

HA21001MS

T-77-05-05

VHF/UHF Tuner Use GaAs IC

Features

- Covers VHF and UHF frequencies
- Contains local OSC FETs, double balance mixer and IF amp dual gate FET
- Low noise, low distortion
- Surface mount package

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(MSP-18)

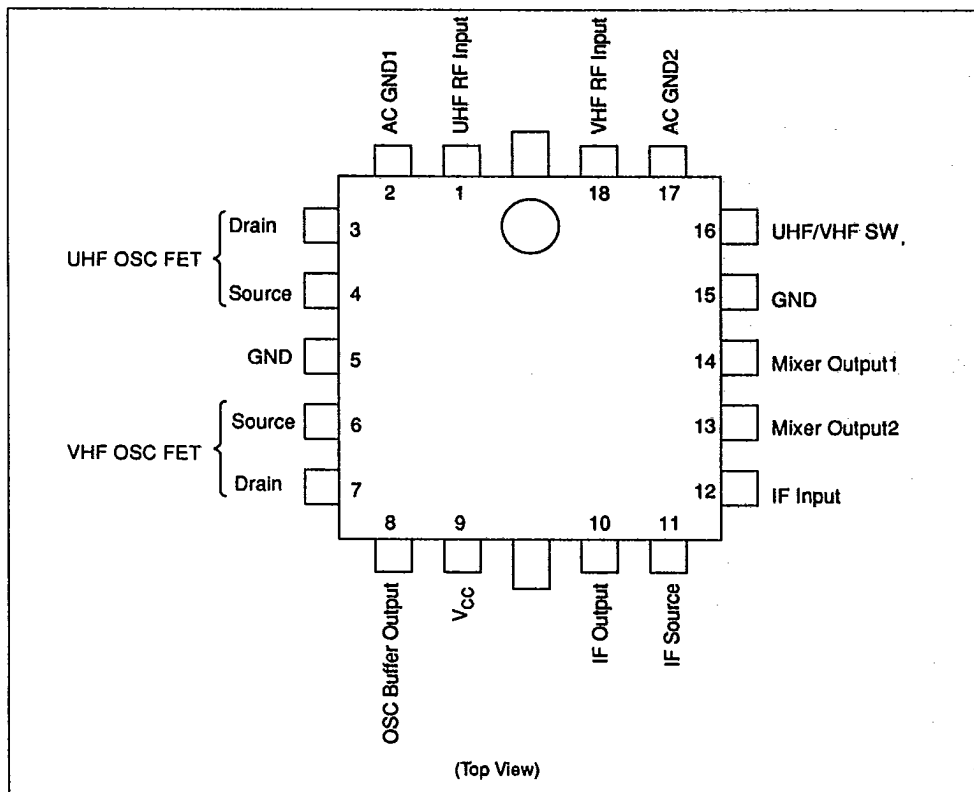
CAUTION

This product uses GaAs. Since dust and fumes from GaAs are highly poisonous to the human body, do not treat the product mechanically or chemically in a manner which might release hazardous substances into the air. It should never be thrown out with general industrial or domestic wastes.

