COMPONENTS LIST

receiver board (030417-1)
PCB layout free from www.elektor.com

Resistors

R1,R29,R67,R68 = 100kΩ
R2,R10 = 1kΩ
R3,R30,R50 = 220Ω
R4 = 270kΩ
R5,R43,R64 = 15kΩ
R6,R11 = 56Ω
R7 = 39Ω
R8,R9,R17,R22,R23,R24,R52,R57 = 2kΩ2
R12,R15,R60 = 470Ω
R13,R28 = 150kΩ
R14,R18,R54,R56,R69 = 47kΩ
R16 = 390kΩ
R19,R33,R34 = 220kΩ
R20 = 1kΩ8
R21,R45,R59,R61 = 4kΩ7
R25,R26,R27,R51,R53,R55,R58,R65 = 10kΩ
R31,R39,R66 = 22kΩ
R32,R46,R48,R63 = 5kΩ6
R35 = 2Ω7
R36 = 68Ω
R37,R38,R41,R42,R47 = 3kΩ3
R40 = 27kΩ
R44,R62 = 330kΩ
R49 = 3kΩ9
P1,P2 = 100kΩ linear
P3 = 5kΩ linear preset
P4 = 2kΩ5 linear preset
P5 = 10kΩ linear
P6 = 50kΩ logarithmic

Capacitors

C1,C15,C16,C22 = 150pF
C2,C3,C5,C8,C9,C21,C24,C25,C27,C33,C34,C37,C38,C39,C40,C43,C44,C47,C48,C54,C55,C56,C57,C58,C59,C62,C63,C64,C65,C66,C68,C69,C70,C71,C72,C74,C75,C76,C78,C79,C80,C81,C82,C90,C91,C92,C95,C96,C103,C104,C109,C110,C112,C113,C115,C117,C125,C127,C130,C131,C132 = 100nF 50V ceramic multilayer, lead pitch 5mm
C4,C41,C52,C60,C61,C83,C100,C105,C106 = 1nF
C6,C7,C10,C114,C126 = 1µF 50V ceramic multilayer, lead pitch 5mm
C11 = 6pF8
C12,C13 = 15pF
C14,C17,C28 = 39pF
C18,C19,C26,C30 = 40pF trimmer
C20,C23,C45,C46,C53,C67,C73,C84,C85,C97,C99,C107,C108,C116 = 10nF ceramic
C29 = 56pF
C31 = 2pF2
C32,C36 = 10pF
C35,C124 = 470nF
C42 = not fitted
C49 = 270pF
C50,C87 = 330pF
C51 = 2nF2
C77 = 47µF 16V radial
C86 = 220pF
C88,C101,C111 = 22nF
C89 = 8nF2
C93,C94 = 100pF trimmer
C98 = 33pF
C102 = 3nF9
C118,C119,C120,C121,C122 = 47nF ceramic
C123 = 47pF
C128 = 470µF 25V radial
C129 = 220µF 25V radial

Inductors:

