

Parts list

Resistors:

$R_1, R_{18}, R_{22}-R_{28}, R_{30} = 10\text{ k}\Omega$
 $R_2-R_5 = 10\text{ k}\Omega, 1\%, \text{ high stability}$
 $R_6, R_{19} = 100\text{ }\Omega$
 $R_7 = 100\text{ k}\Omega, 0.1\%, \text{ high stability}$
 $R_8 = 100\text{ }\Omega, 0.1\%, \text{ high stability}$
 $R_9 = 4.7\text{ k}\Omega$
 $R_{10} = 10\text{ }\Omega$
 $R_{11}-R_{16} = 1\text{ k}\Omega, 1\%, \text{ high stability}$
 $R_{17} = 5.49\text{ k}\Omega$
 $R_{20} = 18\text{ k}\Omega$
 $R_{21} = 12\text{ }\Omega$
 $R_{29} = 22\text{ k}\Omega$
 $R_{31} = 1.5\text{ }\Omega$
 $P_1 = 10\text{ k}\Omega\text{ preset, horizontal mount-}$
 ing

Capacitors:

$C_1 = 56\text{ pF}$
 $C_2 = 65\text{ pF trimmer}$
 $C_3, C_5, C_{18} = 10\text{ }\mu\text{F}, 10\text{ V, radial}$
 $C_4, C_{10}, C_{15}, C_{20}, C_{22}, C_{24}, C_{28}, C_{29},$
 $C_{31}-C_{40}, C_{43}-C_{54} = 100\text{ nF, high}$
 stability
 $C_6, C_7 = 1\text{ }\mu\text{F}^*$
 $C_8, C_9 = 1\text{ nF}^*$
 $C_{11} = 470\text{ nF}^*$
 $C_{12}, C_{13} = 200\text{ nF}^*$
 $C_{14} = 47\text{ nF}^*$
 $C_{16}, C_{17} = 22\text{ pF, ceramic}$
 $C_{19} = 150\text{ pF, ceramic}$
 $C_{21} = 2200\text{ }\mu\text{F}, 16\text{ V, radial}$
 $C_{23}, C_{25} = 1000\text{ }\mu\text{F}, 35\text{ V, radial}$
 $C_{26} = 300\text{ nF}^*$
 $C_{27}, C_{30}, C_{41}, C_{42} = 10\text{ }\mu\text{F}, 16\text{ V,}$
 radial

* = MKT (metallized polyester)

Semiconductors:

$D_1, D_6, D_7 = 1\text{N4148}$
 $D_2, D_3 = \text{BAV45}$
 $D_4, D_5, D_8 = \text{BAT85}$
 $D_9-D_{12} = 1\text{N4001}$
 $D_{13}-D_{16} = 1\text{N4002}$
 $D_{17} = \text{zener, } 5.6\text{ V, } 1.3\text{ W}$
 $D_{18}, D_{19} = \text{zener, } 16\text{ V, } 1.3\text{ W}$
 $T_1 = \text{BC337}$

Integrated circuits:

$\text{IC}_1 = \text{AD1847JP}$
 $\text{IC}_2 = \text{AD847JN}$
 $\text{IC}_3, \text{IC}_4 = \text{OP282GP}$
 $\text{IC}_5 = \text{ADG433BN}$
 $\text{IC}_6 = \text{AD620AN}$
 $\text{IC}_7 = \text{PGA103P (Burr-Brown)}$
 $\text{IC}_8 = 27\text{C512 (976507—see Readers}$
 $\text{services toward the end of this}$
 $\text{issue})}$
 $\text{IC}_9 = \text{ADSP2101 KP80}$
 $\text{IC}_{10} = 22\text{V10 (976506—see Readers}$
 $\text{services toward the end of this}$
 $\text{issue})}$
 $\text{IC}_{11} = \text{ST93C46CB1 (SGS)}$
 $\text{IC}_{12} = 7805$
 $\text{IC}_{13} = 7815$
 $\text{IC}_{14} = 7915$

Miscellaneous:

$L_1 = \text{inductor, } 100\text{ }\mu\text{H}$
 $\text{Re}_1 = \text{relay, Siemens V23042-A2001-}$
 B101
 $\text{S}_1-\text{S}_3 = \text{Push button switch D6-R-RD}$
 $\text{with protective cap D6Q-RD-CAP}$
 (ITT)
 $\text{X}_1 = \text{crystal } 24.576\text{ MHz}$
 $\text{X}_2 = \text{crystal, } 10\text{ MHz}$
 $\text{Tr}_1 = \text{Mains transformer, secondary}$
 $9\text{ V, } 4.5\text{ VA (e.g., Velleman)}$

