PA512 / SMPA512

M/A-COM Technology Solutions

Cascadable Amplifier
10 to 500 MHz

Rev. V1

Features

- HIGH POWER OUTPUT: +27.5 dBm (TYP.)
- HIGH THIRD ORDER I.P.: +39 DBm (TYP.)
- MODERTE 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
SMPA512	Surface Mount
CPA512	SMA Connectorized

Product Image
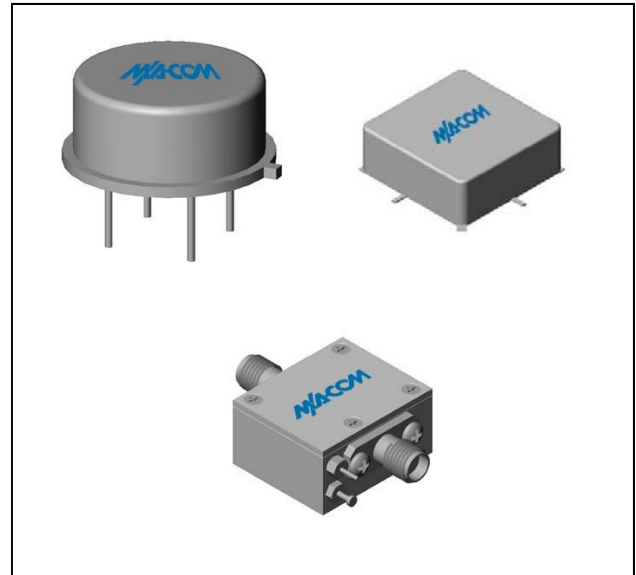
Electrical Specifications: $Z_0 = 50\Omega$, $V_{CC} = +15$ V_{DC}

Parameter	Units	Typical	Guaranteed	
		25ºC	0º to 50ºC	-54º to +85ºC*
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	-62ºC to +150ºC
Case Temperature	+85ºC
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)	+85ºC

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

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

* Over temperature performance limits for part number CPA512, guaranteed from 0ºC to +50ºC only.
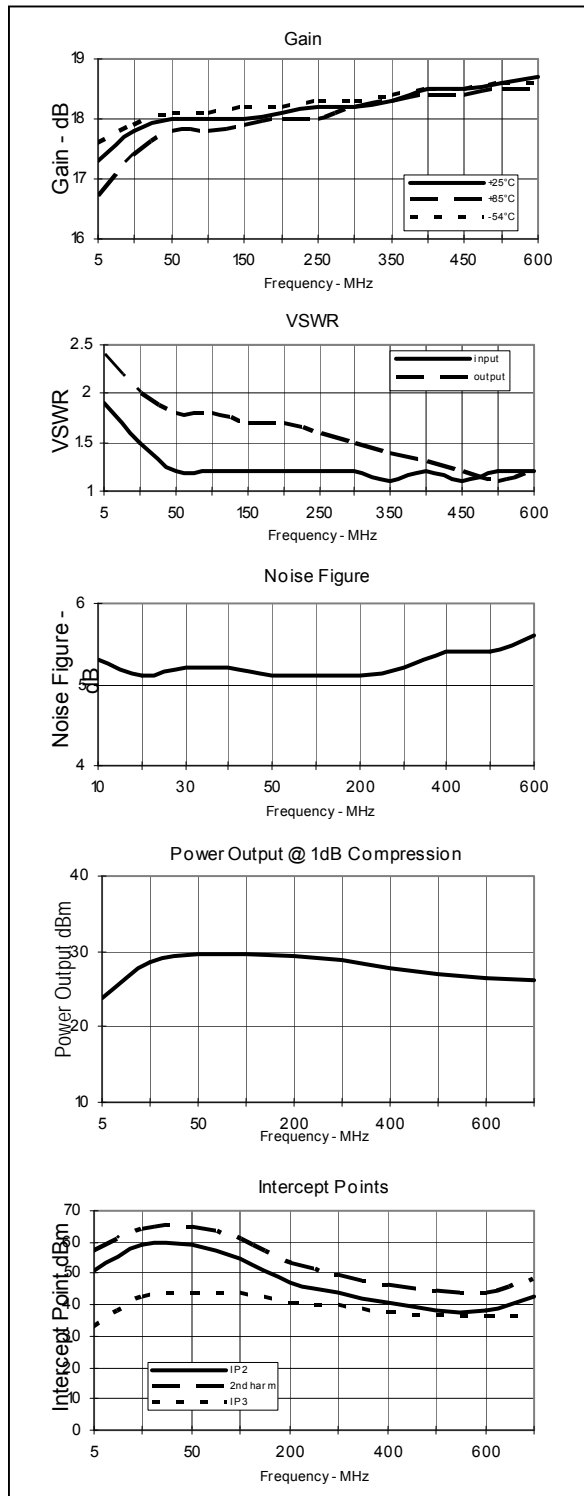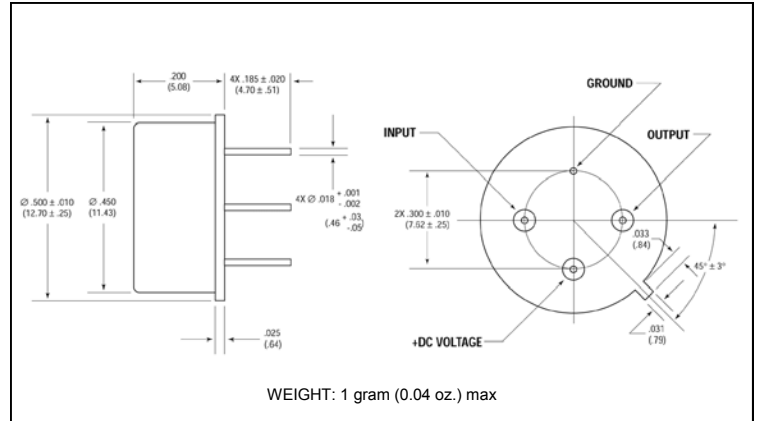
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- **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
- **India** Tel: +91.80.43537383 • **China** Tel: +86.21.2407.1588
Visit www.macomtech.com for additional data sheets and product information.

