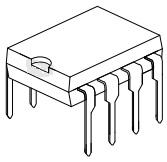
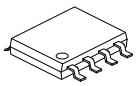
AUTOMOTIVE TOGGLE SWITCH IC



DIP-8



SOP-8

■ DESCRIPTION

The bipolar integrated circuit UTC **UU6032B** is designed as a toggle switch. The device, which has a defined power-on status, can be used to control electrical loads, for example, fog lamps, high/low beam or heated windows for automotive applications.

■ FEATURES

* Relay driver with Z-diode
* RC oscillator determines switching characteristics
* Debounced input for toggle switch
* Three debounced inputs: ON, OFF and TOGGLE
* RF interference protection
* Load-dump protection

■ ORDERING INFORMATION

Ordering Number		Package	Packing
Lead Free	Halogen Free		
UU6032BL-D08-T	UU6032BG-D08-T	DIP-8	Tube
UU6032BL-S08-R	UU6032BG-S08-R	SOP-8	Tape Reel

UU6032BG-D08-T

(1)Packing Type

(2)Package Type

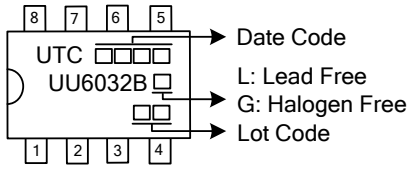
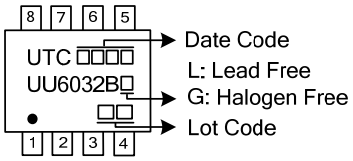
(3)Green Package

