

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.

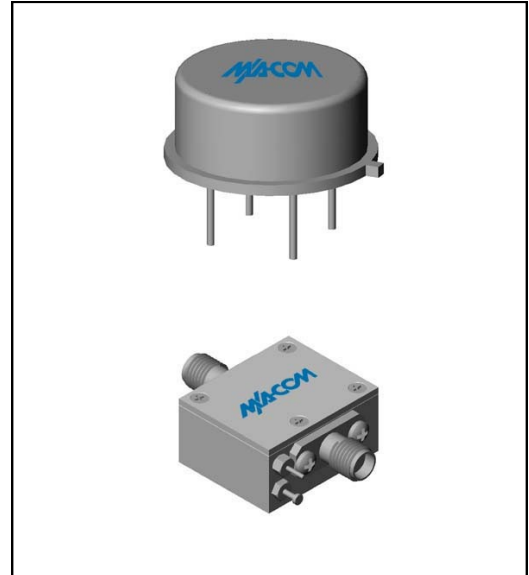
The TO-8 package is hermetically sealed, and MIL-STD-883 environmental screening is available.

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	Guaranteed		
		Typical 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

* Model A3010 requires external Input and output DC blocking capacitors (0.36 μ F 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.

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 μ sec max.)	0.5 W
"S" Series Burn-In Temperature (case)	125°C

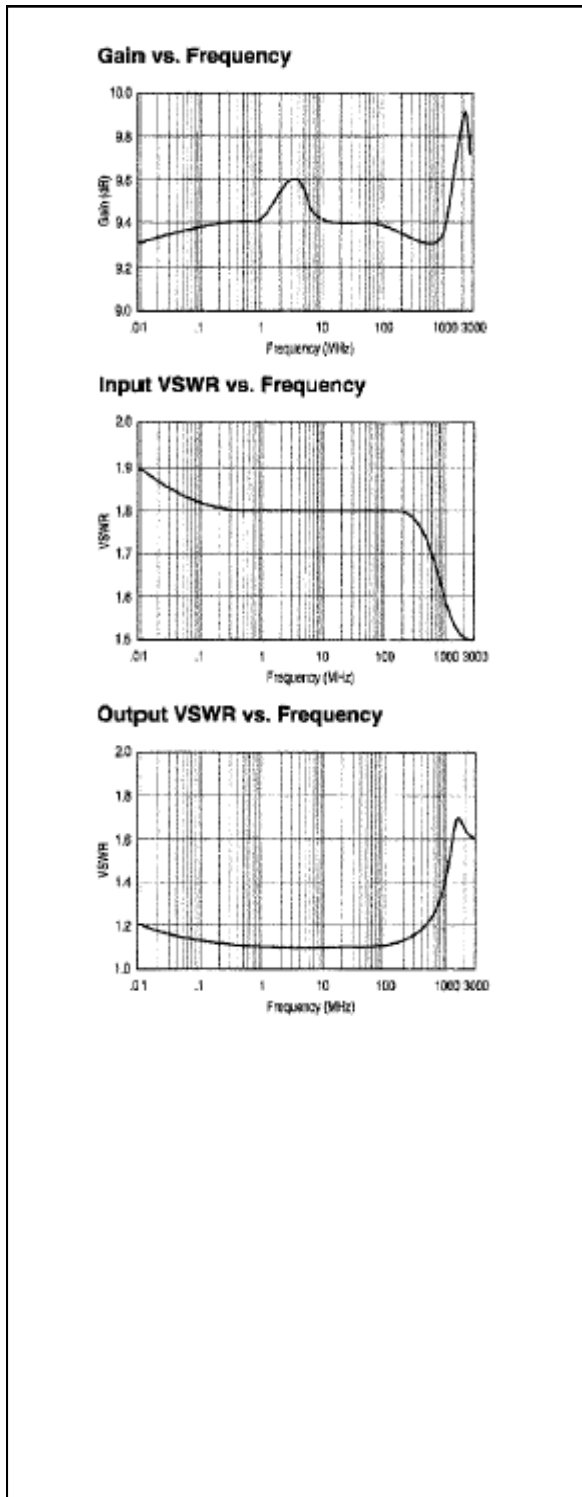
Thermal Data: $V_{CC} = +12/-5.2 V_{DC}$

