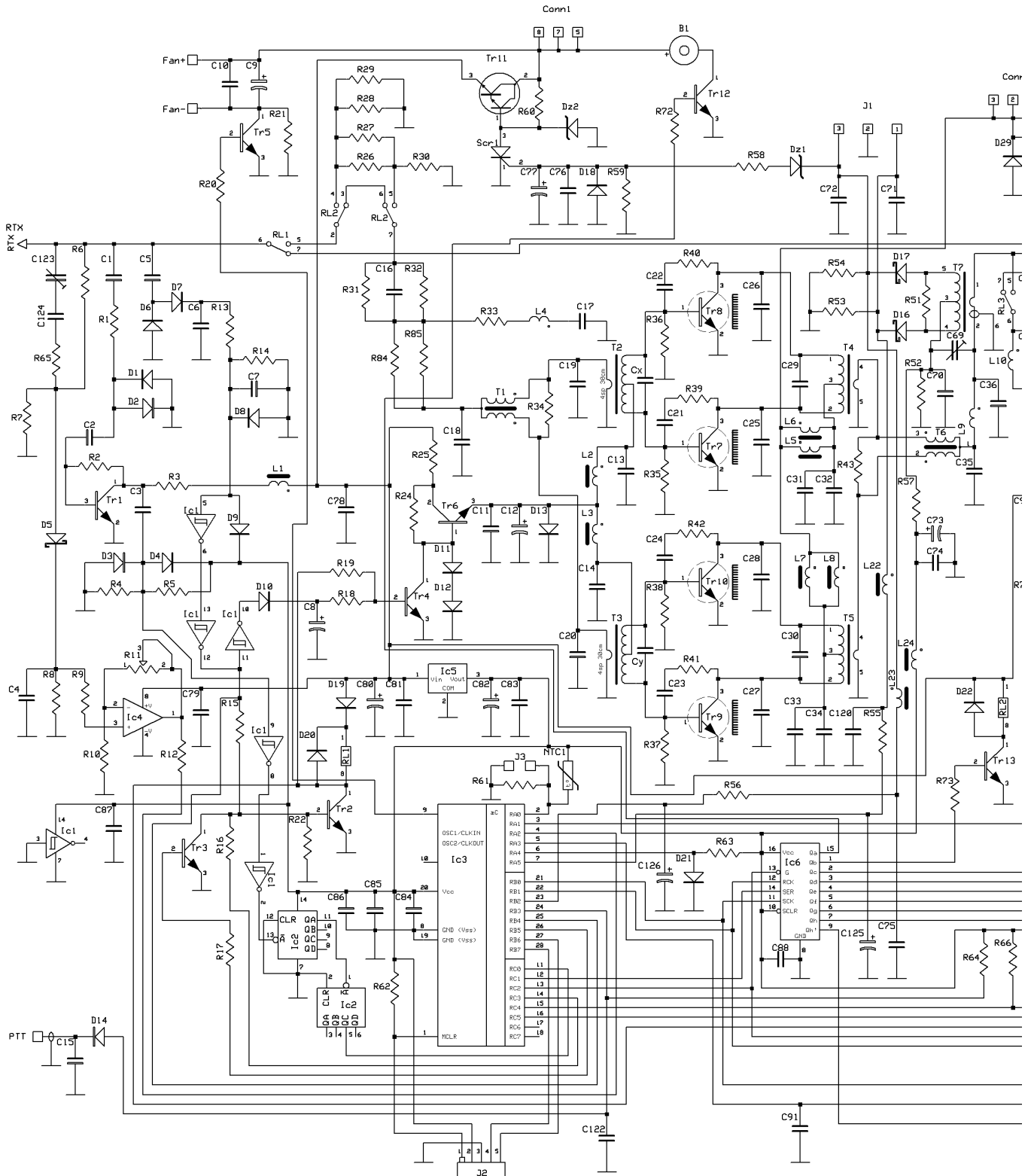
