

Cascadable Amplifier 10 to 500 MHz

Rev. V3

Features

- HIGH POWER OUTPUT: +21 dBm (TYP.)
- HIGH THIRD ORDER IP3: +33 dBm (TYP.)
- HIGH EFFICIENCY: 52 mA (TYP.) @ +15 Vdc
- AVAILABLE IN BOTH TO-8 and SMTO-8 PACKAGES

Description

The A511 RF amplifier is a discrete hybrid design, which uses thin film manufacturing processes for accurate performance and high reliability.

This single stage bipolar transistor feedback amplifier design displays impressive performance over a broadband frequency range. Use of an impedance transformer offers the benefit of high dynamic range and high efficiency.

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

Ordering Information

Part Number	Package	
A511	TO-8	
MAAM-008735-SMA511	Surface Mount	
CA511	SMA Connectorized **	

^{**} The connectorized version is not RoHs compliant.

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

Parameter	Units	Typical	Guaranteed	
Parameter		25°C	0° to 50°C	-54° to +85°C*
Frequency	MHz	5-500	10-500	10-500
Small Signal Gain (min)	dB	17.0	16.0	15.5
Gain Flatness (max)	dB	±0.4	±0.8	±1.0
Reverse Isolation	dB	16		
Noise Figure (max)	dB	3.4	4.2	4.7
Power Output @ 1 dB comp. (min)	dBm	20	18.5	18.0
IP3	dBm	+33		
IP2	dBm	+40		
Second Order Harmonic IP	dBm	+46		
VSWR Input / Output (max)		1.7:1 / 1.7:1	1.9:1 / 1.9:1	2.0:1 / 2.0:1
DC Current @ 15 Volts (max)	mA	52	56	58

Product Image



Absolute Maximum Ratings

Parameter	Absolute Maximum	
Storage Temperature	-62°C to +150°C	
Case Temperature	125°C	
DC Voltage	+17 V	
Continuous Input Power	+13 dBm	
Short Term Input power (1 minute max.)	100 mW	
Peak Power (3 µsec max.)	0.5 W	
"S" Series Burn-In Temperature (case)	125°C	

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

Parameter	Rating	
Thermal Resistance θ_{jc}	143°C/W	
Transistor Power Dissipation P _d	0.47 W	
Junction Temperature Rise Above Case T _{jc}	68°C	

^{*} Over temperature performance limits for part number CA511, guaranteed from 0°C to +50°C only.

Commitment to produce in volume is not guaranteed.

[•] 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.



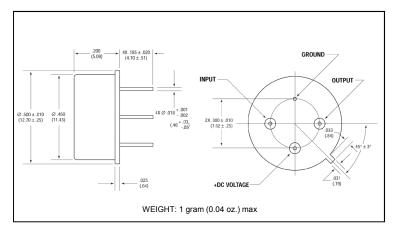
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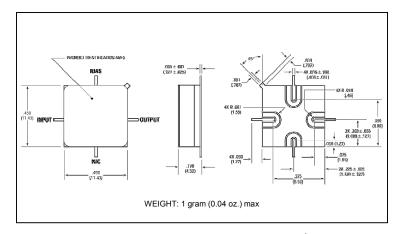
Typical Performance Curves at +25°C

Gain 16.5 100 Noise Figure (gg **a** 2.5 Noise 25 100 Power Output @ 1dB Comp. Power Output (dBm) Frequency (MHz) Intercept Points -2nd Order Harmonic VSWR Frequency (MHz)

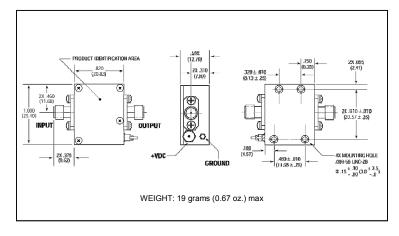
Outline Drawing: TO-8 *



Outline Drawing: Surface Mount *



Outline Drawing: SMA Connectorized *



- * Dimensions are inches (millimeters) ±0.015 (0.38) unless otherwise specified.
 - China Tel: +86.21.2407.1588 • India Tel: +91.80.4155721