A181 / SMA181

Cascadable Amplifier
10 to 250 MHz

Rev. V4

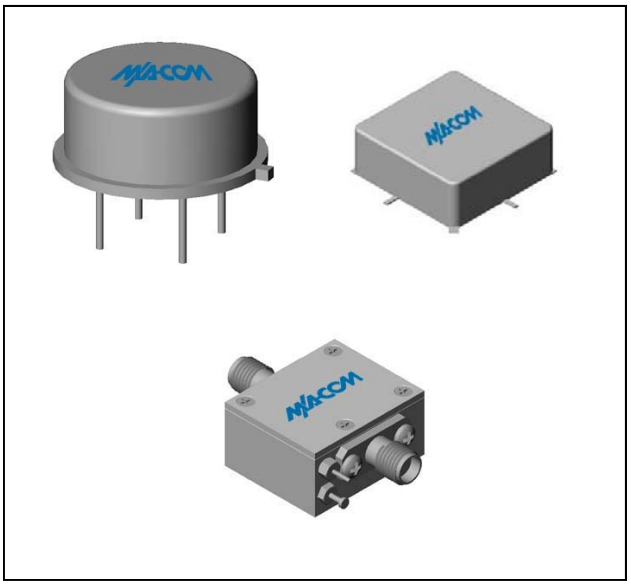
Features

- HIGH REVERSE ISOLATION: 22 dB (TYP.)
- HIGH OUTPUT POWER: +22 dBm (TYP.
- HIGH THIRD ORDER I.P.: +35 dBm (TYP.)

Description

The A181 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. 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
A181	TO-8
SMA181	Surface Mount
CA181 **	SMA Connectorized

** The connectorized version is not RoHs compliant.

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

Parameter	Units	Typical	Guaranteed	
		25ºC	0º to 50ºC	-54º to +85ºC*
Frequency	MHz	5-400	10-250	10-250
Small Signal Gain (min)	dB	16.5	15.5	14.5
Gain Flatness (max)	dB	±0.3	±0.7	±0.8
Reverse Isolation	dB	22		
Noise Figure (max)	dB	3.8	4.5	5.0
Power Output @ 1 dB comp. (min)	dBm	22.0	20.0	19.5
IP3	dBm	+35		
IP2	dBm	+48		
Second Order Harmonic IP	dBm	+54		
VSWR Input / Output (max)		1.4:1 / 1.4:1	1.9:1 / 1.9:1	2.1:1 / 2.1:1
DC Current @ 15 Volts (max)	mA	95	104	113

* Over temperature performance limits for part number CA181, guaranteed from 0°C to +50°C only.

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62ºC to +125ºC
Case Temperature	85ºC
DC Voltage	+17 V
Continuous Input Power	+15 dBm
Short Term Input power (1 minute max.)	100 mW
Peak Power (3 µsec max.)	0.5 W
"S" Series Burn-In Temperature (case)	85ºC

Thermal Data: $V_{CC} = +15\ V_{DC}$

Parameter	Rating
Thermal Resistance θ_{jc}	148ºC/W
Transistor Power Dissipation P_d	0.622 W
Junction Temperature Rise Above Case T_{jc}	92ºC

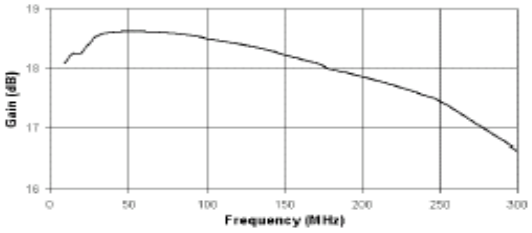
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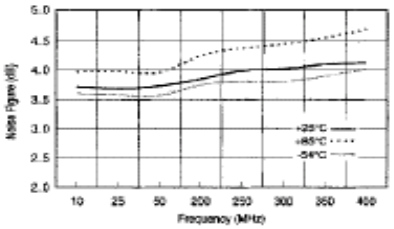
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Typical Performance Curves at +25°C