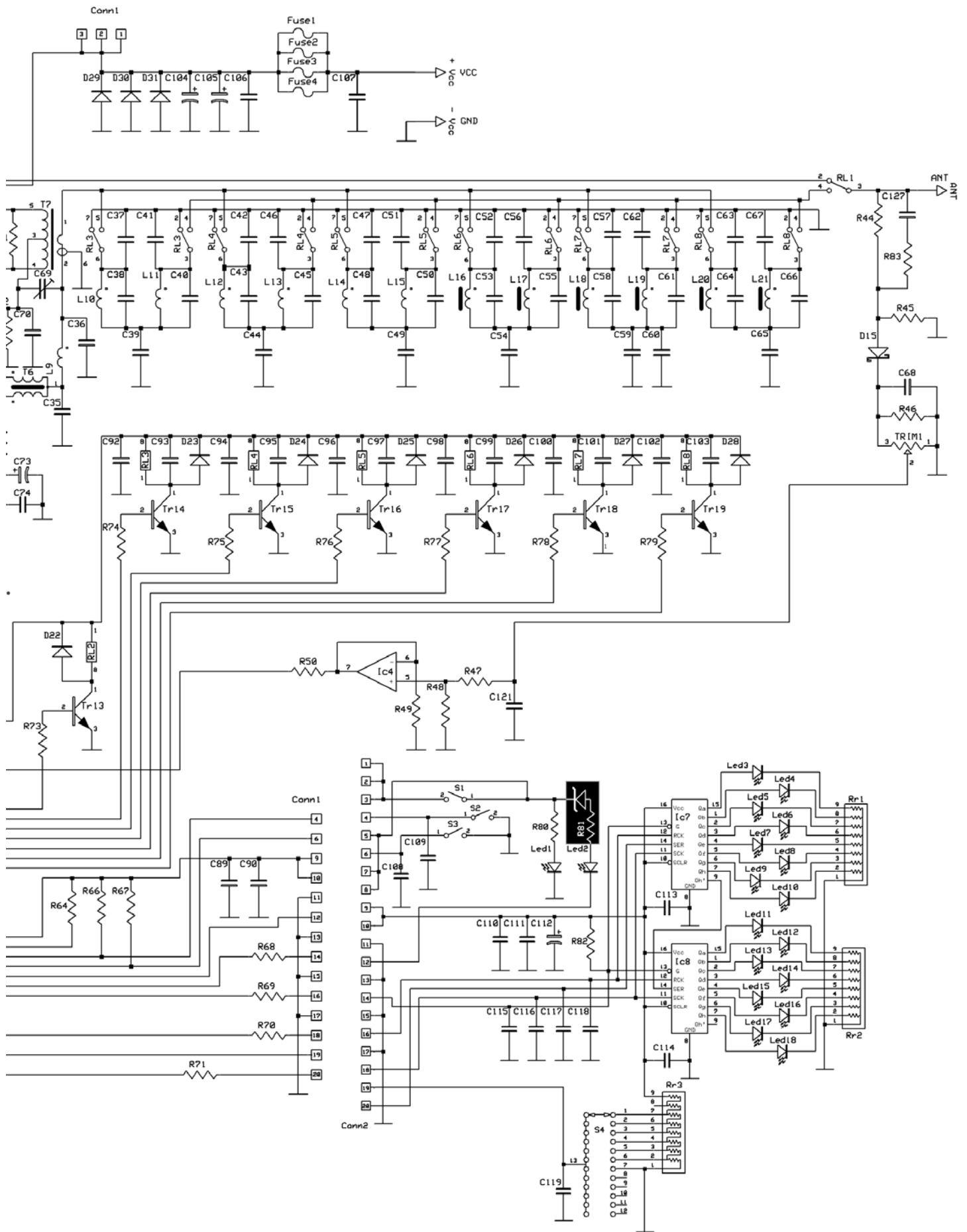


