

Cascadable Amplifier 10 to 250 MHz

Rev. V3

Features

- VERY LOW NOISE: 1.6 dB (TYP.)
- HIGH EFFICIENCY +8.0 dBm (TYP.)
OUTPUT POWER AT 10 mA (TYP.)

Description

The A70 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	TO-8
SMA70	Surface Mount
MAAM-008726-00CA70	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	10-300	10-250	10-250
Small Signal Gain (min)	dB	8.0	7.3	6.8
Gain Flatness (max)	dB	±0.3	±0.5	±0.7
Reverse Isolation	dB	11		
Noise Figure (max)	dB	1.6	2.3	2.8
Power Output @ 1 dB comp. (min)	dBm	8.0	7.5	7.0
IP3	dBm	+24		
IP2	dBm	+37		
Second Order Harmonic IP	dBm	+44		
VSWR Input / Output (max)		1.8:1 / 1.8:1	2.1:1 / 2.1:1	2.3:1 / 2.3:1
DC Current @ 15 Volts (max)	mA	10	12	13

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

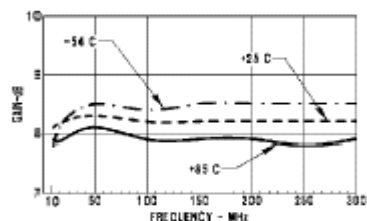
Thermal Data: $V_{CC} = +15 V_{DC}$

Parameter	Rating
Thermal Resistance θ_{jc}	130°C/W
Transistor Power Dissipation P_d	0.064 W
Junction Temperature Rise Above Case T_{jc}	8°C

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

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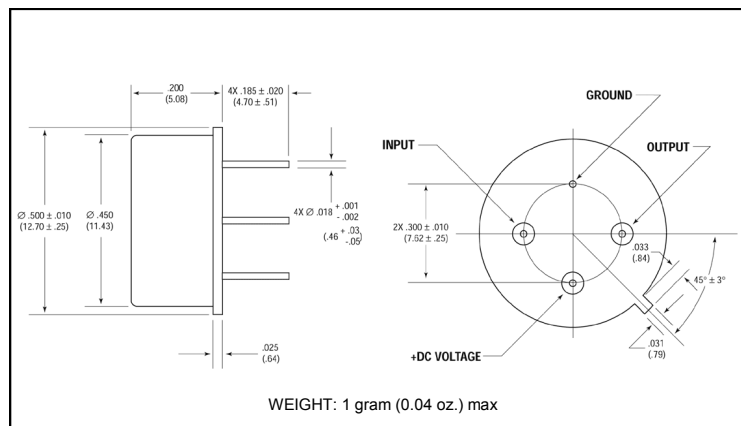
Outline Drawing: TO-8 *



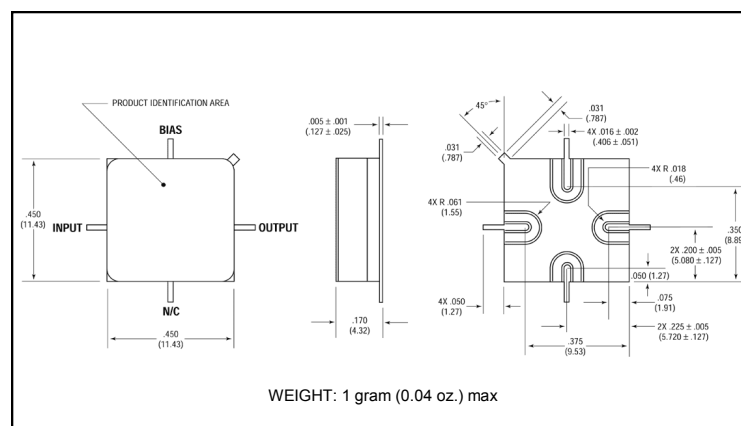
Frequency (MHz)	Noise Figure (dB)
10	1.6
20	1.4
30	1.5
50	1.7
100	1.8
150	1.75
200	1.7
250	1.8
300	2.0

Power Output vs Frequency for the 65C tube at 1 dB gain compression. The graph shows three curves: 65C (solid line), 25C (dashed line), and 54C (dotted line). The y-axis is Power Output in dBm (0 to 12) and the x-axis is Frequency in MHz (0 to 300). The 65C curve peaks at ~11.5 dBm around 100 MHz. The 25C curve peaks at ~10.5 dBm around 150 MHz. The 54C curve peaks at ~8.5 dBm around 100 MHz.

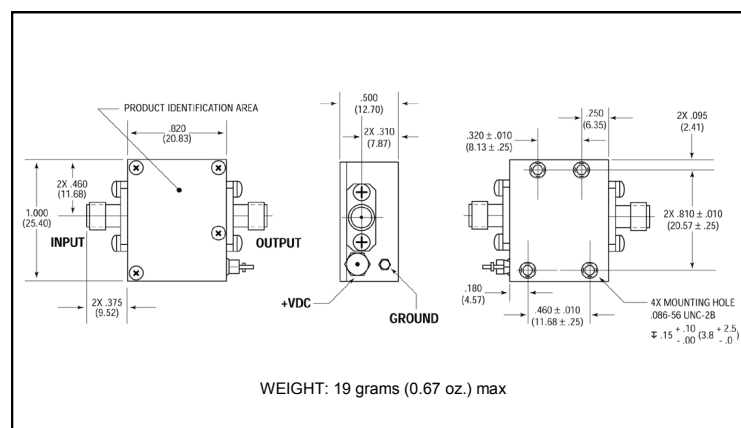
Frequency (MHz)	1st HARMONIC (dB)	2nd ORDER (dB)	3rd ORDER (dB)
10	42	38	25
50	42	37	25
100	42	36	24
150	41	35	23
200	40	34	22
250	39	33	22
300	38	32	22



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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Наши контакты:

Телефон: +7 812 627 14 35

Электронная почта: sales@st-electron.ru

Адрес: 198099, Санкт-Петербург,
Промышленная ул, дом № 19, литера Н,
помещение 100-Н Офис 331