

Cascadable Amplifier 10 to 1000 MHz

Rev. 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.

Ordering Information

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

** The connectorized version is not RoHs compliant.

Product Image



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

Parameter	Units	Typical	Guaranteed	
		25°C	0° to 50°C	-54° to +85°C*
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	-62°C to +125°C
Case Temperature	125°C
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)	125°C

Thermal Data: $V_{CC} = +5 V_{DC}$

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

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

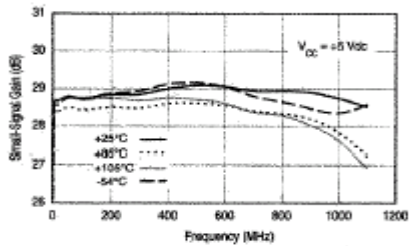
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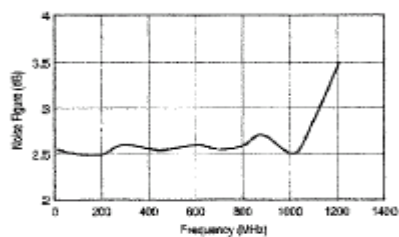
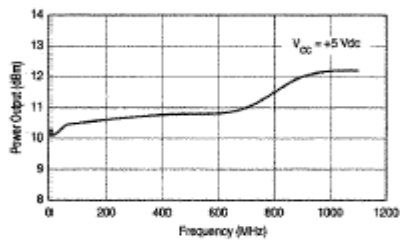
Typical Performance Curves at +25°C

Outline Drawing: TO-8 *

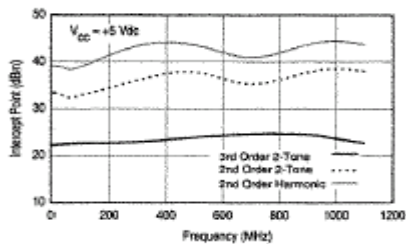
Small Signal Gain



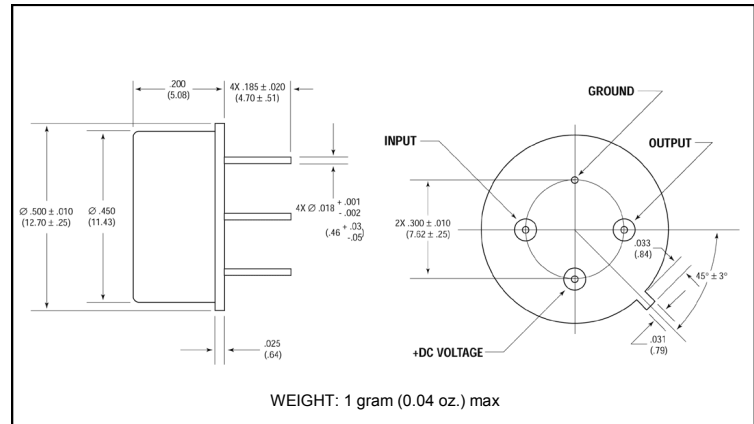
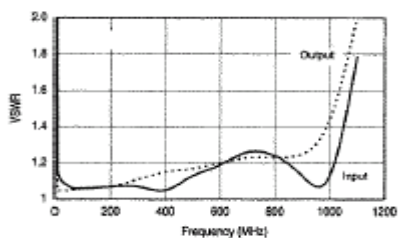
Noise Figure

**Power Output (1dB Gain Compression)**

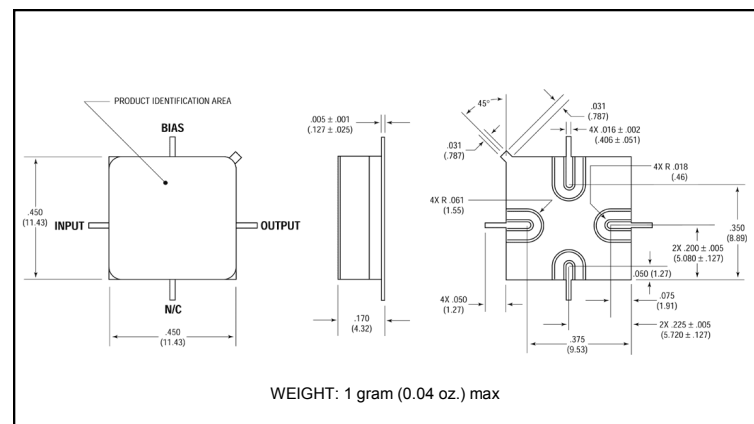
Intercept Point



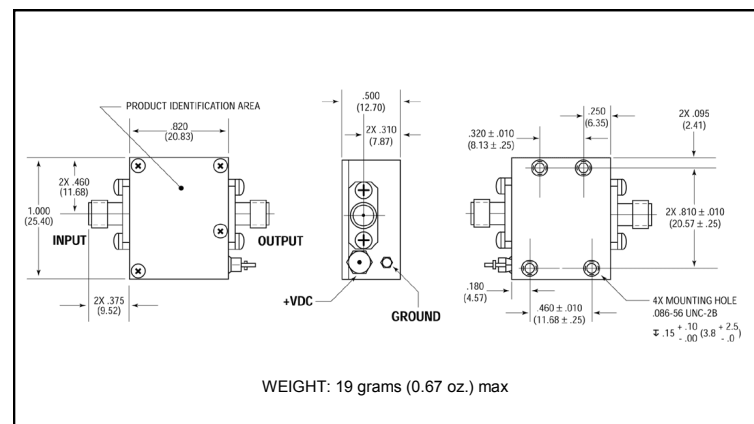
VSWR



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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