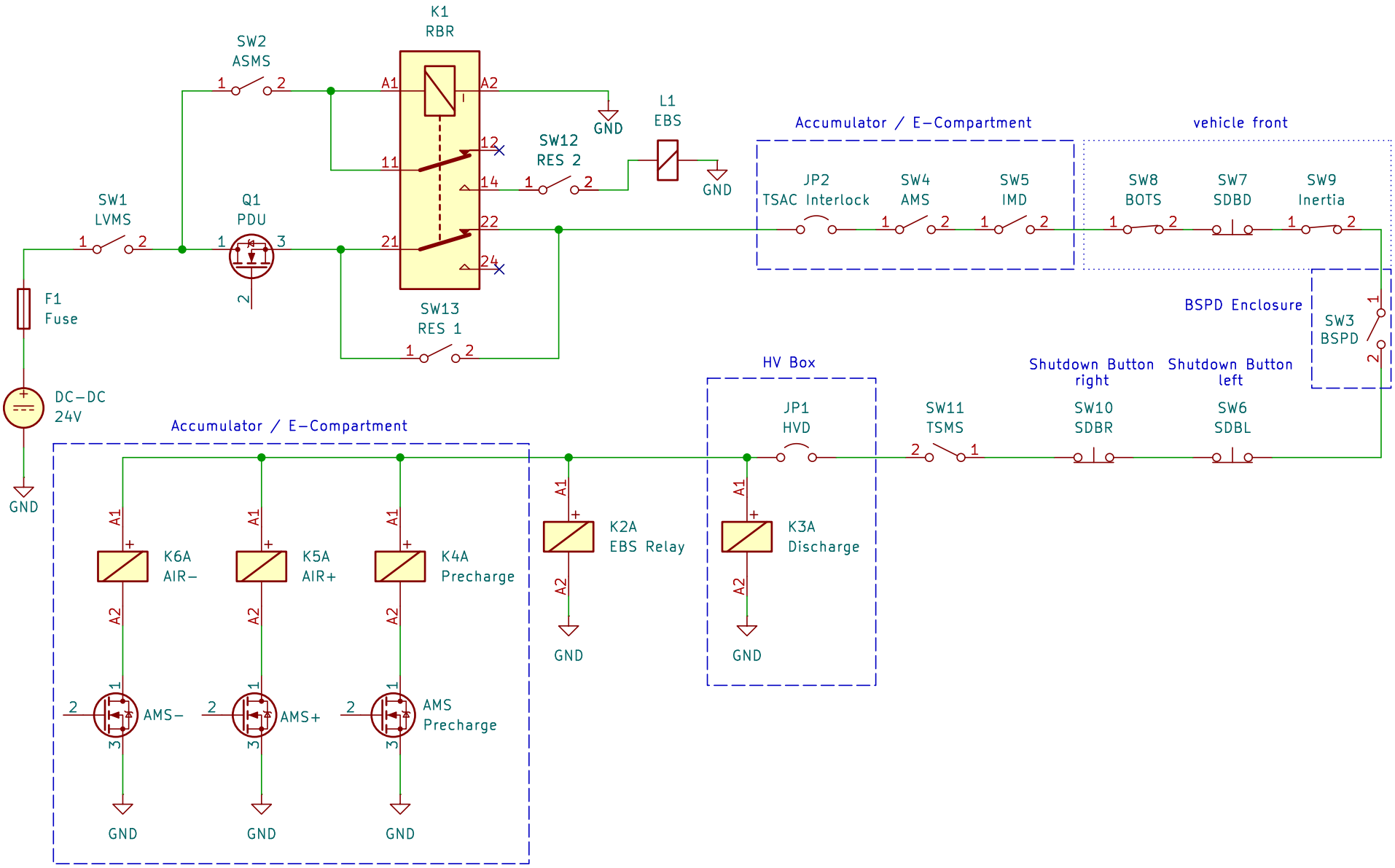
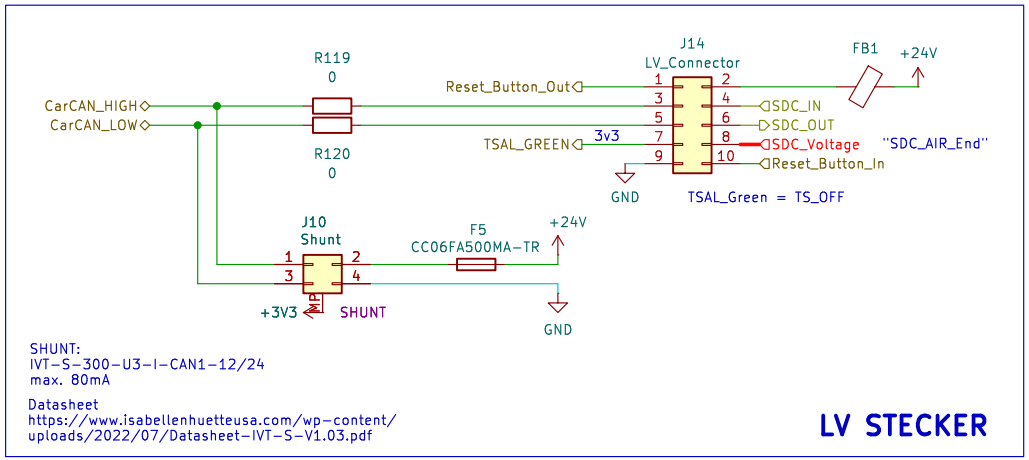
