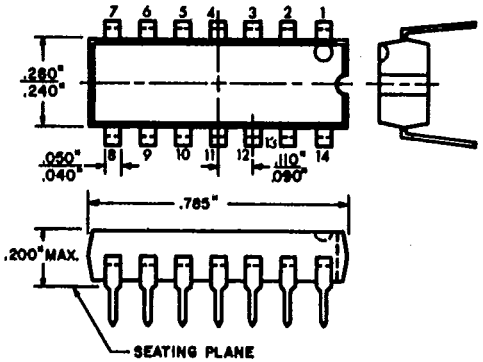
ECG1080

BIPOLAR MONOLITHIC LINEAR INTEGRATED CIRCUIT

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



MAXIMUM RATINGS (Ta = 25°C)

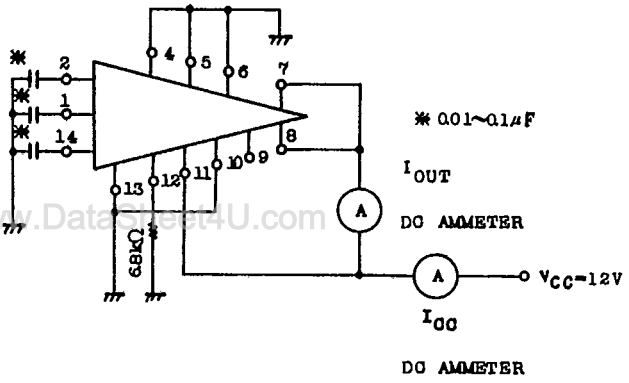
Characteristic	Symbol	Rating	Unit
Supply Voltage	V_{cc}	18	V
Output Voltage	V_7, V_8	18	V
Input Voltage	V_1, V_2	10	V_{P-P}
AGC Input Voltage	V_6, V_{10}	6	V
Gate Input Voltage	V_5	10, -20	V
Power Dissipation (Note 1)	P_D	625	mW
Minimum Load Resistance (Pin 12)	R_L	4	k Ohms
Operating Temperature	T_{opr}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

(Note 1)

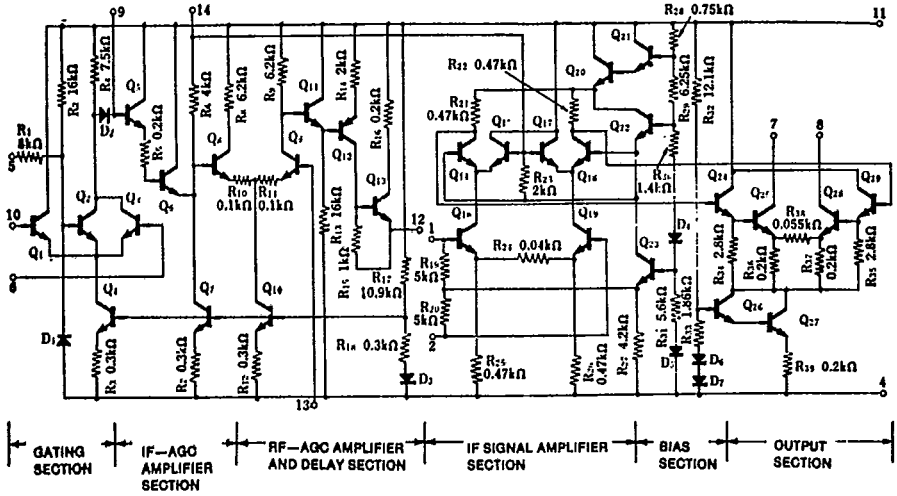
Derated above Ta = 25°C in the proportion of 5.0 mW/°C.

