

# 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**

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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	

<sup>\*\*</sup> The connectorized version is not RoHs compliant.

Product Image

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

Parameter	Units	Typical	Guaranteed	
Parameter		25°C	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

**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 Pd	0.171 W	
Junction Temperature Rise Above Case T <sub>jc</sub>	23°C	

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

ADVANCED: Data Sheets contain information regarding a product M/A-COM Technology Solutions is considering for development. Performance is based on target specifications, simulated results, and/or prototype measurements. Commitment to develop is not guaranteed.

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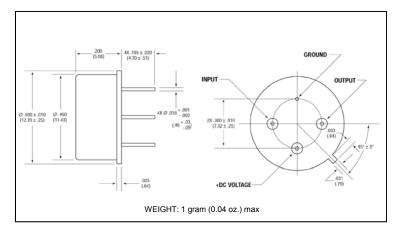
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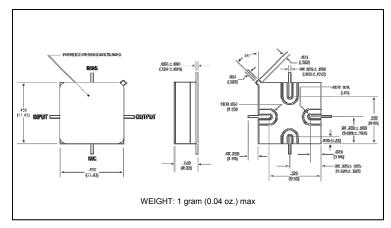
## Typical Performance Curves at +25°C

# Gain 20 19 2500 3000 FREQUENCY - MHz Noise Figure NOISE FIGURE-4B 4000 FREQUENCY - MHz Power Output\* OWER OUTPUT-dBn 13 4000 FREQUENCY -- MHz \*at 1 dB Gain Compression Intercept Point 2ND ORDER TWO TONE ORDER TWO TONE 3000 FREQUENCY - MHz VSWR £ 2.0 2500 2000 3000 FREQUENCY - MHz

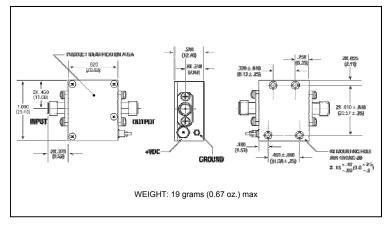
# Outline Drawing: TO-8 \*



# **Outline Drawing: Surface Mount**



# Outline Drawing: SMA Connectorized \*



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

Commitment to produce in volume is not guaranteed.