

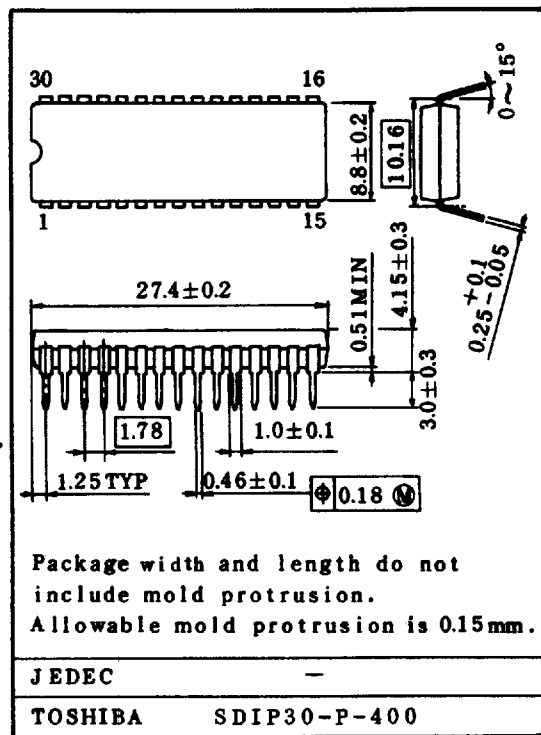
TENTATIVE

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 _{CC} -V _{EE}	15	V
Terminal 2 Voltage	V ₂	0~V _{CC}	V
Terminal 6,9,12 and 7,10,13 Voltage	V ₆ ,V ₉ ,V ₁₂ V ₇ ,V ₁₀ ,V ₁₃	V _{EE} ~V _{CC}	V
Terminal 4,8 Voltage	V _{CC} -V ₄ V _{CC} -V ₈	10	V
Terminal 16,21,25 Voltage	V ₁₆ ,V ₂₁ ,V ₂₅	V _{EE} ~5	V
Terminal 17,22,27 Cource Current	I ₁₇ ,I ₂₂ ,I ₂₇	10	mA
Terminal 17,22,27 Voltage	V ₁₇ ,V ₂₂ ,V ₂₇	V _{CC}	V
Terminal 20,23,28,29 Voltage	V ₂₀ ,V ₂₃ ,V ₂₈ ,V ₂₉	0~5	V
Terminal 30 Voltage	V ₃₀	0~V _{CC}	V
Power Dissipation	P _D MAX	1.6	W
Operating Temperature	T _{opr}	-20~65	°C
Storage Temperature	T _{stg}	-55~150	°C

