Hardware Change Log

*[P80 PMU]*

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| Action | Name | Function | Signature | Date |
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| Prepared: | JOKR |  |  | 08-03-2018 |
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| Approved by: |  |  |  |  |

# Table of Contents

1 Table of Contents 3

2 Changelog 4

3 Purpose and Scope 4

4 Changes to be implemented (Pending) 5

5 Revision 2 changes implemented 6

# Changelog

|  |  |  |  |
| --- | --- | --- | --- |
| Date | Revision | Author | Description |
|  |  |  |  |
| 12-12-2017 | 1 |  | Initial release first prototype - EDA build no. 17.1.9.592 |

# Purpose and Scope

This document describes the changes for each revision of the P80 PMU.

Raw PCB Number: 100608

# Changes to be implemented (Pending)

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | Description | BOM | Schematic | Layout | Who | Status |
|  |  |  |  |  |  |  |
| 2 | Q4 MOSFET Vgs voltage can get higher than absolute maximum rating off -20V vhen Vbat gets higher than 30V | X | X |  | JOKR |  |
| 3 | Low voltage loadswitches needs to be changed. |  | X | X | BGS |  |
| 4 | GAN FET to be changed to MOSFET, or GAN Systems FET with much lower gate-source leakage. |  | X | X | BGS |  |
|  |  |  |  |  |  |  |
| 6 | GPIOs PB00 and PB01 are used twice: |  | X | X | BGS |  |
|  |  |  |  |  |  |  |
|  |  |  |  |  |  |  |
| ~~9~~ | ~~Change R176, R177, R187 and R188 to 100k and C152 and C165 to reduce deploy peak current from 1.8A to 18mA without load. This to ensure overcurrent is not tripped from inrush current.~~ | ~~X~~ |  |  | ~~CAF~~ |  |
| 10 | R175 and R186 is not required due to DFF logic. DFF logic can be replaced with a 5V CMOS level shifter, hence R175 and R186 will prevent retry functionality as per Figure 4 in LT1910 datasheet | X | X | X | CAF |  |
| 11 | nReset on MCU sees a small pulse high on power on.  Ch1: Yellow VCC @ U23 pin 5  Ch2: Cyan nRESET @ U23 pin 1  Ch3: Magenta WDI @ U23 pin 4  Ch4: Blue nRESET @ U18 pin 64  On power up, RESET\_N on MCU is pulled towards VCC which is causing the glitch. Could this be an issue for an open collector?  R130 = 1k  This cannot be prevented by supervisor circuitry as it is the MCU who generate it. |  |  |  | CAF |  |
| 12 | Supervisor circuitry generated reset (U23) could be replaced or OR’ed with PG from load switch (U42). |  | X | X | CAF |  |
| 13 | How is charge initially applied to C106 and C107 is a diode from VCC to VBAT missing? Is capacitance sufficient with self-discharge? | X | X | X | CAF |  |
| 14 | Is the added resolution on U3 necessary? VM\_VBAT and CM\_VBAT are both routed to U1 and U2 respectively and hence measured twice. | X | X | X | CAF |  |
| 15 | R26 should be 10k. | X |  |  | CAF |  |
| 16 | Datasheet for ADS7952 (U1 & U2) states requirement for a 10µF capacitor between REF and GND as close as possible to the IC.  Additionally the datasheet recommends 1µF at each supply pin placed as close as possible to the IC. | X | X | X | CAF |  |
| 17 | Add series termination to SPI bus to reduce ringing. Possibly footprint for a load capacitor as well. | X | X | X | CAF |  |
| 18 | R115 should be located as close as possible to the MCU to work as series termination. Ringing from RX/TX are causing crosstalk.  R115 and R118 should be changed to 100ohm. Could be more, but trimming should occur on next revision.    10 ohm series resistor    100 ohm series resistor    The result after changing to 100 ohm | X |  | X | CAF |  |
| 19 | R131 + R134 can cause VGS max to exceede limits of +/- 20V |  |  |  |  |  |
| 20 | Vref (VM5) on ADC is irrelevant. |  |  |  |  |  |
| 21 | Update Killswitch circuitry to reflect P80\_killswitch\_overview v2 | X | X | X | CAF |  |
| 22 | Reverse GSRB connections |  | X | X | BGS |  |
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# Revision 2 changes implemented

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| No. | Description | BOM | Schematic | Layout | Who | Status |
| 1 | U26 SYNC Oscillator, Pin 2 GND is connected to VCC through R142, 100kohm, Pin 3 SET is connected to GND. |  | X | X | JOKR | Done |
| 5 | Add zero ohms for RS485 connection to main bus |  | X | X | BGS | Done |
| 23 | Change net ties in main connector to 10R resistors |  | X | X | BGS | Done |
| 7 | If new MCU: add write protect capability to FRAM |  | X | X | BGS | Done |
| 8 | If new MCU: add CAN mode control |  | X | X | BGS | Done |
| 24 | Change MCU to 100 pin version | X | X | X | BGS | Done |
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