

FID1	M1
Fiducial 1MM	Hole M3 Tight Unplated
FID2	M2
Fiducial 1MM	Hole M3 Tight Unplated
FID3	M3
Fiducial 1MM	Hole M3 Tight Unplated
FID4	M4
Fiducial 1MM	Hole M3 Tight Unplated

LOGO1

 LBL High Voltage M

LOGO2

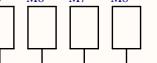
 LBL High Voltage M

LYID1

 2 Layer Identification PCB Marker

LOGO3

 30mm Wide QUTMS Logo

M5 M6 M7 M8


7695-2 7695-2 7695-2 7695-2

C

Revision History:

Rev Date	Description

1 2 3 4 5 6 7 8

Sheet Title: BMS Master

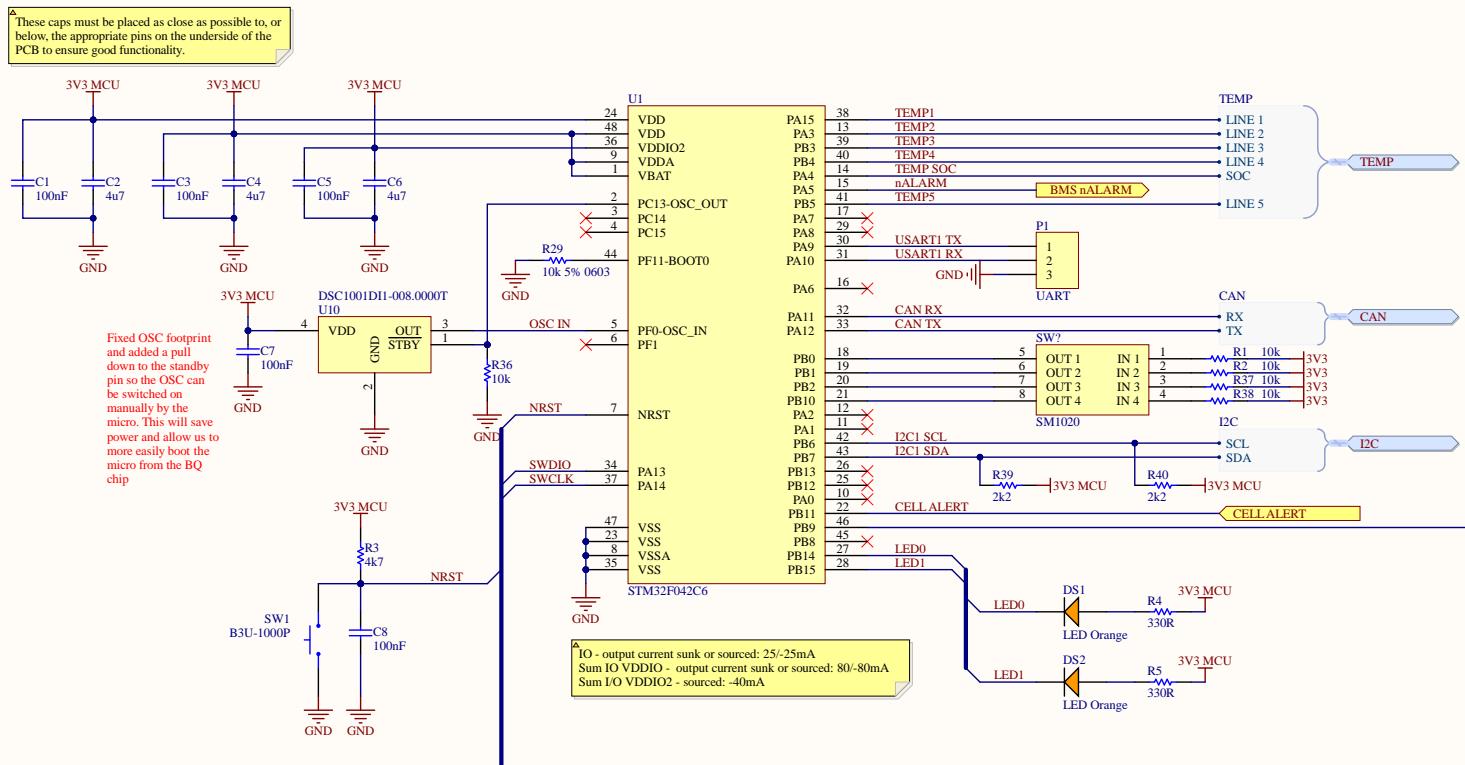
Project: Battery Management System 2020

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 2 George Street
 Brisbane, QLD 4000
 Australia



