Schematics & PCB of Current Sensing Reference Design

- Schematics　　REF68013 : 48V, 50A, Uni-direction
  REF68014 : 48V, 100A, Uni-direction
  REF68015 : 48V, 100A, Bi-direction

- About BD1423xFVJ-EVK-001 Board modifications

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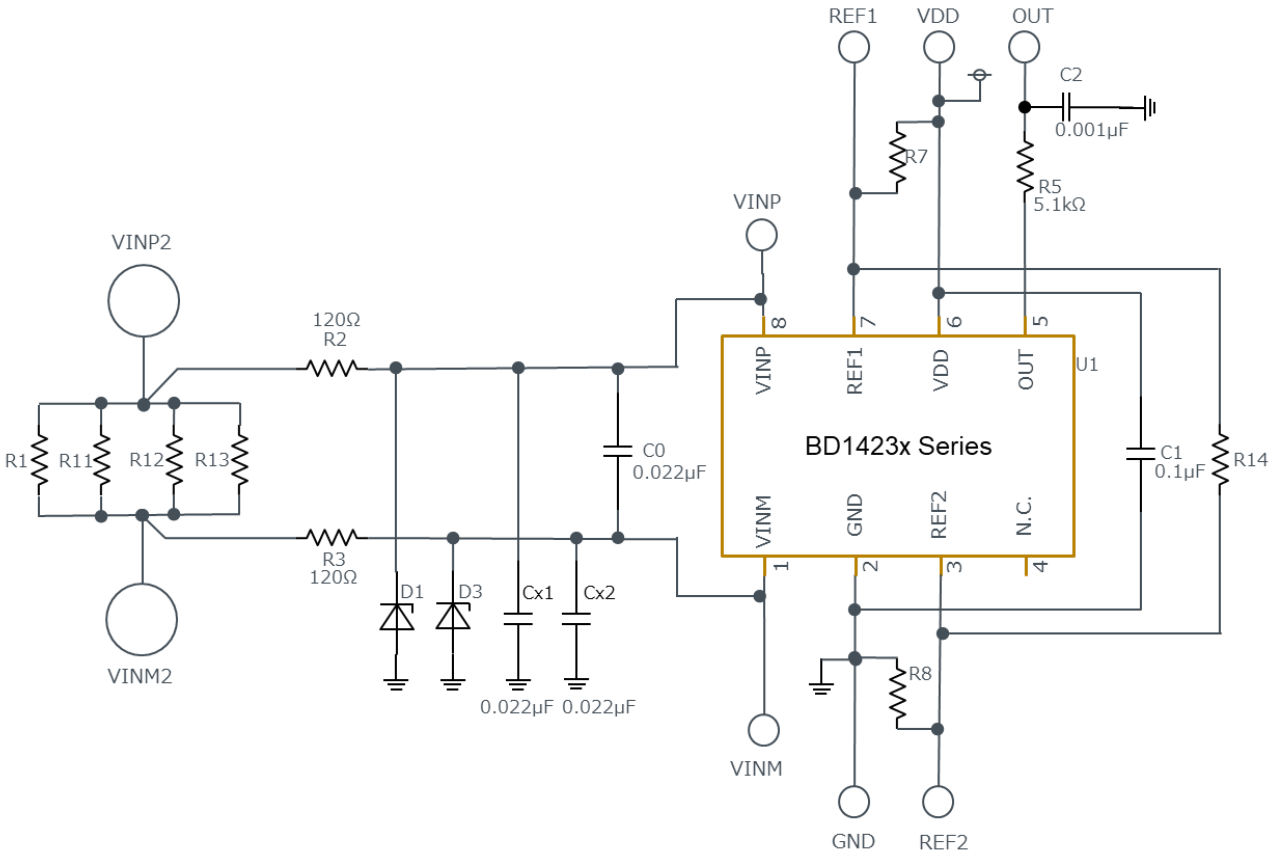
Schematics of REF68013, REF68014, REF68015

