

**TOSHIBA**

**TA8749S**

TOSHIBA BIPOLAR LINEAR INTEGRATED CIRCUIT SILICON MONOLITHIC

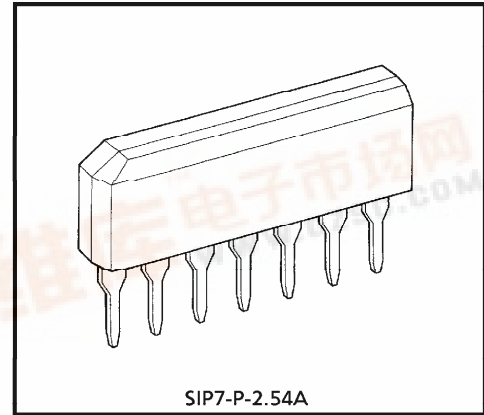
# TA8749S

## 4 $f_{sc}$ CLOCK GENERATOR

The TA8749S provides the function for CCD clock driver, and generate 4 times frequency signal of the input  $f_{sc}$  signal by PLL Circuit.

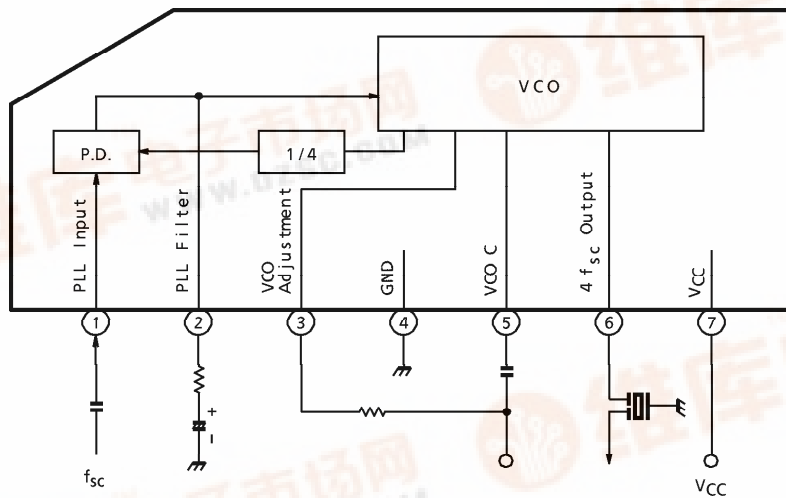
### FEATURES

- 4  $f_{sc}$  VCO
- Phase comparator



Weight : 0.72g (Typ.)

### BLOCK DIAGRAM



961001EBA2

- TOSHIBA is continually working to improve the quality and the reliability of its products. Nevertheless, semiconductor devices in general can malfunction or fail due to their inherent electrical sensitivity and vulnerability to physical stress. It is the responsibility of the buyer, when utilizing TOSHIBA products, to observe standards of safety, and to avoid situations in which a malfunction or failure of a TOSHIBA product could cause loss of human life, bodily injury or damage to property. In developing your designs, please ensure that TOSHIBA products are used within specified operating ranges as set forth in the most recent products specifications. Also, please keep in mind the precautions and conditions set forth in the TOSHIBA Semiconductor Reliability Handbook.
- The products described in this document are subject to foreign exchange and foreign trade control laws.
- The information contained herein is presented only as a guide for the applications of our products. No responsibility is assumed by TOSHIBA CORPORATION for any infringements of intellectual property or other rights of the third parties which may result from its use. No license is granted by implication or otherwise under any intellectual property or other rights of TOSHIBA CORPORATION or others.
- The information contained herein is subject to change without notice.



**MAXIMUM RATINGS (Ta = 25°C)**

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V <sub>CC</sub>	15	V
Input Signal Level	e <sub>in</sub>	5	V <sub>p-p</sub>
Power Dissipation	P <sub>D</sub> (Note)	400	mW
Operating Temperature	T <sub>opr</sub>	- 20~65	°C
Storage Temperature	T <sub>stg</sub>	- 55~150	°C

(Note) When using the device at above Ta = 25°C, decrease the power dissipation by 4mW for each increase of 1°C.

