

## TA7193P

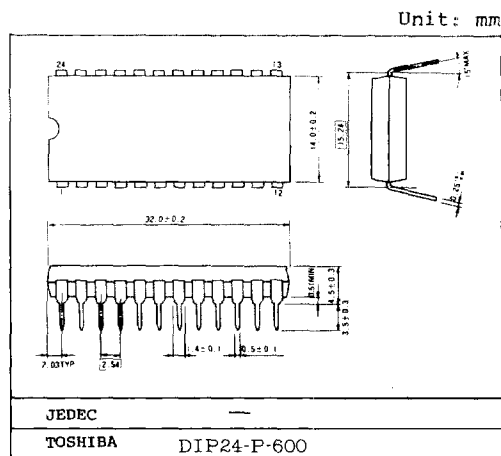
TV CHROMA PROCESSOR (FOR PAL SYSTEM)

## FUNCTIONS

- . Chroma Amplifier
- . DC Chroma Gain Control
- . DC Uni-color Control
- . Burst Amplifier
- . Burst Gate
- . ACC Peak Detector
- . ACC Amplifier
- . Killer Detector
- . APC Phase Detector
- . Voltage Controlled Oscillator
- . Ident Detector
- . PAL Switch
- . Matrix Circuit
- . Flip Flop

## FEATURES

- . Having a whole color signal processing function.
- . Minimum number of external parts required.
- . In order to stabilize the operation of the phase detector in the APC circuit under poor receiving condition, DC feed back technique is provided.
- . The VCO consists of a low pass R.C circuit, so that there is no possibility of an undesirable parasitic oscillation.
- . It needs no tank circuit and consequently no initial adjustment is required in the VCO circuit.
- . AS the reference signals reproduced in the VCO are fed internally without passing through a tuning circuit, adjustment is not needed.
- . The ACC level is internally defined.



## TA7193P

## MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V <sub>CC</sub>	15	V
Power Dissipation (Ta=65°C)	P <sub>D</sub>	720	mW
Signal Level at Input Pin	e <sub>in</sub>	5	V <sub>p-p</sub>
Load Resistance at Demodulator Output	R <sub>L</sub>	MIN 1.8	kΩ
Gate Pulse Input Voltage	e <sub>p</sub>	±6	V
Operating Temperature	T <sub>opr</sub>	-20 ~ 65	°C
Storage Temperature	T <sub>stg</sub>	-55 ~ 150	°C
Thermal Resistance (J-A)	R <sub>TH</sub>	108	°C/W
Flip-Flop Drive Pulse	e <sub>F</sub>	±5	V

ELECTRICAL CHARACTERISTICS (Ta=25±1.5°C, V<sub>CC</sub>=12V)

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Supply Current	I <sub>CC</sub>	4	S <sub>1</sub> =2, S <sub>2</sub> =1	34	46	65	mA
Maximum Chroma Output Voltage	e <sub>c</sub>	1	S <sub>1</sub> =1, S <sub>2</sub> =1, S <sub>3</sub> =1 e <sub>in</sub> =100mV <sub>p-p</sub> PIN 19	0.5	0.7	1.0	V <sub>p-p</sub>
Burst Output Voltage	e <sub>b</sub>	1	-	1.0	1.3	1.7	V <sub>p-p</sub>
ACC Range	e <sub>a</sub>	1	S <sub>1</sub> =1, S <sub>2</sub> =1, S <sub>3</sub> =1 e <sub>in</sub> =14mV <sub>p-p</sub> PIN 17	0.7	-	-	V <sub>p-p</sub>
Killed Chroma Output Voltage	e <sub>k</sub>	1	S <sub>1</sub> =1, S <sub>2</sub> =1, S <sub>3</sub> =2 e <sub>in</sub> =100mV <sub>p-p</sub> PIN 19	-	-	3	mV <sub>p-p</sub>
Min. Gain Chroma Output Voltage	e <sub>s</sub>	1	S <sub>1</sub> =1, S <sub>2</sub> =3, S <sub>3</sub> =1 e <sub>in</sub> =100mV <sub>p-p</sub> PIN 19	-	-	3	mV <sub>p-p</sub>
Terminal Voltage 18	V <sub>18</sub>	1	S <sub>1</sub> =2, S <sub>2</sub> =1, S <sub>3</sub> =1	6.9	7.4	7.9	V
Color Control Voltage	V <sub>20</sub>	1	S <sub>1</sub> =1, S <sub>2</sub> =1, S <sub>3</sub> =1 e <sub>in</sub> =100mV <sub>p-p</sub> When e <sub>c</sub> being reduced to half	-	8.3	-	V

