Broadcast Concepts Inc
11700 NW 102 Road Suite 4 Medley FL 33178
Tel: 305-887-8400: Fax 305-887-8444

Model VHFTV-15L TV Pallet Amplifier Module

This amplifier module is ideal for driver stages in analog and digital TV broadcast equipment.

- **55– 88MHz**
- **28Volts**
- **Pout: 15W Peak Sync analog.**
- **40dB Gain Class A**
- **MACOM MRF173 Mosfet**
- **Made in the USA**
- **SMA female connectors in/out**

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

Absolute Maximum Ratings			
Symbol	Parameter	Value	Unit
Vs	Drain voltage supply	32	V DC
Is	Supply Current	4.5	A dc
VSWR	Load Mismatch (All phase angles, Id=12A)	10 to 1	
Tc	Base plate operating temperature	0 to +60C	Celsius
RF IN	RF Input	13	dBm

Electrical Specifications: 28VDC 3.5A				
Characteristics	min	typ	max	unit
Operating Frequency range	45		90	MHz
Power Input		5	13	dBm
Input return loss	-12	-15		dB
Power Gain	40	41	43	dB
Collector Efficiency		15		%
Supply Voltage		28		V dc
Insertion Phase variation (unit to unit)		+/-5.0		degrees
Power gain (unit to unit)		+/-0.5		dB
Two Tone IMD; 15W pep 1MHz sp		-40		dBc
F2 Second Harmonic		-30dB		dB
F3 Third Harmonic		-40dB		dB
Bias Current: Factory set to 3.0A @28V. for Q1	3.0	3.0	3.0	A dc
DVB-T Power		3		W
8VSB Power		5		W
Analog Power (peak sync)		15		W

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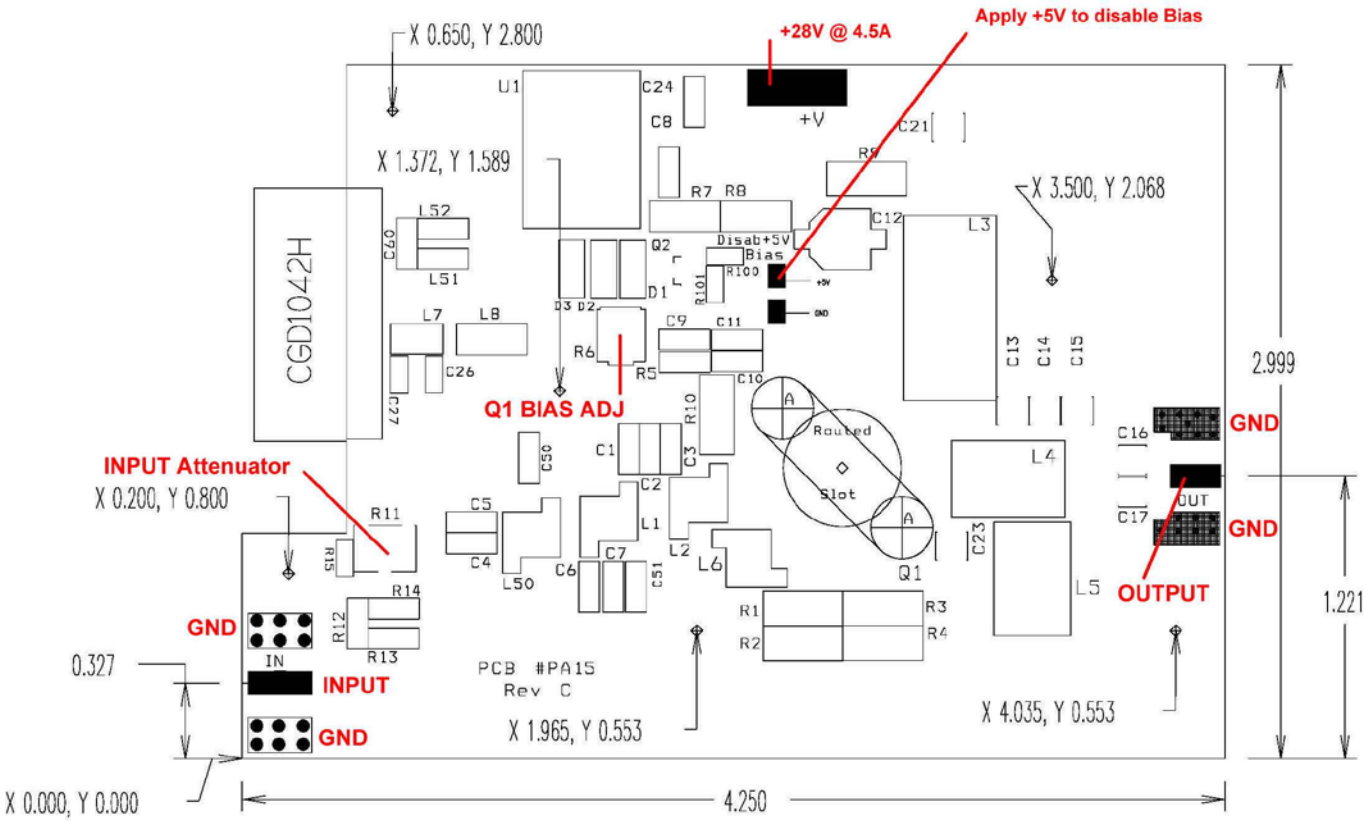
Amplifier Drawing: Figure 1



