

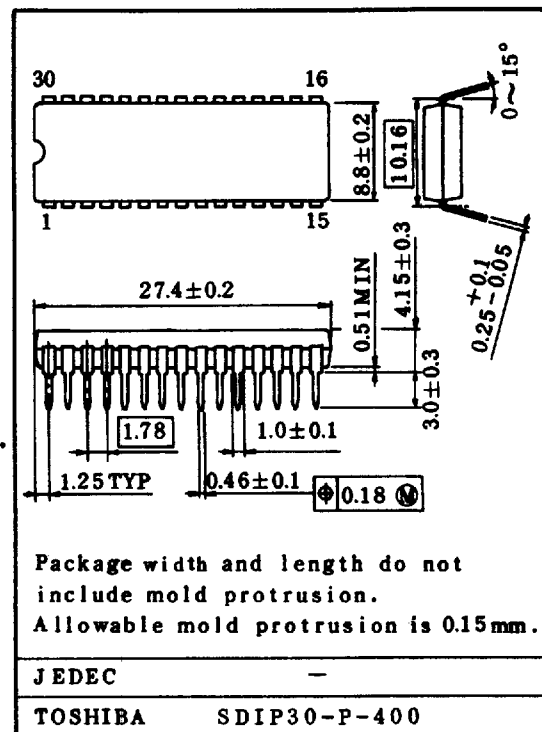
TENTATIVE

LINEAR RGB PROPROCESSOR FOR A MONITOR/  
DISPLAY APPLICATION

The TA8631N is a linear RGB signal processor which is designed for a monitor or a display application. The brightness control is possible in both CRT driving circuits, a direct coupling circuit or an AC coupling circuit.

- . 60MHz RGB signal band width (Typ.)
- . AC coupling CRT driving circuit (peak clamp construction): Adjustable Blanking Pulse amplitude and Clamping pulse input are applied.
- . Direct coupling CRT driving circuit: Pedestal clamp and equiped DC feedback circuit are applied.
- . Contrast Control
- . Blanking pulse amplitude adjustment
- . Clamping circuit
- . DC feedback (DC restoration)
- . Brightness Control
- . ACL circuit

Unit in mm



MAXIMUM RATINGS (Ta=25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Supply Voltage	V <sub>CC</sub> -V <sub>EE</sub>	15	V
Terminal 2 Voltage	V <sub>2</sub>	0~V <sub>CC</sub>	V
Terminal 6,9,12 and 7,10,13 Voltage	V <sub>6</sub> ,V <sub>9</sub> ,V <sub>12</sub> V <sub>7</sub> ,V <sub>10</sub> ,V <sub>13</sub>	V <sub>EE</sub> ~V <sub>CC</sub>	V
Terminal 4,8 Voltage	V <sub>CC</sub> -V <sub>4</sub> V <sub>CC</sub> -V <sub>8</sub>	10	V
Terminal 16,21,25 Voltage	V <sub>16</sub> ,V <sub>21</sub> ,V <sub>25</sub>	V <sub>EE</sub> ~5	V
Terminal 17,22,27 Cource Current	I <sub>17</sub> ,I <sub>22</sub> ,I <sub>27</sub>	10	mA
Terminal 17,22,27 Voltage	V <sub>17</sub> ,V <sub>22</sub> ,V <sub>27</sub>	V <sub>CC</sub>	V
Terminal 20,23,28,29 Voltage	V <sub>20</sub> ,V <sub>23</sub> ,V <sub>28</sub> ,V <sub>29</sub>	0~5	V
Terminal 30 Voltage	V <sub>30</sub>	0~V <sub>CC</sub>	V
Power Dissipation	P <sub>D</sub> MAX	1.6	W
Operating Temperature	T <sub>opr</sub>	-20~65	°C
Storage Temperature	T <sub>stg</sub>	-55~150	°C

