

## Cascadable Amplifier 10 to 500 MHz

Rev. V3

### Features

- HIGH LINEARITY IP3: +30 dBm (TYP.)  
IP2: +50 dBm (TYP.)
- HIGH GAIN: 20 dB (TYP.)
- LOW VSWR: 1.4:1 (TYP.)

### Description

The A513 RF amplifier is a discrete thin film hybrid design, which incorporates the use of 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 is used for temperature-stable performance, in addition to an RF Choke, used for power supply decoupling.

Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

### Ordering Information

Part Number	Package
A513	TO-8
SMA513	Surface Mount
CA513 **	SMA Connectorized

\*\* The connectorized version is not RoHs compliant.

### Electrical Specifications: $Z_0 = 50\Omega$ , $V_{CC} = +12 V_{DC}$

Parameter	Units	Typical	Guaranteed	
		25°C	0° to 50°C	-54° to +85°C*
Frequency	MHz	10-500	10-500	10-500
Small Signal Gain (min)	dB	20.0	17.0	17.0
Gain Flatness (max)	dB	±0.3	±0.5	±1.0
Reverse Isolation	dB	25		
Noise Figure (max)	dB	5.5	6.0	6.5
Power Output @ 1 dB comp. (min)	dBm	18.0	17.5	17.0
IP3	dBm	+30		
IP2	dBm	+50		
Second Order Harmonic IP	dBm	+56		
VSWR Input / Output (max)		1.4:1 / 1.4:1	1.6:1 / 1.6:1	1.6:1 / 1.6:1
DC Current @ 12 Volts (max)	mA	120	130	130

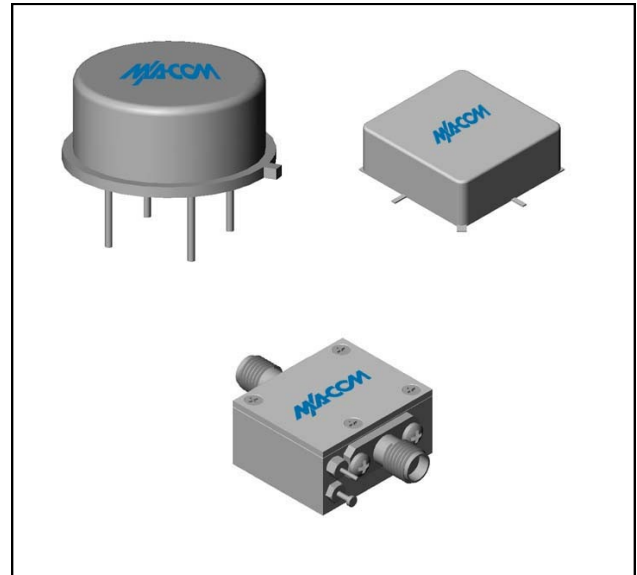
### Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	125°C
DC Voltage	+18 V
Continuous Input Power	+13 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: $V_{CC} = +12 V_{DC}$

Parameter	Rating
Thermal Resistance $\theta_{jc}$	55°C/W
Transistor Power Dissipation $P_d$	1.0 W
Junction Temperature Rise Above Case $T_{jc}$	55°C

