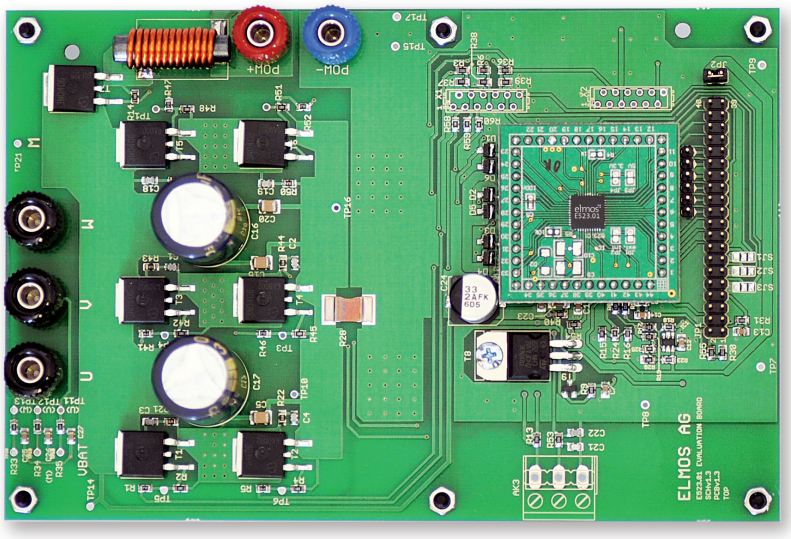


*Figure 1. Demonstration Board*

## 1 What you get

1. Driver board for E523.01
2. Adapter board for E523.01

## 2 What you need in addition

1. Power supply or battery with sufficient performance
2. Three phase AC motor

## 3 Preparation for operation

1. Connect the 3 phase Motor to the jacks „U“, „V“ and „W“
2. Connect the power supply or battery to „POW“+ and „POW-“
3. Be sure that your battery ownes a short circuit fuse, the load loss could be dangerous high!
4. Use a sufficient wire gauge to supply the PCB!
   Transistors and shunt could become hot during operation. Meet the safety instructions!

The motor commutation part of the software is optimized for the recommended motor, other loads should be adapted.

