tyco Electronics

MACOM

Cascadable Amplifier
10 to 1000 MHz

A1031/ SMA1031
V3

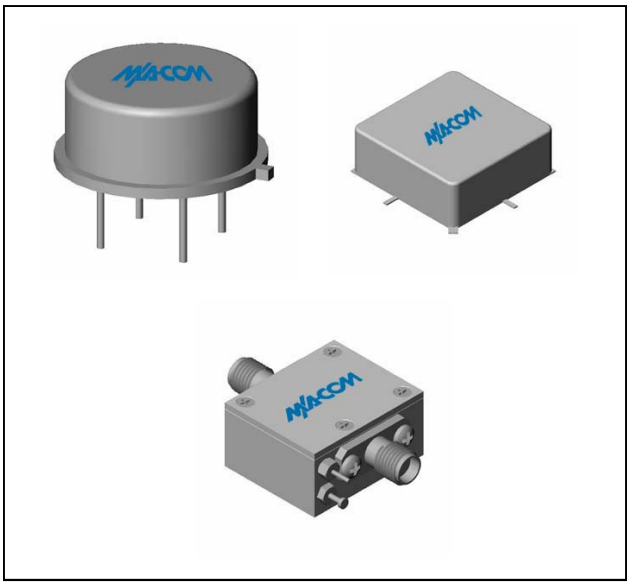
Features

- HIGH EFFICIENCY: 36 mA at +5 Vdc
- LOW NOISE FIGURE: 2.7 dB (TYP.)
- HIGH GAIN, TWO STAGES: 28.5 dB (TYP.)
- MED OUTPUT POWER: +10 dBm (TYP.)

Description

The A1031RF 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-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available

Product Image



Ordering Information

Part Number	Package
A1031	TO-8
SMA1031	Surface Mount
CA1031	SMA Connectorized

Electrical Specifications: $Z_0 = 50\Omega$, $V_{CC} = +5\ V_{DC}$

Parameter	Units	Typical	Guaranteed	
		25ºC	0º to 50ºC	-54º to +85ºC*
Frequency	MHz	5-1100	10-1000	10-1000
Small Signal Gain (min)	dB	28.5	26.5	26.0
Gain Flatness (max)	dB	±0.4	±0.8	±1.0
Reverse Isolation	dB	35		
Noise Figure (max)	dB	2.7	3.5	4.0
Power Output @ 1 dB comp. (min)	dBm	10.0	9.0	8.5
IP3	dBm	+22		
IP2	dBm	+33		
Second Order Harmonic IP	dBm	+39		
VSWR Input / Output (max)		1.5:1 / 1.5:1	1.9:1 / 1.9:1	2.0:1 / 2.0:1
DC Current @ 5 Volts (max)	mA	36	39	42

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62ºC to +125ºC
Case Temperature	125ºC
DC Voltage	+10 V
Continuous Input Power	+10 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: $V_{CC} = +5\ V_{DC}$

Parameter	Rating
Thermal Resistance θ_{jc}	160ºC/W
Transistor Power Dissipation P_d	0.103 W
Junction Temperature Rise Above Case T_{jc}	16ºC

* Over temperature performance limits for part number CA1031, guaranteed from 0°C to +50°C only.

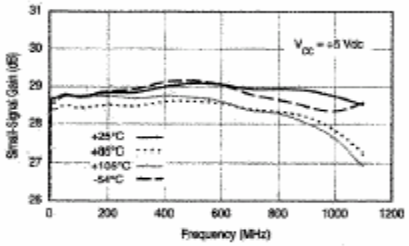
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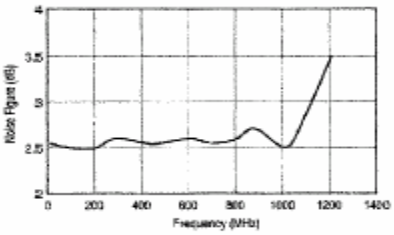
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Typical Performance Curves at +25°C

