A45-1 / SMA45-1

Cascadable Amplifier
1000 to 4000 MHz

Rev. V3

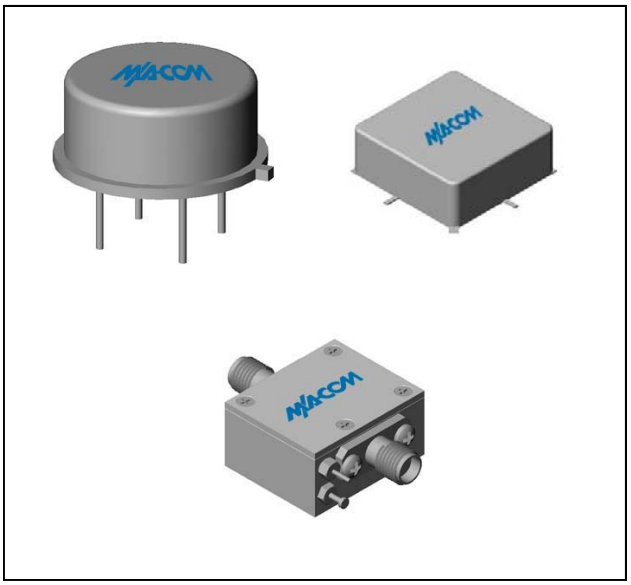
Features

- WIDE BANDWIDTH
- HIGH GAIN 17.5 dB (TYP.)
- LOW NOISE: 4.1 dB (TYP.)
- GaAs FET DESIGN

Description

The A45-1 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.
This single stage GaAs FET feedback amplifier design displays impressive performance characteristics over a broadband frequency range. An RF choke is used for DC power supply decoupling.
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
A45-1	TO-8
SMA45-1	Surface Mount
CA45-1 **	SMA Connectorized

** The connectorized version is not RoHs compliant.

Electrical Specifications: Z_0 = 50Ω, V_{CC} = +5 V_{DC}

Parameter	Units	Typical	Guaranteed	
		25ºC	0º to 50ºC	-54º to +85ºC*
Frequency	MHz	80-4200	1000-4000	1000-4000
Small Signal Gain (min)	dB	17.5	16.5	15.5
Gain Flatness (max)	dB	±0.6	±0.8	±1.0
Reverse Isolation	dB	36		
Noise Figure (max)	dB	4.0	5.0	5.5
Power Output @ 1 dB comp. (min)	dBm	13.0	12.5	12.0
IP3	dBm	+26		
IP2	dBm	+33		
Second Order Harmonic IP	dBm	+40		
VSWR Input / Output (max)		1.8:1 / 1.8:1	1.9:1 / 1.9:1	2.0:1 / 2.0:1
DC Current @ 5 Volts (max)	mA	65	75	80

* Over temperature performance limits for part number CA45-1, guaranteed from 0°C to +50°C only.

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62ºC to +125ºC
Case Temperature	125ºC
DC Voltage	+6 V
Continuous Input Power	+13 dBm
Short Term Input power (1 minute max.)	100 mW
Peak Power (3 µsec max.)	0.25 W
"S" Series Burn-In Temperature (case)	125ºC

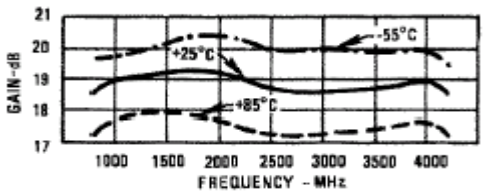
Thermal Data: V_{CC} = +5 V_{DC}

Parameter	Rating
Thermal Resistance θ_{jc}	132ºC/W
Transistor Power Dissipation P_d	0.171 W
Junction Temperature Rise Above Case T_{jc}	23ºC

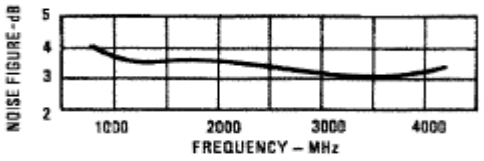
• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
• **India** Tel: +91.80.4155721 • **China** Tel: +86.21.2407.1588
Visit www.macomtech.com for additional data sheets and product information.

