BIPOLAR ANALOG INTEGRATED CIRCUIT
μPC1352C

CHROMINANCE AND LUMINANCE PROCESSOR FOR NTSC COLOR TV

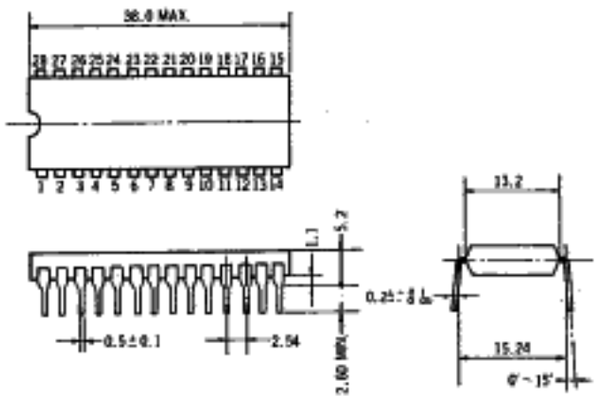
DESCRIPTION

μPC1352C is an integrated circuit for NTSC system to process both color and luminance signals of the color televisions. It is an MSI contained in a 28 pins dual in line package and provides two functions. One is the processing of color signal for the band pass amplifier, color synchronizer, demodulator circuits, and the other is the processing of luminance signal for the luminance amplifier and pedestal clamp circuits, the number of peripheral parts and controls can be minimized, and the manhours required for the assembling can be considerbly reduced.

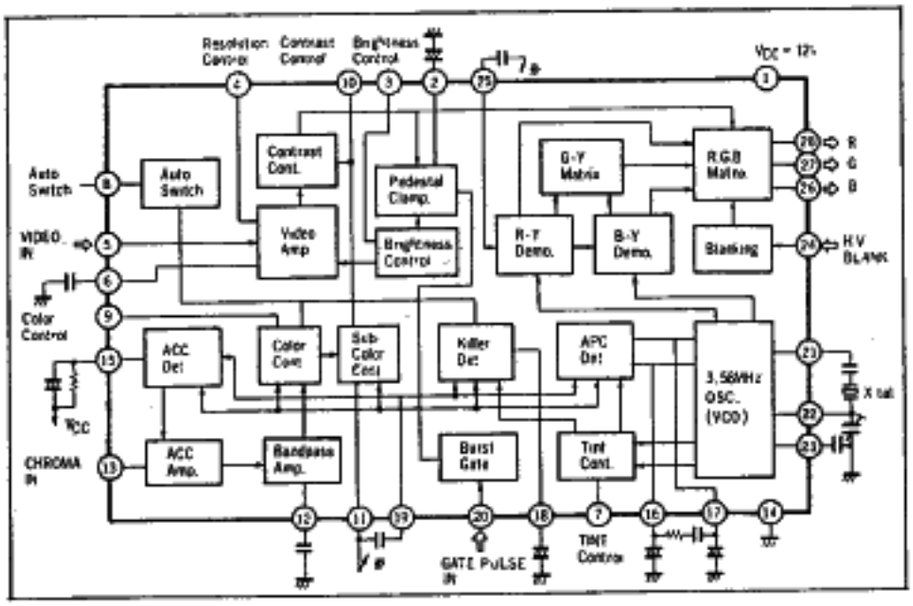
FEATURES

- It needs very few external components, and minimize the adjustments.
- DC controlled circuits make aremote controlled system easy.
- Protection diodes in every input terminals and output terminals.
- "Color killer" does not need any adjustments.
- "Contrast" control does not prevent the natural color of the picture any more, as the color saturation level changes simultaneously.
- ACC (Automatic color controller) circuit operates very smoothly with peak level detector.
- "Brightness control" terminal can be used for ABL (Automatic beam limitter) also.

PACKAGE DIMENSIONS in millimeters

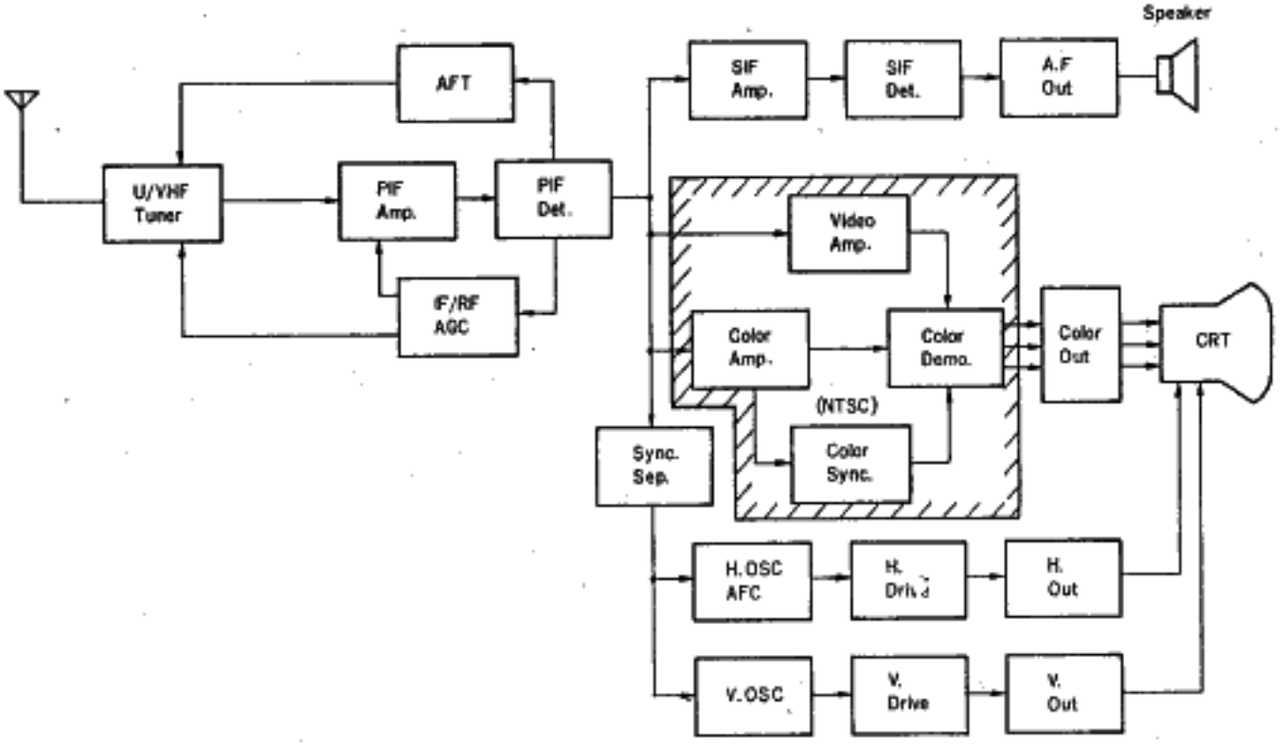


BLOCK DIAGRAM

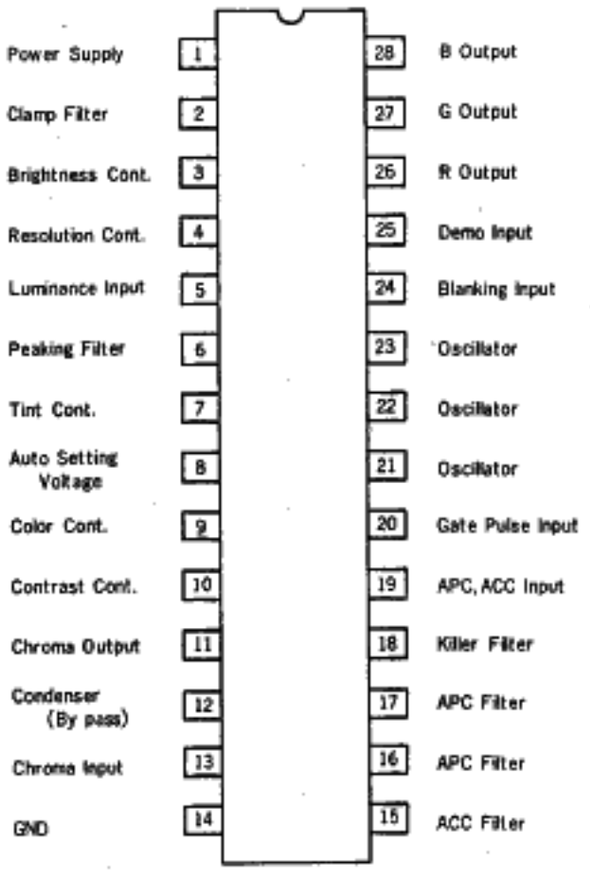


Nippon Electric Co.,Ltd.