Ordering Information

Type No.	Package
HA21001MS	MSP-18

Pin Configuration

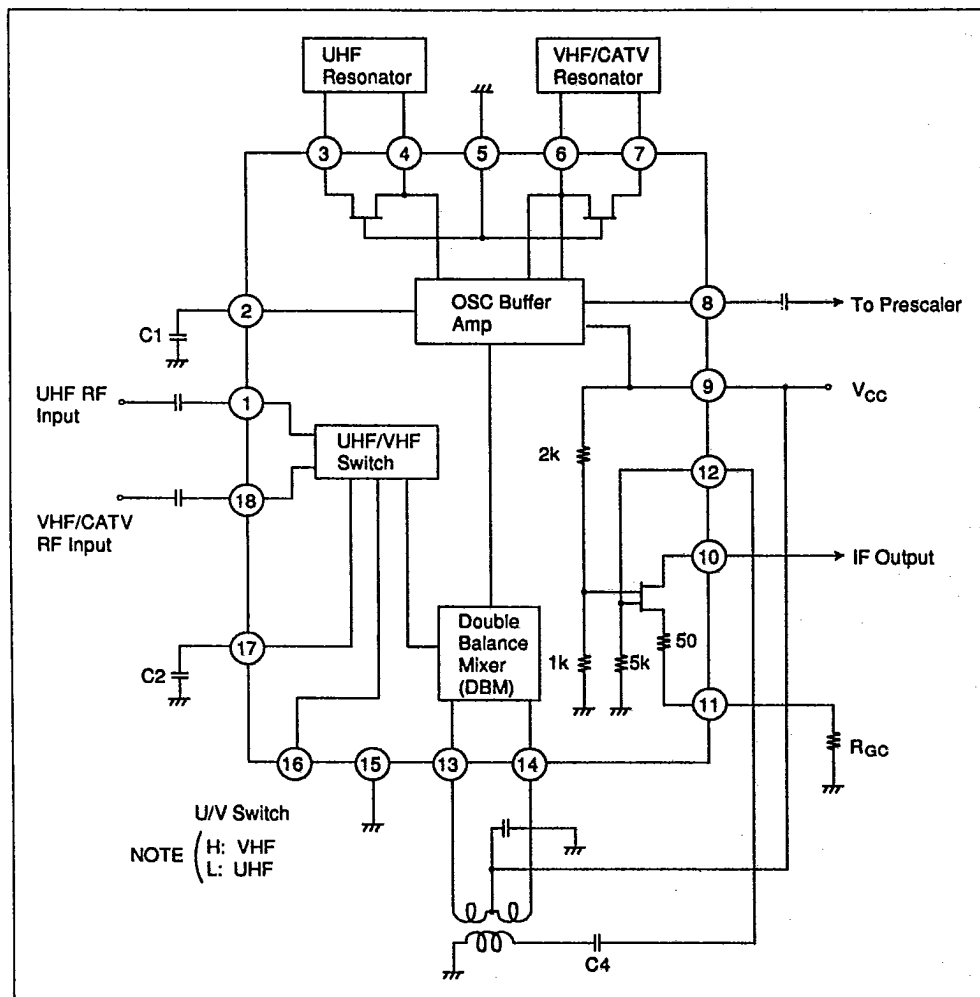
**HITACHI**

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Block Diagram

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Absolute Maximum Ratings (Ta = 25°C)

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Item	Symbol	Rating	Unit
Supply Voltage *1	V _{cc}	12	V
Maximum Input Voltage *2	V _{in}	±5	V
Maximum Current	I _t	50	mA
Power Dissipation *3	P _T	450	mW
Channel Temperature	T _{ch}	125	°C
Storage Temperature	T _{stg}	-55 to +125	°C
Operation Temperature	T _{opr}	-10 to +75	°C

Notes: *1: Operation voltage is 8 to 10V.

*2: Apply on pins 1, 12, 16, 18.

*3: When mounted on glass epoxy PCB (40mm × 40mm × 1.5mm³) covered with copper more than 30%. (Ta = 75°C)Electrical Characteristics (Ta = 25°C, V_{CC} = 9V)

Item	Symbol	Min	Typ	Max	Unit	Test Condition	Applicable Pin No.
Quiescent Current	I _Q	20	34	42	mA	No Signal	
VHF SW Voltage	V _{SWH}	5.0	—	—	V		16
UHF SW Voltage	V _{SWL}	—	—	0.8	V		16
Conversion Gain	CG1	20	23	—	dB	RF=60MHz	6, 10, 18
	CG2	20	23	—	dB	RF=460MHz (VHF)	6, 10, 18
	CG3	24	31	—	dB	RF=860MHz	4, 10, 1
OSC Buffer Output	P _{ps1}	-21	-18	—	dBm	LOCAL=105.75MHz	10, 18
	P _{ps2}	-22	-17	—	dBm	LOCAL=905.75MHz	1, 10
Noise Figure	NF1	—	10	—	dB	RF=60MHz	6, 10, 18
	NF2	—	10	—	dB	RF=460MHz (VHF)	6, 10, 18
	NF3	—	8	—	dB	RF=860MHz	4, 10, 1



