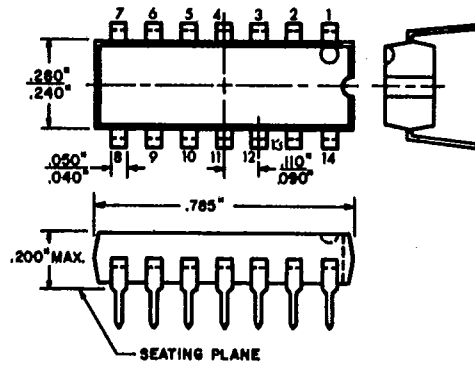




# ECG1080

## BIPOLAR MONOLITHIC LINEAR INTEGRATED CIRCUIT

- TV Amplifier
- Keyed AGC
- High Power Gain: 46dB (Typ.)  $f = 58\text{MHz}$
- Wide AGC Range: 60dB (Min.)
- Low Reverse Transfer Admittance  $y_r \ll -1.0\mu\text{U}$  (Typ.)
- Nearly Constant Input and Output Admittance over AGC Range
- Either Positive or Negative Going Video Signals



MAXIMUM RATINGS ( $T_a = 25^\circ\text{C}$ )

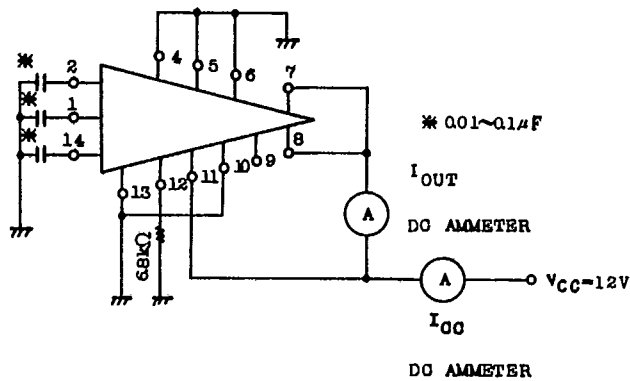
Characteristic	Symbol	Rating	Unit
Supply Voltage	$V_{CC}$	18	V
Output Voltage	$V_7, V_8$	18	V
Input Voltage	$V_1, V_2$	10	$V_{p-p}$
AGC Input Voltage	$V_6, V_{10}$	6	V
Gate Input Voltage	$V_5$	10, -20	V
Power Dissipation (Note 1)	$P_D$	625	mW
Minimum Load Resistance (Pin 12)	$R_L$	4	k Ohms
Operating Temperature	$T_{opr}$	-20~75	$^\circ\text{C}$
Storage Temperature	$T_{stg}$	-55~150	$^\circ\text{C}$

(Note 1)

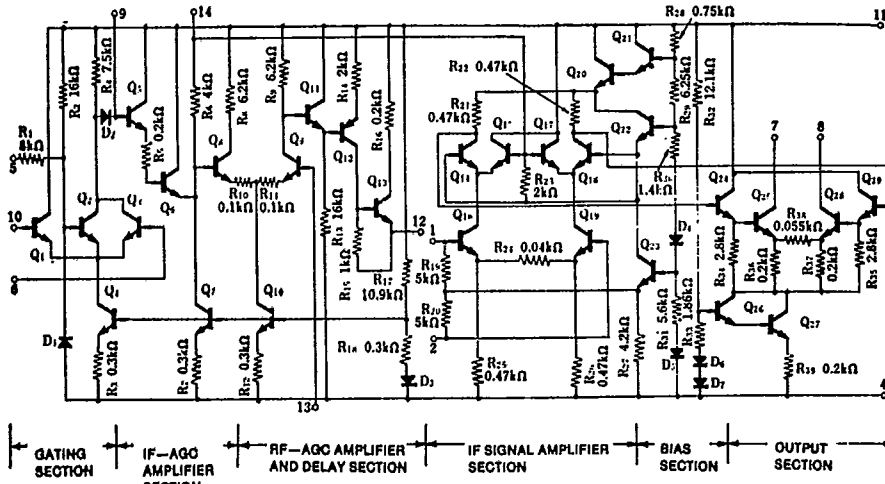
Derated above  $T_a = 25^\circ\text{C}$  in the proportion of  $5.0\text{ mW}/^\circ\text{C}$ .

