

## Cascadable Amplifier 20 to 500 MHz

Rev. V2

### Features

- HIGH REVERSE ISOLATION >35 dBm (TYP.)
- EXCEPTIONAL OUTPUT VSWR 1.1:1 (TYP.)
- LOW NOISE 3.6 dB (TYP.)
- MEDIUM OUTPUT LEVEL +8.0 dBm (TYP.)

### Description

The A81-3 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
A81-3	TO-8
MAAM-008732-SMA813	Surface Mount
CA81-3	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	10-500	20-500	20-500
Small Signal Gain (min)	dB	17.0	16.0	15.5
Gain Flatness (max)	dB	±0.2	±0.5	±0.7
Reverse Isolation	dB	36		
Noise Figure (max)	dB	4.0	4.5	5.0
Power Output @ 1 dB comp. (min)	dBm	8.0	7.5	7.0
IP3	dBm	+20		
IP2	dBm	+28		
Second Order Harmonic IP	dBm	+32		
VSWR Input / Output (max)		1.5:1 / 1.1:1	1.8:1 / 1.3:1	2.0:1 / 1.3:1
DC Current @ 15 Volts (max)	mA	29	31	33

### 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: $V_{CC} = +15 V_{DC}$

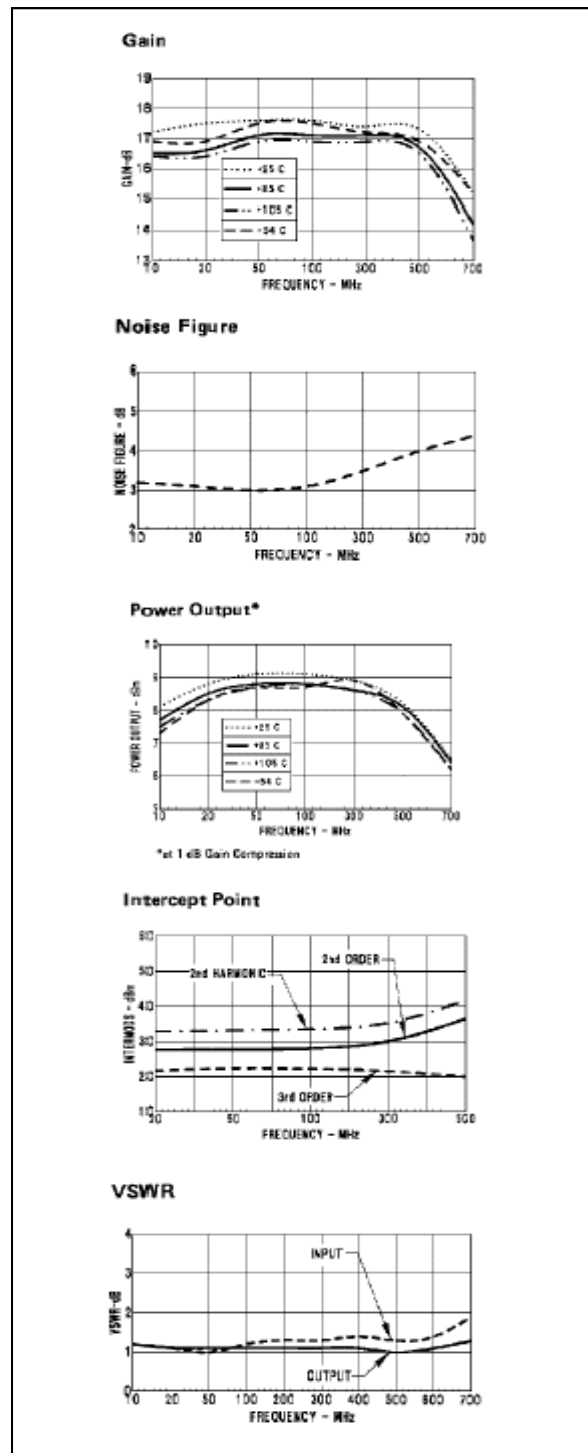
Parameter	Rating
Thermal Resistance $\theta_{jc}$	45°C/W
Transistor Power Dissipation $P_d$	0.157 W
Junction Temperature Rise Above Case $T_{jc}$	7°C

1 \* Over temperature performance limits for part number CA81-3, guaranteed from 0°C to +50°C only.

