3 PCB Layout Guideline

1. It is critical that the exposed power pad on the backside of the bq2435x package be soldered to the printed-circuit board (PCB) ground. Ensure that sufficient thermal vias are located underneath the IC, connecting to the ground plane on the other layers.
2. The high-current charge paths into ACIN and from CHGIN, OUT pins must be sized appropriately for the maximum charge current in order to avoid voltage drops in these traces.
3. Decoupling capacitors for ACIN, CHGIN must be placed and make the interconnections to the IC as short as possible.
4. Resistors for VBAT pin must be placed close to the corresponding IC pins and make the interconnections to the IC as short as possible.

4 Bill of Materials, Board Layout, and Schematic

4.1 Bill of Materials

Table 1. Bill of Materials

bq24350 -001	bq24352 - 002	bq24355 - 003	RefDes	Value	Description	Size	Part Number	MFR
1	1	1	C1	1uF	Capacitor, Ceramic, 35V, X5R, 10%	603	Std	Std
3	3	3	C2, C3, C5	1uF	Capacitor, Ceramic, 10V, X7R, 10%	603	Std	Std
1	1	1	C4	0.1uF	Capacitor, Ceramic, 16V, X7R, 10%	805	Std	Std
1	1	1	C6	0.1uF	Capacitor, Ceramic, 10V, X7R, 10%	603	Std	Std
1	1	1	C7	220uF	Capacitor, Electrolytic, 25V, 20%	0.327 X 0.327 inch	UUD1E221MNL1GS	Nichicon
1	1	1	D1	BZT52C6V8S	Diode, Zener, 200mW, 6.8V	SOD-323	BZT52C6V8S	General
3	3	3	D2, D3, D6	Green	Diode, LED, Green, 2.1-V, 20-mA, 6-mcd	603	LTST-C190GKT	Lite On
2	2	2	D4, D7	Red	Diode, LED, Red, 2.1-V, 20-mA, 6-mcd	603	LTST-C190CKT	Lite On
1	1	1	D5	BAT54C	Diode, Dual Schottky, 200-mA, 30-V	SOT23	BAT54C	Vishay-Liteon
2	2	2	J1, J4	ED1514/2DS	Terminal Block, 2-pin, 6-A, 3.5mm	0.27 x 0.25 inch	ED1514/2DS	OST
2	2	2	J2, J3	ED1516/4DS	Terminal Block, 4-pin, 6-A, 3.5mm	0.55 x 0.25 inch	ED1516/4DS	OST
5	5	5	JP1, JP4, JP5, JP6, JP7	PEC02SAAN	Header, 2-pin, 100mil spacing	0.100 inch x 2	PEC02SAAN	Sullins
2	2	2	JP2, JP3	PTC03SAAN	Header, Male 3-pin, 100mil spacing, (36-pin strip)	0.100 inch x 3	PTC03SAAN	Sullins
5	5	5	JP1, JP2, JP4, JP5, JP6	929950-00	Shorting jumpers, 2-pin, 100mil spacing,		929950-00	3M/ESD
2	2	0	R1, R2	0	Resistor, Chip, 1/16W, 1%	402	Std	Std
0	0	2	R3, R4	0	Resistor, Chip, 1/16W, 1%	402	Std	Std
2	2	2	R5, R6	200k	Resistor, Chip, 1/16W, 5%	402	Std	Std
2	2	2	R7, R8	200k	Resistor, Chip, 1/16-W, 5%	603	Std	Std
2	2	2	R9, R10	0.2	Resistor, Metal Film, 1/4 watt, 1%	1206	Std	Std
1	1	1	R11	20k	Resistor, Chip, 1/16-W, 5%	603	Std	Std
1	1	1	R12	1k	Resistor, Chip, 1/16-W, 5%	603	Std	Std
1	1	1	R13	100	Resistor, Chip, 1/16-W, 5%	603	Std	Std
1	1	1	R14	6.2k	Resistor, Chip, 1/16-W, 5%	603	Std	Std
4	4	4	R15, R16, R17, R18	1.5k	Resistor, Chip, 1/16-W, 5%	603	Std	Std

Table 1. Bill of Materials (continued)

bq24350 -001	bq24352 - 002	bq24355 - 003	RefDes	Value	Description	Size	Part Number	MFR
1	1	1	R19	51	Resistor, Chip, 1/16-W, 5%	603	Std	Std
4	4	4			6-32 NYL nuts	NY HN 632	H620-ND	Building Fasteners
4	4	4	ST1,ST2,ST3,ST4	4816	STANDOFF M/F HEX 6-32 NYL .500"	sf_thvt_325_rnd	4816	Keystone
8	8	8	TP1, TP2, TP3, TP4, TP5, TP6, TP7, TP8	white	Test Point, White, Thru Hole Color Keyed	0.100 x 0.100 inch	5002	Keystone
1	1	1	TP9	white	Test Point, White, Thru Hole Color Keyed	0.100 x 0.100 inch	5001	Keystone
1	0	0	U1	bq24350DSG	IC, OVER-VOLTAGE AND OVER-CURRENT CHARGER FRONT-END	SON-8	BQ24350DSG	TI
0	1	0	U1	bq24352DSG	IC, OVER-VOLTAGE AND OVER-CURRENT CHARGER FRONT-END	SON-8	BQ24352DSG	TI
0	0	1	U1	bq24355DSG	IC, OVER-VOLTAGE AND OVER-CURRENT CHARGER FRONT-END	SON-8	BQ24355DSG	TI
1	1	1	U2	BQ2057CSN	IC, Charge Management, One or Two Cell Li-Ion or Li-Pol Charger	S0-8	BQ2057CSN	TI
1	1	1	--	HPA398	PCB, 2.8 In x 2.8 In x 0.062 In		PCB	Any

Notes: 1. Number 0 in left side columns means do not use this component.
2. OPEN in value column means do not use this component.
3. Std in part number column means standard manufacturer's part number.
4. Std in MFR column means standard manufacturer.

4.2 Board Layout

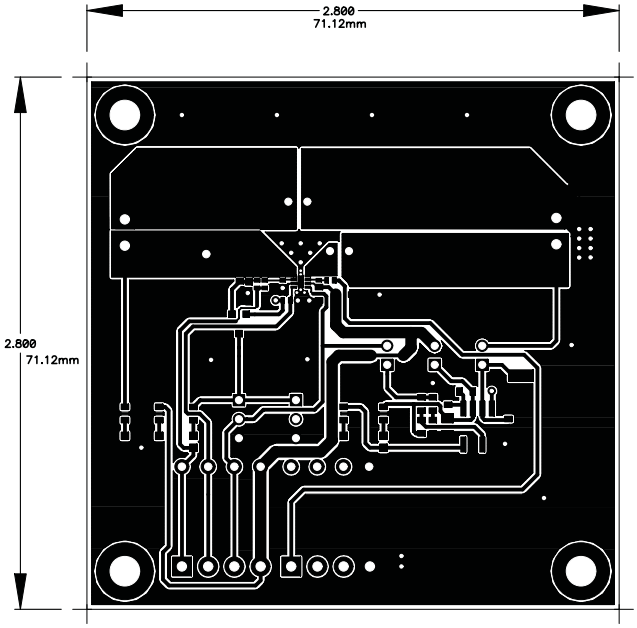

Figure 2. Top Layer

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