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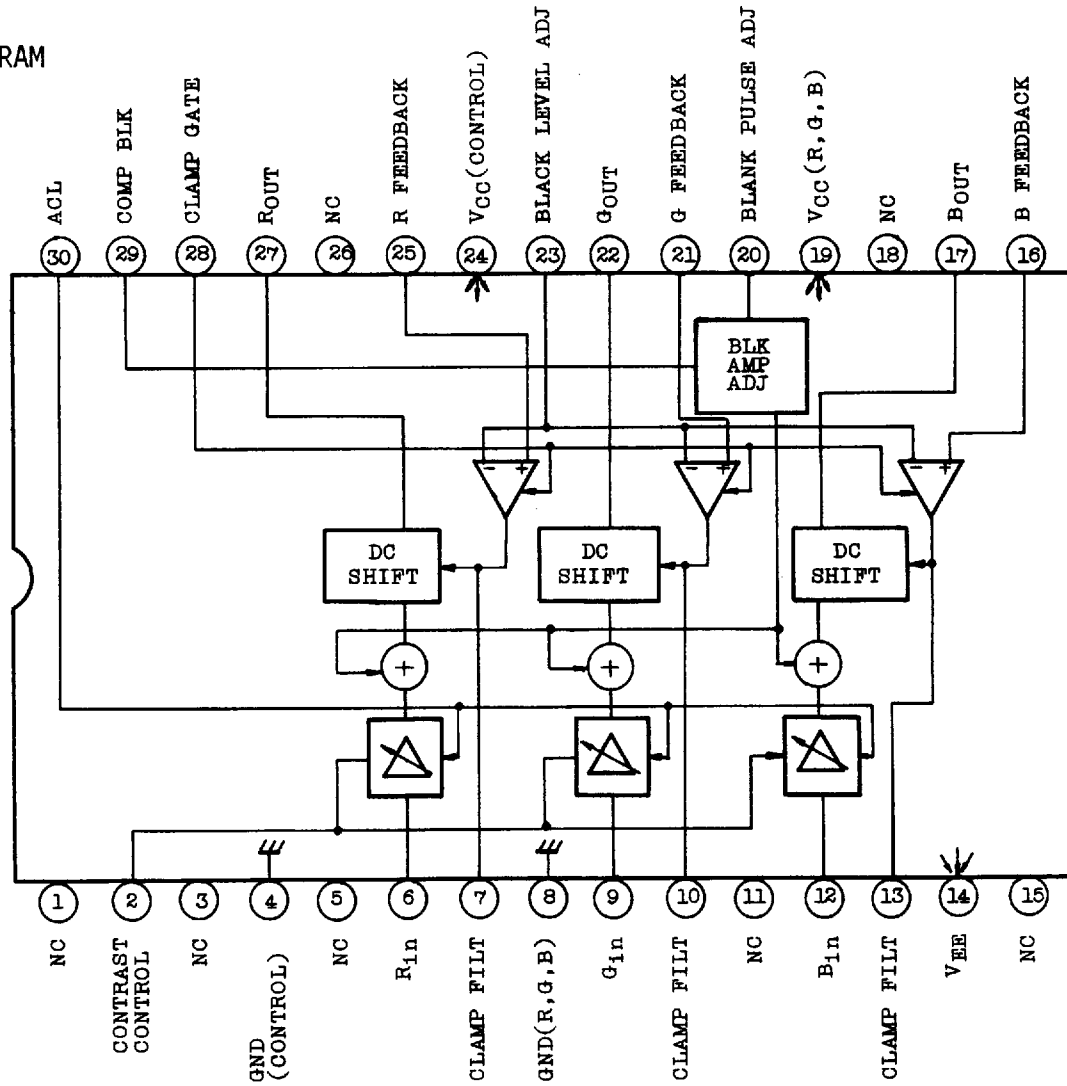
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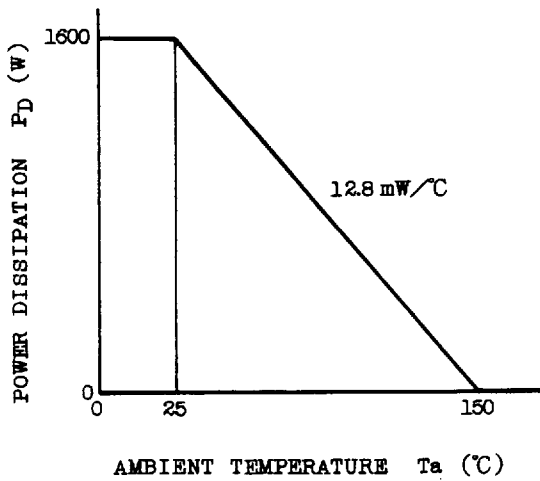
**TOSHIBA CORPORATION**