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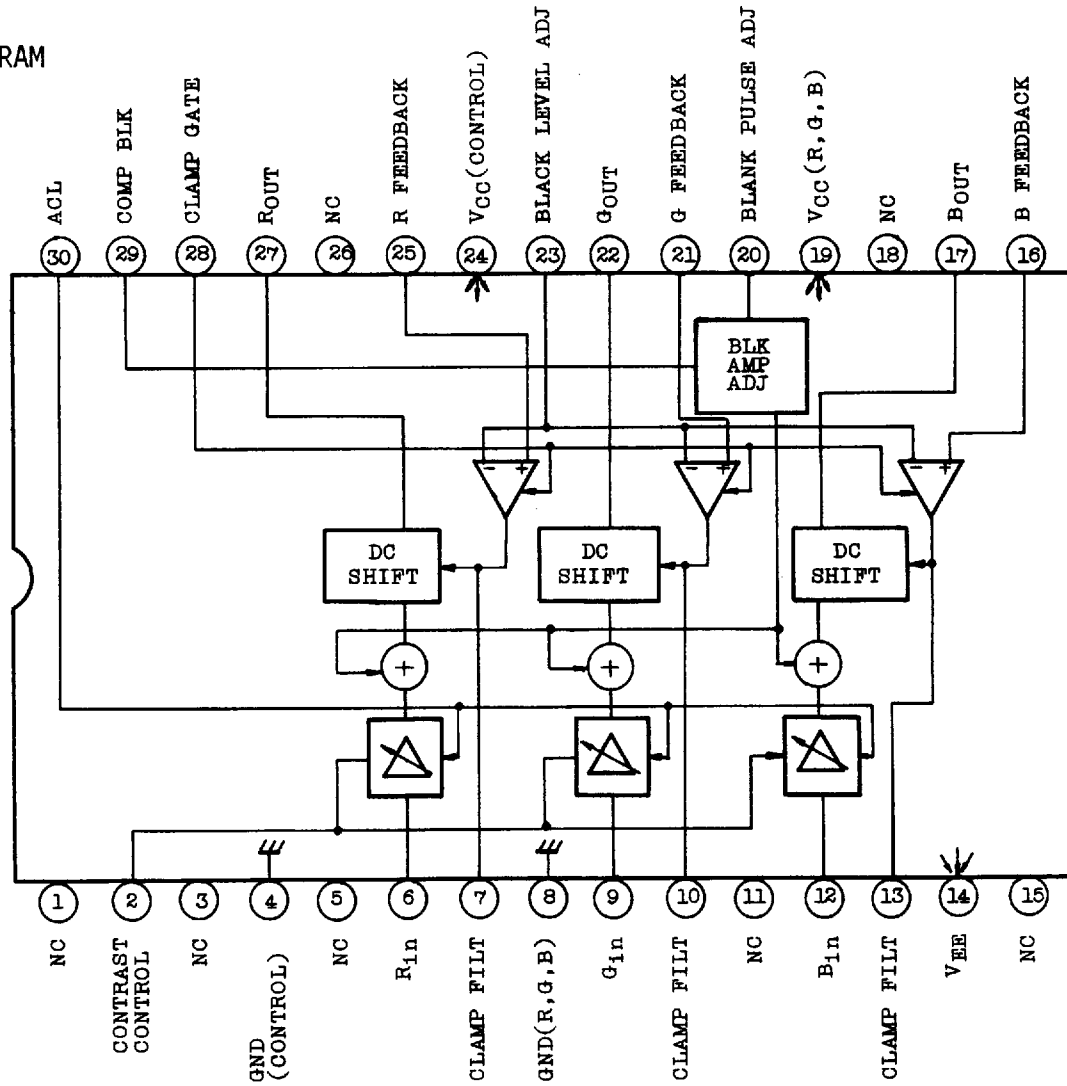
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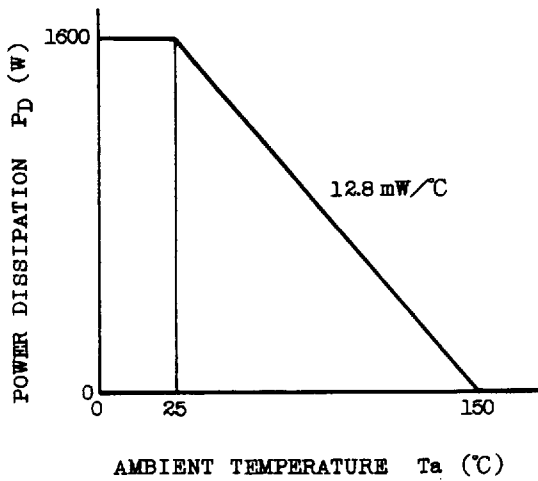
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BLOCK DIAGRAM



POWER DISSIPATION



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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
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	-	± 2	± 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	-	-	± 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	τ_{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	ΔV_{BL}		1	Note 8	-	-	± 50	mV
Black Level Temperature Drift	ΔT_{BL}		1	Note 9	-	0	± 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	f_{BW}		1	Note 11	-	45	-	MHz
Response Ripple	R		1	0~10MHz	-	-	± 0.5	dB
				10MHz~30MHz	-	2.5	3.5	

