

## Model P50FM42MH-SMA2 FM Pallet Amplifier Module

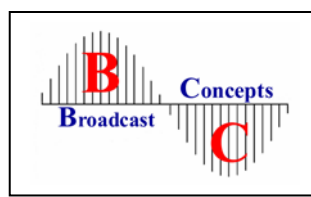
This amplifier module is ideal for driver stages in FM Broadcast transmitters.

- **86– 110MHz**
- **28Volts**
- **Pout: 50W CW minimum**
- **40dB Gain Class AB**
- **MACOM MRF173 Mosfet**
- **Made in the USA**
- **CNC machined 6061 T6 housing.**
- **PA can be driven to full power with most network analyzers, signal generators and low power VCO's.**
- **SMA female RF Input**
- **SMA female RF Output**

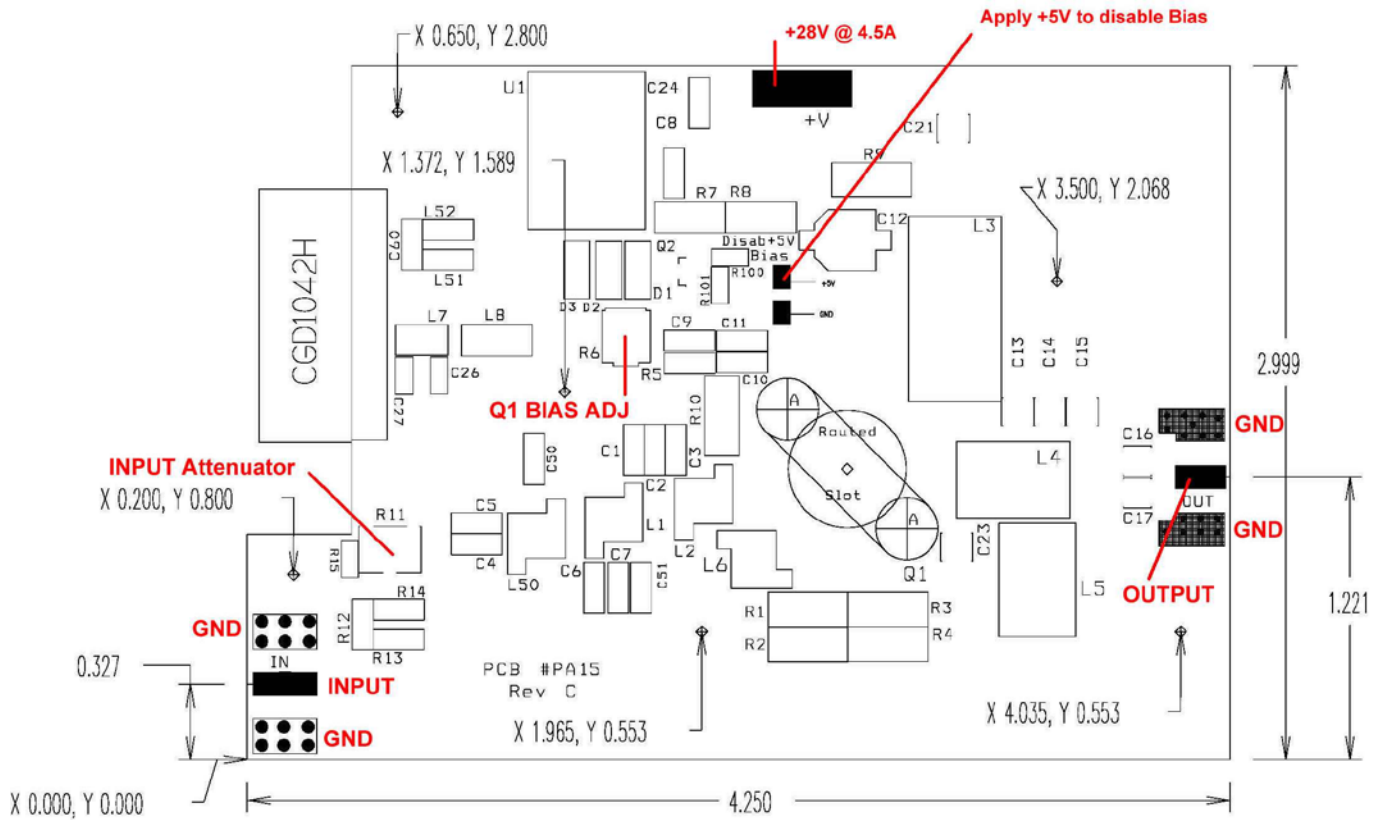


Dimension (L x W x H inch) [5.05" x 3.50" x 1.115"]