Schematic



Major Components

Reference Design No.	CSA(Current sense amplifier)	Shunt Resistor	TVS Diode
REF68013 (48V, 50A, Uni-dir.)	BD14232FVJ-C, 80V, 100V/V	PMR100HZP7FV1L50 2-pallarel 0.75mΩ	VS64VLNVWM VS64VLNVWMTF(for automotive)
REF68014 (48V, 100A, Uni-dir.)	BD14232FVJ-C, 80V, 100V/V	PSR100KTQFF0L50 2-pallarel 0.25mΩ	
REF68015 (48V, 100A, Uni-dir.)	BD14231FVJ-C, 80V, 50V/V		

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About BD1423xFVJ-EVK-001 Board modifications

To evaluate the reference circuit on an actual device,
it is necessary to modify the EVK board (BD1423xFVJ-EVK-001).

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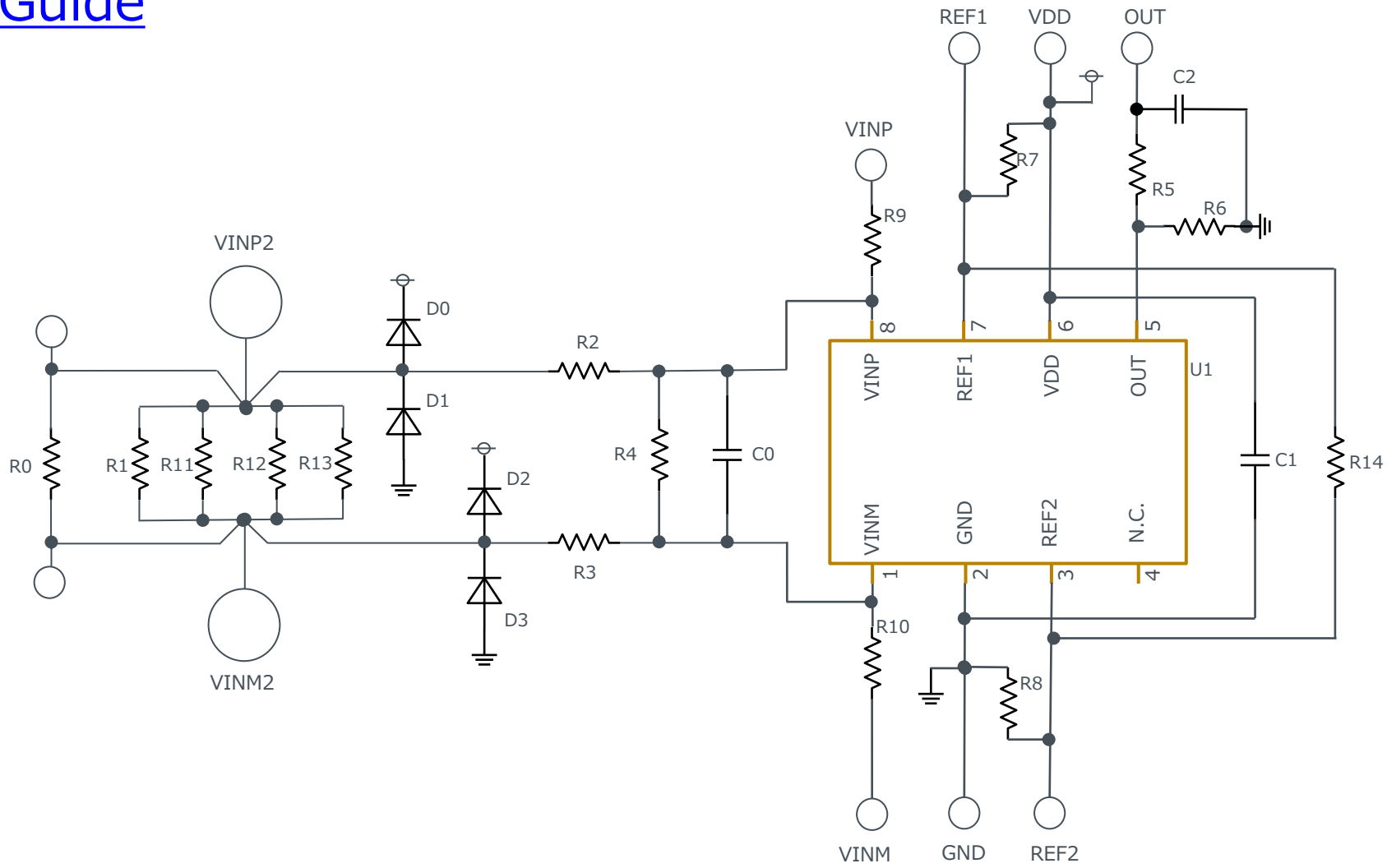
Schematic of EVK board(BD1423xFVJ-EVK-001)