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 deigned for a #6 Screw. Stainless Steel mounting hardware is recommended, grade 18-8 or better. A lock washer of same material should also be used.
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.

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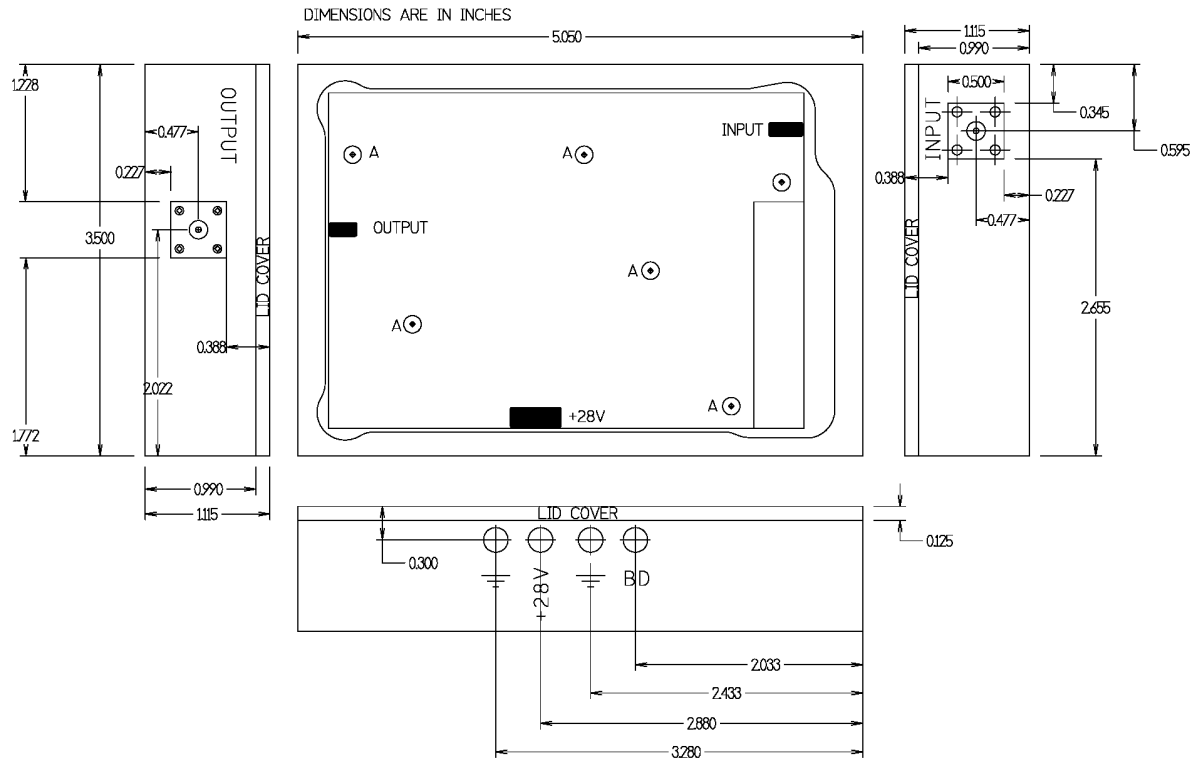
Amplifier housing drawing: Figure 2



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.

Notes:

The factory bias settings are 3.0A @ 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 3.5 Amps at 28 volts with no RF applied. Since this is a class A amplifier the current draw will stay very close to 3.5A at full output power.

Do not attempt to adjust the bias on Q1. Increasing or decreasing the bias of Q1 will reduce the IMD performance of the amplifier.

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.

Applications:

This driver amplifier is ideal for driving (1) 200W or (1) 400W TV pallet. This amplifier can be driven directly by most TV modulators. A modulator capable of at least 58dBmv (10mw) should be used.

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Product photo with lid cover removed