### TEST CIRCUIT

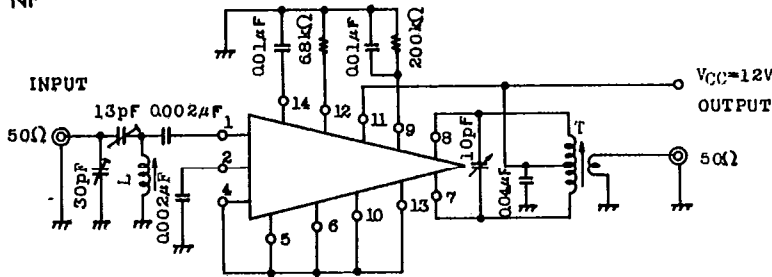
1.  $I_{CC}$ ,  $I_{OUT}$ ,  $P_D$



**EQUIVALENT CIRCUIT**



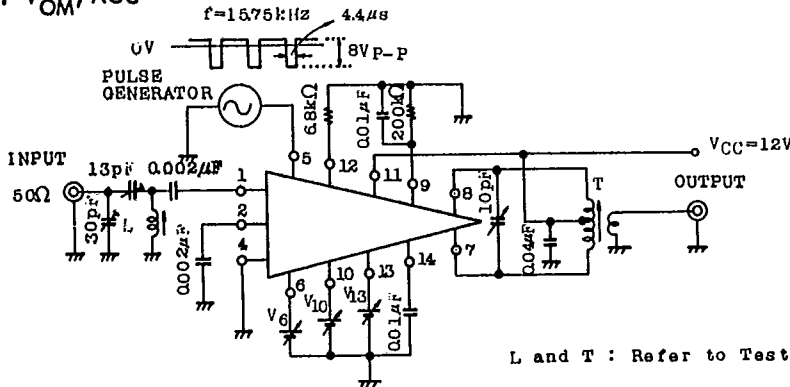
**2.  $G_p$ , NF**



L ; 6 Turns  
 T ; PRIMARY 8 TURNS CLOSE WINDING  
 CENTER TAPPED  
 SECONDARY 1 TURN

L AND T 0.32 mm ENAMEL WIRE  
 COIL FORM DIAMETER 5.5 mm

**3.  $V_{OM}$ , AGC**



L and T : Refer to Test Circuit 2

ELECTRICAL CHARACTERISTICS ( $V_{cc} = 12\text{ V}$ ,  $T_a = 25^\circ\text{C}$ )

Characteristic		Symbol	Test Circuit	Test Condition	Min.	Typ.	Max.	Unit
Supply Current		$I_{cc}$	1	--	--	27	31	mA
Output Current		$I_{OUT}$	1	--	--	5.7	--	mA
Power Dissipation		$P_D$	1	--	--	324	372	mW
Power Gain		$G_p$	2	$f = 58\text{ MHz}$	42	46	--	dB
Noise Figure		NF	2	$f = 58\text{ MHz}$ , $R_g = 50\text{ Ohms}$	--	8.5	--	dB
Max. Output Voltage		$V_{OM}$	3	0 dB AGC	350	--	--	mV <sub>rms</sub>
			3	-30 dB AGC	200	--	--	mV <sub>rms</sub>
AGC Range		AGC	3	--	60	--	--	dB
RF-AGC Voltage Range	Maximum	$V_{12}(\text{Max})$	4	--	--	8.5	--	V
	Minimum	$V_{12}(\text{Min})$	4	--	--	-6.5	--	V
Power Gain Variations		$\Delta G_p$	5	RF-AGC At Operating Range	--	10	--	dB
Input Admittance	Input Conductance	$g_i$	--	$f = 58\text{ MHz}$	--	0.8	--	m $\mathcal{U}$
	Input Susceptance	$b_i$	--		--	3.4	--	
Output Admittance	Output Conductance	$g_o$	--	$f = 58\text{ MHz}$	--	155	--	$\mu\mathcal{U}$
	Output Susceptance	$b_o$	--		--	850	--	
Forward Transfer Admittance		$y_f$	--	$f = 58\text{ MHz}$ 0 dB AGC	--	220	--	m $\mathcal{U}$
Phase Angle of Forward Transfer Admittance		$\angle y_f$	--		--	-135	--	deg
				-30 dB AGC	--	-95	--	
Reverse Transfer Admittance		$y_r$	--	$f = 58\text{ MHz}$	--	$\ll 1.0$	--	$\mu\mathcal{U}$

