

Cascadable Amplifier 5 to 500 MHz

Rev. V3

Features

- HIGH GAIN - TWO STAGES: 26.5 dB (TYP.)
- HIGH OUTPUT POWER: +21.5 dBm (TYP.)
- HIGH THIRD-ORDER IP: +35 dBm (TYP.)

Description

The RA89 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for consistent performance and high reliability.

This 2 stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. An active DC biasing network insures temperature-stable performance.

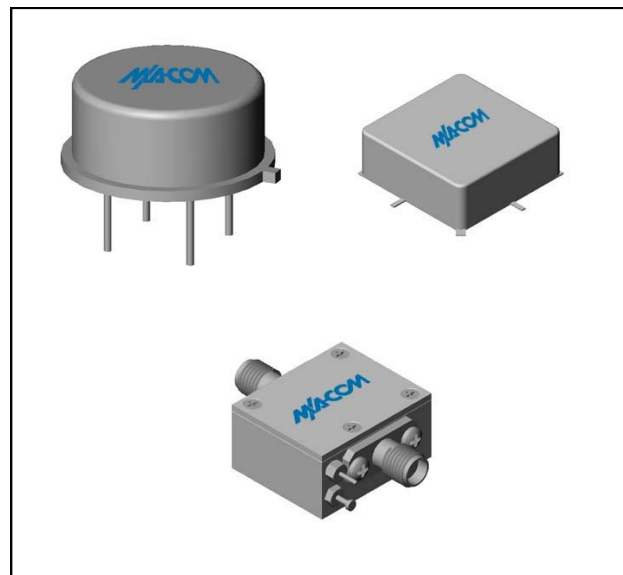
Both TO-8B and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

Ordering Information

Part Number	Package
RA89	TO-8B
SMRA89	Surface Mount
CRA89 **	SMA Connectorized

** The connectorized version is not RoHs compliant.

Product Image



Electrical Specifications: $Z_0 = 50\Omega$, $V_{CC} = +15 V_{DC}$

Parameter	Units	Typical	Guaranteed	
		25°C	0° to 50°C	-54° to +85°C*
Frequency	MHz	3-700	5-500	5-500
Small Signal Gain (min)	dB	26.5	25.5	25.0
Gain Flatness (max)	dB	±0.2	±0.7	±1.0
Reverse Isolation	dB	36		
Noise Figure (max)	dB	3.7	4.5	5.0
Power Output @ 1 dB comp. (min)	dBm	21.5	20.5	20.0
IP3	dBm	+35		
IP2	dBm	+55		
Second Order Harmonic IP	dBm	+65		
VSWR Input / Output (max)		1.5:1 / 1.5:1	1.8:1 / 1.8:1	2.0:1 / 2.0:1
DC Current @ 15 Volts (max)	mA	130	136	139

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	125°C
DC Voltage	+17 V
Continuous Input Power	+13 dBm
Short Term Input power (1 minute max.)	50 mW
Peak Power (3 µsec max.)	0.5 W
"S" Series Burn-In Temperature (case)	125°C

Thermal Data: $V_{CC} = +15 V_{DC}$

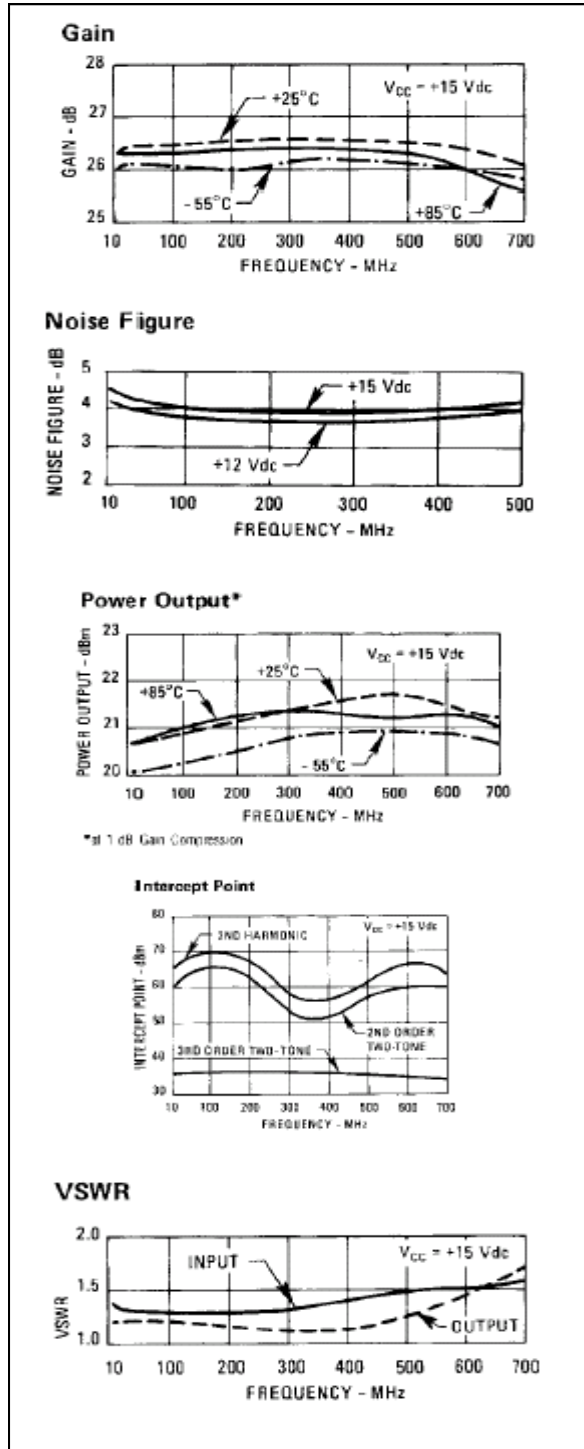
Parameter	Rating
Thermal Resistance θ_{jc}	45°C/W
Transistor Power Dissipation P_d	0.781 W
Junction Temperature Rise Above Case T_{jc}	35°C

