



LM556

LINEAR INTEGRATED CIRCUIT

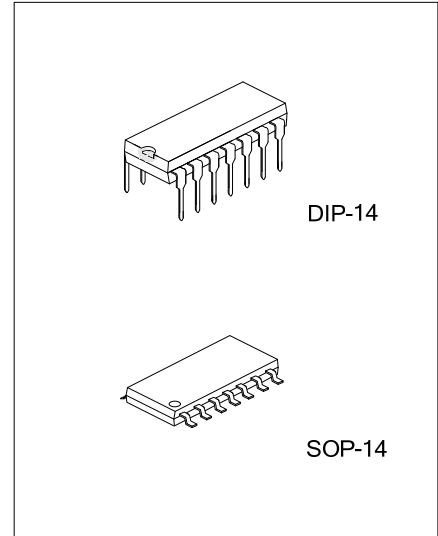
DUAL TIMER

DESCRIPTION

The UTC **LM556** dual monolithic circuit is a highly stable controller capable of producing accurate delays or oscillation. The UTC **LM556** is the dual of UTC NE555; timing is provided an external resistor and capacitor for each function. The two timers operate independently of each other, sharing only V_{CC} and GND. The circuits may be triggered and reset on falling wave forms. The output structures may sink or source 200mA.

FEATURES

- *High Current Driver Capability(=200mA)
- *Adjustable Duty Cycle
- *Timing From μ Sec to Hours
- *Temperature Stability of 0.005%/°C
- *TTL Compatible
- *Operates in Both Astable and Monostable Modes

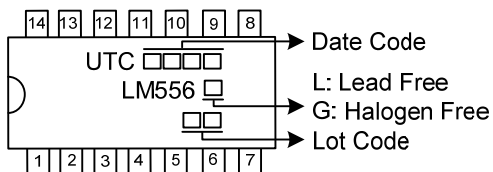


ORDERING INFORMATION

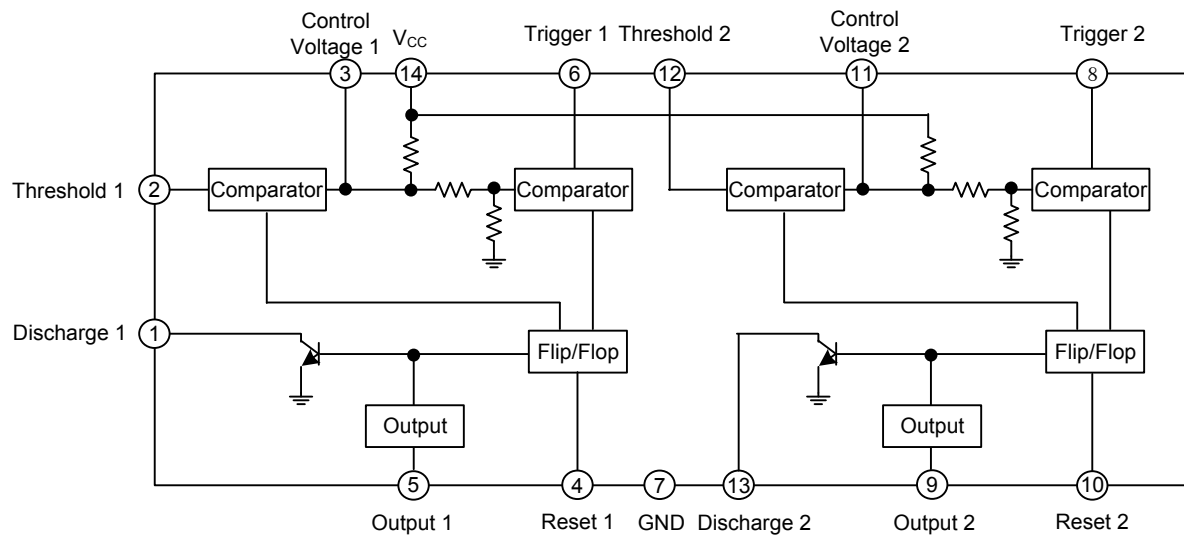
Ordering Number		Package	Packing
Lead Free	Halogen Free		
LM556L-D14-T	LM556G-D14-T	DIP-14	Tube
LM556L-S14-R	LM556G-S14-R	SOP-14	Tape Reel

LM556G-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) G: Halogen Free and Lead Free, L: Lead Free
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MARKING



■ BLOCK DIAGRAM



■ **ABSOLUTE MAXIMUM RATINGS** ($T_A=25^{\circ}\text{C}$, unless otherwise specified)

