

# 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.

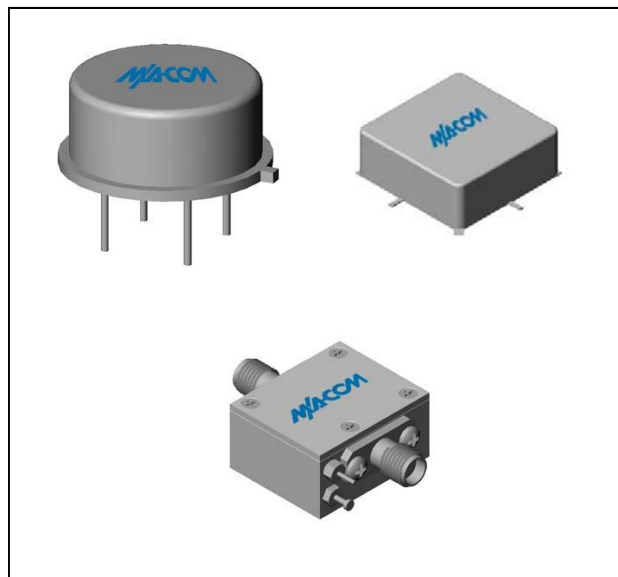
Both TO-8 and Surface Mount packages are hermetically sealed, and MIL-STD-883 environmental screening is available.

## Ordering Information

Part Number	Package
A45-1	TO-8
SMA45-1	Surface Mount
CA45-1 **	SMA Connectorized

\*\* The connectorized version is not RoHs compliant.

## Product Image



## Electrical Specifications: $Z_0 = 50\Omega$ , $V_{CC} = +5 V_{DC}$

Parameter	Units	Typical	Guaranteed	
		25°C	0° to 50°C	-54° to +85°C*
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

## Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	125°C
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)	125°C

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

Parameter	Rating
Thermal Resistance $\theta_{jc}$	132°C/W
Transistor Power Dissipation $P_d$	0.171 W
Junction Temperature Rise Above Case $T_{jc}$	23°C

