

Cascadable Amplifier 100 to 3200 MHz

Rev. V3

Features

- ULTRAWIDE BANDWIDTH: 10-3200 MHz
- EXCELLENT GAIN BLOCK: 11.5 dB (TYP.)
- MEDIUM OUTPUT POWER: +8.5 dBm (TYP.)

Description

The A43 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for consistent performance and high reliability.

This 2 stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. An active DC biasing network insures temperature-stable performance.

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

Ordering Information

Part Number	Package
A43	TO-8
SMA43	Surface Mount
CA43 **	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	80-3200	10-3200	10-3200
Small Signal Gain (min)	dB	11.5	10.5	9.8
Gain Flatness (max)	dB	±0.3	±0.7	±1.0
Reverse Isolation	dB	27		
Noise Figure (max)	dB	7.0	7.5	8.0
Power Output @ 1 dB comp. (min)	dBm	8.5	7.0	6.5
IP3	dBm	+21		
IP2	dBm	+40		
Second Order Harmonic IP	dBm	+45		
VSWR Input / Output (max)		1.6:1 / 1.8:1	2.3:1 / 2.3:1	2.4:1 / 2.4:1
DC Current @ 15 Volts (max)	mA	45	48	50

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	125°C
DC Voltage	+17 V
Continuous Input Power	+10 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

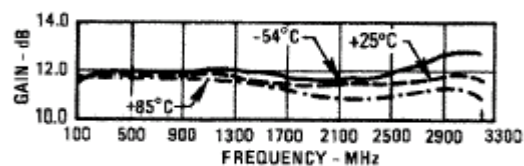
Thermal Data: $V_{CC} = +15 V_{DC}$

Parameter	Rating
Thermal Resistance θ_{jc}	150°C/W
Transistor Power Dissipation P_d	0.193 W
Junction Temperature Rise Above Case T_{jc}	29°C

1 * Over temperature performance limits for part number CA43, guaranteed from 0°C to +50°C only.

Rev. V3

Outline Drawing: TO-8 *

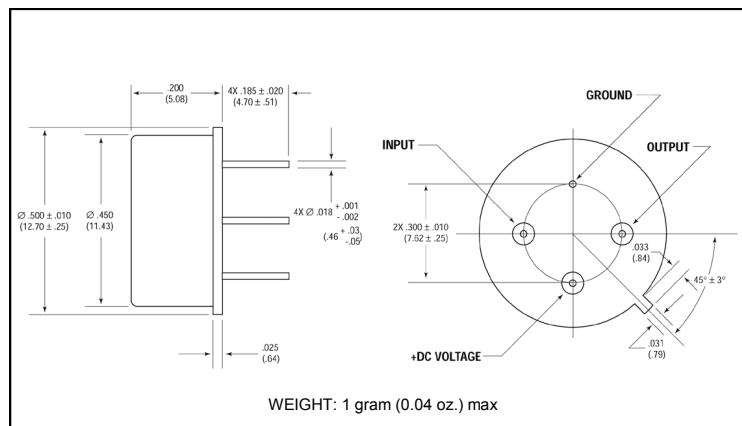


Frequency (MHz)	Noise Figure (dB)
100	6.5
500	6.4
900	6.5
1300	6.7
1700	6.4
2100	6.1
2500	6.3
2900	6.5
3300	6.6

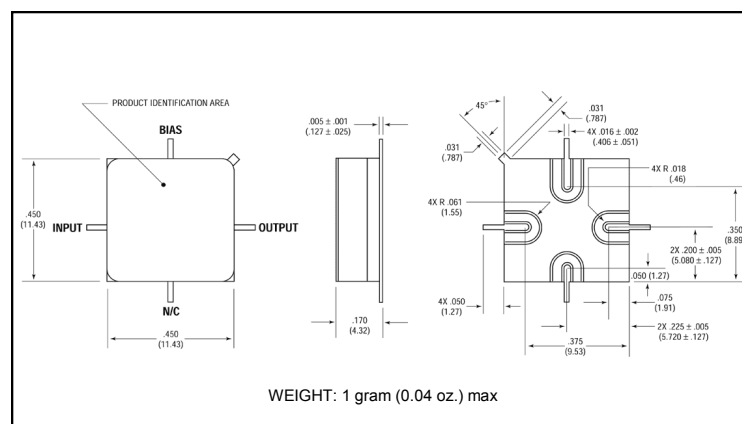
Frequency (MHz)	Power Output (dBm)
100	8.0
500	8.0
900	8.5
1300	8.5
1700	8.5
2100	8.8
2500	9.5
2900	10.0
3300	10.2

A line graph showing the Intercept Point (dBm) versus Frequency (MHz) for a 200-MHz IF amplifier. The y-axis ranges from 10 to 60 dBm in increments of 10. The x-axis ranges from 100 to 3300 MHz in increments of 500. Three curves are plotted: a solid line for the 2nd Harmonic, a dashed line for the 2nd Order Two Tone, and a dotted line for the 3rd Order Two Tone. The 2nd Harmonic curve starts at ~48 dBm at 100 MHz, dips to ~35 dBm at 1300 MHz, and rises to ~58 dBm at 3300 MHz. The 2nd Order Two Tone curve starts at ~45 dBm at 100 MHz, dips to ~32 dBm at 1300 MHz, and rises to ~50 dBm at 3300 MHz. The 3rd Order Two Tone curve starts at ~25 dBm at 100 MHz, dips to ~20 dBm at 1300 MHz, and rises to ~25 dBm at 3300 MHz.

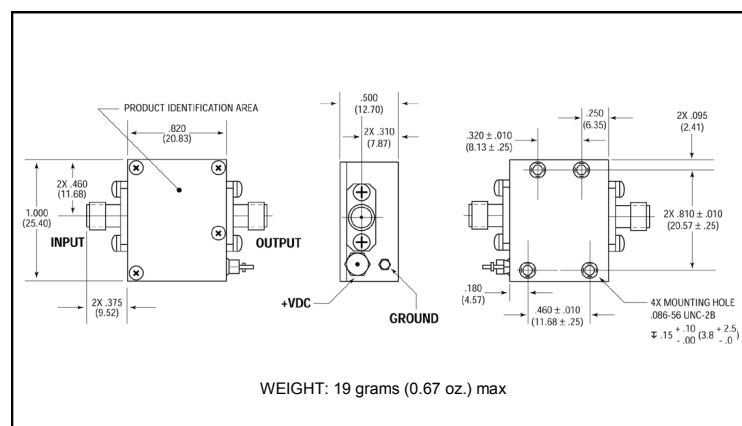
Frequency (MHz)	2nd Harmonic (dBm)	2nd Order Two Tone (dBm)	3rd Order Two Tone (dBm)
100	48	45	25
500	42	38	22
1000	38	35	20
1300	35	32	20
1700	38	35	20
2100	42	38	22
2500	48	45	24
2800	52	48	25
3300	58	50	25



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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