

VHF MANAGER'S REPORT

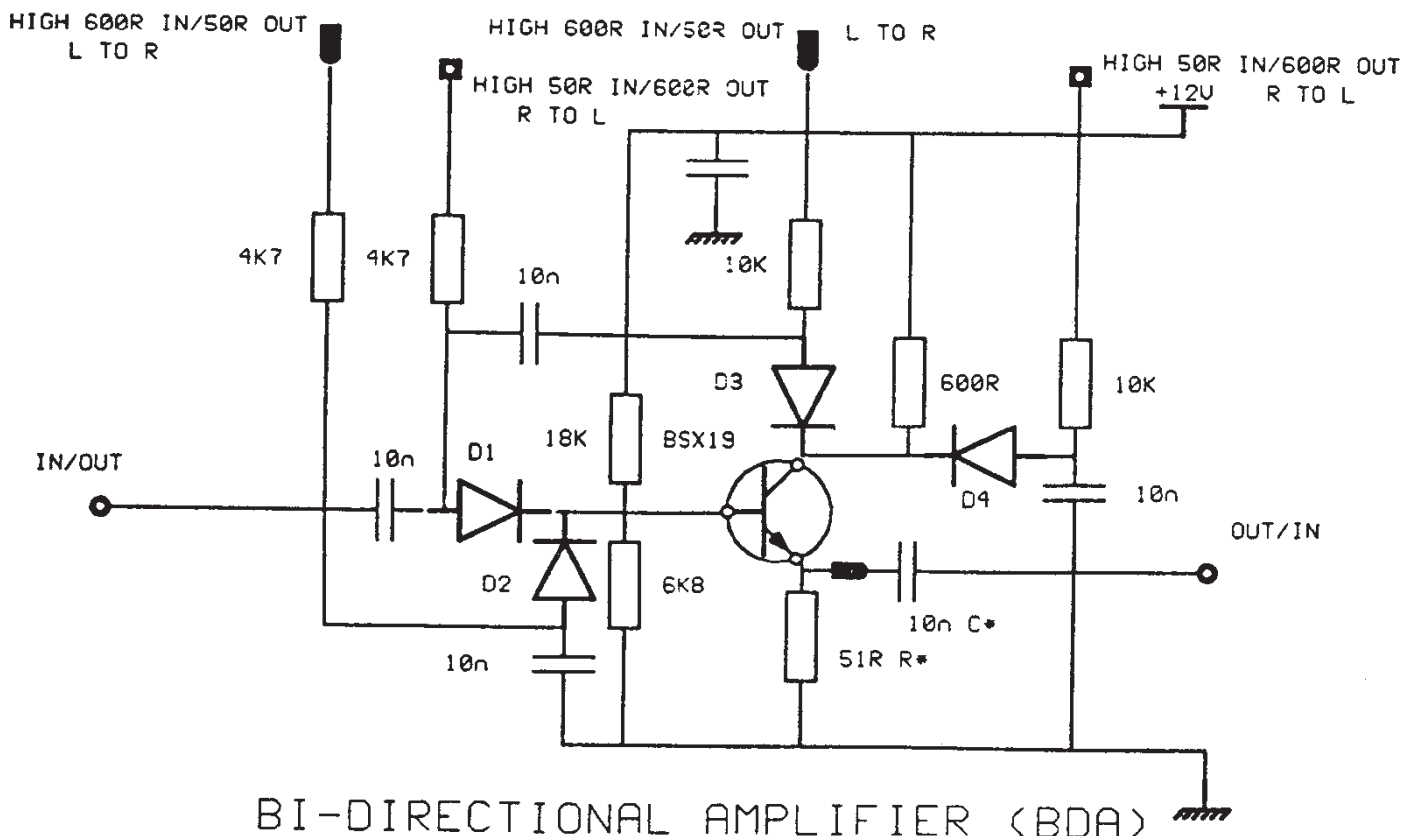
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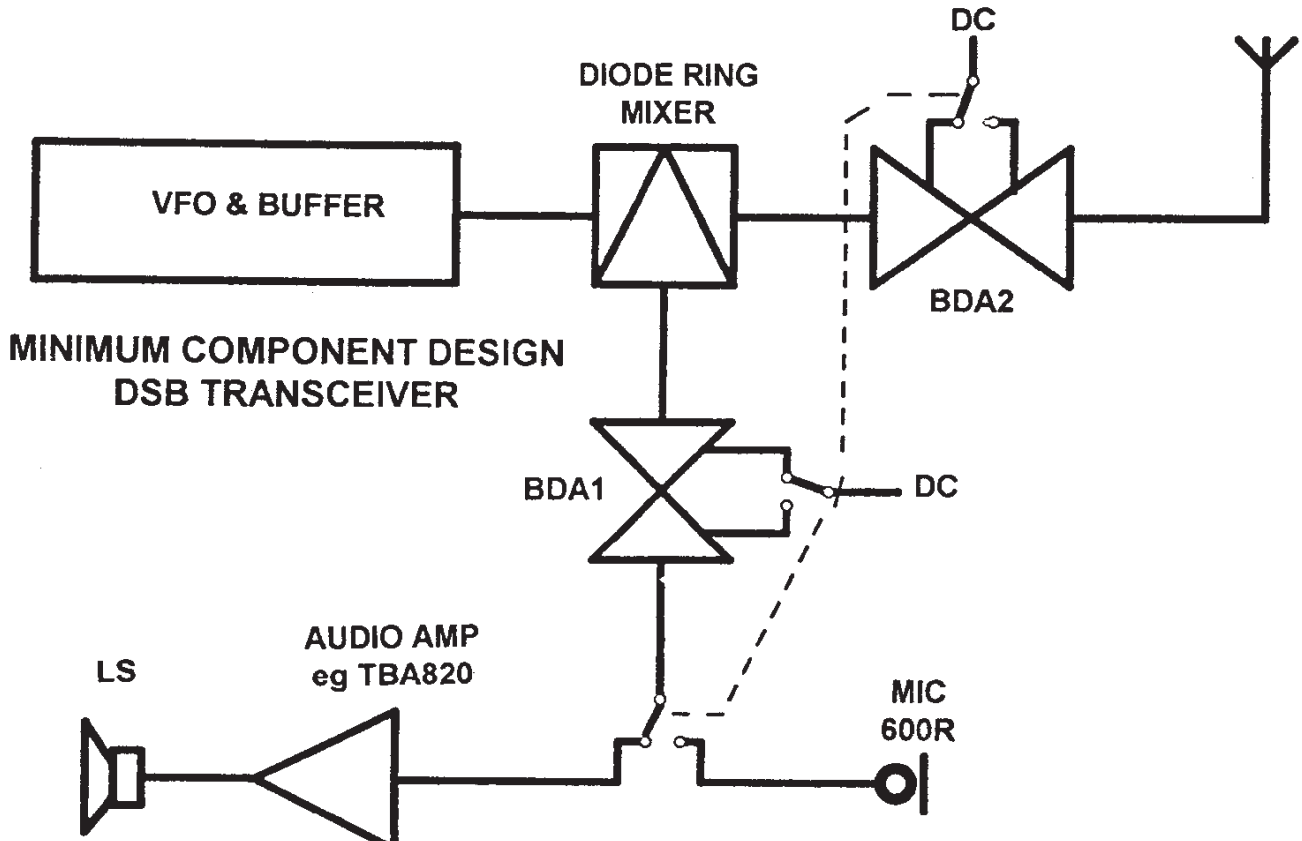
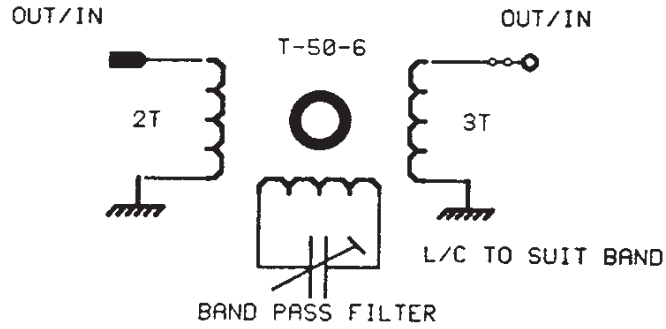
BI-DIRECTIONAL AMPLIFIER:

