

Cascadable Amplifier 10 to 500 MHz

Rev. V2

Features

- HIGH POWER OUTPUT: +27.5 dBm (TYP.)
- HIGH THIRD ORDER I.P.: +39 DBm (TYP.)
- MODERATE NOISE FIGURE: 5.2 dB (TYP.)
- GaAs FET AMPLIFIER

Description

The PA512 0.5 watt RF power amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability. This 2 stage GaAs FET transistor design uses a feedback loop for flat broadband performance. An active DC biasing network insures temperature-stable performance. MIL-STD-883 environmental screening is available.

Ordering Information

Part Number	Package
PA512	TO-8
MAAM-007502-SPA512	Surface Mount
MAAM-007502-CPA512	SMA Connectorized

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	10-700	10-500	10-500
Small Signal Gain (min)	dB	18.0	16.0	15.0
Gain Flatness (max)	dB	±0.3	±0.7	±1.0
Reverse Isolation	dB	24		
Noise Figure (max)	dB	5.2	6.0	6.5
Power Output @ 1 dB comp. (min)	dBm	27.5	26.0	25.5
IP3	dBm	+33		
IP2	dBm	+45		
Second Order Harmonic IP	dBm	+50		
VSWR Input / Output (max)		1.4:1 / 2.0:1	1.8:1 / 2.2:1	2.0:1 / 2.3:1
DC Current @ 15 Volts (max)	mA	200	210	220

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62°C to +150°C
Case Temperature	+85°C
DC Voltage	+17 V
Continuous Input Power	+17 dBm
Short Term Input power (1 minute max.)	100 mW
Peak Power (3 μsec max.)	0.5 W
"S" Series Burn-In Temperature (case)	+85°C

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

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

* Over temperature performance limits for part number CPA512, guaranteed from 0°C to +50°C only.

1

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.

PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test data may be available. Commitment to produce in volume is not guaranteed.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
 • **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588
 Visit www.macomtech.com for additional data sheets and product information.

M/A-COM Technology Solutions Inc and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.