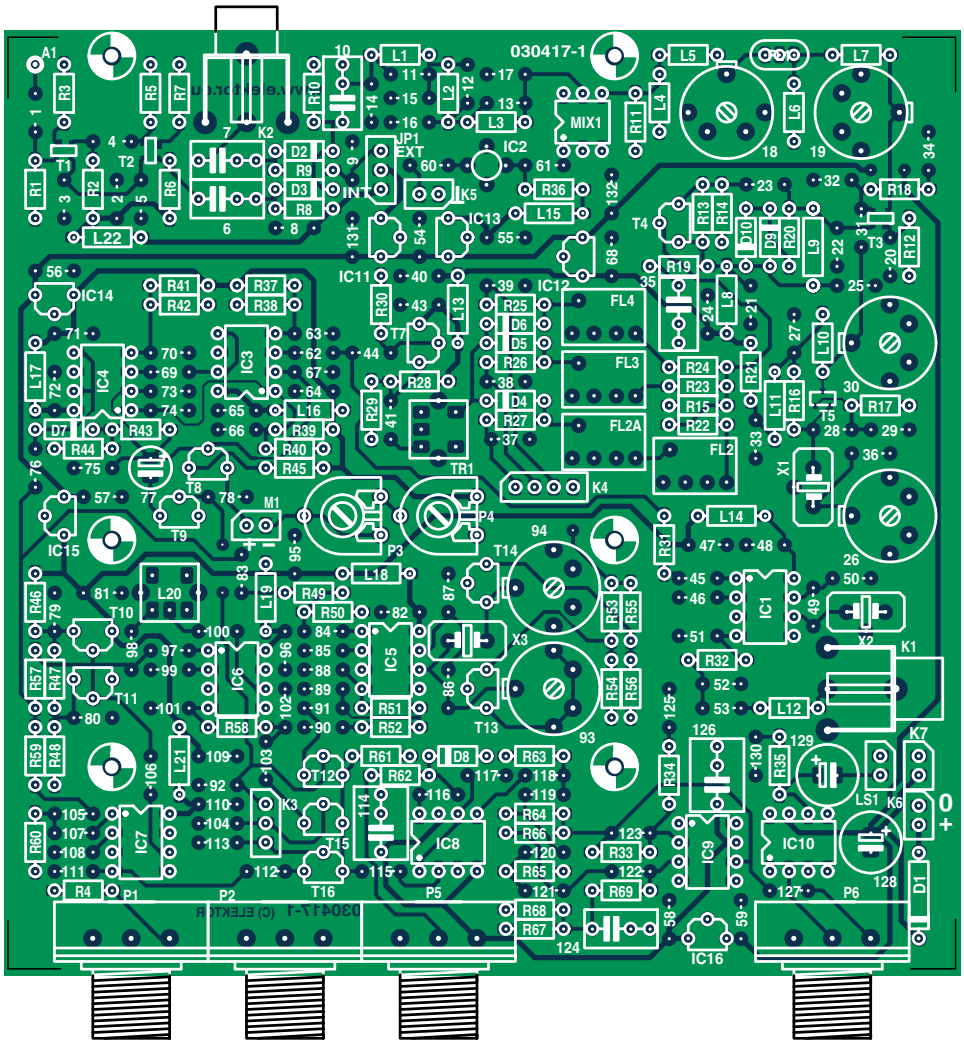
L1,L3 = 330nH
L2,L5 = 470nH
L4 = 100nH
L6 = 150nF
L7,L10 = 390nH
L8,L11,L13,L14,L16,L17,L18,L19,L21 = 100µH
L9,L22 = 820µH
L12 = 10µH
L15 = 1µH
L20 = LMC4100A or 0509-10736
TR1 = LMC4202 or 0509-10735

Semiconductors

D1 = 1N4001
D2,D3,D4,D5,D6 = BA482
D7,D9,D10 = 1N4148
D8 = KV1235
T1 = BF991, SOT143
T2,T3 = BF992, SOT143
T4,T7 = J310
T5 = BFR93A, SOT23
T6 = not fitted
T8 = BC547B, TO92
T9,T12,T15,T16 = BS170, TO92
T10,T13,T14 = BF494, TO92
T11 = BF451, TO92
IC1,IC5,IC6,IC7 = NE612/SA612, DIP8
IC2 = MAR8 (Mini-Circuits)
IC3,IC4 = AD603AQ, DIP8
IC8 = MAX7400, DIP8
IC9 = LF356, DIP8
IC10 = LM380N-8
IC11,IC12 = 78L09, TO92
IC13,IC14 = 78L10, TO92
IC15,IC16 = 78L05, TO92

Miscellaneous

A1 = solder pin
K1,K2 = PCB mount cinch (RCA) socket
K3 = 3-pin header with flatcable
K4 = 4-pion header with flatcable
K5 = 2-pin header with lenght of thin 50Ω coax cable
K6,K7,M1,LS1 = 2-pin header or 2 solder pins
JP1 = 3-pin header with jumper, or changeover switch
X1 = 44.545MHz quartz crystal, parallel resonance, C_L = 32pF
X2 = CSB470
X3 = CSB455
MIX1 = ASK-1 DIP6 (Mini-Circuits)
FL1 = 45G15A1/B1
FL2,FL2A = SFR455J
FL3 = SFR455H
FL4 = SFR455E 100µA or 150µA moving-coil meter, (S-meter), connect to M1
8 Ω/2 W loudspeaker, conenct to LS1
Enclosure, Bopla Lab, dim, 223 x 199 x 56 mm (Conrad Electronics # 523348)
PCB, order code 030417-1 from The PCBShop