TEST CIRCUIT

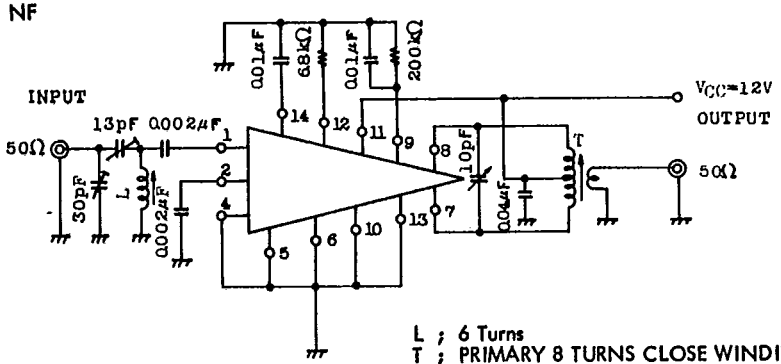
1. I_{cc}, I_{OUT}, P_D



EQUIVALENT CIRCUIT



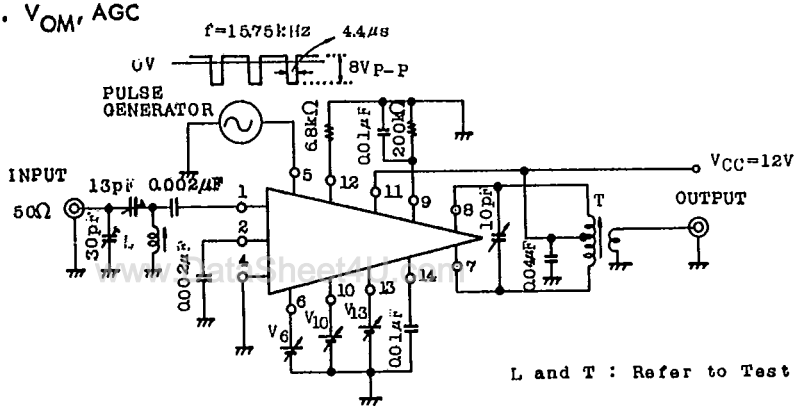
2. G_p, NF



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

L AND T 0.32 mm$^{\phi}$ ENAMEL WIRE
COIL FORM DIAMETER 5.5 mm$^{\phi}$

3. V_{OM}, AGC



L and T : Refer to Test Circuit 2

ELECTRICAL CHARACTERISTICS (V_{cc} = 12 V, Ta = 25°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 MHz	42	46	--	dB
Noise Figure		NF	2	f = 58 MHz, R_g = 50 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}(Max)	4	--	--	8.5	--	V
	Minimum	V_{12}(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 MHz	--	0.8	--	m℧
	Input Susceptance	b_i	--		--	3.4	--	
Output Admittance	Output Conductance	g_o	--	f = 58 MHz	--	155	--	μ℧
	Output Susceptance	b_o	--		--	850	--	
Forward Transfer Admittance		y_f	--	f = 58 MHz 0 dB AGC	--	220	--	m℧
Phase Angle of Forward Transfer Admittance		$<y_f$	--		--	-135	--	deg
				-30 dB AGC	--	-95	--	
Reverse Transfer Admittance		y_r	--	f = 58 MHz	--	$\ll$1.0	--	μ℧

L and T: Refer to Test Circuit 2

MAX. OUTPUT VOLTAGE TEST METHOD

a) 0 dB AGC

f = 58.75 MHz, V_{IN} = 1 mV_{rms}

V_6 = 5.5 V, V_{10} = 0 V, V_{13} = 0 V

b) -30 dB, AGC

F = 58.75 MHz, V_{IN} = 1 mV_{rms}

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

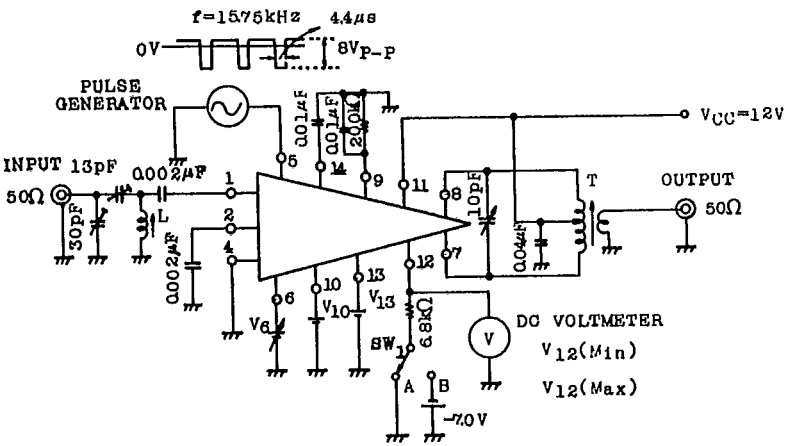
The maximum output voltage is defined as the value at 3 dB down from the saturated value of the output voltage.