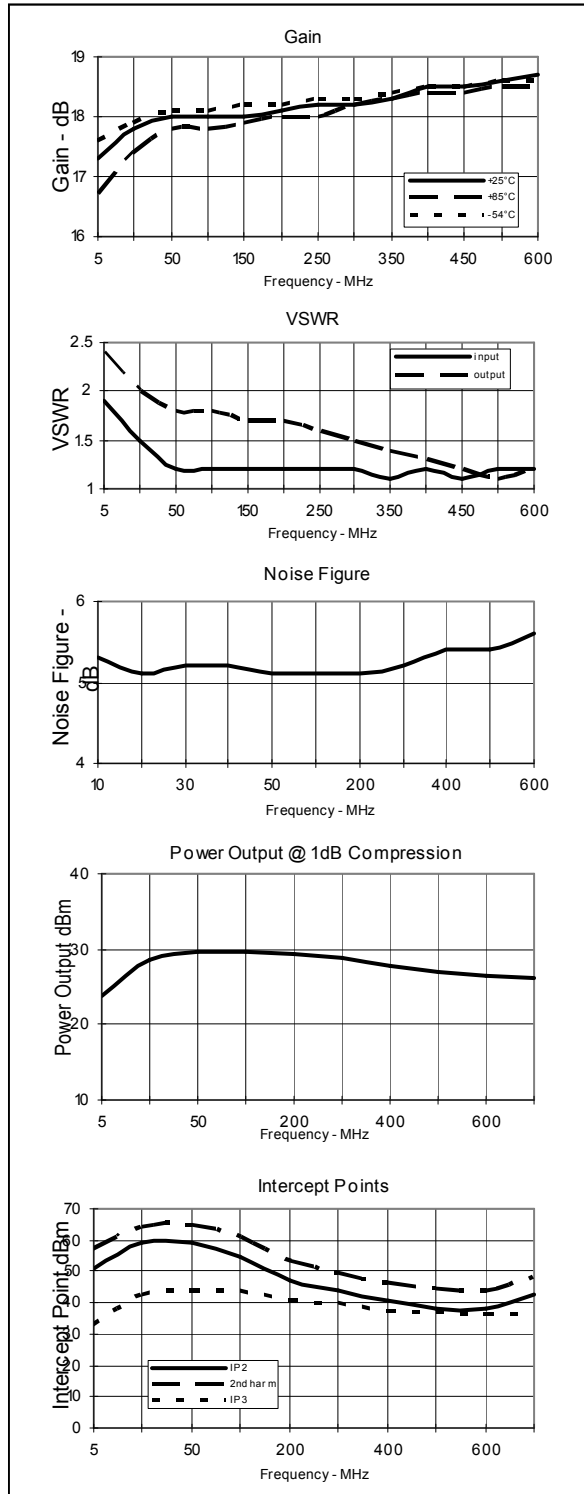
PA512 / SPA512



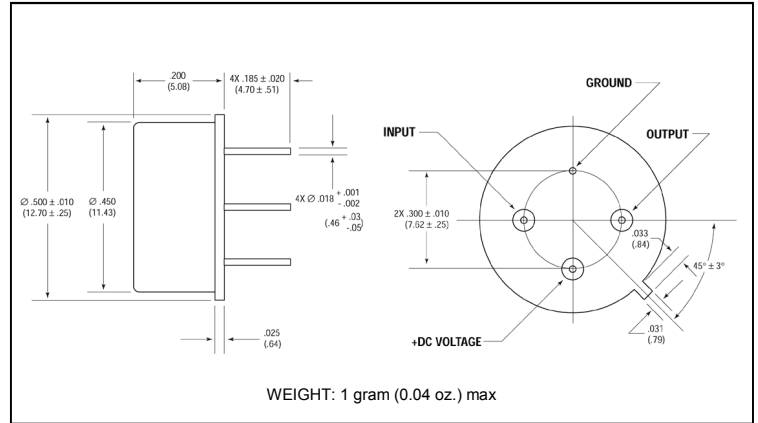
Cascadable Amplifier 10 to 500 MHz

Rev. V2

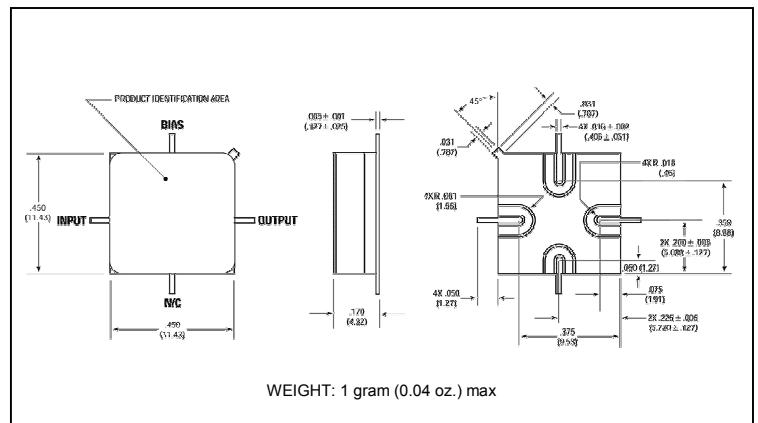
Typical Performance Curves at +25°C



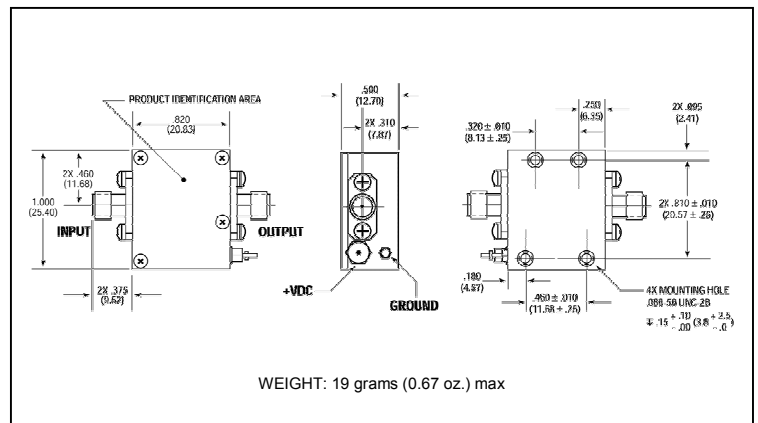
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



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

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.
PRELIMINARY: Data Sheets contain information regarding a product M/A-COM Technology Solutions has under development. Performance is based on engineering tests. Specifications are typical. Mechanical outline has been fixed. Engineering samples and/or test units may be available. Commitment to produce in volume is not guaranteed.

• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
 • **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588
 Visit www.macomtech.com for additional data sheets and product information.

M/A-COM Technology Solutions Inc and its affiliates reserve the right to make changes to the product(s) or information contained herein without notice.