EVK User's Guide



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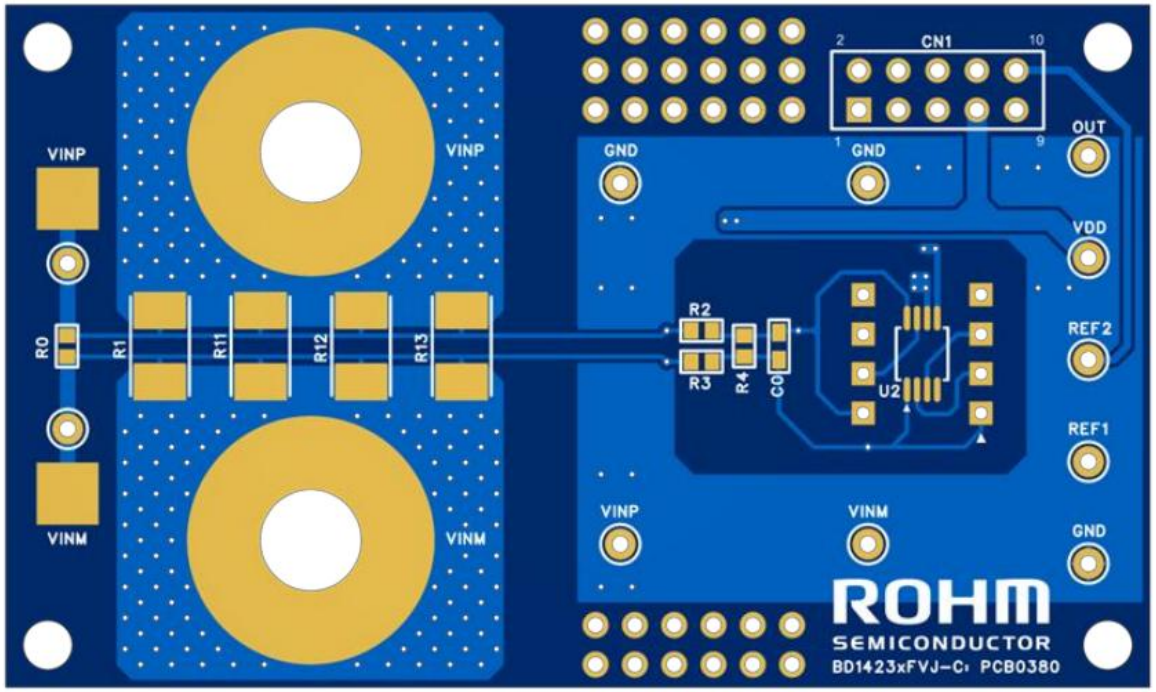
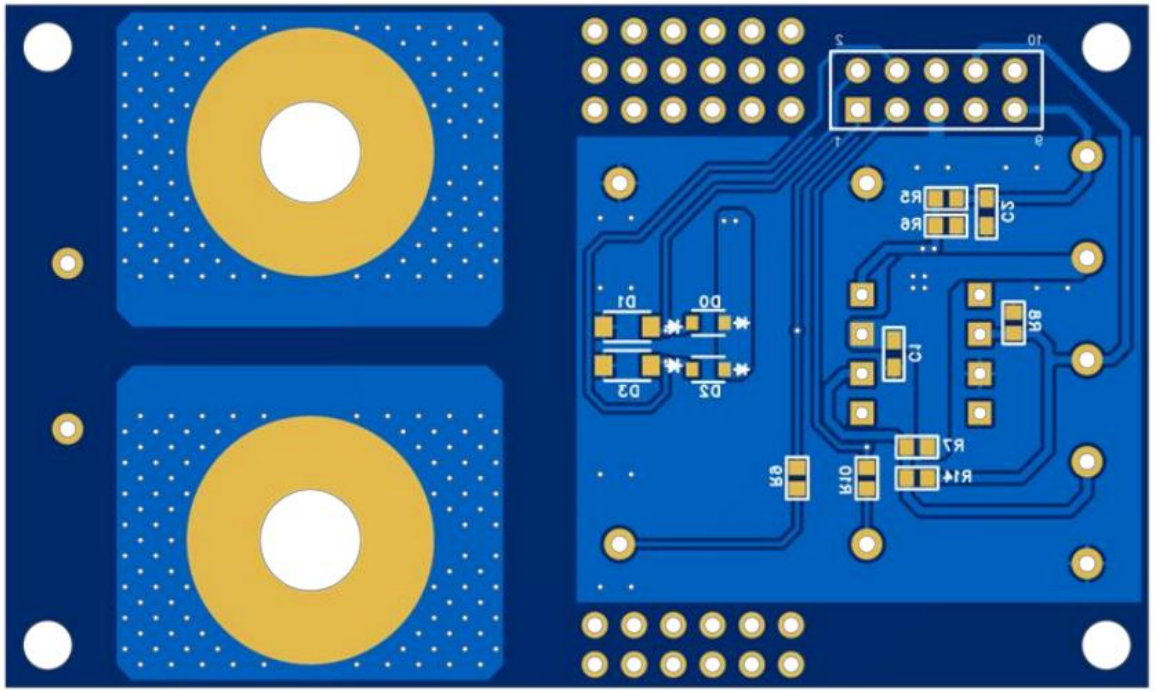
PCB of EVK board(BD1423xFVJ-EVK-001)