This circuit was designed to go between a mixer and crystal filter in a transceiver. The mixer impedance was around 50 ohm and the filter impedance was around 600 ohms. This amplifier uses a single RF device to amplify signals passing in either direction and performs the impedance transformation as well. In one direction it acts as a common emitter amplifier and in the other it acts as a common base amplifier. This is achieved by diode switching the RF signal path through the amplifier, using capacitors for DC blocking. It is also possible to switch the amp using relays, but this is somewhat cumbersome. The diode switched version takes up less board space, has lower power requirements and is cheaper than the relay version.

There is a possibility that this type of amplifier could be used as a transmit output stage AND a receive pre-amplifier in a QRP rig, in which case it may be preferable to relay switch. This could be useful in a minimum components design. I haven't had chance to try this as yet but it would appear that a BDA between the mixer and antenna, using 600 ohm feeder would work. If a device such as a 2N3553 or 2N3866 is used then about 1 W of Tx RF will be obtained for about 100 mW from the mixer. Ian G3ROO has used these devices for high level Rx pre-amps in some of his designs, so there should be no problem on receive. This set-up of course allows the same mixer to be used on Tx & Rx. As luck would have it, Dave KE9ED from Erie, whom I met at Dayton, wrote to me enclosing an article on a Bilateral Transverter, by Fred Brown, W6HPH. This turns out to be an HF to VHF transverter, which uses a high level mixer to produce 100mW O/P on Tx & straight in on Rx. The mixer used is a new one on me; it is a modified quad diode ring, with an RF bypass capacitor/bias resistor in the ring and a capacitive centre tap for the local oscillator drive. This design is for a 14 MHz to 50 MHz transverter which would no doubt benefit from a BDA between the mixer and antenna (with suitable modification to the output filter of course.)



FOR TRANSMIT APPLICATIONS
 USE THIS OUTPUT CIRCUIT
 AND 2N3553 TRANSISTOR
 (REPLACES R* & C*)



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