

## BC898t Line Out Modification

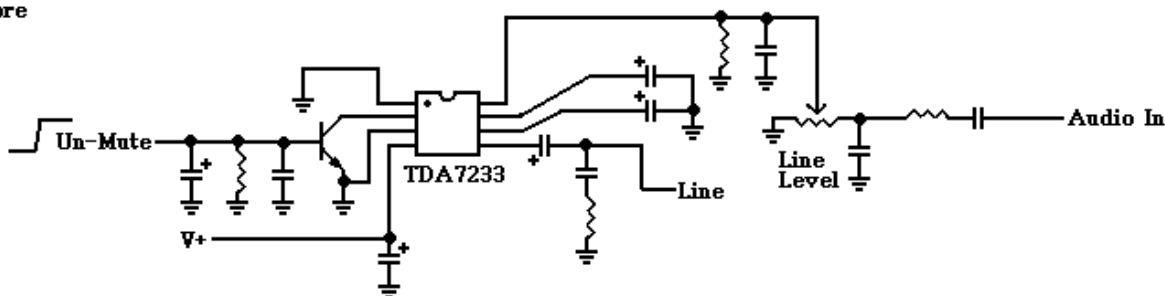
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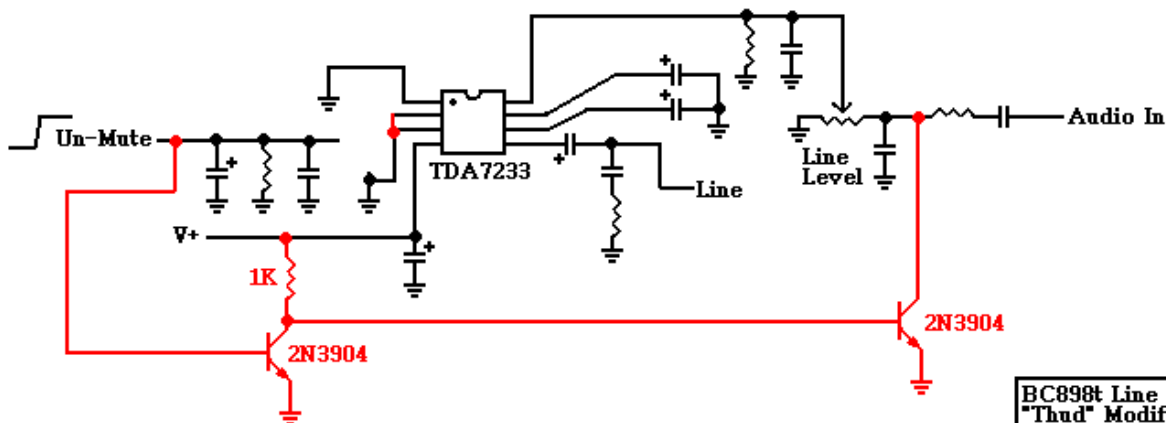
One major issue with the BC898t is the loud 'thump' noise on the line out audio. The 898t uses a TDA7233 1 watt audio amplifier as the line out driver. Audio switching on this port is provided through the built in mute function of the TDA7233 amplifier. Unfortunately, the output of the TDA7233 sits at  $\frac{1}{2}$  the supply voltage (around 6 volts) when the amplifier is active, and drops to zero when muted. This 6 volt swing produces the offensive audio thump every time the squelch opens or closes.

To cure this problem an alternative muting strategy is considered. The TDA7233 is first permanently wired in the active mode. This is accomplished by removing the mute switch transistor and shorting the Mute pin to ground. The mute control signal from the microprocessor is then inverted using a 2n3904 transistor, which drives a transistor (another 2n3904) to shunt the audio at the input to the amplifier. Muting the audio in this manner eliminates the large and fast voltage swings at the output of the amplifier, eliminating the loud thump noises. The diagrams below outline this modification.

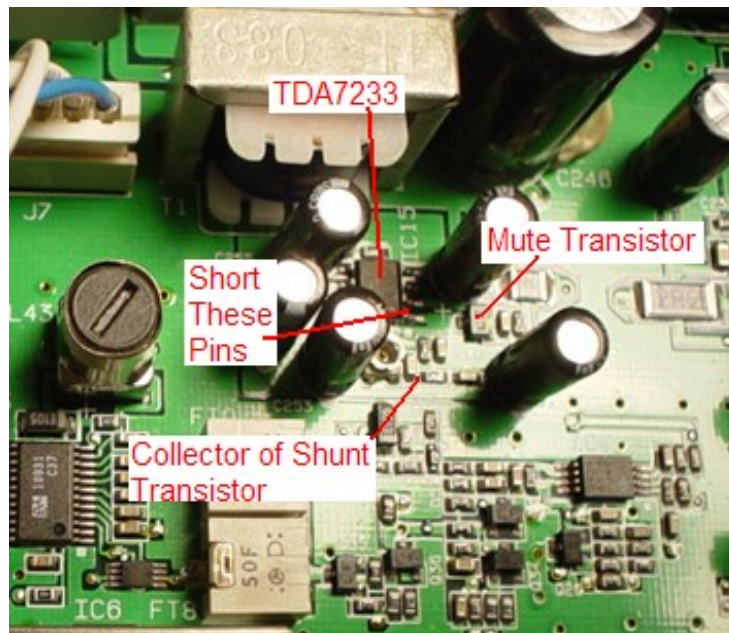
Before



After



BC898t Line Out  
"Thud" Modification



TDA7233

Mute Transistor

Short  
These  
Pins

Collector of Shunt  
Transistor