

Parts list

Resistors:

R1 = 68 kOhm

R2 = 2.2 kOhm

R3, R9 = 22 kOhm

R4, R22, R23 = 1 kOhm

R5, R6, R10, R13 = 560 Ohm

R7, R8, R42 = 3.3 kOhm, 5 W

R11, R12, R37 = 15 kOhm

R14, R15 = 150 Ohm

R16 = 680 Ohm

R17 = 180 Ohm

R18, R19 = 10 Ohm

R20, R21, R46, R47 = 27 kOhm

R24 = 56 Ohm

R25–R28 = 0.27 Ohm, 5 W

R29 = 2.2 Ohm, 5 W

R30 = 10 Ohm, 5 W

R31 = 10 kOhm

R32, R34 = 100 kOhm

R33 = 47 kOhm

R35 = 1.5 kOhm

R36 = 470 kOhm

R38, R49 = 3.3 kOhm

R39 = sensor Type KTY81-122

R40 = 4.7 kOhm

R41 = 33 kOhm

R43 = 1.5 kOhm, 5 W

R44 = 47 Ohm
R45 = 1.40 kOhm, 1%
R48 = 1 MOhm
R50 = 120 kOhm
P1 = 250 Ohm preset

Capacitors:

C1–C4, C8, C10, C11 = 100 nF
C5 = 2.2 μ F polypropylene, pitch 5 mm
C6 = 1 nF
C7, C18 = 47 μ F, 50 V, bipolar, radial;
C9 = 33 pF, 160 V, polystyrene
C12 = 47 pF, 160 V, polystyrene
C13 = 680 nF
C14 = 470 pF, 160 V, polystyrene
C15, C16 = 150 nF
C17 = 33 nF
C19 = 470 nF
C20 = 47 μ F, 25 V, radial

Semiconductors:

D1, D2, D10 = zener, 15 V, 1.5 W
D3, D6, D12 = 1N4004
D7, D8 = BY254
D9 = 1N4148
D11 = 1N4002
D13, D14 = led
D15, D16 = BAT85
T1 = MJE350
T2 = BD139

T3 = MJE340
T4 = BC546B
T5 = BC556B
T6 = MJE 15030
T7 = MJE 15031
T8, T14 = MJ15003
T9, T15 = MJ15004
T10, T12 = BC337
T13 = BC639

Integrated circuits:

IC1 = NE5534
IC2 = LM393

Miscellaneous:

L1 = see text
Re1 = 16 A, 24 V, 875 Ohm relay (e.g. Siemens V23056-AO105-A101*)
F1, F2 = glass fuse, 6.3 A, slow complete with pcb type holder
Loudspeaker and mains connectors for board mounting (amp - see text)
Mica washers for T1–T3, T6–T9, T14 and T15
Rectangular bracket e.g. SWP40, 20 cm long (Fischer 40x30x5**)
Heat sink <0.4 K/W
pcb Order no. 950092
Mains transformer, 2x42.5 V, 625 VA (see text)
Fuse (power supply) 3.15 A, slow, $I^2t \geq 400$
Bridge rectifier 400 V, 35 A
4 off electrolytic capacitors, 10,000 μF , 100 V
pcb Order No. 924055