256 9656700 2422606

BLOCK DIAGRAM



POWER DISSIPATION



### ELECTRICAL CHARACTERISTICS

(Unless otherwise specified,  $T_a=25^\circ\text{C}\pm 1.5^\circ\text{C}$ ,  $V_{CC}=8\text{V}$ ,  $V_{EE}=-5\text{V}$ )

CHARACTERISTIC		SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Recommendable Supply Voltage	#19.24	$V_{CC}$	1		7.2	8.0	8.8	V
	#14	$V_{EE}$			-5.5	-5.0	-4.5	
Supply Current	#24	$I_{CC24}$	1	Note 1	7	9	13	mA
	#19	$I_{CC19}$			34	45	64	
	#14	$I_{EE14}$			30	39	56	
Input Signal Dynamic Range	$V_{6+}, V_{9+}, V_{12+}$		1	Note 2	1.4	1.5	1.6	V
	$V_{6-}, V_{9-}, V_{12-}$				-0.8	-1.0	-1.2	
	$V_6, V_9, V_{12}$				-	0.7	1.0	Vp-p
Output Amplitude	$U_o$		1	Note 2	-	5.0	-	Vp-p
Maximum Gain	$G_m$		1	Note 3	11.5	12.5	13.5	dB
Contrast Range	$R_{CONT}$		1	$V_2=6\text{V} \rightarrow V_2=1\text{V}$	12.0	-	-	dB
Contrast Tracking	$TR_{CONT}$		1	Note 4	-	$\pm 2$	$\pm 3$	dB
Blanking Pulse Adjustable Range	$V_{BLK MAX}$		1	Note 5	-0.1	0	0.1	Vp-p
	$V_{BLK MIN}$				0.8	1.0	1.2	
Blanking Pulse Tracking	$TR_{BLK}$		1	Note 6	-	-	$\pm 50$	mVp-p
Blanking Pulse "H" level "L" level	$V_H BLK$		1		3.5	-	$V_{CC}-2$	V
	$V_L BLK$				-0.4	-	2.5	
Blanking Pulse Delay Time	$\tau_{blk}$		1		-	50	100	nsec
Blanking Pulse Range	$R_{BLK}$		1	Note 5	1.9	2.2	2.5	V
Black Level Control Range	$R_{BL}$		1	Note 7	0.1	-	4.0	V
RGB Black Level Difference	$\Delta V_{BL}$		1	Note 8	-	-	$\pm 50$	mV
Black Level Temperature Drift	$\Delta T_{BL}$		1	Note 9	-	0	$\pm 1$	mV/ $^\circ\text{C}$
ACL Threshokd Voltage Gain	$V_{TH ACL}$ $G_{ACL}$		1	Note 10	5.9	6.3	6.6	V dB/V
R.G.B Freq. Response	fBW		1	Note 11	-	45	-	MHz
Response Ripple	R		1	0~10MHz	-	-	$\pm 0.5$	dB
				10MHz~30MHz	-	2.5	3.5	

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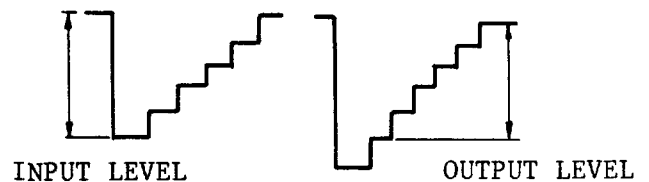
#### ELECTRICAL CHARACTERISTICS

(Unless otherwise specified,  $T_a=25^{\circ}\text{C}\pm 1.5^{\circ}\text{C}$ ,  $V_{CC}=8\text{V}$ ,  $V_{EE}=-5\text{V}$ )

