RA89 / SMRA89

Cascadable Amplifier
5 to 500 MHz

Rev. V2

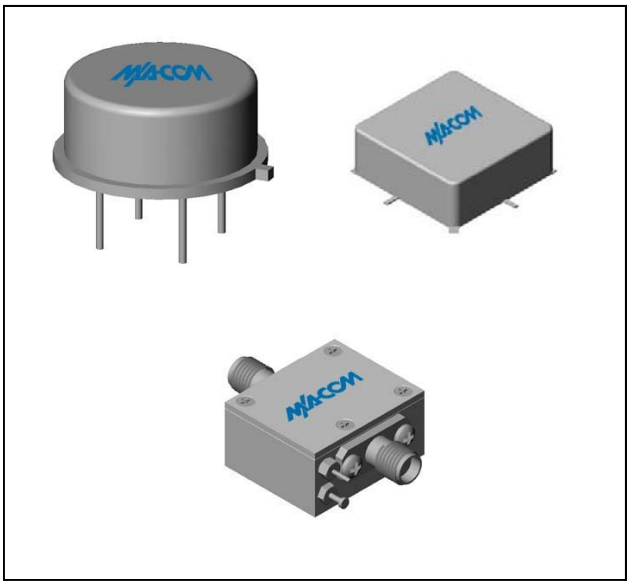
Features

- 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.

Product Image



Ordering Information

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

** The connectorized version is not RoHs compliant.

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

Parameter	Units	Typical	Guaranteed	
		25ºC	0º to 50ºC	-54º to +85ºC*
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

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

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62ºC to +125ºC
Case Temperature	125ºC
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)	125ºC

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

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

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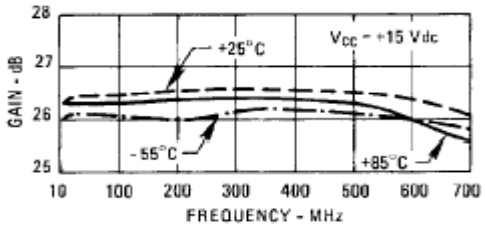
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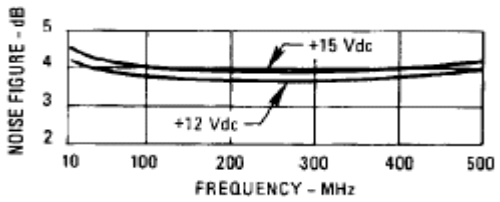
Rev. V2

Typical Performance Curves at +25°C

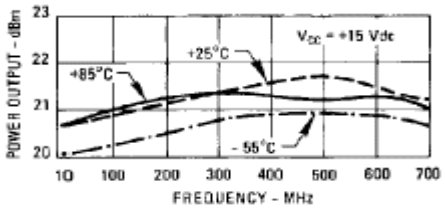
Gain



Noise Figure

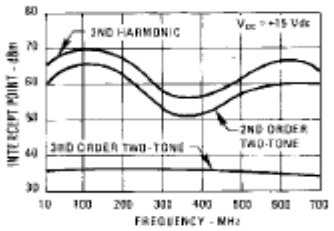


Power Output*

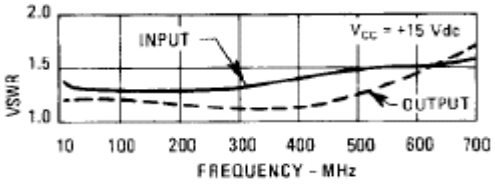


*at 1 dB Gain Compression

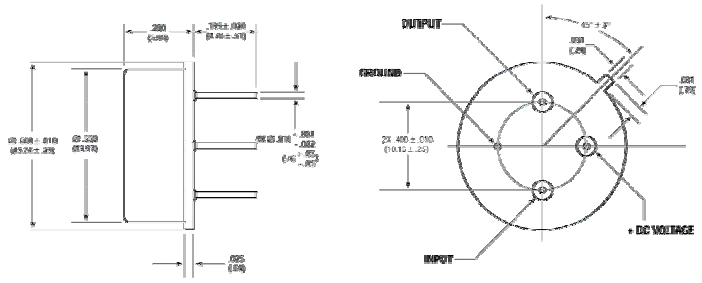
Intercept Point



VSWR

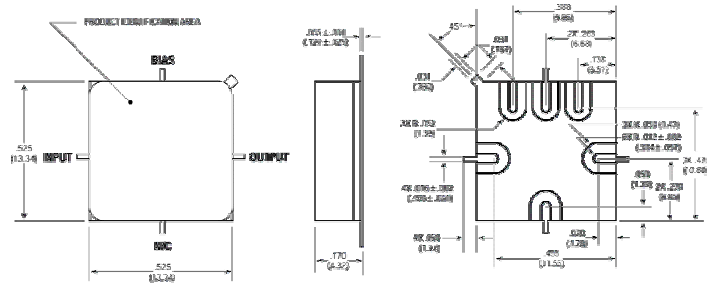


Outline Drawing: TO-8B *



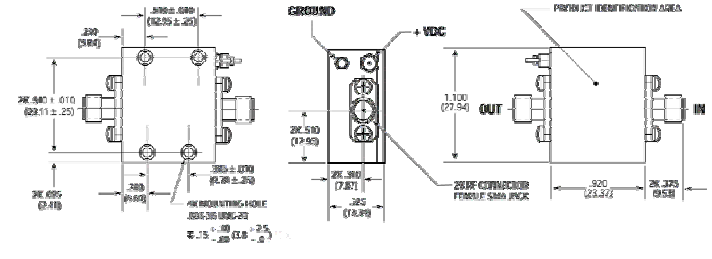
WEIGHT: 2 grams (0.07 oz.) max

Outline Drawing: Surface Mount *



WEIGHT: 2 grams (0.07 oz.) max

Outline Drawing: SMA Connectorized *



WEIGHT: 23 grams (0.81 oz.) max

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

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