**ELECTRICAL CHARACTERISTICS**

DC characteristics (Unless otherwise specified, V<sub>CC</sub> = 9V, Ta = 25°C)

PIN No.	PIN NAME	SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
1	PLL Input	V <sub>1</sub>	—	—	4.2	4.5	4.8	V
2	PLL Filter	V <sub>2</sub>	—	—	3.1	3.6	4.1	V
3	VCO Adjustment	V <sub>3</sub>	—	—	4.4	4.6	4.8	V
4	GND	—	—	—	—	0	—	V
5	VCO C	—	—	—	—	—	—	V
6	4 f <sub>SC</sub> Output	V <sub>6</sub>	—	—	—	6.5	—	V
7	V <sub>CC</sub>	—	—	—	—	9	—	V
7	V <sub>CC</sub>	I <sub>7</sub>	—	—	9	11	15	mA

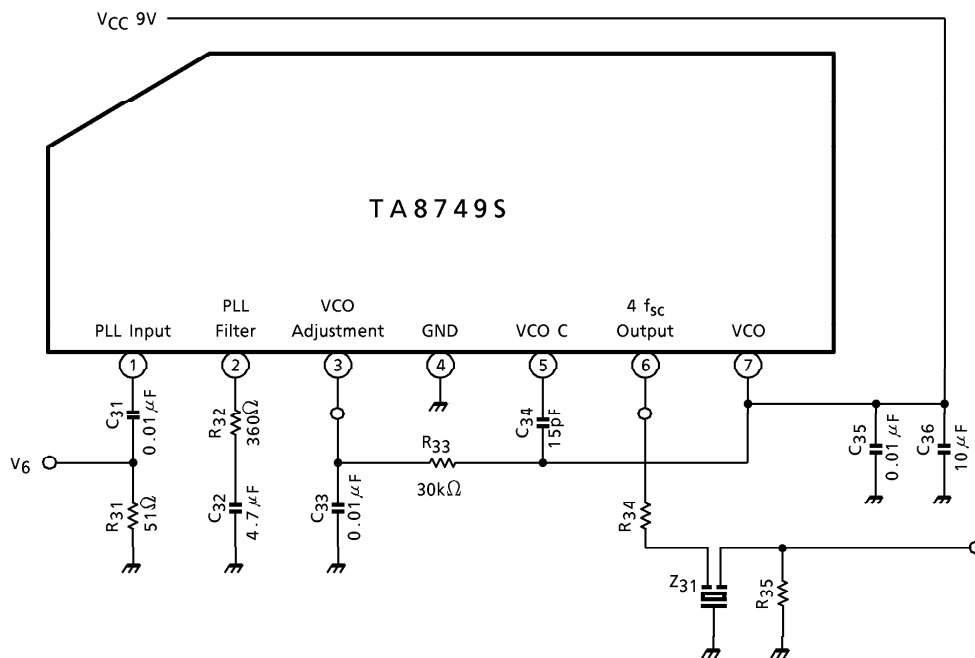
AC characteristics (Unless otherwise specified, V<sub>CC</sub> = 9V, Ta = 25°C)

CHARACTERISTIC		SYMBOL	TEST CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
4 f <sub>SC</sub> Level	Pin 6	V <sub>6</sub>	—	(Note 1)	1.0	1.5	2.0	V <sub>p-p</sub>
	Pin 5	V <sub>5</sub>			0.4	0.5	0.6	
VCO Variable Range	High	f <sub>ch</sub>	—	(Note 2)	15.3	18.0	—	MHz
	Low	f <sub>cl</sub>			—	11.0	13.3	
Input Sensitivity		V <sub>i</sub>	—	(Note 3)	—	—	0.1	V <sub>p-p</sub>
PLL Pull-in Range	High	f <sub>ph</sub>	—	(Note 4)	3.78	3.90	—	MHz
	Low	f <sub>pl</sub>			—	3.20	3.38	
f <sub>SC</sub> Leak Level		f <sub>s</sub>	—	(Note 5)	50	60	—	dB

