DUAL TIMER

The KA556/I 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 wave forms. The output structures may sink or source 200mA.
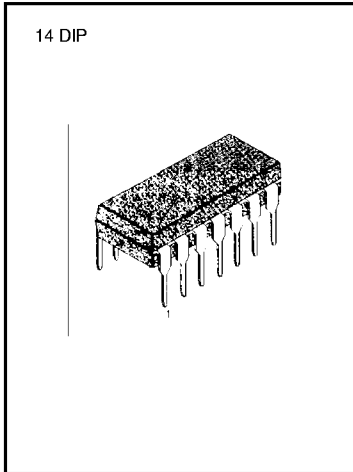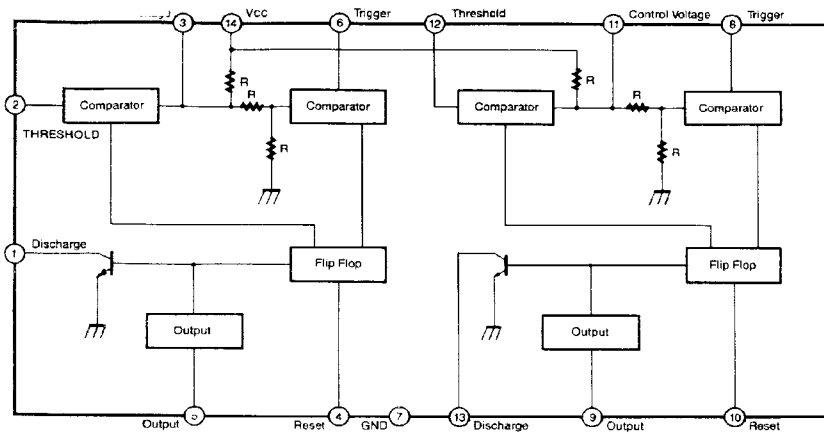
FEATURES

- 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

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

14 DIP

ORDERING INFORMATION

Device	Package	Operating Temperature
KA556	14 DIP	0 ~ + 70
KA556I	14 DIP	-40 ~ + 85

BLOCK DIAGRAM

FAIRCHILD
SEMICONDUCTOR™

ABSOLUTE MAXIMUM RATINGS (T$_A$ = 25   )

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

ELECTRICAL CHARACTERISTICS

(T$_A$ = 25   , 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 t/ T t/ V$_{CC}$	R$_A$ = 2K to 100K C = 0.1 F T = 1.1RC		0.75 50 0.1		ppm/ /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	A
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

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

Characteristic	Symbol	Test Conditions	Min	Typ	Max	Unit
High Output Voltage	V_{OH}	$V_{CC} = 15V$ $I_{SOURCE} = 200mA$		12.5		V
		$I_{SOURCE} = 100mA$	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}			10	100	nA
4 Matching Characteristics Initial Accuracy Drift with Temperature Drfit with Supply Voltage	ACCUR t/ T t/ V_{CC}			1.0 10 0.2	2.0 0.5	ppm/ /V
2 Timing Error (astable) Initial Accuracy Drift with Temperature Drift with Supply Voltage	ACCUR t/ T	$R_A, R_B = 1K$ to 100K $C = 0.1$ F $V_{CC} = 15V$		2.25 150 0.3		ppm/ /V

Notes:
1. Supply current when output is high is typically 1.0mA 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 R = 20M , and for 5V operation the maximum total R = 6.6M .
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.

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CROSSVOLT™	POP™	
E²CMOS™	PowerTrench™	
FACT™	QS™	
FACT Quiet Series™	Quiet Series™	
FAST®	SuperSOT™-3	
FASTr™	SuperSOT™-6	
GTO™	SuperSOT™-8	
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2. A critical component is any component of a life support device or system whose failure to perform can be reasonably expected to cause the failure of the life support device or system, or to affect its safety or effectiveness.

PRODUCT STATUS DEFINITIONS

Definition of Terms

Datasheet Identification	Product Status	Definition
Advance Information	Formative or In Design	This datasheet contains the design specifications for product development. Specifications may change in any manner without notice.
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