CHARACTERISTIC	SYMBOL	TEST CIRCUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
R.G.B Gain Difference	G	1	Contrast Max.	-	$\pm 5.0$	$\pm 15$	%
			0~10MHz	-	$\pm 20$	$\pm 25$	
Cross Talk Between Channels	CT	1	0~10MHz	-	-	-40	dB
			10MHz~30MHz	-	-	-25	
Contrast Deviation at High Frequency	D <sub>CONT</sub>	1	Contrast -12dB	-	$\pm 2$	$\pm 3$	dB
			0~10MHz	-	$\pm 3$	-	
R.G.B Output Impedance	Z <sub>O</sub>	1		-	50	100	$\Omega$

Note 1 ABL:8V, CONTRAST:8V, Clamp Gate:0V, Comp Blank:0V  
Apply 3.5V D.C. to the filter terminals.

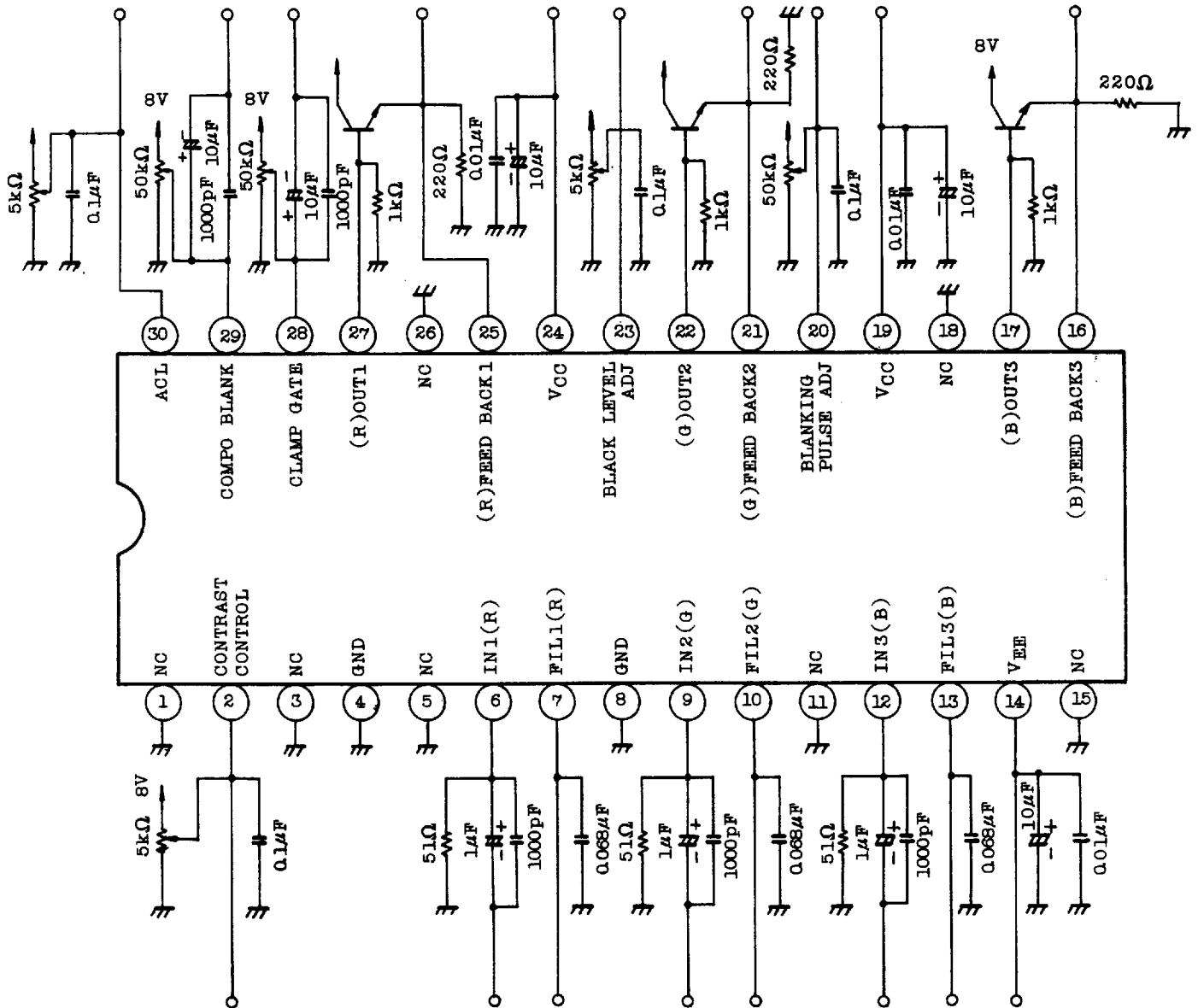
Note 2 INPUT:5 steps, Staircase  
ABL:8V  
Contrast:8V      Pulse  
Clamp Gate:5V      Input

