



UU4761

CMOS IC

FLASHER IC

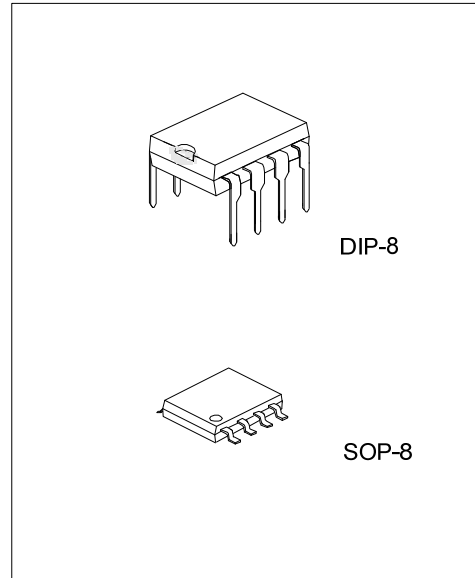
DESCRIPTION

The UTC **UU4761** is a microconductor 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

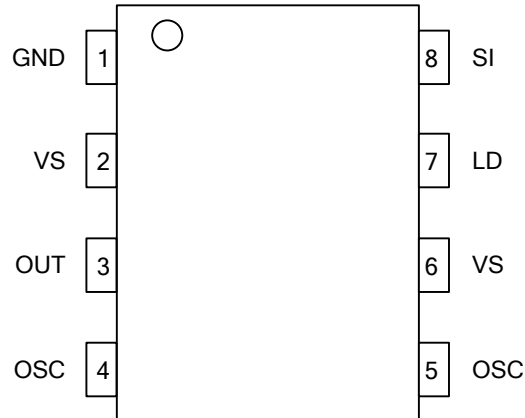
Ordering Number		Package	Packing
Lead Free	Halogen Free		
UU4761L-D08-T	UU4761G-D08-T	DIP-8	Tube
UU4761L-S08-R	UU4761G-S08-R	SOP-8	Tape Reel

<p>UU4761G-D08-T</p> <ul style="list-style-type: none"> (1) Packing Type (2) Package Type (3) Green Package 	<ul style="list-style-type: none"> (1) T: Tube, R: Tape Reel (2) D08: DIP-8, S08: SOP-8 (3) G: Halogen Free and Lead Free, L: Lead Free
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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 ($V_{BATT}=13.5V$, $T_A=25^\circ C$, 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}	$R_J=100\Omega$, Pin4=GND, Pin7=GND (Note 2)		120	200	mA
	I_{OL}	$R_J=100\Omega$, Pin4=GND, Pin7= V_{CC} (Note 2)		10	100	μA
Flasher Frequency		R1=120K Ω , C1=3.3 μF , R=2L (Note 1)	70	80	90	T/M
		R1=120K Ω , C1=3.3 μF , R=1L (Note 1)	140	160	180	T/M
Control Signal Threshold	$V_{Pin2} \sim V_{Pin7}$	$V_{Pin2}=13.5V$, R3=330 Ω		51		mV

Notes: 1. L for lamp 12V/21W.

2. R_J for relay coil resistance 100 Ω .

■ 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: $2 \times 21W / (V_{SS} = 12V): I_{lamp} = 3.5A$.

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:

$$R_S = V_T (K_1) / I_{outage}$$

$$R_S = 51mV / 2.7A = 18.9m\Omega.$$

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 Circuit):

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

where $C_1 \leq 47\mu F$

$R_1 = 6.8k\Omega$ to $510k\Omega$

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)

