

## Cascadable Amplifier 20 to 250 MHz

Rev. V3

### Features

- HIGH OUTPUT POWER: +21 dBm (TYP.)
- LOW NOISE: 2.8 dB (TYP.)
- HIGH THIRD ORDER I.P.: +40 dBm
- LOW DC CURRENT: 37 mA (TYP.) AT +15 Vdc

### Description

The A70-3 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. Use of an impedance transformer offers the benefit of high dynamic range and high efficiency.

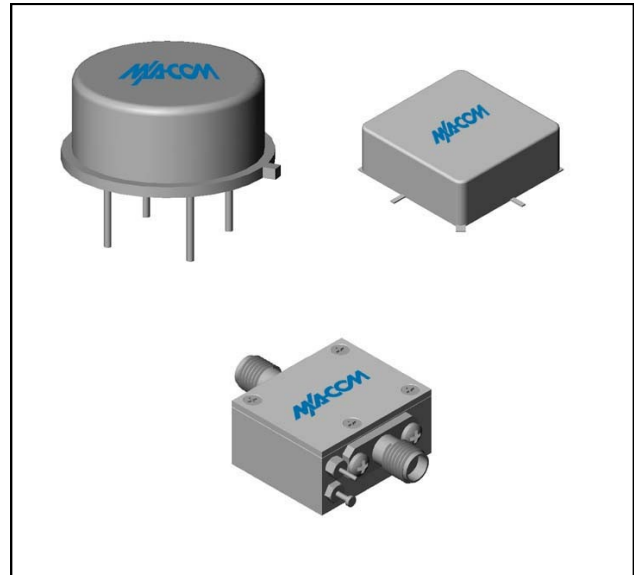
Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

### Ordering Information

Part Number	Package
A70-3	TO-8
SMA70-3	Surface Mount
CA70-3 **	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	15-300	20-250	20-250
Small Signal Gain (min)	dB	8.0	7.0	6.5
Gain Flatness (max)	dB	±0.3	±0.5	±1.0
Reverse Isolation	dB	11		
Noise Figure (max)	dB	2.8	3.2	3.7
Power Output @ 1 dB comp. (min)	dBm	21.0	20.5	20.0
IP3	dBm	+40		
IP2	dBm	+45		
Second Order Harmonic IP	dBm	+51		
VSWR Input / Output (max)		1.9:1 / 1.9:1	2.1:1 / 2.1:1	2.3:1 / 2.3:1
DC Current @ 15 Volts (max)	mA	37	40	42

### Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	+125°C
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)	+125°C

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

Parameter	Rating
Thermal Resistance $\theta_{jc}$	130°C/W
Transistor Power Dissipation $P_d$	0.336 W
Junction Temperature Rise Above Case $T_{jc}$	44°C

\* Over temperature performance limits for part number CA70-3, guaranteed from 0°C to +50°C only.

