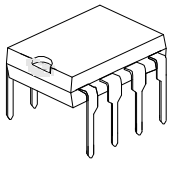
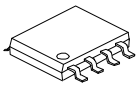
UU4761

CMOS IC

FLASHER IC



DIP-8



SOP-8

■ DESCRIPTION

The UTC **UU4761** is a miconductor integrated circuit designed for relay-controlled automotive flashers where a high level EMC is required.

Lamp outage is indicated by frequency doubling during hazard warning as well as direction mode.

■ FEATURES

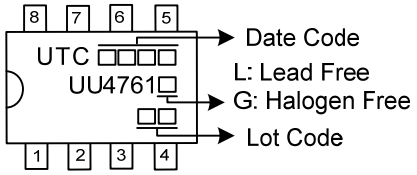
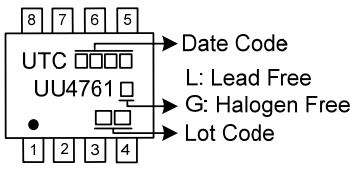
* The static operating current<5mA
* Wide operating voltage range
* Very low susceptibility to EMI

■ ORDERING INFORMATION

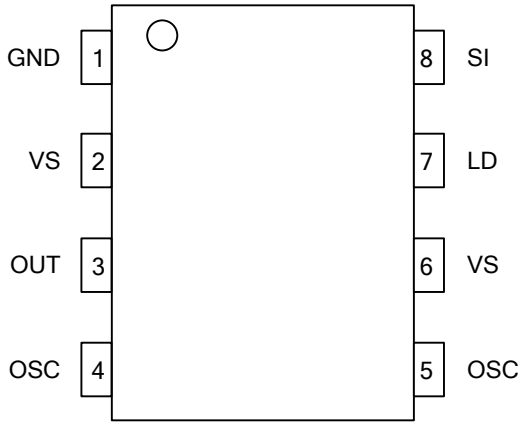
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UU4761L-D08-T	UU4761G-D08-T	DIP-8	Tube
UU4761L-S08-R	UU4761G-S08-R	SOP-8	Tape Reel

UU4761G-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	IC ground
2	VS	Supply voltage
3	OUT	Relay driver
4	OSC	C_1 Oscillator
5	OSC	R_1 Oscillator
6	VS	Supply voltage, Sense
7	LD	Lamp outage detection
8	SI	Start input (49a)

■ ABSOLUTE MAXIMUM RATING

PARAMETER	SYMBOL	RATINGS	UNIT
Operating Temperature	T_A	-40 ~ +100	°C
Junction Temperature	T_J	+150	°C
Storage Temperature	T_{STG}	-55 ~ +150	°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.

■ ELECTRICAL CHARACTERISTICS (V_{BATT}=13.5V, T_A=25°C, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage Range	V_{BATT}	Pin 2 and 6	9.5	13	18	V
Supply Current	I_{CC}	R=2L (Note 1)		150		mA
		R=L (Note 1)		30		
Output Current	I_{OH}	R_J=100Ω, Pin4=GND, Pin7=GND (Note 2)		120	200	mA
	I_{OL}	R_J=100Ω, Pin4=GND, Pin7=V_{CC} (Note 2)		10	100	μA
Flasher Frequency		R1=120KΩ, C1=3.3μF, R=2L (Note 1)	70	80	90	T/M
		R1=120KΩ, C1=3.3μF, R=1L (Note 1)	140	160	180	T/M
Control Signal Threshold	V_{Pin2}~V_{Pin7}	V_{Pin}2=13.5V, R3=330Ω		51		mV

Notes: 1. L for lamp 12V/21W.
2. R_J for relay coil resistance 100Ω.

■ FUNCTIONAL DESCRIPTION

Pin 7, Lamp outage detection

The lamp current is monitored via an external shunt resistor R_S and an internal comparator K_1 with its reference voltage of typ. 51 mV (V_{SS} = 12V). The outage of one lamp out of two lamps is detected according to the following calculation:

Nominal current of 1 lamp: 21W / (V_{SS} = 12V): I_{lamp} = 1.75A

Nominal current of 2 lamps: 2 x 21W / (V_{SS} = 12V): I_{lamp} = 3.5A.

The detection threshold is recommended to be set in the middle of the current range: $I_{outage} \approx 2.7A$.

Thus the shunt resistor is calculated as:

$R_S = V_T (K1) / I_{outage}$

R_S = 51mV/2.7A = 18.9mΩ.

Pin 4 and 5 Oscillator (C_1 and R_1)

Flashing frequency, f_1, is determined by the R_1 C_1 components as follows (see Application Citcuit):

$$f_1 \approx \frac{1}{R_1 \times C_1 \times 1.5} Hz$$

where $C_1 \le 47\mu F$

R_1 = 6.8kΩ to 510kΩ

In case of a lamp outage, the oscillator frequency is switched to the lamp outage frequency f_2 with $f_2 \approx 2.2 \times f_1$.