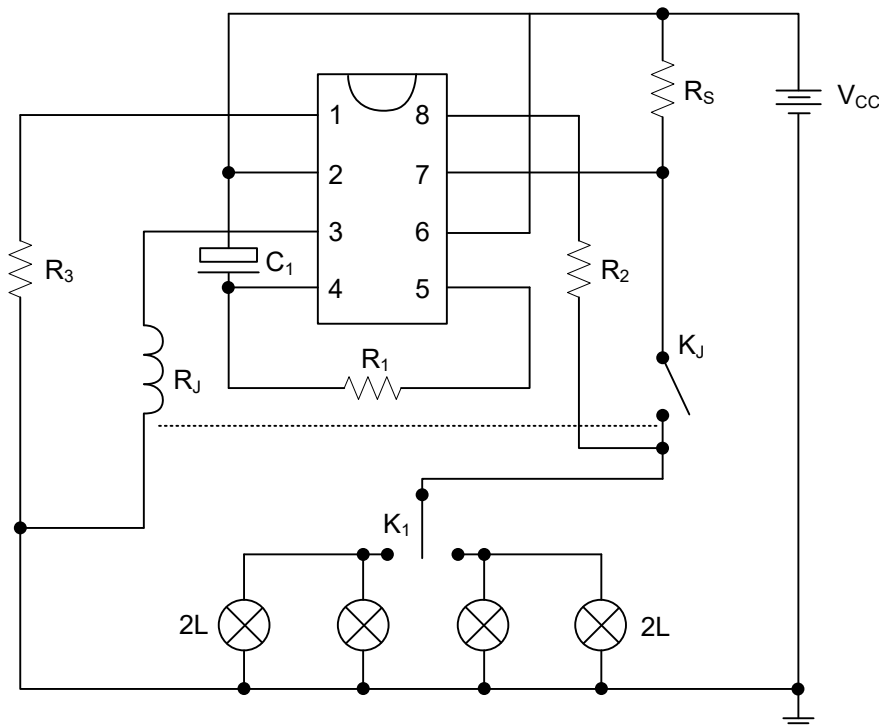
■ TYPICAL APPLICATION CIRCUIT

12V Flasher

$R_1=91k\Omega \sim 120k\Omega$, $R_2=3.0k\Omega$, $R_3=330\Omega$, $R_S=0.019\Omega$

R_J, K_J for relay, Coil resistance $R_J=100\Omega$

L for lamp 12V/21W



12V Flasher Typical Application Circuit

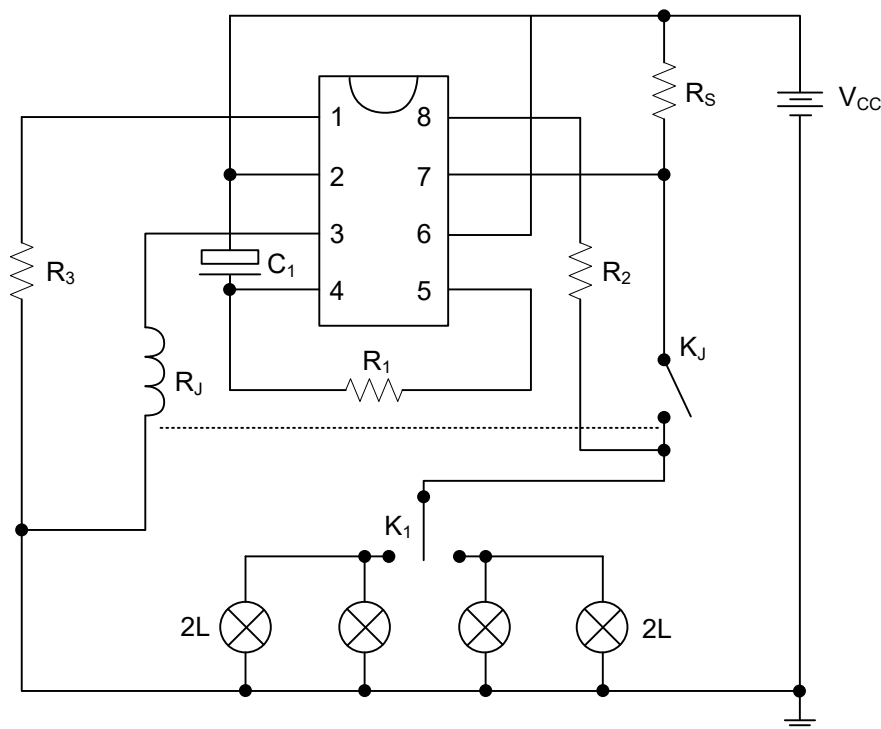
■ TYPICAL APPLICATION CIRCUIT (Cont.)

24V Flasher

$R_1=91K\Omega$ ~ $120K\Omega$, $R_2=3.0K\Omega$, $R_3=1.2K\Omega$, $R_s=0.038\Omega$

R_J, K_J for relay, Coil resistance $R_J=300\Omega$ ~ 360Ω

L for lamp 24V/21W



24V Flasher Typical Application Circuit

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