TV BLOCK DIAGRAM



PIN CONNECTION (Top View)



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THE STANDARD OPERATING CONDITIONS

Characteristic	Value	Unit
Supply Voltage	12	V
Chrominance Input Voltage (Burst signal level)	150	mVp-p
Luminance Input Voltage (Sync White Level)	1.0	Vp-p
Burst Gate Pulse Input Voltage	3.0	Vp
Blanking Pulse Input Voltage	2.5	Vp
Color saturation controlling Voltage Range	0~5.7 (at V_{CC}=12 V)	V
Tint controlling Voltage Range	0~5.7 (at V_{CC}=12 V)	V
Contrast controlling Voltage Range	0~12 (at V_{CC}=12 V)	V
Resolution controlling Voltage Range	0~12 (at V_{CC}=12 V)	V
Brightness controlling Voltage Range	8~10 (at V_{CC}=12 V)	V

Note: In case of operating in V_{CC}=14.4 V, Set the surrounding temperature Ta to be 67 °C.

ABSOLUTE MAXIMUM RATINGS (Ta=+25 °C)

Supply Voltage	V_{CC}	14.4	V
Brightness Controlling Voltage	V3	14.4	V
Resolution Controlling Voltage	V4	14.4	V
Contrast Controlling Voltage	V10	14.4	V
Tint Controlling Voltage	V7	14.4	V
Color Controlling Voltage	V9	14.4	V
Auto Controlling Voltage	V8	14.4	V
Luminance Input Signal Voltage	V5	+5	V
Chrominance Signal Input Voltage	V13	+2.5	V
Demodulator Input Signal Voltage	V25	+5	V
R.G.B Output Current	I26,I27,I28	−40	mA
Gate Pulse Input Voltage	V20	+5	V
Gate Pulse Output Current	I20	−10	mA
Blanking Pulse Input Voltage	V24	±6	V
Power Dissipation	Pd1 (Ta=25 °C)	1.2	W
Power Dissipation	Pd2 (Ta=70 °C)	750	mW
Operating Temperature	T_{opt}	−20~+70	°C
Storage Temperature	T_{stg}	−40~+125	°C

Test Conditions (V_{CC}=12 V)

Characteristic	MIN.	TYP.	MAX.
Color saturation controlling terminal 9	0 V	V8/2 V	V8 V
Tint controlling terminal 7	0 V	V8/2 V	V8 V
Contrast controlling terminal 10	0 V	V_{CC} x 0.78 V	V_{CC} V
Resolution controlling terminal 4	0 V	–	V_{CC} V

ELECTRICAL CHARACTERISTICS (T_a=25 °C unless otherwise noted V_{CC}=12 V)

Color control is manual state and tint is center for the items not specifically specified

No.	Characteristic	Symbol	Test Ckt.	Test Condition	MIN.	TYP.	MAX.	Unit
1	Supply Current	I_{CC}	1		32	43	54	mA
2	Burst Output Voltage	e_b	3	Rainbow color bar signal input 150 mVp-p, Color auto center, Contrast max.	0.5	0.7	0.9	Vp-p
3	ACC Range 1	ACC1	3	Rainbow color bar signal input 300 mVp-p, Burst Output Voltage/e_b	0.9	1.0	1.1	times
4	ACC Range 2	ACC2	3	Rainbow color bar signal input 15 mVp-p, Burst Output Voltage/e_b	0.6	0.8	1.0	times
5	Chroma Output Voltage 1	e_{c1}	3	Rainbow color bar signal input 150 mVp-p, Color min, Contrast max.	0.5	0.7	0.9	Vp-p
6	Chroma Output Voltage 2	e_{c2}	3	Rainbow color bar signal input 150 mVp-p, Color min, Contrast max.	–	–	5	mVp-p
7	Chroma Output Voltage 3	e_{c3}	3	Rainbow color bar signal input 150 mVp-p, Color center, Contrast max..	120	190	260	mVp-p
8	Chroma Output Voltage 4	e_{c4}	3	Rainbow color bar signal input 150 mVp-p, Color auto center, Contrast max.	130	190	260	mVp-p
9	Variable Range of Chroma Output Voltage at auto	Δ^e_{ca}	3	Rainbow color bar signal input 150 mVp-p, Color auto max min, Contrast max.	+25 −25	+35 −35	+45 −45	%
10	Free running Frequency	f_o	2	No input signal to Terminal 19 Be trimed 3.579545 MHz by using a trimer capasitor for standard sample, Deviation from f; 3.579645 MHz	–	–	±150	Hz
11	Oscillator controlling sensitivity	β	2	Burst signal input 0.7 Vp-p, Converted from V16–17 in case of 100 Hz burst frequency variation	1.0	1.5	2.0	Hz/mV
12	Phase detector sensitivity	μ	2	Burst signal input 0.7 Vp-p, Converted from phase error and V16–17 in case of 100 Hz burst frequency variation	25	45	65	mV/ degree
13	Phase error	$\Delta\phi$	2	Burst signal input 0.7 Vp-p, Phase error to 100 Hz of burst frequency variation	–	1.5	3.0	degree /100 Hz
14	A.P.C. pull-in frequency range	f_p	2	Burst signal input 0.7 Vp-p, Mesured by changing the burst frequency	±350	±500	–	Hz
15	Variable Range of Tint	$\Delta\theta1$	2	Burst signal input 0.7 Vp-p, Tint; max min, manual, Tint center, Range from O as a standard	+37 −37	+45 −45	+53 −53	degree
16	Variable Range of Tint at auto	$\Delta\theta2$	2	Burst signal input 0.7 Vp-p, Tint; max min, auto Tint center, Range from O as a standard	12 −12	+17 −17	+22 −22	degree

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No.	Characteristic	Symbol	Test Ckt.	Test Condition	MIN.	TYP.	MAX.	Unit
17	B-Y Output Voltage	e_{o1}	3	Dem. input 0.2 Vp-p, f=3.59 MHz, Bright VR was set to be V26=3.5 V(DC) No blanking input	1.5	2.0	2.5	Vp-p
18	Ratio of R-Y to B-Y	R/B	3	Dem. input 0.2 Vp-p, f=3.59 MHz, R Output Voltage/e_{o1} Bright VR was set to be V26=3.5 (DC) No blanking input	0.86	0.94	1.04	times
19	Ratio of G-Y to B-Y	G/B	3	Dem. input 0.2 Vp-p, f=3.59 MHz, G Output Voltage/e_{o1} Bright VR was set to be V26=3.5 V(DC) No blanking input	0.26	0.30	0.35	times
20	Relative Output phase G-Y to R-Y	$\angle R$	3	Dem. input 0.2 Vp-p, f=3.59 MHz, B=0 degree, phase difference Bright VR was set to be V26=3.5 V(DC) No blanking input	94	97.5	102	degree
21	Relative Output phase G-Y to B-Y	$\angle G$	3	Dem. input 0.2 Vp-p, f=3.59 MHz, B=0 degree, phase difference Bright VR was set to be V26=3.5 V(DC) No blanking input	228	235	242	degree
22	Maximum Color difference Output Voltage	e_{o2}	3	Dem. input 1.2 Vp-p, f=3.59 MHz, Bright VR was set to be V26=3.5 V(DC) No blanking input	4.8	5.7	–	Vp-p
23	Residual Carrier	e_{car}	3	No signal input, Output; 3.58 MHz each, Carrier leak component, Bright VR was set to be V26=3.5 V(DC) No blanking input	–	–	100	mVp-p
24	Demodulation frequency characteristic	e_{of}	3	Attenuation factor of demodulation output at f=500 kHz, Dem. input 0.2 Vp-p, f=3.08 MHz, Assuming the output at f=10 kHz is 0 dB	−1.5	−0.9	−0.4	dB
25	Overall Color difference Output Voltage	e_{o3}	3	Rainbow color bar signal input 150 mVp-p, Color auto center, Contrast max, in R output	1.0	1.7	2.4	Vp-p
26	Overall Color difference Output Variable Range by Contrast	Δe_{oc}	3	Rainbow color bar signal input 150 mVp-p, Color auto center, Contrast max/min, in R output	3.4	3.85	4.3	Vp-p
27	Color killer tolerance	e_k	3	Burst input Voltage at terminal 13 150 mVp-p=0 dB, Attenuation value in operating the killer	−27	−32	−40	dB
28	Luminance Gain	Av1	3	R,G,B Output each, Studio color bar input 1 Vp-p in white level, Contrast max, Resolution min, Pedestal of terminal 26 is 2 V, Bright VR was set	4.5	5.0	5.5	times
29	Luminance Gain Variable Range by Contrast	Δe_{vc}	3	Studio color bar input 1 Vp-p in white level, Contrast max/min, Resolution min, in B output	4.0	4.5	5.0	times