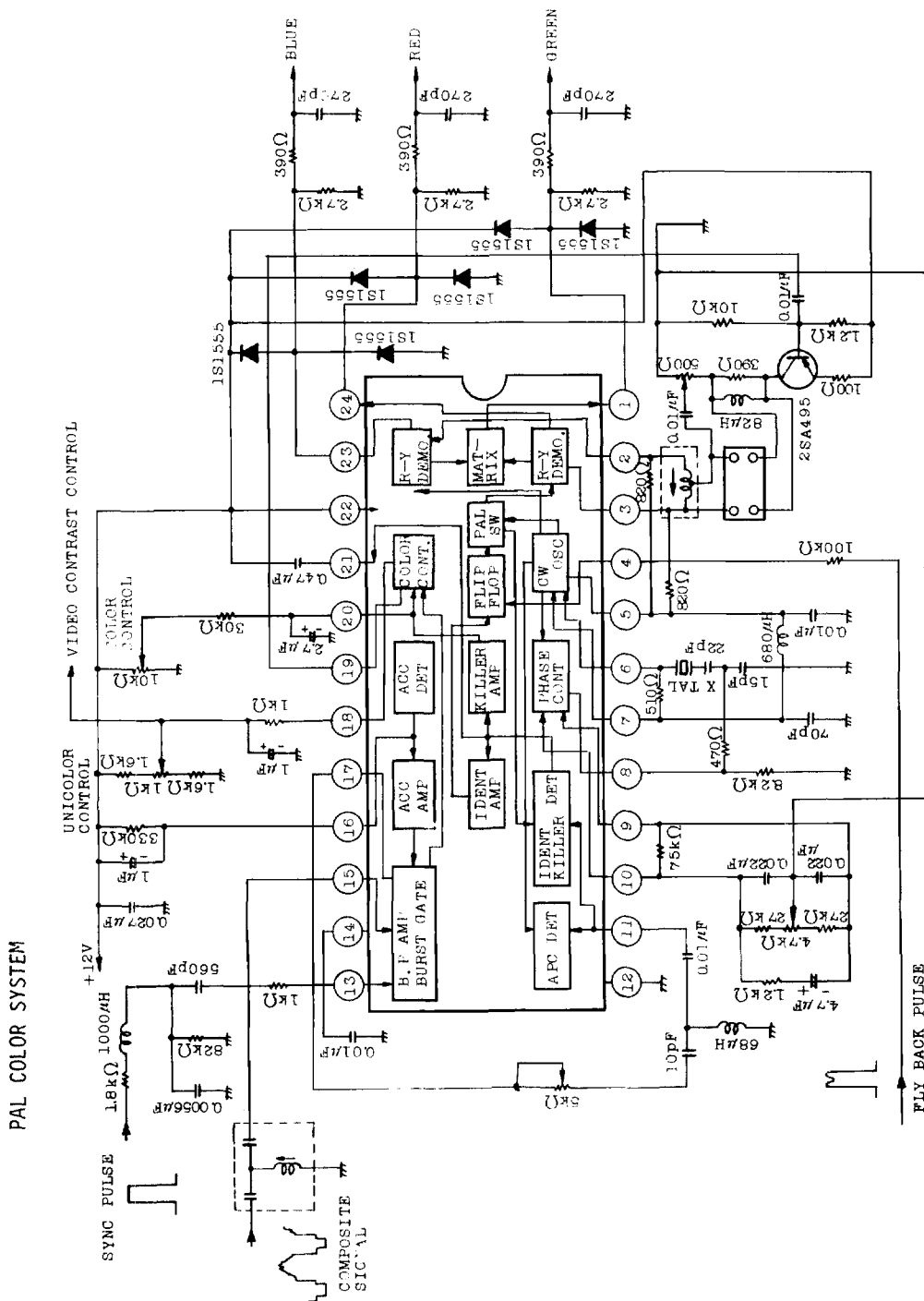
## TA7193P

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Unicolor Control Characteristic	$\Delta e_{03}$	1	$S_1=3, S_2=1, S_3=1$ $e_{in}=100mV_{p-p}$ $V_{18}=5.9 \sim 8.9V$ , Signal change of PIN 19	9	10	12	dB
Phase Shift by Unicolor Control	$\Delta \phi$	1	$S_1=3, S_2=1, S_3=1$ $e_{in}=100mV_{p-p}$ 4.43MHz CW $V_{18}=0 \sim 12V$ Phase shift of PIN 19	-	4	7	deg
APC Detector Output Balance	$V_p$	2	$S_1=1, S_2=2, S_3=1$ Difference in voltage between PIN 9 and 10	-50	0	+50	mV
APC Pull-in Range	$f_p$	2	$S_1=2, S_2=1, S_3=2$ Adj. $V_9-V_{10}$ for $f_0 \pm 10Hz$ $S_1=1, S_2=1, S_3=2$ Vary $f_{11}$ & Measure $f_p$	$\pm 240$	$\pm 350$	-	Hz
VCO Frequency Control Sensitivity	$\beta$	2	$S_1=1, S_2=1, S_3=1$ Measure $V_9-V_{10}$ at $\Delta f=100Hz$	-	1.0	-	Hz/mV