# 4 Board and schematic

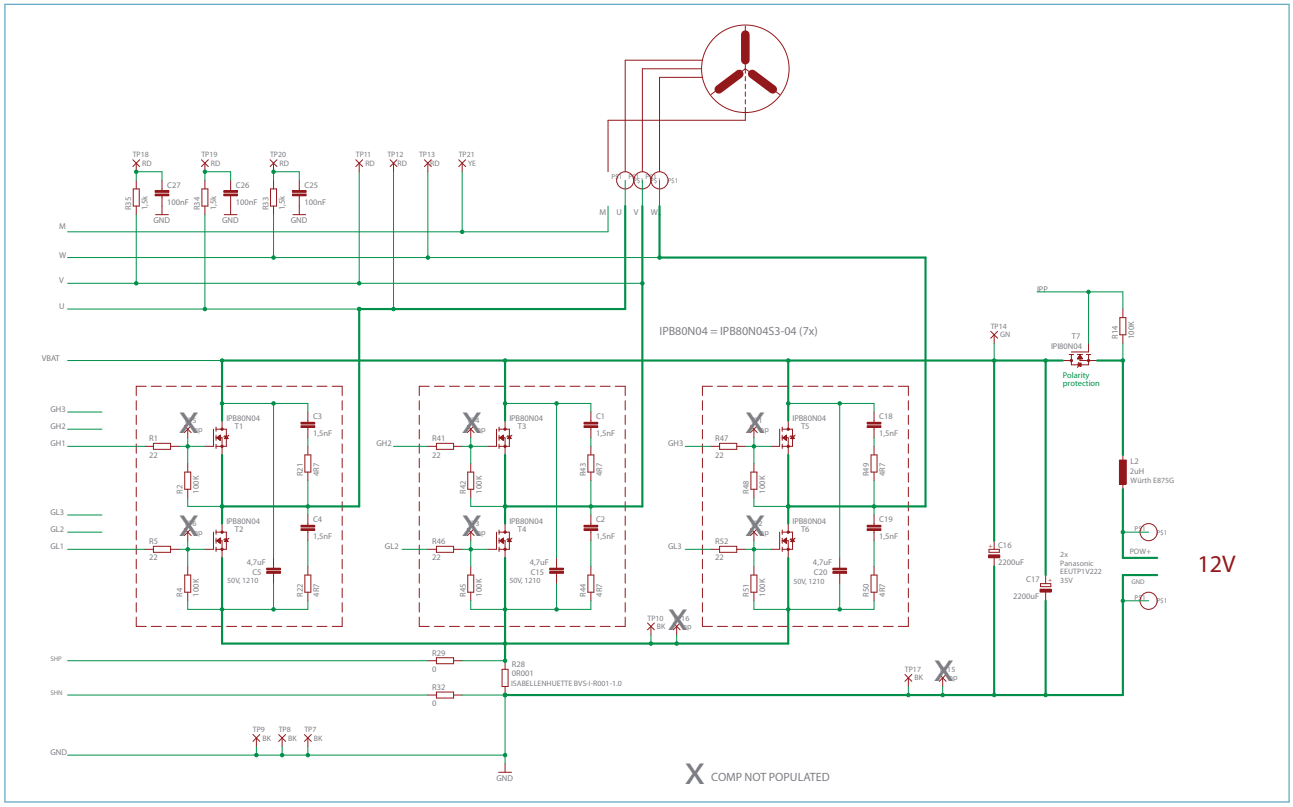


*Figure 2. Demoboard schematic power*

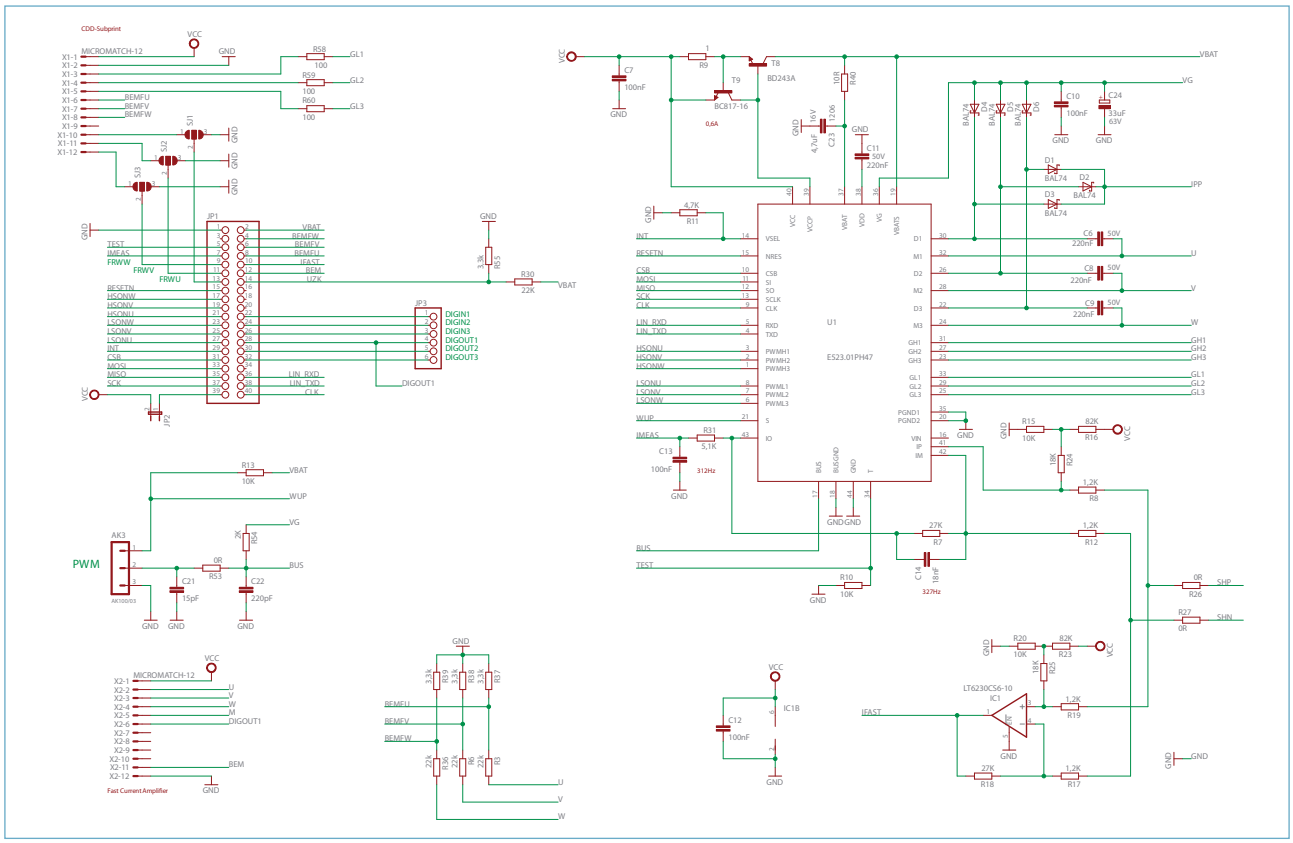


*Figure 3. Demoboard schematic small signal*

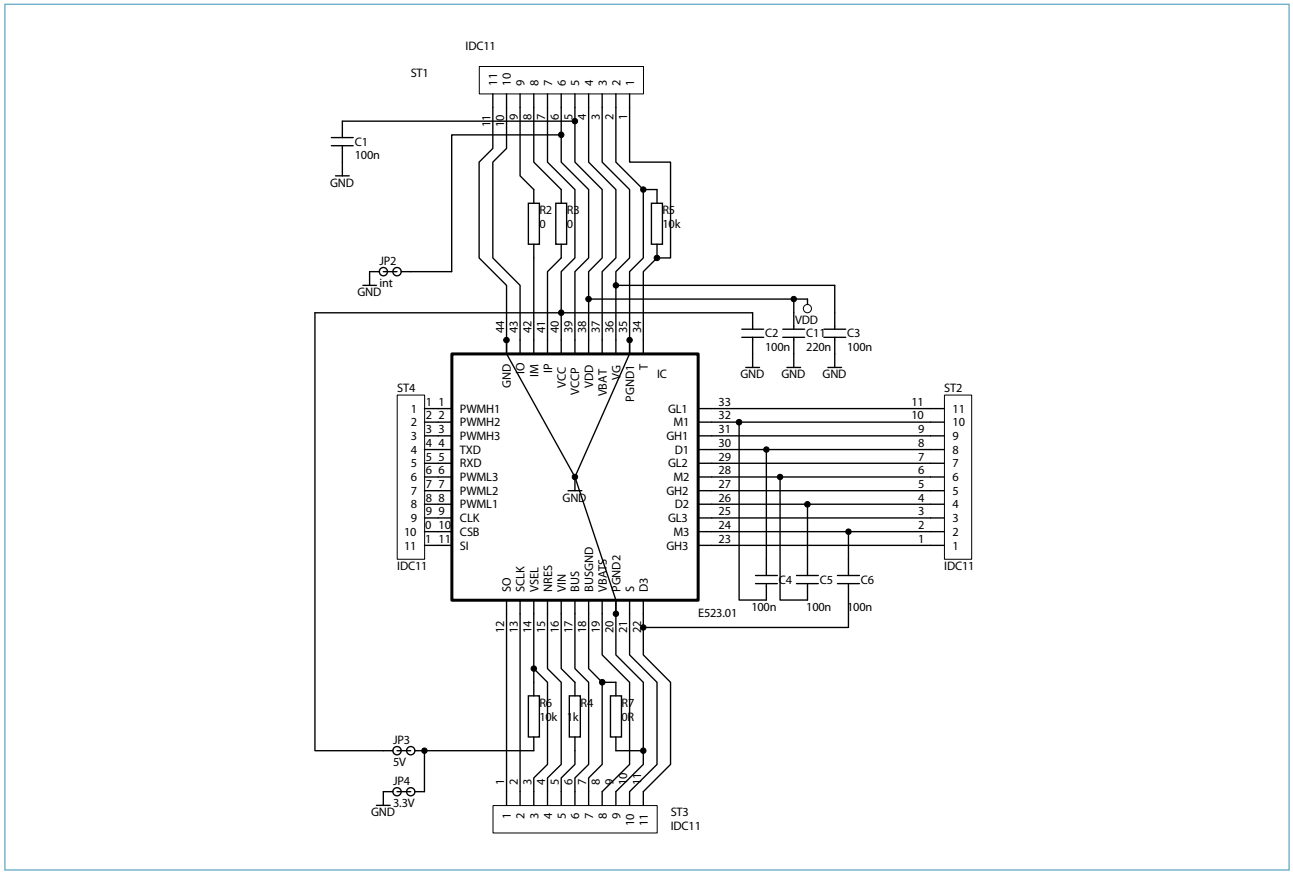


*Figure 4. Adapter board E523.01*

# 5 Bill of Material (BOM)

## 5.1 Demoboard

| Pos.-No. | Unit / Description | Order-No. | Supplier | Remark |
|---|---|---|---|---|
| AK3 | AK100/03 | AKZ130/3-5.08-BL | PTR | |
| C1, C2, C3, C4 | 1,5nF | 399-1150-1-ND | Digi-key | 0805, X7R, 50V |
| C6,C8, C9, C11 | 220nF | 445-1350-1-ND | Digi-key | 0805, X7R, 50V |