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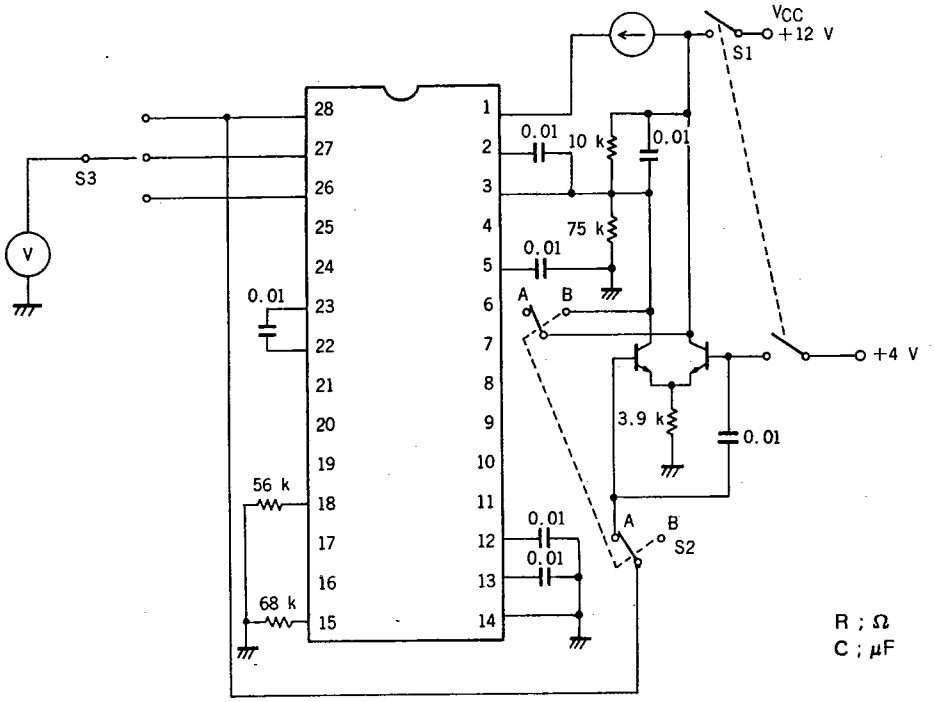
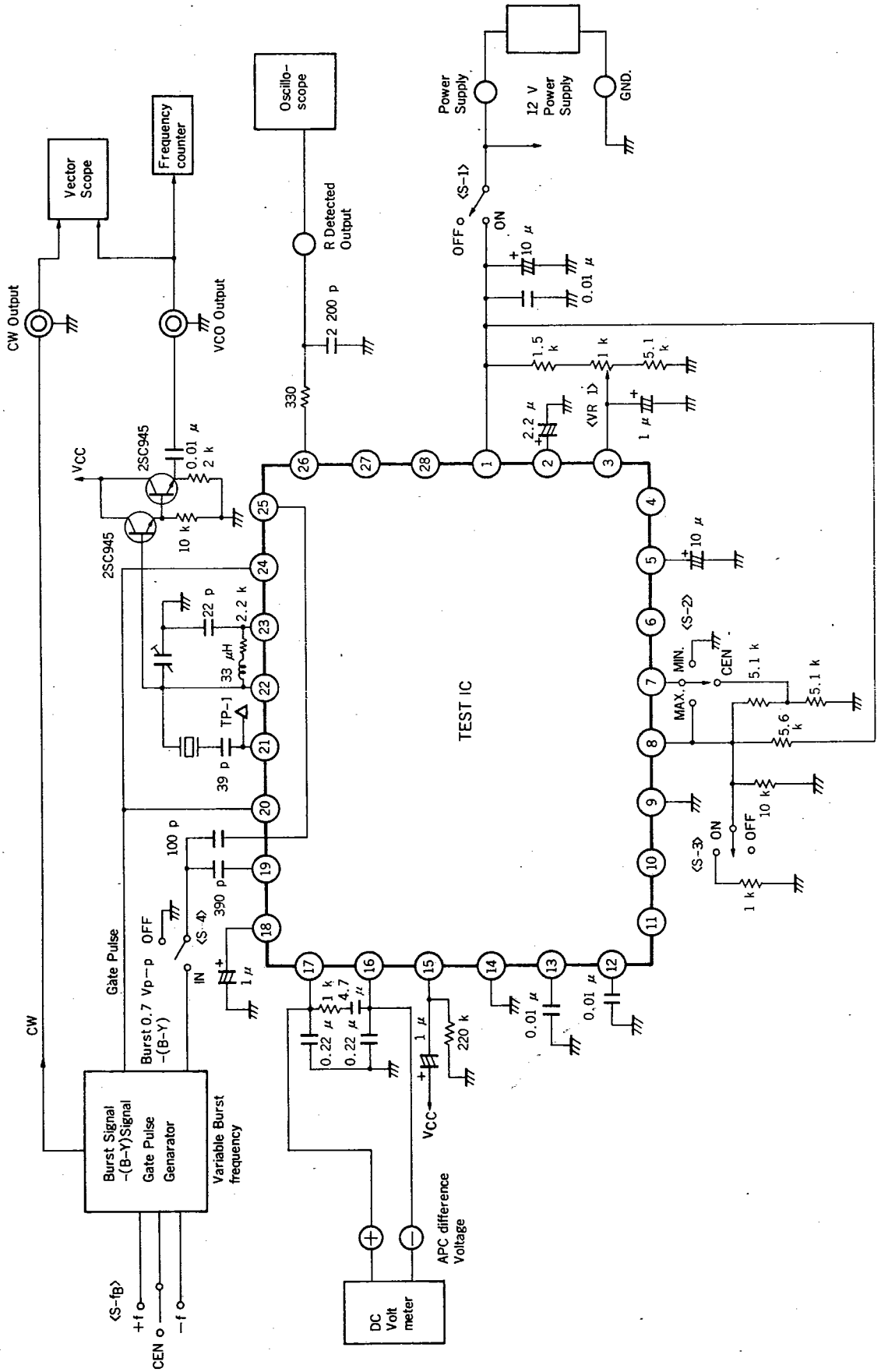
No.	Characteristic	Symbol	Test Ckt.	Test Condition	MIN.	TYP.	MAX.	Unit
30	Luminance Amp. frequency characteristic	f_V	3	Sine wave signal input 0.1 Vr.m.s. Input frequency at Av1=−6 dB Resolution min, in B output, Bright VR was set to be V26=3.5 V(DC) No blanking input, 0 dB=16 kHz Output	5	6	—	MHz
31	Resolution Variation Range	Δf_{VP}	3	Sine wave signal 0.1 Vr.m.s., f=2 MHz Contrast max, Resolution min~max, in B Output max/min	5.0	7.0	9.0	dB
32	DC Restored	T_{DC}	3	Stair Step signal input 1 Vp-p, APL 10~90 % in B Output	65	75	85	%
33	Brightness controlling sensitivity	BR	3	$\Delta E_O/\Delta V_3$, E_O=2 V~5 V, R,G,B Output each	4.0	4.5	5.0	—
34	Maximum R,G,B Output Voltage	E_{OM}	1	R.G.B Output Voltage each at V3=12 V	7.0	—	—	V
35	Differential Gain	D.G.	3	Stair Step signal input 1 Vp-p, f=3.58 MHz, APL=50 %, Contrast max, Resolution min, Pedestal of terminal 26 is 2 V, Bright VR was set	—	—	5.0	%
36	Queiscent Output Voltage	E_O	3	R,G,B Output each, Bright VR was set to be V3=9 V, No Luminance signal input, Contrast max, VCO is operating, Blanking	2.5	3.5	4.5	V
37	E_O Supply Voltage Coefficient	E_{O-V}	3	V_{CC}=12 V ±20 %, V26=3.5 V (V_{CC}=12 V), R, G, B Output each Blanking	0.2	0.25	0.3	V/V
38	E_O Temperature Cofficient	ΔE_{O-t}	3	Ta=−20~+70 °C, V26=3.5 V (Ta=25 °C) R,G,B Output each	−4.0	−2.0	0	mV/°C
39	Difference Output Voltage	ΔE_{R-G} ΔE_{G-B} ΔE_{B-R}	3	V26=3.5 V VCO is operating, R,G,B Output each, No blanking input	—	0	300	mV

