DHA® LT4761

QJ/DHA 01.02-1997

Automotive Direction Indicator IC

Description

The bipolar integrated circuit LT4761 is used in 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

● Quiescent current <5mA

● Wide operating voltage, up to 33V

● Strong anti-interference ability

Ordering Information

Package	Remarks
SOP8	Tubed, Reeled, Pb-free
DIP8	Tubed, Pb-free

Functional Description

The circuit is directly coupled by an external RC circuit that input triangular wave oscillation signal, through a controlled oscillator, current amplification, the output drive capability with a strong square wave pulse.

When the sampling resistor Rs monitoring to reduce the half of lamp load, the corresponding voltage comparator action, causing changes in the oscillation frequency doubles.

When the supply voltage produces a transient pulse (±100V), the protection circuit automatically turns on shunting and clamping limit, to interference protection purposes.

The relay drive current output of the circuit is 120-200mA.

Pin Description

Pin	Symbol	Fuaction
1	GND	IC ground
2	Vs	Supply voltage
3	OUT	Relay control output
4	OSC	Oscillator
5	OSC	Oscillator
6	Vs	Supply voltage
7	LD	Lamp failure detection
8	SI	Start input

Pins Figure

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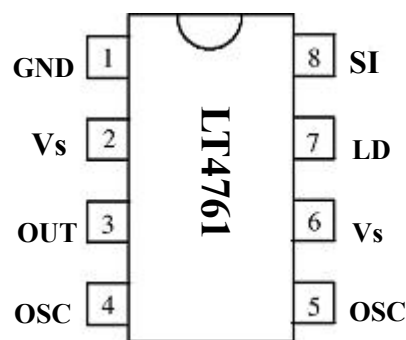
Absolute Maximum Ratings

Parameters	Symbol	Value	Unit
Ambient temperature range	Tamb	-40 to +100	℃
Storage temperature range	Tstg	-55 to +125	℃
Junction temperature	Tj	150	℃

Electrical parameters

（VBatt =13.5 V，Tamb = 25℃）

Parameters	Test condition		Symbol	Min	Typ	Max	Unit
Battery work voltage			Vbatt	9.5	13	18	V
Supply current	Work voltage	R=2L*	Icc		150	200	mA
		R=L			30	80	
Output current	Work voltage	Rj=100Ω Pin4=Vcc Pin7=GND	I_{OH}		120	200	mA
	Work voltage	Rj=100Ω Pin4=GND Pin7=Vcc	I_{OL}		10	100	μA
Gleam frequency	Work voltage	R1=120KΩ C1=3.3μF R=2L*		70	80	90	T / M
	Work voltage	R1=120KΩ C1=3.3μF R=1L*		140	160	180	T / M
Flasher constant	Normal operation		Kn	1.8	1.9	2.0	
	One lamp failure		Kf	2.02	2.07	2.12	
Sample resistance	Normal work		Rs	0.015	0.017	0.02	Ω
Defect lamp detector threshold	V_{pin2}=13.5V, R3=330Ω		$V_{pin2}-V_{pin7}$		51		mV

Note:　1. L* Parameter is 12V/21W.　　2. Rj Relay coil resistance is 100Ω.

Flasher frequency calculation formula

Normal flashing frequency: $fn = \dfrac{1}{R1 \times C1 \times Kn}$

Doubles flashing frequency: $f_F = \dfrac{1}{R1 \times C1 \times Kf} \times Kn$

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Typical Application circuit

12V Flasher application: (Battery voltage range 9.5V~18V)

R1=91KΩ~120KΩ,   R2=3.0KΩ,   R3=330Ω,   Rs*=0.017Ω,   C1=3.3μF/50V,

Rj and Kj is relay,   Coil resistance Rj=100Ω,   L*=12V /21W Lamp.

24V Flasher application: (Battery voltage range 18V~32V)

Method 1: with 12V flasher circuit principle diagram, each component values are as follows:

R1=91KΩ~120KΩ,   R2=3.0KΩ,   R3=1.2KΩ,   Rs*=0.054Ω~0.075Ω,   C1=3.3μF/50V

Rj and Kj is relay,   Coil resistance Rj=300Ω~360Ω,   L*=24V /21W Lamp.