Phase Detector Sensitivity	$\mu$	2	$S_1=1, S_2=2, S_3=1$ Measure $V_9-V_{10}$ at $\Delta \phi=10^\circ$	-	+25	-	mV/deg
VCO Frequency Stability vs $V_{22}$	$f_{OV}$	2	$S_1=2, S_2=1, S_3=1$ $V_{22}=12 \pm 1V$	-20	0	+20	Hz
Temp-stability of APC Detector	$\Delta V_{pt}$	2	$S_1=1, S_2=1, S_3=1$ $e_B=100mV_{p-p}$ , $T_a=0 \sim 60^\circ C$	-70	0	+70	mV
Burst Level for Killer & Ident	$e_i$	2	$S_1=1, S_2=1, S_3=1$ at $V_{20} \geq 10V$	30	80	150	$mV_{p-p}$
Demodulator DC Output Voltage	$E_{ODC}$	3	$S_1=2, S_2=1, S_3=1$ PIN 1, 23, 24	6.6	7.2	7.8	V
Temp. Coeffi. of Demod. DC Output Voltage	$\frac{\partial E_{ODC}}{\partial T}$	3	$S_1=2, S_2=1, S_3=1$ $T_a=-20 \sim 65^\circ C$	-3	0	+2	$mV/^\circ C$
DC Voltage Difference Between Any Demod. Output Terminal	$\Delta E_{ODC}$	3	$S_1=2, S_2=1, S_3=1$ Vol. Difference among PIN 1, 23 & 24	-0.3	0	+0.3	V