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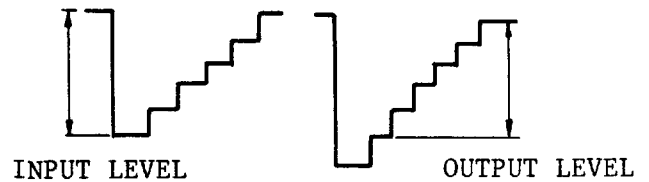
ELECTRICAL CHARACTERISTICS

(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 CIR-CUIT	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
R.G.B Gain Difference	G	1	Contrast Max.	-	± 5.0	± 15	%
			0~10MHz	-	± 20	± 25	
Cross Talk Between Channels	CT	1	0~10MHz	-	-	-40	dB
			10MHz~30MHz	-	-	-25	
Contrast Deviation at High Frequency	D _{CONT}	1	Contrast -12dB	-	± 2	± 3	dB
			0~10MHz	-	± 3	-	
R.G.B Output Impedance	Z _O	1		-	50	100	Ω

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 Input
Clamp Gate:5V



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

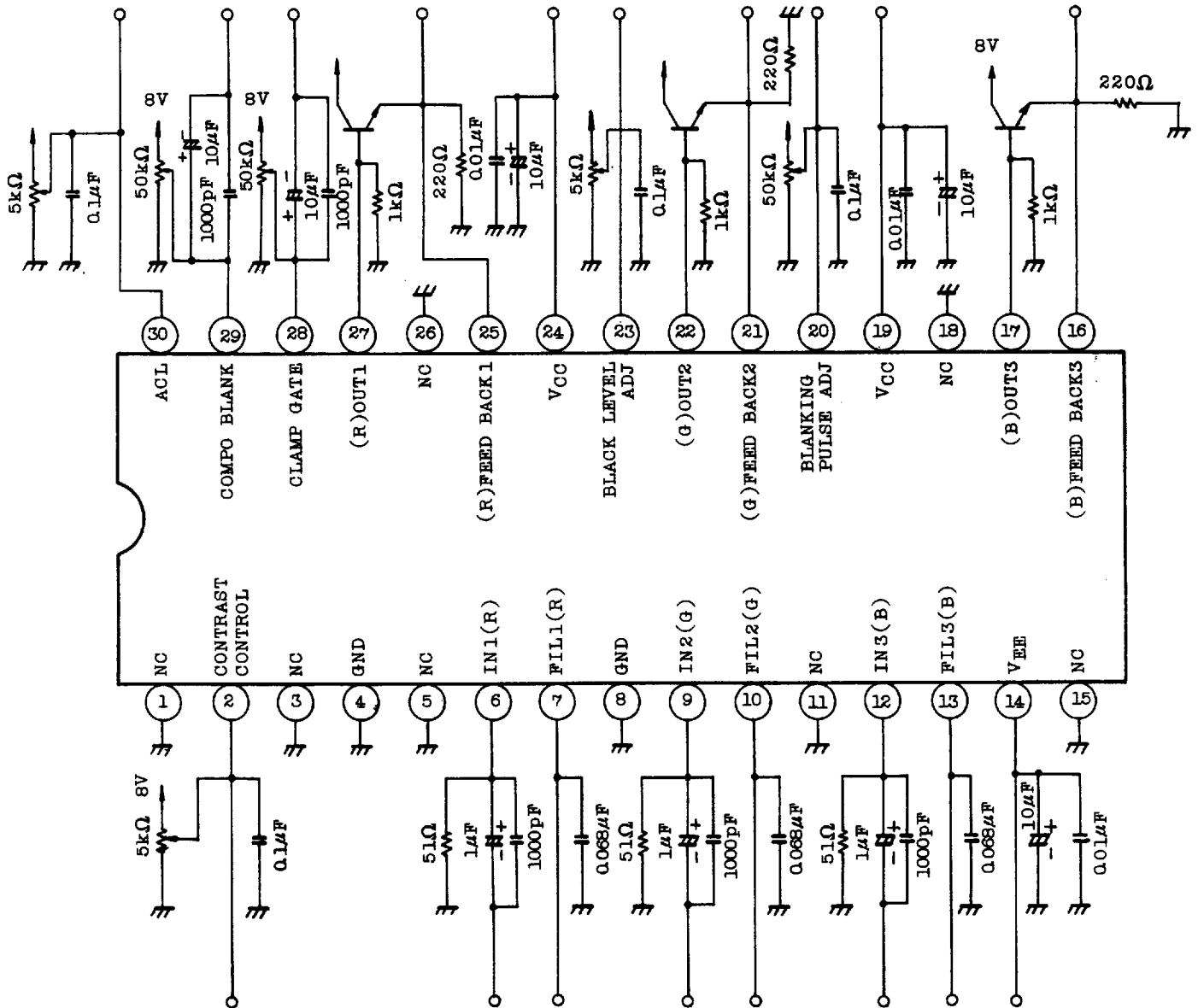
- Note 4 Conditions are the same as Note 3 except contrast control voltage.
Set contrast control so that the contrast of R channel will be -12dB of the maximum.
Measure contrast tracking of G and B channel.
- Note 5 Apply D.C. voltages to filter terminals so that the output level will be 3.0V. Then turn of composite blanking.
Measure the output D.C. level changing blanking adj.
(Clamp Gate : 2.0V)
- Note 6 Pefter 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)