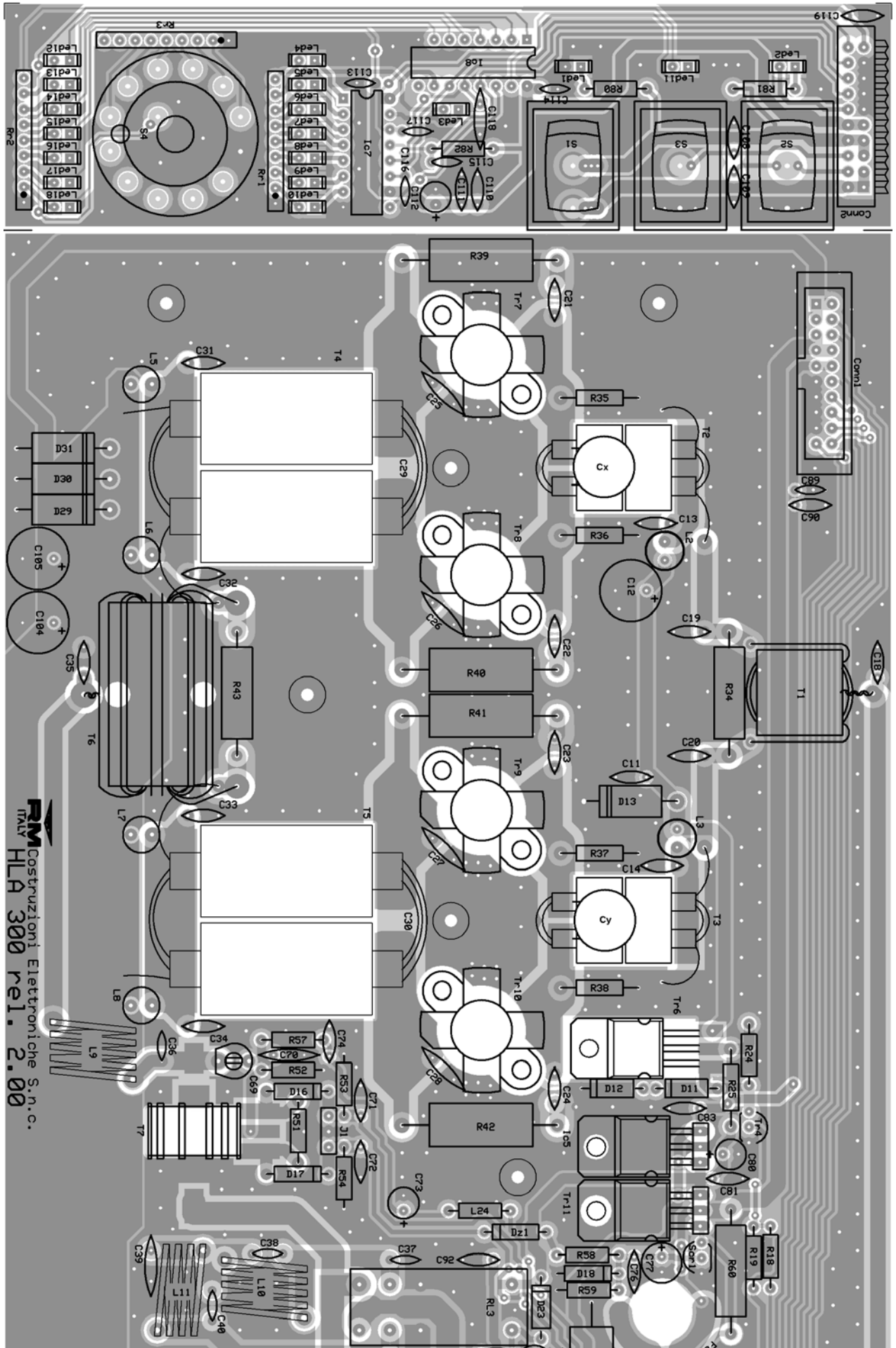
Mod. HLA 300V plus linear amplifier

Schematic diagram

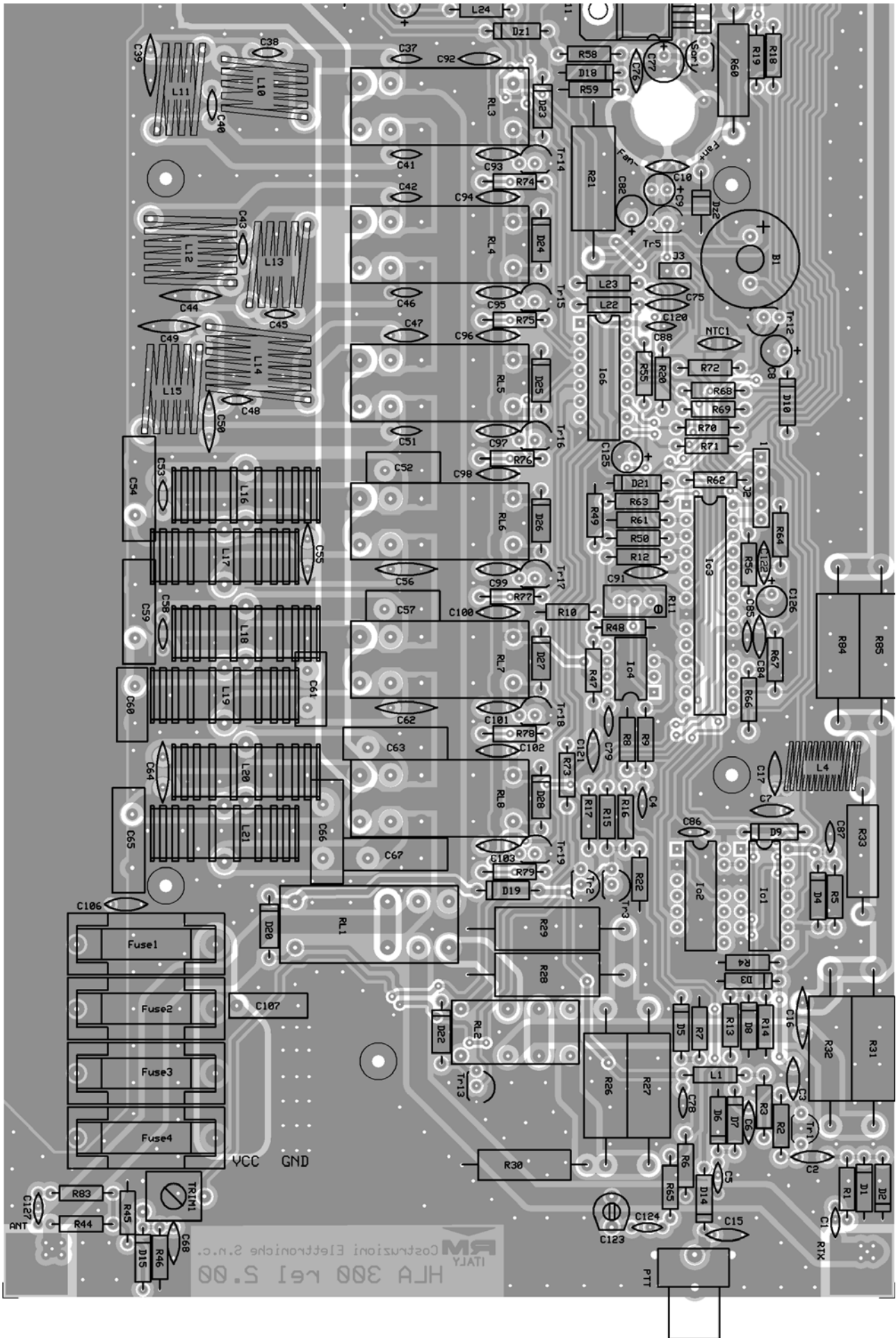
Version 2.01







RM
 ITALY
 Costruzioni Elettroniche S.n.c.
 HLA 300 rel. 2.00



List of components

C 1	= 10 pF	50 V	NP0	C 60	= 390 pF	500 V	Silvered mica
C 2	= 100 nF	50 V		C 61	= 330 pF	500 V	Silvered mica
C 3	= 10 nF	50 V		C 62	= 270 pF	500 V	N750
C 4	= 1,0 µF	50 V	Multilayer	C 63	= 560 pF	500 V	Silvered mica
C 5	= 4,7 pF	50 V	NP0	C 64	= 270 pF	500 V	N750
C 6	= 100 nF	50 V		C 65	= 1600 pF	500 V	Silvered mica
C 7	= 10 nF	50 V		C 66	= 620 pF	500 V	Silvered mica
C 8	= 2,2 µF	25 V		C 67	= 560 pF	500 V	Silvered mica
C 9	= 22 µF	25 V		C 68	= 10 nF	50 V	
C 10	= 100 nF	50 V		C 69	= HCU06C100	3-10 pF (White)	
C 11	= 100 nF	50 V		C 70	= 470 pF	50 V	N750
C 12	= 470 µF	25 V		C 71	= 100 nF	50 V	
C 13	= 100 nF	50 V		C 72	= 100 nF	50 V	
C 14	= 100 nF	50 V		C 73	= 22 µF	25 V	
C 15	= 100 nF	50 V		C 74	= 100 nF	50 V	
C 16	= 330 pF	500 V	Silvered mica	C 75	= 100 nF	50 V	
