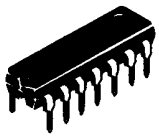
TV APPLICATIONS

TV APPLICATION

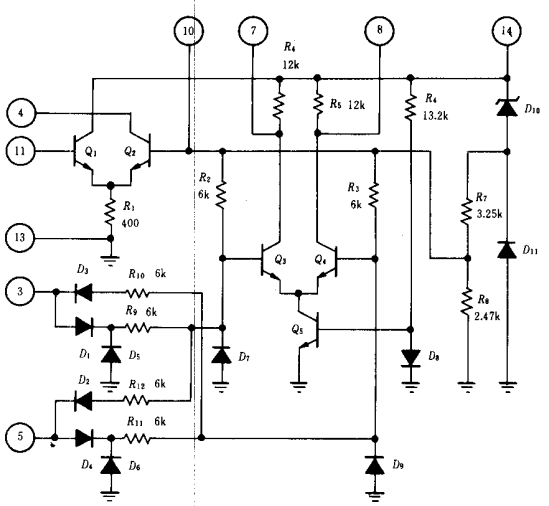
HA1108

TV AUTOMATIC FINE TUNING CIRCUIT



(DP-14)

■ CIRCUIT SCHEMATIC



■ ABSOLUTE MAXIMUM RATINGS

Item	Symbol	HA1108	Unit
Power Dissipation	P_T	300	mW
Operating Temperature	T_{opr}	−20 to +85	°C
Storage Temperature	T_{stg}	−55 to +85	°C

■ ABSOLUTE MAXIMUM RATINGS (2)

The following chart gives the range of voltages which can be applied to the terminals listed vertically with respect to the terminals listed horizontally. For example, the voltage range between vertical terminal 4 and horizontal terminal 10 is +20 to 0 volts.

VOLTAGE CONDITIONS AT OTHER TERMINALS

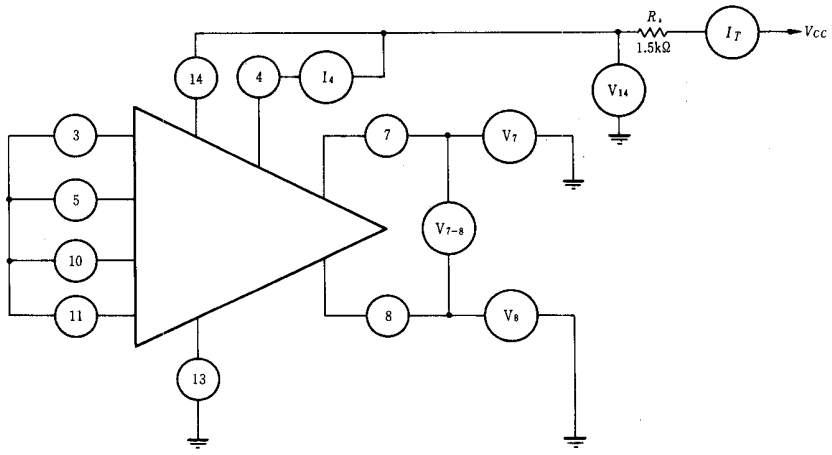
Terminal No.	14	3	4	5	7	8	10	11	13	I_{in} (mA)	I_{out} (mA)
14		+20 0	+20 −10	+20 0	+20 0	+20 0	+20 0	+20 0	△	50	50
3			○	+12 −12	○	○	+ 6 − 6	○	+ 6 0	5	5
4				○	○	○	+20 0	○	+20 0	20	20
5					○	○	+ 6 − 6	○	+ 6 0	5	5
7						○	○	○	+12 0	5	5
8							○	○	+12 0	5	5
10								+ 5 − 5	+ 5 0	5	5
11									+ 8 − 5	5	5
13									RFF-SUBSTRATE	50	50

■ ELECTRICAL CHARACTERISTICS (Ta=25°C)