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

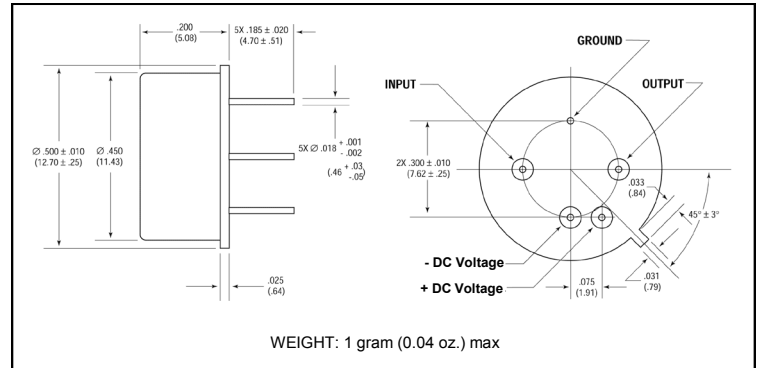
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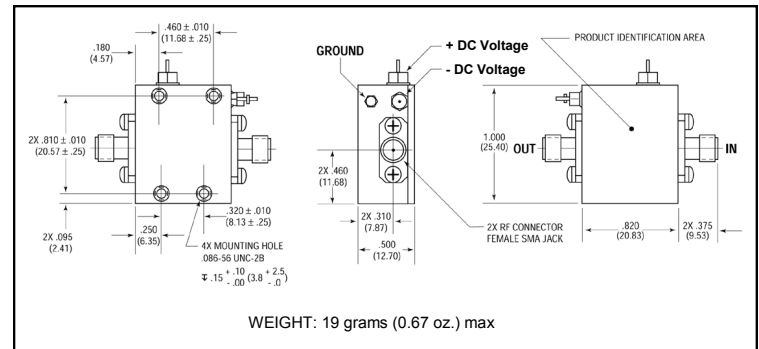
Typical Performance Curves at +25°C



Outline Drawing: TO-8 *

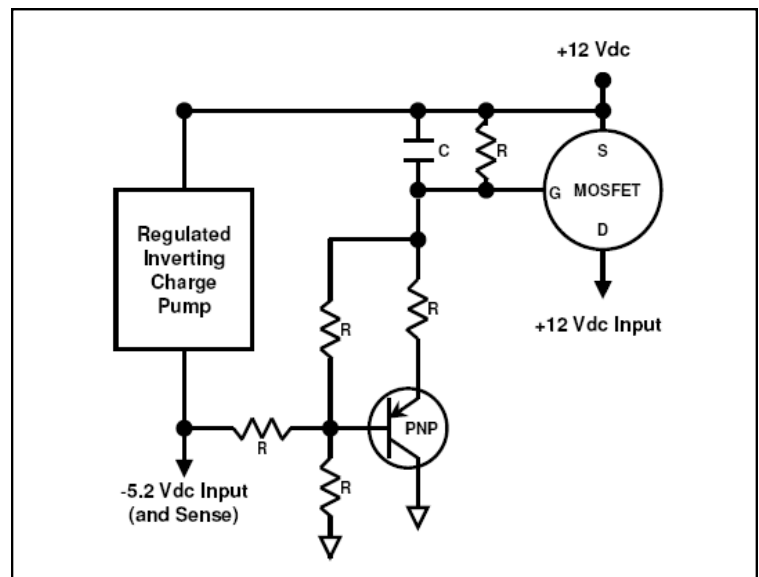


Outline Drawing: SMA Connectorized *



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

Application Sequencing Circuit Block Diagram



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