030417-1
A1
L1
L2
L3
L4
L5
L6
L7
MIX1
IC2
JP1
EXT
INT
K2
K5
IC13
IC11
IC12
IC14
IC15
IC3
IC4
IC5
IC6
IC7
IC8
IC9
IC10
IC1
IC16
FL4
FL3
FL2A
FL2
TR1
T1
T2
T3
T4
T5
T7
T8
T9
T10
T11
T12
T13
T14
T15
T16
M1
P1
P2
P3
P4
P5
P6
K1
K3
K4
K6
K7
X1
X2
X3
LS1
D1
D2
D3
D4
D5
D6
D7
D8
D9
D10
R1
R2
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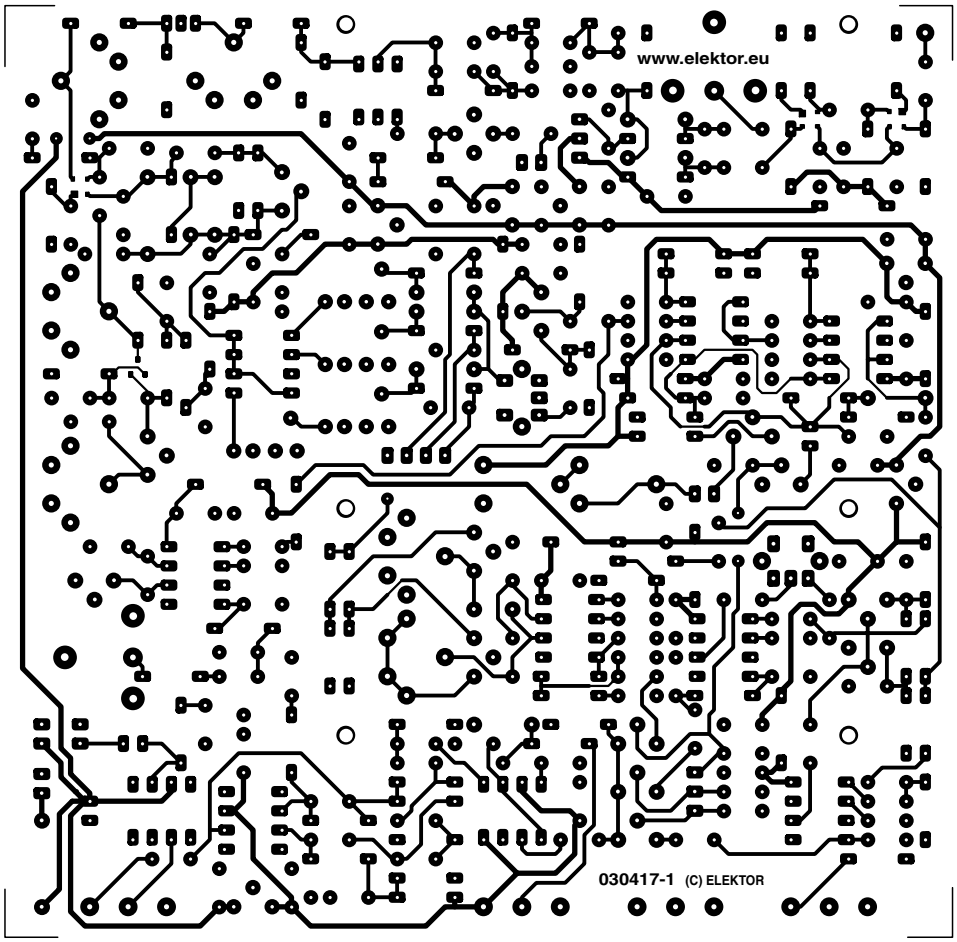