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Typical Performance ($T_a = 25^\circ\text{C}$, $V_{CC} = 9\text{V}$)

Item	Symbol	Typ	Unit	Test Condition	Applicable Pin No.
1% Cross Modulation	CM	-17	dBm	RF = 210MHz, S/I = 50dB Undesire = RF $\pm$ 12MHz, 50kHz 63%AM	6, 10, 18
Inter-Modulation Distortion Ratio	IM2	-70	dB	RF = 210MHz, Undesire = 256.75MHz, -30dBm	6, 10, 18
	IM3	-50	dB	RF = 210MHz, Undesire = 211MHz, -30dBm	6, 10, 18
Local to RF Leakage	LL1	-27	dBm	LOCAL = 905.75MHz	1, 4, 6
	LL2	-36	dBm	LOCAL = 505.75MHz	18, 4, 6

Note: RF and local input test conditions are as follows.

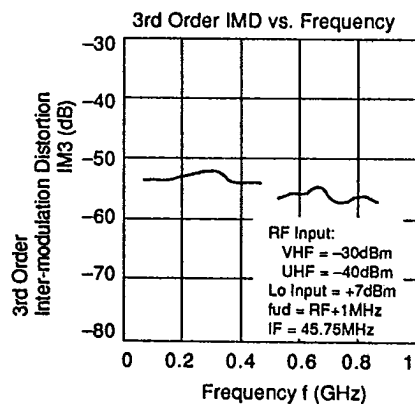
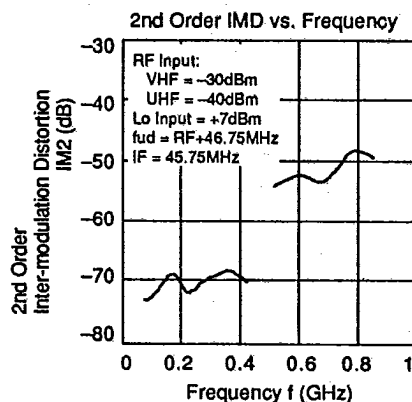
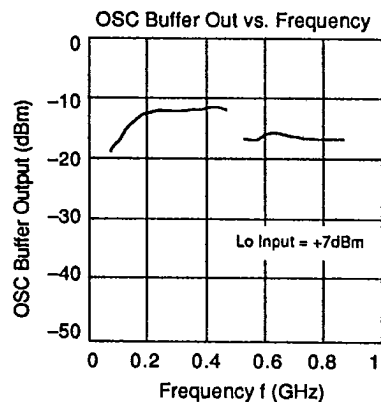
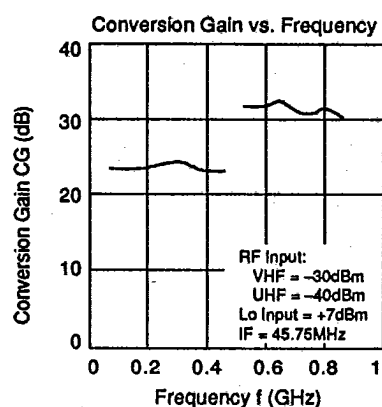
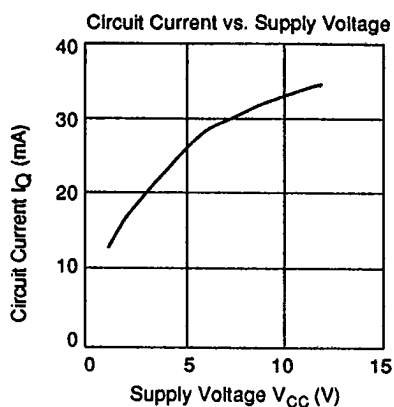
RF = 60 to 460MHz, -30dBm