C 17	= 10 nF	50 V		C 76	= 100 nF	50 V	
C 18	= not present			C 77	= 47 µF	25 V	
C 19	= 100 pF	50 V	NP0	C 78	= 220 nF	50 V	Multilayer
C 20	= 100 pF	50 V	NP0	C 79	= 220 nF	50 V	Multilayer
C 21	= 47 nF	50 V		C 80	= 10 µF	25 V	
C 22	= 47 nF	50 V		C 81	= 100 nF	50 V	
C 23	= 47 nF	50 V		C 82	= 22 µF	25 V	
C 24	= 47 nF	50 V		C 83	= 100 nF	50 V	
C 25	= 180 pF	500 V	N750	C 84	= 100 nF	50 V	
C 26	= 180 pF	500 V	N750	C 85	= 220 nF	50 V	Multilayer
C 27	= 180 pF	500 V	N750	C 86	= 220 nF	50 V	Multilayer
C 28	= 180 pF	500 V	N750	C 87	= 220 nF	50 V	Multilayer
C 29	= 560 + 390 pF	500 V	Silvered mica	C 88	= 220 nF	50 V	Multilayer
C 30	= 560 + 390 pF	500 V	Silvered mica	C 89	= 220 nF	50 V	Multilayer
C 31	= 100 nF	50 V		C 90	= 100 nF	50 V	
C 32	= 100 nF	50 V		C 91	= 100 nF	50 V	
C 33	= 100 nF	50 V		C 92	= 100 nF	50 V	
C 34	= 100 nF	50 V		C 93	= 100 nF	50 V	
C 35	= 120 pF	500 V	NP0	C 94	= 100 nF	50 V	
C 36	= 56 pF	500 V	NP0	C 95	= 100 nF	50 V	
C 37	= 47 pF	500 V	NP0	C 96	= 100 nF	50 V	
C 38	= 12 pF	500 V	NP0	C 97	= 100 nF	50 V	