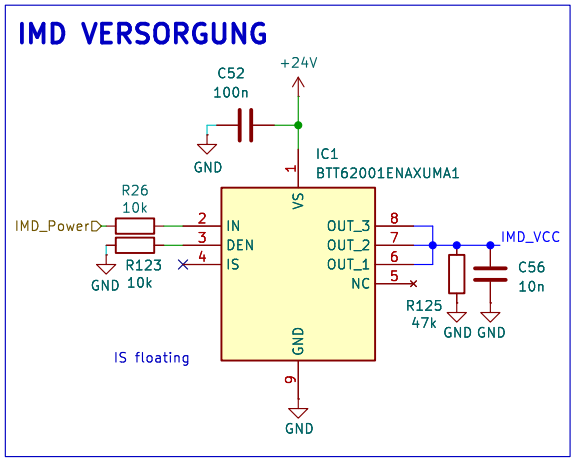
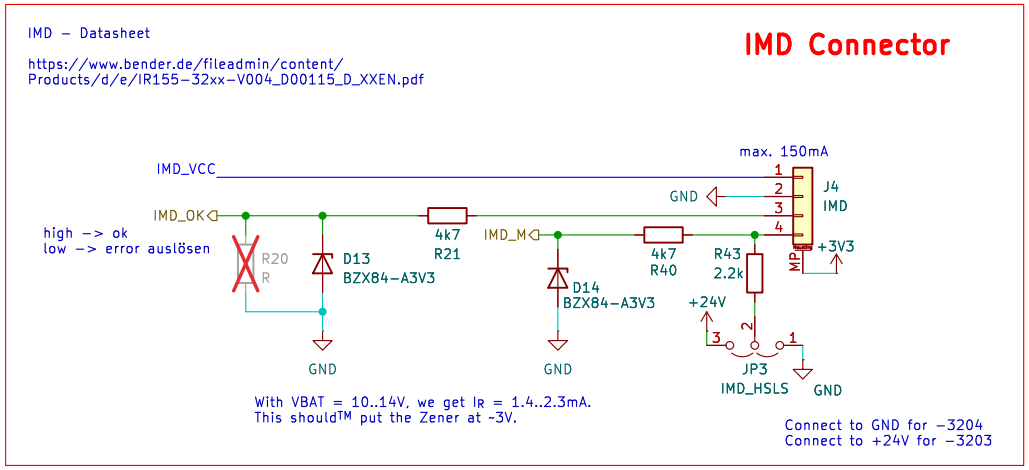