Electrical Specifications: 28VDC 25C				
Characteristics	min	typ	max	unit
Operating Frequency range	86		110	MHz
Power Input		10	13	dBm
Input return loss	-12	-15		dB
Power Gain	40	42	44	dB
Collector Efficiency @ 50W CW	40	50		%
Supply Voltage	24	28	30	V dc
Insertion Phase variation (unit to unit)		+/-5.0		degrees
Power gain (unit to unit)		+/-0.5		dB
F2 Second Harmonic		-40dB		dB
F3 Third Harmonic		-50dB		dB
Bias Current: Factory set to 1.0A	0.9	1.0	1.1	A dc
Bias Disable voltage	2.8	3.5	5	VDC
Frequency Response S21 p-p		+/- 1		dB
Current Requirements for 50W CW	4.0	4.5	5.0	ADC
Output Power	50	55	60	WATTS
VSWR Withstanding @ 50W CW	-	-	3:1	VSWR



Internal PCB Amplifier Drawing: Figure 1



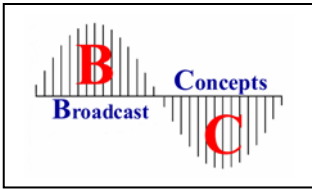
Download a DXF drawing: <http://broadcastconcepts.com/80watt/fmdriver/P50FM42A.DXF>

## Heatsink Mounting/Hardware

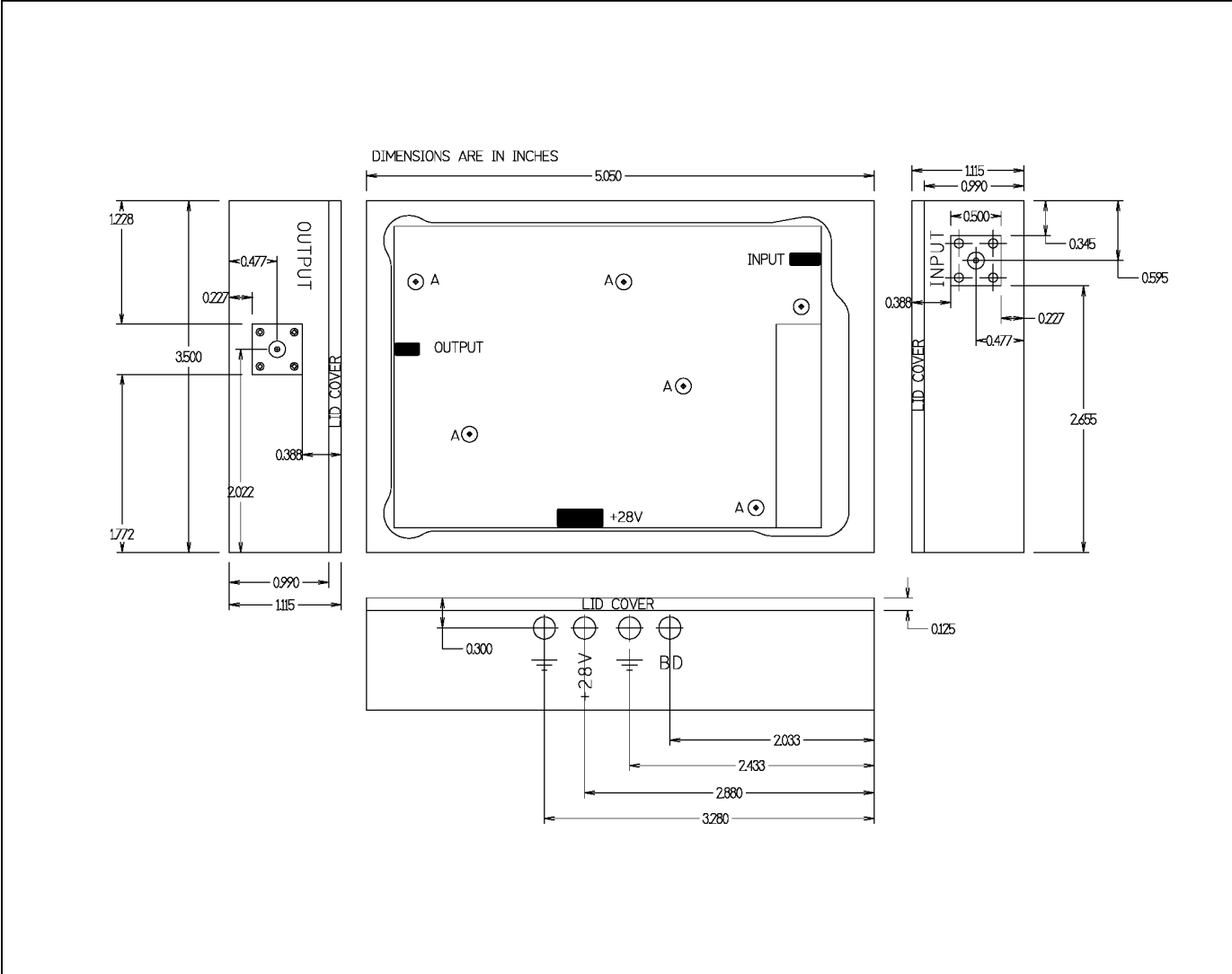
### Tips for Mechanical Mounting:

