

Cascadable Amplifier 20 to 250 MHz

Rev. V3

Features

• High Reverse Isolation: >30 dBm (TYP.)

Low Noise: 2.4 dB (TYP.)High Gain: 25 dB (TYP.)

• High Level Output: +13.5 dBm (TYP.)

Description

The A81-1 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

The 2 stage silicon bipolar feedback amplifier design displays impressive performance over a broadband frequency range. An isolation transformer is used in the feedback loop, with the benefit of high reverse isolation. Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

Ordering Information

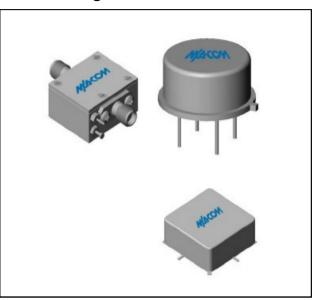
Part Number	Package	
A81-1	TO-8	
SMA81-1	Surface Mount	
CA81-1**	SMA Connectorized	

^{**} The connectorized version is not RoHs compliant.

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

Parameter	Units	Typical	Guaranteed	
Parameter		25°C	0° to 50°C	-54° to +85°C
Frequency	MHz	10-300	20-250	20-250
Small Signal Gain (min)	dB	25.0	24.0	23.5
Gain Flatness (max)	dB	±0.1	±0.5	±0.7
Reverse Isolation	dB	31		
Noise Figure (max)	dB	2.5	3.3	3.8
Power Output @ 1 dB comp. (min)	dBm	13.5	12.5	12.0
IP3	dBm	+27		
IP2	dBm	+33		
Second Order Harmonic IP	dBm	+41		
VSWR Input / Output (max)		1.5:1 / 1.5:1	1.9:1 / 1.9:1	2.0:1 / 2.0:1
DC Current (max)	mA	25	27	29

Product Image



Absolute Maximum Ratings

Parameter	Absolute Maximum	
Storage Temperature	-62°C to +125°C	
Case Temperature	125°C	
DC Voltage	+17 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: $V_{CC} = 15 V_{DC}$

Parameter	Rating
Thermal Resistance θ_{jc}	171°C/W
Transistor Power Dissipation P _d	0.098 W
Junction Temperature Rise Above Case T _{jc}	17°C

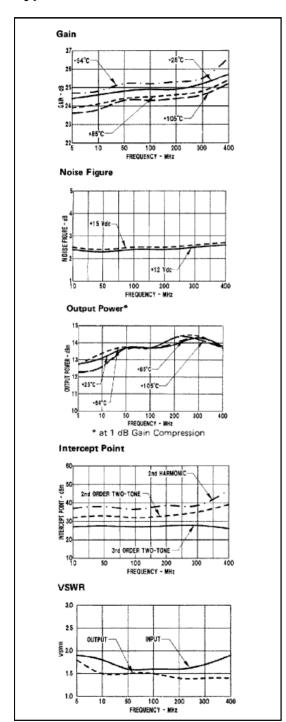
^{*} Over temperature performance limits for part number CA81-1, guaranteed from 0°C to +50°C only.



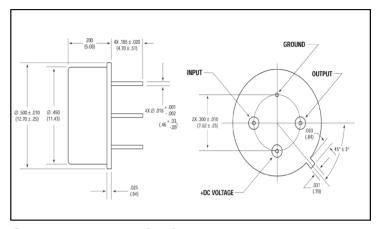
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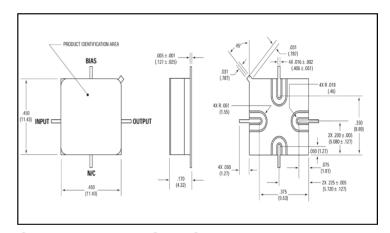
Typical Performance Curves



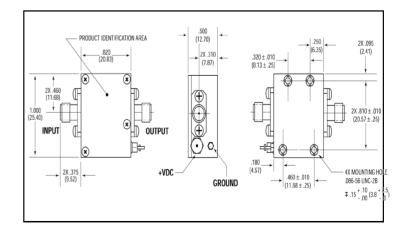
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount



Outline Drawing: SMA Connectorized



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

A81-1 / SMA81-1



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