# RZ Gen 2 DFMEA Action Items

Add silkscreen for board version marking and part number. Done

Add fids for Alignment of LED - DONE

With BOM optioned boards what happens if some parts are installed that shouldn’t be there?

If -03 (CD) board has R11 installed the LED will be at ground and will not turn on. This could cause up to a 2.94mA which is about 9mW of power. The resistors are rated for 62.5mW so will be no damage to board or components, LED won’t turn on. If R12 is installed on the CD board pins 1 and 2 will be at the same voltage which will keep the transistor in the off state so no current will flow. This will not damage the board, but the LED won’t come on. This incorrect function should be caught at test.

If the -01 or -02 boards have some or all of the BOM option placed that should be there should be no effect to the LED function, just extra parts wasted on the board.

What if battery is put in upside down.

If the battery is put in upside down both the negative contact and positive contact on the board would be in contact with the pos terminal of the battery. There would be no contacts touching ground so no complete circuit, so no damage, and it won’t turn on.

Check Vias around programming pins. Pushing on vias of a flex can break them.

There is no visible flex on the board when the programming pins are pressed, so there shouldn’t be any problems because we only program a handful of times or less. There is one via in pad but again with no flex should be fine, added and extra trace to a ground JIC. Other connections have no via’s in pad, they are all outside of the pad so they can’t be crushed and damaged. The closest via’s outside the pad are there for via in pad connection of the battery terminal.

What if battery gets put in without a door right way and upside down?

The door has an arm that sits between the battery and the top of the housing. If the spacing is just right, I think the battery getting put in with pos in the up direction and the neg terminal would push that battery up possibly making the pos terminal short between pos and neg of battery. Check into this space. Drew said this can’t happen.

What if something is shorted on the board?

If something is shorted on the board it should be caught in test, which uses a power supply so the board can be damaged, there is no potential for batter fire because no batter is used yet. This would be caught in test and not seen by the customer. The board house instructions specify a power supply.

Should there be feet on the board for the battery contact to help with solder alignment and/or support.

Drew has added tabs to the positive battery contact. This was requested by UMC and will help with the force applied to the contact by the battery. It also will help alignment on the pads. Soldering the pos battery terminal with two different sized pads was causing it to skew, probably due to extra surface tension.

Not from the DFMEA, but thought this would be a good place to keep the info.

For the Dot version of board I had a 0 ohm resistor connected to one of the pins for and ID resistor. The code originally setup the GPIO’s to be outputs set to high. With this resistor pulled to ground I think I damaged the part. It was pulling high current afterwards and couldn’t be fixed. I added some GPIO setup conditions to setup the pin differently, but also changing the resistor to a 20k to make sure this can’t happen again.