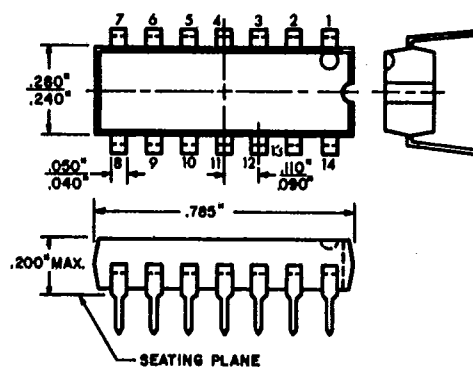




ECG1080

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
 $y_r \ll -1.0\mu\text{S}$ (Typ.)
- Nearly Constant Input and Output
Admittance over AGC Range
- Either Positive or Negative Going Video
Signals



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

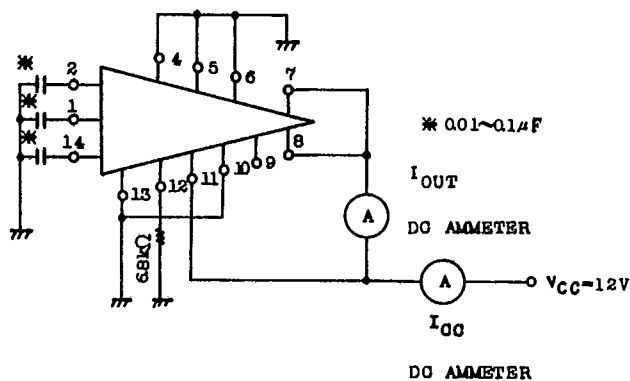
Characteristic	Symbol	Rating	Unit
Supply Voltage	V_{cc}	18	V
Output Voltage	V_7, V_8	18	V
Input Voltage	V_1, V_2	10	V_{p-p}
AGC Input Voltage	V_6, V_{10}	6	V
Gate Input Voltage	V_5	10, -20	V
Power Dissipation (Note 1)	P_D	625	mW
Minimum Load Resistance (Pin 12)	R_L	4	k Ohms
Operating Temperature	T_{opr}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

(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



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 _{rms}
			3	-30 dB AGC	200	--	--	mV _{rms}
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		ΔG_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	--	$f = 58\text{ MHz}$	--	≤ 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} : Varied

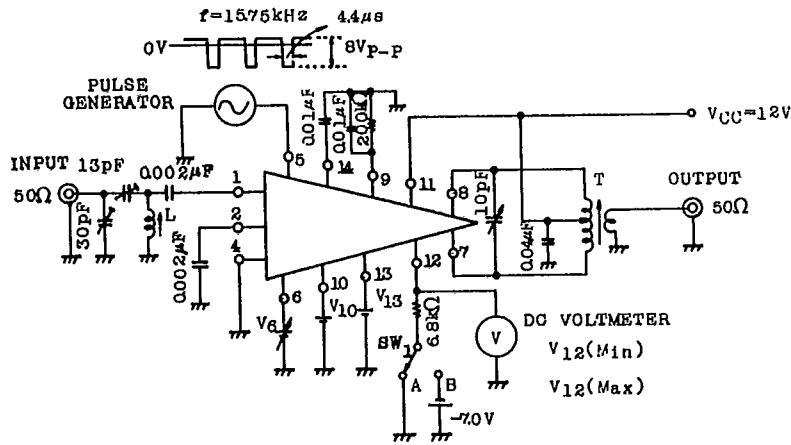
The maximum output voltage is defined as the value at 3 dB down from the saturated value of the output voltage.

AGC Range is measured by setting the following condition:

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

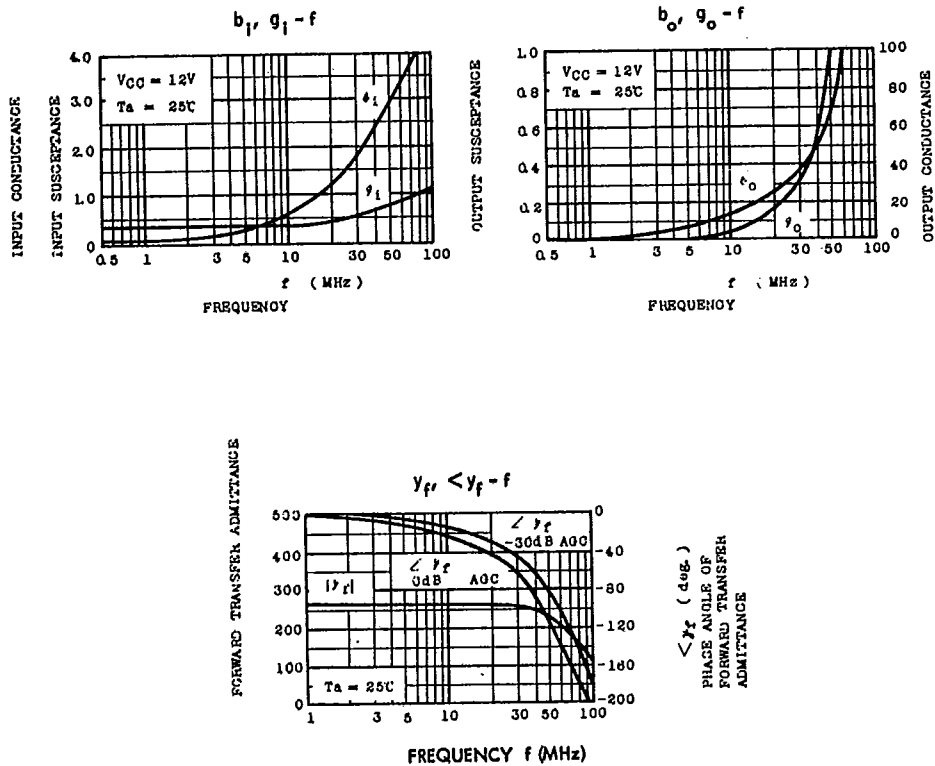
AGC Range is GP1 (at $V_{10} = 0\text{ V}$,) - GP2 (at $V_{10} = 7\text{ V}$).

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



L and T: Refer to Test Circuit 2

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

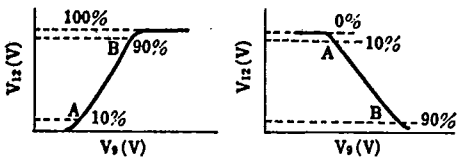


ΔC



IF GAIN VARIATION TEST METHOD

The IF Gain change is defined as the difference of the IF Gain from 10% of the V_{I2} Max to 90% of V_{I2} 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  2.0 V - - - - - 0 V _____	1.0 - 4.0 V ADJ. 1.0-4.0 V NOM. 2.0 V	0
POSITIVE	1.0 - 8.0 V ADJ. 1.0-8.0V NOM. 4.5 V	4.5 V - - - - - 0 V 	3.9 k Ohms