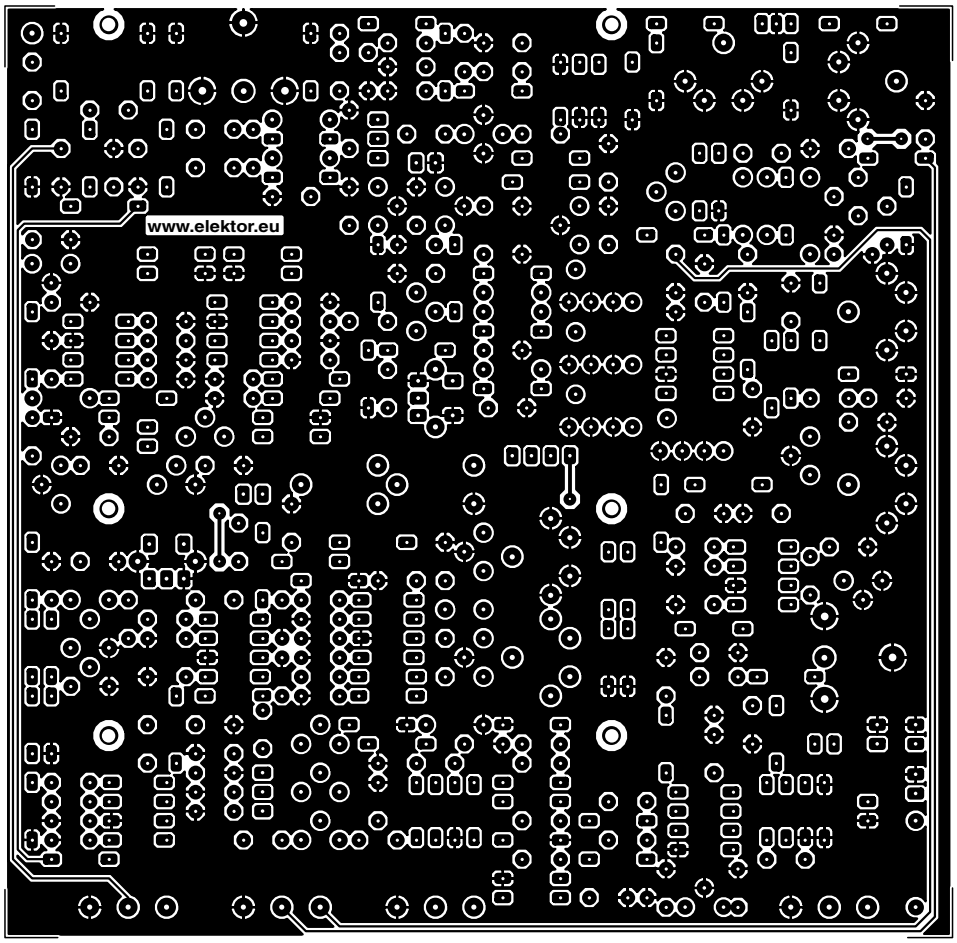

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COMPONENTS LIST

microcontroller and display board (030417-2)
PCB layout free from www.elektor.com

Resistors

R1 = 3kΩ9
R2 = 22kΩ
R3 = 1kΩ
R4 = 4Ω7
R5,R8,R9 = 10kΩ
R6 = 4kΩ7
R7,R10 = 100Ω
R11,R12 = 68Ω

Capacitors

C1,C4,C5,C7,C9-C20,C22,C41 = 100nF 50V ceramic multilayer, lead pitch 5mm
C2,C3 =33pF
C6,C8 = 220µF 16V radial
C21,C23-C29 = 100nF 50V SMD ceramic multilayer, case 1206 or 0805
C30 = 40pF trimmer
C31,C35 = 10pF
C32,C34 = 22pF
C33 = 220pF
C36,C37 = 68pF
C38 = 27pF
C39 = 6pF8
C40 = 10nF

Inductors

L1-L9,L11 = 100µH
L10,L12,L13 = 10µH
L14 = 1µH2
L15,L19 = 330nH
L16,L20 = 100nH
L17 = 820nH
L18 = 1µH