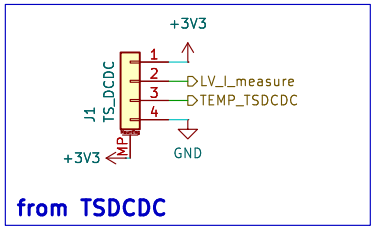
FASTTUBE

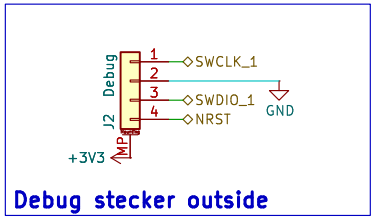
Project:SDC	**Rev: V1**
	Date: 2025–04–26
Title: Shutdown Circuit Schematic	Exp. Date: 2025–04–26
Author: Leonard Gies	Size: A5 | Page: 1/1





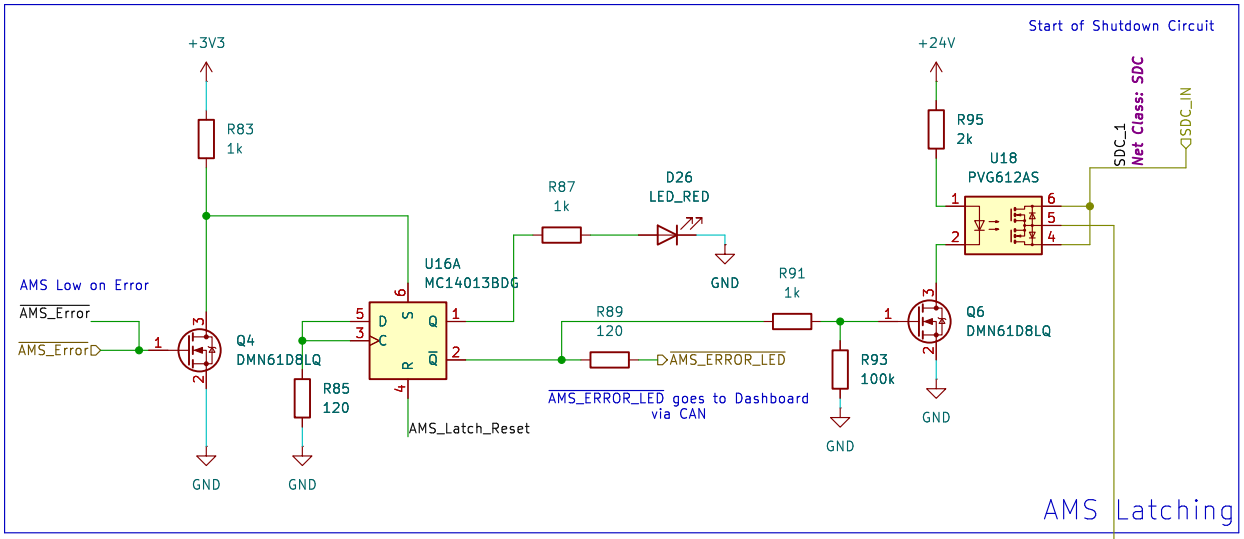


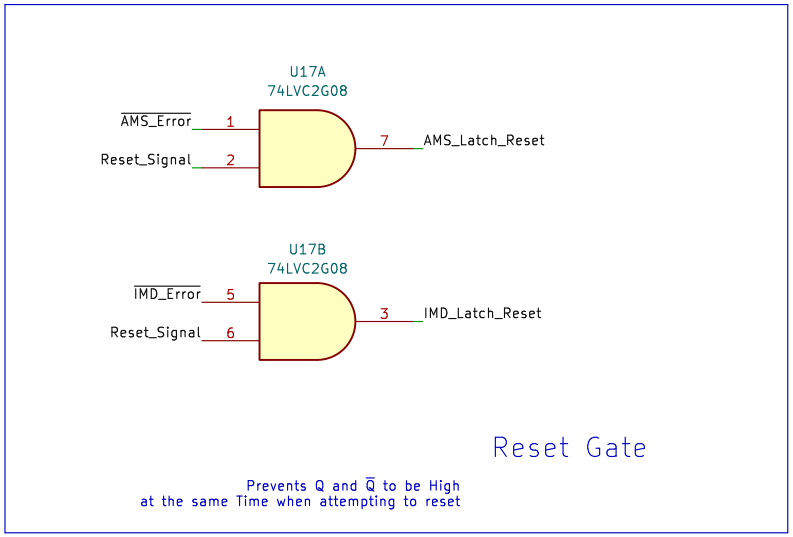


