

Bill of Materials for the LV8961HUWGEVB Evaluation Board



| Designator | Quantity | Description | Value | Tolerance | Footprint | Manufacturer | Manufacturer Part Number | Substitution Allowed | Lead Free |
|----------------|----------|------------------------------|------------|-----------|---------------------------|------------------|--------------------------|----------------------|-----------|
| U1 | 1 | Sensor-less 3-phase BLDC | | | SQFP48K | ON Semiconductor | LV8961HUWR2G | | Yes |
| U2 | 1 | Dual NPN Digital Transistors | 10k | | SOT-363 | ON Semiconductor | MUN5211DW1T1G | | Yes |
| T1-7 | 7 | N-ch power MOSFETs | | | DFN5 (SO 8FL) | ON Semiconductor | NVMFS5C430NT1G | | Yes |
| T8 | 1 | NPN Transistor | | | SOT-23 | ON Semiconductor | BC846ALT1G | | Yes |
| D1 | 1 | Schottky diode | 5A | | SMC | ON Semiconductor | MBRS540T3G | | Yes |
| D2 D4 | 2 | Diode | | | SOD-123 | ON Semiconductor | SMMSD914T1G | | Yes |
| D3 | 1 | ZENER-DIODE | 18V | | SOT-23 | ON Semiconductor | BZX84B18LT1G | | Yes |
| D5-10 | 6 | Diode | | | SOD-323 | ON Semiconductor | MMDL6050T1G | | Yes |
| J1 | 1 | Motor winding connector | | | Pitch 6.35mm | ON-SHORE | OSTT7030150 | | Yes |
| J2 | 1 | Power supply connector | | | Pitch 6.35mm | ON-SHORE | OSTT7020150 | | Yes |
| J3 | 1 | AC-DC adapter connector | | | | Singatron | 2DC-0415D200 | | Yes |
| J4 | 1 | CTL connector | | | Pitch 2.54mm (10pinx2) | HIROSE | HIF3F-20PA-2.54DS(71) | | Yes |
| SW1 | 1 | Switch for Enable | | | | WURTH | 45031014042 | | Yes |
| SW2 | 1 | Switch for WAKE | | | | WURTH | 45031014042 | | Yes |
| JP1-2 | 2 | Jumper SW2 | | | Pitch 2.54mm | Useconn | PH-1x40SG | | Yes |
| C1 | 1 | ALUMI ELECTROLYTIC CAP. | 1000u, 50V | ±20% | Pitch 7.5mm | Rubycon | 50RX302200M18X40 | | Yes |
| C2 C21 | 2 | Capacitor | 0.1u, 50V | ±10% | 1608 BIG | MURATA | | | Yes |
| C3 | 1 | Capacitor | 0.1u, 100V | ±10% | 1608 BIG | MURATA | | | Yes |
| C4-10 C23 | 8 | Capacitor | 1000p, 50V | ±5% | 1608 BIG | MURATA | | | Yes |
| C11 C24 C34 | 3 | Capacitor | 0.01u, 50V | ±10% | 1608 BIG | MURATA | | | Yes |
| C12 | 1 | ALUMI ELECTROLYTIC CAP. | OPEN | ±20% | Pitch 6.8mm | Rubycon | 50TRV1000M16X21.5 | | Yes |
| C13 C25-33 | 10 | Capacitor | OPEN | ±10% | 1608 BIG | MURATA | | | Yes |
| C14-16 | 3 | Capacitor | 1u, 50V | ±10% | 2012 BIG | MURATA | | | Yes |
| C17 C19-20 C22 | 4 | Capacitor | 4.7u, 50V | ±10% | 3216 BIG | MURATA | | | Yes |
| C18 | 1 | Capacitor | OPEN | ±10% | 3216 BIG | MURATA | | | Yes |
| R1-6 R13 R35 | 8 | Resistor | 100, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JT101J | | Yes |
| R7-12 | 6 | Resistor | 100k, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JT104J | | Yes |
| R14-16 | 3 | Current sense resistors | 10m, 1W | ±1% | 6432 | SUSUMU | KRL3264-C-R010-F-T1 | | Yes |
| R17 | 1 | Resistor | 1M, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JT105J | | Yes |
| R18 | 1 | Resistor | 47k, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JT473J | | Yes |
| R19 | 1 | Resistor | 4.7k, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JT472J | | Yes |
| R40-48 | 9 | Resistor | OPEN | ±5% | 1608 BIG | KOA | RK73B1JTxxxJ | | Yes |