## TA7193P

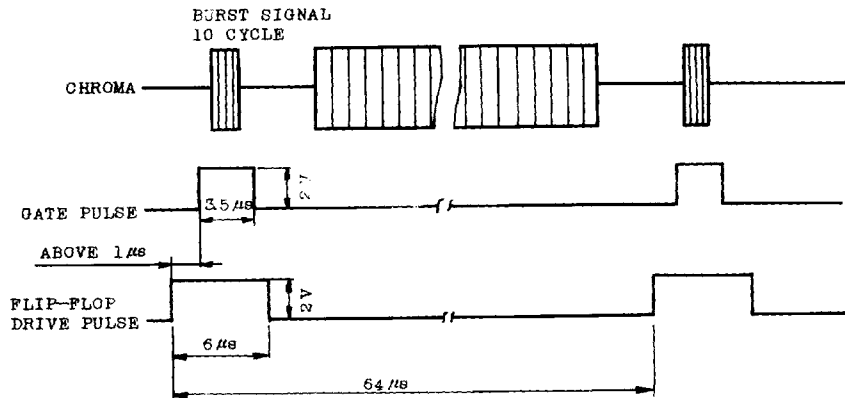
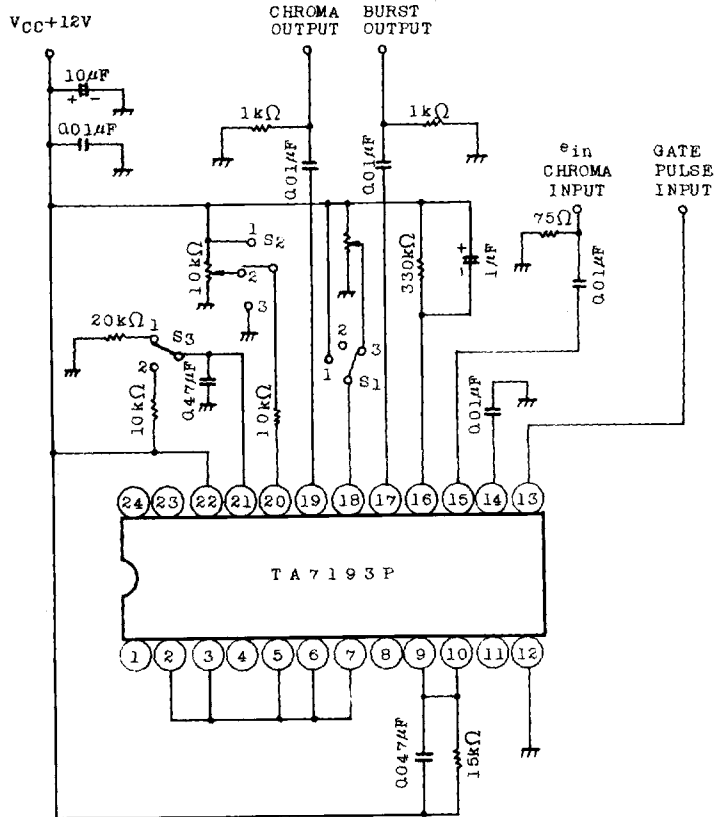
CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Temp. Coeffi. of Demod Output Voltage Defferences	$\frac{\partial e_{ODC}}{\partial T}$	3	S <sub>1</sub> =2, S <sub>2</sub> =1, S <sub>3</sub> =1 T <sub>a</sub> =-20 ~ +65°C	-2	0	+2	mV/°C
Color Difference Output Voltage	e <sub>OB</sub>	3	S <sub>1</sub> =1, S <sub>2</sub> =1, S <sub>3</sub> =1 e <sub>CW</sub> =0.2V <sub>p-p</sub> , 4.44MHz PIN 1, 23 & 24 (10kHz, Beat)	-	2.4	-	V <sub>p-p</sub>
	e <sub>OR</sub>			-	1.45	-	
	e <sub>OG</sub>			-	0.65	-	
Maximum Color Difference Output Voltage	e <sub>om B</sub>	3	S <sub>1</sub> =1, S <sub>2</sub> =1, S <sub>3</sub> =1 e <sub>CW</sub> =1.2V <sub>p-p</sub> , 4.44MHz PIN 1, 23 and 24 (10kHz Beat)	4.5	5.5	-	V <sub>p-p</sub>
	e <sub>om R</sub>			4.5	5.5	-	
	e <sub>om G</sub>			1.5	2.0	-	
Relative Amplitude	B-Y / R-Y	3	S <sub>1</sub> =1, S <sub>2</sub> =1, S <sub>3</sub> =1 e <sub>CW</sub> =0.2V <sub>p-p</sub> 4.44MHz (10kHz Beat)	-	1.65	-	-