RF = 510 to 860MHz, -40dBm

LOCAL = 7dBm, IF = 45, 75MHz

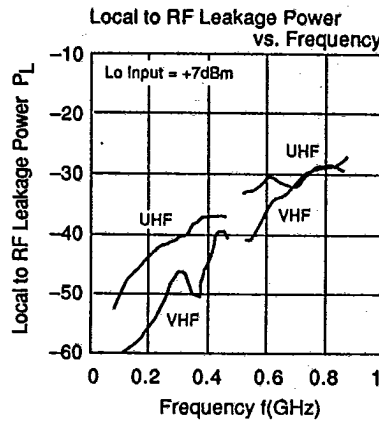
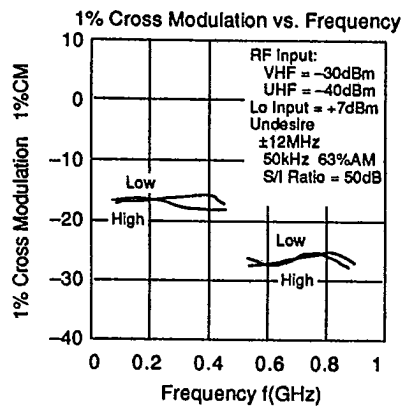
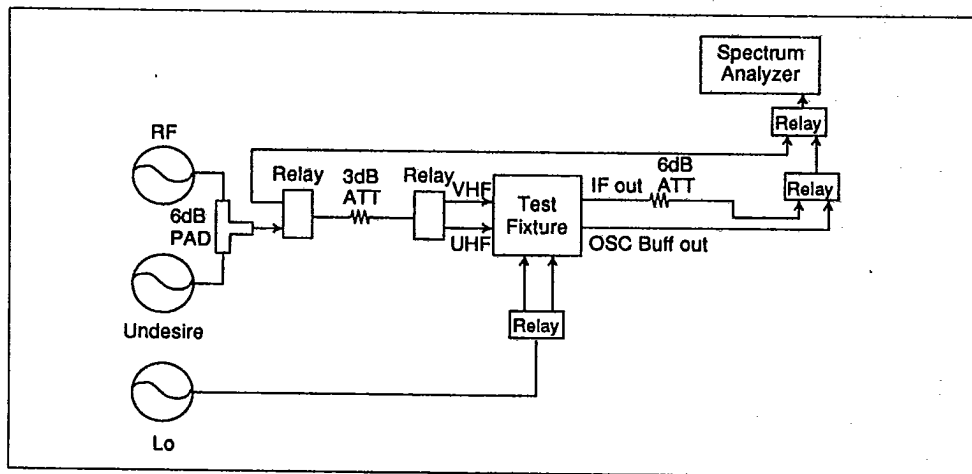