PARAMETER	SYMBOL	RATINGS	UNIT
Supply Voltage	V_{CC}	16	V
Power Dissipation	P_D	600	mW
Lead Temperature(soldering 10 sec.)	T_{LEAD}	300	$^{\circ}\text{C}$
Operating Temperature	T_{OPR}	-20 ~ +85	$^{\circ}\text{C}$
Storage Temperature	T_{STG}	-65 ~ +150	$^{\circ}\text{C}$

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** ($T_A=25^{\circ}\text{C}$, $V_{CC}=5$ to 15V, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply voltage	V _{CC}		4.5		16	V
Supply Current(two timers) (low state), (Note 1)	I _{CC}	V _{CC} =5V, R _L =∞		5	12	mA
		V _{CC} =15V, R _L =∞		16	30	mA
TIMING ERROR (MONOSTABLE)						
Initial Accuracy (Note 2)	A _{CCUR}	R _A =2KΩ to 100KΩ C=0.1μF, T=1.1RC		0.75		%
Drift with Temperature	Δt/ΔT			50		ppm/°C
Drift with Supply Voltage	Δt/ΔV _{CC}			0.1		%/V
TIMING ERROR (ASTABLE)						
Initial Accuracy (Note 2)	A _{CCUR}	R _A =1KΩ to 100KΩ C=0.1μF, V _{CC} =15V		2.25		%
Drift with Temperature	Δt/ΔT			150		ppm/°C
Drift with Supply Voltage	Δt/ΔV _{CC}			0.3		%/V
Control Voltage	V _C	V _{CC} =15V	9.0	10.0	11.0	V
		V _{CC} =5V	2.6	3.33	4.0	V
Threshold Voltage	V _{TH}	V _{CC} =15V	8.8	10.0	11.2	V
		V _{CC} =5V	2.4	3.33	4.2	V
Threshold Current (Note 3)	I _{TH}			30	250	nA
Trigger Voltage	V _{TR}	V _{CC} =5V	1.1	1.6	2.2	V
		V _{CC} =15V	4.5	5	5.6	V
Trigger Current	I _{TR}	V _{TR} =0		0.01	2.0	μA
Reset Voltage (Note 4)	V _{RST}		0.28	0.4	1.12	V
Reset Current	I _{RST}			0.03	0.6	mA
Low Output Voltage	V _{OL}	V _{CC} =15V, I _{SINK} =10mA		0.1	0.25	V
		V _{CC} =15V, I _{SINK} =50mA		0.4	0.75	V
		V _{CC} =15V, I _{SINK} =100mA		2	3.2	V
		V _{CC} =15V, I _{SINK} =200mA		2.5		V
		V _{CC} =5V, I _{SINK} =5mA		0.15	0.25	V
		V _{CC} =5V, I _{SINK} =8mA		0.25	0.35	V
High Output Voltage	V _{OH}	V _{CC} =15V, I _{SOURCE} =200mA		12.5		V
		V _{CC} =15V, I _{SOURCE} =100mA	12.75	13.3		V
		V _{CC} =5V, I _{SOURCE} =100mA	2.75	3.3		V
Rise Time of Output	t _R			100	300	nSec
Fall Time of Output	t _F			100	300	nSec
Discharge Leakage Current	I _{LKG}			20	100	nA

■ ELECTRICAL CHARACTERISTICS (Cont.)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
MATCHING PARAMETER						
Initial Accuracy (Note 5)	A_{CCUR}	$R_A, R_B=1K\Omega$ to $100K\Omega$ $C=0.1\mu F, V_{CC}=15V$		1	2	%
Drift with Temperature	$\Delta t/\Delta T$			10		ppm/ $^{\circ}C$
Drift with Supply Voltage	$\Delta t/\Delta V_{CC}$			0.2	0.5	%/V

Notes: 1. Supply current when output is high is typically 1mA less at V_{CC} 5V.