- 1 All mounting holes designated in (X, Y) format are 0.156 inch thru and they are designed for a #6 Screws or metric equivalent. Stainless Steel mounting hardware is recommended, grade 18-8 or better. A lock washer of same material should also be used. Refer to amplifier housing drawing Figure 2 for more information.
- 2 Ensure mounting surface is flat to better than 0.0025"
- 3 Use a thin layer of thermal compound on the backside of the PA - no more than 0.001" - 0.002" thickness!
- 4 Torque all screws to 10-12 in-lbs

**Warning: Failure to use a proper heat sink will reduce product service life and may cause the transistors to burn out. This type of failure is not covered by warranty. This product can be ordered with a custom heat sink. Please contact factory for more information.**



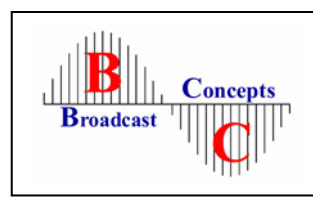
Amplifier housing drawing: Figure 2



Download a DXF drawing: <http://broadcastconcepts.com/80watt/fmdriver/P50FM42MH.DXF>

*Notes: SMA connectors extend 0.380 inches from each side of the housing. The length of the product including connectors is 5.81 inches. The lid cover is secured with 4-40 pan head screws which add 0.08 inches to the height of the product. The height including lid cover screws is 1.195 inches.*

*The feed thru caps extend 0.515 inches from the housing and the ground lugs extend 0.35 inches.*



### Mounting

In the amplifier housing drawing figure 2 there are 6 mounting holes “A” 0.156 inch thru. The lid cover needs to be removed for heat sink installation. The housing is milled to a depth of 0.625 inches. There is 0.365 inches distance from the top of each mounting hole to the bottom of the box. We recommend a screw of 5/8 inch length or more to permit sufficient thread engagement into a heat sink.

### Bias Settings:

The factory bias settings are 500mA @ 28V for Q1. The NXP CATV class A driver stage and its associated voltage regulator consume 0.5A. This results in a total current draw of 1.0 Amps at 28 volts when no RF drive is present. Do not attempt to adjust the bias on Q1.

### Electrical notes:

The bias disable function operates when +5V (TTL HIGH) is applied to the bias disable feed thru cap “BD” shown in figure 2. Generally more than +3V is enough to disable the bias. This function only disables the bias on the MRF173 only. The CGD1042H input stage is always active. If the bias disable is not needed leave this pin open / no connect.

Apply +28V to the feed thru cap “+28V” shown in figure 2. (Make the +28V connection using #16 AWG wire.) There are 2 ground points. The ground located to the left of +28V may be used for 28V return or attach ground from the power supply directly to the heat sink. The ground located to the left of the BD pin is an optional ground for the shield of a cable used to supply positive voltage to the BD pin.

The Input Attenuator R11 (figure1) is not normally populated as this option is not frequently used. If you need this function we can install it at no cost at time of purchase. (The installation procedure involves removing R1 and soldering the trimmer into place)

RF connectors are SMA female at the input and output.

RF overdrive, high VSWR and improper cooling may damage the module. Care must be taken to avoid these conditions. Our 1 year limited warranty covers failures from defects in workmanship only.

Product photo with lid cover removed