(1) T: Tube, R: Tape Reel

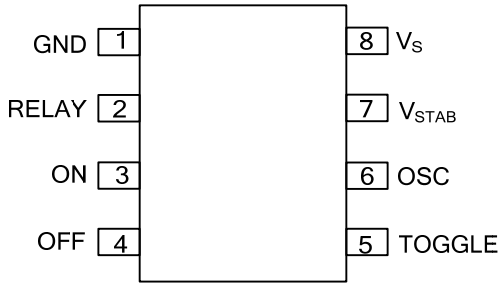
(2) D08: DIP-8, S08: SOP-8

(3) G: Halogen Free and Lead Free, L: Lead Free

■ MARKING

DIP-8	SOP-8
	

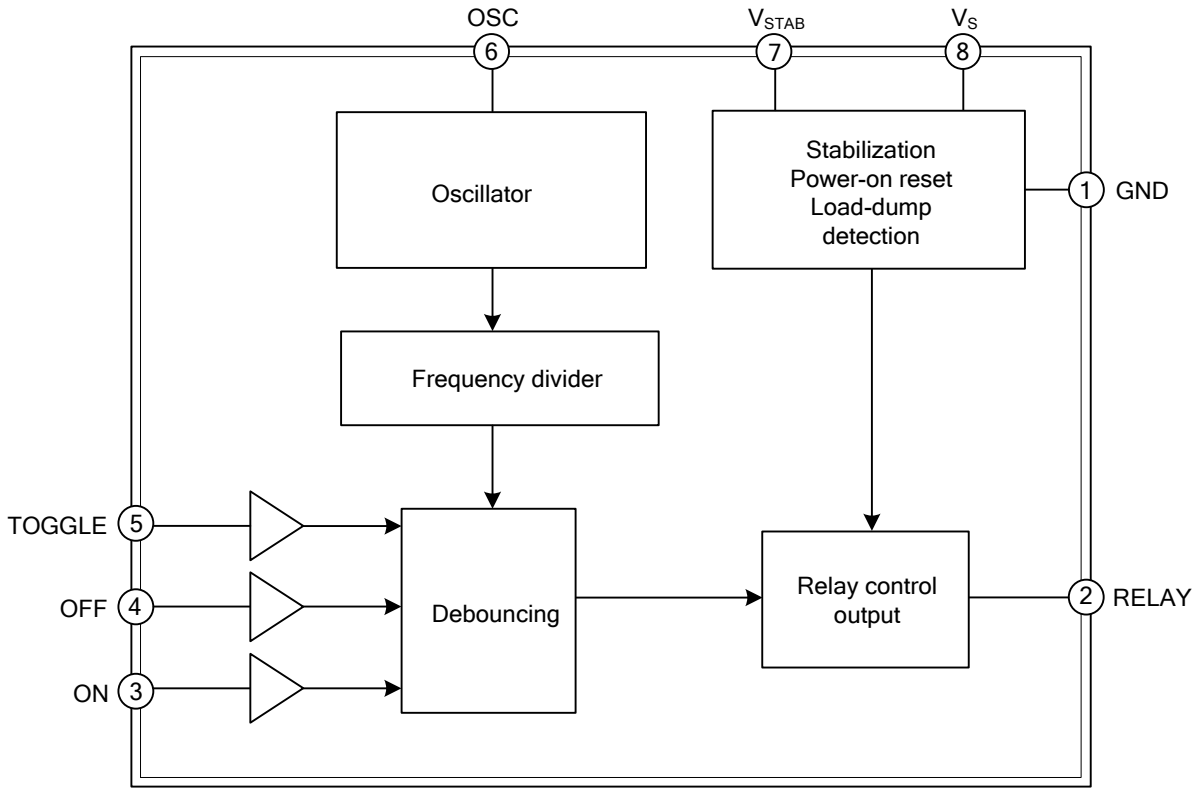
■ PIN CONFIGURATION



■ PIN DESCRIPTION

PIN NO.	PIN NAME	DESCRIPTION
1	GND	Reference point, 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 minutes	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 RESISTANCE

PARAMETER		SYMBOL	RATINGS	UNIT
Junction Ambient	DIP-8	θ_{JA}	110	K/W
	SOP-8		160	K/W

■ ELECTRICAL CHARACTERISTICS

V_{Batt}=13.5V, T_{AMB}=25°C, reference point ground, unless otherwise specified

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Operating Voltage	V_{Batt}	R_1≥510Ω			16	V
		t < 5min	6		24	V
		t < 60min			18	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	4.8	5.0	5.2	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
Relay control output (Pin 2)						
Saturation Voltage	V_2	I_2=200mA		1.2		V
		I_2=300mA			1.5	V
Leakage Current	I_{lkg}	V_2=14V		2	100	μA
Output Current	I_2				300	mA
Output pulse current						
Load Dump Pulse	I_2	t≤300ms			1.5	A
Internal Z-Diode	V_Z	I_2=10mA	20	22	24	V
Oscillator input (f = 0.001~40 kHz, see table 1) (Pin 6)						
Internal Discharge Resistance	R_6	V_6=5V		4		kΩ
Switching Voltage	V_{6L}	Lower		0.8		V
	V_{6H}	Upper		2.7		V
Input Current	$-I_6$	V_6=0V			1	μA
Switching times						
Debounce Time	t_3		5		7	cycles
Inputs ON, OFF, TOGGLE (Pins 3, 4 and 5)						
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-Down Resistance	$R_{3,4,5}$	$V_{3,4,5}$=5V	13	20	50	kΩ