Test Circuit 1



Supply Current	I_{CC}	S1 ; ON	S2 ; Side A	
Maximum R,G,B Output Voltage	E_{oM}	S1 ; ON	S2 ; Side B	S3 ; Each



Test Circuit 2

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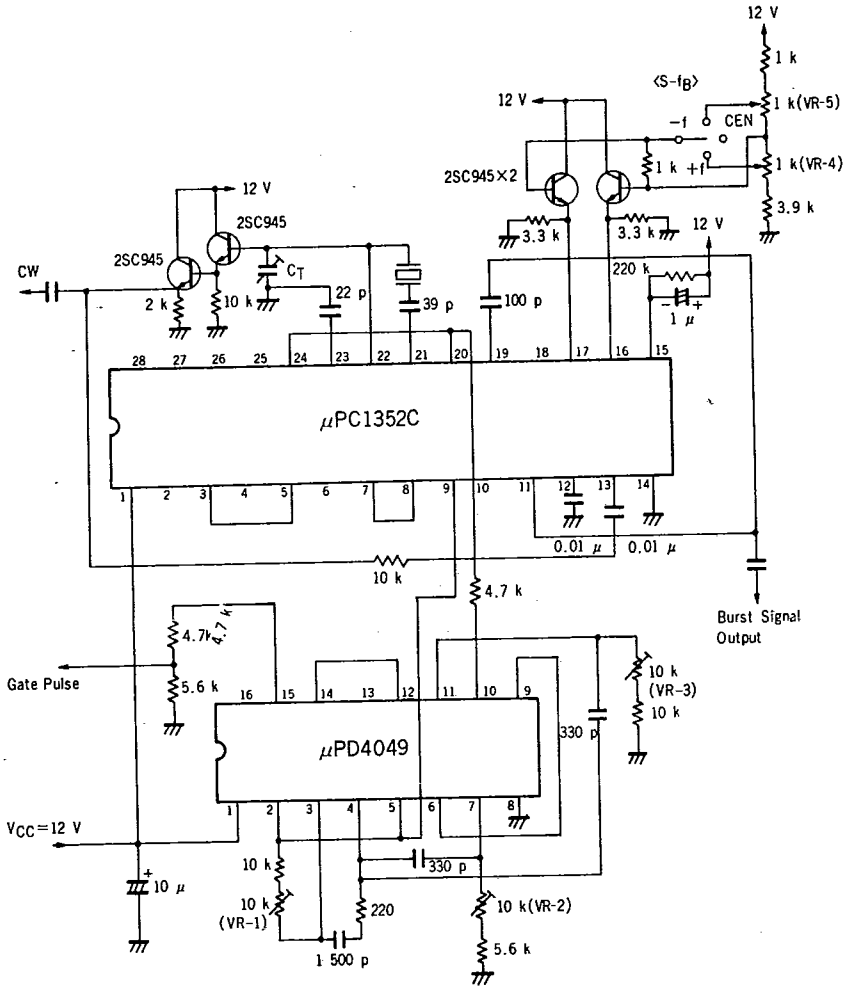
Burst Signal
−(B-Y) Signal
Gate Pulse Generator

Test Circuit 2



VR-1 Set to f_H = 15.75 kHz.
VR-2 Set to Burst width (10 cycle)
VR-3 Set to Gate Pulse width = 3.5 μs.
VR-4 +f
VR-5 −f Be trimed f_O = 3579545 Hz by C_T at the VR are center.

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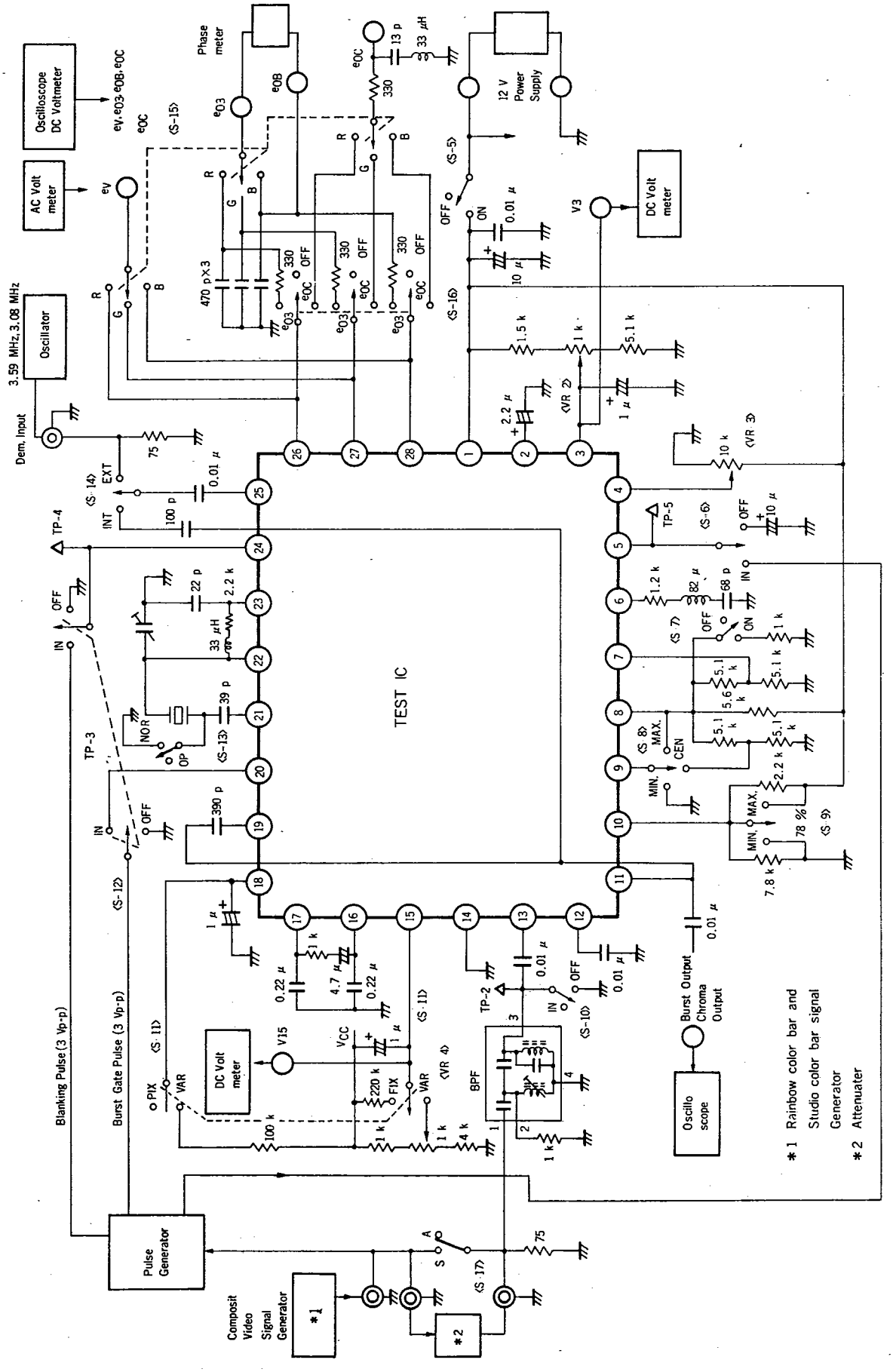