	G-Y / R-Y			-	0.45	-	
Demod. Phase	θ <sub>R-Y</sub>	3	S <sub>1</sub> =3, S <sub>2</sub> =1, S <sub>3</sub> =2 e <sub>CW</sub> =0.2V <sub>p-p</sub> , 4.43MHz	83	90	97	deg
	θ <sub>G-Y</sub>			222	236	250	
Residual Carrier	e <sub>car</sub>	3	S <sub>1</sub> =2, S <sub>2</sub> =2, S <sub>3</sub> =1 4.43MHz	-	-	0.2	V <sub>p-p</sub>
Residual Harmonics	e <sub>harm</sub>	3	S <sub>1</sub> =1, S <sub>2</sub> =2, S <sub>3</sub> =1 e <sub>CW</sub> =1.2V <sub>p-p</sub> , 4.44MHz	-	-	2.2	V <sub>p-p</sub>
Demod. Freq. Characteristics	f <sub>D</sub>	3	S <sub>1</sub> =1, S <sub>2</sub> =2, S <sub>3</sub> =1 e <sub>CW</sub> =0.2V <sub>p-p</sub> , 4.44 ~ 7MHz 3dB band width	0.8	1.5	-	MHz
Output DC Voltage Change by PAL Switch	E <sub>SW</sub>	4	S <sub>1</sub> =2, S <sub>2</sub> =1 e <sub>in</sub> =0mV <sub>p-p</sub> DC Deviation on each scanning	-	-	50	mV <sub>p-p</sub>
Carrier Leak In B.P.	e <sub>ccar</sub>	4	S <sub>1</sub> =1, S <sub>2</sub> =2, e <sub>in</sub> =0mV <sub>p-p</sub> , Carrier Component Output of PIN 19	-	-	14	mV <sub>p-p</sub>

