



Layer 2

5 Bill of Materials

Table 1. HPA250A Bill of Materials

| Count | RefDes | Value | Description | Size | Part Number | MFR |
|-------|--------|-----------------|--|-------------------------------|------------------|---------------|
| 2 | C1, C2 | 0.1 μ F | Capacitor, Ceramic, X7R, 0.1 μ F | 0603 | {std} | |
| 1 | C10 | 0.15 μ F | Capacitor, Ceramic, X7R, 0.15 μ F, 16V | 0603 | {std} | |
| 2 | C3, C5 | 10 μ F | Capacitor, Aluminum, 10 μ F, 25V, 20% | 0.177 \times 0.177 | EEV-FK1E100R | Panasonic |
| 2 | C4, C9 | 1000pF | Capacitor, Ceramic, 1000pF, 50V, X7R | 0805 | {std} | {std} |
| 1 | C6 | 330 μ F | Capacitor, Aluminum, SM, 330 μ F, 25V, 0.16 Ω (FK series) | 8 \times 10 mm | EEV-FK1E331P | Panasonic |
| 1 | C7 | 4.7pF | Capacitor, Ceramic, 4.7pF, 50V, NPO | 0603 | {std} | {std} |
| 1 | C8 | 0.047 μ F | Capacitor, Ceramic, X7R, 0.047 μ F, 25V | 0603 | {std} | |
| 1 | D1 | Red | Diode, LED, Red, 1.7V, 40mcd, SM | 1210 | SML-LX2832SRC-TR | Lumex |
| 2 | D2, D4 | B230-13 30V, 2A | Diode, Schottky, 2A, 30V | SMB | B230-13 | Diodes, Inc. |
| 2 | D3, D5 | BAT54 | Diode, Schottky, 200mA, 30V | SOT23 | BAT54 | Vishay-Liteon |
| 1 | D6 | 5.6V | Diode, Zener, 5.6V, 350mW | SOT23 | BZX84C5V6T | Diodes, Inc. |
| 1 | D7 | MMSZ5234BT1 | Diode, Zener, 6.2V, 500mW | SOD-123 | MMSZ5234BT1 | On Semi |
| 1 | J1 | | Terminal block, 2pin, 6A, 3,5 mm | 0.27 \times 0.25" | ED1514 | OST |
| 1 | J2 | | Terminal block, 4pin, 6A, 3,5 mm | 0.55 \times 0.25" | ED1516 | OST |
| 1 | J3 | | Header, 2x10pin, 100mil spacing (36-pin strip) | 0.100 \times 10 \times 2" | PTC36DAAN | Sullins |
| 1 | J4 | | Header, 3pin, 100mil spacing, (36-pin strip) | 0.100 \times 3" | PTC36DAAN | Sullins |

Table 1. HPA250A Bill of Materials (continued)

| Count | RefDes | Value | Description | Size | Part Number | MFR |
|-------|-----------------|----------|---|------------------|-------------|---------------|
| 1 | J5 | | Header 2x6 pin, 100mil spacing (36-pin strip) | 0.100 × 2 × 6" | PTC36DAAN | Sullins |
| 1 | J6 | | Header 2x4 pin, 100mil spacing (36-pin strip) | 0.20 × 0.40 | PTC36DAAN | Sullins |
| 1 | L1 | 100μH | Inductor, SMT, 100μH, 1.3A, 160mΩ | 0.472 sq | CDRH125-101 | Sumida |
| 1 | Q1 | SI3455DV | MOSFET, Pch, -30V, 2.3A, 190mΩ | Micro6 | SI3455DV | Vishay-Liteon |
| 1 | Q2 | MMBT3906 | Bipolar, PNP, 40V, 200mA, 0.22W | SOT23 | MMBT3906-7 | On Semi |
| 2 | Q3, Q4 | MMBT3904 | Bipolar, NPN, 40V, 200mA, 250mW | SOT23 | MMBT3904 | Fairchild |
| 1 | R1 | 100kΩ | Resistor, Chip, 100kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R11 | 330Ω | Resistor, Chip, 330Ω, 1/16W, 1% | 0603 | Std | Std |
| 1 | R12 | 499Ω | Resistor, Chip, 499Ω, 1/16W, 1% | 0603 | Std | Std |
| 1 | R13 | 604Ω | Resistor, Chip, 604Ω, 1/16W, 1% | 0603 | Std | Std |
| 1 | R14 | 249kΩ | Resistor, Chip, 249kΩ, 1/16W, 1% | 0603 | Std | Std |
| 2 | R15, R32 | 187kΩ | Resistor, Chip, 187kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R16 | 150kΩ | Resistor, Chip, 150kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R17 | 107K | Resistor, Chip, 107kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R18 | 681kΩ | Resistor, Chip, 681kΩ, 1/16W, 1% | 0603 | Std | Std |
| 2 | R19, R31 | 143kΩ | Resistor, Chip, 143kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R2 | 2kΩ | Resistor, Chip, 2kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R20 | 232kΩ | Resistor, Chip, 232kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R21 | 102kΩ | Resistor, Chip, 102kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R22 | 82.5kΩ | Resistor, Chip, 82.5kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R24 | 47.5kΩ | Resistor, Chip, 47.5kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R25 | 95.3kΩ | Resistor, Chip, 95.3kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R27 | 14.7kΩ | Resistor, Chip, 14.7kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R28 | 29.4kΩ | Resistor, Chip, 29.4kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R29 | 44.2kΩ | Resistor, Chip, 44.2kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R3 | 0.05Ω | Resistor, Chip, 0.05Ω, 1/10W, 1% | 0805 | Std | Std |
| 1 | R30 | 59kΩ | Resistor, Chip, 59kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R4 | 14.7kΩ | Resistor, Chip, 14.7kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R10 | 10kΩ | Resistor, Chip, 10kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R5 | 31.6kΩ | Resistor, Chip, 31.6kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | R6 | 750kΩ | Resistor, Chip, 750kΩ, 1/16W, 1% | 0603 | Std | Std |
| 0 | R7, R23, R26 | spare | Resistor, Chip, Ohms, 1/16W, 1% | 0603 | Std | Std |
| 1 | R9 | 1kΩ | Resistor, Chip, 1kΩ, 1/16W, 1% | 0603 | Std | Std |
| 1 | U1 | BQ2000PW | IC, Fast Charge, Multi-chemistry | TSSOP-8 | BQ2000PW | TI |
| 1 | Circuit board | HPA250 | Circuit board | | HPA250 | Any |
| 1 | RT1 | | Thermister, 10kΩ | 0.095 x 1.150 In | NTC103AT | Semitec |

- Notes: 1. These assemblies are ESD sensitive, ESD precautions shall be observed.
2. These assemblies must be clean and free from flux and all contaminants. Use of no clean flux is not acceptable.
3. These assemblies must comply with workmanship standards IPC-A-610 Class 2.
4. Ref designators marked with an asterisk (***) cannot be substituted.
All other components can be substituted with equivalent MFG's components.
5. After testing RT1 is taped to the bottom of UUT with ESD tape.

6 References

- bq2000 data sheet, <http://focus.ti.com/lit/ds/symlink/bq2000.pdf>
- Using the bq2000/T to Control Fast Charge, <http://focus.ti.com/lit/an/slua064b/slua064b.pdf>

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