Test Circuit 3

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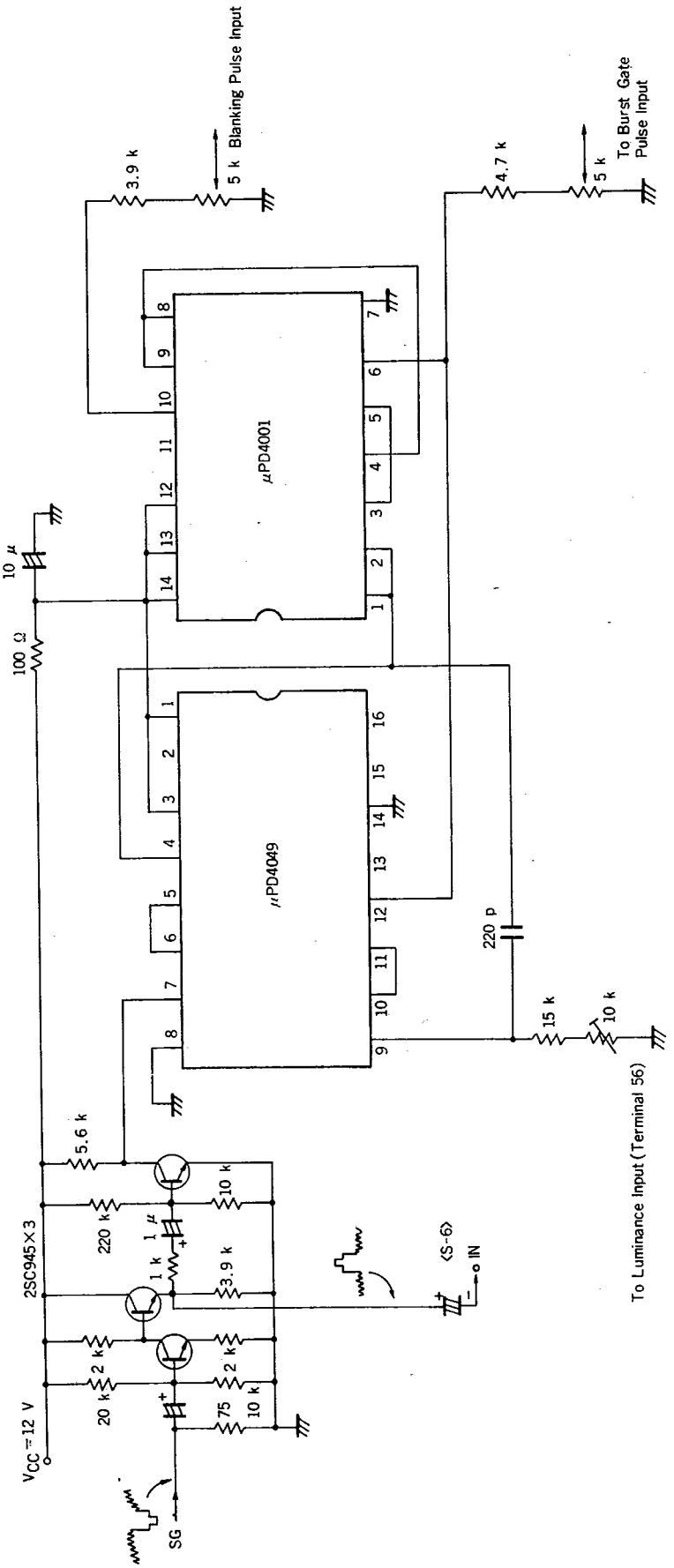


Pulse Generator Circuit (Test Circuit 3)

Characteristic	Symbol	Test CKt	1 Power Supply	2 Tint	3 Auto	4 Burst -(B-Y) Input	f_B Burst frq	5 Power Supply	6 Lumi-nance Input	7 Auto	8 Color	9 Cont-rast	10 Chro-ma Input	11 ACC	12 Pulse Input	13 VCO	14 Demo Input	15 R G B	16 Demo Output	17 Attenuator	1 Bright-ness	2 Bright-ness	3 Resolu-tion	4 ACC Level	Measuring Apparatus
Burst Output Voltage	e_b	3						OFF ↓ ON	OFF	ON	CEN	MAX	IN	FIX	IN	OP	INT	–	e_{o3}	A TP-2 150 mVp-p		–	MIN	–	Osciroscope Burst signal
ACC Range 1	ACC1	3						OFF ↓ ON	OFF	ON	CEN	MAX	IN	FIX	IN	OP	INT	–	e_{o3}	A TP-2 300 mVp-p		–	MIN	–	Osciroscope Burst signal
ACC Range 2	ACC2	3						OFF ↓ ON	OFF	ON	CEN	MAX	IN	FIX	IN	OP	INT	–	e_{o3}	A TP-2 150 mVp-p		–	MIN	–	Osciroscope Burst signal
Chroma Output Voltage	e_{c1}	3						OFF ↓ ON	OFF	OFF	MAX	MAX	IN	FIX	IN	OP	INT	–	e_{03}	A TP-2 150 mVp-p		–	MIN	–	Osciroscope Chroma signal
Chroma Output Voltage	e_{c2}	3						OFF ↓ ON	OFF	OFF	MIN	MAX	IN	FIX	IN	OP	INT	–	e_{o3}	A TP-2 150 mVp-p		–	MIN	–	Osciroscope Chroma signal
Chroma Output Voltage	e_{c3}	3						OFF ↓ ON	OFF	OFF	CEN	MAX	IN	FIX	IN	OP	INT	–	e_{o3}	A TP-2 150 mVp-p		–	MIN	–	Osciroscope Chroma signal
Chroma Output Voltage	e_{c4}	3						OFF ↓ ON	OFF	ON	CEN	MAX	IN	FIX	IN	OP	INT	–	e_{o3}	A TP-2 150 mVp-p		–	MIN	–	Osciroscope Chroma signal
Variable Range of Chroma Output Voltage at auto	Δe_{ca}	3						OFF ↓ ON	OFF	ON	MAX ↓ MIN	MAX	IN	FIX	IN	OP	INT	–	e_{o3}	A TP-2 150 mVp-p		–	MIN	–	Osciroscope Variation of Chroma signal
Free running Frequency	f_o	2	OFF ↓ ON	CEN	ON	OFF	–														–				Frequency Counter
Oscillator controlling sensitivity	β	2	OFF ↓ ON	CEN	ON	IN	+f CEN –f														–				D.C. Voltage Meter
Phase Det. sensitivity	μ	2	OFF ↓ ON	CEN	ON	IN	+f CEN –f														–				Vector Scope D.C. Vol. Mete Difference APC Voltage
Phase error	$\Delta\phi$	2	OFF ↓ ON	CEN	ON	IN	+f CEN –f														–				Vector Scope
A.P.C. pull-in Freq. range	f_p	2	OFF ↓ ON	CEN	ON	IN	+f CEN –f														–				Oscilloscope
Variable Range of Tint	$\Delta\theta 1$	2	OFF ↓ ON	MAX ↓ MIN	OFF	IN	CEN														–				Vector Scope
Variable Range of Tint at auto	$\Delta\theta 2$	2	OFF ↓ ON	MAX ↓ MIN	OFF	IN	CEN														–				Vector Scope
B-Y Output Voltage	e_{o1}	3						OFF ↓ ON	OFF	–	–	–	OFF	FIX	OFF	OP	EXT 0.2 Vp-p f=3.59	B	e_{o3}	–		V26= 3.5 V	MIN	–	Oscilloscope Demo. Output Voltage B