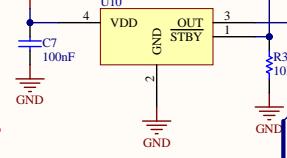
Size: A3 Number: 1 Version: 01
 Drawn By: Jonn Dillon Revision: 01
 Sheet 1 of 10
 Print Date: 18/10/2020 Print Time: 11:12:35 AM File Name: BMS-S01-V01-BatteryManagementSystem.SchDoc

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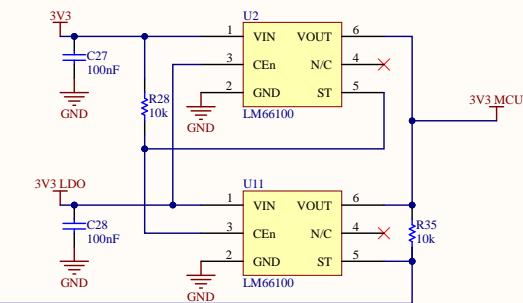


Added Ideal diodes to fix issue where 3V3 power was not reaching the micro. The BQ now supplies 3V3 from an LDO that brings the micro up for a few moments so it can turn on a mosfet which provides 3V# power to the rest of the board. Once this occurs the micro receives power from the primary power source and not the LDO.

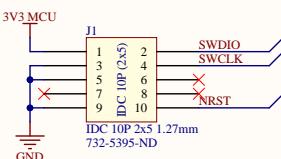
B



IO - output current sunk or sourced: 25/-25mA
Sum IO VDDIO - output current sunk or sourced: 80/-80mA
Sum I/O VDDIO2 - sourced: -40mA



C



D

Revision History:

Rev	Date	Description

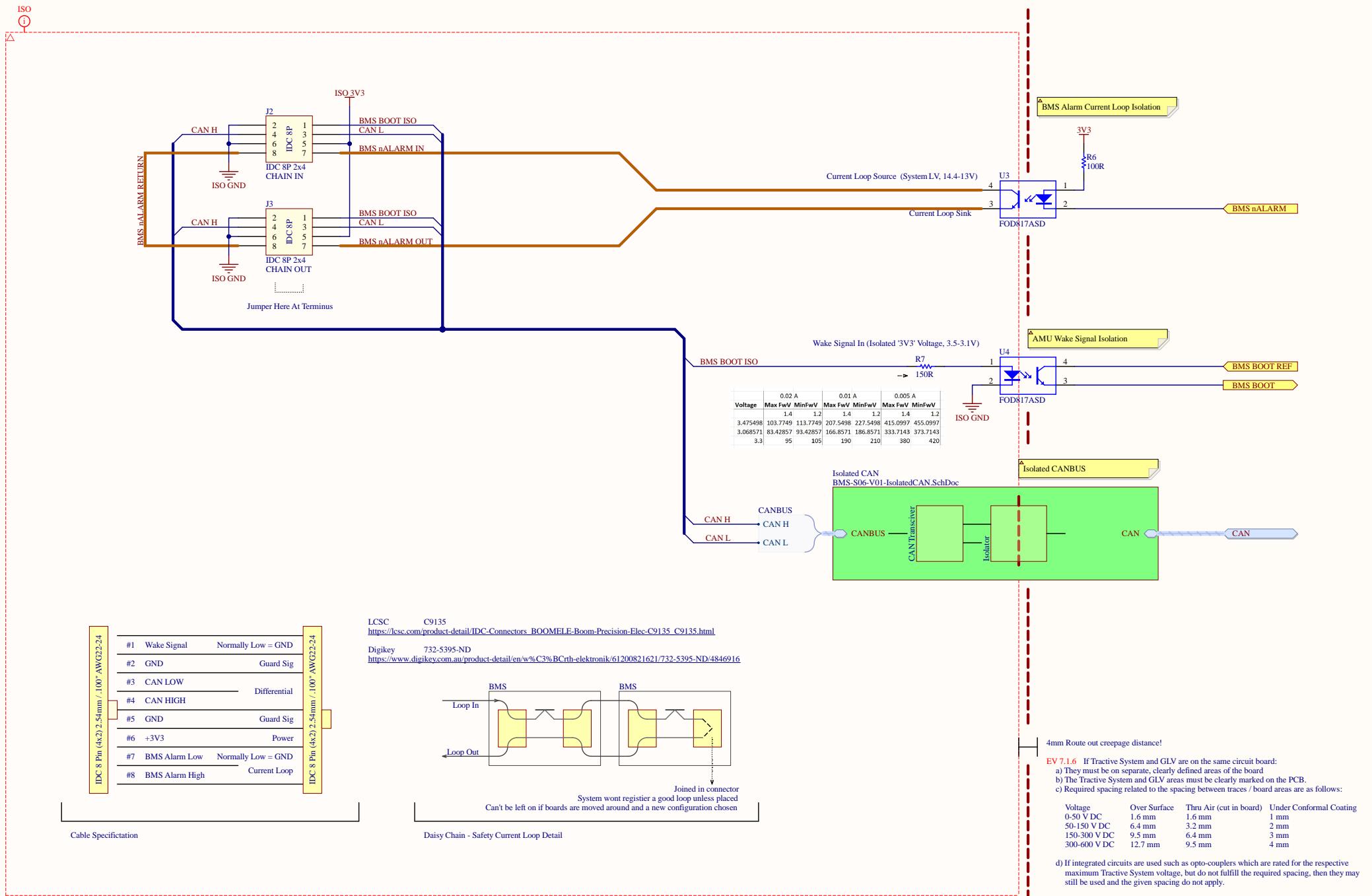
Sheet Title: Microcontroller

Project: Battery Management System 2020

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Australia



Size: A3 Number: 2 Version: 01
Drawn By: Zoe Goodward Revision: 01
Sheet 2 of 10 Print Date: 18/10/2020 Print Time: 11:12:36 AM File Name: BMS-S04-V01-Microcontroller.SchDoc



