PA1162

RF Linear Hybrid Power Amplifier - 4 Watts
800 to 960 MHz

Rev. V4

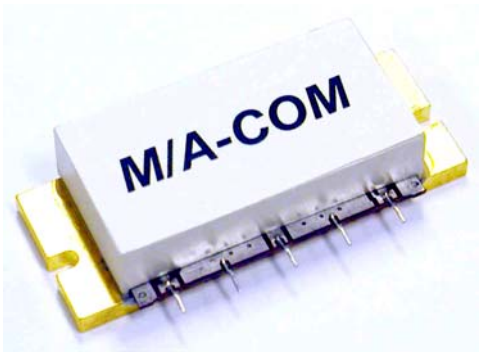
Features

- LOW NOISE FIGURE: 2.0 dB (TYP.)
- HIGH GAIN: 28 dB (TYP.)
- HIGH P1dB: +35.5 dBm (TYP.)
- HIGH IP^3: +50 dBm (TYP.)

Description

The PA1162 is a discrete hybrid linear power amplifier design, which uses thick film solder manufacturing processes for accurate performance and high reliability.
This 2 stage GaAs FET transistor design uses feedback loops for flat broadband linear performance, with very low noise figure.
The model is particularly suited for power driver applications used in the base station & repeater infrastructure, and for commercial & military radios, where ultra high linearity is critical.

Product Image



Ordering Information

Part Number	Package
PA1162	Flange Mount Carrier

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

Parameter	Units	Typical	Gurarnteed
		25ºC	0ºC to +70ºC
Frequency	MHz	800-960	800-960
Small Signal Gain (min)	dB	28.0	26.0
Gain Flatness (max)	dB	± 0.5	± 1.0
Noise Figure (max)	dB	2.0	3.5
Power Output @ 1.0 dB Comp. (min.)	dBm	+35.5	+34.0
Output IP^3	dBm	+50.0	
VSWR Input / Output (max.)		2.0:1	2.3:1
DC Current @ +12 Volts (max.)	mA	825	900

Absolute Maximum Ratings

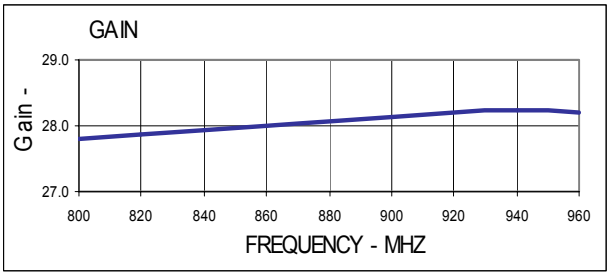
Parameter	Absolute Maximum
Storage Temperature	-40ºC to +85ºC
Operation Base Temperature	+70ºC
Max. DC VOltage	+13 Vdc
Max. Continuous RF Input Power	+15 dBm

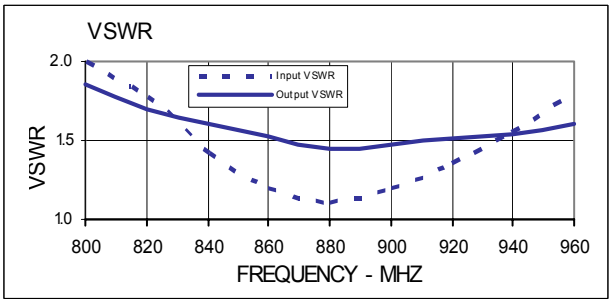
Thermal Data: $V_{CC} = +12\ V_{DC}$

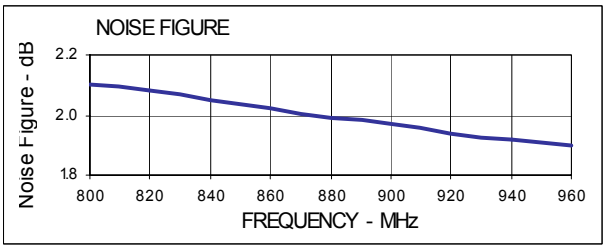
Parameter	Rating
Thermal Resistance θ_{jc}	+7.6ºC/W
Junction Temperature Rise Above Case T_{jc}	+75ºC

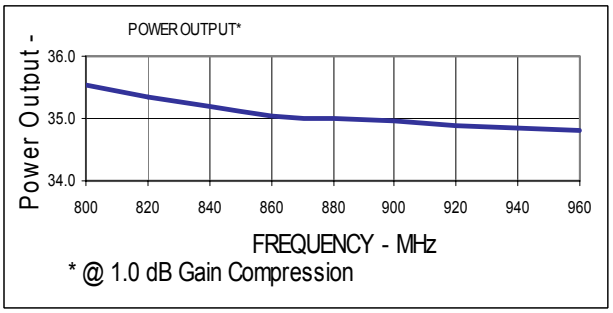
• **North America** Tel: 800.366.2266 • **Europe** Tel: +353.21.244.6400
• **India** Tel: +91.80.4155721 • **China** Tel: +86.21.2407.1588
Visit www.macomtech.com for additional data sheets and product information.

