

# A31-1 / SMA31-1

## Cascadable Amplifier 100 to 2000 MHz

Rev. V3

### Features

- LOW NOISE: <3.5 dB (TYP.)
- LOW VSWR: 1.5:1 (TYP.)

### Description

The A31-1 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

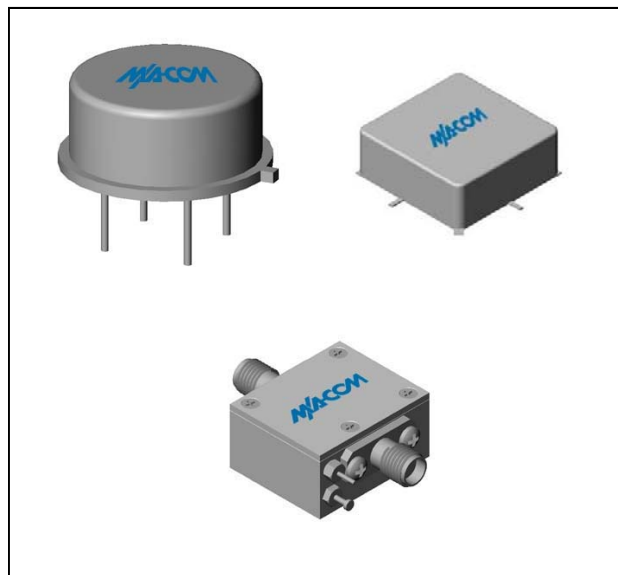
This single stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. Both TO-8 and Surface Mount packages are Hermetically sealed, and MIL-STD-883 environmental screening is available.

### Ordering Information

Part Number	Package
A31-1	TO-8
SMA31-1	Surface Mount
CA31-1 **	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	1-2050	10-2000	10-2000
Small Signal Gain (min)	dB	11.5	11.0	10.5
Gain Flatness (max)	dB	±0.4	±0.7	±1.0
Reverse Isolation	dB	17		
Noise Figure (max)	dB	3.5	4.0	4.5
Power Output @ 1 dB comp. (min)	dBm	-2.0	-4.0	-4.5
IP3	dBm	+9		
IP2	dBm	+10		
Second Order Harmonic IP	dBm	+15		
VSWR Input / Output (max)		1.5:1 / 1.3:1	2.0:1 / 2.0:1	2.0:1 / 2.0:1
DC Current @ 15 Volts (max)	mA	9	11	12

### Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	+125°C
DC Voltage	+18 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 $\theta_{jc}$	185°C/W
Transistor Power Dissipation $P_d$	0.050 W
Junction Temperature Rise Above Case $T_{jc}$	+9°C

\* Over temperature performance limits for part number CA31-1, guaranteed from 0°C to +50°C only.

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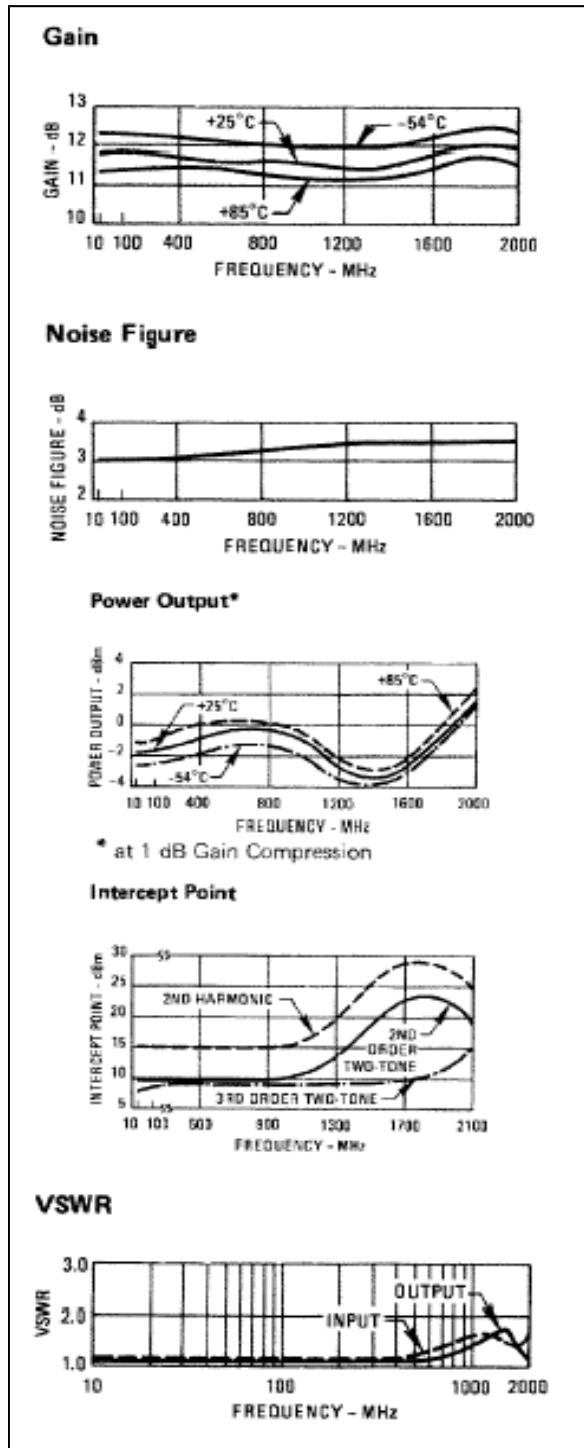


