

# Ground Control – RockBLOCK 9704

**Design requirements:**– [https://docs.google.com/document/d/102uSy-YxmOLSQODuI0je0U-dM38gha3h9kwTfMUPbio/edit?addon\\_store&tab=t.0#heading=h.smt7dn6e7kfa](https://docs.google.com/document/d/102uSy-YxmOLSQODuI0je0U-dM38gha3h9kwTfMUPbio/edit?addon_store&tab=t.0#heading=h.smt7dn6e7kfa)

## Design Notes

RockBLOCK based on the 9704 module, with focus on multiple input power choices.

## Version History

Version	PCB ver.	Inc.	Description
06/01/2025	1A	1	Initial creation
....			
29/01/2025	1D	1	First Prototype sent for manufacture
20/02/2028	1E	1	Changes to USB-UART enable time & IRID-V_IO enable voltage.

## BOM Change list

PI	Ref	QTY	Description
PI1	16/01/20251.A	1	Initial Creation
PI2	29/01/20251.D	1	Initial send for quote
PI3	29/01/20251.D	2	Added SMA Alt
PI4	20/02/20251.E	1	BOOTED behaviour change

## Variant Options

VARIANT should include U15A/B and one of the comms variants  
E.G. <U15A RS232>

Name	Fit	Notes
FB_PG	---	Resistor divider bottom connection

## Top schematic



File: Top sheet.kicad\_sch



Confidential

**Ground Control**

Sheet: Root

File: rockBLOCK-9704.kicad\_sch

**Title: RockBLOCK 9704**

Size: A4

Date: 2025-02-25

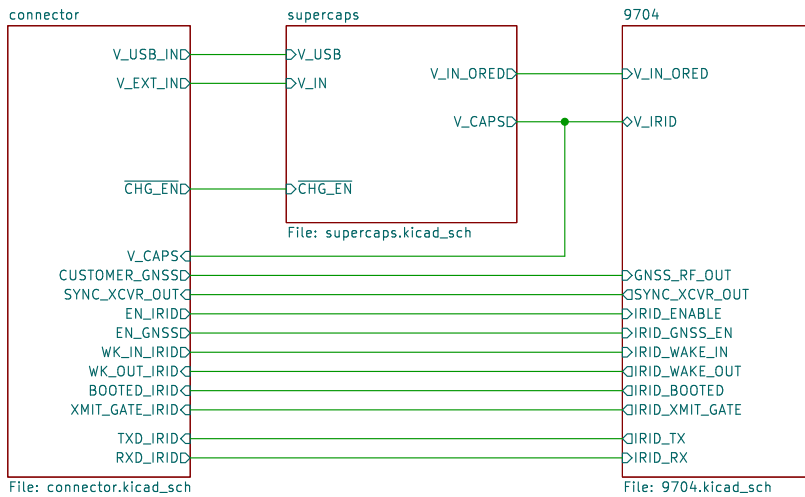
Ver: 1E

Itrn: 1

Fit Var:

KiCad E.D.A. 9.0.0

Id: 1/5



- FID1  
Fiducial
- FID2  
Fiducial
- FID3  
Fiducial
- FID4  
Fiducial



Confidential

**Ground Control**

Sheet: Top schematic

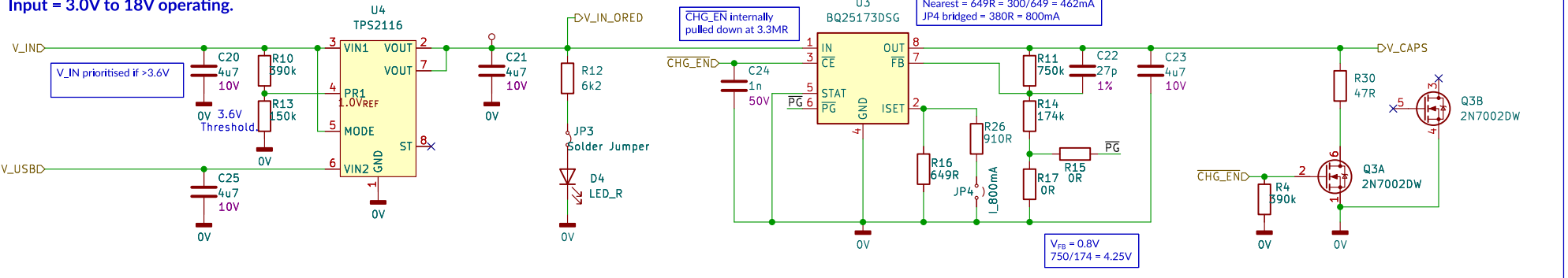
File: Top sheet.kicad\_sch

**Title: RockBLOCK 9704**

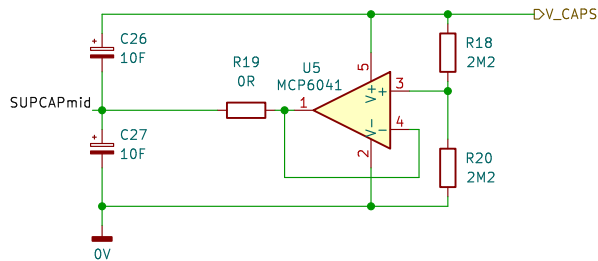
Size: A4	Date: 2025-02-25	Ver: 1E	Itrn: 1	Fit Var:
KiCad E.D.A. 9.0.0		Id: 2/5		



**4V2 Supercap charger**  
**BQ25173 4.2V 0.46A output**  
**Input = 3.0V to 18V operating.**



**MCP6041**  
 Ultra low supply current, offset and input bias current.  
 600nA per channel.  
 1pA input bias.  
 3mV input offset.  
 sink/source 10 < 17mA.