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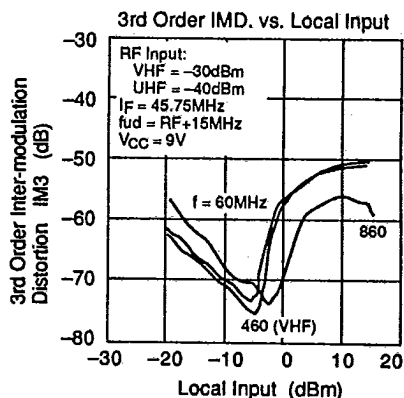
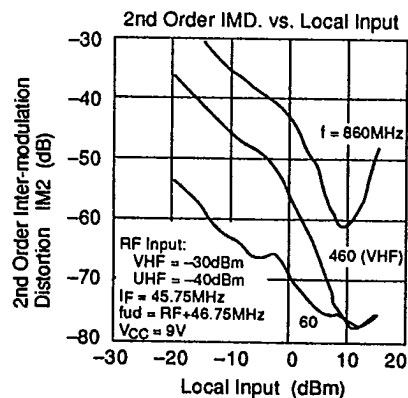
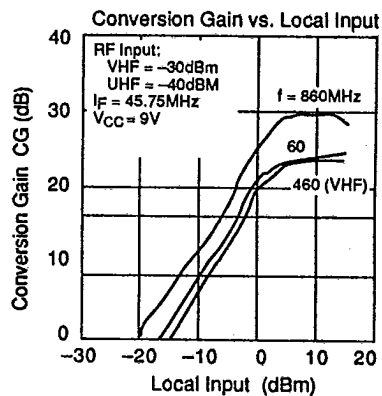
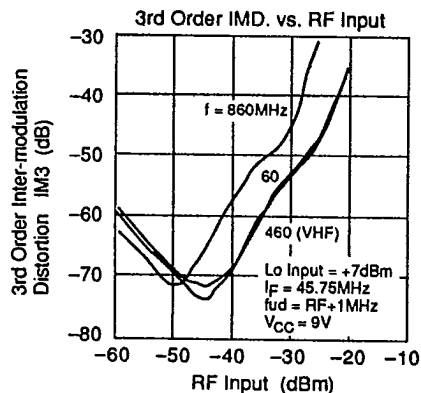
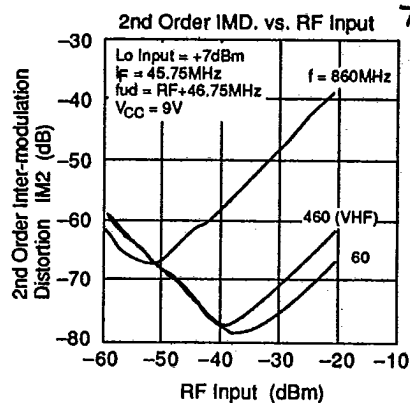
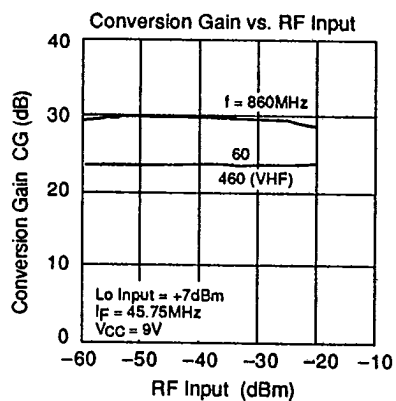
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Test System Diagram


