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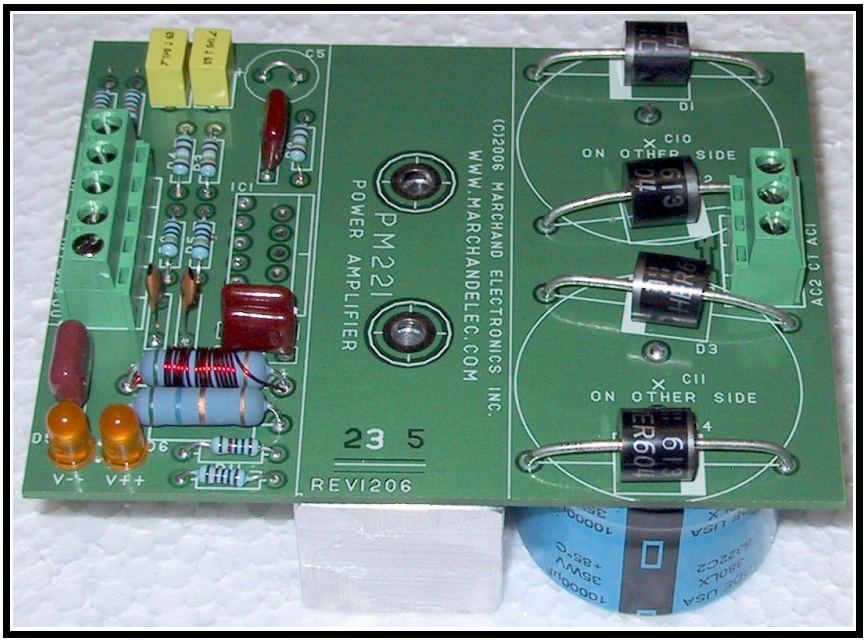
PM221 Installation Instructions



General

The PM221 is a power amplifier module capable of driving an 8 Ohm or 4 Ohm load. The amplifier has a differential input, but can also be used with a single ended input. The PM221 needs an external transformer of typically 25VAC + 25VAC dual secondary and must be bolted onto a heatsink.

Input

The input is differential. There is a 5-position terminal block on the circuit board, labeled IN- G IN+ GND OUT. These are the inverting input, the ground terminal and the non inverting input and the output terminals. These should be hooked to the signal source and the load. For single ended input, choose GND and either IN+ or IN-. The unused terminal MUST be grounded to the GND terminal. For most applications using the IN+ terminal as the signal input gives the best result.
The inputs are AC coupled. The cutoff frequency for the AC coupled input is 6 Hz.

Output

Connect the load to the two terminals labeled GND and OUT on the 5-position terminal block. The PM221 is designed for loads of 4 Ohm or 8 Ohm. Any load greater than 4 Ohm is acceptable. Maximum output power depends on the value of the load and the power supply voltage. With a 8 Ohm load and a power supply voltage of +/- 35 Volt, an output power of 60W RMS can be achieved.

Power Supply

A power transformer with secondary voltage of 50V center tap is recommended. Higher voltage can damage the amplifier. The transformer should be connected to the 3-position terminal block.
The transformer normally supplied with the PM221 is a 80VA toroidal transformer with two 25V secondary windings.
Connect the **black** wire to terminal **AC1**, both the **red** and the **orange** wire to **CT** and the **yellow** wire to **AC2**.

Heat sink

The PM221 should be bolted onto a heat sink of sufficient size to keep the amplifier cool. A thermal protection circuit in the LM3886T amplifier chip will turn it off when it gets too hot. The amplifier will automatically resume operation after it cools down to a safe temperature. With insufficient heat sink capacity and continuous operation the amplifier will cycle between hot and cold / on and off.

Parts List

R1	100 K	1% Metal Film
R2	100 K	1% Metal Film
R3	24K9	1% Metal Film
R4	24K9	1% Metal Film
R5	499 K	1% Metal Film
R6	499 K	1% Metal Film
R7	5.6 Ohm	3 W
R8	24K9	1% Metal Film
R9	5.6 Ohm	Inductor/ see text.
R10	24K9	1% Metal Film
R11	24K9	1% Metal Film
C1	1 uF	Stacked Film (yellow box)
C2	1 uF	Stacked Film (yellow box)
C3	1 pF	Ceramic Disk
C4	1 pF	Ceramic Disk
C5	330uF,25V	Electrolytic 8mm
C6	0.22 uF	Stacked Film
C7	0.22 uF	Stacked Film
C8	0.22 uF	Stacked Film
C9	0.01 uF	Stacked Film
C10	10,000 uF,35V	Snap-In Electrolyic
C11	10,000 uF,35V	Snap-In Electrolyic

L1	1 uH	10-15 Turns on R9
IC1	LM3886T	Power Amplifier
D1	HER604	6A diode
D2	HER604	6A diode
D3	HER604	6A diode
D4	HER604	6A diode
D5		LED (amber)
D6		LED (amber)
TB1		5 Position Terminal Block
TB2		3Position Terminal Block
M1	1 ea	Heat Sink Bracket
M2		Silicone compound
M3	1 ea	Circuit board
M4	2 ea	#8 fiber washer
M5	3 ea	#6-32 x 1.5” PHMS
M6	3 ea	#6 kepsnut
M7	1ea.	Glue
T1	Y236355	Transformer, 25V+25V, 80VA