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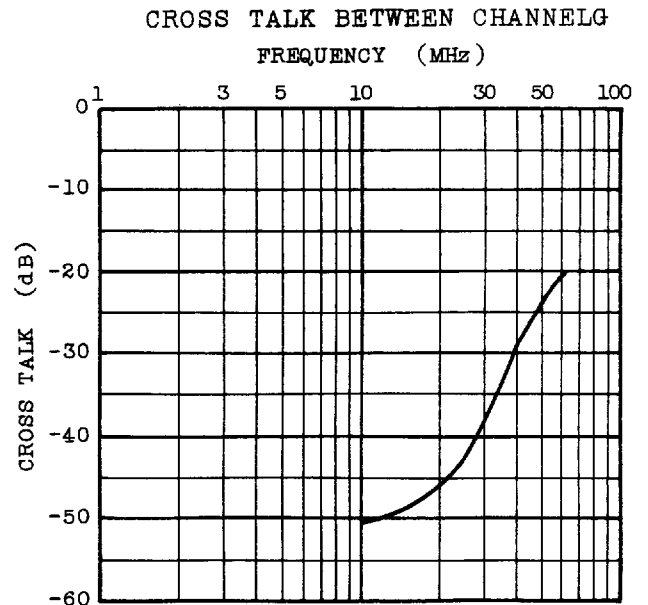
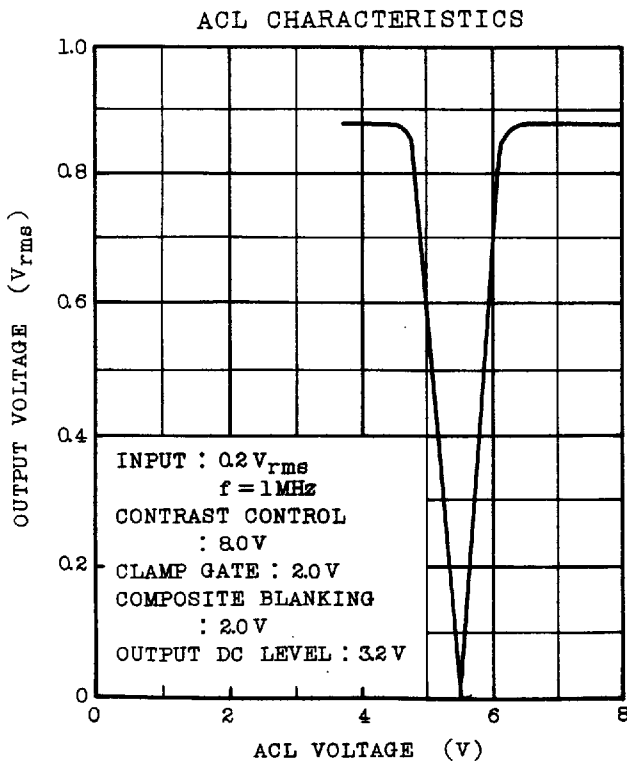
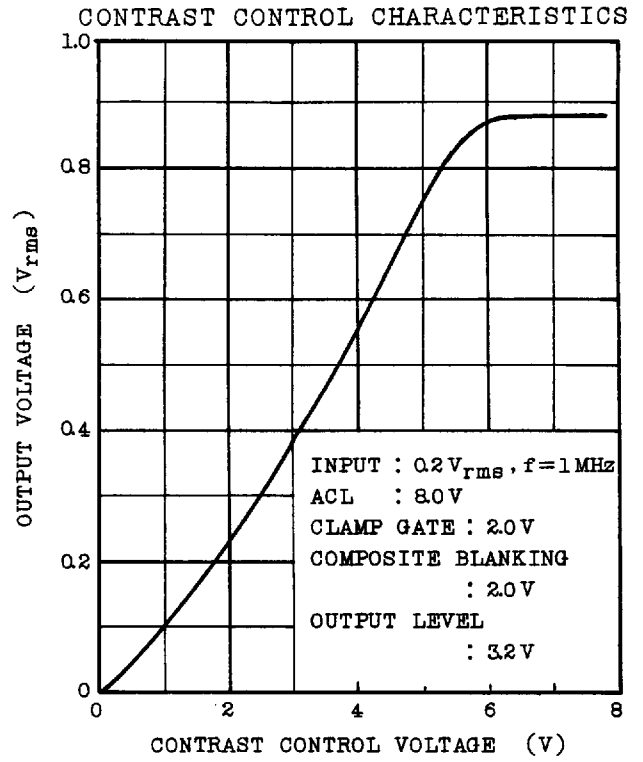