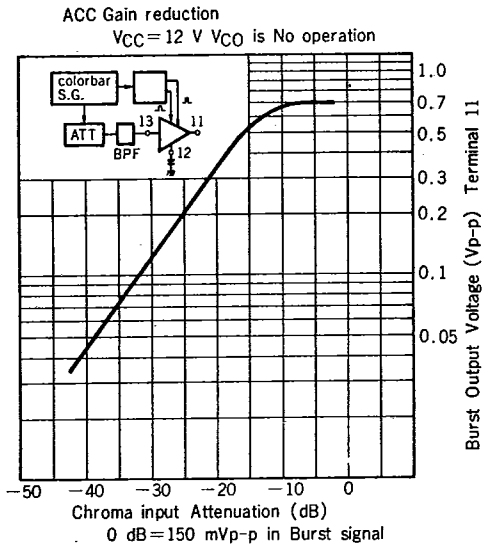
(continued on next page)

Characteristic	Symbol	Test Ckt	1 Power Supply	2 Tint	3 Auto	4 Burst -(B-Y) Input	f_B Burst frq.	5 Power Supply	6 Luminance Input	7 Auto	8 Color	9 Contrast	10 Chroma Input	11 ACC	12 Pulse Input	13 VCO	14 Demo Input	15 RGB	16 Demo Output	17 Attenuater	1 Brightness	2 Brightness	3 Resolution	4 ACC Level	Measuring Apparatus
Ratio of R-Y to B-Y	R/B	3						OFF ↓ ON	OFF	–	–	–	OFF	FIX	OFF	OP	EXT 0.2 Vp-p f=3.59	B R	e_{o3}	–		V26= 3.5 V	MIN	–	Oscilloscope Demo. Output Voltage R B
Ratio of G-Y to B-Y	G/B	3						OFF ↓ ON	OFF	–	–	–	OFF	FIX	OFF	OP	EXT 0.2 Vp-p f=3.59	G B	e_{o3}	–		V26= 3.5 V	MIN	–	Oscilloscope Demo. Output Voltage G B
Relative Output phase B-Y to R-Y	/R	3						OFF ↓ ON	OFF	–	–	–	OFF	FIX	OFF	OP	EXT 0.2 Vp-p f=3.59	B R	e_{o3}	–		V26= 3.5 V	MIN	–	Phase Meter Relative phase R B
Relative Output phase G-Y to B-Y	∠G	3						OFF ↓ ON	OFF	–	–	–	OFF	FIX	OFF	OP	EXT 0.2 Vp-p f=3.59	B G	e_{o3}	–		V26= 3.5 V	MIN	–	Phase. Meter Relative phase B G
Maximum Detected Output Voltage	e_{o2}	3						OFF ↓ ON	OFF	–	–	–	OFF	FIX	OFF	OP	EXT 1.2 Vp-p f=3.59	B R	e_{o3}	–		V26= 3.5 V	MIN	–	Oscilloscope Demo. Output Voltage B R
Residual Carrier	e_{car}	3						OFF ↓ ON	OFF	–	–	–	OFF	FIX	OFF	OP	EXT No.	R G B	e_{oc}	–		V26= 3.5 V	MIN	–	Oscilloscope Output 3.58M Carrior
Demodulation frequency characteristic	e_{of}	3						OFF ↓ ON	OFF	–	–	–	OFF	FIX	OFF	OP	EXT 0.2 Vp-p f=3.08	R G B	OFF	–		V26= 3.5 V	MIN	–	A.C. Voltage Meter
Overall Detected Output Vol.	e_{o3}	3						OFF ↓ ON	OFF	ON	CEN	MAX	IN	FIX	IN	OP	INT	R	e_{o3}	A TP-2 150 mVp-p		V26= 3.5 V	MIN	–	Oscilloscope Demo. Output Voltage R
Overall Detected Output Variable Range by Cont. controlling	Δe_{oc}	3						OFF ↓ ON	OFF	ON	CEN	MAX ↓ MIN	IN	FIX	IN	OP	INT	R	e_{o3}	A TP-2 150 mVp-p		V26= 3.5 V	MIN	–	Oscilloscope Demo. Output Voltage R
Collor killer talerance	e_k	3						OFF ↓ ON	OFF	–	–	–	IN	FIX	IN	OP	INT	R	e_{o3}	A TP-2 150 mVp-p		V26= 3.5 V	MIN	–	Oscilloscope Demo. Output Voltage R
Luminance Gain 1	AV1	3						OFF ↓ ON	IN Studio Color Bar White 1 Vp-p			MAX	OFF	VAR	IN	NOP	EXT NO.	R G B	OFF	–		Termi-nal 26 Pedestal 2 V	MIN	V15= 8 V	Oscilloscope ev .
Luminance Gain Variable Range by Contrast cont.	Δe_{ve}	3						OFF ↓ ON	IN Studio Color Bar White 1 Vp-p			MAX	OFF	VAR	IN	NOP	EXT NO.	B	OFF	–		Termi-nal 26 Pedestal 2 V	MIN	V15= 8 V	Oscilloscope ev
Luminance Amp. Frequency characteristic	f_v	3						OFF ↓ ON	IN Sine Wave 0.1 Vr.m.s.			MAX	OFF	VAR	OFF	NOP	EXT NO.	B	OFF	–		V26= 3.5 V	MIN	V15= 8 V	A.C. Voltage Meter 0 dB=16 kHz ev
Resolution Variation Range	Δf_{vp}	3						OFF ↓ ON	IN Sine Wave 2M 0.1 Vr.m.s.			MAX	OFF	VAR	OFF	NOP	EXT NO.	B	OFF	–		V26= 3.5 V	MIN MAX	V15= 8 V	A.C. Voltage Meter ev

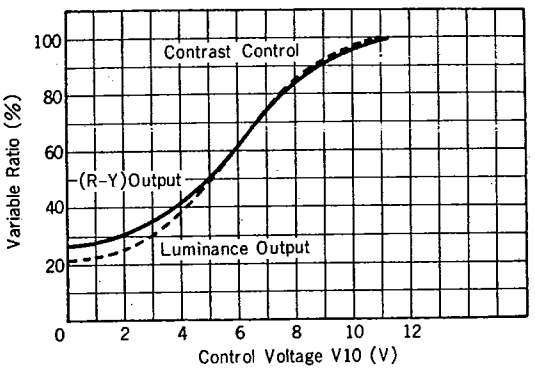
(continued on next page)

