

## 4 Bill of Materials and Board Layout

### 4.1 Bill of Materials

**Table 1. Bill of Materials - HPA721**

Count				RefDes	Value	Description	Size	Part Number	MFR
-001	-002	-003	-004						
2	2	2	2	C1, C3	1 $\mu$ F	Capacitor, Ceramic, 25V, X5R, 10%	603	Std	Std
2	2	2	2	C2, C5	1 $\mu$ F	Capacitor, Ceramic, 6.3V, X5R, 10%	402	Std	Std
1	1	1	1	C4, C12	47 $\mu$ F	Capacitor, Ceramic, 6.3V, X5R, 10%	1206	Std	Std
0	0	0	0	C6, C10	Open	Capacitor, Ceramic	1206	Std	Std
2	2	2	2	C7, C8	4.7 $\mu$ F	Capacitor, Ceramic, 25V, X5R, 10%	805	Std	Std
1	1	1	1	C9	0.01 $\mu$ F	Capacitor, Ceramic, 16V, X7R, 10%	603	Std	Std
1	1	1	1	C11	10 $\mu$ F	Capacitor, Ceramic, 10V, X5R, 10%	603	Std	Std
2	2	2	2	D1, D2	Green	Diode, LED, Green, 2.1-V, 20-mA, 6-mcd	603	LTST-C190GKT	Liteon
6	6	6	6	J1, J3, J5, J9, J13, J16	ED555/2DS	Terminal Block, 2-pin, 6-A, 3.5mm	0.27 x 0.25	ED555/2DS	OST
1	1	1	1	J12	UX60-MB-5ST	Connector, Recpt, USB-B, Mini, 5-pins, SMT	0.354 X 0.303 Inches	UX60-MB-5ST	Hiroise Electrical Co
1	1	1	1	J17	N2510-6002-RB	Connector, Male Straight 2x5 pin, 100mil spacing, 4 Wall	0.338 x 0.788 inch	N2510-6002-RB	3M
9	9	9	9	J2, J4, J6, J7, J8, J10, J11, J14, J15	PEC02SAAN	Header, Male 2-pin, 100mil spacing	0.100 inch x 2	PEC02SAAN	Sullins
3	3	3	3	JP1, JP2, JP5	PEC03SAAN	Header, Male 3-pin, 100mil spacing,	0.100 inch x 3	PEC03SAAN	Sullins
1	1	1	1	JP3	PEC02SAAN	Header, Male 2-pin, 100mil spacing,	0.100 inch x 2	PEC02SAAN	Sullins
0	1	1	0	JP4	PEC03SAAN	Header, Male 3-pin, 100mil spacing,	0.100 inch x 3	PEC03SAAN	Sullins
1	1	1	1	L1	1.5 $\mu$ H	Inductor, SMT, 3.5A, 70 mW	4.1x4.4 mm	SPM4012T-1R5M Alternate: FSD0415-H-1R5M	TD Alternate: Toko
1	1	1	1	Q1	CSD25401Q3	MOSFET, PChan, -20V, 60A, 8.7 m $\Omega$	QFN3.3X3.3mm	CSD25401Q3	TI
1	1	1	1	R1	1870	Resistor, Chip, 1/16W, 1%	603	Std	Std
1	1	1	1	R2	50.0k	Potentiometer, 3/8 Cermet, 12-Turn	0.25x0.17 inch	3266W-1-503LF	Bourns
1	1	1	1	R3	4120	Resistor, Chip, 1/16W, 1%	603	Std	Std
1	0	0	1	R4	0	Resistor, Chip, 1/16W, 1%	603	Std	Std
2	2	2	2	R5, R6	1.50K	Resistor, Chip, 1/16W, 1%	603	Std	Std
2	2	2	2	R7, R8	200	Resistor, Chip, 1/16W, 1%	603	Std	Std
8	8	8	8	TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP10	5000	Test Point, Red, Thru Hole Color Keyed	0.100 x 0.100 inch	5000	Keystone
2	2	2	2	TP8, TP9	5001	Test Point, Black, Thru Hole Color Keyed	0.100 x 0.100 inch	5001	Keystone
3	3	3	3	TP11, TP12, TP13	5002	Test Point, White, Thru Hole Color Keyed	0.100 x 0.100 inch	5002	Keystone
1	0	0	1	U1	BQ24160YFF	IC, 2.5A, Dual-Input, Single Cell Switch-mode Li-Ion BATTERY CHARGER with	QFN3.3X3.3mm	BQ24160YFF	TI

**Table 1. Bill of Materials - HPA721 (continued)**

Count				RefDes	Value	Description	Size	Part Number	MFR
-001	-002	-003	-004						
0	1	0	0	U1	BQ24161YFF	IC, 2.5A, Dual-Input, Single Cell Switch-mode Li-Ion BATTERY CHARGER with	QFN3.3X3.3mm	BQ24161YFF	TI
0	0	1	0	U1	BQ24168YFF	IC, 2.5A, Dual-Input, Single Cell Switch-mode Li-Ion BATTERY CHARGER with	QFN3.3X3.3mm	BQ24168YFF	TI
0	0	0	1	U1	BQ24163YFF	IC, 2.5A, Dual-Input, Single Cell Switch-mode Li-Ion BATTERY CHARGER with	QFN3.3X3.3mm	BQ24163YFF	TI
4	5	5	4	—		Shunt, 100-mil, Black	0.100	929950-00	3M

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