

Cascadable Amplifier 10 to 1000 MHz

Rev. V3

Features

- LOW NOISE: 2.8 dB (TYP.)
- HIGH GAIN: 16.0 dB (TYP.)
- MEDIUM OUTPUT POWER: +8 dBm (TYP.)
- LOW VSWR: <1.6:1 (TYP.)

Description

The A12 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

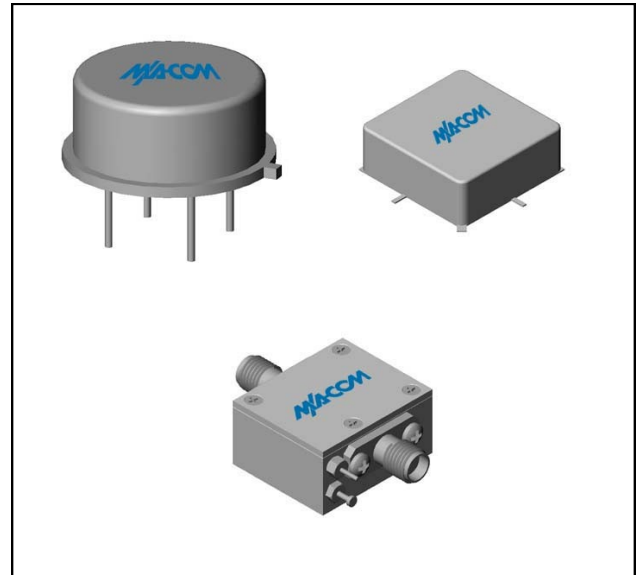
This single stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. Both TO-8 and Surface Mount packages are Hermetically sealed, and MIL-STD-883 environmental screening is available.

Ordering Information

Part Number	Package
A12	TO-8
SMA12	Surface Mount
CA12	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	5-1000	10-1000	10-1000
Small Signal Gain (min)	dB	16.0	15.0	14.5
Gain Flatness (max)	dB	±0.3	±0.7	±1.0
Reverse Isolation	dB	20		
Noise Figure (max)	dB	2.8	3.5	3.9
Power Output @ 1 dB comp. (min)	dBm	8.0	7.0	6.5
IP3	dBm	+22		
IP2	dBm	+25		
Second Order Harmonic IP	dBm	+32		
VSWR Input / Output (max)		1.6:1 / 1.6:1	1.9:1 / 1.9:1	2.0:1 / 2.0:1
DC Current @ 15 Volts (max)	mA	22	25	27

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	+125°C
DC Voltage	+17 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

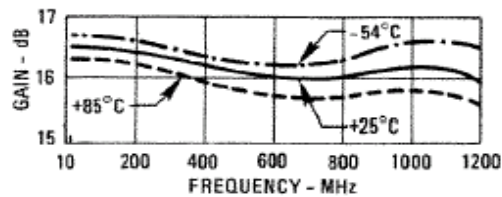
Thermal Data: $V_{CC} = +15 V_{DC}$

Parameter	Rating
Thermal Resistance θ_{jc}	170°C/W
Transistor Power Dissipation P_d	0.189 W
Junction Temperature Rise Above Case T_{jc}	+32°C

1 * Over temperature performance limits for part number CA12, guaranteed from 0°C to +50°C only.

Rev. V3

Outline Drawing: TO-8 *

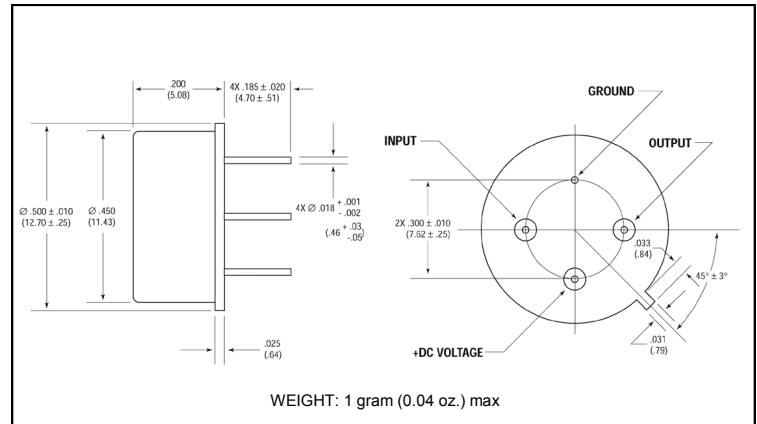


Frequency (MHz)	Noise Figure (dB)
10	3.0
200	2.6
400	2.5
600	2.5
800	2.5
1000	2.6
1200	2.7

