3000 VA Power-Inverter 12 V -> 230 V "modified sinus"

professional edition

+ Vcc (CMOS)
4013: Pin 14
4093: Pin 14

negative voltage!

R24 150 Ohm

C8 100uF

D7 ZPD 5,6

overload protection

stab. 12 Volts, for battery-voltage of at least 9 Volts!

C12 100uF

C10 220uF

C11 0,1uF

7812 IC11

C13 220uF/35 V

D8 1N 4001

D9 1N 4148

D10 1N 4001

D11 1N 4001

D12 1N 4001

C14 220uF

C15 47uF

C16 47uF

T9 2N 7000

T10 BS 250

R25 10 Ohm

R26 10 Ohm

R27 1M

R28 1M

R29 10k

R30 100k

C17 10nF

C18 10nF

IC10 TL081

C19 1nF

C20 100uF

D13 1N 4001

R31 470k

R32 470k

D14 1N 4148

charge pump for internal supply voltages

thermal switch on transistor heat sink

F2 75 degree celsius

R9 1M

C6 220uF

C7 220uF

C26 0,1uF

R10 100k

T3 BCY79

R11 10k

R12 100k

R13 10k

R14 47k

IC9 LO81

C9 0,1uF

R22 2,2 k

R21 100

T4 BCY59

R23 1k

overload

LED1

C

A

B

D

BS 250

T5

R44 22 Ohm

R45 22 Ohm

T6

2N 7000

T13 Drain

R49 100

8 x

T20

R56 100

T21

R57 100

8 x

T28

R64 100

Source

2N 7000

T7

R46 22 Ohm

R47 22 Ohm

T8

BS 250

F1 250 A

U1 12 Volts

cross-section of at least 25 qmm

0,001 R20

C5 10000 uF

Tr1 3000 VA

consumers up to 3000 VA

R33 0,1 Ohm / 17 Watt for trigger level 10 VA

C27 *

6 V

Tr2 230 V 1 VA

230 Volt outlet

U2 230 Volts ~

relay1 12 V

D20 1N 4148

G

manual switch on

R34 150 k

C21 1 nF

D15 1N 4148

D16 1N 4148

R35 470 Ohm

C22 100uF

D17 ZPD 10

C23 220uF

R42 150 k

R43 4,7k / 0,5 Watt

T12 IRFZ24N

D19 ZPD 10

C24 0,1uF

display load detection

F

R37 100k

R39 1M

R41 1k

T11 BCY79

LED2

IC13 uA 741

R36 100k

IC12 uA 741

D18 1N 4148

R38 100k

C25 4,7uF

R40 1k

D6 1N 4148

R1 470k

R3 100k

R2 470k

IC1 TL081

R4 50k

R5 68k

C1 47nF

D1 1N 4148

R6 22 k

R7 10k

IC2 CA3130E

T1 BCY59

R8 2,2 k

R48 1M

D3 1N 4148

D2 1N 4148

R17 3,3M

T2 BCY79

C4 0,1uF

R15 1M

R18 100k

R19 68k

D4 ZPD12

D5 1N 4148

R16 50k

C3 4,7uF

IC3 4093-I

IC4 4093-II

IC5 4093-III

IC6 4093-IV

IC7 4013-II

IC8 4013-I

Oszillator: IC1
Pin 6: oscillator signal

output voltage: R16 (pulse width)

T13...T28: 16x IRF 3205
or adequate
z.B. 8 x BUZ 111S

Signal: automatic switch on

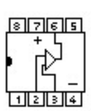
Off: LOW

E

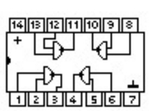
Monoflop: T=5 seconds

replacement for T1,T4: BCY 59, BC 107, BC 237, BC 413
replacement for T2,T3,T11: BCY 79, BC 307, BC 177, BC 415

A...G: connectors for elektronic
between ⏚ and **C** a 100uA-meter may be connected



uA 741



4093

automatic load detection (Option)

if connection on "E" will be disconnected the inverter would work continuously. The load must then be connected to 5 and 6 of the transformer. (all parts of the load-detection will be obsolete)

*: C27: 100 pF ... 100 nF / 250 V ~

if load detection would switch off no more condenser C27 must be connected in parallel to the transformer coil. The exact value must be determined by experiment. In most cases no condenser will be required.

Tr2:
DC resistance of
230 V-coil: approx. 3 kOhm
sensitivity: R34 und R42
e.g. R34, R42: 100 k