| | | | | | | | | |
|-----------------------|---|----------------|------------|-----|----------|--------|-----------------|-----|
| R21 | 1 | Resistor | 22k, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JT223J | Yes |
| R20 R22 R29 R37-39 | 6 | Resistor | 0, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JT000J | Yes |
| R23-26 | 4 | Resistor | 5.1k, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JT512J | Yes |
| R27 | 1 | Resistor | 10k, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JT103J | Yes |
| R28 R36 | 2 | Resistor | 1k, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JT102J | Yes |
| R30-34 | 5 | Resistor | 1k, 0.5W | ±5% | 3216 BIG | Rohm | ESR18EZPJ102 | Yes |
| RO1 | 1 | Solder JP | 4030 | | 4030 | | | Yes |
| TH1 | 1 | NTC thermistor | | ±5% | 1608 BIG | MURATA | NCP18XH103F03RB | Yes |
| PIN VM_PGND | 2 | PIN | | | 0.8φ | MAC8 | ST-1-3 | Yes |
| U,V,W,DIAG.FG | 5 | Pin | | | | MAC8 | LC-2-G | Yes |

Bill of Materials for the SPI Communication Box Board



| Designator | Quantity | Description | Value | Tolerance | Footprint | Manufacturer | Manufacturer Part Number | Substitution Allowed | Lead Free |
|------------------------|----------|---|------------|-----------|---------------------------|------------------|--------------------------|----------------------|-----------|
| U1 | 1 | Microcontroller | | | Pitch 2.54mm (17pinx2) | Arduino | Arduino Micro | | Yes |
| U2-3 | 2 | Level Shifter | | | TSSOP-16 | ON Semiconductor | MC14504BDTR2G | | Yes |
| U4-5 | 2 | Dual NPN Digital Transistors | 10k | | SOT-363 | ON Semiconductor | MUN5211DW1T1G | | Yes |
| U6 | 1 | Current shunt monitor | | | MSOP8 | ANALOG DEVICES | AD8219BRMZ | | Yes |
| U7 | 1 | Non-Inverting Buffer | | | SOT-23 | ON Semiconductor | MC74VHC1G07 | | Yes |
| T1 | 1 | Pch MOSFET | 5.2A | | SOT-223 | ON Semiconductor | NTF5P03T3G | | Yes |
| T2 | 1 | NPN Transistor | | | SOT-23 | ON Semiconductor | BC846ALT1G | | Yes |
| T3 | 1 | NPN Transistor | 100V | | PCP | ON Semiconductor | 2SC3646T | | Yes |
| D1 | 1 | Schottky diode | 3A | | SMA | ON Semiconductor | MBRA340T3G | | Yes |
| D2 | 1 | ZENER-DIODE | 5.1V | | SOD-323 | ON Semiconductor | MM3Z5V1T1G | | Yes |
| J1 | 1 | AC-DC adapter connector | | | | Singatron | 2DC-0415D200 | | Yes |
| J2 | 1 | CTL connector | | | Pitch 2.54mm (10pinx2) | HIROSE | HIF3F-20PA-2.54DS(71) | | Yes |
| J3 | 1 | Power connector | | | Pitch 2.54mm | HIROSE | DF1-2P-2.5DS(05) | | Yes |
| J4 | 1 | Motor connector | | | Pitch 2.54mm | TE Connectivity | 282834-4 | | Yes |
| JP1-2 | 2 | Jumper 3SW | | | Pitch 2.54mm | Useconn | PH-1x40SG | | Yes |
| C1,C6-9 | 5 | Capacitor | 0.1u,50V | ±10% | 1608 BIG | MURATA | GRM188R71H104K | | Yes |
| C2-5 | 4 | Capacitor | Open | ±10% | 1608 BIG | MURATA | GRM188R71H104K | | Yes |
| R1 | 1 | Resistor | short | ±1% | 3216 BIG | Rohm | PMR18EZPFU10L0 | | Yes |
| R2-3 | 2 | Resistor | 220, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JTxxxJ | | Yes |
| R11 R13 | 2 | Resistor | 1k, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JTxxxJ | | Yes |
| R4,R5 | 2 | Resistor | xx, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JTxxxJ | | Yes |
| R6 | 1 | Resistor | 100k, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JTxxxJ | | Yes |
| R7-10 R15-16 R19-22 | 10 | Resistor | 10k, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JTxxxJ | | Yes |
| R12 | 1 | Resistor | 3.9k, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JTxxxJ | | Yes |
| R14 | 1 | Resistor | 5.1k, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JTxxxJ | | Yes |
| R17-18 | 2 | Resistor | 33, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JTxxxJ | | Yes |
| R23 | 1 | Resistor | 1.2k, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JTxxxJ | | Yes |
| RO1 | 1 | Solder JP | 4030 | | 4030 | | | | Yes |
| REG VM | 2 | LED | GREEN | | 1608 BIG | STANLEY | YBG1111C-TR | | Yes |
| R24 | 1 | Resistor | 33, 0.1W | ±5% | 1608 BIG | KOA | RK73B1JTxxxJ | | Yes |
| PGND、SGND1 | 2 | Pin | | | | MAC8 | LC-2-G BLACK | | Yes |
| | | Gray part items are not mounted. | | | | | | | |