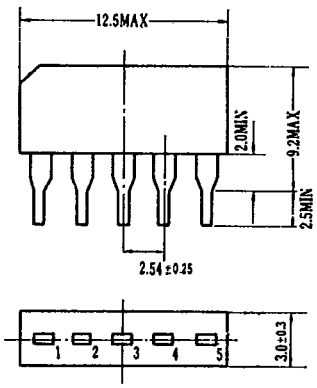
T-74-09-01

ECG1104

HI-FREQUENCY AMPLIFIER MODULE

Units in mm



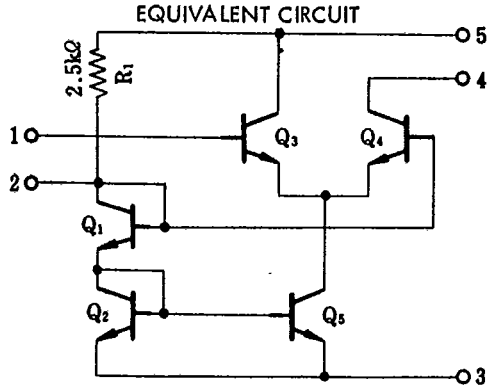
- FM IF (10.7 MHz) Amplifier
- TV Sound (4.5 MHz) Amplifier
- Recommended for Wide and Narrow Bands Amplifier
- Excellent FM/IF Limiter Circuit
- Small Package

MAXIMUM RATINGS (T_a = 25°C)

	Symbol	Rating	Unit
Supply Voltage	V_{CC}	15	V
4 Pin Voltage	V_{OUT}	24	V
Input Voltage (Between 1 and 2)	V_{IN}	±1.5	V
Power Dissipation (Note)	P_D	300	mW
Operating Temperature (V_{CC} = 12 V)	T_{opr}	-30~75	°C
Storage Temperature	T_{stg}	-55~125	°C

(Note) Derated above T_a = 25°C in the proportion of 3 mW/°C.

EQUIVALENT CIRCUIT



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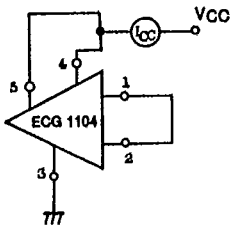
ELECTRICAL CHARACTERISTICS (T_a = 25°C)

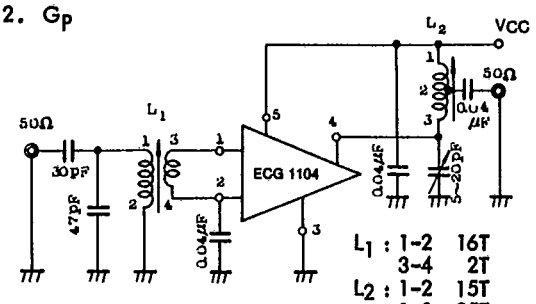
Characteristic		Symbol	Test Circuit	Test Condition	Min.	Typ.	Max.	Unit
Supply Current		I_{cc}	1	V_{cc} = 12 V	5.3	9.5	14	mA
				V_{cc} = 9V	--	6.5	--	
Power Dissipation		P_D	1	V_{cc} = 12 V	--	114	--	mW
				V_{cc} = 9 V	--	59	--	
Power Gain		G_P	2	V_{cc} = 12 V, f = 10.7 MHz	27	30	33	dB
				V_{cc} = 9 V, f = 10.7 MHz	--	27	--	
Voltage Gain		G_V	3	V_{cc} = 12 V, R_g = 50 Ohms, R_L = 1 k Ohm	--	26.5	--	dB
Input Impedance	Parallel Input Resistance	r_{ip}		V_{cc} = 12 V f = 10.7 MHz	--	3.5	--	k Ohms
	Parallel Input Capacitance	c_{ip}			--	8.0	--	pF
Output Impedance	Parallel Output Resistance	r_{op}			--	80	--	k Ohms
	Parallel Output Capacitance	c_{op}			--	3.0	--	pF
Forward Transfer Admittance		y_f			--	30	--	m℧
Reverse Transfer Admittance		y_r			--	2.0	--	μ℧

TEST CIRCUIT

1. I_{cc}, P_D

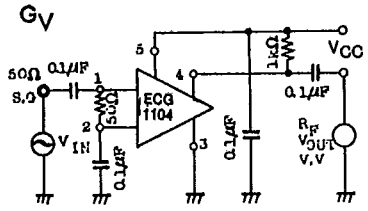


2. G_P



L_1 : 1-2 16T
3-4 2T
L_2 : 1-2 15T
1-3 25T
0.10 mmø UEW

3. G_V



L_1 : BETWEEN TERMINALS 1 AND 2 16 TURNS
BETWEEN TERMINALS 3 AND 4 2 TURNS
L_2 : BETWEEN TERMINALS 1 AND 2 15 TURNS
BETWEEN TERMINALS 1 AND 3 25 TURNS
0.10 mmø UEW