Characteristic	Symbol	Test Ckt	1 Power Supply	2 Tint	3 Auto	4 Burst -(B-Y) Input	f_B Burst frq	5 Power Supply	6 Lumi-nance Input	7 Auto	8 Color	9 Cont-rast	10 Chro-ma Input	11 ACC	12 Pulse Input	13 VCO	14 Demo Input	15 RGB	16 Demo Output	17 Attenuater	1 Bright-ness	2 Bright-ness	3 Resolu-tion	4 ACC Level	Measuring Apparatus
D.C. Transfer	T_{DC}	3						OFF ↓ ON	IN Stair step 1 Vp-p APL 90%			MAX	OFF	VAR	IN	NOP	EXT NO.	B	OFF	–		Termi-nal 26 Pedestal 2 V	MIN	V15= 8 V	Oscilloscope ev
Brightness Controlling Sensitivity	BR	3						OFF ↓ ON	OFF	–	–	MAX	OFF	VAR	IN	OP	EXT NO.	R G B	e_{o3}	–		e_{o3} D.C. 2–5 V	MIN	V15= 8 V	V3 e_{o3} D.C. Voltage Meter
Differential Gain	D.G.	3						OFF ↓ ON	IN Stair step APL 50%			MAX	OFF	VAR	IN	NOP	EXT NO.	B	OFF	–		Termi-nal 26 Pedestal 2 V	MIN	V15= 8 V	Vector Scope ev
Queiscent Output Voltage	E_o	3						OFF ↓ ON	OFF	–	–	MAX	OFF	FIX	IN	OP	EXT NO.	R G B	e_{o3}	–		V3= 9 V	MIN	–	D.C. Voltage Meter
E_o Supply Vol. Coeffisient	$E_{o\text{-}v}$	3						OFF ↓ ON	OFF	–	–	–	OFF	FIX	IN	OP	EXT NO.	R G B	e_{o3}	–		V3= 9 V	MIN	–	D.C. Voltage Meter
E_o Temperature Coefficient	$E_{o\text{-}t}$	3						OFF ↓ ON	OFF	–	–	–	OFF	FIX	IN	OP	EXT NO.	R G B	e_{o3}	–		V3= 9 V	MIN	–	D.C. Voltage Meter
Difference Output Voltage	$E_{R\text{-}G}$ $E_{G\text{-}B}$ $E_{B\text{-}R}$	3						OFF ↓ ON	OFF	–	–	–	OFF	FIX	OFF	OP	EXT NO.	R G B	e_{o3}	–		V26= 3.5 V (V_{CC}= 12 V)	MIN	–	D.C. Voltage Meter

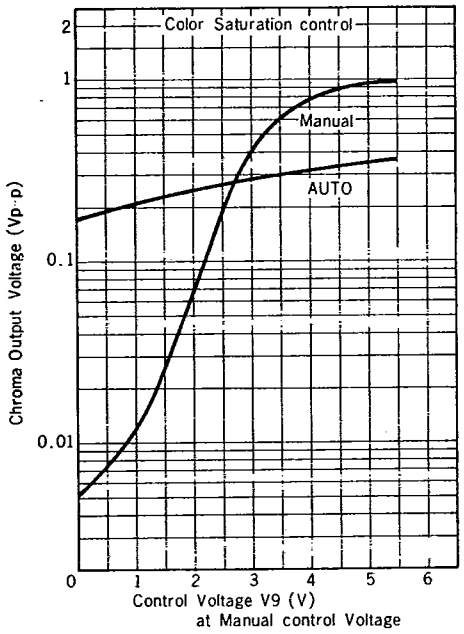
ACC Characteristic



Contrast Control Characteristic

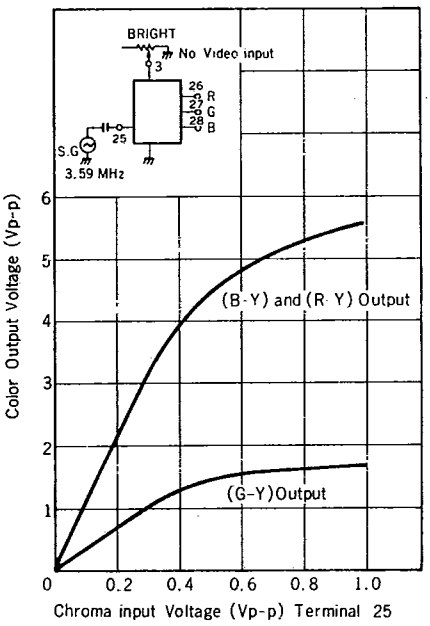


Color Control Characteristic

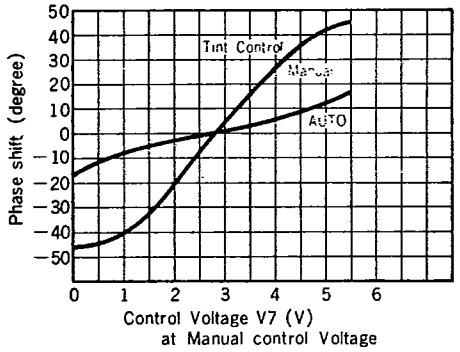


Brightness Control Characteristic

Demodulator input vs. Output

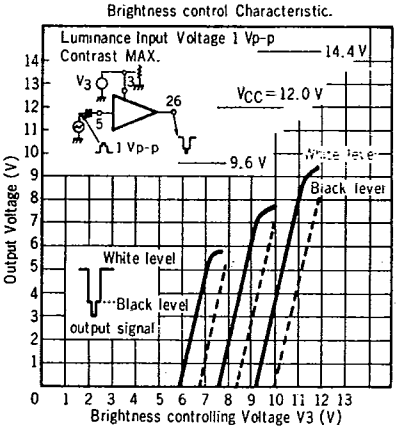


Tint Control Characteristic



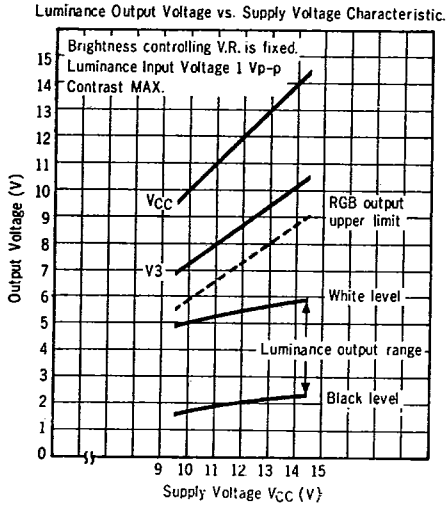
Demodulator Input-Output

Brightness control Characteristic.

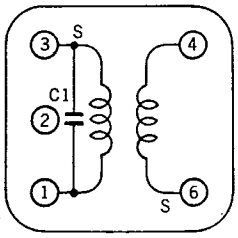


R.G.B. Output Stage Dynamic Page

Luminance Output Voltage vs. Supply Voltage Characteristic.