# TA7193P



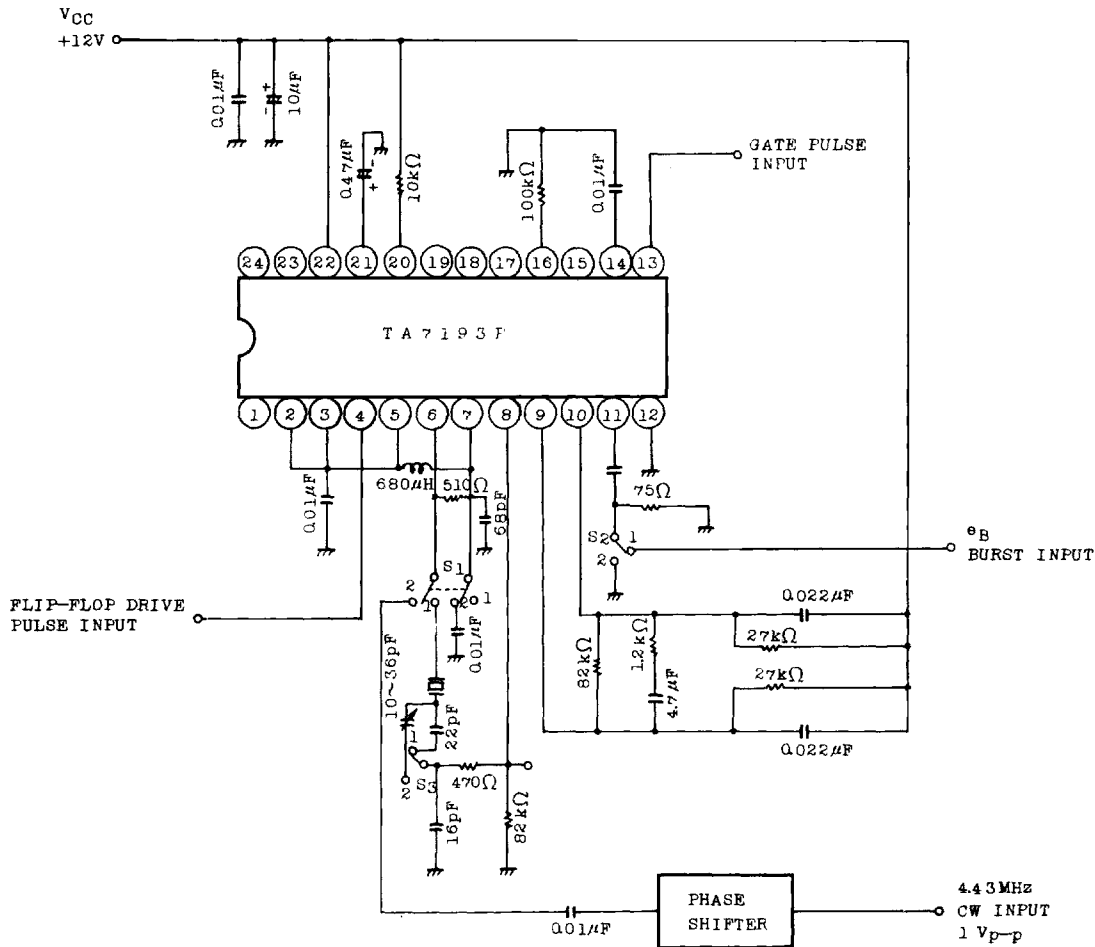
# TA7193P

TEST CIRCUIT (1)



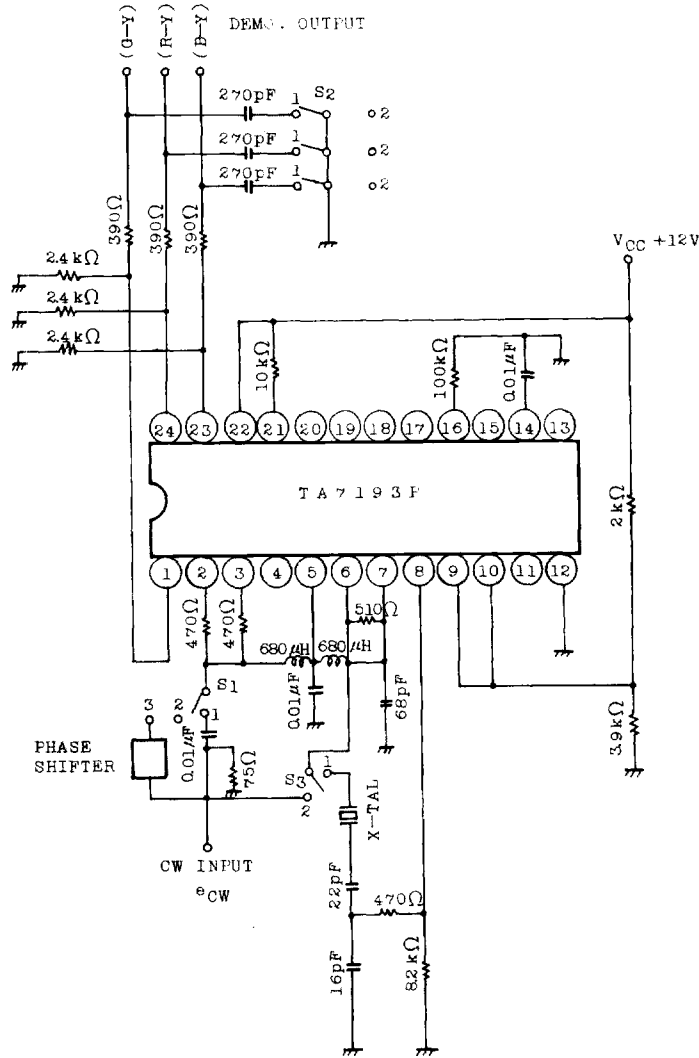
# TA7193P

TEST CIRCUIT (2)



# TA7193P

TEST CIRCUIT (3)





# TA7193P

TEST CIRCUIT (4)