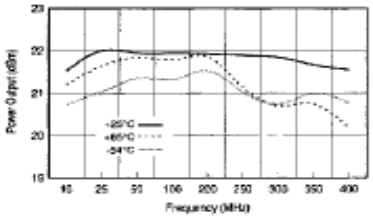
Gain



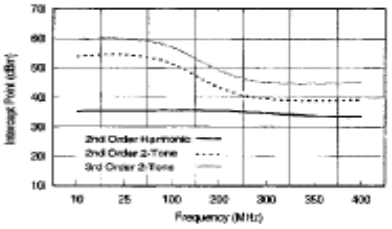
Noise Figure



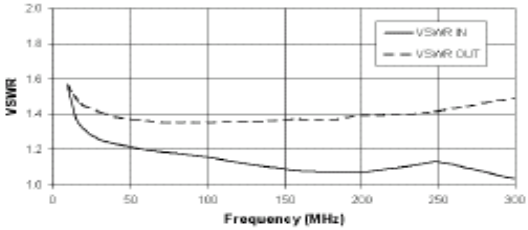
Power Output (1dB Gain Compression)



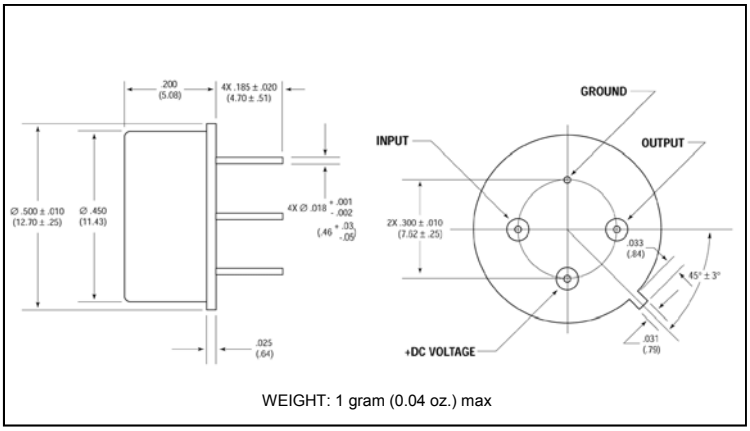
Intercept Point



VSWR

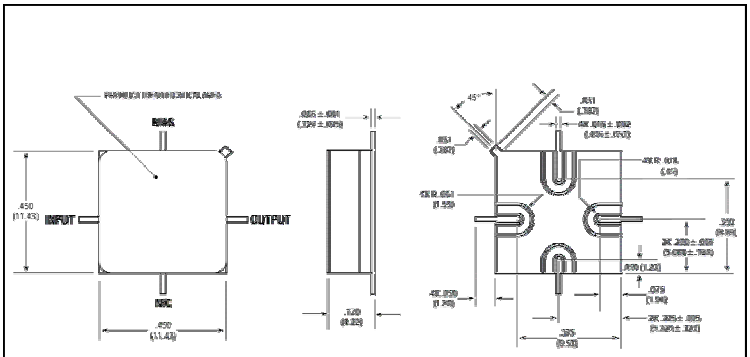


Outline Drawing: TO-8 *



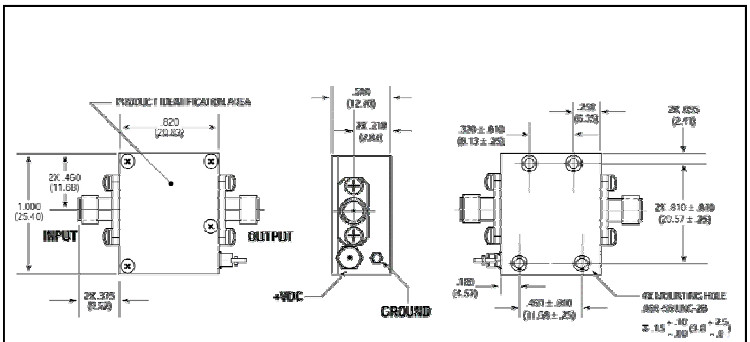
WEIGHT: 1 gram (0.04 oz.) max

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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