

ELMC555xA CMOS Timer

General description

ELMC555xA is the CMOS version of SE/NE 555 and 355 timers. Superior parameters of this CMOS version include low supply current, wide operating supply voltage range, low Threshold, TRIGGER and RESET current, higher frequency performance and no requirement to decouple control voltage for stable operation. ELMC555xA is stable controller which is capable of producing accurate delay time, oscillation frequency and duty cycle.

Features

- Speed operation : 500kHz
- Wide range operation voltage : 2 ~ 18V
- Operates in both astable and monostable modes
- Adjustable duty cycle
- Package : SOP-8
TSSOP-8

Maximum absolute ratings

Parameter	Symbol	Operating condition	Max.	Unit
Power supply voltage	Vdd	2.0~18.0	0~18.0	V
Output current	Iout	Max.20	Max.100	mA
Input voltage	Vth,Vtrig,Vrst		-0.3~Vdd+0.3	V
Power dissipation	Pd		Max.200	mW
Operating temperature	Top	-20~70	-20~+85	°C
Storage temperature	Tstg		-65~+150	°C
Lead temperature 1mm from case for 10sec.	Tlead		Max.260	°C

Selection guide

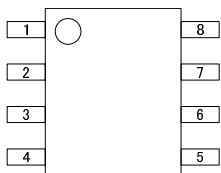
ELMC555xA-x

Symbol		
a	Package	A: SOP-8 B: TSSOP-8
b	Product version	A
c	Taping direction	S : Refer to PKG file N : Refer to PKG file

ELMC555 x A - x
 ↑ ↑ ↑
 a b c

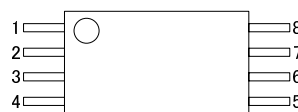
Pin configuration

SOP-8 (TOP VIEW)



Pin No.	Pin name
1	VSS
2	TRIGGER
3	OUT
4	RESET
5	CONTROL VOLTAGE
6	THRESHOLD
7	DISCHARGE
8	VDD

TSSOP-8 (TOP VIEW)

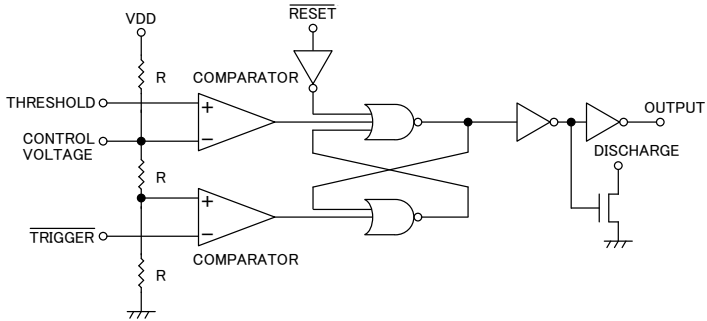


ELMC555xA CMOS Timer

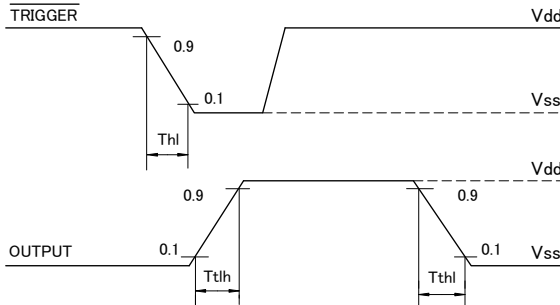
■ Truth table

THRESHOLD	TRIGGER	RESET	Vout	DISCHARGE
×	×	Low	Low	ON
$> 2/3 \cdot V_{dd}$	$> 1/3 \cdot V_{dd}$	High	Low	ON
$< 2/3 \cdot V_{dd}$	$> 1/3 \cdot V_{dd}$	High	Stable	Stable
×	$< 1/3 \cdot V_{dd}$	High	High	OFF

■ Block diagram



■ Switching waveforms



■ Electrical characteristics

AC electrical characteristics (Vdd=3.0V)

Top=25°C

Parameter	Symbol	Condition	Min.	Max.	Tem.(°C)	Unit
Rise (fall) time of output	Tthl	Vdd=5.0V, RL=10MΩ, CL=10pF	35	75	25 ± 10	ns
			70	150	-20, +70	
Oscillation frequency	Fosc	Astable operation Vdd=2.0V~18.0V	500		25 ± 10	kHz
			200		-20, +70	
Initial accuracy			5			%
Temperature coefficient	αf	Ra=1~100kΩ, Ct=0.1μF	Vdd=5.0V	0.02	-20,+70	% / °C
			Vdd=10.0V	0.03		
			Vdd=15.0V	0.06		
Supply voltage coefficient	Δf	Vdd=5.0V		3	25 ± 10	% / V
				6	-20, +70	

ELMC555xA CMOS Timer

■ Electrical characteristics

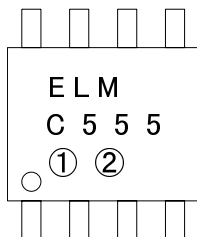
DC electrical characteristics (Voltage reference=GND)

Top=25°C

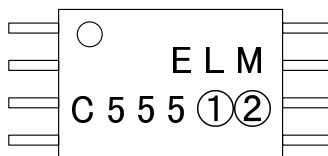
Parameter	Symbol	Condition	Min.	Max.	Tem.(°C)	Unit
Threshold voltage	Vth	Vdd=5.0V	$0.65 \times V_{dd}$	$0.70 \times V_{dd}$	25 ± 10	V
			$0.60 \times V_{dd}$	$0.80 \times V_{dd}$		
Trigger voltage	Vtrig	Vdd=5.0V	$0.31 \times V_{dd}$	$0.36 \times V_{dd}$	25 ± 10	V
			$0.28 \times V_{dd}$	$0.40 \times V_{dd}$		
Reset voltage	Vrst	Vdd=2.0V, Vdd=18.0V	0.4	1.0	25 ± 10	V
		Vdd=2.0V, Vdd=18.0V	0.2	1.5	-20,+70	
Control voltage lead	Vcv		$0.65 \times V_{dd}$	$0.70 \times V_{dd}$	25 ± 10	V
			$0.60 \times V_{dd}$	$0.80 \times V_{dd}$	-20,+70	
Output voltage(Low)	Vout(l)	Iout(l)=3.2mA, Vdd=5.0V		0.4	25 ± 10	V
		Iout(l)=20mA, Vdd=15.0V		1.0		
		Iout(l)=3.2mA, Vdd=5.0V		0.6	-20,+70	V
		Iout(l)=20mA, Vdd=15.0V		1.5		
Output voltage (High)	Vout(h)	Iout(h)=-0.8mA, Vdd=5.0V	4.0		25 ± 10	V
		Iout(h)=-0.8mA, Vdd=15.0V	14.3			
		Iout(h)=-0.8mA, Vdd=5.0V	3.5		-20,+70	V
		Iout(h)=-0.8mA, Vdd=15.0V	14.0			
Current consumption	Idd	Vdd=2.0V		200	25 ± 10	μ A
		Vdd=18.0V		300		
		Vdd=2.0V		400	-20,+70	μ A
		Vdd=18.0V		600		

■ Marking

SOP-8



TSSOP-8



No.	Mark	Contents
①	A~Z (excepted I, O, X)	Lot No.
②	A~Z (excepted I, O, X)	Lot No.