

Build a Two-Transistor MC Step-up

A two-transistor MC step-up offers lower noise than a one-transistor model. This MC step-up uses two PNP transistors and is powered from a 12V lead-acid battery. Charge the battery when

the amplifier is not in use. The value of R4 depends on the hfe of the transistor used (Table 1).

Distortion of the amplifier is low due to local feedback. The gain of the amplifier is 19-20dB. *ax*

Components

C1	2.2 μ F polypropylene
C2, C3	1 μ F polypropylene
R1-3	120 Ω wirewound
R5, R6	1200 Ω
L	22nH

TABLE 1

Transistors	R4	hfe	Relative Noise
BC 878 Siemens	68k	120	32
BC 880 Siemens	68k	120	33
BC636 Motorola	100k	190	58
BC 640 Motorola	56k	90	65
MPSA 56 National	82k	150	66
BC 636 Siemens	56k	100	75
BC 369 Philips	200k	360	98
MPSA 56 Fairchild	100k	180	100
2N4403 Motorola	120k	200	101
BC 640 Philips	91k	160	114
2SA 970 Toshiba	270k	450	117
BC 212B ON Semiconductor	180k	300	121
2N5401 Philips	100k	190	125
BC 638 Philips	75k	140	126
2N3906 Philips	100k	190	146
2N3799 Motorola	220k	400	155

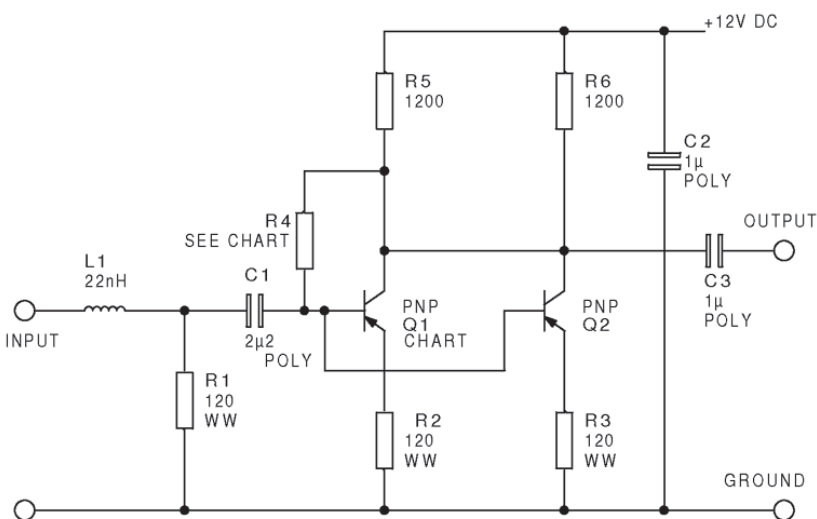


FIGURE 1: Two-transistor preamp circuit.

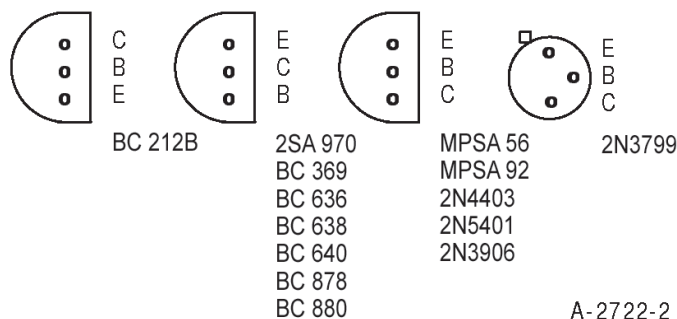


FIGURE 2: Pinouts for the different transistors. Bottom view.