

SILENT STEREO SWITCH

Mr Moulana's article in the January 1975 issue, involving the use of f.e.t.s for audio switching, prompts me to raise a couple of points:

(1) Using a switching f.e.t at the virtual earth point of an inverting amplifier in series with the input arm (as shown in Fig. 1) ensures low voltage swings at the

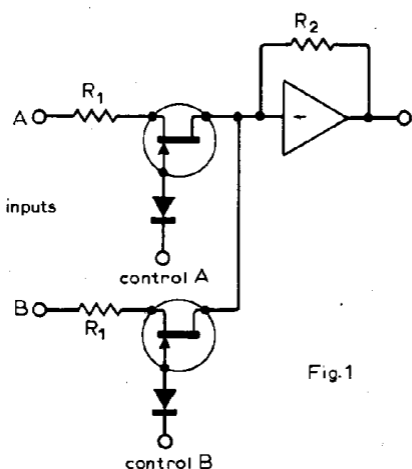


Fig. 1

f.e.t. and takes care of biasing. This configuration is often used in audio equipment.

(2) It seems reasonable that an f.e.t with a low value of $r_{ds(on)}$ should have a variation in this resistance with v_{ds} that is also of a low order (in absolute, if not, proportional terms). Thus if an f.e.t. such as a TIS73L (Texas) is chosen, which has an $r_{ds(on)}$ of 25 ohms maximum, we can see that the variation in $r_{ds(on)}$ can be quite small.

Suppose that in the circuit of Fig. 1 we use the TIS73L, and make $R_1 = R_2$ (for unity gain) = $10k\Omega$, then a variation in $r_{ds(on)}$ of 20% (5 ohms) due to changing v_{ds} will give a rise to a distortion of approximately $5/10^4$, or 0.05%. Attenuation of the input signal by 20dB, and making $R_2 = 100k\Omega$ will obviously improve the distortion performance while retaining unity gain. Pinch-off voltage for the TIS73L is a maximum of -11 volts, therefore control voltages in the off mode should be at least -12 volts. Choice of input arm resistance can

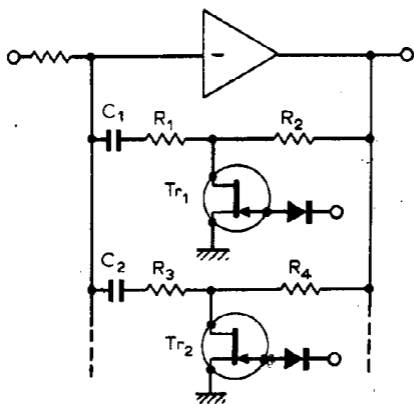


Fig. 2