■ TYPICAL APPLICATION CIRCUIT

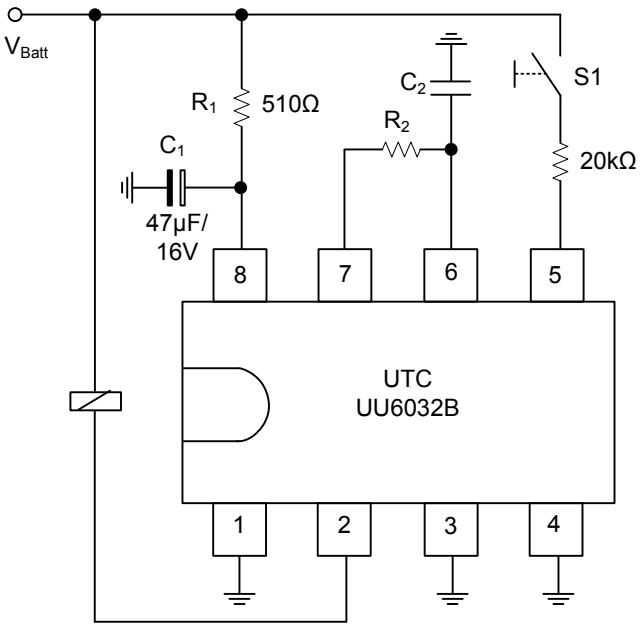


Figure 1. TOGGLE Function

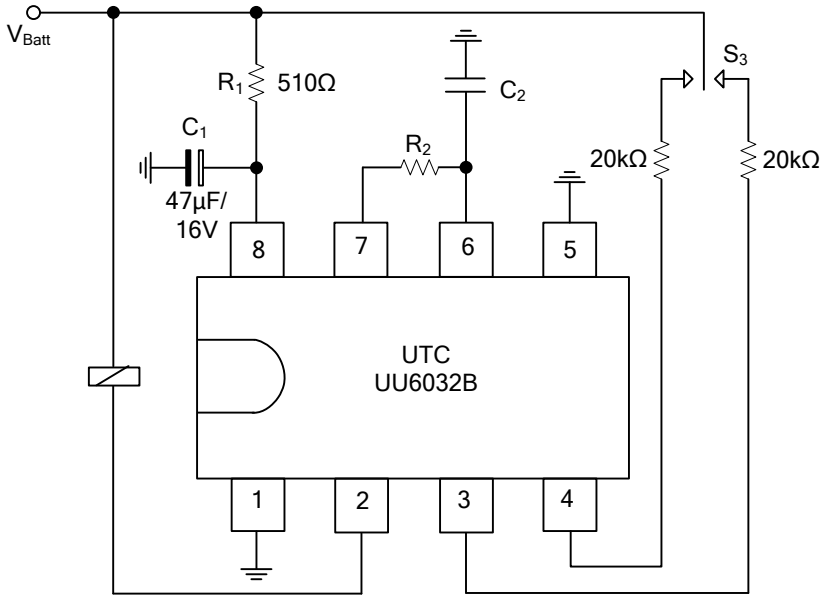


Figure 2. ON/OFF Function

■ TYPICAL APPLICATION CIRCUIT (Cont.)

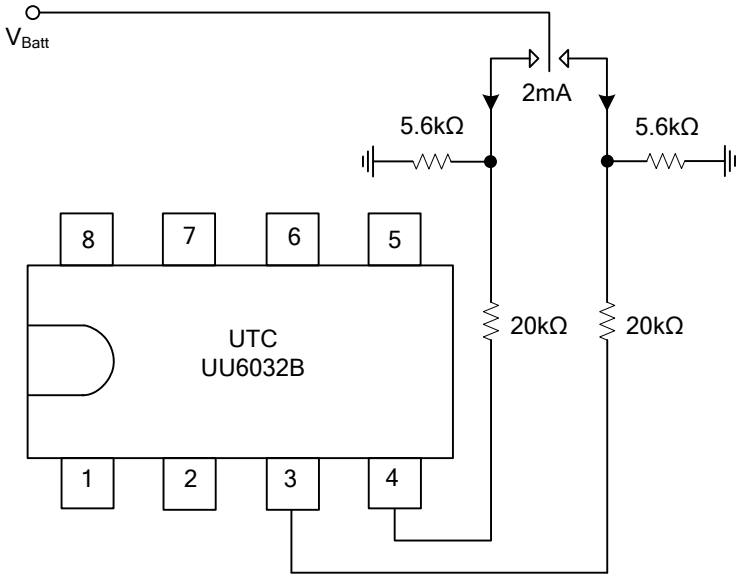


Figure 3. Increasing the contact current by parallel resistors