



## LM556

## LINEAR INTEGRATED CIRCUIT

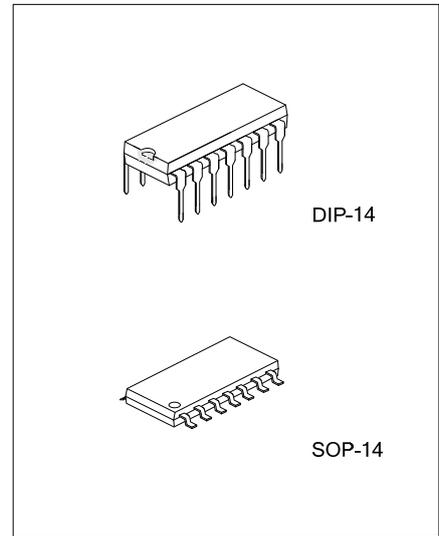
### DUAL TIMER

#### 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  $\mu$ Sec to Hours
- \*Temperature Stability of 0.005%/ $^{\circ}$ C
- \*TTL Compatible
- \*Operates in Both Astable and Monostable Modes



#### ORDERING INFORMATION

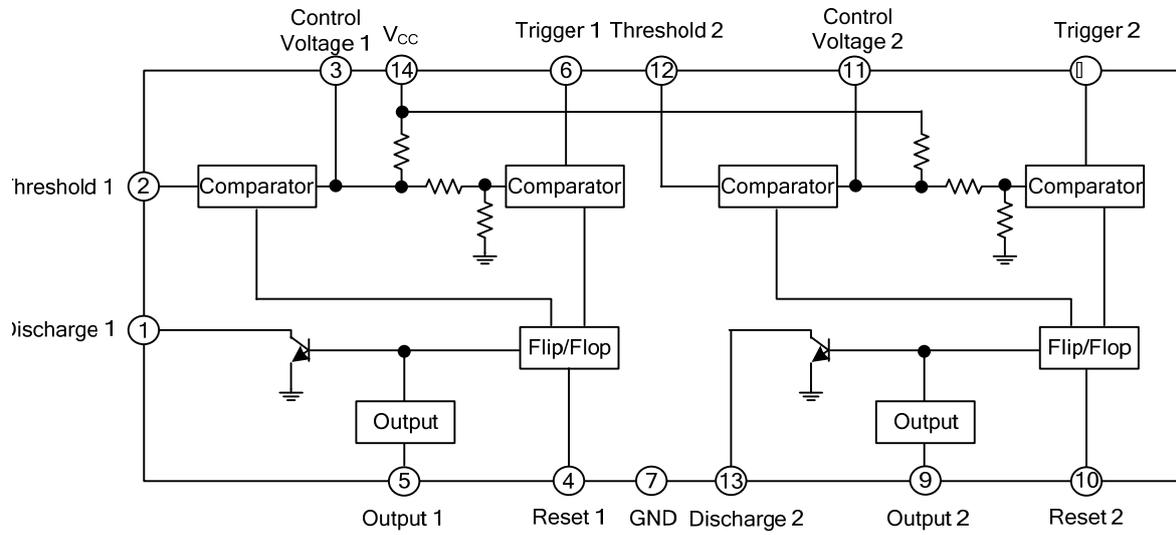
Ordering Number		Package	Packing
Lead Free	Halogen Free		
LM556L-D14-T	LM556G-D14-T	DIP-14	Tube
-	LM556G-S14-R	SOP-14	Tape Reel

<p>LM556L-D14-T</p> <ul style="list-style-type: none"> <li>(1) Packing Type</li> <li>(2) Package Type</li> <li>(3) Green Package</li> </ul>	<ul style="list-style-type: none"> <li>(1) T: Tube, R: Tape Reel</li> <li>(2) D14: DIP-14, S14: SOP-14</li> <li>(3) L: Lead Free, G: Halogen Free and Lead Free</li> </ul>
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#### MARKING

DIP-14	SOP-14

■ 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	$^\circ\text{C}$

■ 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)	$I_{CC}$	$V_{CC}=5\text{V}$ , $R_L=\infty$		5	12	mA
		$V_{CC}=15\text{V}$ , $R_L=\infty$		16	30	mA
Timing Error(monostable)						
Initial Accuracy(Note 2)	$A_{CCUR}$	$R_A=2\text{K}\Omega$ to $100\text{K}\Omega$ $C=0.1\mu\text{F}$ , $T=1.1\text{RC}$		0.75		%
Drift with Temperature	$\Delta t/\Delta T$			50		ppm/ $^\circ\text{C}$
Drift with Supply Voltage	$\Delta t/\Delta V_{CC}$			0.1		%/V
Timing Error(astable)						
Initial Accuracy(Note 2)	$A_{CCUR}$	$R_A=1\text{K}\Omega$ to $100\text{K}\Omega$ $C=0.1\mu\text{F}$ , $V_{CC}=15\text{V}$		2.25		%
Drift with Temperature	$\Delta t/\Delta T$			150		ppm/ $^\circ\text{C}$
Drift with Supply Voltage	$\Delta t/\Delta V_{CC}$			0.3		%/V
Control Voltage	$V_C$	$V_{CC}=15\text{V}$	9.0	10.0	11.0	V
		$V_{CC}=5\text{V}$	2.6	3.33	4.0	V
Threshold Voltage	$V_{TH}$	$V_{CC}=15\text{V}$	8.8	10.0	11.2	V
		$V_{CC}=5\text{V}$	2.4	3.33	4.2	V
Threshold Current(Note 3)	$I_{TH}$			30	250	nA
Trigger Voltage	$V_{tR}$	$V_{CC}=5\text{V}$	1.1	1.6	2.2	V
		$V_{CC}=15\text{V}$	4.5	5	5.6	V
Trigger Current	$I_{tR}$	$V_{tR}=0$		0.01	2.0	$\mu\text{A}$
Reset Voltage(Note 4)	$V_{rst}$		0.4	0.6	1.0	V
Reset Current	$I_{rst}$			0.03	0.6	mA
Low Output Voltage	$V_{OL}$	$V_{CC}=15\text{V}$ , $I_{SINK}=10\text{mA}$		0.1	0.25	V
		$V_{CC}=15\text{V}$ , $I_{SINK}=50\text{mA}$		0.4	0.75	V
		$V_{CC}=15\text{V}$ , $I_{SINK}=100\text{mA}$		2	3.2	V
		$V_{CC}=15\text{V}$ , $I_{SINK}=200\text{mA}$		2.5		V
		$V_{CC}=5\text{V}$ , $I_{SINK}=5\text{mA}$		0.15	0.25	V
High Output Voltage	$V_{OH}$	$V_{CC}=15\text{V}$ , $I_{SOURCE}=200\text{mA}$		12.5		V
		$V_{CC}=15\text{V}$ , $I_{SOURCE}=100\text{mA}$	12.75	13.3		V
		$V_{CC}=5\text{V}$ , $I_{SOURCE}=100\text{mA}$	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
Matching Parameter						
Initial Accuracy(Note 5)	$A_{CCUR}$	$R_A, R_B=1\text{K}\Omega$ to $100\text{K}\Omega$ $C=0.1\mu\text{F}$ , $V_{CC}=15\text{V}$		1	2	%
Drift with Temperature	$\Delta t/\Delta T$			10		ppm/ $^\circ\text{C}$
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  $V_{CC}=5\text{V}$  and  $V_{CC}=15\text{V}$ .

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

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.

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