

THICK FILM HYBRID INTEGRATED CIRCUIT

MC-5156

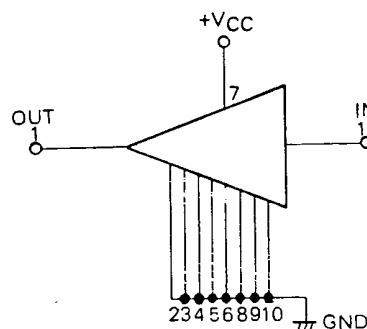
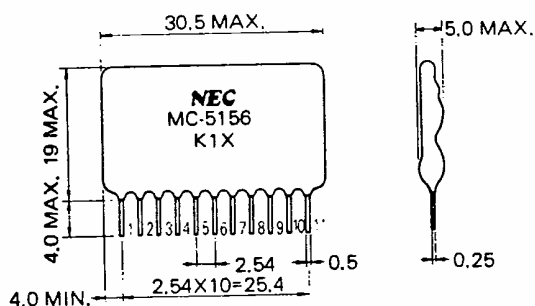
DESCRIPTION AND APPLICATIONS

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 μ V/75 Ω . Since the MC-5156 is designed to serve as a VHF-UHF TV booster amplifier, the device is matched to 75 Ω . 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 Ω .
- Low noise figure (6 dB TYP.)
- Low intermodulation distortion (IM₂=-55 dB, IM₃=-65 dB TYP.)

PACKAGE DIMENSIONS in millimeters



ABSOLUTE MAXIMUM RATINGS (Ta=25 °C)

Supply Voltage	V _{CC}	15	V
Operating Current	I _{CC}	90	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

ELECTRICAL CHARACTERISTICS ($T_a=25^\circ\text{C}$, $V_{CC}=12\text{ V}$, $Z_S=Z_L=75\ \Omega$ *)

CHARACTERISTIC	SYMBOL	MIN.	TYP.	MAX.	UNIT	TEST CONDITIONS
Operating Current	I_{CC}	55	61	67	mA	
Average Gain	$G_V(\text{av})$	15		16	dB	$f=30\sim 890\text{ MHz}$
Gain Flatness	$\pm\Delta G_V(\text{av})$	± 0.8	± 1.2		dB	$f=30\sim 890\text{ MHz}$
Input Output VSWR	$VSWR_{1,0}$			2.5		$f=30\sim 890\text{ MHz}$
Isolation	ISO	25			dB	$f=30\sim 890\text{ MHz}$
Noise Figure	NF		5.5	7.5	dB	$f=30\sim 300\text{ MHz}$
			6	8	dB	$f=300\sim 890\text{ MHz}$
2nd Order Intermodulation Distortion	IM ₂		-55		dB	$f_1=90\text{ MHz}$, $f_2=100\text{ MHz}$, f_1+f_2 , $V_0=105\text{ dB}\mu\text{V}/75\ \Omega$
3rd Order Intermodulation Distortion	IM ₃		-65		dB	$f_1=200\text{ MHz}$, $f_2=210\text{ MHz}$, $f=2f_2-f_1$, $V_0=105\text{ dB}\mu\text{V}/75\ \Omega$
			-50		dB	$f_1=700\text{ MHz}$, $f_2=750\text{ MHz}$, $f=2f_2-f_1$, $V_0=105\text{ dB}\mu\text{V}/75\ \Omega$
Output Power	P_O		13		dBm	$f=500\text{ MHz}$ (1 dB Gain Compression)

* This device can be used in $Z_0=50\ \Omega$ with some VSWR.