EVK User's Guide





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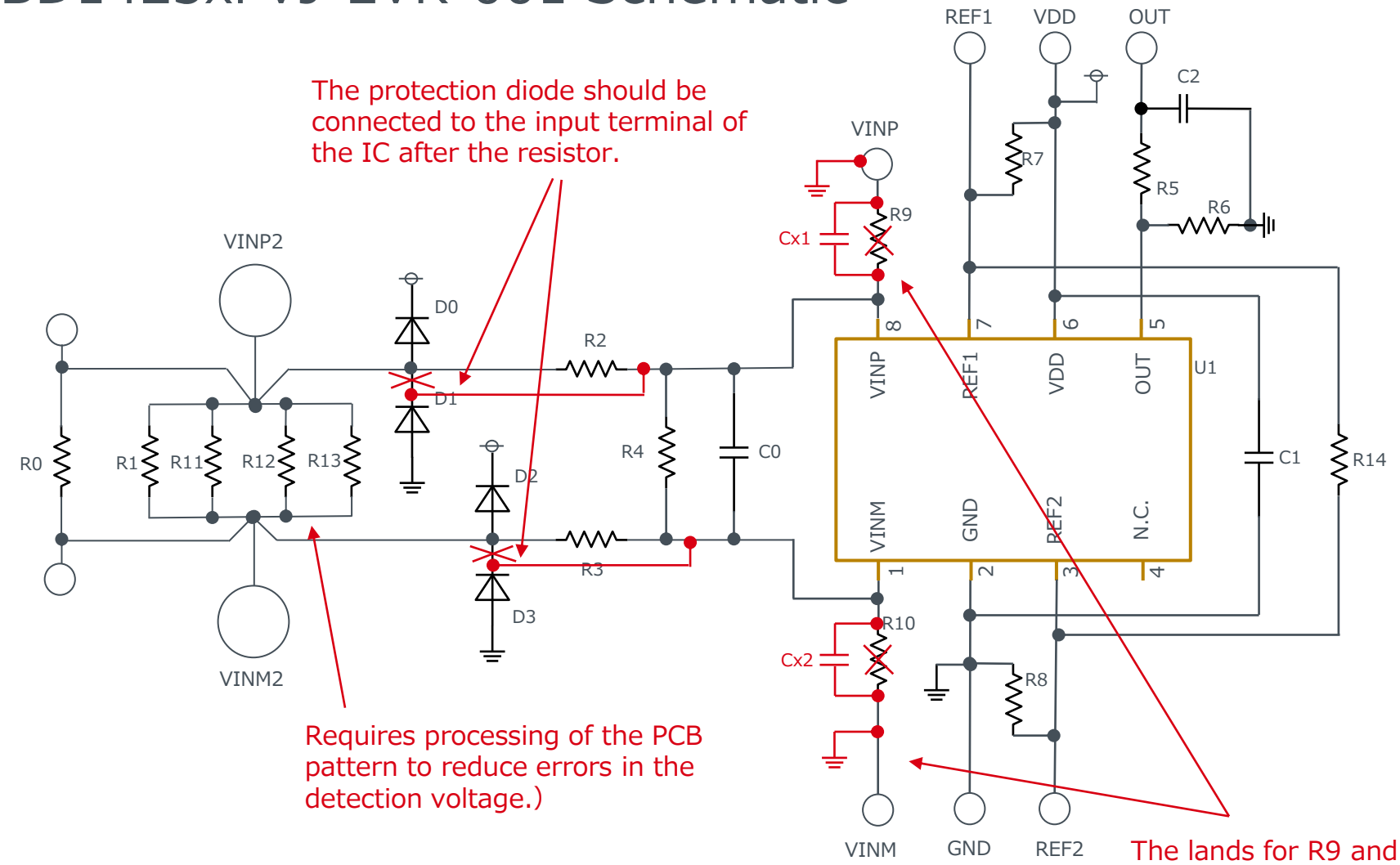
Modify the BD1423xFVJ-EVK-001 Schematic



