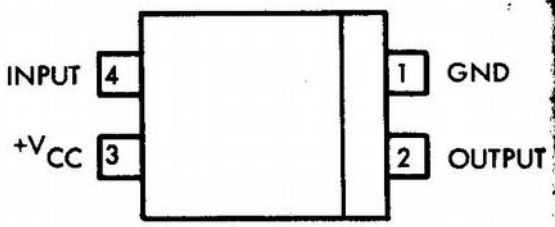
ECG753

WIDE-BAND AMPLIFIER



ECG753 is designed for FM/IF and low-level audio applications.

- High Audio Gain - 60 dB minimum
- Useful as a Microphone Amplifier and in Tape Recorders and Cassettes
- Excellent Performance as a 10.7 MHz FM/IF Amplifier
- High Transconductance (g_m) Ideally Suited to Low Impedance Ceramic Filters

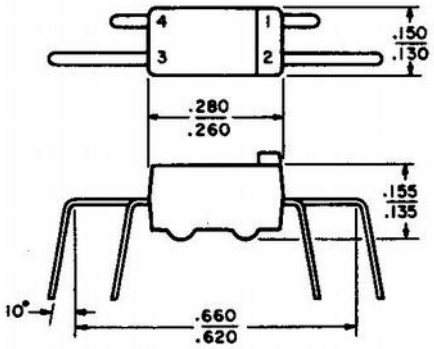
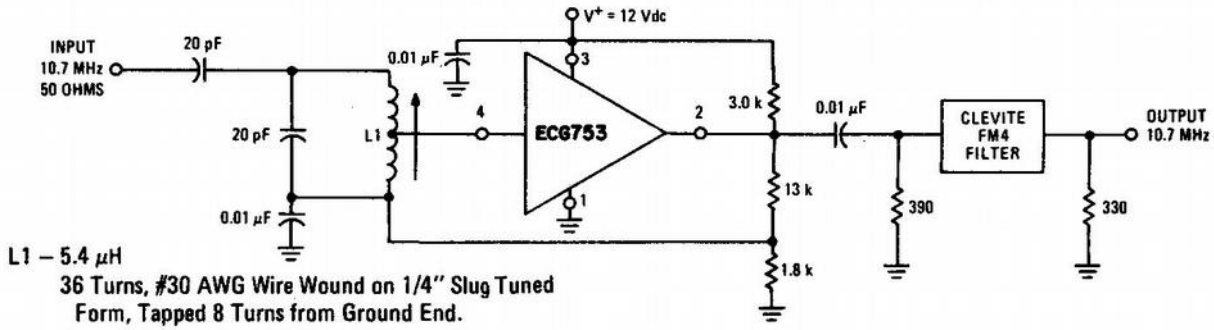
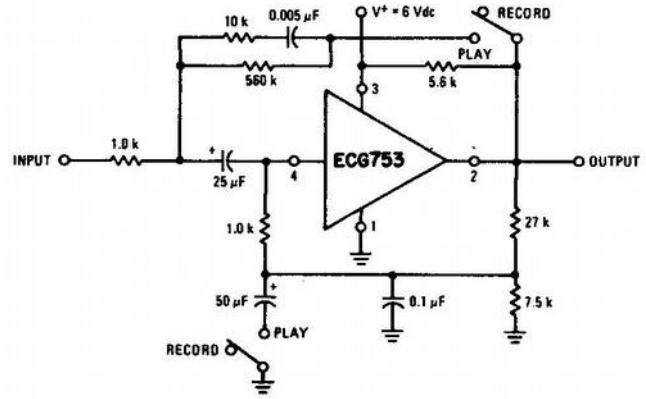


Figure 1 - FM/IF Amplifier



L1 – 5.4 µH
36 Turns, #30 AWG Wire Wound on 1/4" Slug Tuned Form, Tapped 8 Turns from Ground End.
Slug: T.H. Material 1/4" Dia., 1/2" Length

Figure 2 - Record/Play Preamplifier for Cassette and Portable Tape Recorders



Maximum Ratings (T_A = 25°C unless otherwise noted)

