

current dumping amplifier 48

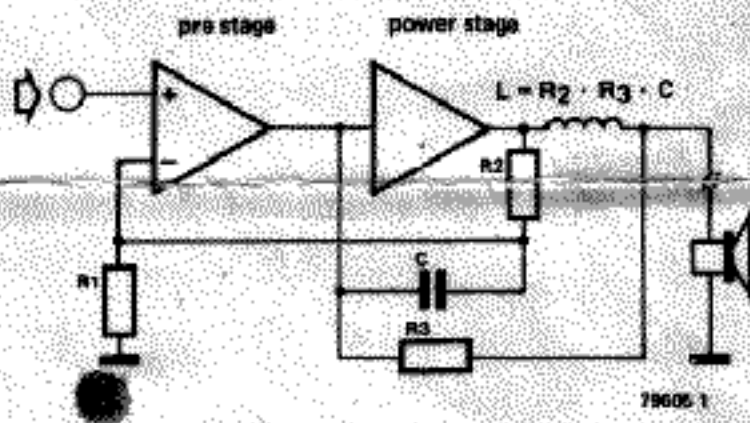
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The basic principle of a current dumping amplifier has been described previously in Elektor (see Elektors 8 and 21). To recap briefly, the circuit exploits the fact that, due to the effect of the four passive components, R2, R3, L and C shown in figure 1, the non-linear characteristic of the output stage becomes unimportant. Thus it is possible to use a Class-B output stage (i.e. the output transistors are biased to their cut-off points so that there is no quiescent output current) with all the advantages and none of the disadvantages (crossover distortion) of that configuration.

The circuit shown in figure 2 functions on the above described current dumping principle. According to the designer it is capable of delivering 100 W into 4 Ω with a claimed harmonic distortion of 0.006% at 1 kHz and 60 W. If one possesses the equipment to make accurate distortion measurements, C3 can be replaced by a 22 pF variable capacitor, and the latter adjusted for minimum distortion.

The circuit also has a useful extra facility in the form of a dummy load (R9).

The output stage is driven (via driver transistors T2 and T5) by transistors T1 and T4, which are connected in series with the positive and negative supply lines respectively of IC1. In this way the slew rate of the 741 is improved. If, however, a faster op-amp is desired (e.g. the LF 357), then the value of R4 and R7 should be altered to provide the correct quiescent current for the IC, so that the output stage draws no current.



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