L and T: Refer to Test Circuit 2

MAX. OUTPUT VOLTAGE TEST METHOD

a) 0 dB AGC

$$f = 58.75\text{ MHz}, V_{IN} = 1\text{ mV}_{rms}$$

$$V_6 = 5.5\text{ V}, V_{10} = 0\text{ V}, V_{13} = 0\text{ V}$$

b) -30 dB, AGC

$$f = 58.75\text{ MHz}, V_{IN} = 1\text{ mV}_{rms}$$

$$V_6 = 2\text{ V}, V_{13} = 0\text{ V}, V_{10} : \text{Varied}$$

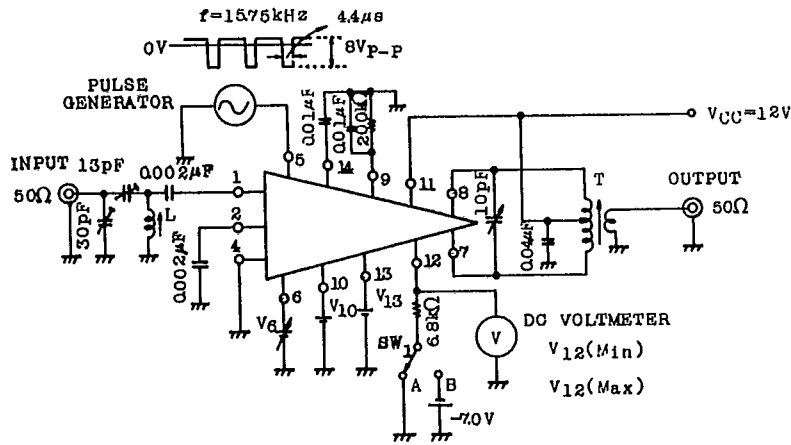
The maximum output voltage is defined as the value at 3 dB down from the saturated value of the output voltage.

AGC Range is measured by setting the following condition:

$$f = 58.75\text{ MHz}, V_{IN} = 1\text{ mV}_{rms}, R_L = 50\text{ Ohms}, V_{13} = 0\text{ V}, V_6 = 2\text{ V}.$$

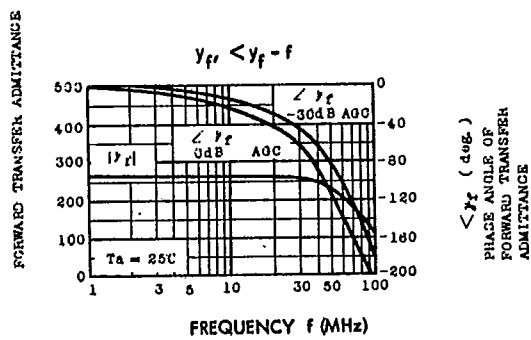
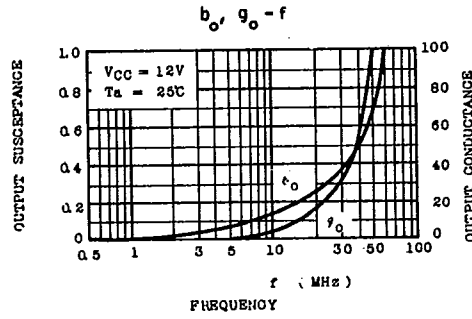
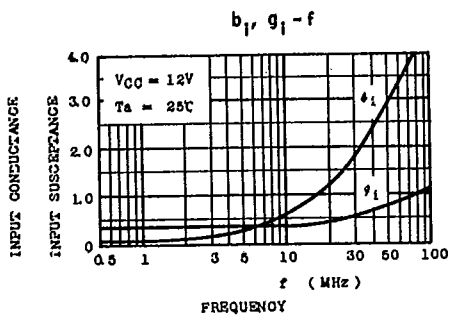
AGC Range is GP1 (at  $V_{10} = 0\text{ V}$ ) - GP2 (at  $V_{10} = 7\text{ V}$ ).