# A31-1 / SMA31-1

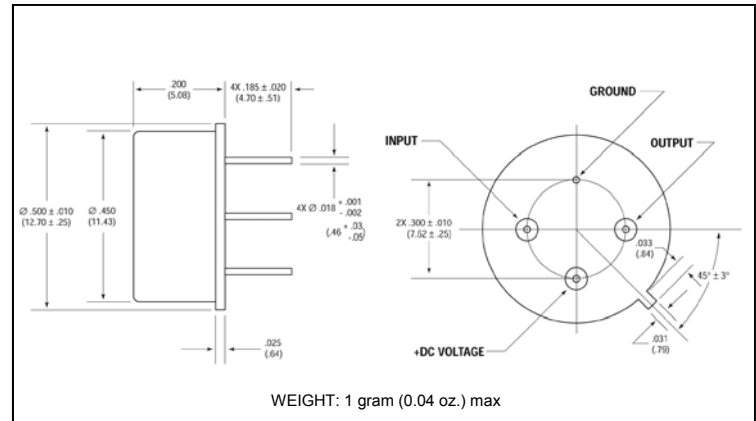
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100 to 2000 MHz

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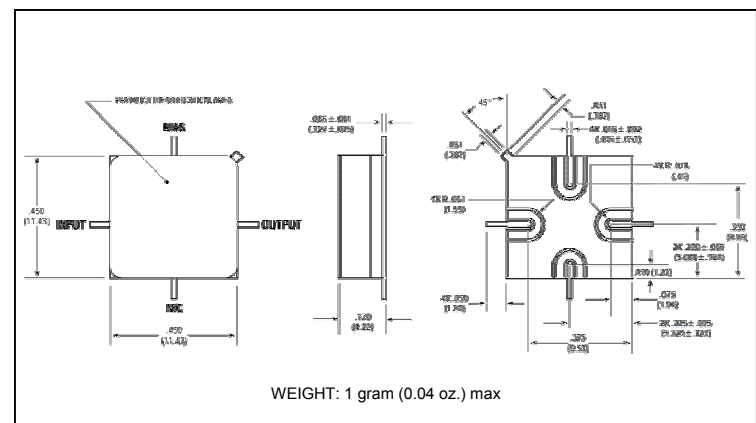
## Typical Performance Curves at +25°C



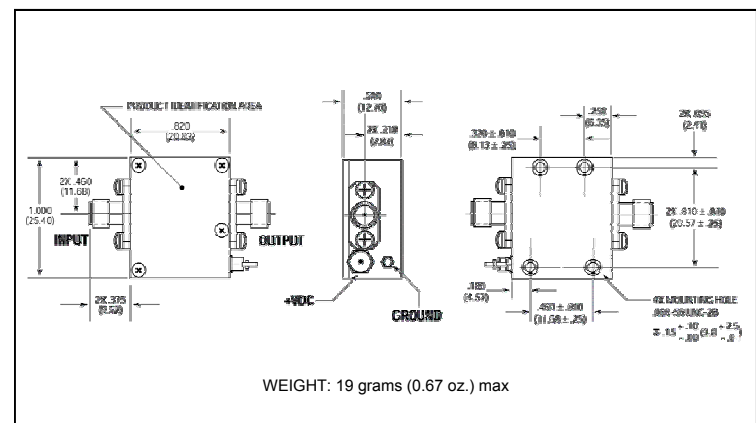
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



## Outline Drawing: SMA Connectorized \*



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

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