μPC1352C BAND PASS COIL

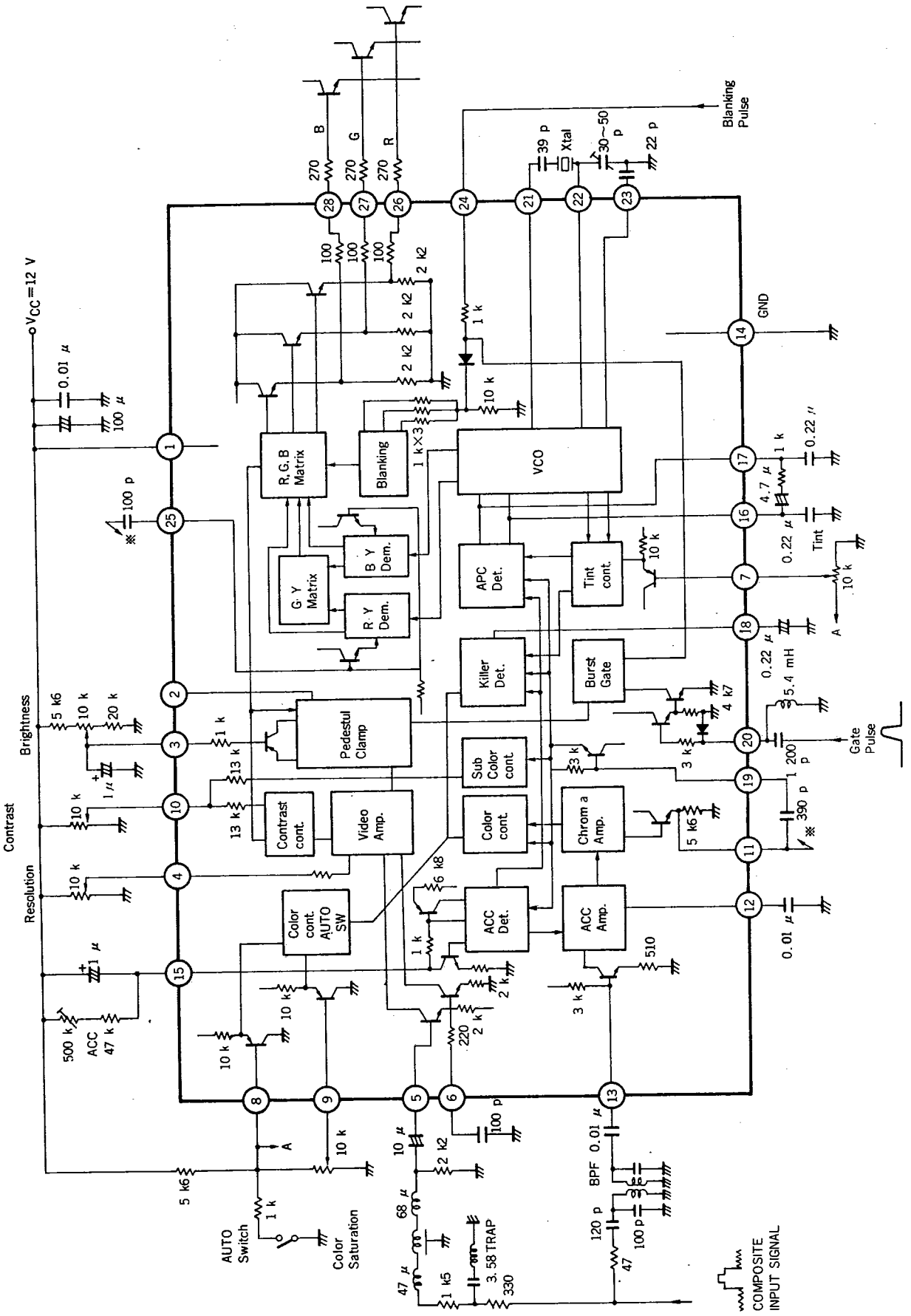


Pin Connection

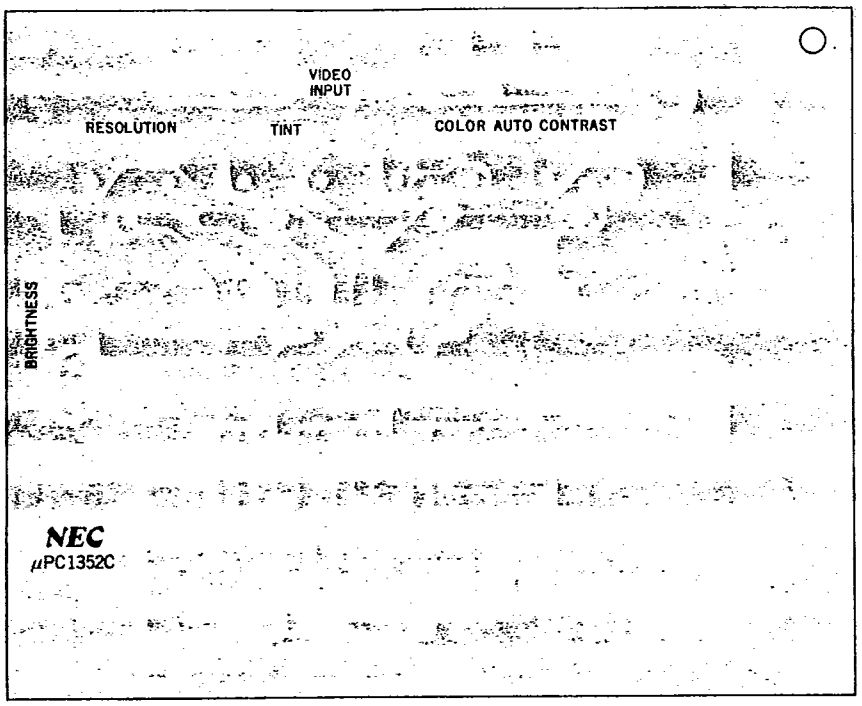
①–③ 88T Qu 15±20 % at f=3.58 MHz
④–⑥ 43-1/4T Qu 24±20 % at f=3.58 MHz

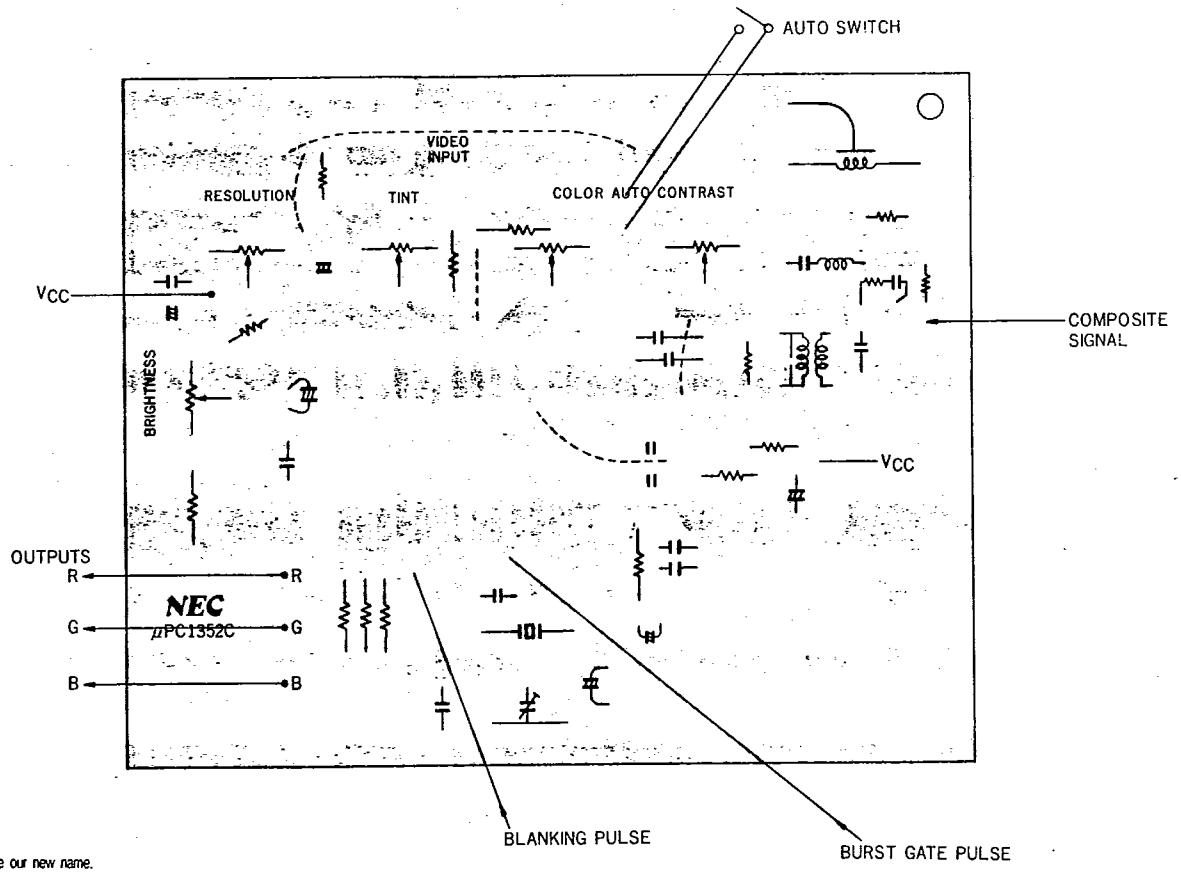
WIRE MATERIAL
0.12 φ OUEW
INSIDE CAPACITOR
C_1 = 47 pF

APPLICATION CIRCUIT



μPC1352C PRINTED CIRCUIT BOARD PATTERN (BOTTOM VIEW)





Please note our new name.
NEC Corporation
starting April 1, 1983.

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