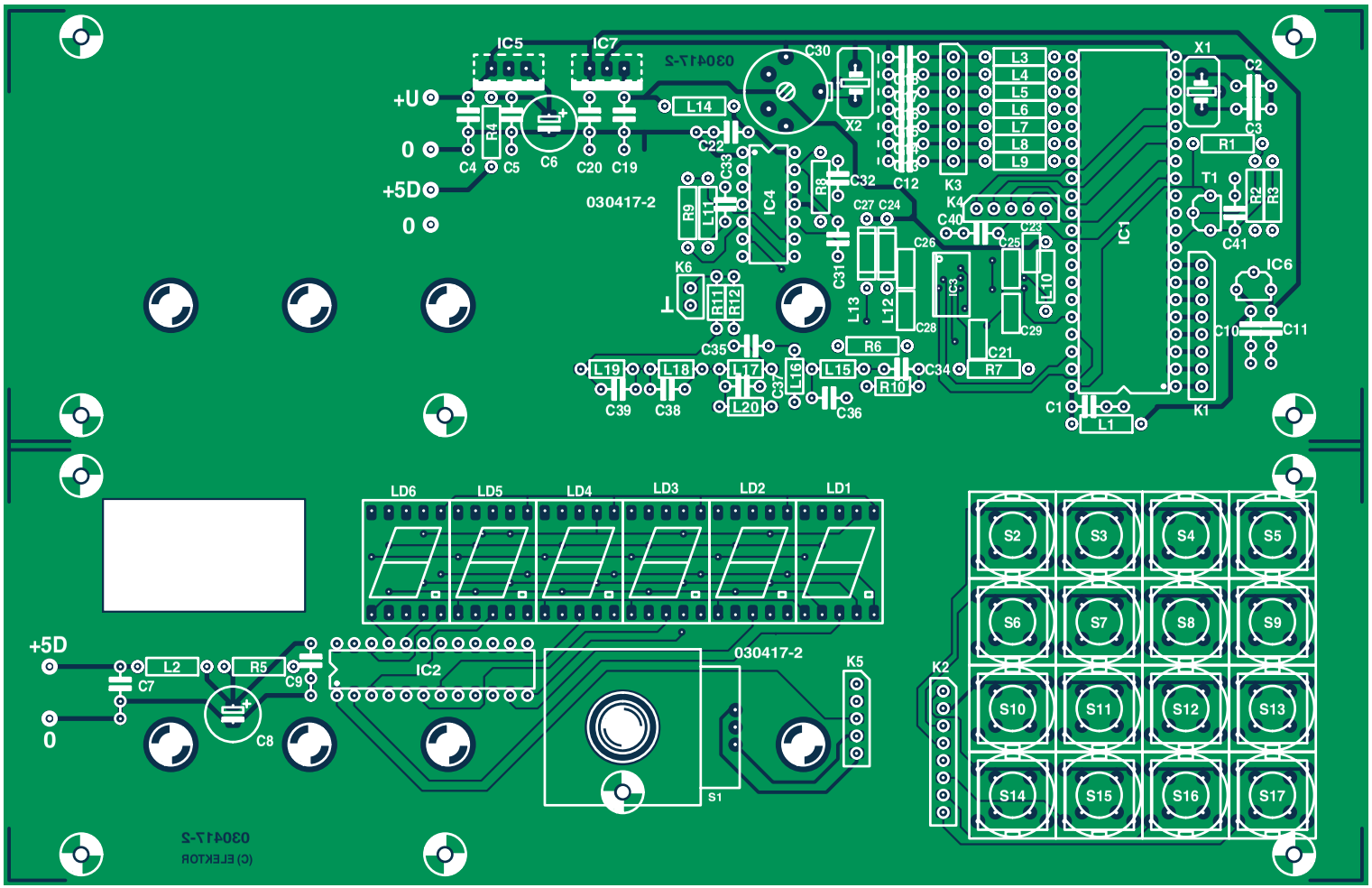
Semiconductors

T1 = BC557B, TO92
IC1 = AT90S8515-8PC, 40-pin PDIP, programmed, order code **030417-41**
IC2 = MAX7219CNG; 24-pin narrow DIP
IC3 = AD9851BRSZ; 28 ld SSOP
IC4 = 74HCU04; 14-pin DIP
IC5,IC7 = 7805; TO220 case
IC6 = 78L05; TO92 case
LD1-LD6 = 7-segment LED display, common cathode, height= 13mm (e.g. SC52-11GWA)

Miscellaneous

S1 = rotary encoder; 24-30 pulses per revolution
S2-S17= pushbutton; 1 make contact, e.g. D6 or equivalent (Conrad Electronics)
X1 = 8MHz quartz crystal, C_L par.= 32pF
X1 = 10MHz quartz crystal, C_L par. = 32 p
K1,K2 = 8-pin header; interconnect using flatcable (e.g. Conrad Electronics # 741256)
K3 = 7-pin header; connect to K3 and K4 on receiver board
K4,K5 = 5-pin header; interconnect via flatcable (e.g., Conrad Electronics # 741230)
K6 = 2-pin header; connect to K5 on receiver board via coax cable
PCB, # 030417-2 from The PCBShop (see www.elektor.com)

Source code and hex file for this project not available due to licencing.