C 39	= 150 pF	500 V	NP0	C 98	= 100 nF	50 V	
C 40	= 39 pF	500 V	NP0	C 99	= 100 nF	50 V	
C 41	= 39 pF	500 V	NP0	C 100	= 100 nF	50 V	
C 42	= 82 pF	500 V	NP0	C 101	= 100 nF	50 V	
C 43	= 18 pF	500 V	NP0	C 102	= 100 nF	50 V	
C 44	= 220 pF	500 V	N750	C 103	= 100 nF	50 V	
C 45	= 39 pF	500 V	NP0	C 104	= 470 µF	25 V	
C 46	= 68 pF	500 V	NP0	C 105	= 470 µF	25 V	
C 47	= 100 pF	500 V	NP0	C 106	= 100 nF	50 V	
C 48	= 56 pF	500 V	NP0	C 107	= 470 nF	100 V	Polyester
C 49	= 220 pF	500 V	N750	C 108	= 100 nF	50 V	
C 50	= 180 pF	500 V	N750	C 109	= 100 nF	50 V	
C 51	= 22 pF	500 V	NP0	C 110	= 10 nF	50 V	
C 52	= 390 pF	500 V	Silvered mica	C 111	= 100 nF	50 V	
C 53	= 56 pF	500 V	NP0	C 112	= 22 µF	25 V	
C 54	= 620 pF	500 V	Silvered mica	C 113	= 220 nF	50 V	Multilayer
C 55	= 180 pF	500 V	N750	C 114	= 220 nF	50 V	Multilayer
C 56	= 180 pF	500 V	N750	C 115	= 1,0 nF	50 V	
C 57	= 390 pF	500 V	Silvered mica	C 116	= not present		
C 58	= 68 pF	500 V	NP0	C 117	= 1,0 nF	50 V	
C 59	= 560 pF	500 V	Silvered mica	C 118	= 470 pF	50 V	N750
				C 119	= 100 nF	50 V	

