



Passive RIAA preamplifier

There are two types of preamplifiers for magnetic phono cartridges. An example of the most common type is the one described in the March 2002 issue of SILICON CHIP. It has the RIAA equalisation network in the feedback loop. The second type was previously used in valve circuits which typically had no feedback loop and used passive RC networks to provide the phono equalisation.

This experimental preamp was put

together using inexpensive FETs to compare the performance of these two types of preamp. The first stage, consisting of Q1 and Q2, is a simple FET audio amplifier, where the FETs are connected in parallel to reduce noise.

This is followed by a passive RIAA network consisting of 240k Ω and 15k Ω resistors and their associated 0.1 μ F, .022 μ F and .0047 μ F capacitors. Some of the gain loss in the passive network is then made up by FET Q3. It also has a 51k Ω drain resistor and is buffered by bipolar transistor Q4 which is connected as an emitter-follower stage.

All resistors are 1% tolerance metal film types, while the equalisation capacitors are MKT polyester types. Ideally, the I_{dss} of all FETs should be matched for both channels, while the 51k Ω drain resistors should be adjusted so that the drain voltage in each stage is between 13V and 14V, to give symmetrical signal clipping.

The power supply can be three 9V batteries connected in series. Current consumption is only 3mA for the stereo circuit.

**Sam Yoshioka,
Kahibah, NSW. (\$35)**