

Cascadable Amplifier 10 kHz to 2500 MHz

Rev. V4

Features

- GAIN: 9.5 dB (TYP.)
- DC COUPLING REQUIRED*
- +/- 1 dB GAIN FLATNESS
- HIGH DRIVER OUTPUT LEVEL: +18 dBm
- INPUT/OUTPUT MATCH: < 2.0:1 (TYP.)

Description

The A3010 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.

A voltage sequencing circuit can be used to ensure the negative voltage (-5.2 Vdc) is turned on first and turned off last during normal operation. Reference the application circuit on page 2.

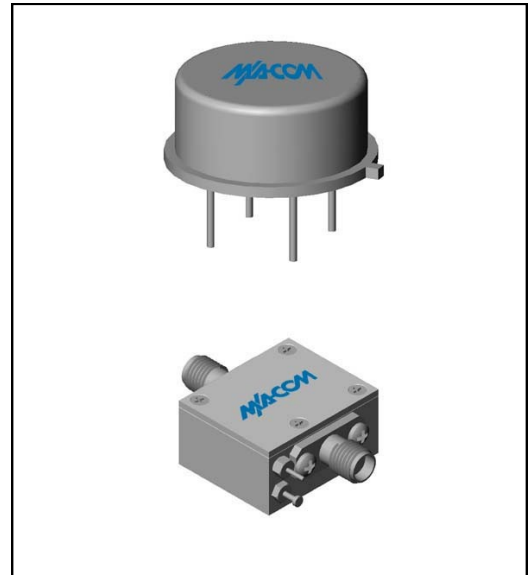
The TO-8 package is hermetically sealed, and MIL-STD-883 environmental screening is available.

Ordering Information

Part Number	Package
A3010	TO-8
CA3010 **	SMA Connectorized

** The connectorized version is not RoHs compliant.

Product Image



Electrical Specifications: $Z_0 = 50\Omega$, $V_{CC} = +12 / -5.2 V_{DC}$

Parameter	Units	Typical	Guaranteed	
		25°C	0° to 50°C	-54° to +85°C**
Frequency	MHz	0.010-2500	0.010-2500	0.010-2500
Small Signal Gain (min)	dB	9.5	8.5	8.0
Gain Flatness (max)	dB	±0.9	±1.0	±1.2
Reverse Isolation	dB	16		
Noise Figure (max)	dB	4.5	5.5	6.0
Power Output @ 1 dB comp. (min)	dBm	19.0	17.0	16.5
IP3	dBm	+35		
VSWR Input / Output (max)		2.0:1 / 2.0:1	2.2:1 / 2.2:1	2.3:1 / 2.3:1
DC Voltage - Positive	Volts	+12	+12	+12
DC Current - Positive (max)	mA	155	160	165
DC Voltage - Negative	Volts	-5.2	-5.2	-5.2
DC Current - Negative (max)	mA	15	20	25

Absolute Maximum Ratings

Parameter	Absolute Maximum
Storage Temperature	-62°C to +125°C
Case Temperature	125°C
DC Voltage	+18 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)	125°C

Thermal Data: $V_{CC} = +12/-5.2 V_{DC}$

Parameter	Rating
Thermal Resistance θ_{jc}	105.6°C/W
Transistor Power Dissipation P_d	0.55 W
Junction Temperature Rise Above Case T_{jc}	58.1°C