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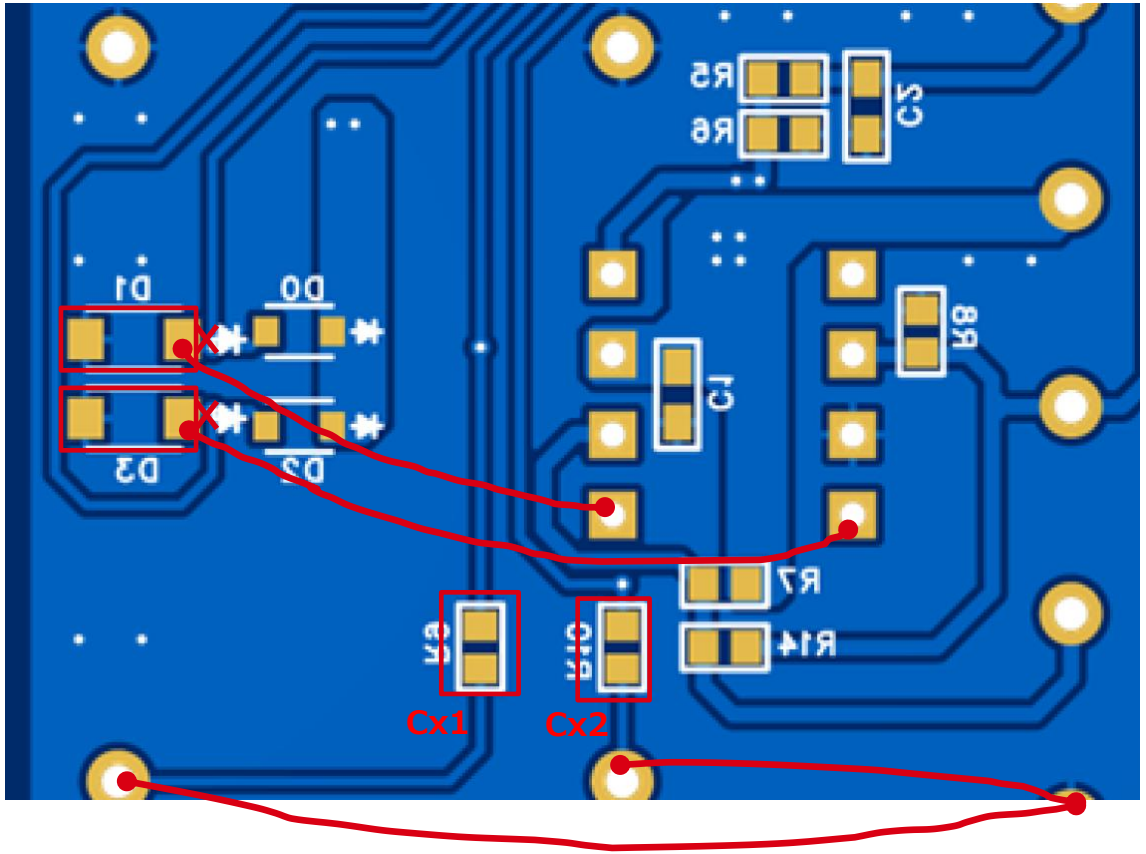
How to modify the board