IC5
IC7
030417-2
+U
0
+5D
0
C30
X2
X1
C2
C3
L14
C22
L3
L4
L5
L6
L7
L8
L9
R1
T1
R2
R3
C41
C4
C5
C6
C20
C19
C33
R9
L11
IC4
R8
C32
C12
K3
K4
C40
C23
C25
C26
C27
C24
IC1
K6
R11
R12
C31
L13
L12
C28
C29
L10
C3
IC6
C10
C11
C35
R6
C21
R7
L19
L18
L17
L16
L15
C34
R10
C37
C39
C38
L20
C36
C1
L1
K1
LD6
LD5
LD4
LD3
LD2
LD1
S2
S3
S4
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S7
S8
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S11
S12
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S14
S15
S16
S17
+5D
0
L2
R5
C7
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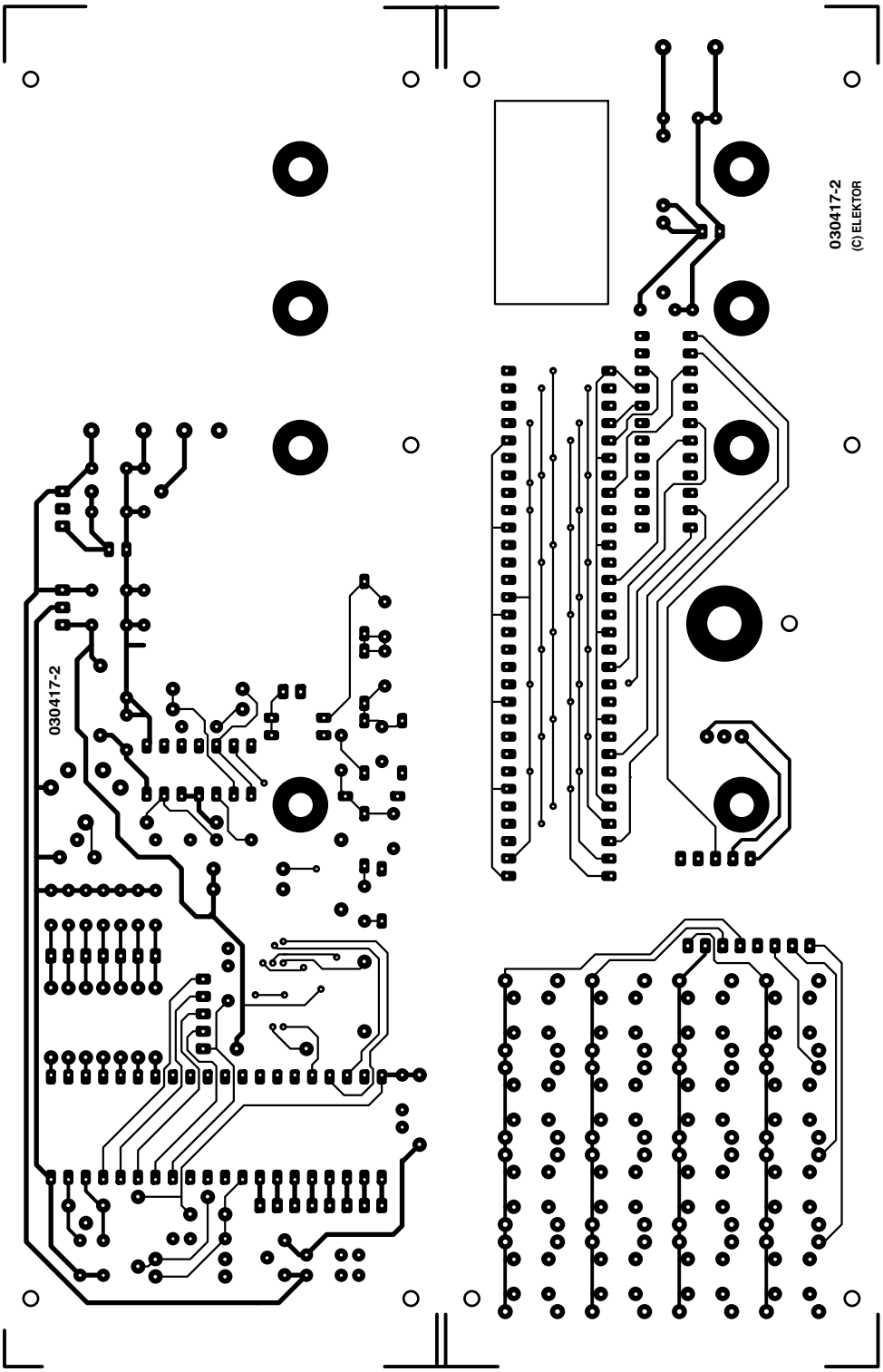
C8
IC2
030417-2
K5
K2
S1
030417-2
(C) ELEKTOR



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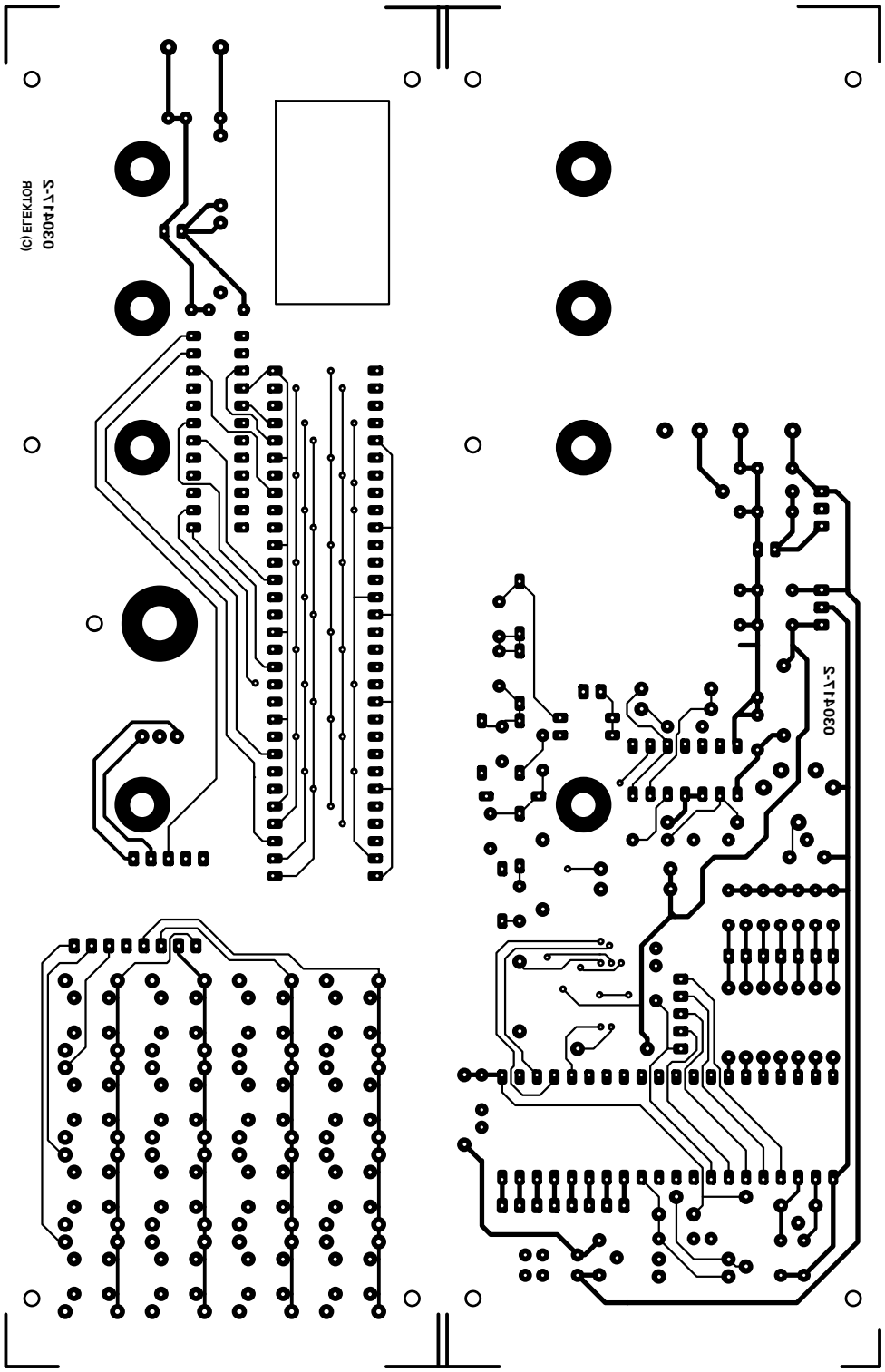