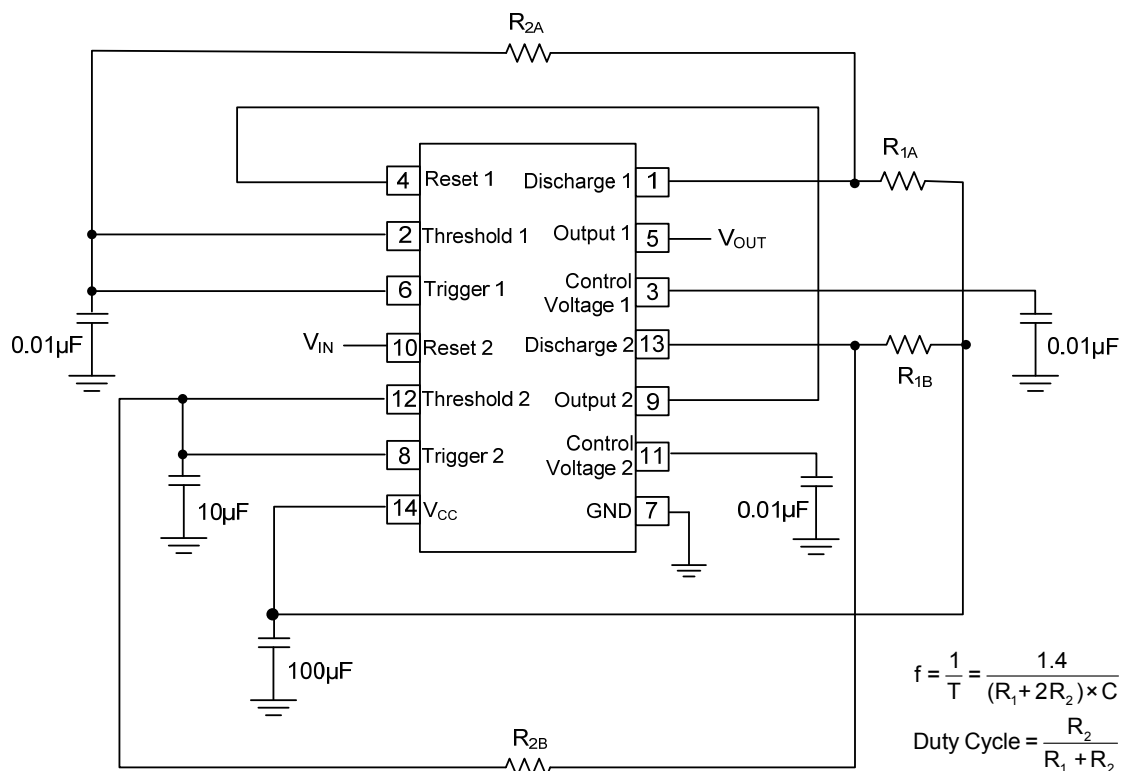
2. Tested at $V_{CC}=5V$ and $V_{CC}=15V$.

3: This will determine the maximum value of R_A+R_B for 15V operation, The maximum total is $R=20M\Omega$, and for 5V operation the maximum total is $R=6.6M\Omega$.

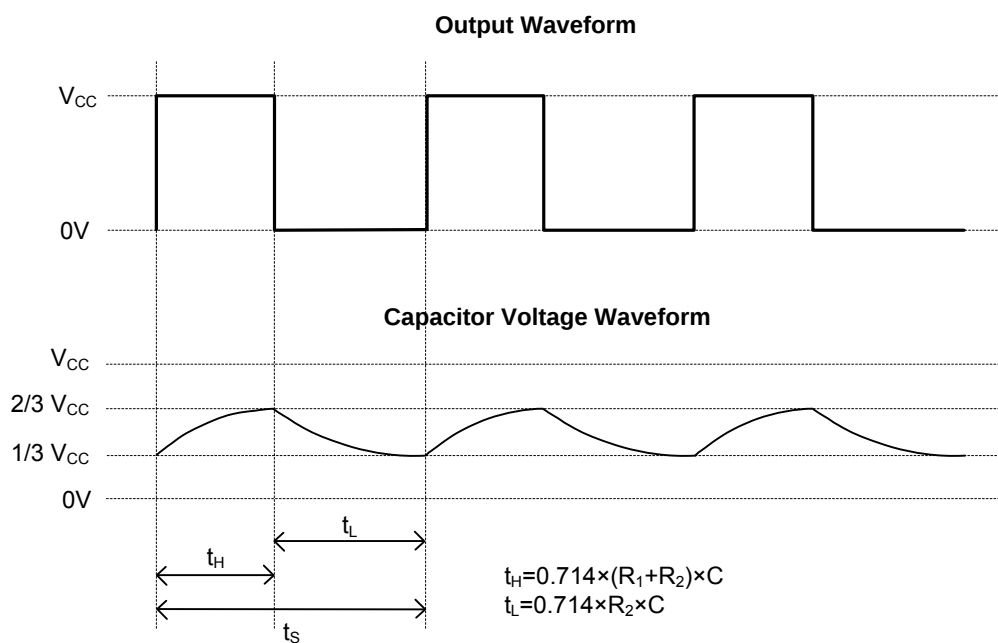
4: As reset voltage lower, timing is inhibited and then the output goes low.

5: Matching parameters refer to the difference between performance parameters of each timer section in the monostable mode.

■ TYPICAL APPLICATION CIRCUIT



■ TEST CIRCUIT AND WAVEFORMS



Capacitor Voltage and Output Waveform in Astable Mode

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