

Cascadable Amplifier 10 to 250 MHz

A70-1/ SMA70-1

V2

Features

- AVAILABLE IN SURFACE MOUNT
- LOW NOISE: 1.8 dB (TYP.)
- HIGH EFFICIENCY: +14 dBm (TYP.)
OUTPUT POWER AT 15 mA (TYP.)

Description

The A70-1 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

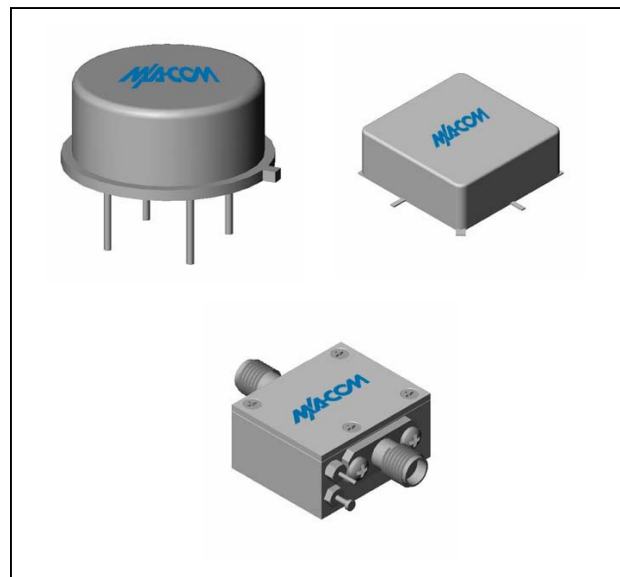
This single stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. Use of an impedance transformer offers the benefit of high dynamic range and high efficiency.

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

Ordering Information

Part Number	Package
A70-1	TO-8
SMA70-1	Surface Mount
CA70-1	SMA Connectorized

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	5-300	10-250	10-250
Small Signal Gain (min)	dB	8.0	7.5	7.0
Gain Flatness (max)	dB	±0.3	±0.5	±0.7
Reverse Isolation	dB	11		
Noise Figure (max)	dB	1.8	2.3	2.8
Power Output @ 1 dB comp. (min)	dBm	14.0	13.0	12.5
IP3	dBm	+28		
IP2	dBm	+38		
Second Order Harmonic IP	dBm	+44		
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	15	17	19

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

Parameter	Rating
Thermal Resistance θ_{jc}	45°C/W
Transistor Power Dissipation P_d	0.113 W
Junction Temperature Rise Above Case T_{jc}	5°C

* Over temperature performance limits for part number CA70-1, guaranteed from 0°C to +50°C only.

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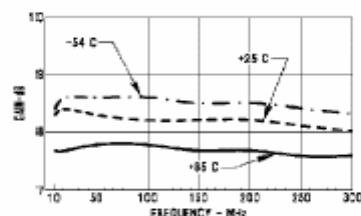
• **North America** Tel: 800.366.2266 / Fax: 978.366.2266
 • **Europe** Tel: 44.1908.574.200 / Fax: 44.1908.574.300
 • **Asia/Pacific** Tel: 81.44.844.8296 / Fax: 81.44.844.8298

Visit www.macom.com for additional data sheets and product information.

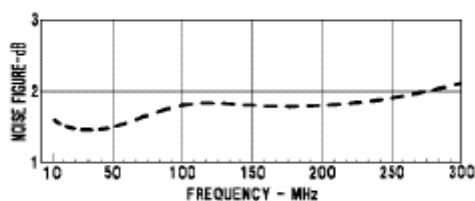
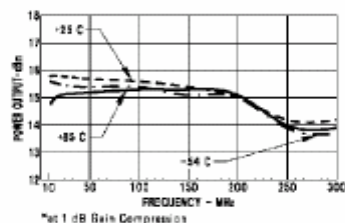
Typical Performance Curves at +25°C

