

**3.2 Bill of Materials and Schematic**
**Table 2. Bill of Materials**

Count	Reference Designator	Value	Description	Size	Part Number	MFR
6	C1, C2, C5, C6, C7, C8	0.1 $\mu$ F	Capacitor, Ceramic, 10 V, X5R, 10%	0402	GRM155R61A104KA01D	Murata
1	C3	1 $\mu$ F	Capacitor, Ceramic, 6.3 V, X5R, 10%	0402	GRM155R60J105KE19D	Murata
1	C4	0.47 $\mu$ F	Capacitor, Ceramic, 0.47 $\mu$ F, 6.3 V, X5R, 10%	0402	GRM155R60J474KE19D	Murata
2	D1, D2	AZ23C5V6-7	Diode, Dual, Zener, 5.6 V, 300 mW	SOT23	AZ23C5V6-7-F	Diodes
1	J1	ED555/2DS	Terminal Block, 2-pin, 6-A, 3.5 mm	0.27 x 0.25 inch	ED555/2DS	OST
9	J2, J3, J4, J6, J11, J12, J13, J14, J15	PEC03SAAN	Header, Male 3-pin, 100mil spacing	0.100 inch x 3	PEC03SAAN	Sullins
3	J5, J7, J9	PEC02SAAN	Header, Male 2-pin, 100mil spacing	0.100 inch x 2	PEC02SAAN	Sullins
2	J8, J10	22-05-3041	Header, Friction Lock Assy, 4-pin Right Angle,	0.400 x 0.500	22-05-3041	Molex
1	Q1	UPA2375T1P-E1-A	MOSFET, Dual N-Channel NexFET, 12 V 3.2 A	WSCP	UPA2375T1P-E1-A	Renesas Electronics America
0	Q2, Q3, Q4	DNP	MOSFET, Dual N-Channel NexFET, 12 V 3.2 A	WSCP	UPA2375T1P-E1-A	Renesas Electronics America
2	R1, R3	200 $\Omega$	Resistor, Chip, 1/16-W, 5%	0402	CRCW0402200RJNED	Vishay Dale
1	R12	4.7 k $\Omega$	Resistor, Chip, 1/16-W, 5%	0402	CRCW04024K70JNED	Vishay Dale
1	R13	2 k $\Omega$	Resistor, Chip, 1/16-W, 5%	0402	CRCW04022K00JNED	Vishay Dale
2	R14, R15	10 k $\Omega$	Resistor, Chip, 1/16-W, 5%	0402	CRCW040210K0JNED	Vishay Dale
2	R16, R17	10 $\Omega$	Resistor, Chip, 1/16-W, 5%	0402	CRCW040210R0JNED	Vishay Dale
1	R2	5 m $\Omega$	Res, Metal Current sense, 1W, $\pm$ 1%, 50 ppm	1632	MCS1632R005FER	Ohmite
6	R4, R6, R7, R8, R9 R10	100 $\Omega$	Resistor, Chip, 1/16-W, 5%	0402	CRCW0402100RJNED	Vishay Dale
2	R5, R11	1 k $\Omega$	Resistor, Chip, 1/16-W, 5%	0402	CRCW04021K00JNED	Vishay Dale
2	RT1, RT2	10 k $\Omega$	Thermistor, 10 k $\Omega$	0.095 x 0.150 inch	103AT-2	Semitec
1	TB1	ED1515	Terminal Block, 3-pin, 6-A, 3.5 mm	0.41 x 0.25 inch	ED555/3DS	OST
1	TB2	ED555/4DS	Terminal Block, 4-pin, 6-A, 3.5 mm	0.55 x 0.25 inch	ED555/4DS	OST
7	TP1, TP4, TP5, TP7, TP8, TP10, TP11	5001	Test Point, Black, Thru Hole Color Keyed	0.100 x 0.100 inch	5001	Keystone
4	TP2, TP3, TP6, TP9	5000	Test Point, Red, Thru Hole Color Keyed	0.100 x 0.100 inch	5000	Keystone
1	U1	bq27741YZFR-G1	IC, Single Cell Li-Ion Pack Side Fuel Gauge with Integrated Protection	BGA-15	bq27741YZFR-G1	TI
1	--		PCB		PWR231	Any

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