

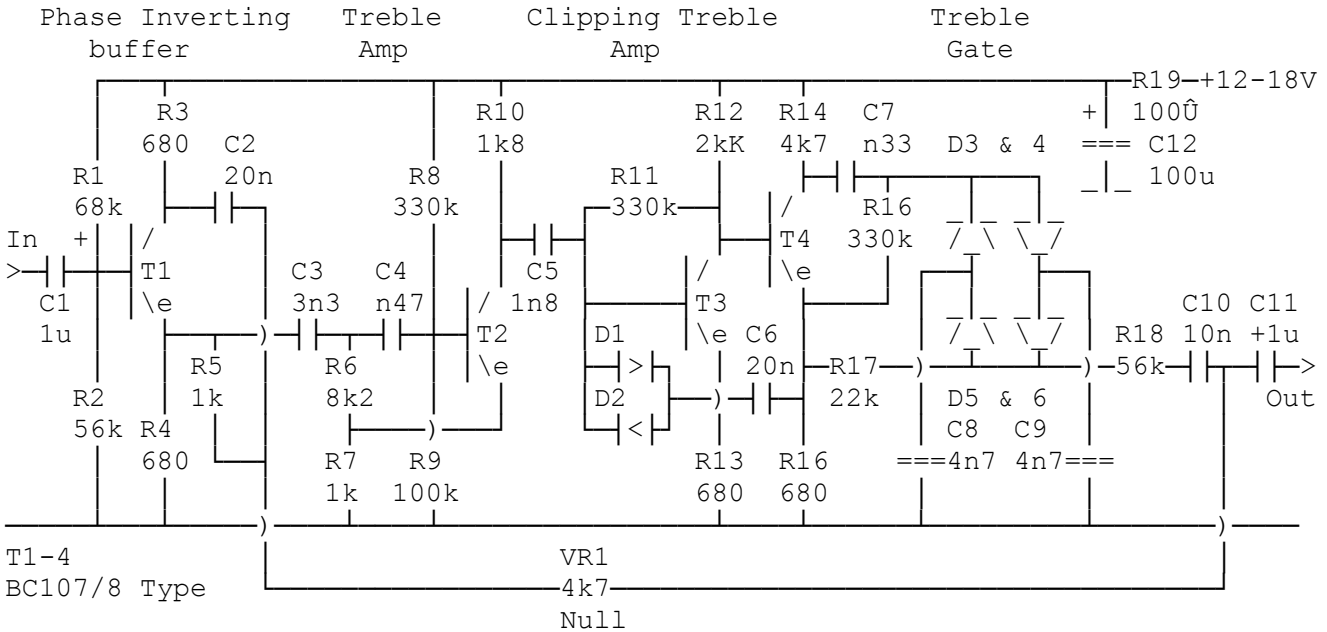
HiFi Dynamic Noise Limiter

By G8MNY

(Clarification Mar 13)

(8 Bit ASCII graphics use code page 437 or 850, Terminal Font)

This is an old circuit I have used for years, only 4 transistors, originally designed by Philips as a hiss remover, for tape recorders. I have used it for the HiFi sound channel on 23cms ATV repeater GB3HV etc. Although treble gating can sound bad if set up badly, with the right level of noise floor, it works very well removing just the hiss & no useful treble.



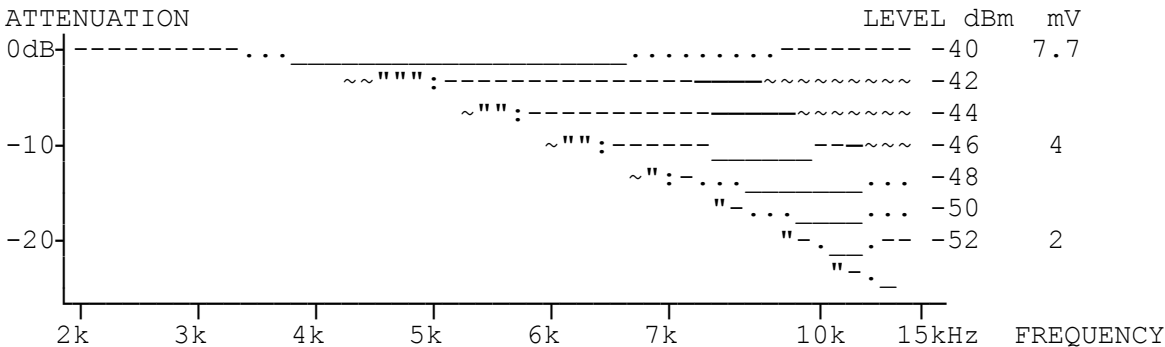
HOW IT WORKS

This is an unusual circuit. It uses treble phase cancellation to achieve the high level of treble reduction (20dB) at low treble levels (-50dBm).

T1 produces 2 phases of signal, one via a fine level control goes to the output. The other feeds a treble Butterworth filter T2 then on the T3 that forms a clipped treble amplifier. T4 buffers this & produces an amplified version that drives 2 diodes D3 & 4 to quickly charge up C8 & 9 to control the treble gate D5 & 6. This gate gently attenuates the out of phase treble so it does not cancel out if it is weaker than -50dBm.

SETUP

Set VR1 to provide the minimum hiss on a weak hiss source >-52dBm (2mV RMS). Then you should have a noise reduction that is like this...



So set up the input level to this circuit to give the noise floor @-52dBm (2mV) so that you get maximum hiss attenuation. Then as programme material treble content gets louder the noise gate gently reduces the top attenuation.

## CONCLUSION

In mono it is very impressive for such a simple circuit. But for stereo some combination of the left & right channel DC at C8 & C9 (e.g. a pair of 1k bridges between the 2 channel's C8s & C9s) improves the stereo, by blurring the the spatial image (stereo location) of the soft switching points.

Also see my Tech Bul "BHI Noise Eliminating DSP LS"

Why don't U sent an interesting Bul?

73 De John, G8MNY @ GB7CIP