Duty cycle in normal flashing mode: 50%

Duty cycle in lamp outage mode: 40% (bright phase)

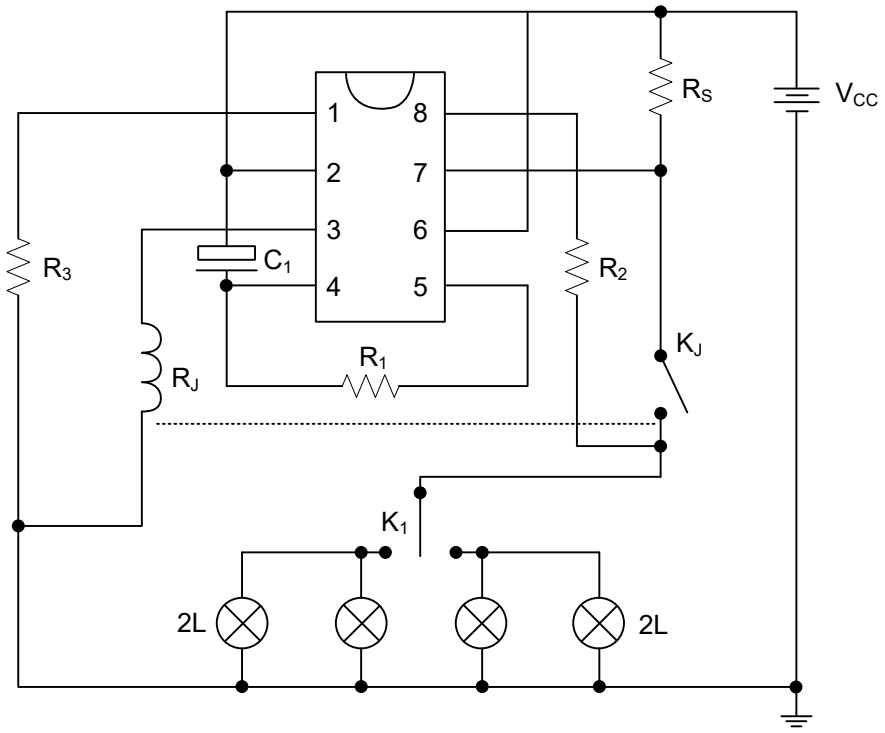
■ TYPICAL APPLICATION CIRCUIT

12V Flasher

R1=91KΩ~120KΩ, R2=3.0KΩ, R3=330Ω, R_s=0.019Ω

R_J, K_J for relay, Coil resistance R_J=100Ω

L for lamp 12V/21W

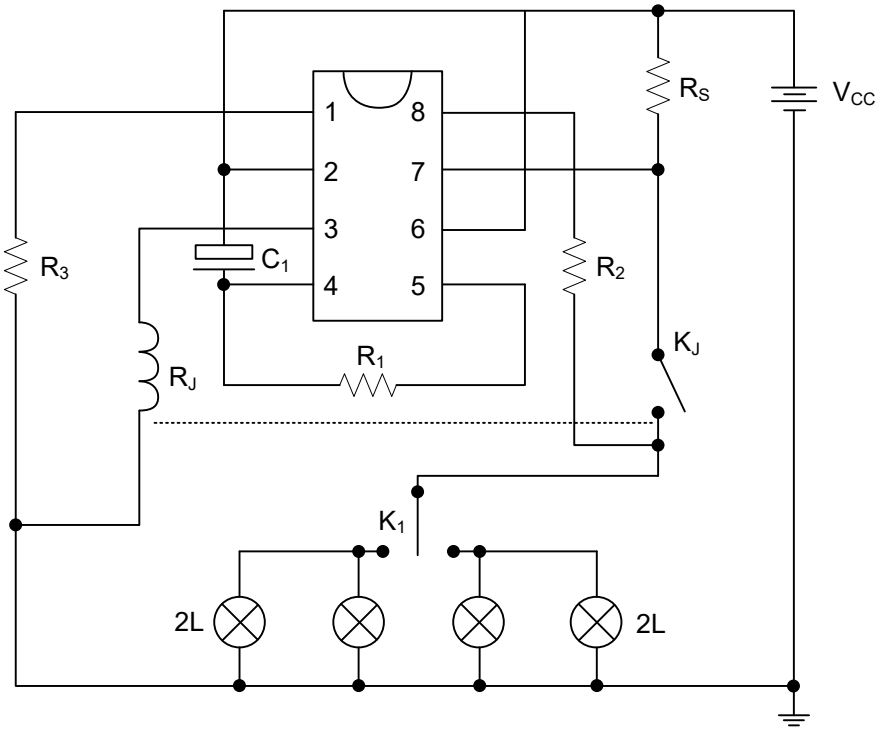


12V Flasher Typical Application Circuit

■ TYPICAL APPLICATION CIRCUIT (Cont.)

24V Flasher

R1=91KΩ~120KΩ, R2=3.0KΩ, R3=1.2KΩ, R_s=0.038Ω
R_J, K_J for relay, Coil resistance R_J=300Ω~360Ω
L for lamp 24V/21W



24V Flasher Typical Application Circuit