* Over temperature performance limits for part number CRA89, guaranteed from 0°C to +50°C only.

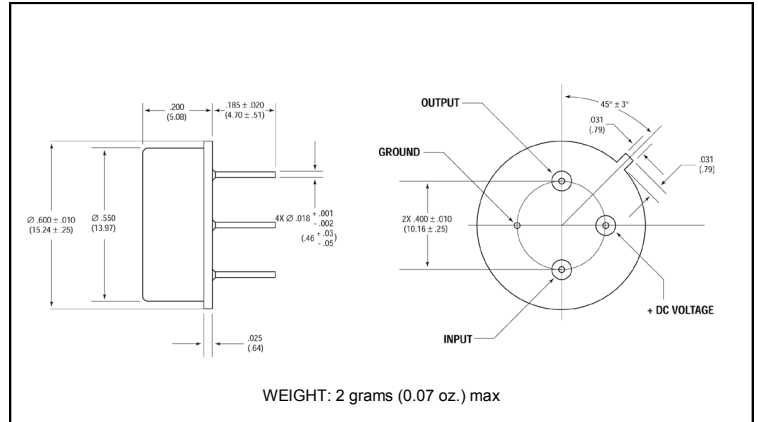
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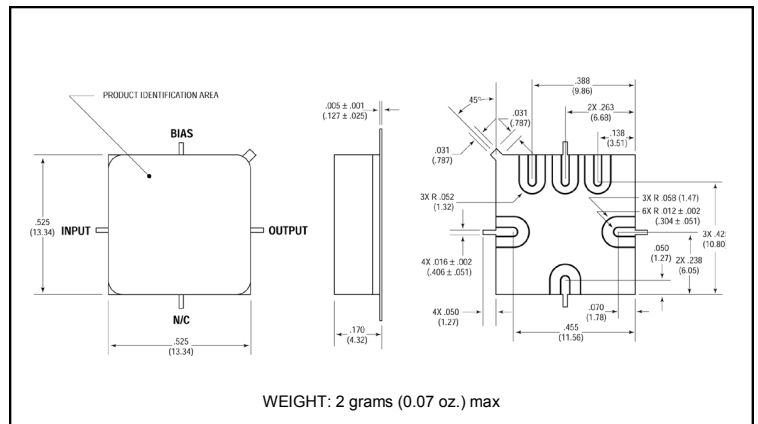
Typical Performance Curves at +25°C



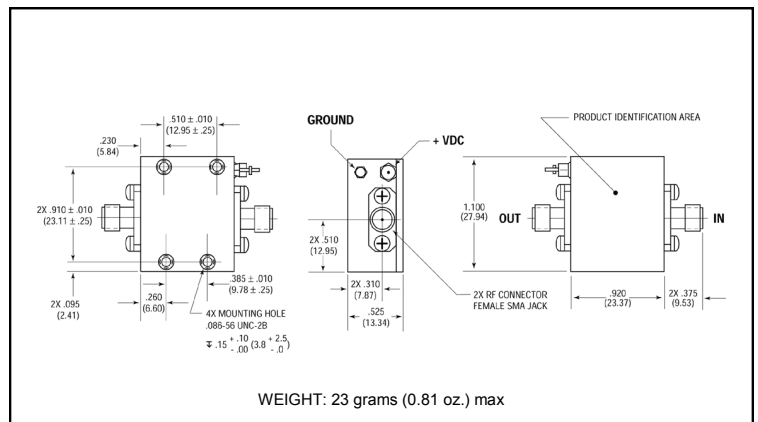
Outline Drawing: TO-8B *



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



* Dimensions are inches (millimeters) ± 0.015 (0.38) unless otherwise specified.