

APPLICATION NOTE

Wideband class-A power amplifier for TV transposers in band I (50 – 80 MHz) with two transistors BLV33

NCO8207

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in band I (50 – 80 MHz) with two transistors BLV33

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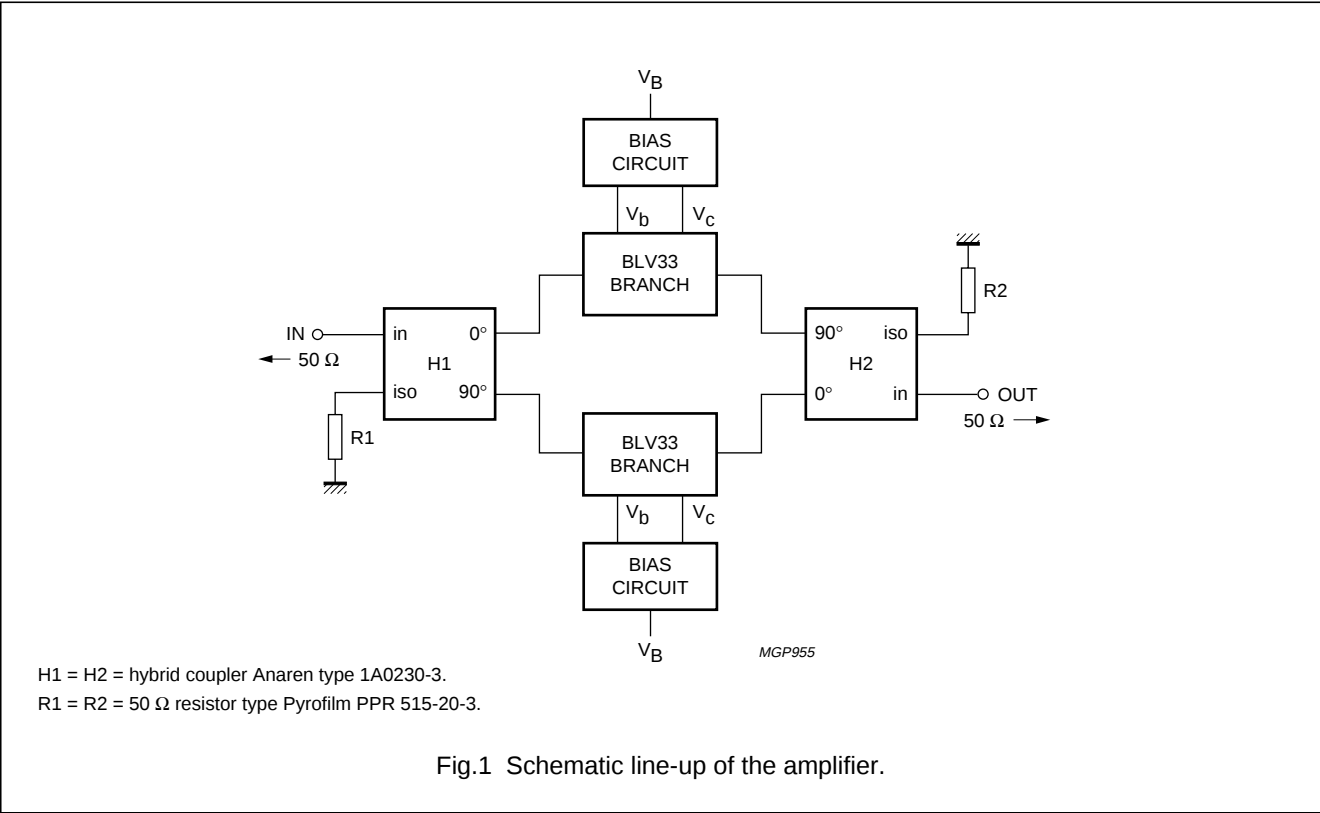
1 SUMMARY

The transistor BLV33 is primarily intended for use in linear VHF amplifiers for television transmitters and transposers. In report ECO7904 Mr. Zwanen describes the application of the BLV33 in a transposer amplifier for the TV band III (174 to 230 MHz).
On customers request we have made a theoretical design of such a linear transposer amplifier for the TV band I (50 to 80 MHz).

2 EXPECTED PERFORMANCE

Frequency range	band I 50 to 80 MHz
Gain	17.4 dB ± 0.3 dB
Input VSWR	≤1.25
Output VSWR	≤1.25
Output power P _{Osync} at –60 dB int at –55 dB int	≤30 W ≤45 W
Cross modulation at P _{Osync} = 40 W	≤7.5%
D.C. setting BLV33	I _C = 3.2 A/V _{CE} = 25 V

Figure 1 shows the schematic line-up of the complete amplifier and Fig.2 gives the circuit of one BLV33 branch. The applied bias-unit has been described in report ECO7904.