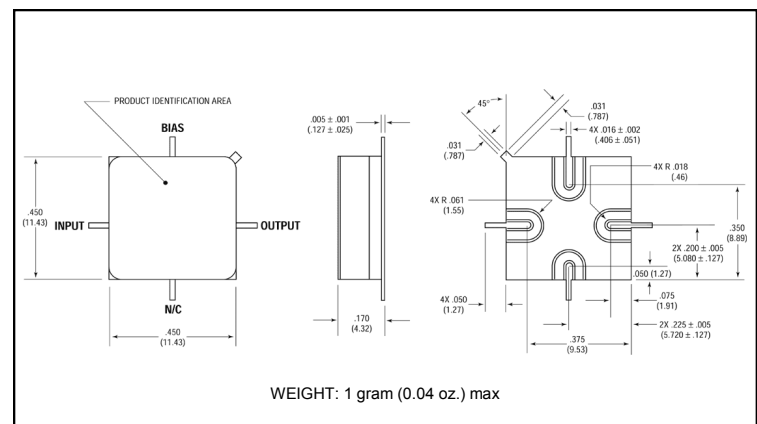
A line graph showing the power output (in dBm) of a 2N4350 tube as a function of frequency (in MHz) for three different temperatures: +85°C, +25°C, and -55°C. The x-axis represents frequency from 10 to 1200 MHz on a logarithmic scale. The y-axis represents power output from 5 to 15 dBm. All three curves show a general upward trend with frequency. The +85°C curve is the highest, followed by the +25°C curve, and the -55°C curve is the lowest. There is a noticeable dip in power output for all curves around 600 MHz.

Frequency (MHz)	Power Output (dBm) at +85°C	Power Output (dBm) at +25°C	Power Output (dBm) at -55°C
10	8.5	8.0	7.5
100	8.5	8.0	7.5
200	8.5	8.0	7.5
400	9.0	8.5	8.0
600	8.5	8.0	7.5
800	9.5	9.0	8.5
1000	11.0	10.5	10.0
1200	12.5	12.0	11.5

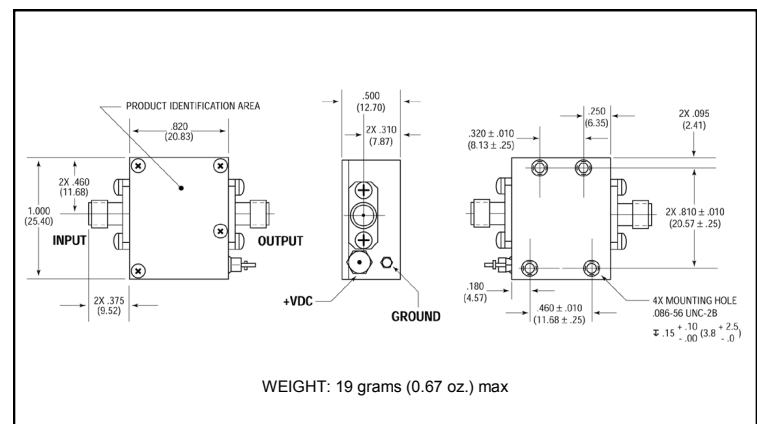
Frequency (MHz)	Input VSWR	Output VSWR
10	1.1	1.0
200	1.15	1.05
400	1.2	1.1
600	1.3	1.2
800	1.5	1.4
1000	1.8	1.6
1200	2.0	1.8



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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