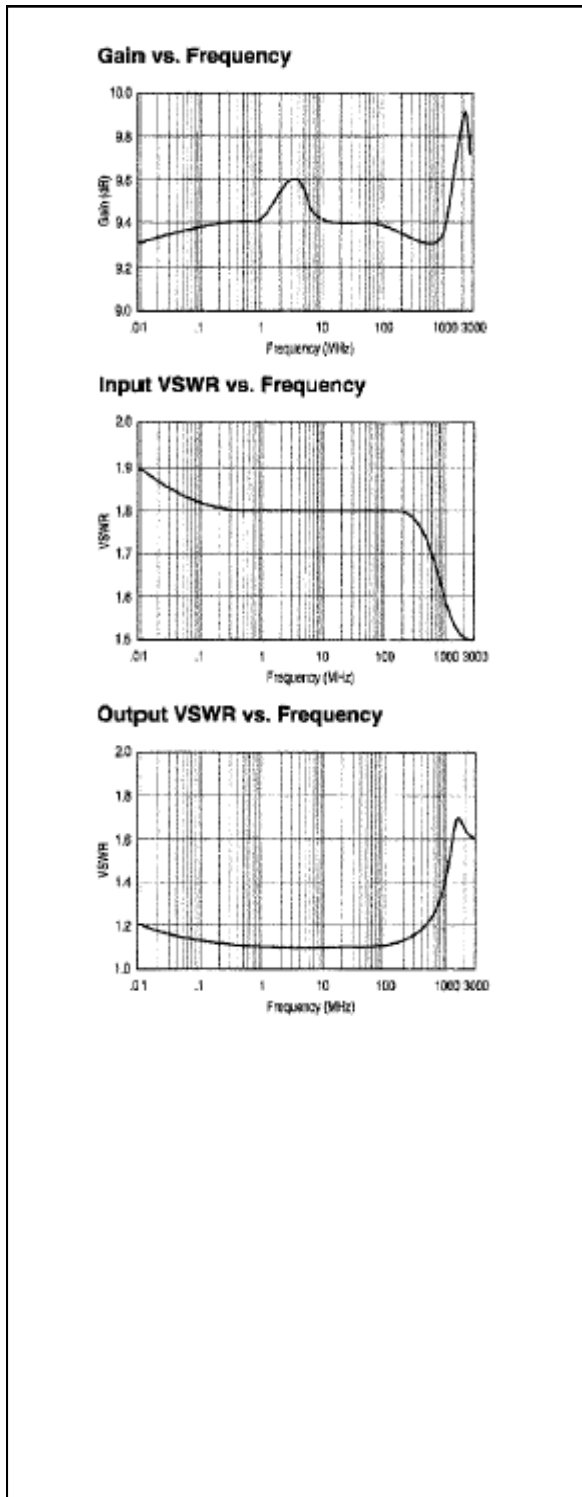
* Model A3010 requires external Input and output DC blocking capacitors (0.36 µF nominal) on the circuit board transmission lines for operation. Model CA3010 has internal DC blocking capacitors integrated in the design, so external blocking capacitors are not required.