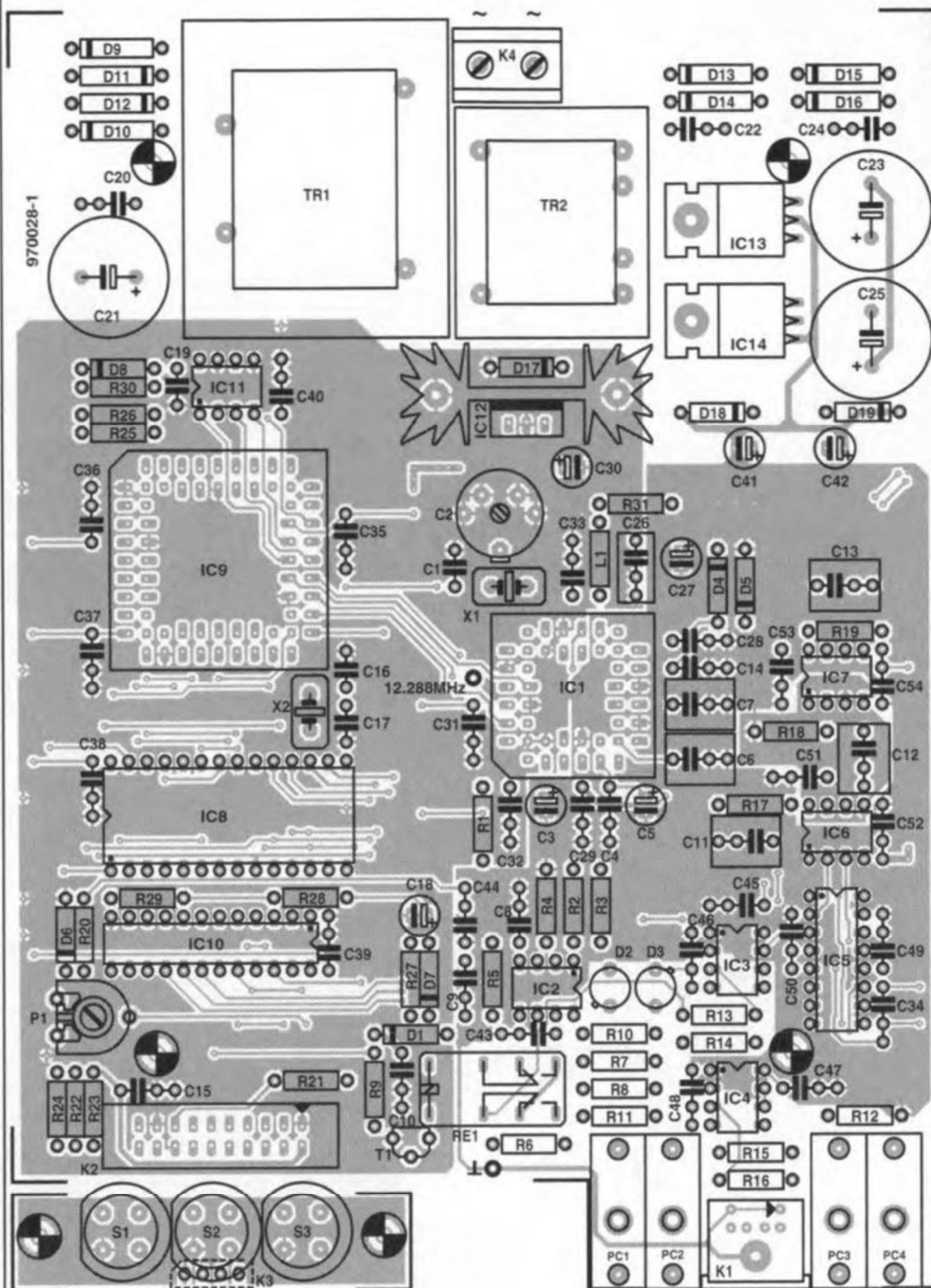


Figure 5a. Component layout of the printed-circuit board for the LCR meter.

1090050M from Maplin)
 $\text{Tr}_2 = \text{Mains transformer, secondary}$
 $2 \times 15\text{ V, } 1.5\text{ VA (e.g., Velleman}$
 $2150018\text{M from Maplin)}$
 $\text{PC}_1, \text{PC}_2 = \text{PCB mounting phono}$
 socket, red
 $\text{PC}_3, \text{PC}_4 = \text{PCB mounting phono}$
 $\text{socket, black or white}$
 $\text{K}_1 = 6\text{-pin mini DIN socket}$
 $\text{K}_2 = 20\text{-way PCB mounting box}$
 header, straight
 $\text{K}_3 = 4\text{-pin single-row IC socket}$
 $\text{K}_4 = 2\text{-way PCB mounting terminal}$
 $\text{block, pitch } 7.5\text{ mm}$
 $\text{Heat sink, } 11\text{ K W}^{-1}, \text{ Fischer}$
 $\text{SK104/38.1 (Dau - phone 01243}$
 553 031)

$\text{LCD, L1642B1J000, } 16 \times 2\text{ characters}$
 (Seiko)
 $\text{Enclosure, UM32009L with 2 off FPK}$
 $30018\text{ (front and rear panel) and 1}$
 $\text{off UM-ASK (feet) (Bopla from}$
 $\text{Phoenix Mecano, phone 01296 398}$
 $855)}$
 $\text{F}_1 = \text{fuse, } 50\text{ mA, slow}$
 $\text{S}_4 = \text{double-pole mains on/off switch}$
 $\text{Mains inlet with integral fuse holder}$
 $20\text{-way flatcable about } 15\text{ cm long}$
 $\text{PCB+GAL+EPROM Order No.}$
 $970028\text{-C or if board not required:}$
 $\text{GAL Order No. 976506 and EPROM}$
 Order No. 976507

970028-1