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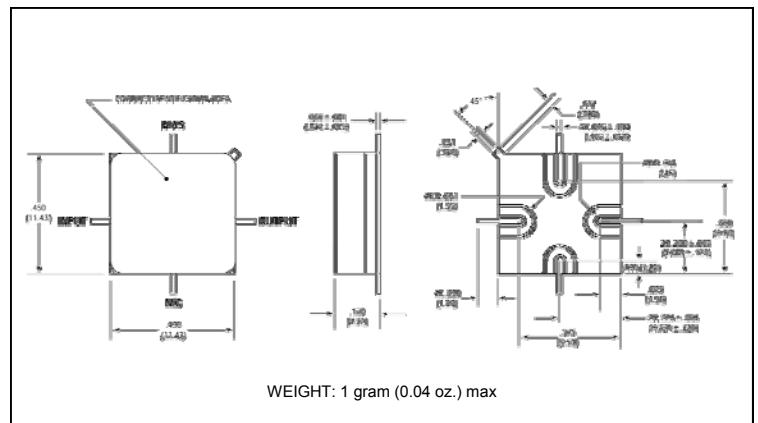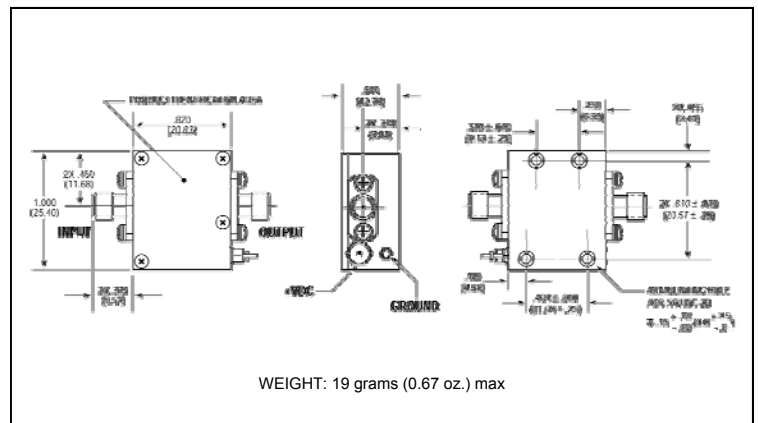
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10 to 500 MHz

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Typical Performance Curves at +25°C

Gain

VSWR

Noise Figure

Power Output @ 1dB Compression

Intercept Points

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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