Typical Performance Curves at +25°C

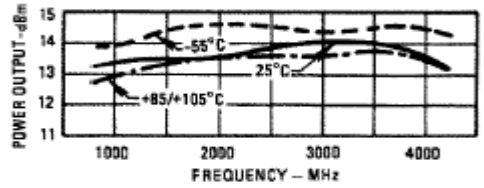
Gain



Noise Figure

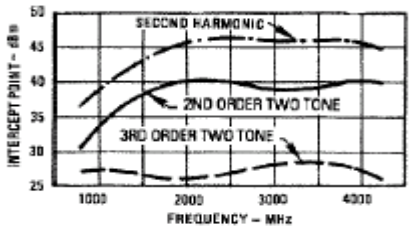


Power Output*

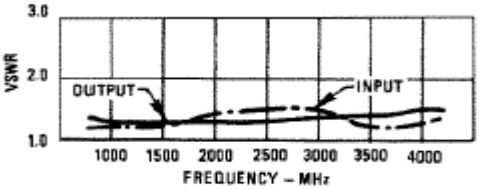


*at 1 dB Gain Compression

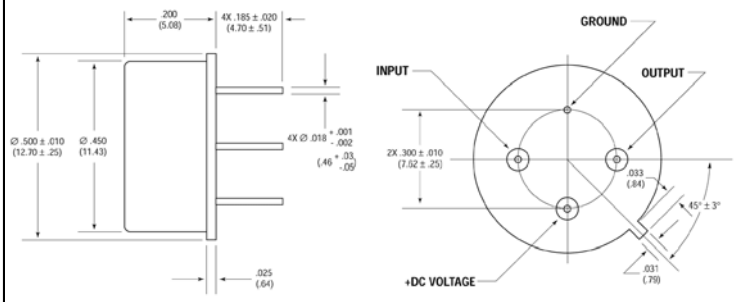
Intercept Point



VSWR

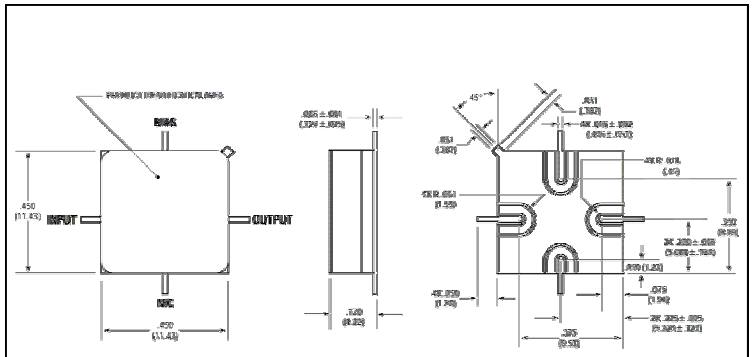


Outline Drawing: TO-8 *



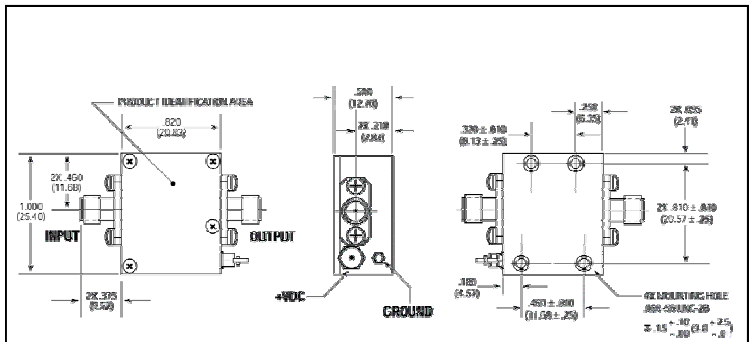
WEIGHT: 1 gram (0.04 oz.) max

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.