

UNISONIC TECHNOLOGIES CO., LTD

L2044

LINEAR INTEGRATED CIRCUIT

DUAL OUTPUT FLASHER

DESCRIPTION

The UTC **L2044** is a dual output stages flasher designed as a relay driver for flashing light control in automotive applications. Both sides direction indicator input with only a small control current makes switch contacts for small loads possible. Each side of the vehicle is controlled separately.

The construction of the hazard switch could be simplified due to hazard warning input is separate. The flasher will dramatically increase the flash frequency by a typical ratio of 2:1 if lamp fault is detected. The UTC **L2044** can be directly connected to the battery due to extreme low current consumption.

FEATURES

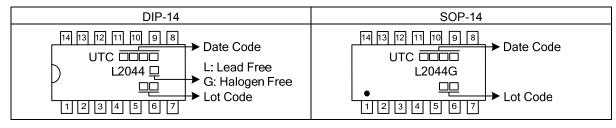
- * Temperature and Supply Voltage Compensated Flashing Frequency
- * Frequency Doubling Indicates Lamp Fault.
- * Two Relay Driver Outputs with High Current-carrying Capacity and Low Saturation Voltage
- * Minimum Lamp Load for Flasher Operation: ≥ 1W
- * Very Low Sensitivity to EMI
- * Extremely Low Current Consumption<10µA (at Switches Open)
- * Reverse Polarity Protection
- * Three Control Inputs: Left, Right and Hazard Warning

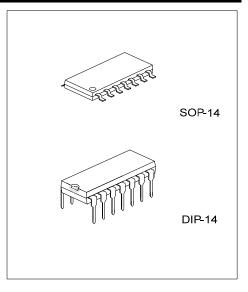
ORDERING INFORMATION

Ordering Number		Daakaga	Dooking
Lead Free	Halogen Free	Package	Packing
L2044L-D14-T	L2044L-D14-T L2044G-D14-T		Tube
-	L2044G-S14-R	SOP-14 Tape	

L2044L-D14-T (1)Packing Type (2)Package Type (3)Green Package	(1) T: Tube, R: Tape Reel (2) D14: DIP-14, S14: SOP-14 (3) L: Lead Free, G: Halogen Free and Lead Free

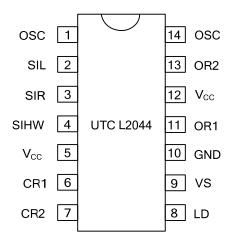
MARKING





L2044

PIN CONFIGURATION

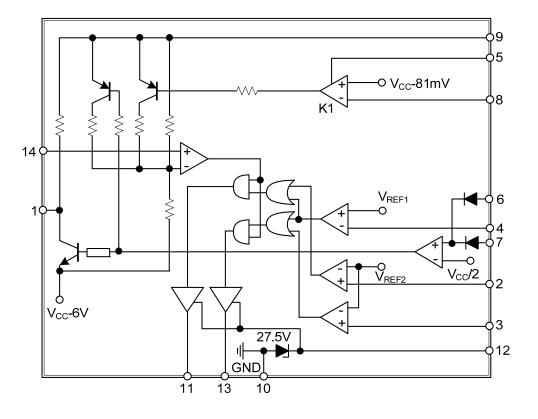


PIN DESCRIPTION

PIN No.	PIN NAME	FUNCTION
1	OSC	Oscillator
2	SIL	Start input left
3	SIR	Start input right
4	SIHW	Start input hazard warning
5	V _{cc}	Vcc
6	CR1	Control input relay 1
7	CR2	Control input relay 2
8	LD	Lamp failure detection
9	V _{cc}	Vcc
10	GND	ground
11	OR1	Output relay 1
12	VS	Vcc
13	OR2	Output relay 2
14	OSC	Oscillator



BLOCK DIAGRAM





ABSOLUATE MAXIUM RATINGS

PARAMETER	R SYMBOL RATINGS		UNIT
Supply Voltage, 1 min, pins 5, 9 and 12	V _{CC}	24	V
Junction Temperature	TJ	+125	°C
Operating Temperature	T _{OPR}	-20~ +85	°C
Storage Temperature	T _{STG}	-40 ~ +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.