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

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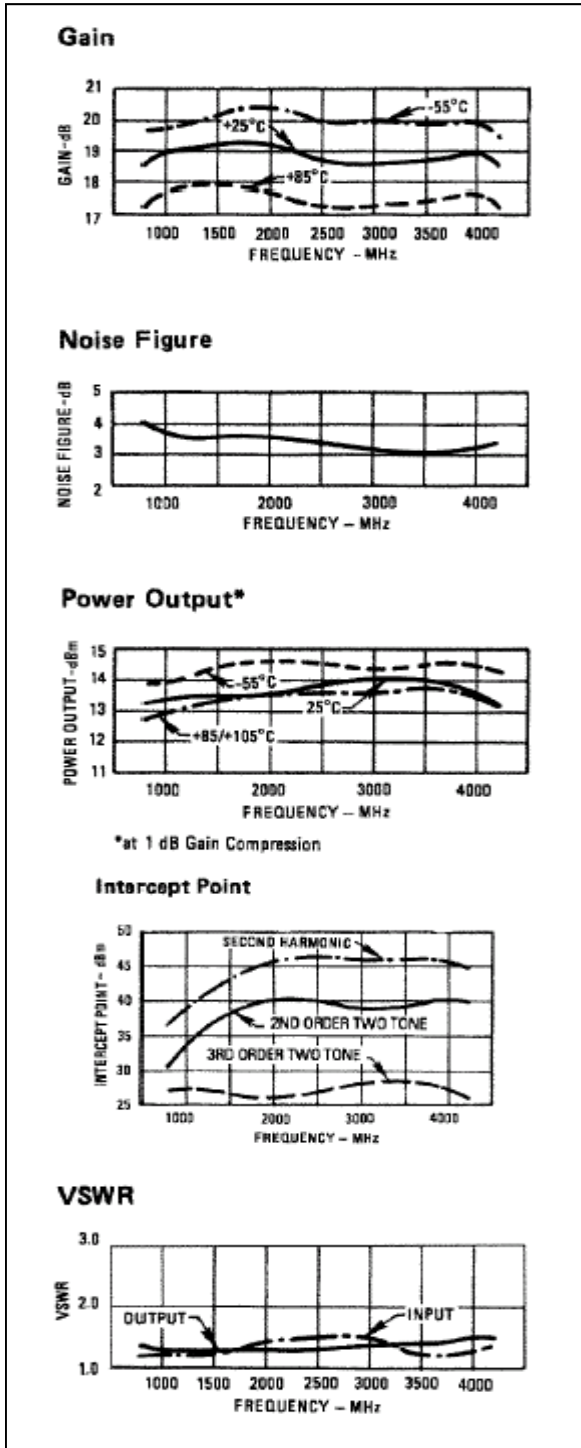
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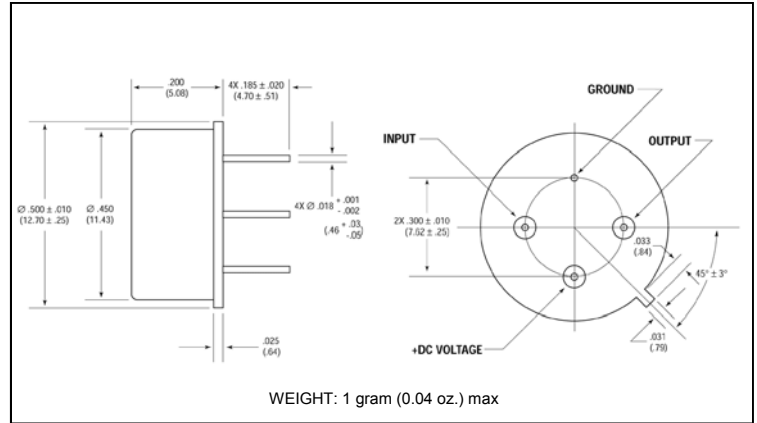
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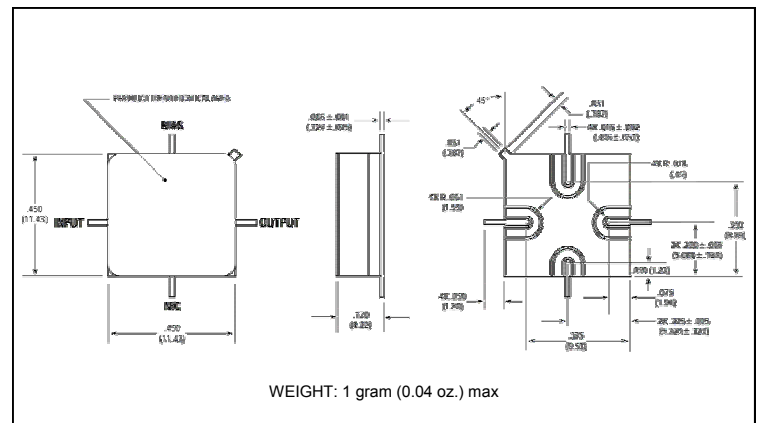
## Typical Performance Curves at +25°C



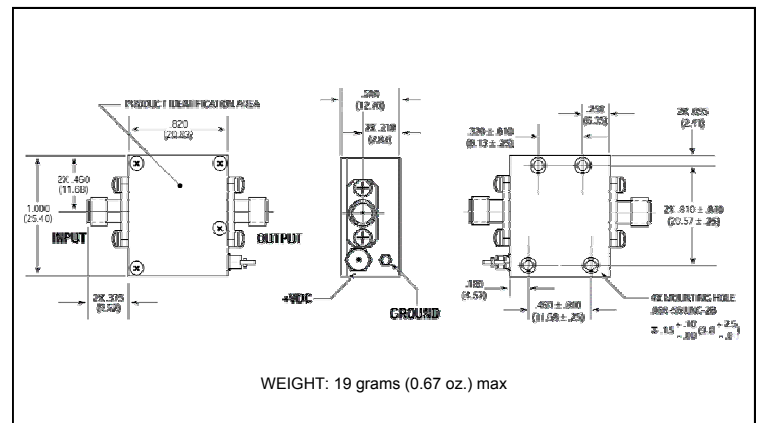
## Outline Drawing: TO-8 \*



## Outline Drawing: Surface Mount \*



## Outline Drawing: SMA Connectorized \*



\* Dimensions are inches (millimeters)  $\pm 0.015$  (0.38) unless otherwise specified.

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