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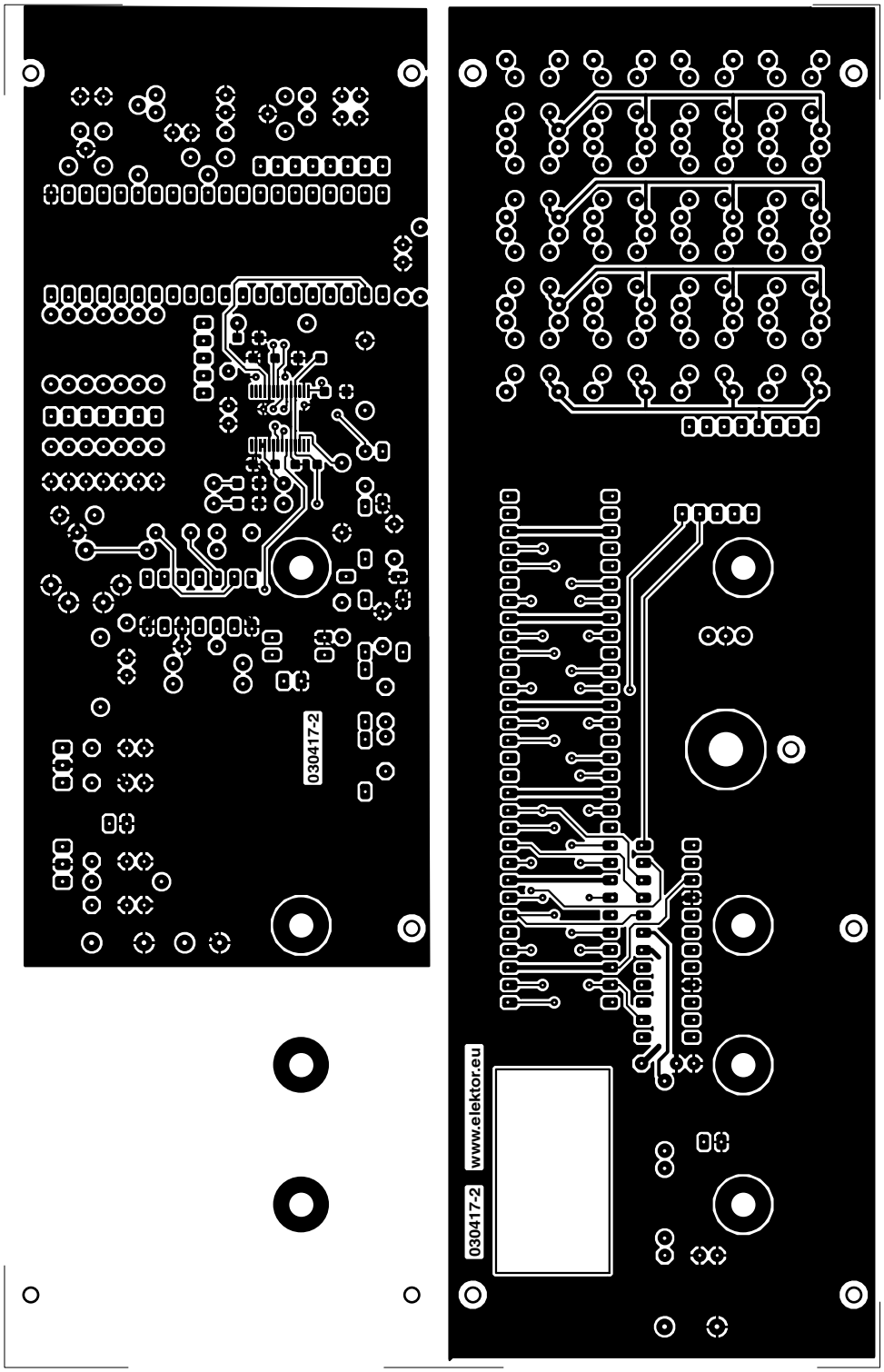

