



THICK FILM HYBRID INTEGRATED CIRCUIT MC-5157

VHF ~ UHF BROAD-BAND AMPLIFIER

DESCRIPTION AND APPLICATIONS

The MC-5157 is a thick film hybrid integrated circuit designed for broad-band general purpose amplifier applications in the 30 to 900 MHz band. The device is a "post amplifier" which features low noise, flat gain with a typical output of 100 to 110 dB μ V/75 Ω . Since the MC-5157 is designed to serve as a VHF-UHF TV booster amplifier, the device is matched to 75 Ω . The MC-5157 offers solutions to many amplifier problems where battery operation and bandwidth is required. Reliability and performance uniformity are assured by gold metallized transistors and NEC's stringent quality-control procedures. The MC-5157 is a complete circuit which requires no additional adjustments or components. Its use offers reductions in the number of manufacturing operations, assembly time, parts control, maintenance and design complexity.

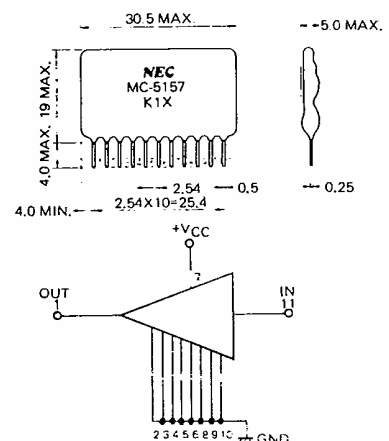
FEATURES

- Operates as a flat amplifier from 30 to 900 MHz without adjustments or external components.
- Input and output matching to 75 Ω .
- Low noise figure (4.5 dB TYP.)
- Low intermodulation distortion (IM₂=-46 dB, IM₃=-57 dB TYP.)

ABSOLUTE MAXIMUM RATINGS (Ta=25 °C)

Supply Voltage	V _{CC}	18	V
Operating Current	I _{CC}	75	mA
Input Voltage	V _I	0.5	V
Total Dissipation	P _T	1.3	W
Operating Temperature	T _{opt}	-30 to +65	°C
Storage Temperature	T _{stg}	-30 to +85	°C

PACKAGE DIMENSIONS
in millimeters



ELECTRICAL CHARACTERISTICS (Ta=25 °C, V_{CC}=+12 V, Z_S=Z_L=75 Ω)

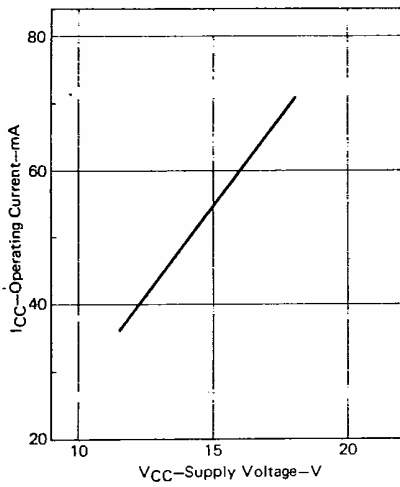
CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITION
Operating Current	I _{CC}	34	39	44	mA	
Average Gain	G _{V(av)}	24		25	dB	f=30~900 MHz
Gain Flatness	\pm G _{V(av)}		1.0	1.2	dB	f=30~900 MHz
Input Output VSWR	VSWR _{I,O}			2.5		f=30~900 MHz
Isolation	I _{SO}	30			dB	f=30~900 MHz
Noise Figure	NF		4.5	5.0	dB	f=30~300 MHz
			4.8	5.5	dB	f=300~900 MHz
2nd Order Intermodulation Distortion	IM ₂		-46	-40	dB	f ₁ =90 MHz, f ₂ =100 MHz, f=f ₁ +f ₂ V _O =100 dB μ V/75 Ω
			-51*		dB	
2nd Order Intermodulation Distortion	IM ₂		-43.5	-38	dB	f ₁ =200 MHz, f ₂ =500 MHz, f=f ₁ +f ₂ V _O =100 dB μ V/75 Ω
			-49*		dB	
3rd Order Intermodulation Distortion	IM ₃		-57	-53	dB	f ₁ =200 MHz, f ₂ =210 MHz, f=2f ₁ -f ₂ V _O =100 dB μ V/75 Ω
			-65*		dB	

*V_{CC}=15 V

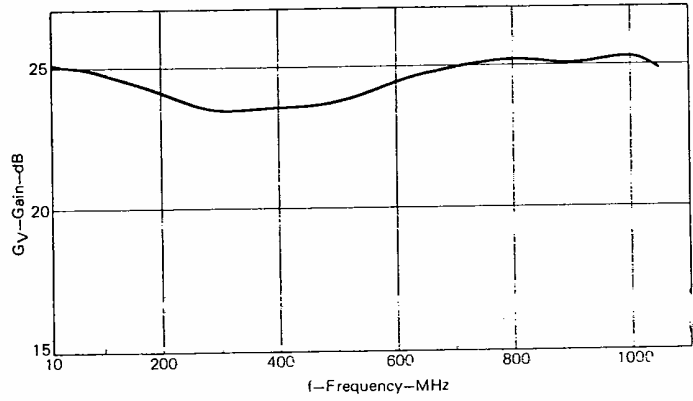
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TYPICAL CHARACTERISTICS (Ta=25 °C)

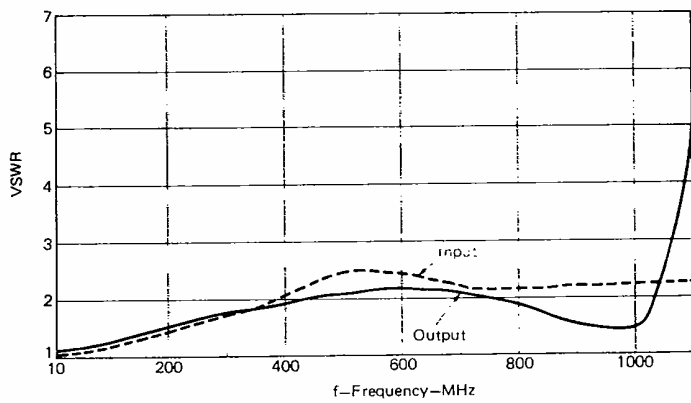
OPERATING CURRENT vs. SUPPLY VOLTAGE



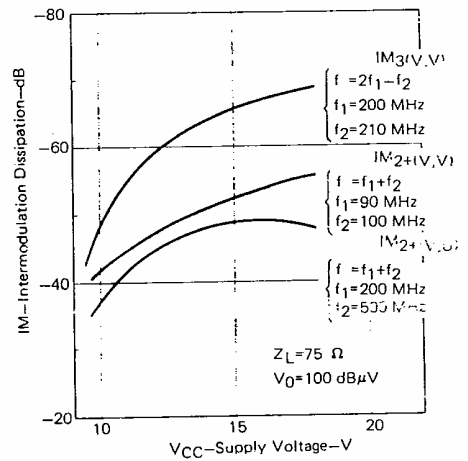
GAIN vs. FREQUENCY



VSWR vs. FREQUENCY



INTERMODULATION DISSIPATION vs. SUPPLY VOLTAGE



NOISE FIGURE vs. FREQUENCY

