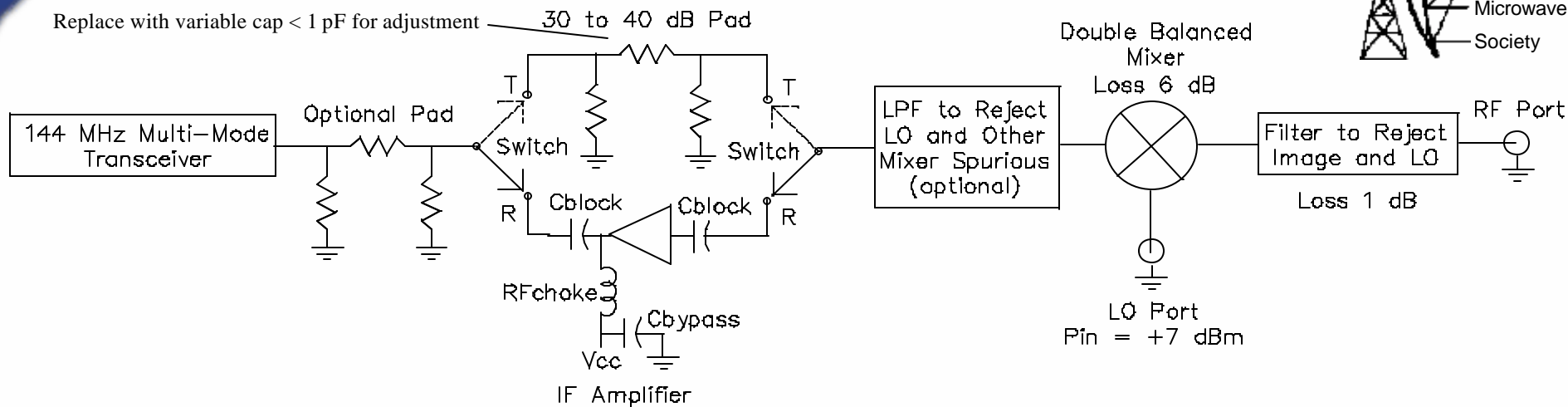
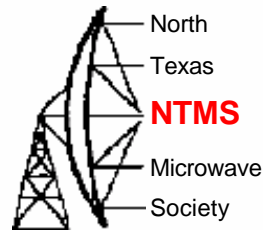


Transverter 101

Al Ward

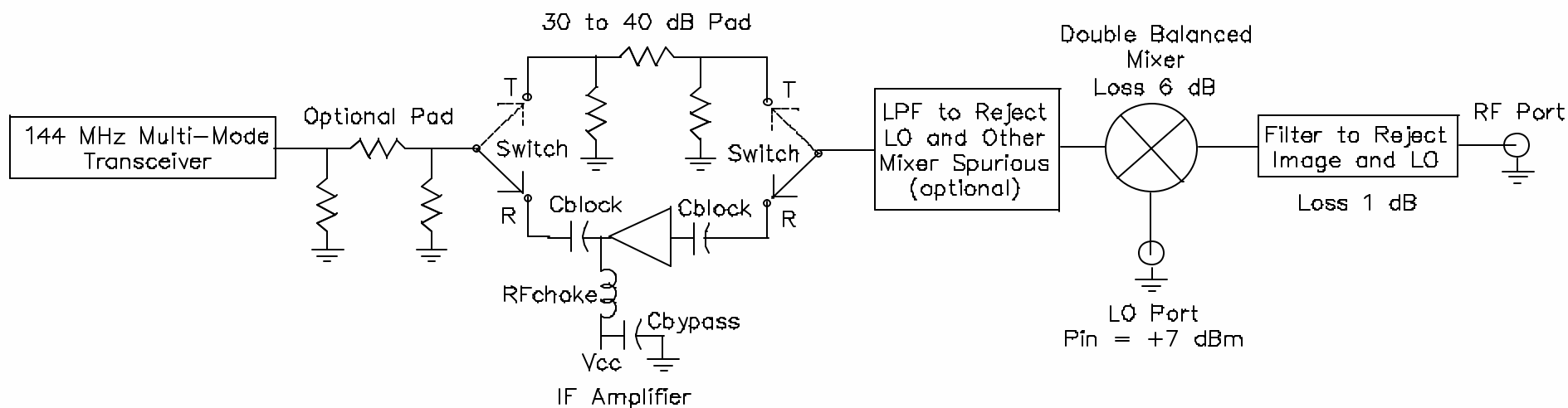
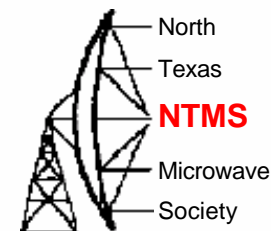
W5LUA

