

# NEC Electronics Inc.

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# NEC

## VHF~UHF BROAD-BAND AMPLIFIER

# THICK FILM HYBRID INTEGRATED CIRCUIT

# MC-5156

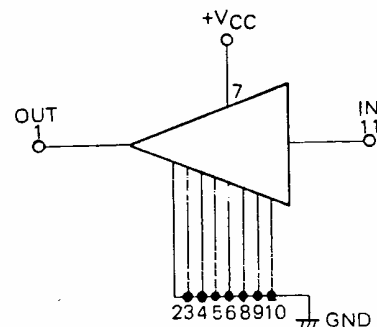
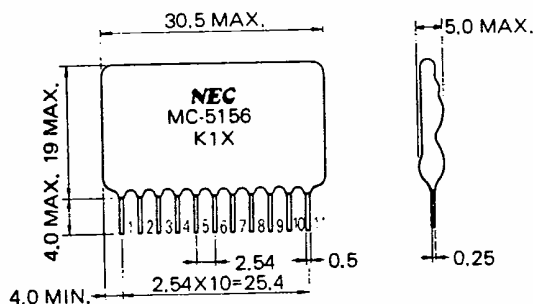
### DESCRIPTION AND APPLICATIONS

The MC-5156 is a thick film hybrid integrated circuit designed for broad-band general purpose amplifier applications in the 30 to 890 MHz band. The device is a "post amplifier" which features low noise, flat gain with a typical output of 100 to 110 dB $\mu$ V/75  $\Omega$ . Since the MC-5156 is designed to serve as a VHF-UHF TV booster amplifier, the device is matched to 75  $\Omega$ . The MC-5156 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-5156 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 890 MHz without adjustments or external components.
- Large intercept point (+28.7 dBm TYP.)
- Input and output matching to 75  $\Omega$ .
- Low noise figure (6 dB TYP.)
- Low intermodulation distortion (IM<sub>2</sub>=-55 dB, IM<sub>3</sub>=-65 dB TYP.)

### PACKAGE DIMENSIONS in millimeters



### ABSOLUTE MAXIMUM RATINGS (Ta=25 °C)

Supply Voltage	V <sub>CC</sub>	15	V
Operating Current	I <sub>CC</sub>	90	mA
Input Voltage	V <sub>I</sub>	0.5	V
Total Dissipation	P <sub>T</sub>	1.3	W
Operating Temperature	T <sub>opt</sub>	-30 to +65	°C
Storage Temperature	T <sub>stg</sub>	-30 to +85	°C

**ELECTRICAL CHARACTERISTICS (Ta=25 °C, VCC=12 V, ZS=ZL=75 Ω \*)**

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Operating Current	ICC	55	61	67	mA	
Average Gain	Gv(av)	15		16	dB	f=30~890 MHz
Gain Flatness	±ΔGv(av)	±0.8	±1.2		dB	f=30~890 MHz
Input Output VSWR	VSWR1,0			2.5		f=30~890 MHz
Isolation	ISO	25			dB	f=30~890 MHz
Noise Figure	NF		5.5	7.5	dB	f=30~300 MHz
			6	8	dB	f=300~890 MHz
2nd Order Intermodulation Distortion	IM2		-55		dB	f1=90 MHz, f2=100 MHz, f1+f2, VO=105 dBμV/75 Ω
3rd Order Intermodulation Distortion	IM3		-65		dB	f1=200 MHz, f2=210 MHz, f=2f2-f1, VO=105 dBμV/75 Ω
			-50		dB	f1=700 MHz, f2=750 MHz, f=2f2-f1, VO=105 dBμV/75 Ω
Output Power	PO		13		dBm	f=500 MHz (1 dB Gain Compression)

\* This device can be used in Z0=50 Ω with some VSWR.