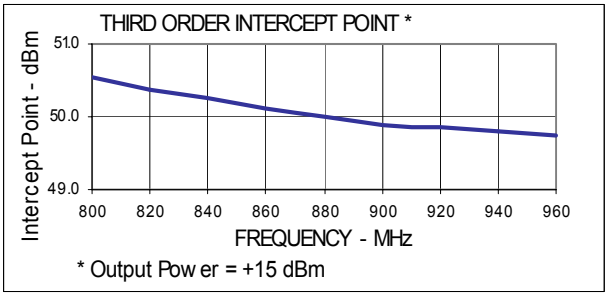
Typical Performance Curves at +25°C



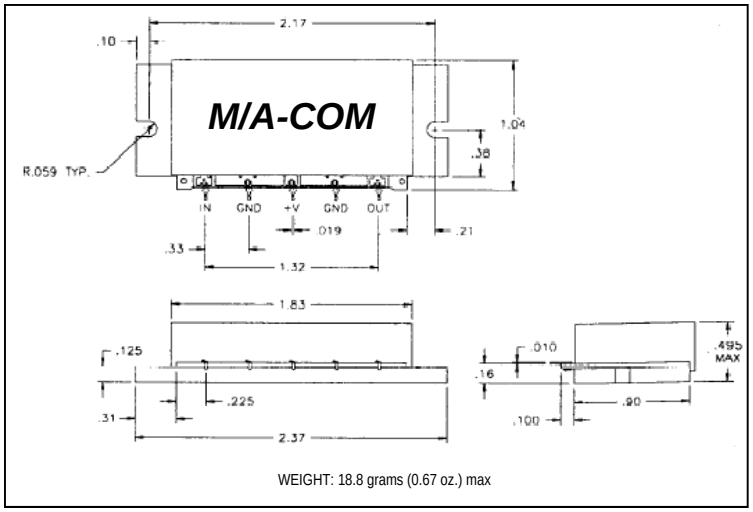








Outline Drawing: Flange Mount Carrier *



* DIMENSIONS ARE IN INCHES

Recommended Mounting Notes:

1.) Since the PA1162 is a high frequency design, it is important that a very good electrical ground exists and that low loss transmission lines connecting the RF terminals have a 50 ohm characteristic impedance. For example: for 0.062" thick G-10 fiberglass PCB material (1oz clad, both sides), a 50 ohm line microstrip is 0.100 inches wide.

2.) For the PWB, It is advisable to provide sufficient plated ground through holes for good transfer of the electrical ground plane from front to back to the PCB. The ground vias also serve as good thermal conductors to dissipate the heat generated by the PA module. For the DC transmission line portion, It is a good practice to add external bypass capacitors with >/= 0.1 uF, to prevent any RF feedback from circulating on the DC lines.

3.) The specified flatness over the entire length of the bottom surface of the PA1162 flange is within .0015". The cavity of the subsystem baseplate should be machined to a similar overall flatness so as to not cause any potential grounding discontinuities. Thermal grease can be used as an interface between the PA and subsystem floor to optimize the heat transfer efficiency. The baseplate needs to provide sufficient heatsinking for the PA module to operate normally.

4.) All interfacing RF, bias, and ground pins are an edge clip design on the side soldered onto the PWB of the PA1162. The pins are both mechanically and solder attached above and below the board. So they will be structurally held in place, even if the solder connection reflows. It is advisable that SN63 solder be used to spot reflow the pins to the mating circuit board.

5.) To avoid any chance of impedance mismatch on the RF interface connections, it is advisable to mount the PA module as close as possible against the side of the circuit board, to avoid any air gaps which could introduce unwanted parasitic effects.

6.) Based on the outline dimensions of the PA module, the depth of the cavity along side the subsystem PWB, should be enough so that when the module is mounted in place, there should be a ~ .003" gap between the top side of the circuit board trace and the bottom side of the mating pin.