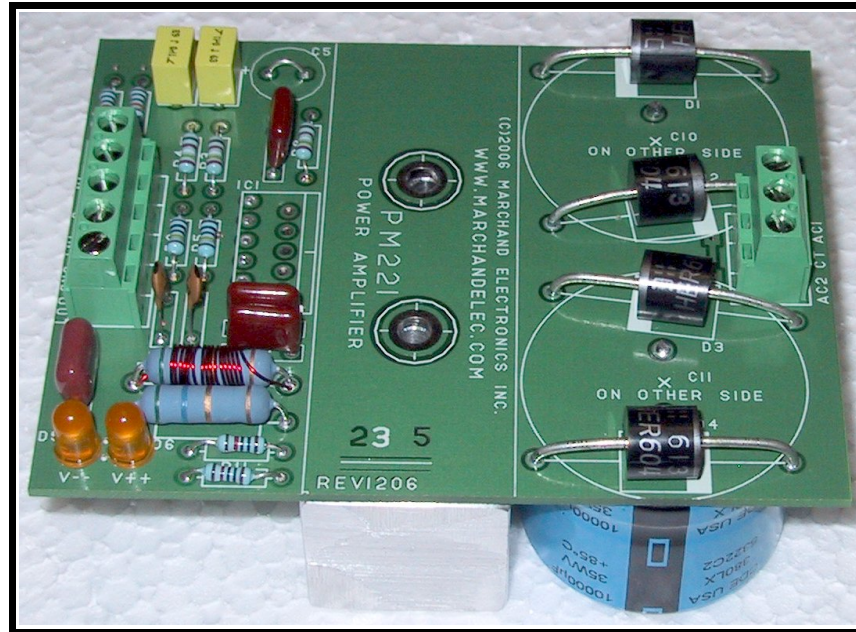


# Marchand Electronics Inc.

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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	L1	1 uH	10-15 Turns on R9
R2	100 K	1% Metal Film	IC1	LM3886T	Power Amplifier
R3	24K9	1% Metal Film	D1	HER604	6A diode
R4	24K9	1% Metal Film	D2	HER604	6A diode
R5	499 K	1% Metal Film	D3	HER604	6A diode
R6	499 K	1% Metal Film	D4	HER604	6A diode
R7	5.6 Ohm	3 W	D5		LED (amber)
R8	24K9	1% Metal Film	D6		LED (amber)
R9	5.6 Ohm	Inductor/ see text.	TB1		5 Position Terminal Block
R10	24K9	1% Metal Film	TB2		3Position Terminal Block
R11	24K9	1% Metal Film	M1	1 ea	Heat Sink Bracket
C1	1 uF	Stacked Film (yellow box)	M2		Silicone compound
C2	1 uF	Stacked Film (yellow box)	M3	1 ea	Circuit board
C3	1 pF	Ceramic Disk	M4	2 ea	#8 fiber washer
C4	1 pF	Ceramic Disk	M5	3 ea	#6-32 x 1.5" PHMS
C5	330uF,25V	Electrolytic 8mm	M6	3 ea	#6 kepsnut
C6	0.22 uF	Stacked Film	M7	1ea.	Glue
C7	0.22 uF	Stacked Film	T1	Y236355	Transformer, 25V+25V, 80VA
C8	0.22 uF	Stacked Film			
C9	0.01 uF	Stacked Film			
C10	10,000 uF,35V	Snap-In Electrolyc			
C11	10,000 uF,35V	Snap-In Electrolyc			

### Parts in Kit

2	100 K	1% Metal Film	2		LED (amber)
5	24K9	1% Metal Film			
2	499 K	1% Metal Film	1		5 Position Terminal Block
1	5.6 Ohm	3 W	1		3Position Terminal Block
2	1 uF	Stacked Film (yellow box)			
2	1 pF	Ceramic Disk	1		Heat Sink Bracket
1	330uF,25V	Electrolytic 8mm	1		Silicone compound
3	0.22 uF	Stacked Film	1		Circuit board
1	0.01 uF	Stacked Film	2		#8 fiber washer
2	10,000 uF,35V	Snap-In Electrolyc	3		#6-32 x 1.5" PHMS
			3		#6 kepsnut
L1	1 uH	10-15 Turns on R9	1		Silicone glue
1	LM3886T	Power Amplifier			
			1	Y236355	Transformer, 25V+25V, 80VA
4	HER604	6A diode			

## Assembly instructions

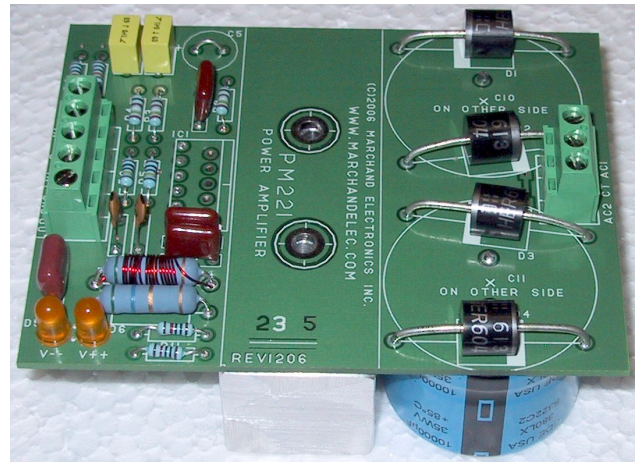
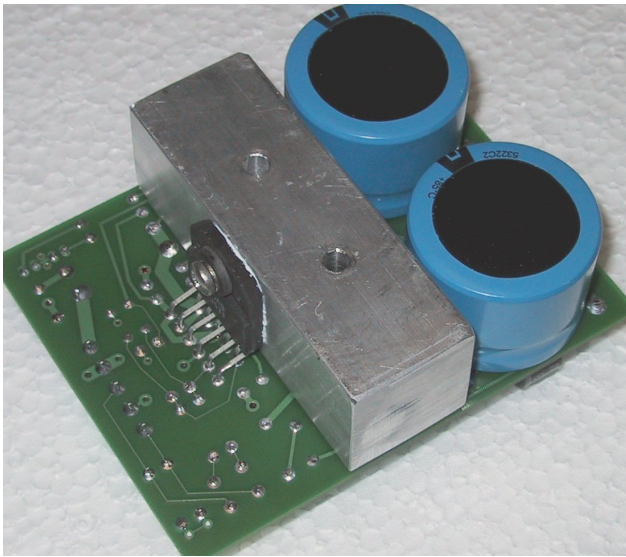
Mount all parts onto the circuit board, except the LM3886T. This part will be installed later.

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. Use 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.



### pm221 power amplifier

