

DUAL TIMER

The KA556/1 series dual monolithic timing circuits are a highly stable controller capable of producing accurate time delays or oscillation.

The KA556 is a dual KA555. Timing is provided an external resistor and capacitor for each timing function.

The two timers operate independently of each other, sharing only V_{CC} and ground.

The circuits may be triggered and reset on falling waveforms. The output structures may sink or source 200mA.

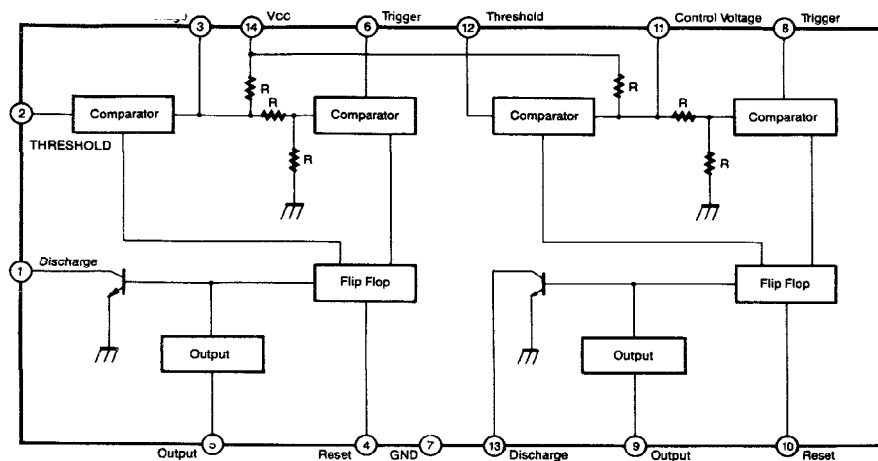
FEATURES

- Replaces Two KA555 Timers
- Operates in Both Astable And Monostable Modes
- High Output Current
- TTL Compatible
- Timing From Microsecond To Hours
- Adjustable Duty Cycle
- Temperature Stability Of 0.005% Per $^{\circ}\text{C}$

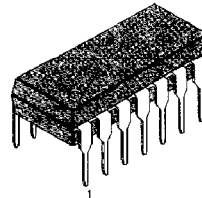
APPLICATIONS

- Precision Timing
- Pulse Shaping
- Pulse Width Modulation
- Frequency Division
- Traffic Light Control
- Sequential Timing
- Pulse Generator
- Time Delay Generator
- Touch Tone Encoder
- Tone Burst Generator

BLOCK DIAGRAM



14 DIP



ORDERING INFORMATION

Device	Package	Operating Temperature
KA556	14 DIP	0 ~ + 70 $^{\circ}\text{C}$
KA556I	14 DIP	-40 ~ + 85 $^{\circ}\text{C}$

ABSOLUTE MAXIMUM RATINGS (T_A = 25°C)

Characteristic	Symbol	Value	Unit
Supply Voltage	V _{CC}	16	V
Lead Temperature (soldering 10sec)	T _{LEAD}	300	°C
Power Dissipation	P _D	600	mW
Operating Temperature Range KA556 KA556I	T _{OPR}	0 ~ + 70 - 40 ~ + 85	°C
Storage Temperature Range	T _{STG}	- 65 ~ + 150	°C

ELECTRICAL CHARACTERISTICS

(T_A = 25°C, V_{CC} = 5 ~ 15V, unless otherwise specified)

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
Supply Voltage	V _{CC}		4.5		16	V
* 1 Supply Current (two timers) (low state)	I _{CC}	V _{CC} = 5V, R _L = ∞ V _{CC} = 15V, R _L = ∞		5 16	12 30	mA mA
* 2 Timing Error (monostable) Initial Accuracy Drift with Temperature Drift with Supply Voltage	ACCUR Δt/ΔT Δt/ΔV _{CC}	R _A = 2KΩ to 100KΩ C = 0.1 μF T = 1.1RC		0.75 50 0.1		% ppm/°C %/V
Control Voltage	V _C	V _{CC} = 15V V _{CC} = 5V	9.0 2.6	10.0 3.33	11.0 4.0	V V
Threshold Voltage	V _{TH}	V _{CC} = 15V V _{CC} = 5V	8.8 2.4	10.0 3.33	11.2 4.2	V V
* 3 Threshold Voltage	I _{TH}			30	250	nA
Trigger Voltage	V _{TR}	V _{CC} = 15V V _{CC} = 5V	4.5 1.1	5.0 1.6	5.6 2.2	V V
Trigger Current	I _{TR}	V _{TH} = 0V		0.01	2.0	μA
* 5 Reset Voltage	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} = 15V I _{SINK} = 10mA I _{SINK} = 50mA I _{SINK} = 100mA I _{SINK} = 200mA V _{CC} = 5V I _{SINK} = 8mA I _{SINK} = 5mA		0.1 0.4 2.0 2.5 0.25 0.15	0.25 0.75 3.2 0.35 0.25	V V V V V V

ELECTRICAL CHARACTERISTICS

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

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
High Output Voltage	V_{OH}	$V_{CC} = 15\text{V}$ $I_{SOURCE} = 200\text{mA}$		12.5		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}			10	100	nA
* 4 Matching Characteristics						
Initial Accuracy	ACCUR			1.0	2.0	%
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
* 2 Timing Error (astable)		$R_A, R_B = 1\text{K}\Omega$ to $100\text{K}\Omega$ $C = 0.1\ \mu\text{F}$ $V_{CC} = 15\text{V}$		2.25		%
Initial Accuracy	ACCUR			150		ppm/ $^\circ\text{C}$
Drift with Temperature	$\Delta t/\Delta T$			0.3		%/V
Drift with Supply Voltage						

Notes:

- * 1. Supply current when output is high is typically 1.0mA less at $V_{CC} = 5\text{V}$
- * 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 $R = 20\text{M}\Omega$, and for 5V operation the maximum total $R = 6.6\text{M}\Omega$.
- * 4. Matching characteristics refer to the difference between performance characteristics of each timer section in the monostable mode.
- * 5. As reset voltage lowers, timing is inhibited and then the output goes low.

Dimensions in Millimeters

