

## 4 Bill of Materials, Board Layout, and Schematic

### 4.1 Bill of Materials

**Table 4. Bill of Materials**

001	RefDes	Value	Description	SIZE	PART NUMBER	MFR
3	C1, C2, C7	10 $\mu$ F	Capacitor, Ceramic, 35V, X7R, 10%	1210	STD	STD
3	C3, C5, C8	1.0 $\mu$ F	Capacitor, Ceramic, 35V, X7R, 10%	805	STD	STD
1	C4	2.2 $\mu$ F	Capacitor, Ceramic, 35V, X7R, 20%	1210	STD	STD
3	C6, C11, C12	0.1 $\mu$ F	Capacitor, Ceramic, 50V, X7R, 10%	603	STD	STD
0	C9, C13	Open	Capacitor, Ceramic, 50V, X7R, 10%	603	STD	STD
2	C10, C16	1.0 $\mu$ F	Capacitor, Ceramic, 16V, X7R, 10%	805	STD	STD
1	C14	0.1 $\mu$ F	Capacitor, Ceramic, 16V, X7R, 10%	603	STD	STD
2	C15, C17	22 pF	Capacitor, Ceramic, 50V, X7R, 10%	603	STD	STD
2	D1, D3	PDS1040-13	Diode, 10A 40V Schottky Barrier Rectifier	PowerDI 5	PDS1040-13	Diodes
1	D2	ZLLS350-7	Diode, Schottky, 1.16A, 40-V	SOD-523	ZLLS350-7	Zetex
2	D4, D5	LTST-C190GKT	Diode, LED, Green, 2.1V, 20mA, 6mcd	603	LTST-C190GKT	Lite On
1	J1	ED120/2DS	Terminal Block, 2 pin, 15A, 5.1mm	0.40 x 0.35 inch	ED120/2DS	OST
1	J2	ED120/4DS	Terminal Block, 4 pin, 15A, 5.1mm	0.80 x 0.35 inch	ED120/4DS	OST
2	JP2, JP4	PEC02SAAN	Header, 2 pin, 100mil spacing	0.100 inch x 2	PEC02SAAN	Sullins
2	JP1, JP3	PEC03SAAN	Header, 3 pin, 100mil spacing	0.100 inch x 3	PEC03SAAN	Sullins
1	L1	10 $\mu$ H	Inductor, SMT, 102m $\Omega$ , 7.0A, 20%	0.255 x 0.270 inch	IHLP2525CZER100M01 IHLP2525CZEB100M01	Vishay
1	Q1	Si7288-T1	FET, Dual N Chan, 40V, 20A, 19 m $\Omega$	SO8-PowerPak	SI7288DP-T1	Vishay/ Siliconix
1	Q2	2N7002-7-F	MOSFET, N-ch, 60V, 115mA, 1.2 $\Omega$	SOT23	2N7002-7-F	Diodes
2	R1, R2	3.9	Resistor, Chip, 1/4W, 5%	1206	STD	STD
1	R3	10	Resistor, Chip, 1/8W, 5%	805	STD	STD
0	R4, R8	Open	Resistor, Chip, 1/8W, 5%	805	STD	STD
1	R5	2.2	Resistor, Chip, 1/10W, 5%	603	STD	STD
1	R6	0.02	Resistor, Metal Film, 1/4 watt, 0.1%, Axial	1206	WSLP1206R0200FEA	Vishay
2	R7, R10	0	Resistor, Chip, 1/10W, 5%	603	STD	STD
1	R9	5.23K	Resistor, Chip, 1/10W, 1%	603	STD	STD
1	R11	100	Resistor, Chip, 1/10W, 5%	603	STD	STD
1	R12	30.1k	Resistor, Chip, 1/10W, 1%	603	STD	STD
2	R13, R17	499k	Resistor, Chip, 1/10W, 1%	603	STD	STD
1	R14	10k	Resistor, Chip, 1/10W, 5%	603	STD	STD
2	R15, R18	100k	Resistor, Chip, 1/10W, 1%	603	STD	STD
0	R16	Open	Resistor, Chip, 1/10W, 5%	603	STD	STD
2	R20, R21	10k	Resistor, Chip, 1/8W, 5%	805	STD	STD
1	R19	36k	Resistor, Chip, 1/8W, 5%	805	STD	STD
0	TP1, TP3–TP7	Open	Test Point, 0.020 Hole	0.020"	STD	STD
0	TP2	Open	Adaptor, 3.5-mm probe clip (or 131-4244-00)	0.200 inch	131-5031-00	Tektronix
1	U1	BQ24650RVA	IC, High Efficiency Synchronous Switch-Mode Fast Charge Controller for Solar Power	QFN16[RVA]	BQ24650RVA	TI
10	CE, GND, MPPSET, REGN, STAT1, STAT2, TS, TERM_EN, VCC, VREF	TP-5002	Test Point, White, Thru Hole Color Keyed	0.100 x 0.100 inch	5002	Keystone
1	–		PCB, 3 In x 3 In x 0.062 In		HPA639	Any
4			Bumper foot (install after final wash)	0.440 x 0.2	SJ-5303	3M
4			Shunt, 100-mil, Black	0.100	929950-00	3M

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