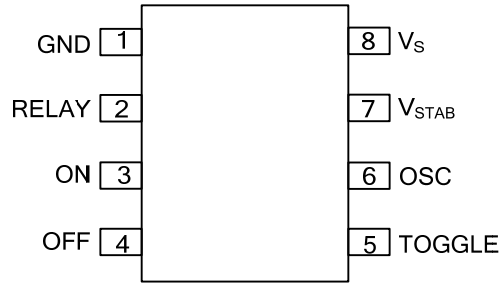
<p>UU6047BL-D08-T</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) T: Tube, R: Tape Reel</li> <li>(2) D08: DIP-8, S08: SOP-8</li> <li>(3) L: Lead Free, G: Halogen Free and Lead Free</li> </ul>
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■ MARKING

DIP-8	SOP-8



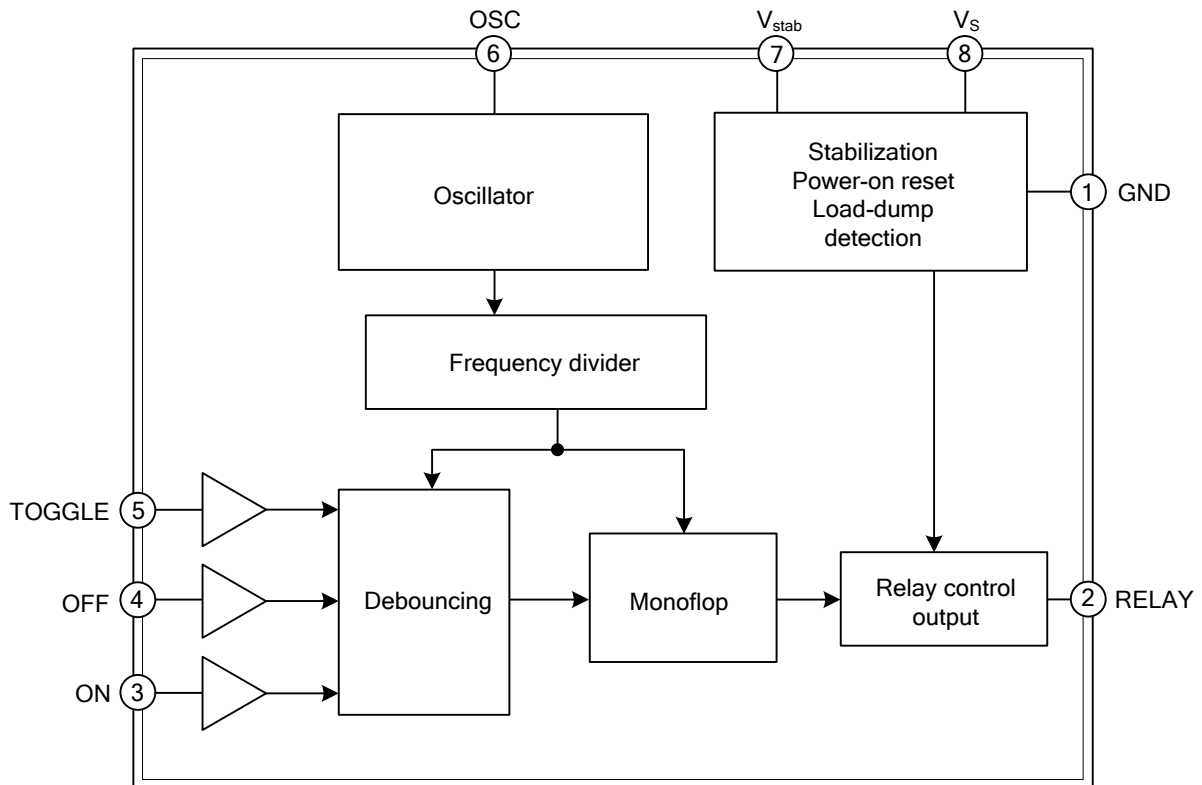
■ PIN CONFIGURATION



■ 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	$I_{kq}$	$V_2=14V$		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

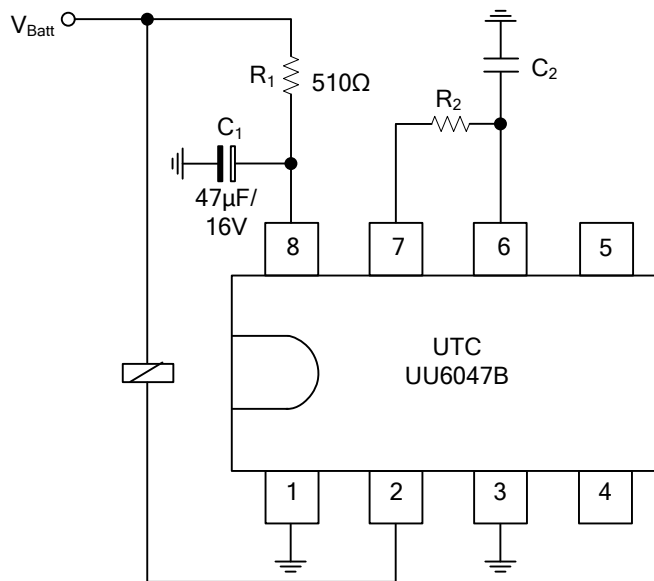


Figure 1. Generation of a monostable delay time,  $t_d$ , caused by applying the operating voltage  $V_{Batt}$ , not externally deactivatable.