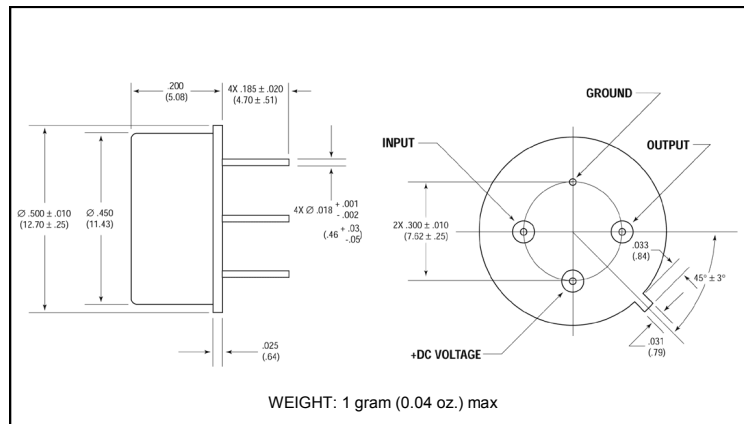
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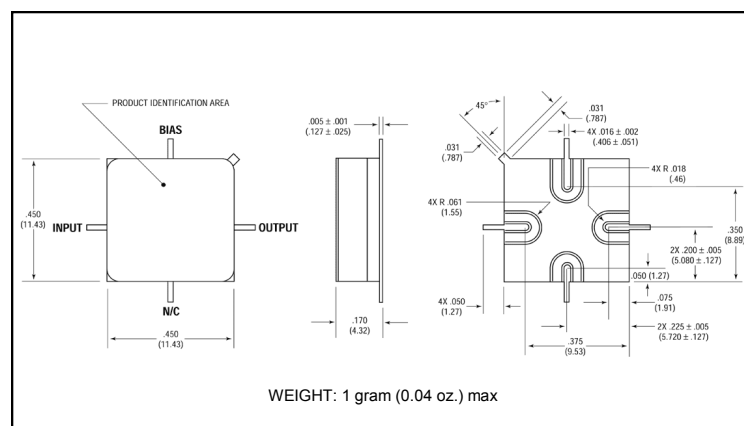
### Typical Performance Curves at +25°C



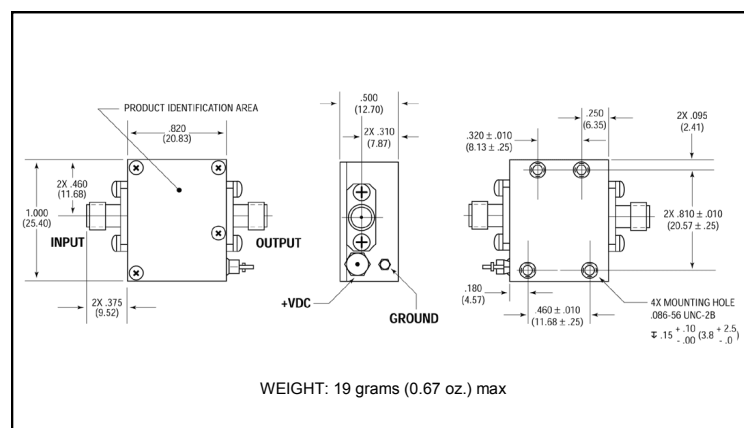
### Outline Drawing: TO-8 \*



### Outline Drawing: Surface Mount \*



### Outline Drawing: SMA Connectorized \*



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

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