**TEST CONDITION**

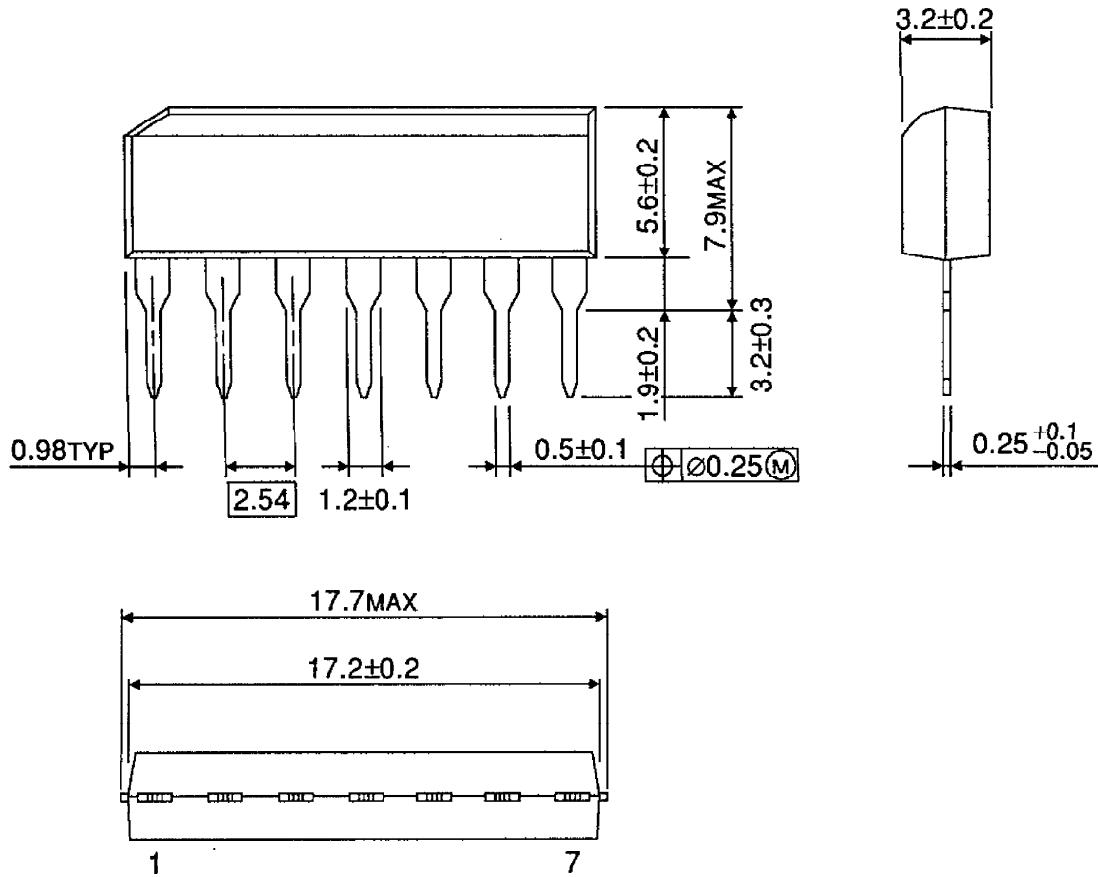
NOTE No.	ITEM		MEASUREMENT CONDITION ( $V_{CC} = 9.0V$ , $T_a = 25^\circ C$ )	
			SW & VR MODE	MEASUREMENT METHOD
1	4 $f_{sc}$ Level	Pin 6	—	(1) No signal input (2) Measure amplitude of 4 $f_{sc}$ at pin 6 and pin 5.
		Pin 5	—	
2	VCO Variable Range	High	—	(1) No signal input (2) Measure the frequency of output signal at pin 6. (3) Measure the frequency at each mode. ① Pin 2 = 7.5V ② Pin 2 = 1.5V
		Low	—	
3	Input Sensitivity		—	(1) $V_6$ input : $f_o = 3.58MHz$ level variable (2) Monitor pin 6 output wave form. Change the input level higher, and get the level to pull-in.
4	PLL Pull-in Range	High	—	(1) $V_6$ input : $f = \text{sweep}$ , $300mV_{p-p}$ CW (2) Change the input frequency ① $\rightarrow$ high ② $\rightarrow$ Low, and get the frequency to pull-in by sweeping.
		Low	—	
5	$f_{sc}$ Leak Level		—	(1) $V_6$ input : $f_o = 3.58MHz$ , $300mV_{p-p}$ CW (2) Monitor pin 6 output, and calculate $14.32MHz / 3.58MHz$ .

**TEST CIRCUIT**



OUTLINE DRAWING  
SIP7-P-2.54A

Unit : mm



Weight : 0.72g (Typ.)