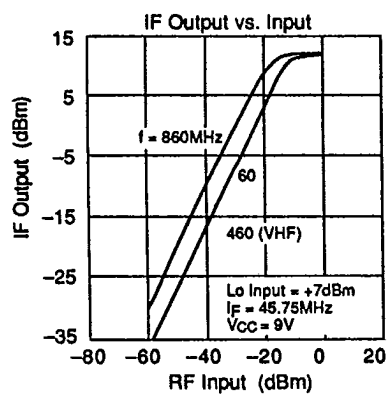
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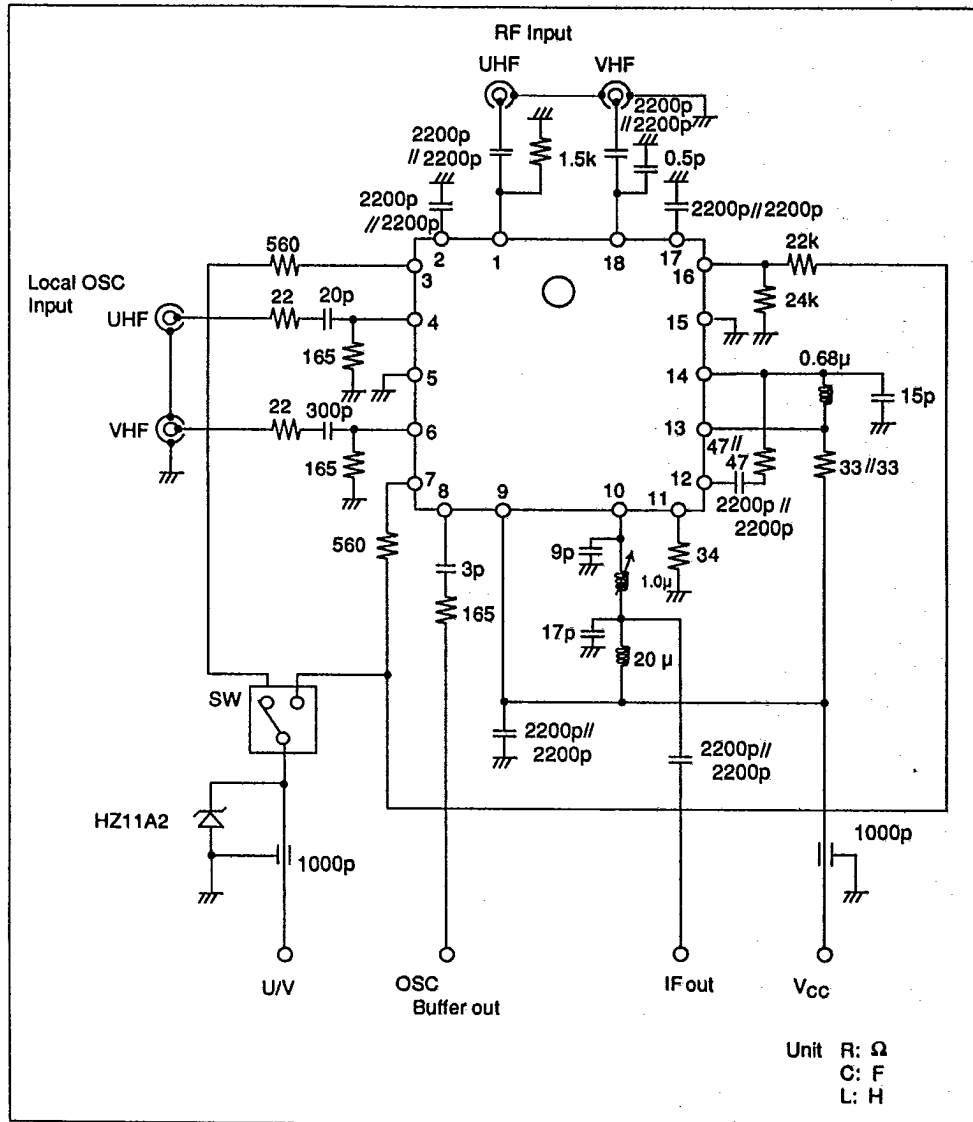
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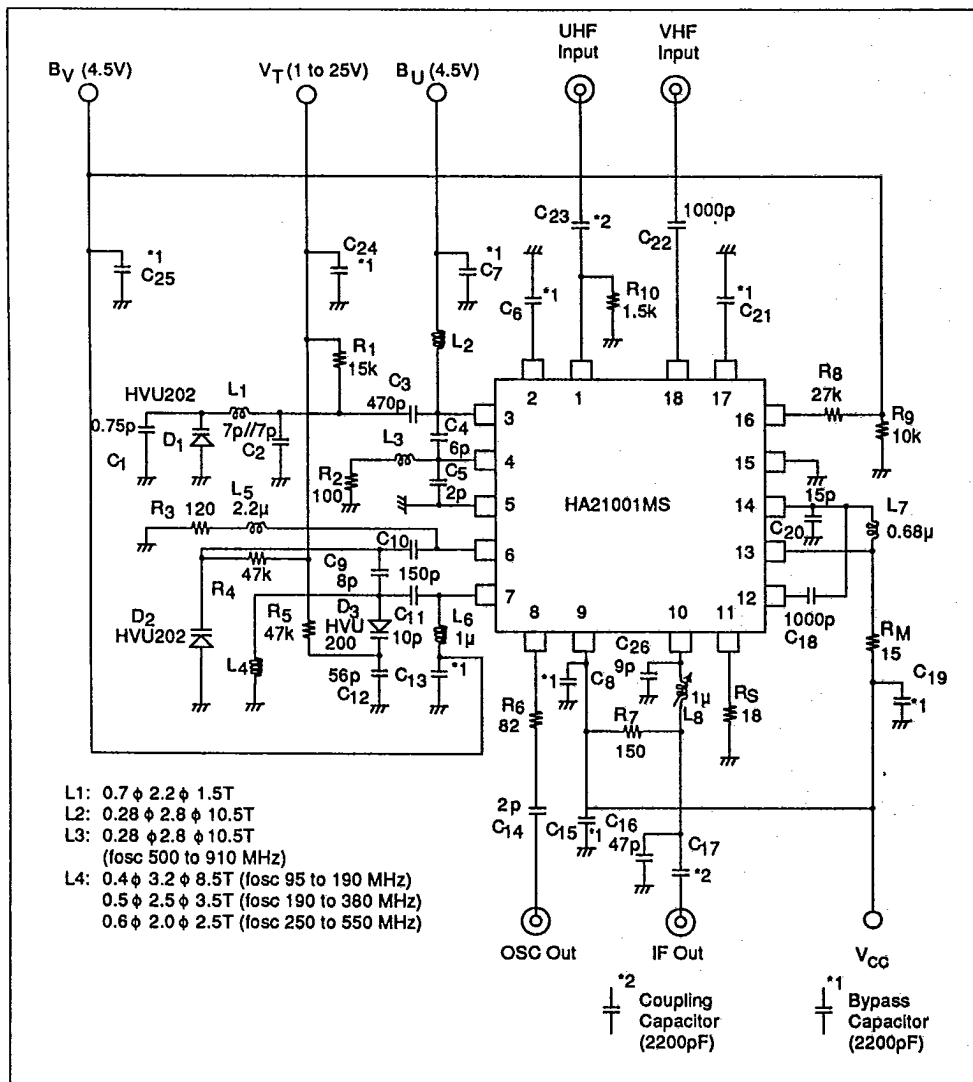
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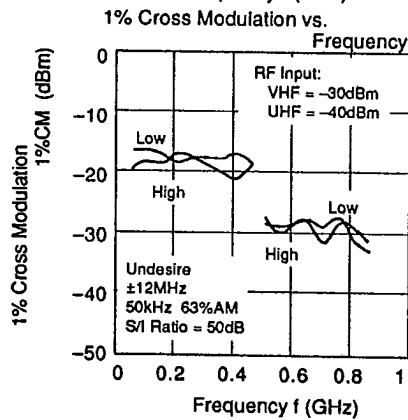