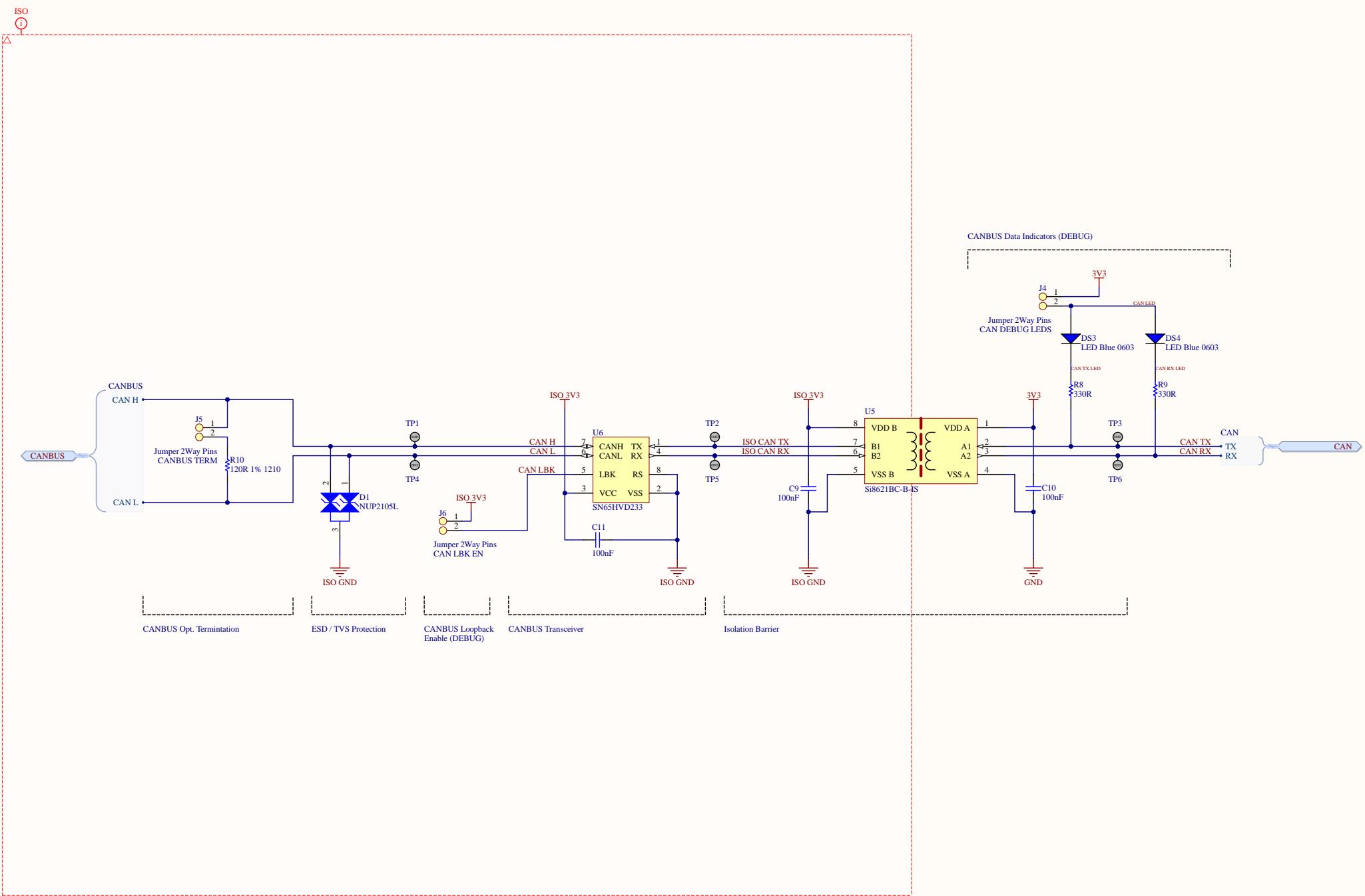
Revision History:

Rev Date	Description

Sheet Title: Isolation Barrier

Project: Battery Management System 2020

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 Australia
 Print Date: 18/10/2020 Print Time: 11:12:36 AM File Name: BMS-S05-V01-Isolation.SchDoc

Revision History:

Rev Date	Description

Sheet Title: Isolated CANBUS @ 3V3

Project: Battery Management System 2020

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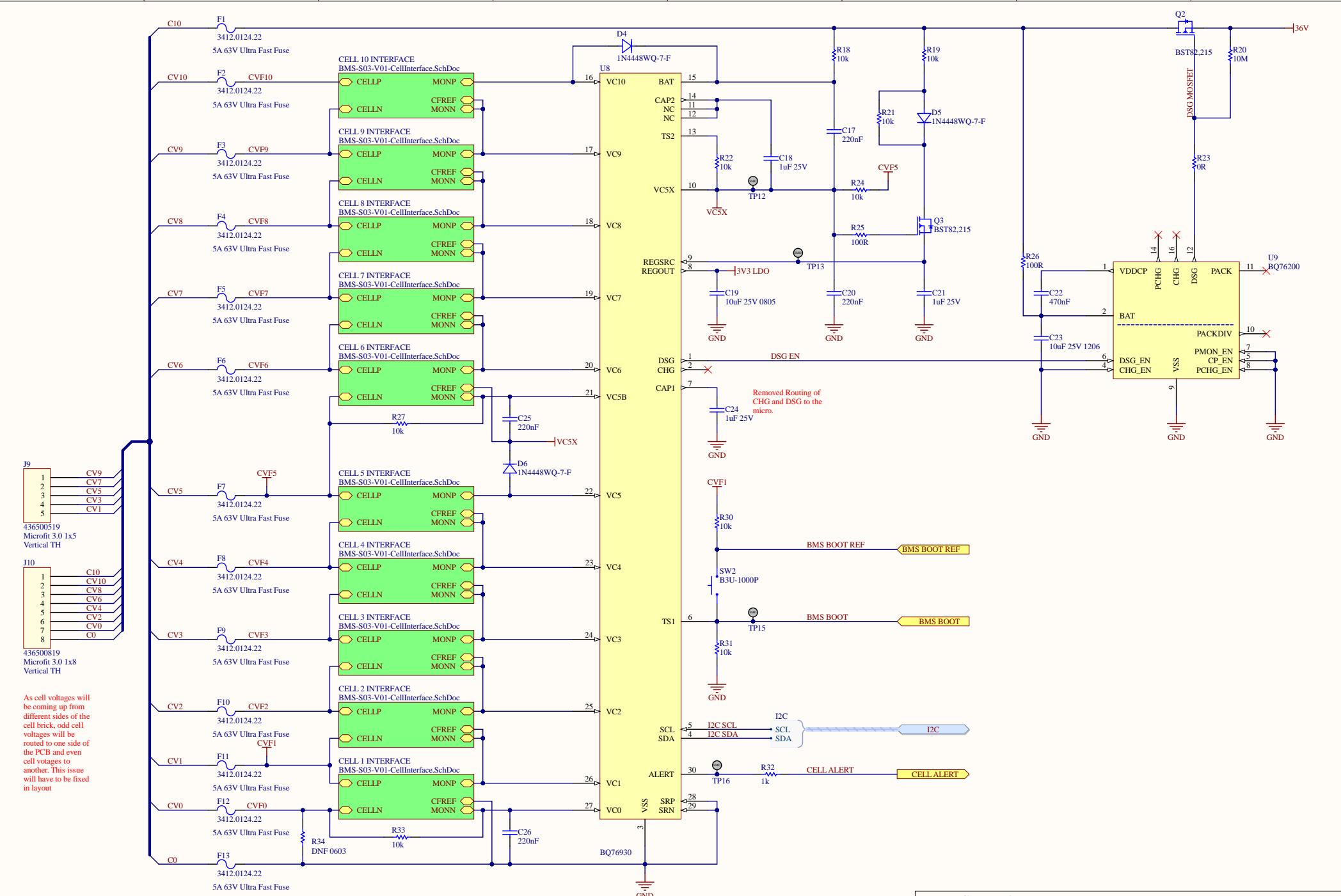
Size: A3 Number: 4 Version: 01

Revision: 01

Drawn By: Jonn Dillon

Sheet 4 of 10

Print Date: 18/10/2020 Print Time: 11:12:36 AM File Name: BMS-S06-V01-IsolatedCAN.SchDoc



As cell voltages will be coming up from different sides of the cell brick, odd cell voltages will be routed to one side of the PCB and even cell voltages to another. This issue will have to be fixed in layout

Sheet Title: **Cell Monitor**

Project: **Battery Management System 2020**

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Australia
IS-S02-V01-CellMonitor Sch Doc



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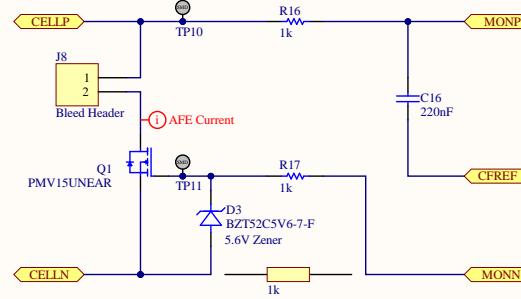
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Revision History:

Rev	Date	Description

Sheet Title: Cell Balancing

Project: Battery Management System 2020

QUT Motorsport
O-120, Gardens Point
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Print Date: 18/10/2020 Print Time: 11:12:36 AM File Name: BMS-S03-V01-CellInterface.SchDoc

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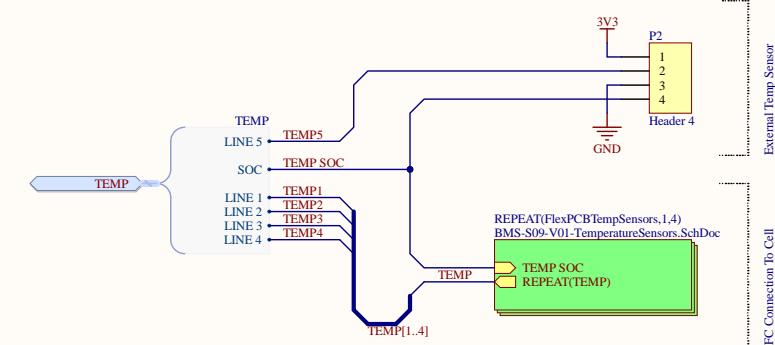
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Revision History:

Rev Date	Description

Sheet Title: Extra Temperature Connection

Project: Battery Management System 2020

QUT Motorsport
O-120, Gardens Point
2 George Street
Brisbane, QLD 4000
Australia



Size: A3 Number: 8 Version: 01

Revision: 01 Drawn By: Jonn Dillon Sheet: 8 of 10

Print Date: 18/10/2020 Print Time: 11:12:36 AM File Name: BMS-S09-V01-TemperatureSensorInterface.SchDoc

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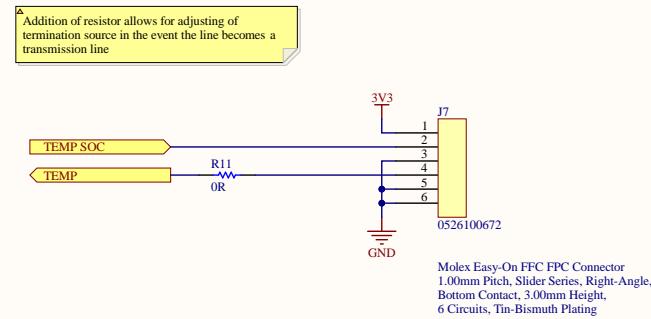
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Revision History:

Rev	Date	Description

Sheet Title: Temperature Sensors

Project: Battery Management System 2020

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Australia



Size: A3 Number: 9 Version: 01
Drawn By: Jonn Dillon Revision: * Sheet 9 of 10

Print Date: 18/10/2020 Print Time: 11:12:37 AM File Name: BMS-S09-V01-TemperatureSensors.SchDoc

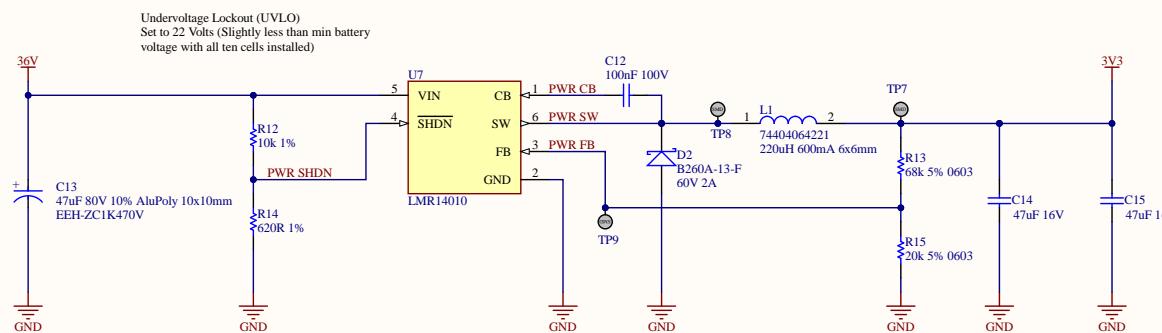
BMS Power Budget

Essential
 25mA STM32F042 @ 42Mhz, All peripherals enabled
 200uA BQ76930, Everything On
 3mA Si8621 @ 1Mbps (CANBUS Datarate)
 75mA DS18B20 @ Full Functionality x 50

Debug
 6mA MCU Debug LEDs
 6mA CANBUS Debug LEDs

Essential 303mA
 Debug 315mA

A



B

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C

D

Revision History:

Rev	Date	Description

Sheet Title: Power Supply (20-40V to 3v3 @ 0.1-0.6A)

Project: Battery Management System 2020

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Australia



Size: A3 Number: 10 Version: 01
Drawn By: Jonn Dillon Revision: 01
Sheet 10 of 10
Print Date: 18/10/2020 Print Time: 11:12:37 AM File Name: BMS-S07-V01-PSU.SchDoc