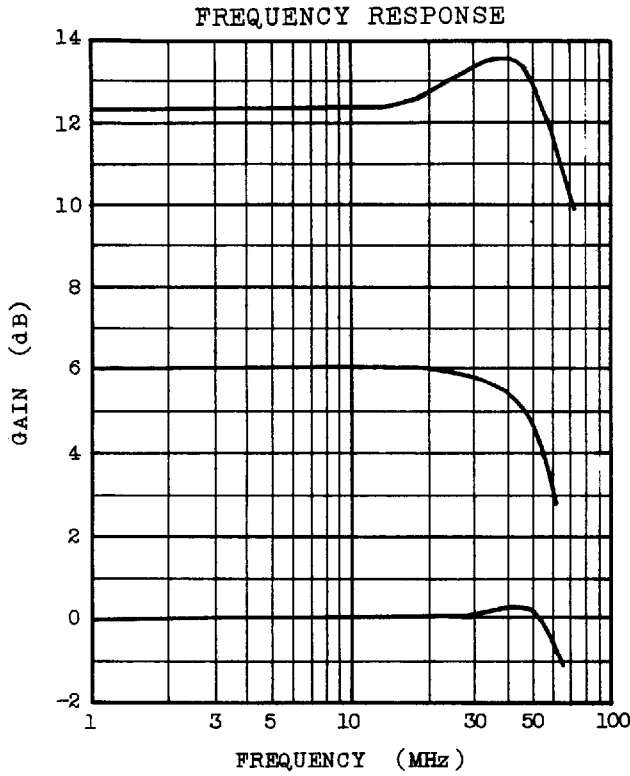
AC TEST CIRCUIT 1



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APPLICATION CIRCUIT