C 120 = 100 nF	50 V	R 52 = 1,0 K Ω	1/4W
C 121 = 100 nF	50 V	R 53 = 22 K Ω	1/4W
C 122 = 100 nF	50 V	R 54 = 22 K Ω	1/4W
C 123 = HCU06C100	1-5 pF (Blue)	R 55 = 2,2 K Ω	1/4W
C 124 = 1,0 pF	50 V	R 56 = 2,2 K Ω	1/4W
C 125 = 22 μ F	25 V	R 57 = 22 K Ω	1/4W
C 126 = 22 μ F	25 V	R 58 = 470 Ω	1/4W
C 127 = 1,0 pF	50 V	R 59 = 10 K Ω	1/4W
Cx = 470 pF	50 V	R 60 = 330 Ω	2W
Cy = 470 pF	50V	R 61 = 4,7 K Ω	1/4W
R 1 = 22 K Ω	1/4W	R 62 = 4,7 K Ω	1/4W
R 2 = 47 K Ω	1/4W	R 63 = 4,7 K Ω	1/4W
R 3 = 1,0 K Ω	1/4W	R 64 = 4,7 K Ω	1/4W
R 4 = 100 K Ω	1/4W	R 65 = 2,2 K Ω	1/4W
R 5 = 100 K Ω	1/4W	R 66 = 4,7 K Ω	1/4W
R 6 = 22 K Ω	1/4W	R 67 = 4,7 K Ω	1/4W
R 7 = 4,7 K Ω	1/4W	R 68 = 47 Ω	1/4W
R 8 = 4,7 K Ω	1/4W	R 69 = 47 Ω	1/4W
R 9 = 10 K Ω	1/4W	R 70 = 47 Ω	1/4W
R 10 = 10 K Ω	1/4W	R 71 = 47 Ω	1/4W
R 11 = 10 K Ω	multi-turn trimmer	R 72 = 4,7 K Ω	1/4W
R 12 = 1,0 K Ω	1/4W	R 73 = 4,7 K Ω	1/4W
R 13 = 10 K Ω	1/4W	R 74 = 4,7 K Ω	1/4W
R 14 = 1,0 M Ω	1/4W	R 75 = 4,7 K Ω	1/4W
R 15 = 4,7 K Ω	1/4W	R 76 = 4,7 K Ω	1/4W
R 16 = 4,7 K Ω	1/4W	R 77 = 4,7 K Ω	1/4W
R 17 = 4,7 K Ω	1/4W	R 78 = 4,7 K Ω	1/4W
R 18 = 10 K Ω	1/4W	R 79 = 4,7 K Ω	1/4W
R 19 = 10 K Ω	1/4W	R 80 = 1,0 K Ω	1/4W
R 20 = 1,0 K Ω	1/4W	R 81 = 220 Ω	1/4W + Zener 5,1V 1/2W
R 21 = 33 Ω	5W	R 82 = 4,7 K Ω	1/4W
R 22 = 10 K Ω	1/4W	R 83 = 6,8 K Ω	1/4W
R 24 = 820 Ω	1/4W	R 84 = 33 Ω	5W
R 25 = 1,0 Ω	1/2W	R 85 = 33 Ω	5W
R 26 = 33 Ω	5W	Rr 1 = 8 x 270 Ω	1/8 W
R 27 = 33 Ω	5W	Rr 2 = 8 x 270 Ω	1/8 W
R 28 = 470 Ω	5W	Rr 3 = 8 x 470 Ω	1/8 W
R 29 = 470 Ω	5W	NTC 1= 4,7 K Ω	
R 30 = 330 Ω	2W	Trim 1= 220 K Ω PT10LV	
R 31 = 33 Ω	5W	B 1 = Buzzer 12V ARIMB12A12	
R 32 = 33 Ω	5W	D 1 to D 4 = 1N4148	
R 33 = 100 Ω	2W	D 5 = 1N5711	
R 34 = 100 Ω	2W	D 6 to D 10 = 1N4148	
R 35 = 10 Ω	1/2W	D 11 to D 12 = 1N4007	
R 36 = 10 Ω	1/2W	D 13 = 1N5400	
R 37 = 10 Ω	1/2W	D 14 = 1N4148	
R 38 = 10 Ω	1/2W	D 15 to D 17 = 1N5711	
R 39 = 68 Ω	5W	D 18 = 1N4148	
R 40 = 68 Ω	5W	D 19 to D 20 = 1N4007	
R 41 = 68 Ω	5W	D 21 = not present	
R 42 = 68 Ω	5W	D 22 to D 28 = 1N4007	
R 43 = 100 Ω	2W	D 29 to D 31 = 1N5400	
R 44 = 100 K Ω	1/4W	DZ1 = Zener 5,1 V	1/2W
R 45 = 12 K Ω	1/4W	DZ2 = Not present	
R 46 = 47 K Ω	1/4W	Led 1 = green	
R 47 = 4,7 K Ω	1/4W	Led 2 to Led 3 = red	
R 48 = 10 K Ω	1/4W	Led 4 to Led 10 = green	
R 49 = 10 K Ω	1/4W	Led 11 = yellow	
R 50 = 1,0 K Ω	1/4W	Led 12 to Led 17 = green	
R 51 = 47 Ω	1/4W	Led 18 = yellow	

