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, $\overline{\text{TRIGGER}}$ and $\overline{\text{RESET}}$ 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
Operationg temperature	Top	-20～70	-20～+85	℃
Storage temperature	Tstg		-65～+150	℃
Lead temperature 1mm from case for 10sec.	Tlead		Max.260	℃

■Selection guide

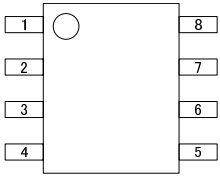
ELMC555xA-x

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

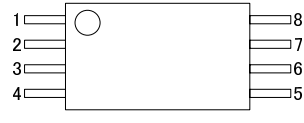
■Pin configuration

SOP-8 (TOP VIEW)



Pin No.	Pin name
1	VSS
2	$\overline{\text{TRIGGER}}$
3	OUT
4	$\overline{\text{RESET}}$
5	CONTROL VOLTAGE
6	THRESHOLD
7	DISCHARGE
8	VDD

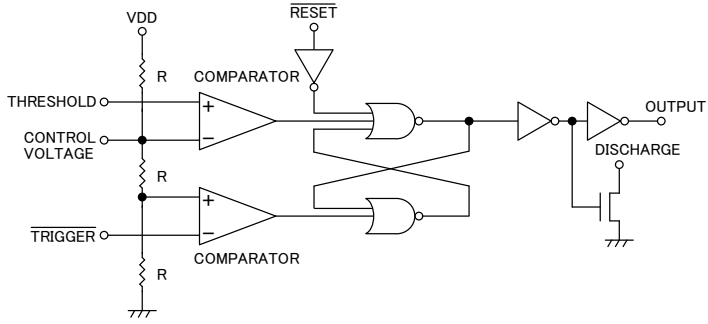
TSSOP-8 (TOP VIEW)



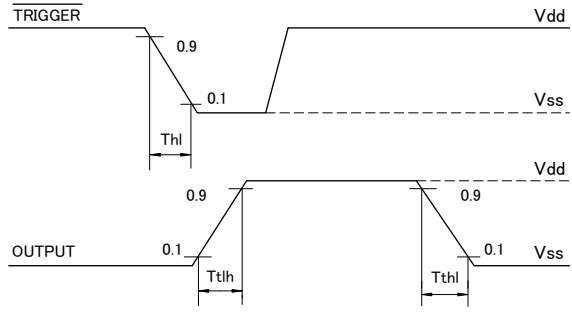
■Truth table

THRESHOLD	$\overline{\text{TRIGGER}}$	$\overline{\text{RESET}}$	Vout	DISCHARGE
×	×	Low	Low	ON
＞ 2/3・Vdd	＞ 1/3・Vdd	High	Low	ON
＜ 2/3・Vdd	＞ 1/3・Vdd	High	Stable	Stable
×	＜ 1/3・Vdd	High	High	OFF

■Block diagram



■Switching waveforms



■Electrical characteristics

AC electrical characteristics (Vdd=3.0V) Top=25℃

Parameter	Symbol	Condition		Min.	Max.	Tem.(℃)	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		Ra=1～100kΩ, Ct=0.1μF		5			%
Temperature coefficient	αf		Vdd=5.0V		0.02	−20,+70	%/℃
			Vdd=10.0V		0.03		
			Vdd=15.0V		0.06		
Supply voltage coefficient	Δf		Vdd=5.0V		3	25 ±10	%/V
					6	−20, +70	

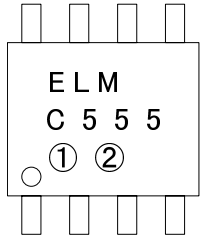
■Electrical characteristics

DC electrical characteristics (Voltage reference=GND) Top=25℃

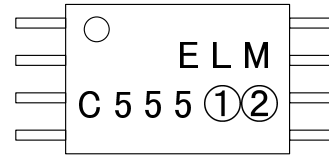
Parameter	Symbol	Condition	Min.	Max.	Tem.(℃)	Unit
Threshhold voltage	Vth	Vdd=5.0V	0.65×Vdd	0.70×Vdd	25 ±10	V
			0.60×Vdd	0.80×Vdd	−20,+70	
Trigger voltage	Vtrig	Vdd=5.0V	0.31×Vdd	0.36×Vdd	25 ±10	V
			0.28×Vdd	0.40×Vdd	−20,+70	
Reset voltage	Vrst	Vdd=2.0V, Vdd=18.0V	0.4	1.0	25 ±10	V
		Vdd=2.0V, Vdd=18.0V	0.2	1.5	−20,+70	
Control voltage lead	Vcv		0.65×Vdd	0.70×Vdd	25 ±10	V
			0.60×Vdd	0.80×Vdd	−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	μA
		Vdd=18.0V		300		
		Vdd=2.0V		400	−20,+70	μA
		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.