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| --- | --- | --- | --- | --- |
| Components | Part number | JLCPCP part # | Price | Notes |
| Battery | 1S1P LiPo Battery (e.g., 800 mAh) |  |  | Nominal 3.7V, fully charged 4.2V; connects via JST-PH as specified. |
| Charger/power path management | BQ24075RGTR  (MCP73837) | C15464 | 1.04 | Accepts 9V input; supports programmable charging currents (dual modes ~200 mA and ~600 mA) via a resistor network or jumper configuration. |
| Charging resistor network |  |  |  | Sets the charging current according to datasheet calculations; jumpers allow switching between the two current modes. |
| Decoupling capacitor |  |  |  | Provides stability and filtering for proper operation of the charging circuit. |
| Motor driver IC (main motor) | DRV8833PWPR  (TB6612FNG) | C50506 | 0.6705 | Drives the two main brushed DC motors (≈200 mA each); ensure proper decoupling per datasheet. |
| Motor driver IC (auxiliary) | DRV8833PWPR  (TB6612FNG) | C50506 | 0.6705 | Drives two auxiliary motors (≈500 mA each); verify continuous current ratings and thermal performance. |
| Motor connections | Terminal Blocks/Headers |  |  | Ensure proper wiring and polarity for bidirectional control. |
| Battery Monitor | INA219AIDCNR | C87469 | 0.6 | Monitors battery voltage and current; configure address pins (A0/A1) correctly to avoid conflicts. |
| USB C receptacle | PCB Mount USB-C Connector | C5187470 | 0.09 | Must follow USB‑C mechanical and electrical specifications for proper negotiation and power delivery. |
| USB PD controller | STUSB4500QTR  CH224K | C2678061  C970725 | 1.78  0.5 | Manages USB-C power delivery negotiation to obtain a 9V output from the host. |
| DC-DC converter for 9v | TPS63070RNMR | C109322 | 0.45 | Provides a stable 9V supply to the charger and system; choose a converter that meets current and efficiency requirements. |
| High side load switches | TPS22918TDBVRQ1 | C2653760 | 0.36 (0.18 \*2) | Each rated for 1A; used to switch external loads on the 5V rail as required by the design. |
| 3.3V regulator | TPS62200DBVR | C9048 | 1.06 | Supplies a regulated 3.3V output up to 300 mA ±5% accuracy for logic and sensitive circuits. |
| 5V regulator | MC33063ADR | C127837 | 0.2 | Supplies a regulated 5V output up to 1.5A ±5% accuracy for motors and peripherals. |
| Motherboard interface header | 2×16 or 2×18 Pin Header |  |  | Ensure mechanical and electrical compatibility with the micro‑mouse motherboard; proper alignment and pinout are crucial. |
| Additional resistors/ capacitors | Various resistors and capacitors |  |  | Select values based on detailed calculations and simulation; include pull-ups for I²C and any additional filtering as required. |
| Sense resistors | 0.5 ohm? | C346764 | 0.0383 | For current limiting the motor driver IC |
| External load switching | TPS2553DBVR | C55266 | 0.26 |  |
| switch | HX SS12D10G6 | C19189121 | 0.11 |  |

Motor Drivers

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| --- | --- | --- |
| Component | Values and quantity | LCSC |
| sense resistors | 1x 1 ohm  1x 0.4 ohm | C2075154  C912792 |
| Polarised capacitors | 2x 10uF | C7171 |
| capacitors | 2x 10nF  2x 2.2uF | C1524  C1607 |

USB C

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| --- | --- | --- |
| Component | Values and quantity | LCSC |
| resistors | 1x 1M ohm  1x 6.8k ohm | C22935  C23212 |
| D Schotty small diodes | 2x | C2481 |
| capacitors | 1x 1uF  1x 4.7uF  1x 0.47u | C1592  C1705  C117834 |

Voltage regulation

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| --- | --- | --- |
| Component | Values and quantity | LCSC |
| resistors | 12K ohm  6k ohm  180 ohm  30k ohm  10k ohm | C22790  C2828725  C22828  C2907025  C25804 |
| Sense resistor | 0.2ohm | C459674 |
| D Schotty small diodes | 1x 1N5819 | C2481 (not exact but same ratings) |
| Capacitors  polarised | 1x 28.5pF  1x 159pF  1x 4.7uF  1x 10uF  1x 100uF  1x 1.5nF  1x 330uF | C1557 (27) C1570 (30)  C1528 (160)  C1705  C1713  C7196  C1595  C58277 |
| Inductor | 10uH  100uH | C1046  C2931837 |

External load switching

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| --- | --- | --- |
| Component | Values and quantity | LCSC |
| resistors | 2x 10k ohm  2x 25k ohm | C25804  C2828637 |
| Polarised capacitors | 2x 150uF | C38513 |
| capacitors | 2x 10uF | C1713 |

Battery charger

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| --- | --- | --- |
| Component | Values and quantity | LCSC |
| resistors | 1x 1.18k ohm  1x 1.5k ohm  1x 2.9k ohm  2x 1.13k | C17374  C2907083  C4211 (3k)  C5204018 |
| LED | 2x | C2286 |
| capacitors | 1x 1uF  1x 4.7u | C1592  C1705 |
| Thermistor | 10k | C43113 |
| 2N7002 | x1 | C8545 |

Battery Monitor

|  |  |  |
| --- | --- | --- |
| Component | Values and quantity | LCSC |
| Shunt resistor  resistor | 1x 0.1 ohm  2x 1.8k ohm | C7467250  C4177 |