A54 / SMA54

Cascadable Amplifier
5 to 500 MHz

Rev. V3

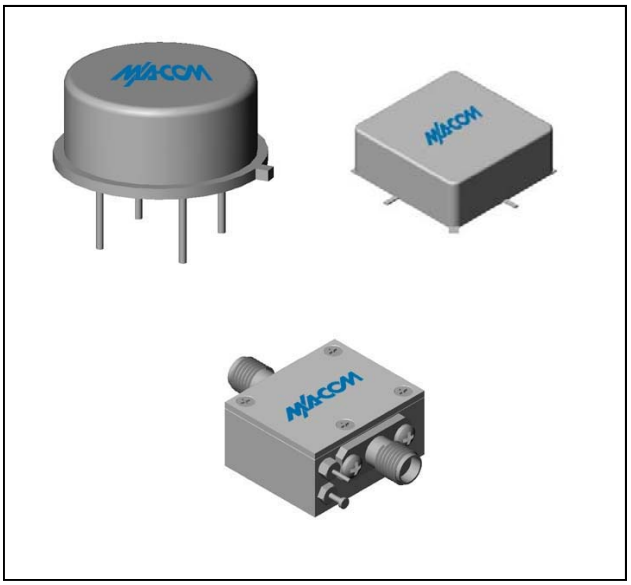
Features

- HIGH GAIN— TWO STAGES; 27.5 dB (TYP.)
- MEDIUM OUTPUT LEVEL: +8 dBm (TYP.)
- LOW VSWR:<1.4:1 (TYP.)

Description

The A54 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

Product Image



Ordering Information

Part Number	Package
A54	TO-8
SMA54	Surface Mount
CA54 **	SMA Connectorized

** The connectorized version is not RoHs compliant.`

Electrical Specifications: Z_0 = 50Ω, V_{CC} = +15 V_{DC}

Parameter	Units	Typical	Guaranteed	
		25ºC	0º to 50ºC	-54º to +85ºC*
Frequency	MHz	3-500	5-500	5-500
Small Signal Gain (min)	dB	27.5	26.0	24.0
Gain Flatness (max)	dB	±0.8	±0.8	±1.0
Reverse Isolation	dB	37		
Noise Figure (max)	dB	4.5	5.5	6.0
Power Output @ 1 dB comp. (min)	dBm	8.0	6.5	5.5
IP3	dBm	+19		
IP2	dBm	+32.5		
Second Order Harmonic IP	dBm	+39.5		
VSWR Input / Output (max)		1.4:1 / 1.4:1	1.5:1 / 1.5:1	1.9:1 / 2.0:1
DC Current @ 15 Volts (max)	mA	34	37	34

* Over temperature performance limits for part number CA54, guaranteed from 0°C to +50°C only.

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62ºC to +125ºC
Case Temperature	+125ºC
DC Voltage	+17 V
Continuous Input Power	12 dBm
Short Term Input power (1 minute max.)	50 mW
Peak Power (3 µsec max.)	0.5 W
"S" Series Burn-In Temperature (case)	+125ºC

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

Parameter	Rating
Thermal Resistance θ_{jc}	130ºC/W
Transistor Power Dissipation P_d	0.084 W
Junction Temperature Rise Above Case T_{jc}	11ºC

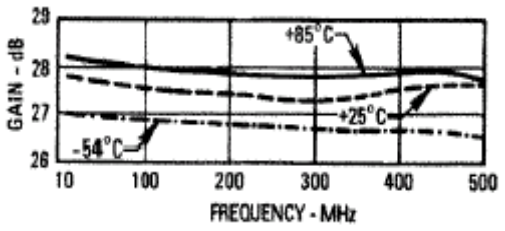
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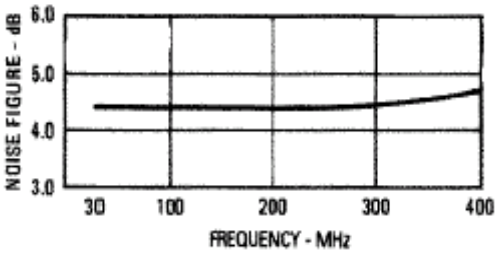
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Typical Performance Curves at +25°C

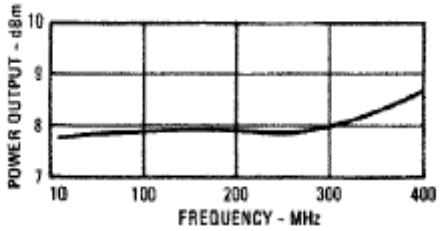
Gain



Noise Figure

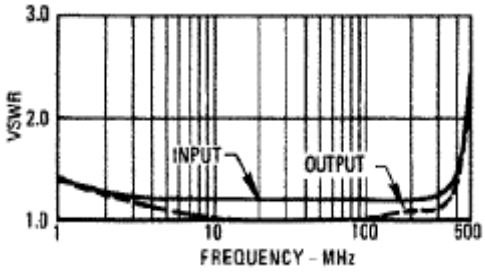


Power Output*

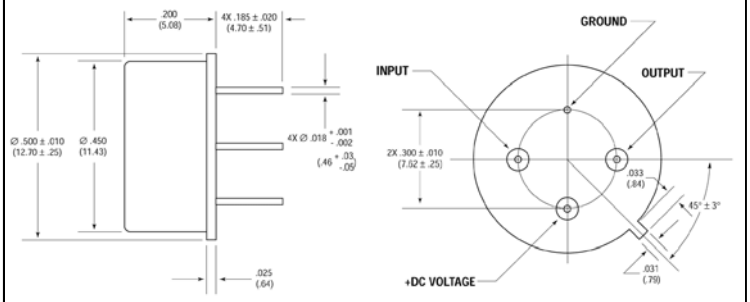


* at 1 dB Gain Compression

VSWR

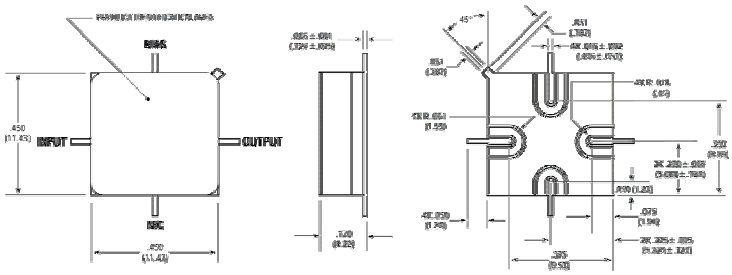


Outline Drawing: TO-8 *



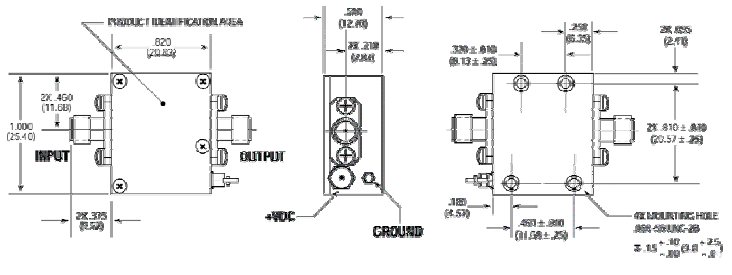
WEIGHT: 1 gram (0.04 oz.) max

Outline Drawing: Surface Mount *



WEIGHT: 1 gram (0.04 oz.) max

Outline Drawing: SMA Connectorized *



WEIGHT: 19 grams (0.67 oz.) max

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

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