** Over temperature performance limits for part number CA3010, guaranteed from 0°C to +50°C only.

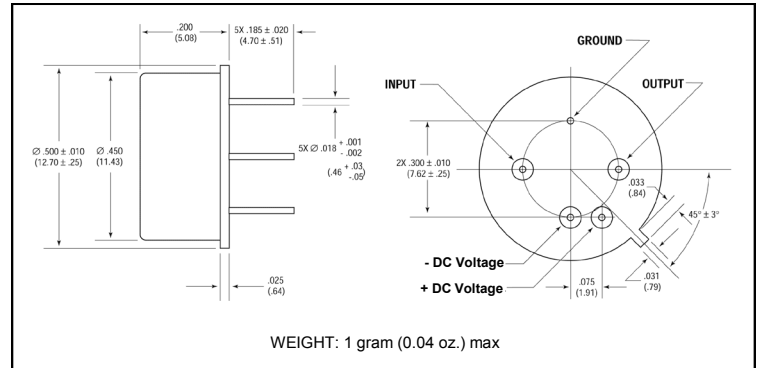
Cascadable Amplifier 10 kHz to 2500 MHz

Rev. V4

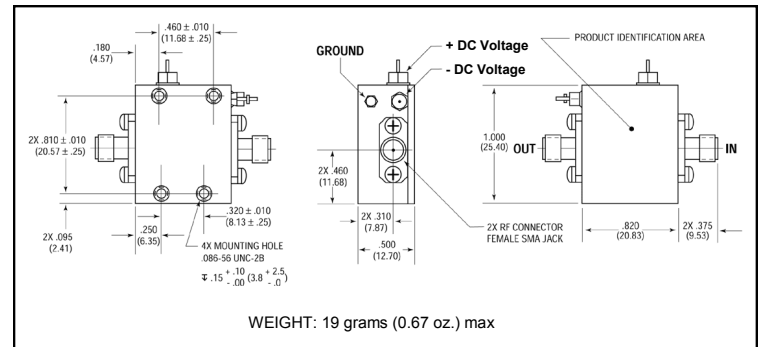
Typical Performance Curves at +25°C



Outline Drawing: TO-8 *

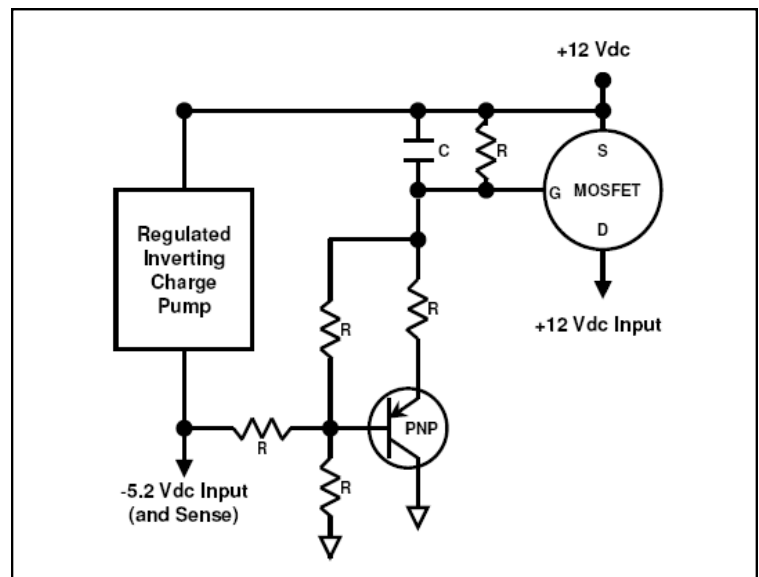


Outline Drawing: SMA Connectorized *



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

Application Sequencing Circuit Block Diagram



M/A-COM Technology Solutions Inc. All rights reserved.

Information in this document is provided in connection with M/A-COM Technology Solutions Inc ("MACOM") products. These materials are provided by MACOM as a service to its customers and may be used for informational purposes only. Except as provided in MACOM's Terms and Conditions of Sale for such products or in any separate agreement related to this document, MACOM assumes no liability whatsoever. MACOM assumes no responsibility for errors or omissions in these materials. MACOM may make changes to specifications and product descriptions at any time, without notice. MACOM makes no commitment to update the information and shall have no responsibility whatsoever for conflicts or incompatibilities arising from future changes to its specifications and product descriptions. No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document.

THESE MATERIALS ARE PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, RELATING TO SALE AND/OR USE OF MACOM PRODUCTS INCLUDING LIABILITY OR WARRANTIES RELATING TO FITNESS FOR A PARTICULAR PURPOSE, CONSEQUENTIAL OR INCIDENTAL DAMAGES, MERCHANTABILITY, OR INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT. MACOM FURTHER DOES NOT WARRANT THE ACCURACY OR COMPLETENESS OF THE INFORMATION, TEXT, GRAPHICS OR OTHER ITEMS CONTAINED WITHIN THESE MATERIALS. MACOM SHALL NOT BE LIABLE FOR ANY SPECIAL, INDIRECT, INCIDENTAL, OR CONSEQUENTIAL DAMAGES, INCLUDING WITHOUT LIMITATION, LOST REVENUES OR LOST PROFITS, WHICH MAY RESULT FROM THE USE OF THESE MATERIALS.

MACOM products are not intended for use in medical, lifesaving or life sustaining applications. MACOM customers using or selling MACOM products for use in such applications do so at their own risk and agree to fully indemnify MACOM for any damages resulting from such improper use or sale.