Down East Microwave

MICROWAVE ANTENNAS AND COMPONENTS

Bill Olson, W3HQT Box 2310, RR#1 . Troy , ME 04987 207-948-3741

40W, 33 cm Linear Amplifier, Model 3335PA

SPECIFICATIONS

Frequency range:	0.9-0.93 GHz
Power out (at 1-dB compression):	40 watts minimum
Power out (saturated):	45 watts typical
Power input for rated power out:	14 watts max., 10 watts typical
Power requirements:	13.8 volts dc @ 6 amperes
Connectors:	Type-N female
Size:	2.5 X 5.5 X 2.5 inches (HWD)
Active devices:	Pair of 2SC3542 transistors

INSTRUCTIONS FOR USE

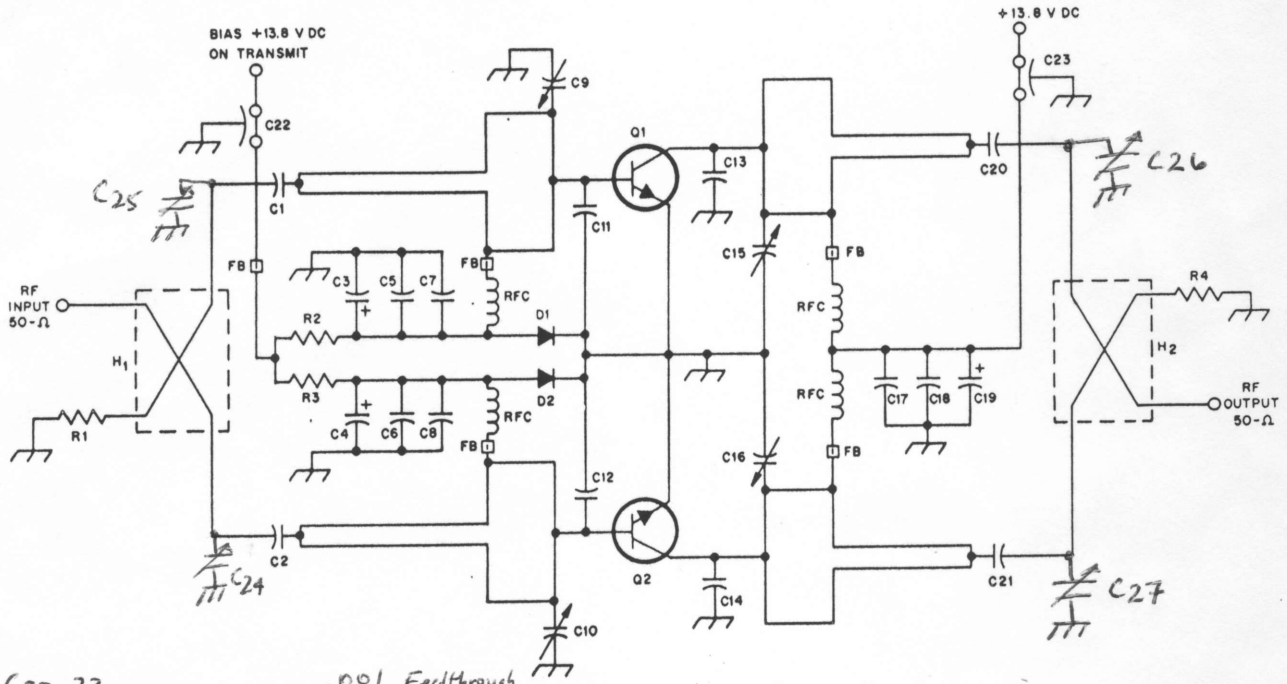
1) The Down East Microwave 3335PA linear amplifier is a simple gain block for the amateur 33-cm band. It will provide up to 40 watts power output for 10 watts drive. It requires external T/R switching and can be used by itself or as a driver for a higher power tube amplifier.

2) The amplifier requires 13.8-volts dc at 5.5 amps maximum for the collector supply and a bias supply of 13.8-volts dc at 400 mA. The bias supply is switched on during transmit only. Although the amplifier has been tested at more than 14.5 volts for short periods into a matched load, this is beyond the transistor manufacturer's ratings. Care should be taken to assure that the collector voltage does not exceed 13.8 volts. A regulated supply with at least 6 amp current capability is recommended. Collector voltage should be reduced to 12.5 volts when the amplifier is looking into a possible high SWR, such as the input network to a high-power tube amplifier or an unknown antenna. When everything is checked out and the SWR is brought below 3:1, collector voltage can be raised to maximum.

3) The 3335PA has been tested at 20 watts input with no damage, but is hard into compression at that drive level. If the exciter cannot be turned down to the required 10-14 watt input level, a short length of RG-58 will act as an attenuator.

4) The amplifier requires air for convection cooling and should be mounted with the heatsink fins vertical if possible. Under normal operation, the heatsink becomes warm but not hot. Mount the unit as close as possible to the antenna relay and main feed line, and use low-loss cable wherever possible.

SCHEMATIC DIAGRAM OF MODEL 3335PA LINEAR AMPLIFIER



C22, 23	.001 Feedthrough Cap.
C1, C2, C20, C21	27-pF chip
C3, C4, C19	3.3-μF, 25-V Tantalum
C5, C6, C18	0.1-μF disc ceramic
C7, C8, C17	100-pF chip
C9, C10	1.5 to 5-pF ceramic trimmer
C15, C16	0.8 to 10-pF tubular trimmer
C11, C12	12 -pF chip
C13, C14	12 -pF chip
C24, C25, C26, C27	1.5 to 5-pF ceramic trimmer
D1, D2	2 x 1N4001
R1, R4	50-Ω, 10-W power chip
R2, R3	120 to 200 Ω, 4W
RFC	4t no. 28, 0.10 inch diam.
FB	Ferrite bead
Q1, Q2	2SC3542
H1, H2	Sage Wireline® 90° hybrid 2.0"

Note: R1 and R2 are adjusted for I_{cq} of 150 mA through Q1, Q2.