Method 2: between pin1 to pin3 connect voltage stabilizing circuit and use transistor to drive relay.
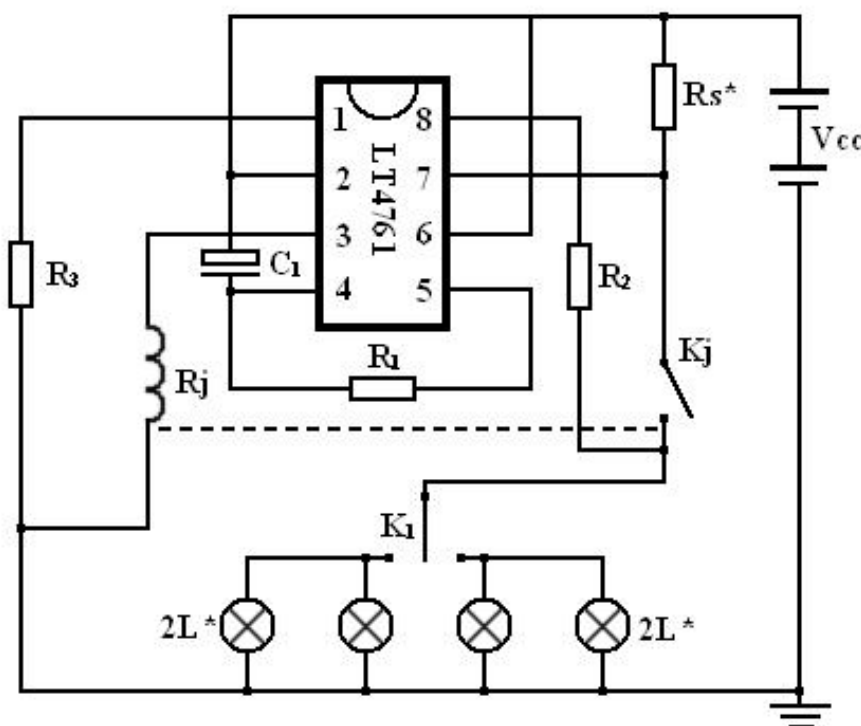
12V / 24V Flasher application circuit

Note:

Adjust the value of Rs* , it will not only affect the voltage range, may also affect times flash function. Due to the resistance value of Rs * is very small, so to adjust according to the different circuit board design.

The product of R1 and C1 determines the flash frequency, according to request of flash frequency adjust the value of the R1 and C1.
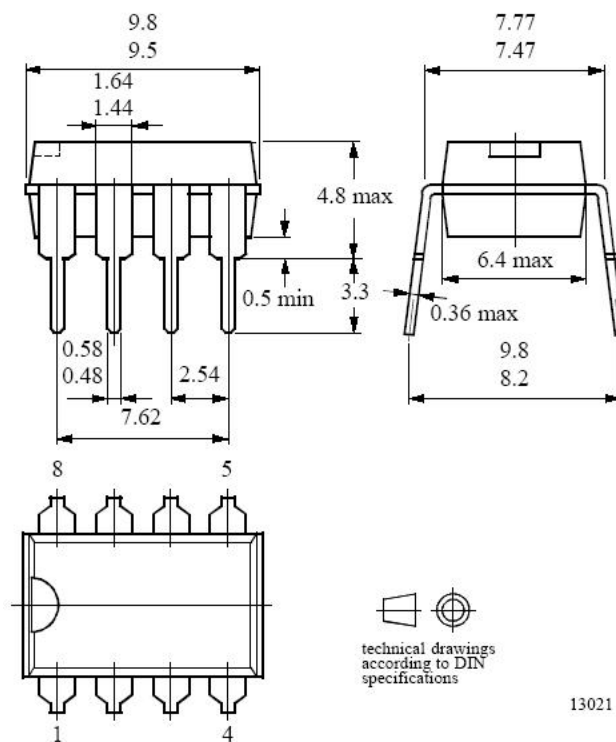
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Package Information

DIP8

Dimensions in mm

13021

SOP8

Dimensions in mm

13034

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