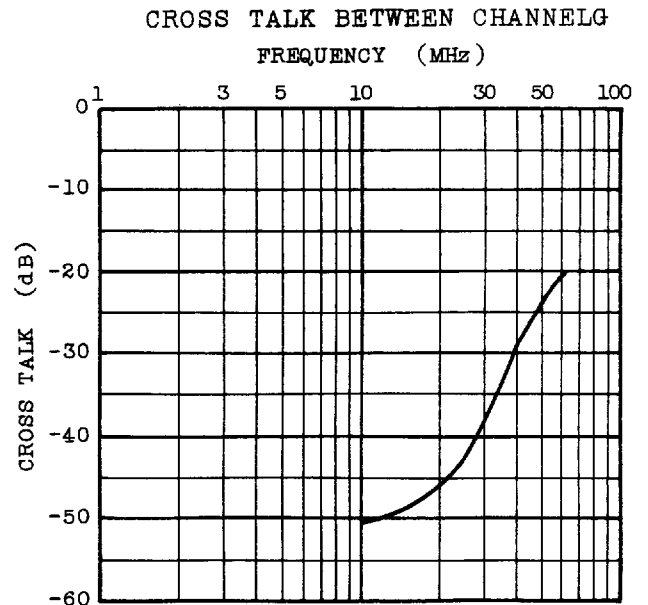
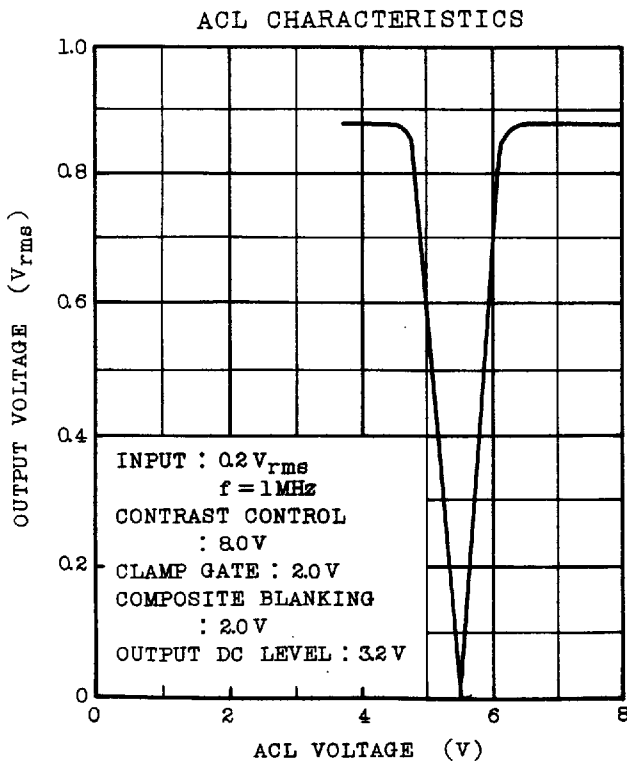