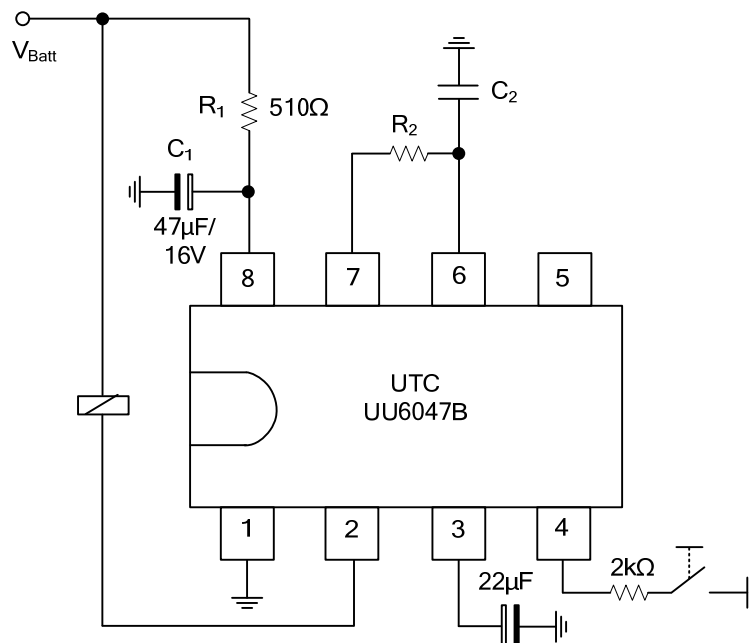


Figure 2. Generation of a monostable delay time,  $t_d$ , by applying the operating voltage  $V_{Batt}$ , deactivatable by the OFF push-button

■ TYPICAL APPLICATION CIRCUIT (Cont.)

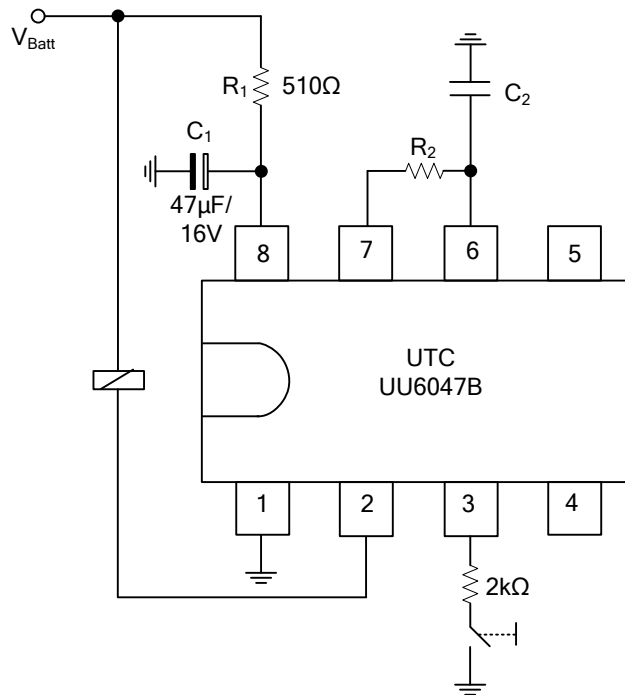


Figure 3. Monostable delay time,  $t_d$ , can be activated by the ON push-button, not externally deactivatable

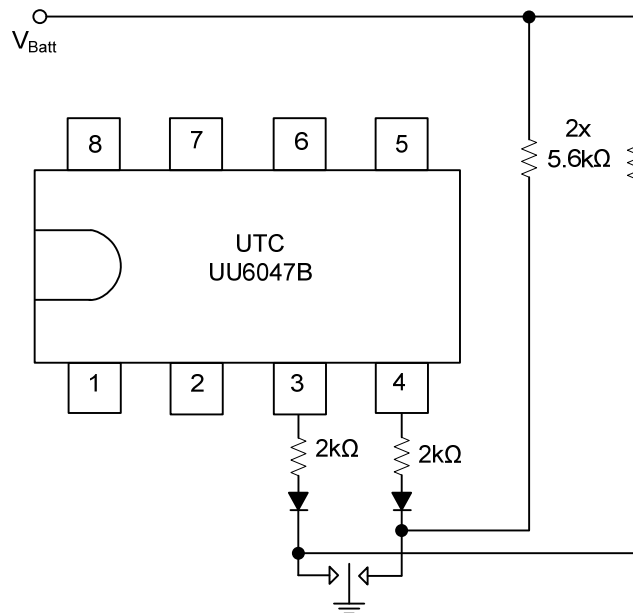


Figure 4. Increasing the contact current by parallel resistors

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