Rating	Symbol	Value	Unit
Power Supply Voltage	V^+	18	Vdc
Power Dissipation @ T_A = 25°C (Package Limitation) Derate above 25°C	P_D	0.5 5.0	Watt mW/°C
Operating Temperature Range	T_A	-10 to +75	°C

Electrical Characteristics (V^+ = 6.0 Vdc, T_A = 25°C unless otherwise noted)

Characteristic	Symbol	Min	Typ	Max	Unit
Open Loop Voltage Gain (Figure 3) (f = 1.0 kHz)	A_{VOL}	60	68	–	dB
h Parameters (1) (f = 1.0 kHz)	h_{11}	–	1.0	–	k ohms
	h_{12}	–	10^{-6}	–	–
	h_{21}	–	1000	–	–
	h_{22}	–	10^{-5}	–	mhos
Output Noise Voltage (Figure 3) (BW = 20 Hz to 20 kHz, R_S = 1.0 k ohms)	$e_{n(out)}$	–	3.0	–	mV(rms)
Current Drain	I_D	–	3.0	–	mA

High Frequency Characteristics (V^+ = 12 Vdc, f = 10.7 MHz, T_A = 25°C unless otherwise noted)

Power Gain (Figure 1) (e_{in} = 0.1 mVrms)	–	–	42	–	dB
Noise Figure (Figure 1) ($R_S \approx 740$ Ohms)	NF	–	6.0	–	dB
y Parameters(1) (f = 10.7 MHz, I_2 = 2.0 mA)	Y_{11}	–	1.3 + j1.5	–	mmhos
	Y_{12}	–	-3.4 + j8.1	–	μmhos
	Y_{21}	–	-0.33 + j0.68	–	mhos
	Y_{22}	–	120 + j0	–	μmhos

(1) Device only, without external passive components.

Figure 3 - Audio Test Circuit

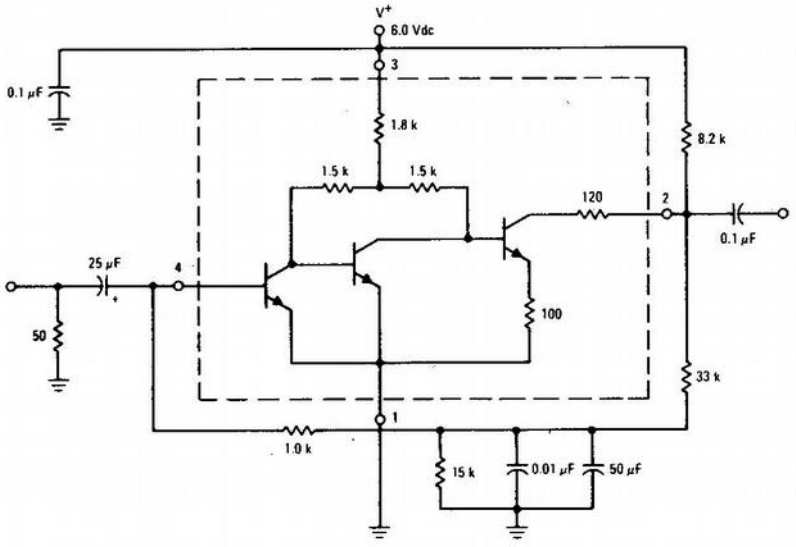
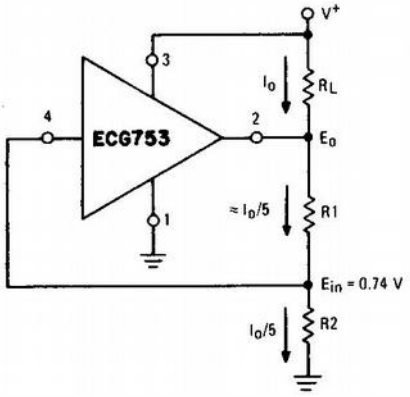


Figure 4 - Biasing Recommendations



Select: V^+, E_O, and I_O
Solve for: $R_L = (V^+ - E_O)/I_O$
Let: $R2 = 5\,(0.74)/I_O$
Then: $R1 = R2\,(E_O - 0.74)/0.74$