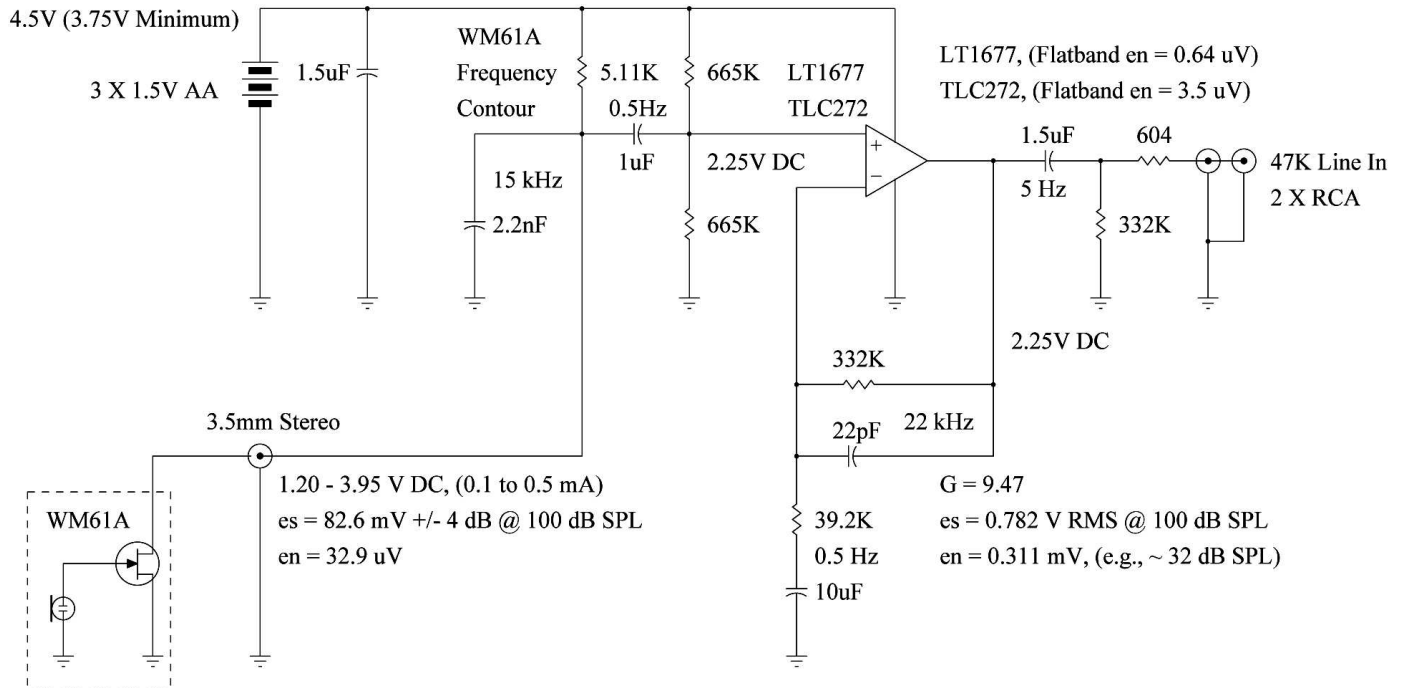


## Figure V. Complete Schematic of the Amplifier for the Panasonic WM61A Electret Microphone

Figure V, is the complete schematic of the amplifier for the Panasonic WM61A Electret Microphone. The component bill of materials is about US \$10, and all components are available on line. Note the use of 4.5 V, (3 X AA batteries-which can be rechargeable, offering several hundred hours of operation between charges,) and the absence of electrolytic capacitors, (for the reasoning, see Direct Coupled Stereo Headphone Amplifier.) Note, also, that no component is stressed to more than 50% of its rated value-the circuit should have excellent reliability/MTBF characteristics. Alternatively, the power could be provided by the PC sound card, (5 and 12 Volts are available from the joystick socket, which should be down regulated and filtered on-card, to remove the *hash* on the PC power supply busses.) Also, if 6 Volts can be used, (4 X AA batteries,) a 3 Volt tap can be used for an artificial ground for the operational amplifier, eliminating several components, (including the 10 uF polyester capacitor-which is the most expensive, and largest, component in the schematic.)



3 AA Battery Holder = Keystone 3479, Allied 839-3479, \$1.36, (Alternative Keystone 2487, Allied 839-2487, \$1.28)

10 uF = Illinois Capacitor 106MSR100K, Allied 613-0519, 100 WVDC Polyester, \$1.53

1.5 uF = Illinois Capacitor 155MWR100K, Allied 613-0812, 100 WVDC Polyester, \$0.96, 2 X

1 uF = Illinois Capacitor 105MSR100K, Allied 613-0516, 100 WVDC Polyester, \$0.50

2.2 nF = Vishay 225P22291WD3, Allied 507-0621, 100 WVDC Polyester, \$0.45

22pF = Cornell-Dublier CD5EC22J03, Allied 862-0029, 300 WVDC Mica, \$1.03

665 K = Dale / Vishay RN55D6653F, Allied 895-1107, 0.125 W, 200V, \$0.23, 2 X

332 K = Dale / Vishay RN55D3323F, Allied 895-1289, 0.125 W, 200 V, \$0.15, 2 X

39.2 K = Dale / Vishay RN55D3922F, Allied 895-1162, 0.125 W, 200 V, \$0.19

5.11 K = Dale / Vishay RN55D5111F, Allied 895-0816, 0.125 W, 200 V, \$0.07

604 = Dale / Vishay RN55D6040F, Allied 895-0858, 0.125 W, 200 V, \$0.19

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