Outline Drawing: TO-8 *

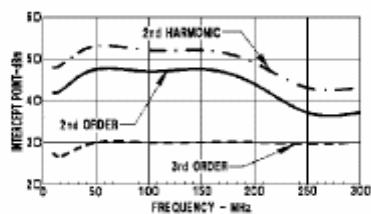
Gain vs. Frequency vs. Temperature



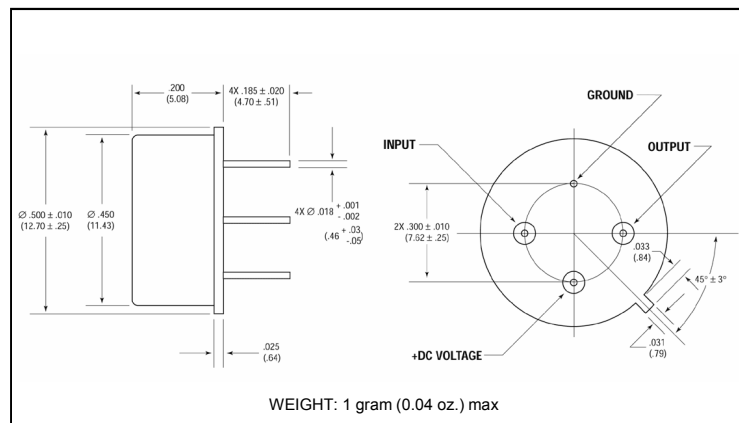
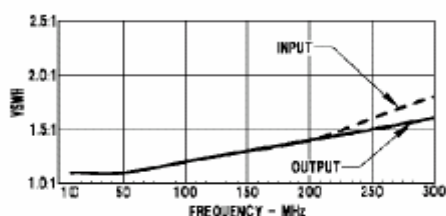
Noise Figure

**Power Output ***

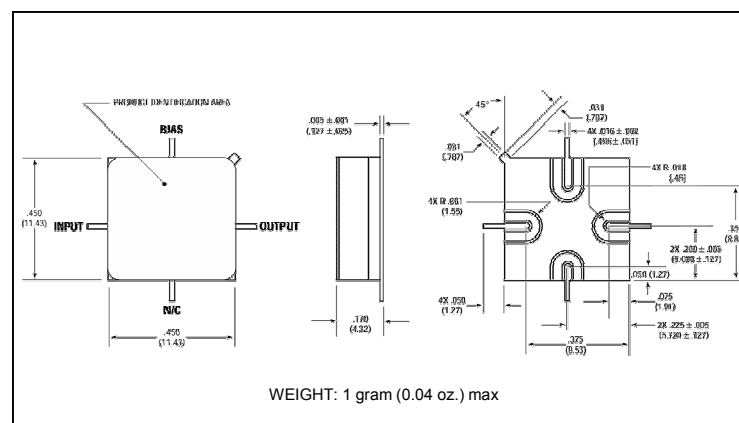
Intercept Points



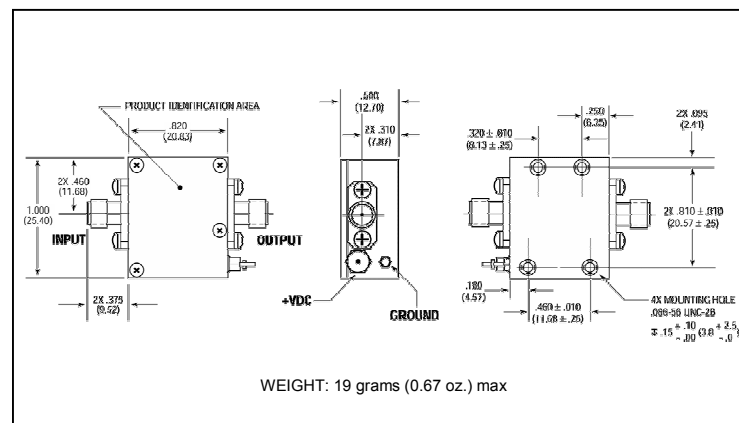
Input/Output VSWR



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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