The Basic Transverter



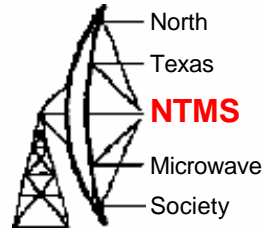
- Optional pad protects against “Rear-End Blow-out
- Switches can be relay and/or pin diodes
- 30-40 dB pad should set IF into mixer at 0 dBm max
- IF Amplifier offsets poor NF of 2 M rig
- LPF protects IF Amplifier from being overdriven by undesired signals from mixer, i.e. LO and other mixing products
- Balanced mixer preferred over single ended type as it offers port to port isolation
- Image reject filter helps beautify the air waves, helps when driving gain stages

System Performance of the Basic Transverter



- SSB noise figure = 3dB (IFAmp) + 6 dB (DBM) + 1 dB (IRFilter) = 10 dB
- 10 dB is only 8 or 9 dB worse than the best transverter, only 8 or 9 dB lost in S/N ratio
- SSB power output = 0 dBm (IF input to mixer) - 6 dB (mixer loss) - 1 dB (IRFilter) = -7 dBm or 200 microwatts or only 37 dB below 1 watt
- Systems like this can work 30 plus miles on 10 GHz with horn antennas

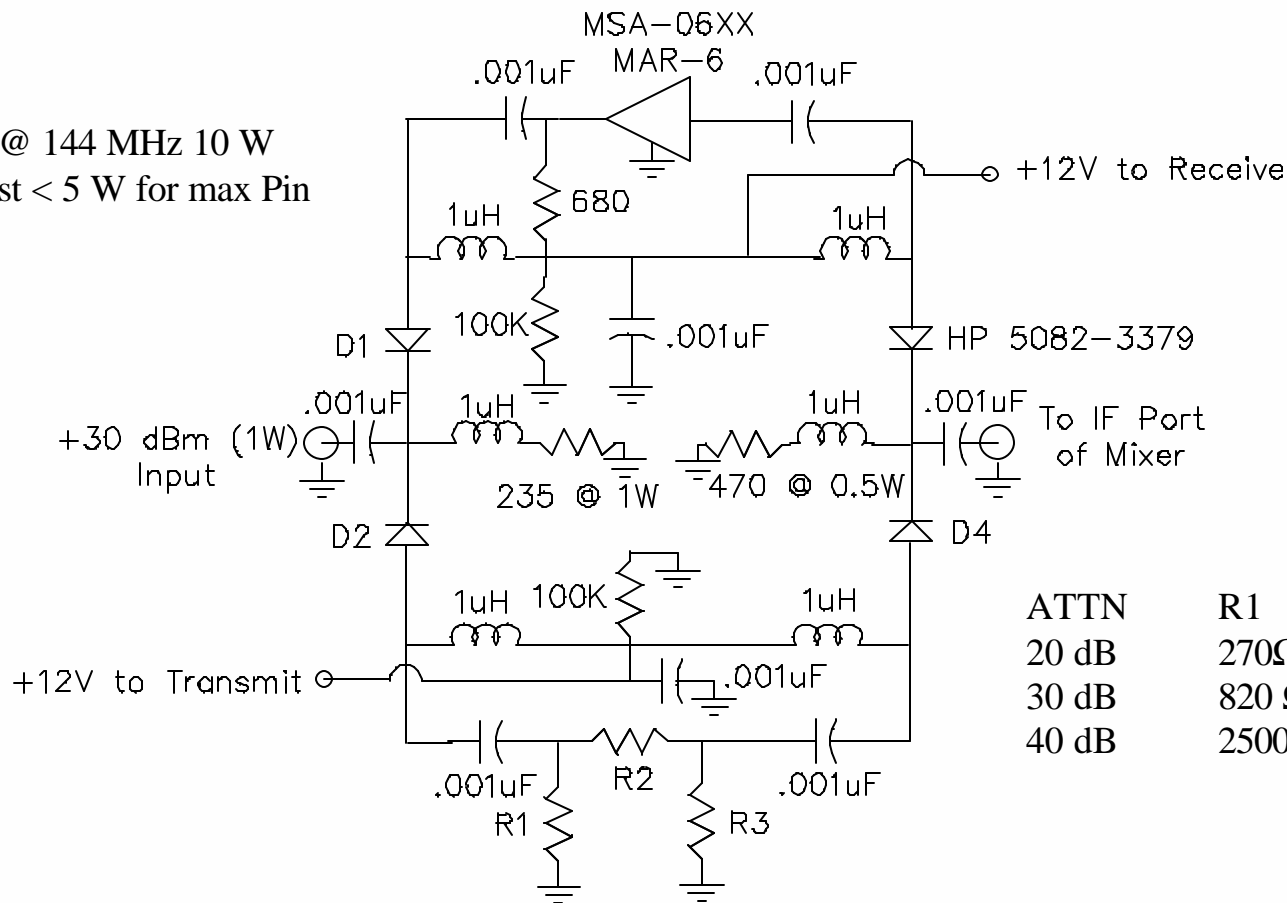
AppCAD Version 2.5 on Web



Download at <http://www.semiconductor.agilent.com/>

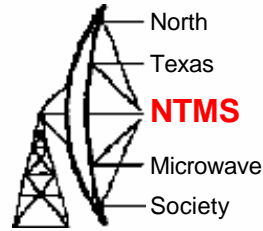
PIN Diode IF Switch

P1dB @ 144 MHz 10 W
Suggest < 5 W for max Pin



ATTN	R1	R2,R3
20 dB	270Ω	68Ω
30 dB	820 Ω	51 Ω
40 dB	2500 Ω	51 Ω

Another Option



- Use FT-290 or IC-202 or the new MFJ rig or the FT-817 where the power output at 144 MHz can be set at a low level , ie. 1 milliwatt or 0 dBm
- IF rig can then drive mixer directly
- Just attach LO and you are ready for an antenna

How to use an LNA for both receive and transmit by using a transfer relay

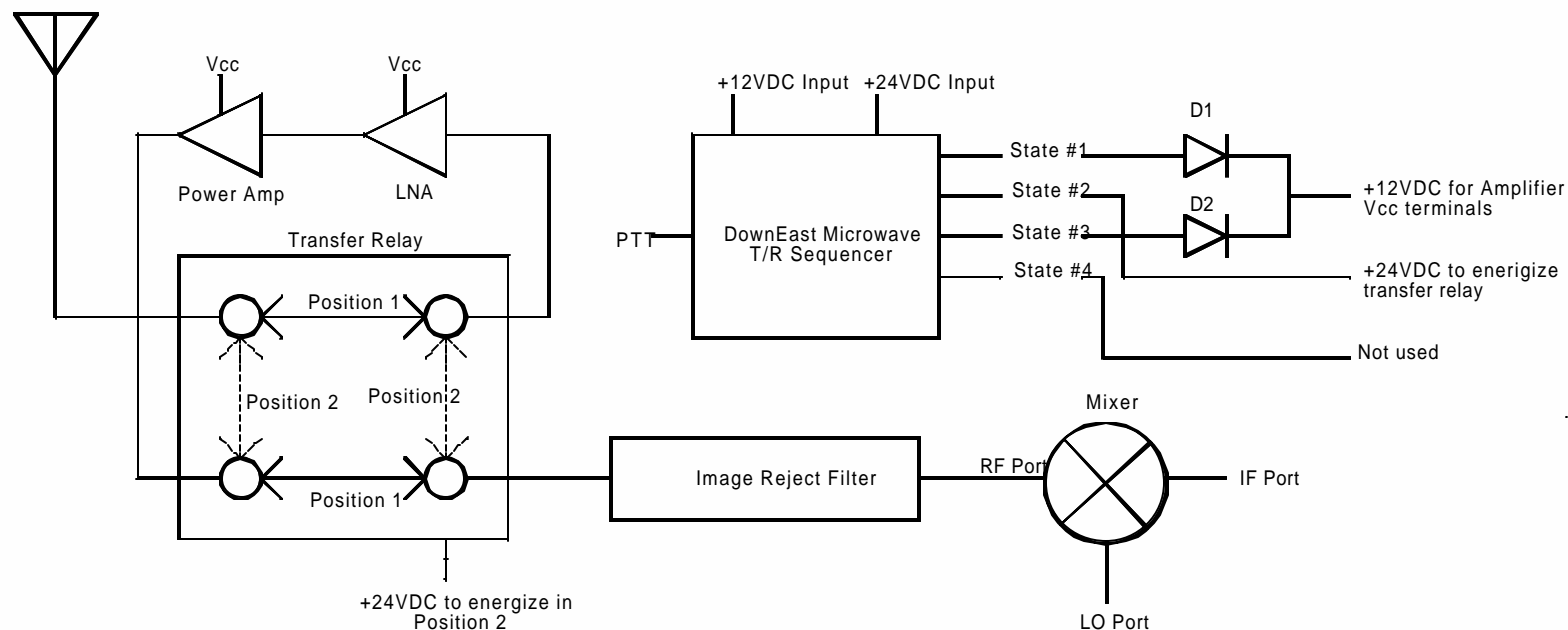


Figure 1 Transverter block diagram showing use of transfer relay to switch amplifier stages

Using Circulators as T/R Switches