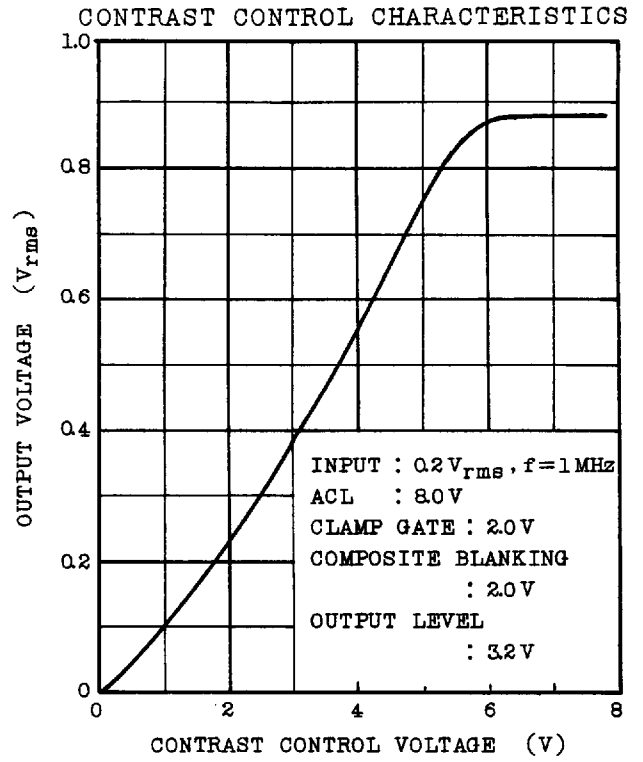
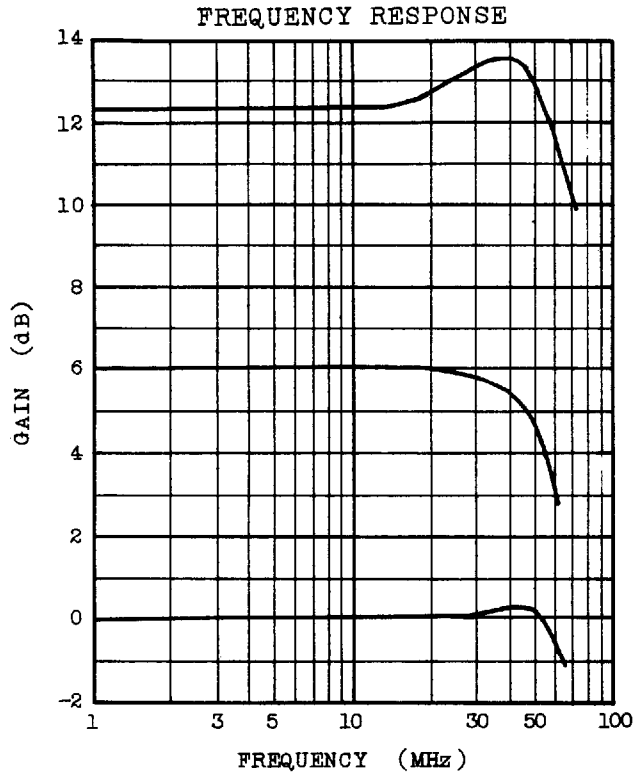


