4 Bill of Materials, Board Layout, and Schematic

4.1 Bill of Materials

Table 4. Bill of Materials

Count							
-001	-002	RefDes	Value	Description	Size	Part Number	MFR
4	4	C1, C7, C14, C15	10 µF	Capacitor, Ceramic, 25V, X7R, 10%	1206	STD	STD
0	0	C2	Open				
1	1	C3	2.2 µF	Capacitor, Ceramic, 25V, X7R, 10%	0805	STD	STD
1	1	C4	330 pF	Capacitor, Ceramic, 50V, X7R, 10%	0603	STD	STD
2	2	C5, C18	0.1 µF	Capacitor, Ceramic, 16V, X7R, 10%	0603	STD	STD
1	1	C6, C13	0.047 µF	Capacitor, Ceramic, 50V, X7R, 10%	0603	STD	STD
3	3	C8, C16, C17	1.0 µF	Capacitor, Ceramic, 25V, X7R, 10%	0805	STD	STD
1	1	C9	4700 pF	Capacitor, Ceramic, 25V, X7R, 10%	0603	STD	STD
3	3	C10, C20, C24	0.1 µF	Capacitor, Ceramic, 50V, X7R, 10%	0603	STD	STD
0	0	C11, C12, C21, C23	Open				
2	2	C22, C19	1.0 µF	Capacitor, Ceramic, 16V, X7R, 20%	0805	STD	STD
1	1	D1	LTST-C190GKT	Diode, LED, Green, 2.1V, 20mA, 6mcd	0603	LTST-C190GKT	Lite On
0	1	D2	BAT54C	Diode, Dual Schottky, 200-mA, 30-V	SOT23	BAT54C-V-G	Vishay
1	1	J1	ED120/2DS	Terminal Block, 2 pin, 15A, 5.1mm	0.40 x 0.35 inch	ED120/2DS	OST
1	1	J2	ED120/4DS	Terminal Block, 4 pin, 15A, 5.1mm	0.80 x 0.35 inch	ED120/4DS	OST
3	3	JP1, JP3, JP5	PEC03SAAN	Header, 3 pin, 100mil spacing	0.100 inch x 3	PEC03SAAN	Sullins
2	2	JP2, JP4	PEC02SAAN	Header, 2 pin, 100mil spacing	0.100 inch x 2	PEC02SAAN	Sullins
1	1	L1	3.3 µH	Inductor, SMT, 5A, 55milliohm	0.204 x 0.216 inch	IHLP2020CZER3R3M01	Vishay
1	1	Q1	BSS138W	MOSFET, Nch, 30V, 0.5A, 700 milliohms	SOT323	BSS138W-7-F	Diodes Inc
2	2	Q2, Q3	CSD17313Q2	Trans, Nch, 30V, 5A, 26milliohm	SON-6	CSD17313Q2	TI
1	1	Q4	CSD25302Q2	Trans, Pch NexFET, 20V, 5 A, 56 milliohm	SON-6	CSD25302Q2	TI
1	1	Q5	2N7002	MOSFET, N-ch, 60V, 115mA, 1.2Ohms	SOT23	2N7002-7-F	Diodes Inc
1	1	R1	1.00M	Resistor, Chip, 1/16W, 5%	0603	STD	STD
1	1	R2	0.02 Ω	Resistor, Chip, 1/2 watt, 1%	1206	STD	STD
4	4	R3, R16, R20, R29	0	Resistor, Chip, 1/16W	0603	STD	STD
2	2	R4, R5	3.9	Resistor, Chip, 1/4W, 5%	1206	STD	STD
1	1	R6	402k	Resistor, Chip, 1/16W, 1%	0603	STD	STD
1	1	R7	499k	Resistor, Chip, 1/8W, 1%	0603	STD	STD
1	0	R8	100k	Resistor, Chip, 1/16W, 1%	0603	STD	STD
1	0	R9	100k	Resistor, Chip, 1/16W, 1%	0603	STD	STD
0	1		37.4k	Resistor, Chip, 1/16W, 1%	0603	STD	STD
1	0	R10	10k	Resistor, Chip, 1/16W, 5%	0603	STD	STD
0	1		1.00M	Resistor, Chip, 1/16W, 5%	0603	STD	STD
1	1	R11	1.00k	Resistor, Chip, 1/16W, 1%	0603	STD	STD
0	0	R12	Open	Resistor, Chip	0805	STD	STD
2	2	R13, R14	4.02k	Resistor, Chip, 1/16W, 1%	0603	STD	STD
1	1	R15	0.01	Resistor, Metal Film, 1/2 watt, 1%	1206	STD	STD
1	1	R17	10	Resistor, Chip, 1/16W, 5%	0805	STD	STD
1	0	R19	10	Resistor, Chip, 1/16W, 5%	0805	STD	STD
1	1	R21	5.23k	Resistor, Chip, 1/16W, 1%	0603	STD	STD
1	0	R22	0	Resistor, Chip, 1/16W	0603	STD	STD
1	1	R23	100	Resistor, Chip, 1/16W, 5%	0603	STD	STD
1	1	R24	30.1k	Resistor, Chip, 1/16W, 1%	0603	STD	STD
1	1	R25	3.01M	Resistor, Chip, 1/16W, 1%	0603	STD	STD

Table 4. Bill of Materials (continued)

Count							
-001	-002	RefDes	Value	Description	Size	Part Number	MFR
1	1	R26	10k	Resistor, Chip, 1/16W, 5%	0603	STD	STD
1	1	R27	4.99k	Resistor, Chip, 1/16W, 1%	0603	STD	STD
2	2	R28, R31	100k	Resistor, Chip, 1/16W, 1%	0603	STD	STD
1	1	R30	100k	Resistor, Chip, 1/16W, 1%	0603	STD	STD
1	1	R18	57.6k	Resistor, Chip, 1/16W, 1%	0603	STD	STD
1	1	R32	13.7k	Resistor, Chip, 1/16W, 1%	0603	STD	STD
0	0	TP1, TP3–TP6	TP-SMALL	Test Point, 0.020 Hole	0.100 x 0.100 inch	N/A	N/A
1	1	TP2	131-5031-00	Adaptor, 3.5-mm probe clip	0.200 inch	131-4244-00 or 131-5031-00	Tektronix
13	13	TP7 - TP19	5002	Test Point, White, Thru Hole Color Keyed	0.100 x 0.100 inch	5002	Keystone
1	1	TP20	5001	Test Point, Black, Thru Hole Color Keyed	0.100 x 0.100 inch	5001	Keystone
1	1	U1	BQ24133RHL	IC, Power Path Selector Stand-alone Charger	VQFN	BQ24133RHL	TI
1	1	—		PCB, 2.65 In x 3.00 In x 0.062 In		HPA715	Any
4	4			Bumper foot (install after final wash)	0.440 x 0.2	SJ-5303	3M
4	4			Shunt, 100-mil, Black	0.100	929950-00	3M
1	1	—		Label (See Note 5)	1.25 x 0.25 inch	THT-13-457-10	Brady

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. Install label after final wash. Text shall be 8 pt font. Text shall be per Table 1.

Table 1

Assembly Number	Text
HPA715-001	BQ24133EVM-715-5V
HPA715-002	BQ24133EVM-715-15V

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