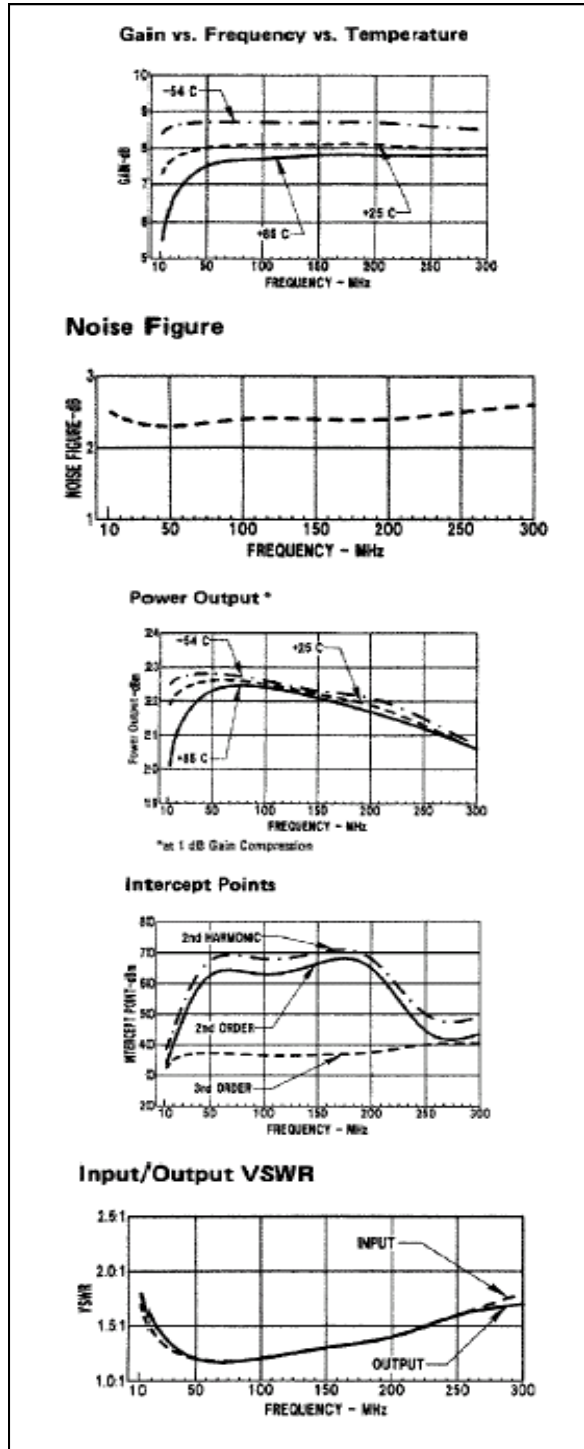
# A70-3 / SMA70-3



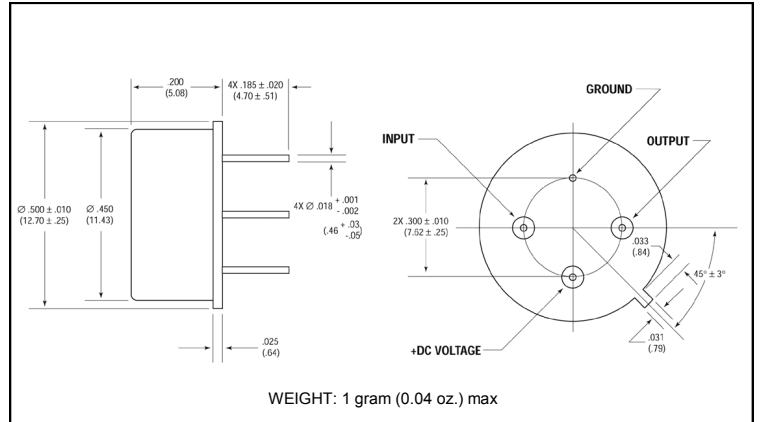
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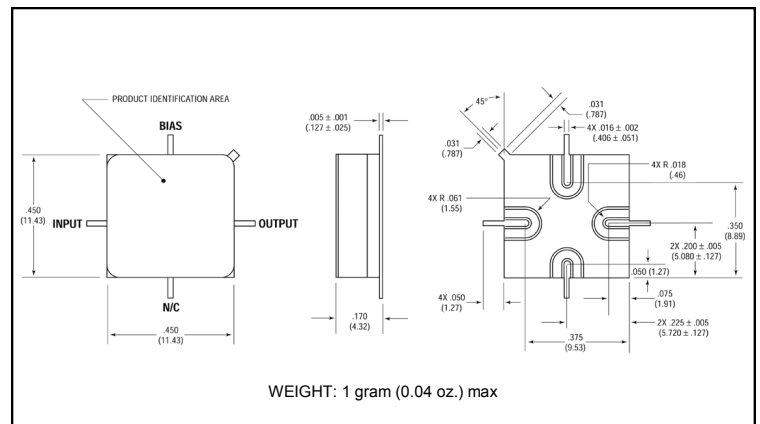
## Typical Performance Curves at +25°C



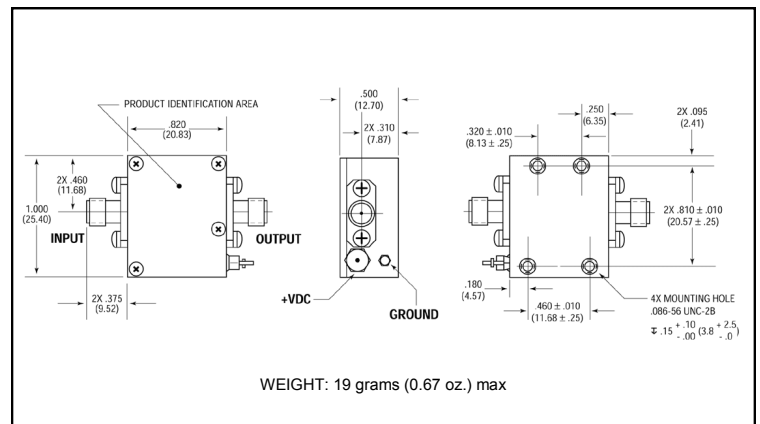
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



## Outline Drawing: SMA Connectorized \*



2  
4

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

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