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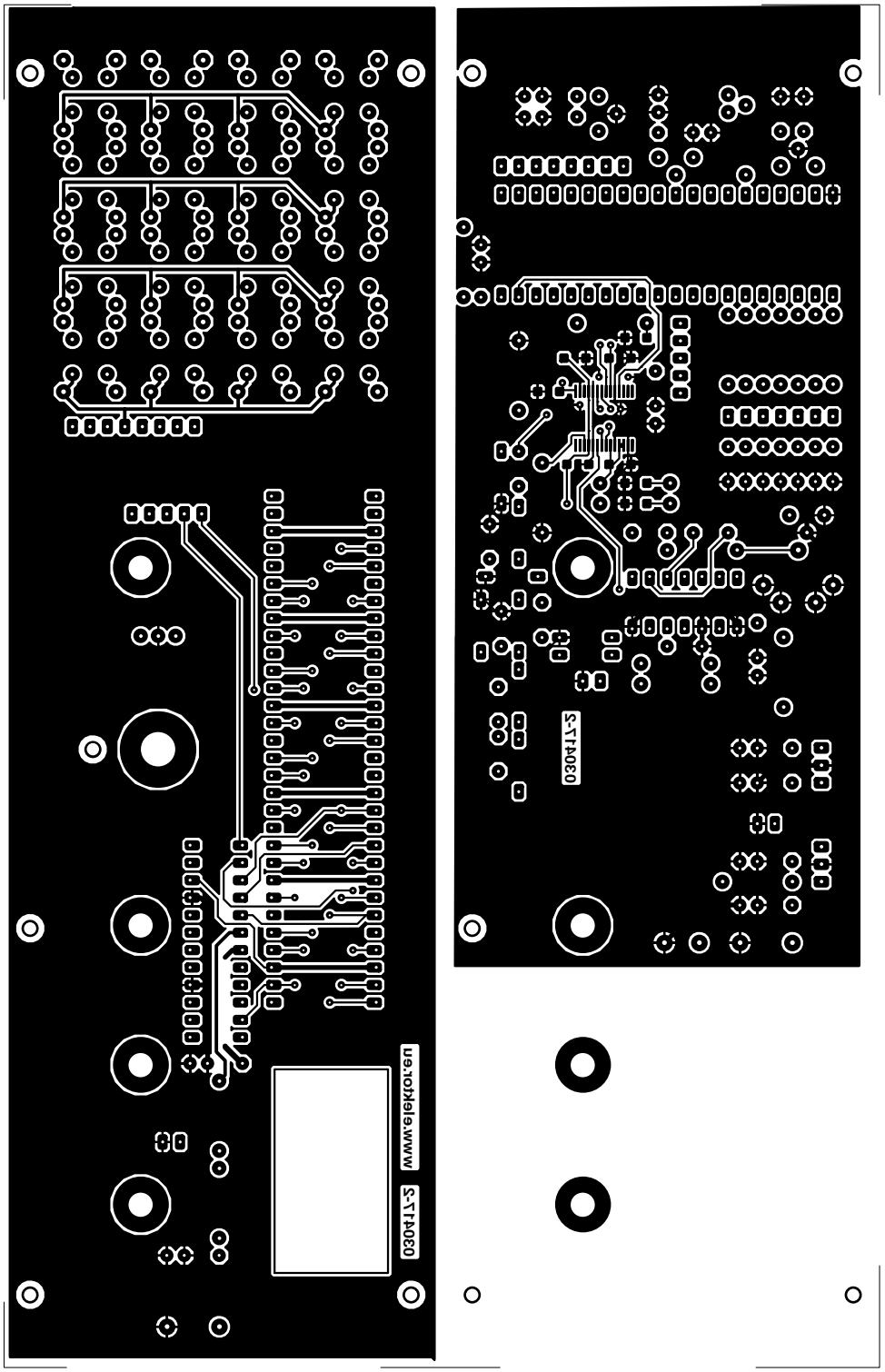

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