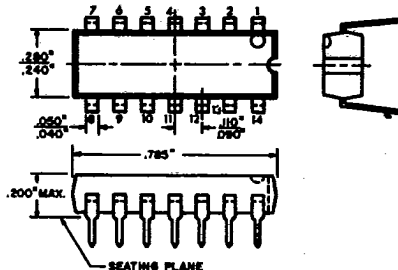




# ECG1047

## FM IF AMPLIFIER WITH AUDIO AMPLIFIER

Integrated circuit developed chiefly for TV sound IF amplifier applications. The IF amplifier consists of a 3-stage directly-coupled differential amplifier. It also contains a ratio detector circuit, the first audio amplifier for impedance conversion and the second audio amplifier. In addition, it contains a stabilizing circuit for the possible power supply voltage fluctuation.



**ABSOLUTE MAXIMUM RATINGS**

Item	Symbol	Value	Unit
Power Supply Voltage	$V_{CC}$	13	V
Circuit Current	$I_{CC}$	35	mA
Input Voltage	$V_i$	3	V <sub>DC</sub>
Operating Temperature	$T_{opt}$	-20 - +75	°C
Storage Temperature	$T_{stg}$	-40 - +125	°C

**PIN CONNECTION**

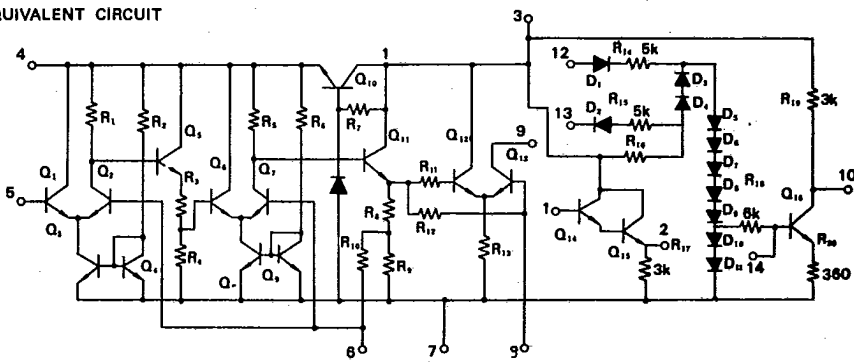
1. Input to impedance conversion circuit
2. Output from impedance conversion circuit
3. Power supply (+)
4. Regulated power supply
5. IF input, high
6. IF input, low
7. Ground (-), grounded through a capacitor
8. Capacitor
9. IF output
10. AF output
- 11.
12. Detector transformer
13. Detector transformer
14. AF input

**ELECTRICAL CHARACTERISTICS** ( $T_a=25^{\circ}C, V_{CC}=10V$ )

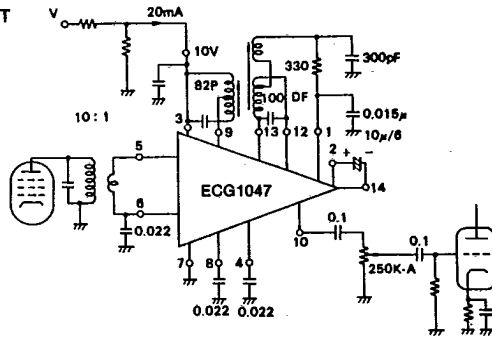
Item	Symbol	Condition	Value		Unit
			Min.	Typ. Max.	
Circuit Current	$I_{CC}$		20	28	mA
Voltage Gain (IF section)	$G_v$	$f=4.5MHz$ , Input terminated in $50\Omega$ , $R_L=1k\Omega$ , $V_i=100\mu V_{rms}$	65	72	dB
Voltage Gain (IF section)	$G_v$	$f=10.7MHz$ , Input terminated in $50\Omega$ , $R_L=1k\Omega$ , $V_i=100\mu V_{rms}$	60	67	dB
Limiting Voltage (-3dB)	$V_i$ (bin)	$f=4.5MHz$ , $\Delta f=25kHz$ at 400Hz mod; with a detector transformer of the specified type	400		$\mu V_{rms}$
Audio Frequency Output from Detector	$V_{OAF}$	$f=4.5MHz$ , $\Delta f=25kHz$ at 400Hz mod, input $V_i=1mV$	300	350	mV
AM Rejection Ratio	AMR	$f=4.5MHz$ , $V_i=1mV$ Mod: FM 100% ( $\Delta f=25kHz$ ) AM 30% at 400Hz	50		dB
Total Harmonic Distortion in Detector Output	$HD_1$	$f=4.5MHz$ , $\Delta f=25kHz$ at 400Hz mod, input $V_i=1mV$	0.8	1.5	%
Voltage Gain of Audio Stage	$G_{VAF}$	Input 300mV at 400Hz for a low frequency load of $100k\Omega$ (C-coupled)	14	18	dB
Total Harmonic Distortion in Audio Output	$HD_2$	$f=4.5MHz$ , $\Delta f=25kHz$ at 400Hz mod, input $V_i=1mV$ , low frequency load of $100k\Omega$ ; Overall distortion characteristics shall be tested	0.6	1.5	%
Audio Output	$V_{OAF}$	$f=4.5MHz$ , $\Delta f=25kHz$ at 400Hz mod, input $V_i=1mV$ , low frequency load of $100k\Omega$	1.8		V <sub>rms</sub>
Audio Stage Max.		$V_{CC}=10V$ , 400Hz, undistorted, low frequency load of $3k\Omega$ (C-coupled)	1.2		V <sub>rms</sub>
Output		$V_{CC}=10V$ , 400Hz, undistorted, low frequency load of $100k\Omega$ (C-coupled)	2.5		V <sub>rms</sub>

NOTE:- 1) Specified detector transformer is used.

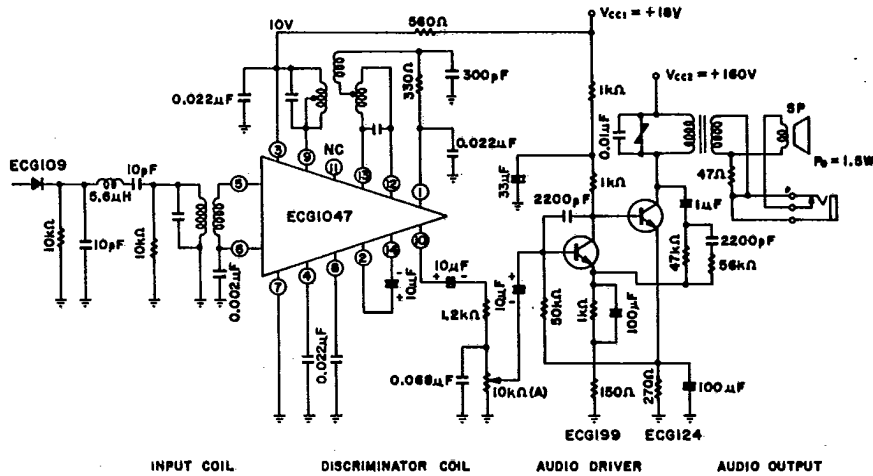
EQUIVALENT CIRCUIT



TV SOUND IF CIRCUIT



APPLICATION



ECG1047

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