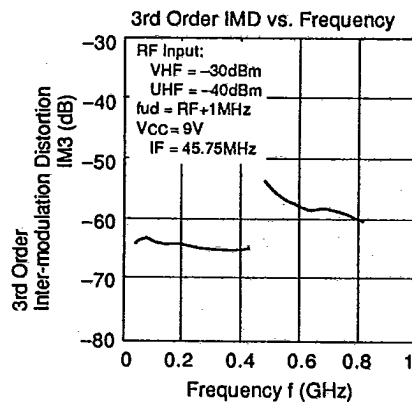
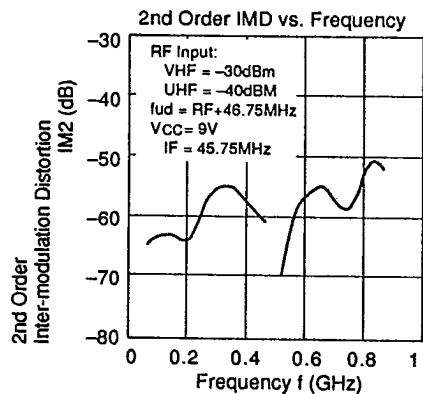
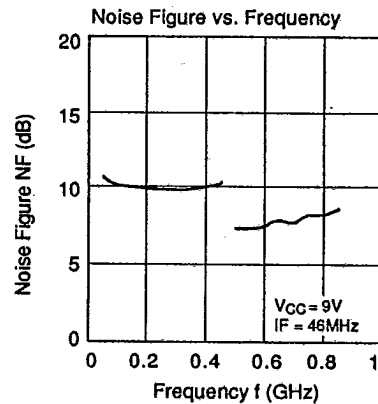
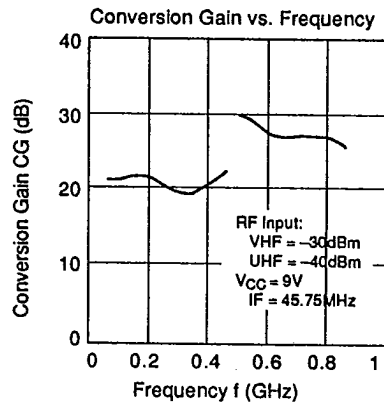
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Evaluation Circuit

Evaluation Circuit Test Data

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