| C7 | 100nF | CVNF100K12X | Schukat | 1210, X7R, 50V |
| C5, C10, C12, C13, C25, C26, C27 | 100nF | 399-1170-1-ND | Digi-key | 0805, X7R, 50V |
| C14 | 18nF | 399-1162-1-ND | Digi-key | 0805, X7R, 50V |
| C15, C20, C23 | 4.7µF | 399-5612-2-ND | Digi-key | 1210, X7R, 50V |
| C16, C17 | 2200µF | 46D5920 | Bürklin | 2200µF 35V, 1.5-18 |
| C18, C19 | 1.5nF | 399-1150-1-ND | Digi-key | 0805, X7R, 50V |
| C21 | 15pF | 399-1111-1-ND | Digi-key | 805, NPO, 50V |
| C22 | 220pF | 311-1123-1-ND | Digi-key | 0805, X7R, 50V |
| C24 | 33µF | | | 35V, 140CLH-1010 |
| D1, D2, D3, D4, D5, D6 | BAL74 | 568-3424-1-ND | Digi-key | |
| IC1 | LT6230CS6-10 | LT6230CS6-10#TRMPBFCT-ND | Digi-key | TSOT23-6, 215MHz, Rail-to-Rail Output, 1.1nV/Hz, 3.5mA Op Amp |
| R1, R5, R41, R46, R47, R52 | 22R | P22.0KHCT-ND | Digi-key | 0805, 1/10W |
| R2, R4, R14, R42, R45, R48, R51 | 100K | RMCF1/10100K1%RCT-ND | Digi-key | 0805, 1/10W |
| R3, R6, R30, R36 | 22k | P22.0KHCT-ND | Digi-key | 0805, 1/10W |
| R7, R18 | 27K | P27.0KCCT-ND | Digi-key | 0805, 1/10W |
| R8, R12, R17, R19 | 1.2K | P1.50KHCT-ND | Digi-key | 0805, 1/10W |