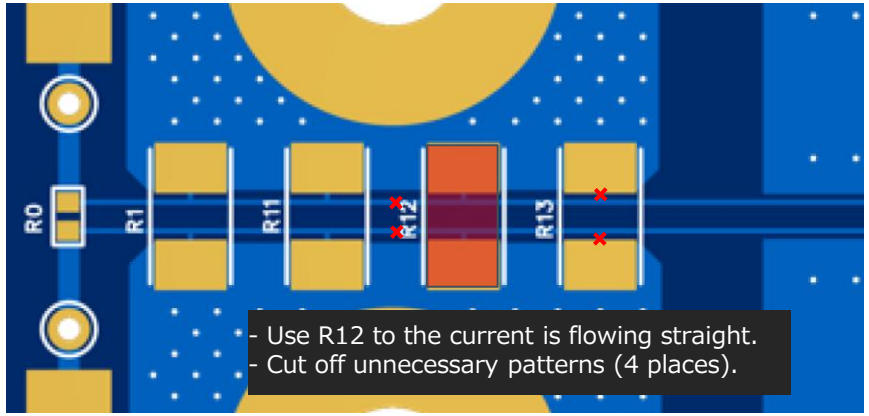
1. Insert a capacitor between VINP/VINM and GND as an input filter. Install the capacitor in the R9 and R10 lands and connect the VINP/VINN terminals to GND.
2. Place a protective diode after the input filter resistor (on the IC side).
3. Depending on the number of shunt resistors connected, cut the sense line of the shunt resistor voltage. If no countermeasures are taken, an impedance network will be created, causing errors in the measured voltage.