Note 3 INPUT:0.5Vp-p, 500kHz Sinusoidal wave.  
ABL:8V  
Contrast:8V  
Clamp Gate:4.0V  
Comp Blank:2.0V  
Black ADJ:3.0V

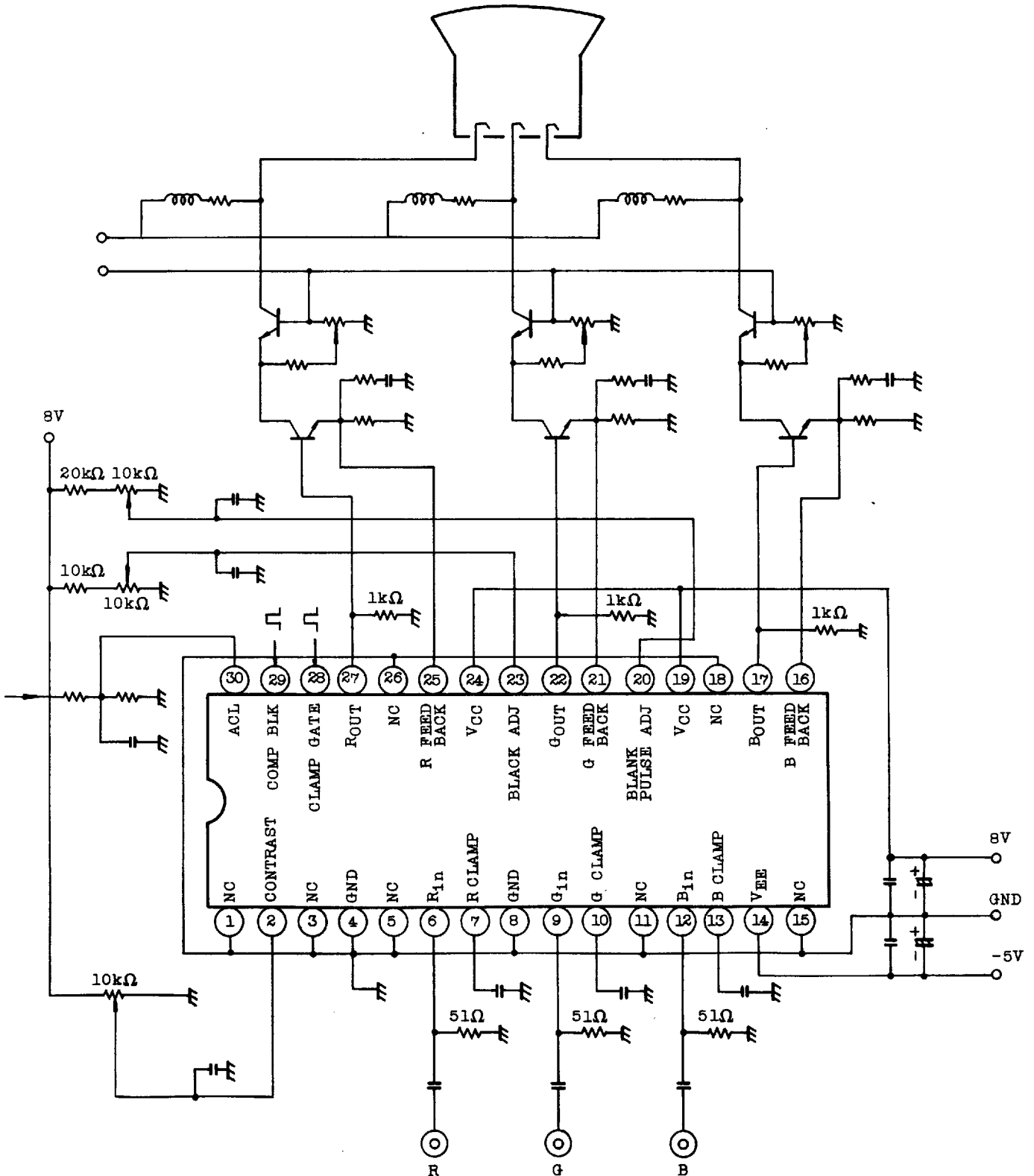
- Note 4 Conditions are the same as Note 3 except contrast control voltage.  
Set contrast control so that the contrast of R channel will be -12dB of the maximum.  
Measure contrast tracking of G and B channel.
- Note 5 Apply D.C. voltages to filter terminals so that the output level will be 3.0V. Then turn of composite blanking.  
Measure the output D.C. level changing blanking adj.  
(Clamp Gate : 2.0V)
- Note 6 Refer Note 5.  
Tracking of blanking pulse when blanking adj is 2.0V.
- Note 7 #23 voltage range which #17.22 and 27 voltage track the change.
- Note 8 Black level differences between channels when black level is changed 0.1V to 4.0V.
- Note 9 Clamp Gate:4.0V, Black ADJ:0.5V (Ta=25°C)  
Change Ta=-20~70°C, and measure output voltage changes.
- Note 10 INPUT 0.5Vp-p 500kHz  
Contrast:8V, Black ADJ:3.0V  
Clamp Gate:4.0V  
Comp Blank:2.0V
- Note 11 ABL:8.0V  
Comp Blank:2.0V  
Clamp Gate:4.0V  
Black ADJ :3.7V  
Contrast (Max. Gain, -6dB, -12dB)

AC TEST CIRCUIT 1





APPLICATION CIRCUIT



TA8631N-8\*

1988-9-12

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