| Pos.-No. | Unit / Description | Order-No. | Supplier | Remark |
|---|---|---|---|---|
| R9 | 1R | 541-1.00CCT-ND | Digi-key | 0805, 1/10W |
| R10, R13, R15, R20 | 10K | RHM10.0KCRCT-ND | Digi-key | 0805, 1/10W |
| R11 | 4.7K | RMCF1/104.7K1%RCT-ND | Digi-key | 0805, 1/10W |
| R16, R23 | 82K | P82.0KCCT-ND | Digi-key | 0805, 1/10W |
| R21, R22, R43, R44, R49, R50 | 4R7 | RMCF1/104.7K1%RCT-ND | Digi-key | 0805, 1/10W |
| R24, R25 | 18K | P18.0KCCT-ND | Digi-key | 0805, 1/10W |
| R26, R27, R29, R32, R53 | 0R | RMCF1/100RCT-ND | Digi-key | 0805, 1/10W |
| R31 | 5.1K | P5.10KCCT-ND | Digi-key | 0805, 1/10W |
| R33, R34, R35 | 1,5k | P1.50KCCT-ND | Digi-key | 0805, 1/10W |
| R37, R38, R39 | 3.3k | P3.3KHCT-ND | Digi-key | 0805, 1/10W |
| R40 | 10R | P10.0CCT-ND | Digi-key | 0805, 1/10W |
| R54 | 2K | 933-2766 | Farnell | 0805, 1/10W |
| R55 | 3.3k | P3.3KHCT-ND | Digi-key | 0805, 1/10W |
| R58, R59, R60 | 100R | P100ADKR-ND | Digi-key | 0805, 1/10W |
| R28 | 0R001 | BVS-I-R001-1 | Isabellen-hütte | 3920, 2W |
| T1, T2, T3, T4, T5, T6, T7 | IPB80N04 | IPI80N04S4STD | Vishay | D2-Pack, 40V/80A |
| T8 | BD243A | | Div. | TO220 |
| T9 | BC817-16 | | Div. | SOT23 |
| U1 | E523.01PH47 | | ELMOS | |
| U,V,W | Plug Black | | Div. | |
| POW+ | Plug Red | | Div. | |
| GND | Plug Blue | | Div. | |
| X1, X2 | MICROMATCH-12 | MM FL 12S | Reichelt | MicroMaTch 12 8-215464-2 / 1-215464-2 |
| L2 | 2µH | | Würth | L-EUE875G |
| JP1 | PIN HEADER 2x20 | | Div. | PINHD-2X20_2.54 |
| JP2 | JP1E | | JP1 | JUMPER |
| JP3 | PIN HEADER 1x6 | | 1X06 | PINHD-1X6 |

## 5.2 Piggyback E523.01

| Pos.-No. | Unit / Description | Order-No. | Supplier | Remark |
|---|---|---|---|---|
| C1-C6 | 100n | 399-1170-1-ND | Digi-Key | 0805 |
| C11 | 220n | 445-1350-1-ND | Digi-Key | 0805 |
| R2 ,R3, R7 | 0R | RMCF1/160RCT-ND | Digi-Key | 0603 |
| R4 | 1k | P1.00KHCT-ND | Digi-Key | 0603 |
| R5,R6 | 10k | 1469748 | Farnell | 0603 |
| ST1-ST4 | 11-pin | | Div. | SIL |
| IC | E523.01 | E523.01 | Elmos | |

## Usage Restrictions

Elmos Semiconductor AG provide the E523.01 Demonstration Board simply and solely for IC evaluation purposes in laboratory. The Kit or any part of the Kit must not be used for other purposes or within non laboratory environments. Especially the use or the integration in production systems, appliances or other installations is prohibited.

The pcb´s are delivered to customer are for the temporary purpose of testing, evaluation and development of the Elmos IC´s only. Elmos will not assume any liability for additional applications of the pcb.

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