A21-1 / SMA21-1

Cascadable Amplifier
10 to 1200 MHz

Rev. V3

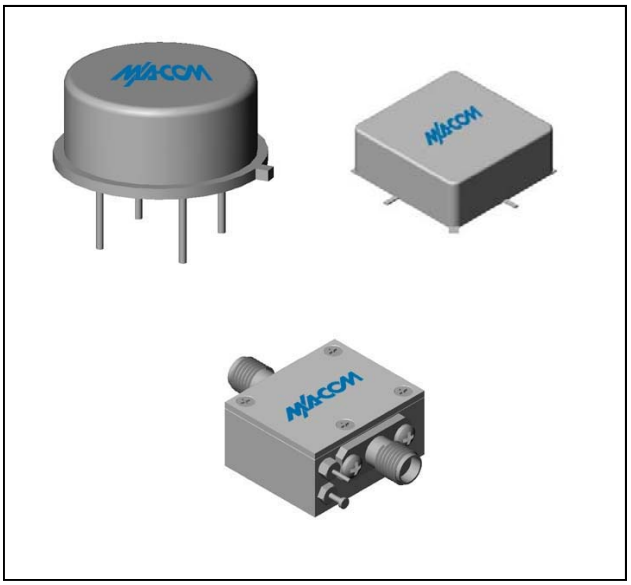
Features

- LOW NOISE: <2.8 dB (TYP.)
- LOW VSWR:<1.5:1 (TYP.)
- HIGH SINGLE STAGE GAIN: 15dB (TYP.)

Description

The A21-1 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.
This single stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. Both TO-8 and Surface Mount packages are Hermetically sealed, and MIL-STD-883 environmental screening is available.

Product Image



Ordering Information

Part Number	Package
A21-1	TO-8
SMA21-1	Surface Mount
CA21-1	SMA Connectorized **

** The connectorized version is not RoHs compliant.

Electrical Specifications: Z_0 = 50Ω, V_{CC} = +15 V_{DC}

Parameter	Units	Typical	Guaranteed	
		25ºC	0º to 50ºC	-54º to +85ºC*
Frequency	MHz	1-1300	10-1200	10-1200
Small Signal Gain (min)	dB	15.5	14.0	13.5
Gain Flatness (max)	dB	±0.3	±0.5	±1.0
Reverse Isolation	dB	20		
Noise Figure (max)	dB	2.4	3.5	3.9
Power Output @ 1 dB comp. (min)	dBm	-1.0	-2.0	-3.0
IP3	dBm	+11		
IP2	dBm	+11		
Second Order Harmonic IP	dBm	+17		
VSWR Input / Output (max)		1.4:1 / 1.4:1	1.9:1 / 1.9:1	2.0:1 / 2.0:1
DC Current @ 15 Volts (max)	mA	10	11	12

* Over temperature performance limits for part number CA21-1, 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}	171ºC/W
Transistor Power Dissipation P_d	0.053 W
Junction Temperature Rise Above Case T_{jc}	+9ºC

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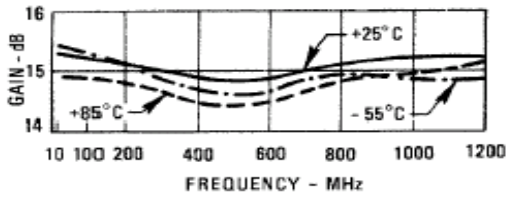
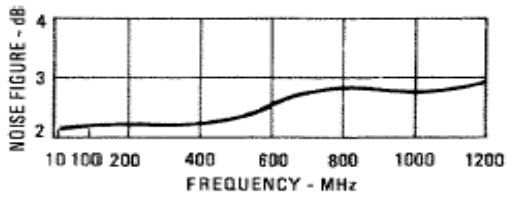
Typical Performance Curves at +25°C

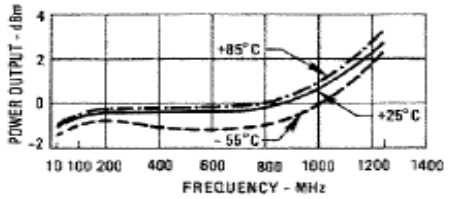
Gain



Noise Figure

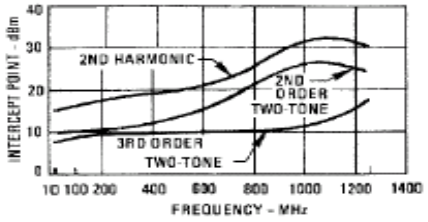


Power Output*

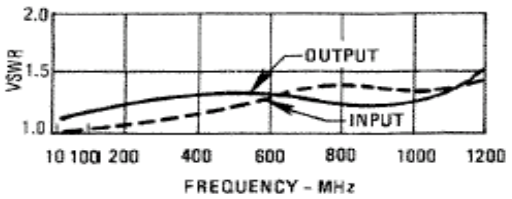


* at 1 dB Gain Compression

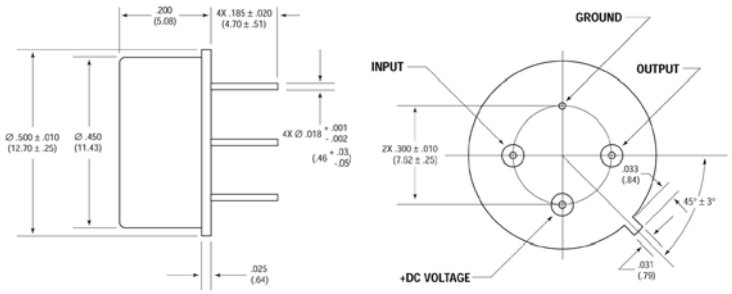
Intercept Point



VSWR

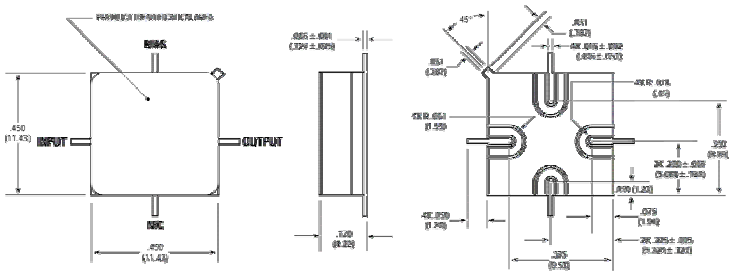


Outline Drawing: TO-8 *



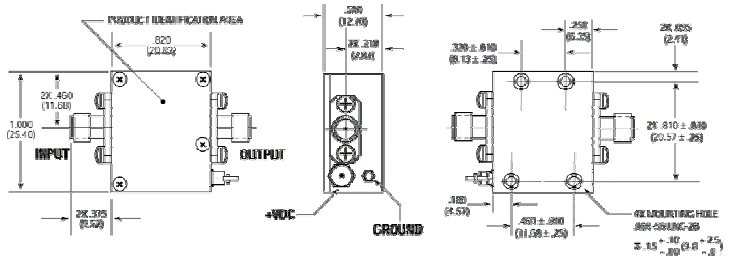
WEIGHT: 1 gram (0.04 oz.) max

Outline Drawing: Surface Mount *



WEIGHT: 1 gram (0.04 oz.) max

Outline Drawing: SMA Connectorized *



WEIGHT: 19 grams (0.67 oz.) max

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

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