### Product Image

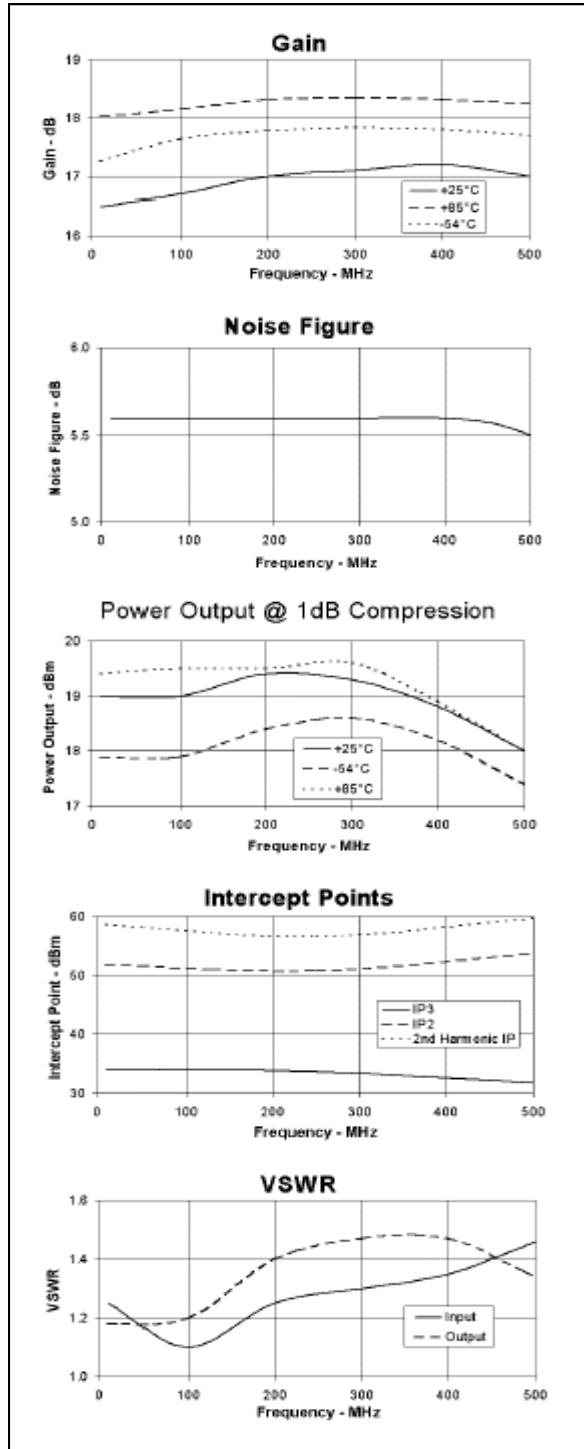


1 \* Over temperature performance limits for part number CA513, guaranteed from 0°C to +50°C only.

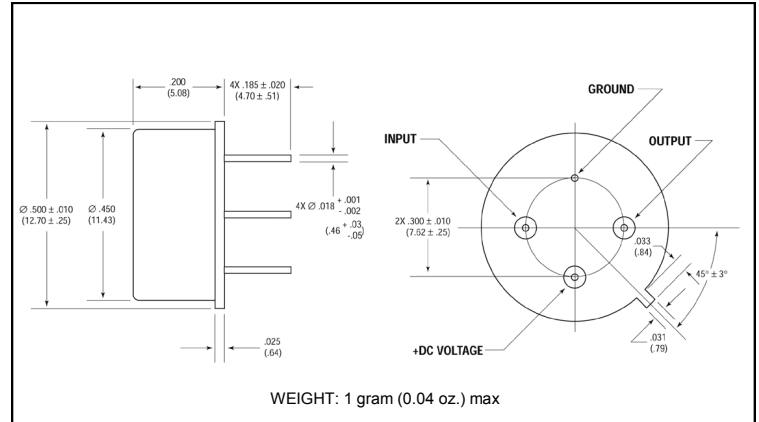
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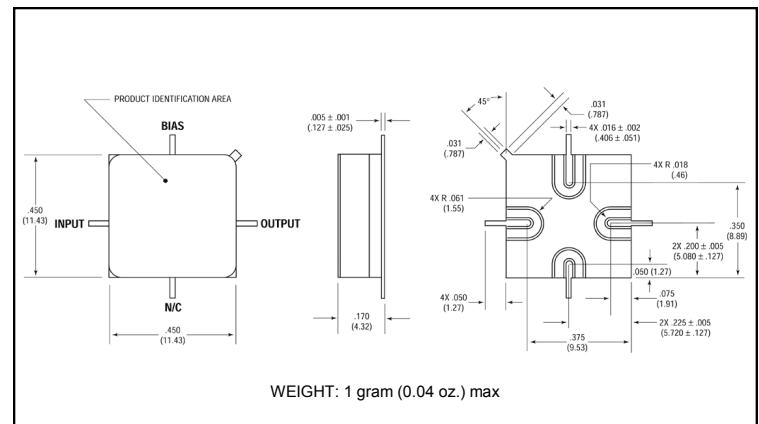
### Typical Performance Curves at +25°C



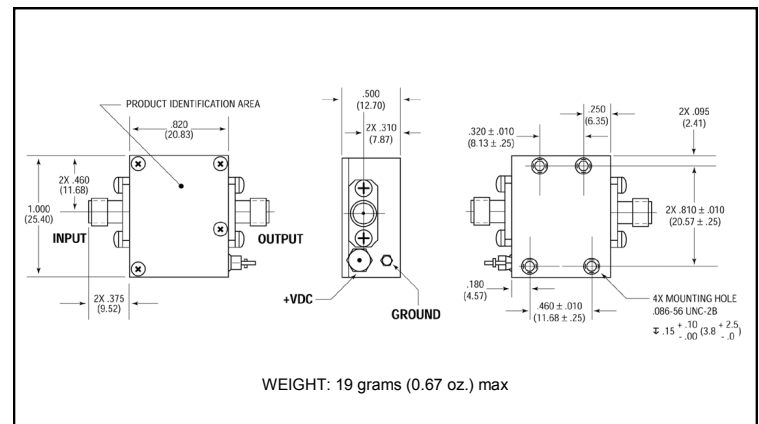
### Outline Drawing: TO-8 \*



### Outline Drawing: Surface Mount \*



### Outline Drawing: SMA Connectorized \*



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

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