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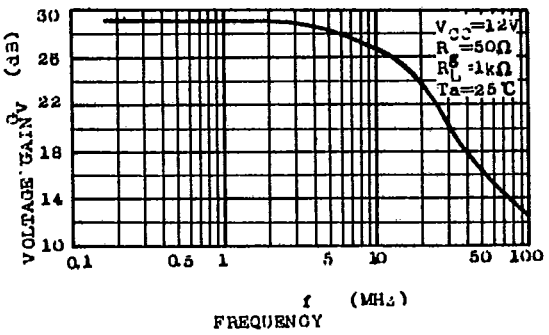
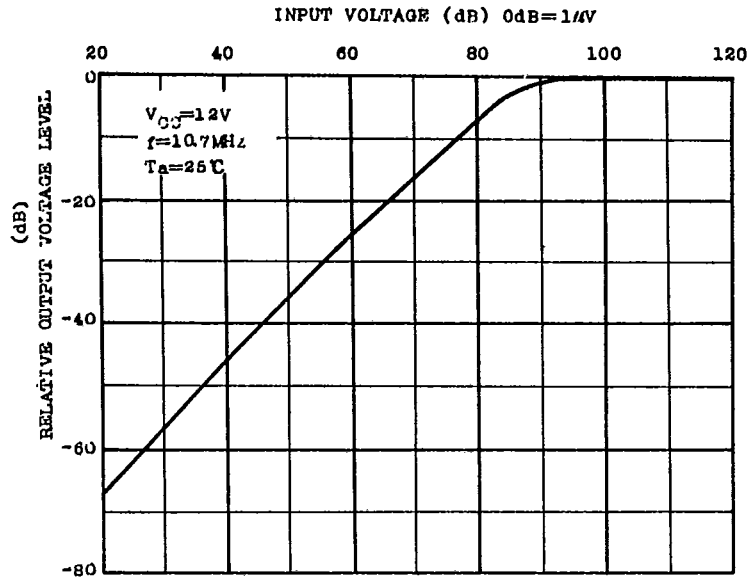
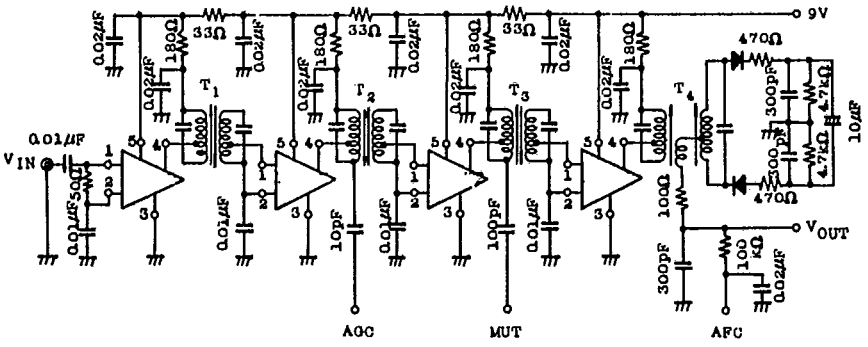
G_V - f



INPUT-OUTPUT CHARACTERISTICS



FM/IF AMPLIFIER CIRCUIT



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Characteristic	Symbol	Test Condition	Value	Unit
Supply Voltage	V_{cc}	--	9	V
Supply Current	I_{cc}	--	24	mA
Detector Output Voltage	V_{OD}	V_{IN} = 60 dB(μV), f = 400 Hz ΔF = 22.5 kHz	70	mV
Input Limiting Voltage	$V_{IN(lim)}$	-3dB	21	dB(μV)
Band Width	BW	6 dB Band Width	±110	kHz
Total Harmonic Distortion	THD	V_{IN} = 60 dB(μV), f = 400 Hz ΔF = 75 kHz	0.5	%
AM Rejection	AMR	FM f = 400 Hz, ΔF = 75 kHz AM f = 1 kHz 30%	45	dB
Capture Ratio	--	f = 400 Hz, ΔF = 75 kHz	3	dB

IF TRANSFORMER

	C_o	f	Q_o	Q_o	TURNS			
	(pF)	(MHz)	1 - 6	3 - 4	1 - 6	1 - 2	3 - 4	4 - 5
T_1	120	10.7	65	65	13	6	13	6
T_2	120	10.7	65	65	13	6	13	6
T_3	120	10.7	65	65	13	9	13	6

	C (pF)		f	Q_o	TURNS				
	1 - 3	4 - 6	(MHz)	1 - 3	1 - 3	1 - 2	5 - CT	4 - CT	6 - CT
T_4	22	47	10.7	65	31-1/2	11	9-1/2	11	11