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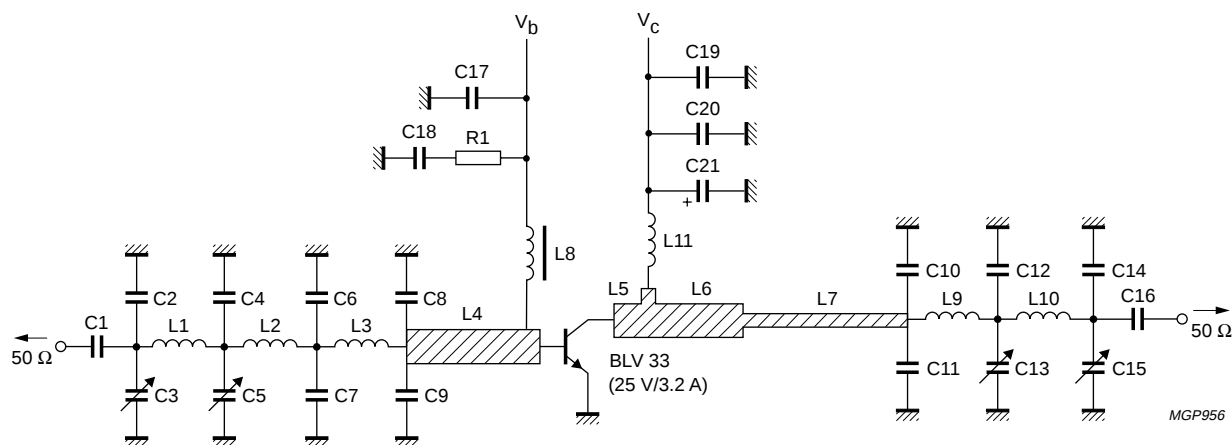


Fig.2 Circuit of a BLV33 branch.

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3 PARTS LIST

C1 = C16 = C17 = C19	2k7	chip capacitor Philips cat. no. 2222 852 13272
C2 = C14	39 pF	chip capacitor ATC 100B
C3 = C5	0 to 18 pF	film dielectric trimmer Philips cat. no. 2222 809 05003
C4	110 pF	chip capacitor ATC 100B
C6 = C7	82 pF	chip capacitor ATC 100B
C8 = C9	300 pF	chip capacitor ATC 100B
C10 = C11	160 pF	chip capacitor ATC 100B
C12	150 pF	chip capacitor ATC 100B
C13 = C15	0.40 pF	film dielectric trimmer Philips cat. no. 2222 809 07009
C18 = C20	330 nF	polyester capacitor Philips cat. no. 2222 352 25334
C21	47 μ F	eleco Philips cat. no. 2222 030 37479
L1	103 nH	5 turns enamelled C_u -wire, $\varnothing$ 1 mm, int.diam. D = 5.5 mm length 7.6 mm, leads 2 $\times$ 5 mm
L2	61.3 nH	5 turns enamelled C_u -wire, $\varnothing$ 1 mm, int.diam. D = 4.5 mm length 10.6 mm, leads 2 $\times$ 5 mm
L3	27.1 nH	3 turns enamelled C_u -wire, $\varnothing$ 1 mm, int.diam. D = 4.4 mm, leads 2 $\times$ 5 mm
L4	30.1 Ω	stripline, width 6 mm, length l = 30 mm
L5	30.1 Ω	stripline, width W = 6 mm, length l = 5 mm
L6	30.1 Ω	stripline, width W = 6 mm, length l = 10.6 mm
L7	60.2 Ω	stripline, width W = 2 mm, length l = 35.5 mm
L8	1 μ H	choke Philips cat. no. 4322 057 01081
L9	43.8 nH	4 turns enamelled C_u -wire, $\varnothing$ 1.5 mm, int.diam. D = 4.5 mm length 11.3 mm, leads 2 $\times$ 5 mm
L10	87.5 nH	5 turns enamelled C_u -wire, $\varnothing$ 1.5 mm, int.diam. D = 6.5 mm length 15.1 mm, leads 2 $\times$ 5 mm
L11 = L10		
R1	10 Ω	metal film resistor

Printed-circuit board material is epoxy fibre-glass ($\epsilon_r \approx 4.5$), thickness 1/16".

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