Fuse 1 to Fuse 4 = 10 A Fast

Ic 1 = 74HC14

Ic 2 = 74HC393

Ic 3 = Micro RM20

Ic 4 = LM358

Ic 5 = LM 7805

Ic 6 = 74HC595

Ic 7 = 74HC595

Ic 8 = 74HC595

Tr 1 = BF199

Tr 2 to Tr 4 = BC 547 B

Tr 5 = BC 337-25

Tr 6 = BD241BFP

Tr 7 - Tr 10 = SD 1446

Tr 11 = BDX53BFP

Tr 12 - Tr 19 = BC 547 B

Scr 1 = P0102

R1 1 = 4152.9.012

R1 2 = 3022.9.012

R1 3 to R1 8 = 4152.9.012

T 1 = Input Decoupler Transformer

T 2 and T 3 = Input Transformers

T 4 and T 5 = Output Transformers

T 6 = Output Coupler Transformer

T 7 = ANRA 700/12

L 1 = 10 μ H

L 2 and L 3 = FH002100

L 4 = ANRA883

L 5 to L 8 = FH002110

L 9 = ANRA 856/1

L 10 = ANRA 856/1

L 11 = ANRA 856

L 12 = ANRA 856/2

L 13 = ANRA 856/1

L 14 = ANRA 856/4

L 15 = ANRA 856/3

L 16 = ANRA 725/5

L 17 = ANRA 725/4

L 18 = ANRA 725/7

L 19 = ANRA 725/6

L 20 = ANRA 725/9

L 21 = ANRA 725/8

L 22 = 10 μ H

L 23 = 10 μ H

L 24 = 10 μ H

PTT = GP305522

S 1 = JS606A 10A

S 2 = JS606A 10A

S 3 = JS606A 10A

S 4 = BL200012