4.  $V_{12}(\text{Max}), V_{12}(\text{Min})$

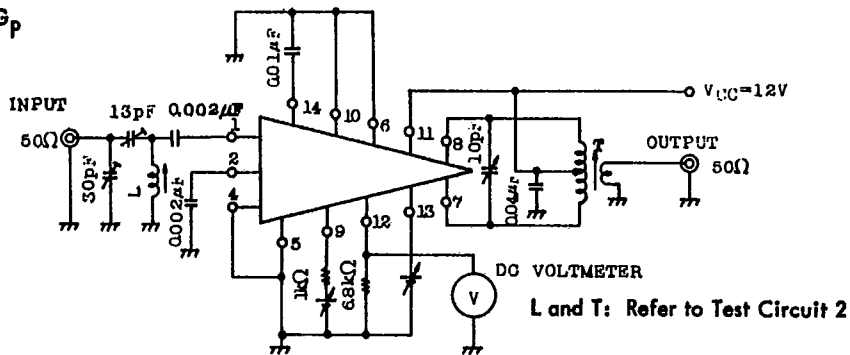


L and T: Refer to Test Circuit 2

$SW_1 \rightarrow B, V_{10} = 3.0 \text{ V}, V_{13} = 6.5 \text{ V}, V_6 : \text{Varied}$

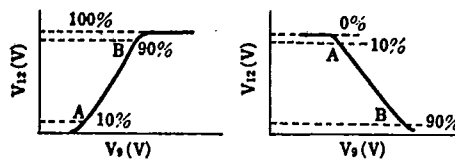


### 5. $\Delta G_p$

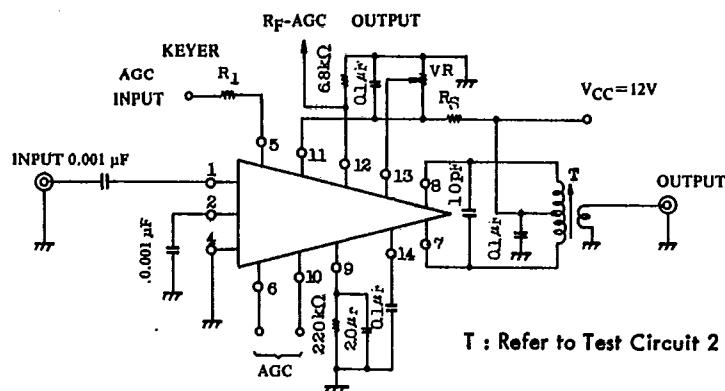


#### IF GAIN VARIATION TEST METHOD

The IF Gain change is defined as the difference of the IF Gain from 10% of the  $V_{12}$  Max to 90% of  $V_{12}$  Max with the change of voltage at pin 9.



#### APPLICATION CIRCUIT



AGC INPUT  
(REFER TO UNDER CHART)

VIDEO POLARITY	PIN 6 VOLTAGE	PIN 10 VOLTAGE	$R_1$
NEGATIVE	5.5 V	1.0 - 4.0 V	0
	2.0 V - - - - -	ADJ. 1.0-4.0 V	
	0 V —————	NOM. 2.0 V	
POSITIVE	1.0 - 8.0 V	4.5 V - - - - -	3.9 k Ohms
	ADJ. 1.0-8.0V	0 V	
	NOM. 4.5 V		