AGC Range is measured by setting the following condition:

f = 58.75 MHz, V_{IN} = 1 mV_{rms}, R_L = 50 Ohms, V_{13} = 0 V, V_6 = 2 V.

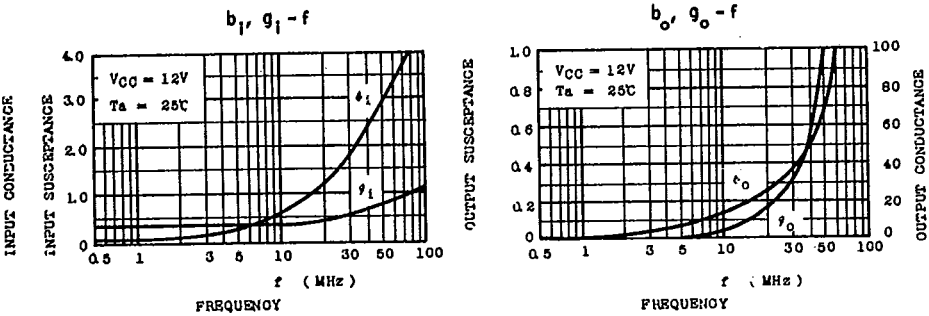
AGC Range is GP1 (at V_{10} = 0 V,) - GP2 (at V_{10} = 7 V).

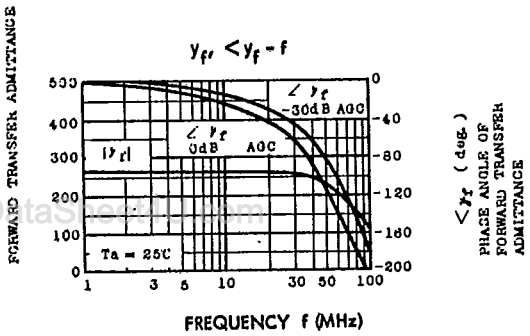
4. V_{12}(Max), V_{12}(Min)



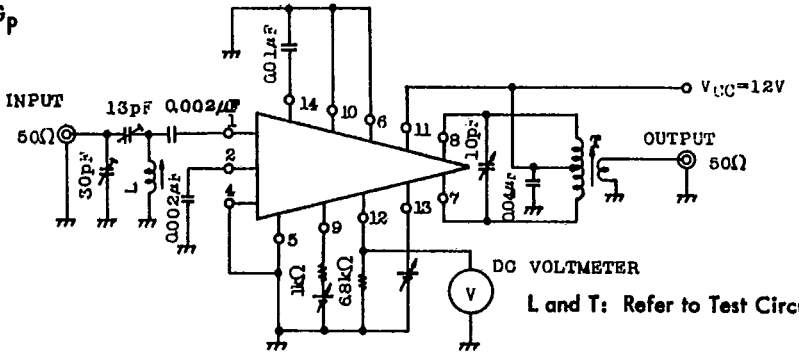
L and T: Refer to Test Circuit 2

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





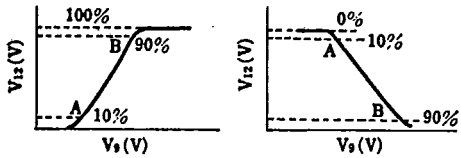
5. ΔG_p



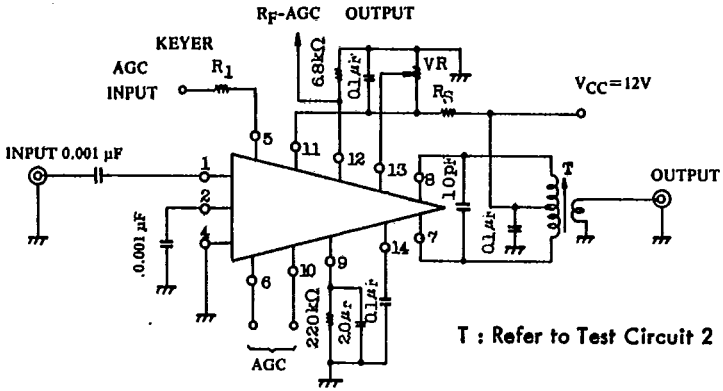
L and T: Refer to Test Circuit 2

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



T : Refer to Test Circuit 2

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