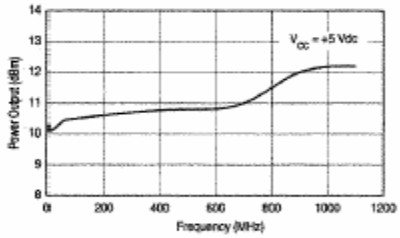
Small Signal Gain



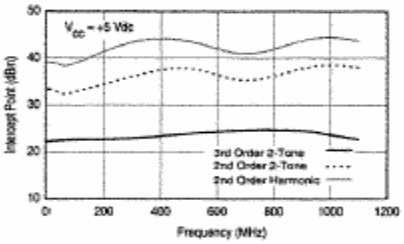
Noise Figure



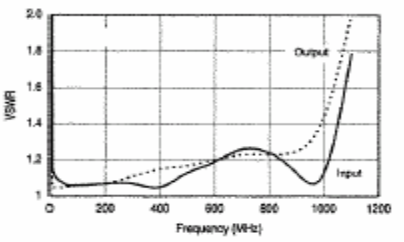
Power Output (1dB Gain Compression)



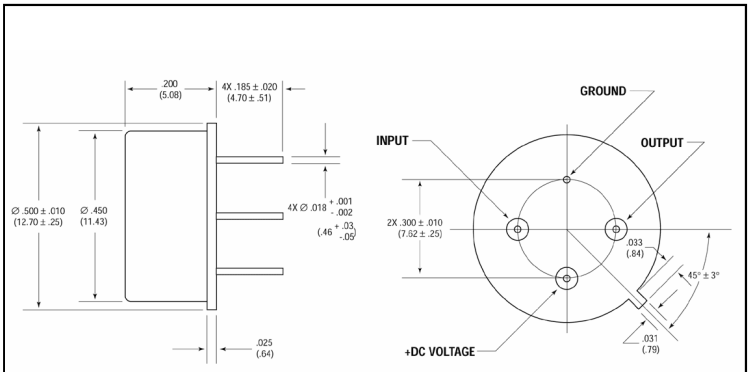
Intercept Point



VSWR

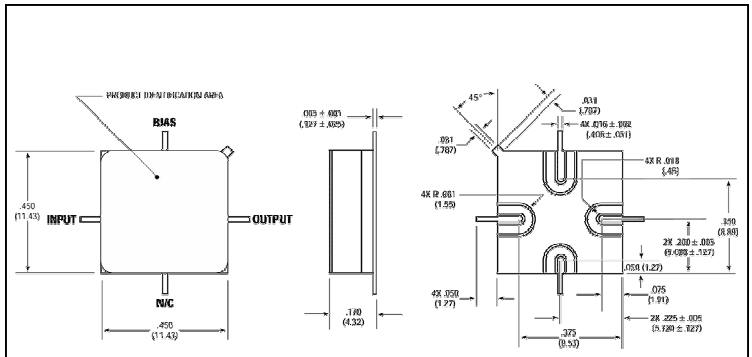


Outline Drawing: TO-8 *



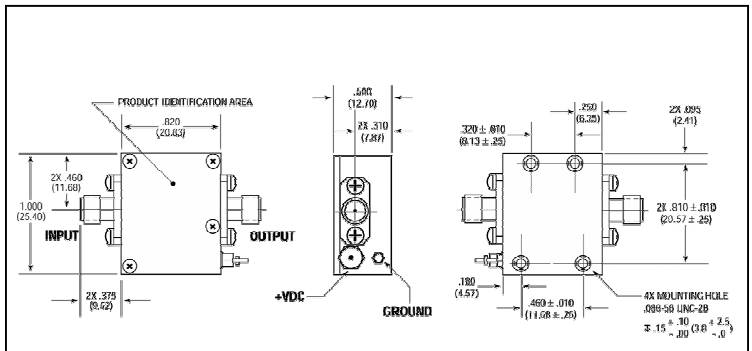
WEIGHT: 1 gram (0.04 oz.) max

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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