Item		Symbol	Test Circuit	Test Conditions	min	typ	max	Unit
Static Characteristics	Device Dissipation	P_T	1	V_{CC}=30V, R_S=1.5kΩ	110	140	170	mW
	9V Current Drain	I_T	1	V_{14}=9V	2.5	4.0	5.5	mA
	Zener Regulating Voltage	V_{14}	1	V_{CC}=30V, R_S=1.5kΩ	10.5	11.2	11.9	V
	Quiescent Operating Current	I_4			1	2	4	mA
	Quiescent Operating Voltage	V_7			5.0	6.5	8.0	V
	Quiescent Operating Voltage	V_8			5.0	6.5	8.0	V
	Output Offset Voltage between Terminal 7 and 8	V_{7-8}			−1.5	0	1.5	V
RF Amp.	Input Limiting Voltage (Knee)	$V_{i(lim)}$	2	f=58.75MHz, V_{CC}=30V, R_S=1.5kΩ	—	120	—	mV. rms
*Output vs. Frequency Deviation-AFC	Correction-Control Voltage at Terminal 7	V_{corr7}	3	f=58.75−0.075MHz	80	—	—	% of V_{14}
				f=58.75+0.075MHz	—	—	38	
				f=58.75−0.900MHz	75	—	—	
				f=58.75+0.900MHz	—	—	43	
				f=58.75−1.500MHz	—	—	85	
				f=58.75+1.500MHz	33	—	—	
	Correction-Control Voltage at Terminal 8	V_{corr8}	3	f=58.75−0.075MHz	—	—	38	% of V_{14}
				f=58.75+0.075MHz	80	—	—	
				f=58.75−0.900MHz	—	—	43	
				f=58.75+0.900MHz	75	—	—	
				f=58.75−1.500MHz	33	—	—	
				f=58.75+1.500MHz	—	—	85	

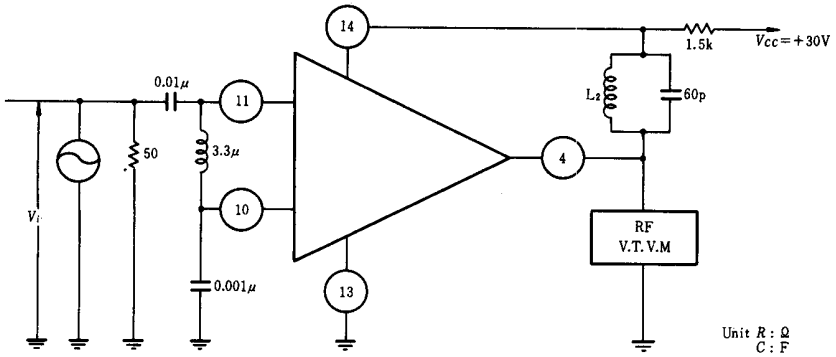
* Test Conditions; V_{CC}=+30V, R_S=1.5kΩ, V_{in}=550mVrms

■ TEST CIRCUIT



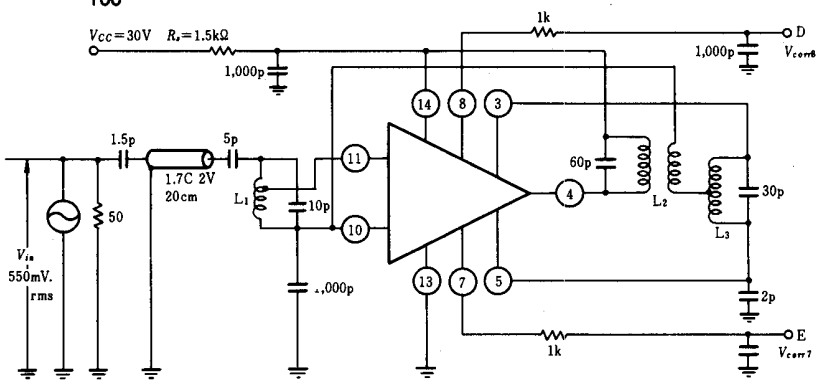
- $P_T = \frac{Vcc - V_{14}}{Rs} \cdot V_{14}$
- Test the P_T, V_{14}, I_4, V_7, V_8 and V_{7_8} using the Vcc = 30V.
- When test I_T, Vcc adjust V_{14} = 9V.

2.



Coil Spec.
L_2: 0.1φ Polyuretan Wire, Turns 2T
Coil Outline
Coil Dia.: 5mmφ
Screw Core: 4mmφ×8mmφ
Sleeve Core: Outside Dia. 9.5mmφ,
Inside Dia.: 7.5mmφ,
Height 6mm

3. Calculate the V_{corr7} and V_{corr8} using the following equation. V_{corr7}, $V_{corr8} = \frac{V_{14}}{100}$ (%)



Coil Spec.
L_1: 0.1mmφ Polyuretan Wire, Turns 5T, 2T at Center Tap.
L_2: 0.1mmφ Polyuretan Wire, Turns: Primary 2T, Secondary 2T.
L_3: 0.1mmφ Polyuretan Wire, Turns 3T, With Center Tap.
Coil Outline
Coil Dia: 5mmφ
Screw Core: 4mmφ×8mmφ
Sleeve Core: Outside Dia, 9.5mmφ, Inside Dia. 7.5mmφ,
Height 6mm