PULSE MATRIX INPUT AMPLIFIER AM1/511

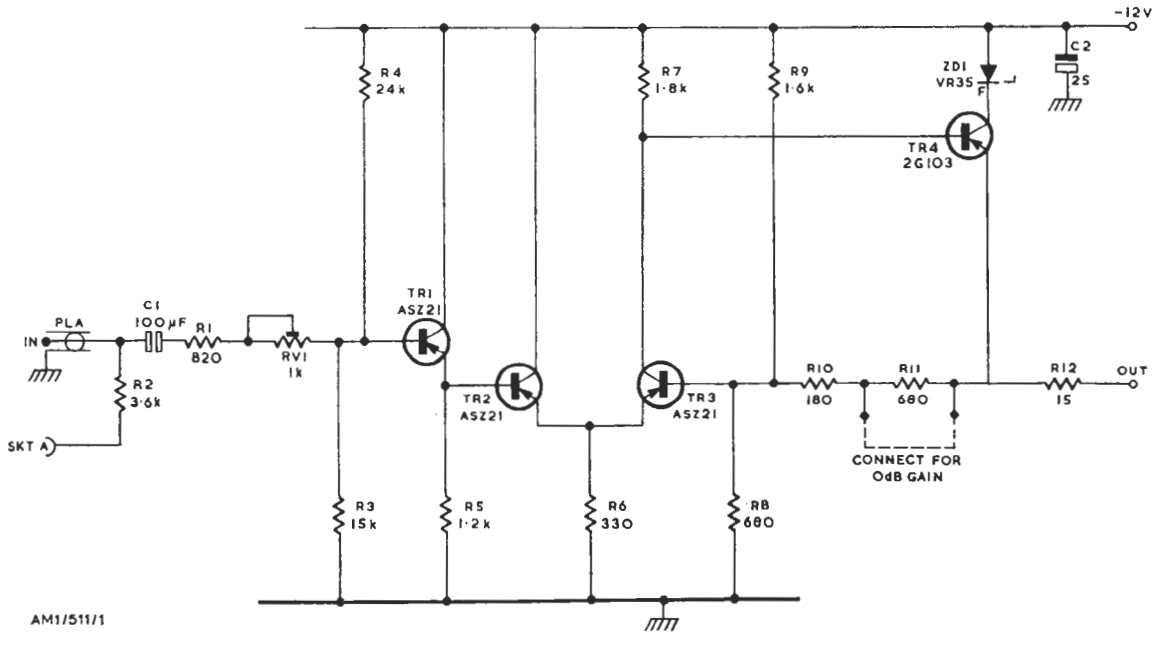

Fig. 1. Circuit of the AM1/511

Introduction

The AM1/511 was designed as an isolating amplifier for use with a relay panel PA17/505 a number of which are used to make a pulse-routing matrix PA9/503. It has a high input impedance to enable several units to be connected in parallel to the same pulse source; it has a low output impedance to enable each relay panel to feed several destinations simultaneously. The amplifier is constructed on a special chassis and is bolted directly to the relay panel.

Circuit Description

The circuit of the AM1/511 is given in Fig. 1. The amplifier is direct-coupled and uses germanium pnp transistors. It will handle the four television pulse waveforms on the 405-line, 525-line and 625-line standards. The input impedance is 9 kilohms, the output impedance is 15 ohms and the normal load is 150 ohms in parallel with 560 pF. The gain can be adjusted to be either 0 dB or 6 dB.

The input signal is fed through the fine gain control RV1 to the two cascaded emitter followers TR1 and TR2 which provide the high input impedance. Transistors TR2 and TR3 form an emitter-coupled pair and the signal developed across the collector load of TR3 is applied to the base of the output emitter-follower TR4. To reduce the dissipation at the collector of TR4, a Zener diode, ZD1, is used to reduce the collector voltage by 3·5 volts. Negative feedback from the emitter of TR4 is applied to the base of TR3; the amount of feedback is determined by the ratio of the resistances made up by (R10+R11) and (R8 in parallel with R9). If R11 is in circuit the gain of the amplifier is 6 dB; if R11 is short-circuited the gain is 0 dB. There is a standing potential on the output terminal of about 3·5 volts.

An external power supply at −12 volts is required.

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