

# UTC NE556

# LINEAR INTEGRATED CIRCUIT

## DUAL TIMER

### DESCRIPTION

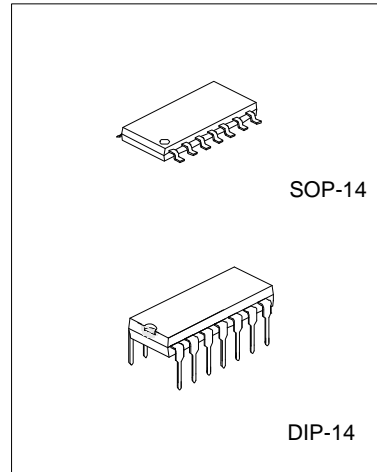
The UTC NE556 dual monolithic circuit is a highly stable controller capable of producing accurate delays or oscillation. The UTC NE556 is the dual of UTC NE555; timing is provided an external resistor and capacitor for each function. The two timers operate independently of each other, sharing only Vcc and GND. The circuits may be triggered and reset on falling wave forms. The output structures may sink or source 200mA.

### FEATURES

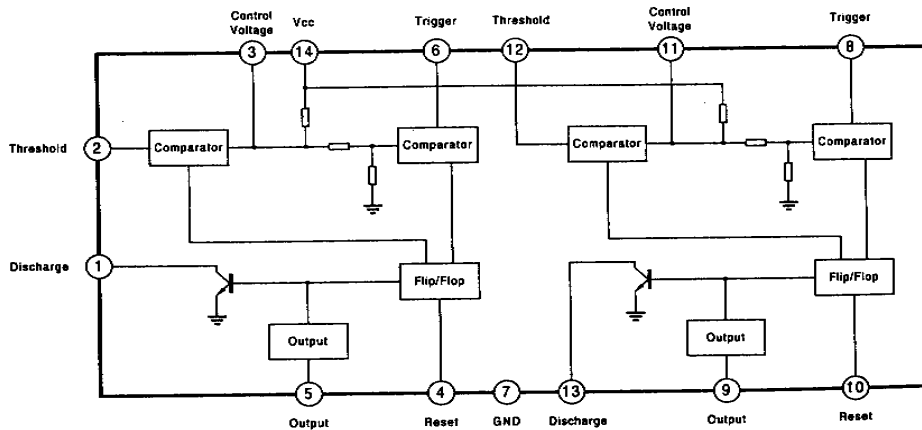
- \*High current driver capability(=200mA)
- \*Adjustable duty cycle
- \*Timing from  $\mu$ Sec to Hours
- \*Temperature stability of 0.005%/ $^{\circ}$ C
- \*TTL compatible
- \*Operates in both Astable and Monostable modes

### APPLICATIONS

- \*Precision timing.
- \*Pulse generator, shaping.
- \*Time delay generator.
- \*Sequential timing.
- \*Pulse width modulation.
- \*Traffic light control.
- \*Touch tone encoder.
- \*Tone burst generator.



### BLOCK DIAGRAM



UTC

UNISONIC TECHNOLOGIES CO., LTD.

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QW-R106-002,A

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## ABSOLUTE MAXIMUM RATINGS(Ta=25°C)

PARAMETER	SYMBOL	VALUE	UNIT
Supply Voltage	Vcc	16	V
Power Dissipation	Pd	600	mW
Lead Temperature(soldering 10 sec.)	Tlead	300	°C
Operating Temperature	Topr	-40~85	°C
Storage Temperature	Tstg	-65~150	°C

## ELECTRICAL CHARACTERISTICS

( Ta=25°C , Vcc=5 to 15V, unless otherwise specified)

PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
Supply voltage	Vcc		4.5		16	V
Supply Current(two timers) (low state), (Note 1)	Icc	Vcc=5V, RL=∞		5	12	mA
		Vcc=15V, RL=∞		16	30	mA
Timing Error(monostable)						
Initial Accuracy(Note 2)	ACCUR	RA=2KΩ to 100KΩ C=0.1μF T=1.1RC		0.75		%
Drift with Temperature	Δt/ΔT			50		ppm/°C
Drift with Supply Voltage	Δt/ΔVcc			0.1		%/V
Timing Error(astable)						
Initial Accuracy(Note 2)	ACCUR	RA=1KΩ to 100KΩ C=0.1μF Vcc=15V		2.25		%
Drift with Temperature	Δt/ΔT			150		ppm/°C
Drift with Supply Voltage	Δt/ΔVcc			0.3		%/V
Control Voltage	Vc	Vcc=15V	9.0	10.0	11.0	V
		Vcc=5V	2.6	3.33	4.0	V
Threshold Voltage	VTH	Vcc=15V	8.8	10.0	11.2	V
		Vcc=5V	2.4	3.33	4.2	V
Threshold Current(Note 3)	ITH			30	250	nA
Trigger Voltage	Vtr	Vcc=5V	1.1	1.6	2.2	V
		Vcc=15V	4.5	5	5.6	V
Trigger Current	Itr	Vtr=0		0.01	2.0	μA
Reset Voltage(Note 4)	Vrst		0.4	0.6	1.0	V
Reset Current	Irst			0.03	0.6	mA
Low Output Voltage	VOL	Vcc=15V Isink=10mA Isink=50mA Isink=100mA Isink=200mA		0.1	0.25	V
				0.4	0.75	V
				2	3.2	V
				2.5		V
		Vcc=5V Isink=5mA Isink=8mA		0.15	0.25	V
				0.25	0.35	V
High Output Voltage	VOH	Vcc=15V Isource=200mA Isource=100mA				

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PARAMETER	SYMBOL	TEST CONDITIONS	MIN	TYP	MAX	UNIT
			12.75	12.5		V
		V <sub>cc</sub> =5V I <sub>source</sub> =100mA		13.3		V
			2.75	3.3		V
Rise Time of Output	t <sub>R</sub>			100	300	nSec
Fall Time of Output	t <sub>F</sub>			100	300	nSec
Discharge Leakage Current	I <sub>LKG</sub>			20	100	nA
Matching Parameter						
Initial Accuracy(Note 5)	ACCUR	RA, RB=1KΩ to 100KΩ C=0.1μF V <sub>cc</sub> =15V		1	2	%
Drift with Temperature	Δt/ΔT			10		ppm/°C
Drift with Supply Voltage	Δt/ΔV <sub>cc</sub>			0.2	0.5	%/V

Note 1: Supply current when output is high is typically 1mA less at V<sub>cc</sub> 5V.

Note 2: Tested at V<sub>cc</sub>=5V and V<sub>cc</sub>=15V.

Note 3: This will determine the maximum value of RA+RB for 15V operation, The maximum total is R=20MΩ, and for 5V operation the maximum total is R=6.6MΩ.

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

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