Parts in Kit

2	100 K	1% Metal Film
5	24K9	1% Metal Film
2	499 K	1% Metal Film
1	5.6 Ohm	3 W
2	1 uF	Stacked Film (yellow box)
2	1 pF	Ceramic Disk
1	330uF,25V	Electrolytic 8mm
3	0.22 uF	Stacked Film
1	0.01 uF	Stacked Film
2	10,000 uF,35V	Snap-In Electrolyic
L1	1 uH	10-15 Turns on R9
1	LM3886T	Power Amplifier
4	HER604	6A diode

2		LED (amber)
1		5 Position Terminal Block
1		3Position Terminal Block
1		Heat Sink Bracket
1		Silicone compound
1		Circuit board
2		#8 fiber washer
3		#6-32 x 1.5” PHMS
3		#6 kepsnut
1		Silicone glue
1	Y236355	Transformer, 25V+25V, 80VA

Assembly instructions

Mount all parts onto the circuit board, except the LM3886T. This part will be installed later.

Note that the two 10,000 uF capacitors C10 and C11 are mounted on the solder side of the circuit board.

Attach the circuit board to the heatsink with two 6/32 bolts. Us the fiber washers with the bolts, between the circuit board and the heatsink.
Also apply silicone or polyurethane glue to permanently fasten the circuit board to the heatsink.

Now attach the LM3886T to the heatsink and solder to the circuit board. Use heat sink compound between the LM3886 and the heatsink.

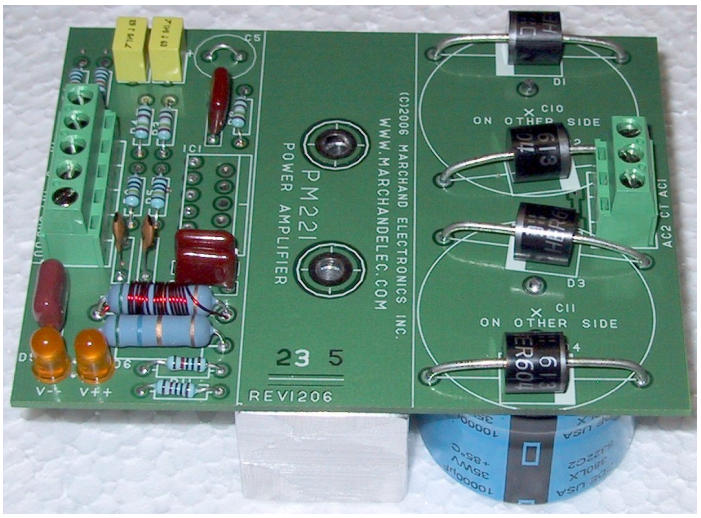


Figure 3 PM224 top view

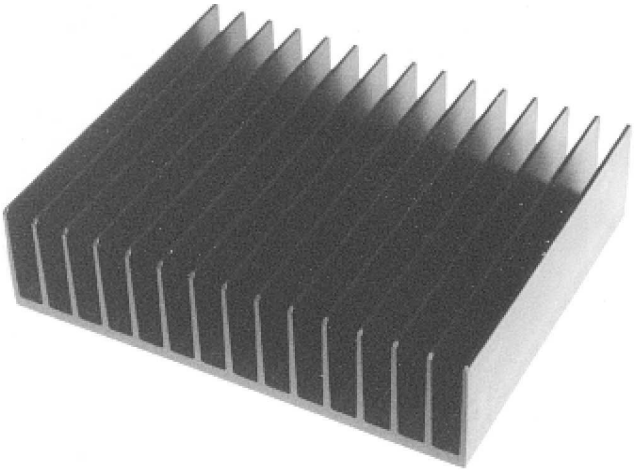


Figure 2 PM224HS. Typical heatsink for PM224. Dimensions are 5”x6.1”x1.6”; 0.8ºC/W.

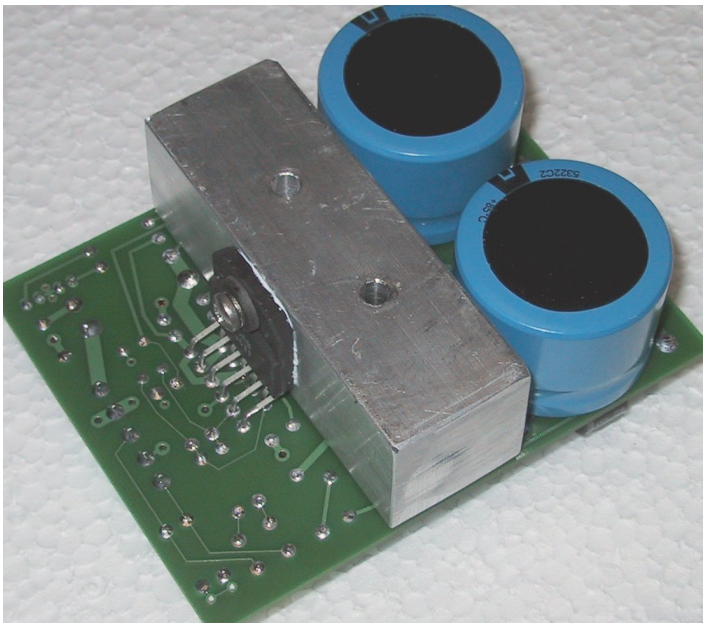


Figure 4 PM224 bottom view

pm221 power amplifier