THERMAL DATA

PARAMETER		SYMBOL	RATINGS	UNIT
hunding to Ambigat	DIP-14	0	90	°044
Junction to Ambient	SOP-14	Θ_{JA}	120	°C/W

■ ELECTRICAL CHARACTERISTICS (V_{CC} = 12V, T_A = 25°C, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply Voltage Range	Vcc	Pins 5, 9, 12	8		18	V
Caturation Vallage	Vout	V _{CC} =8V, R _L =82Ω			1.0	V
Saturation Voltage		V _{CC} =12V, R _L =82Ω			1.2	
Clamping Voltage	V ₁₂	T _a = -20°C ~ 85°C	25.0	27.5	30.0	V
Relay output overvoltage detection (relay disabled)	V ₁₂	T _a = -20°C ~ 85°C	18	20	22	V
	Vcc	V _{CC} =9V		70.6		mV
Control signal threshold		V _{CC} =13.5V		85.5		
		V _{CC} =16V		93.0		
Output current for relay driver	IOUT	Pins 11, 13			300	mA
Relay output reverse current	IOUT	Pins 11, 13			0.1	mA
Supply current, switches open	Icc	Pins 5, 9, 12			10	μA
Relay coil resistance	RL					Ω
Start delay	t _{ON}	First bright phase			10	ms
Tolerance of control signal threshold		V _{CC} =9V~16V, Pin 8,	-6		+6	%
Temperature coefficient of control signal Threshold	TcVo	T _A = -20°C ~ 85°C V _{CC} =13.5V, Pin 8		10		μV/K

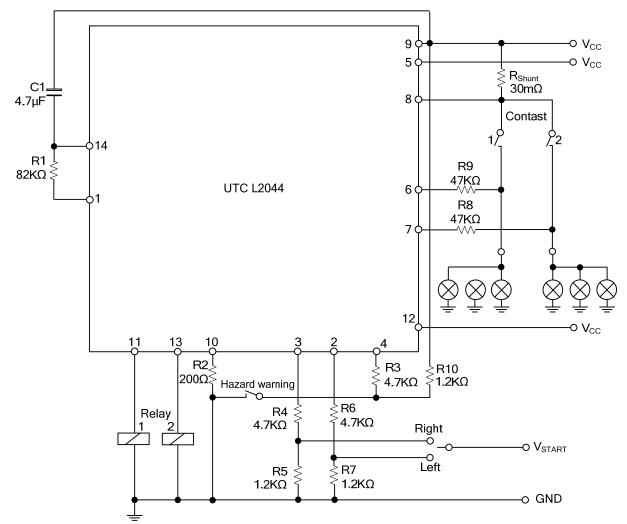
■ **TOLERANCES** (V_{CC} = 12V, T_A =25°C, unless otherwise specified.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Frequency determining resistor	R ₁		6.8		510	kΩ
Frequency determining capacitor	C ₁				47	μF
Frequency tolerance	/ \ L4	Normal flashing, basic frequency f_1 excluding the tolerance of R_1 and C_1	-5		+5	%
Dright pariod	$ riangle f_1$	Basic frequency f ₁	47		53	0/
Bright period	$ riangle f_2$	Control frequency f ₂	37		45	%
Frequency increase	f ₂	Lamp failure	2.15×f ₁		2.3×f ₁	Hz
Lamp load	PL		1			W



L2044





UTC assumes no responsibility for equipment failures that result from using products at values that exceed, even momentarily, rated values (such as maximum ratings, operating condition ranges, or other parameters) listed in products specifications of any and all UTC products described or contained herein. UTC products are not designed for use in life support appliances, devices or systems where malfunction of these products can be reasonably expected to result in personal injury. Reproduction in whole or in part is prohibited without the prior written consent of the copyright owner. The information presented in this document does not form part of any quotation or contract, is believed to be accurate and reliable and may be changed without notice.