Confidential

**Ground Control**

Sheet: supercaps

File: supercaps.kicad\_sch

**Title: RockBLOCK 9704**

Size: A4

Date: 2025-02-25

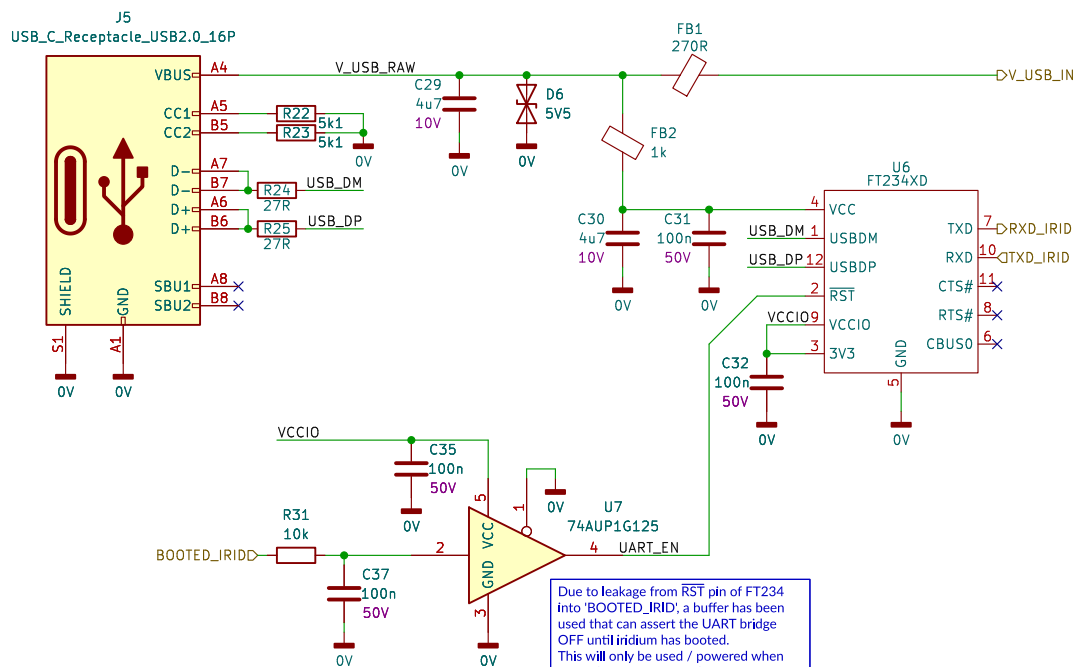
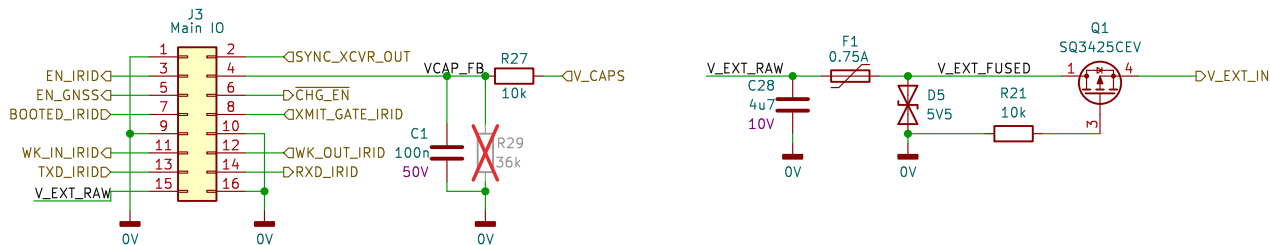
Ver: 1E

Itrn: 1

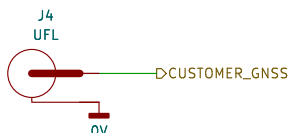
Fit Var:

KiCad E.D.A. 9.0.0

Id: 4/5



Due to leakage from RST pin of FT234 into 'BOOTED\_IRIDD', a buffer has been used that can assert the UART bridge OFF until iridium has booted. This will only be used / powered when using the USB. If using the full pin set, the target application will be responsible for monitoring and respecting the 'BOOTED\_IRIDD' status.



Confidential

Ground Control

Sheet: connector

File: connector.kicad\_sch

**Title: RockBLOCK 9704**

Size: A4

Date: 2025-02-25

Ver: 1E

Itrn: 1

Fit Var:

KiCad E.D.A. 9.0.0

Id: 5/5