: Cut the pattern

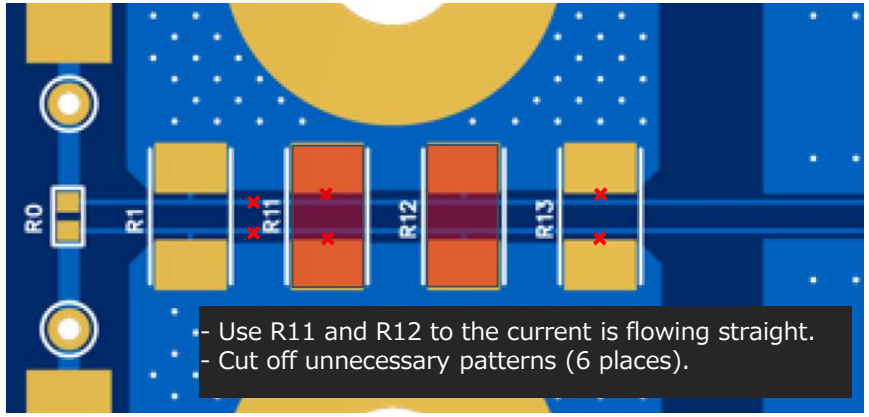
: Connect with wiring



When using 1 shunt resistor



When using 2 shunt resistors



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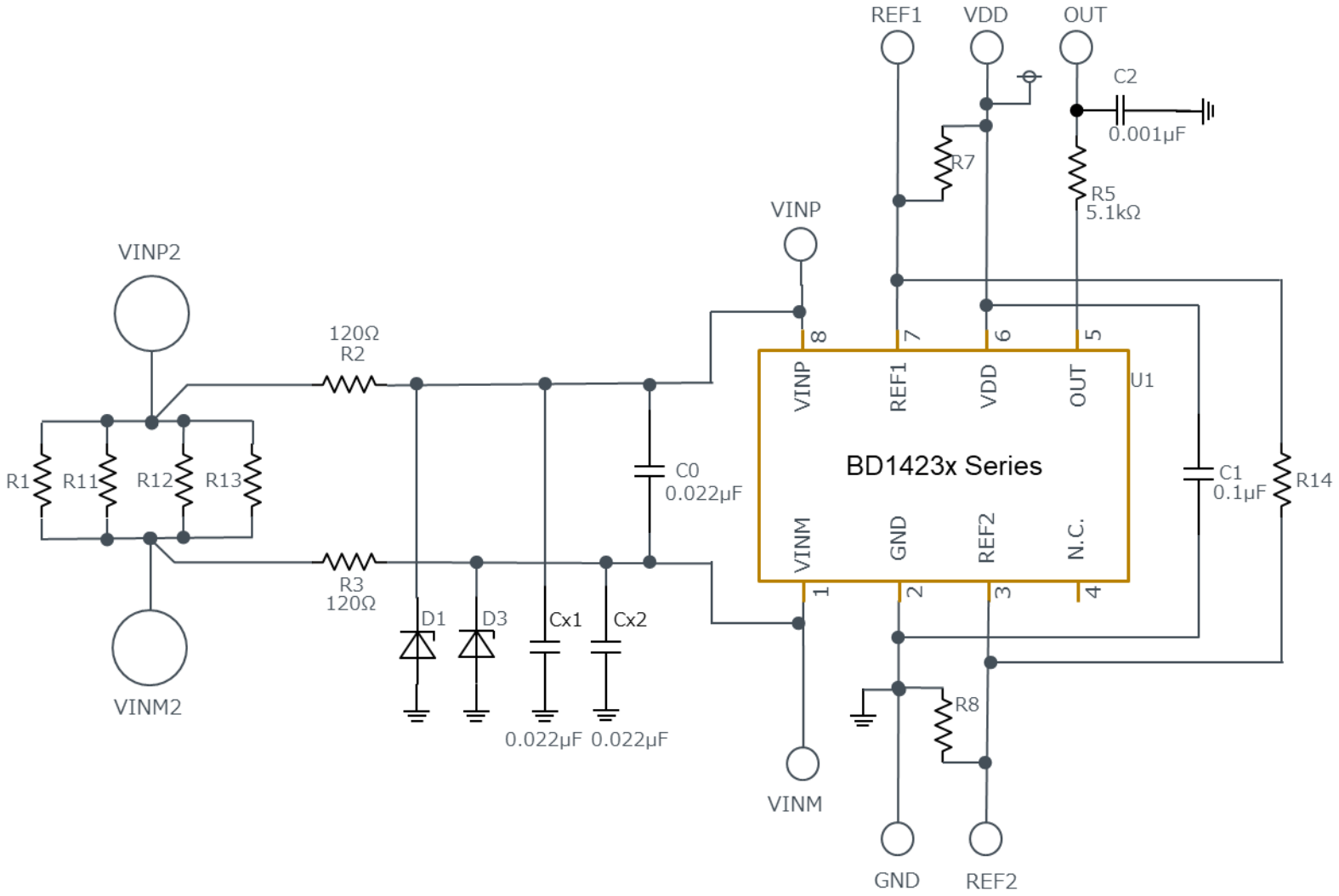
Schematic after modifying BD1423xFVJ-EVK

Using this schematic as a base, the ICs and circuit constants selected for each reference design are designed.



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