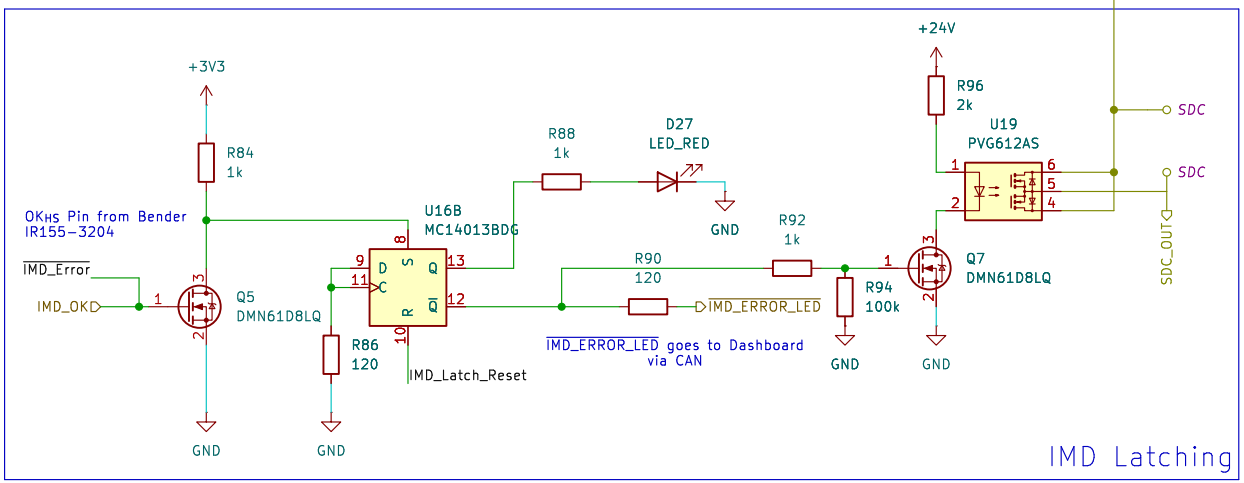


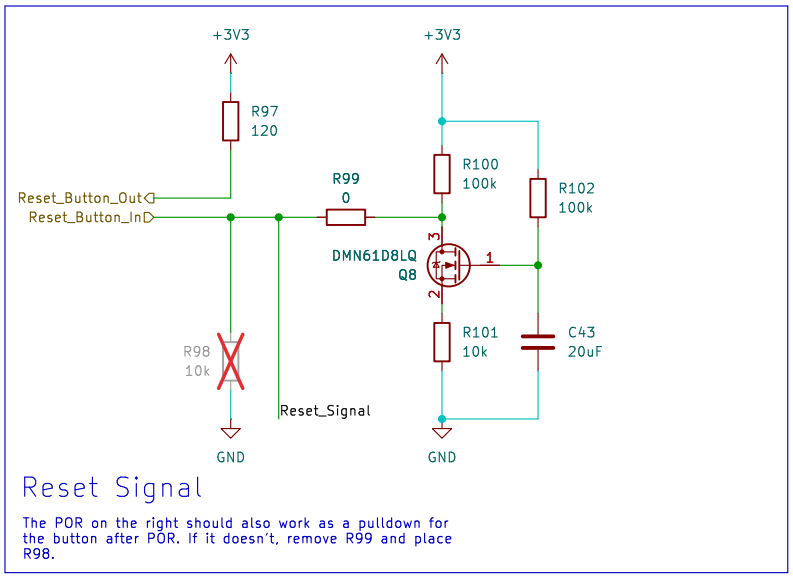
FASTTUBE

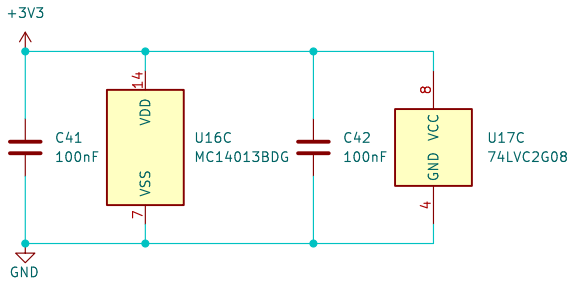
Project:Master_FT25	**Rev: V1**
	Date: 2025-03-01
Title: Inputs and Outputs	Exp. Date: 2025-04-26
Author: Lene Marquardt	Size: A4 | Page: 12/15











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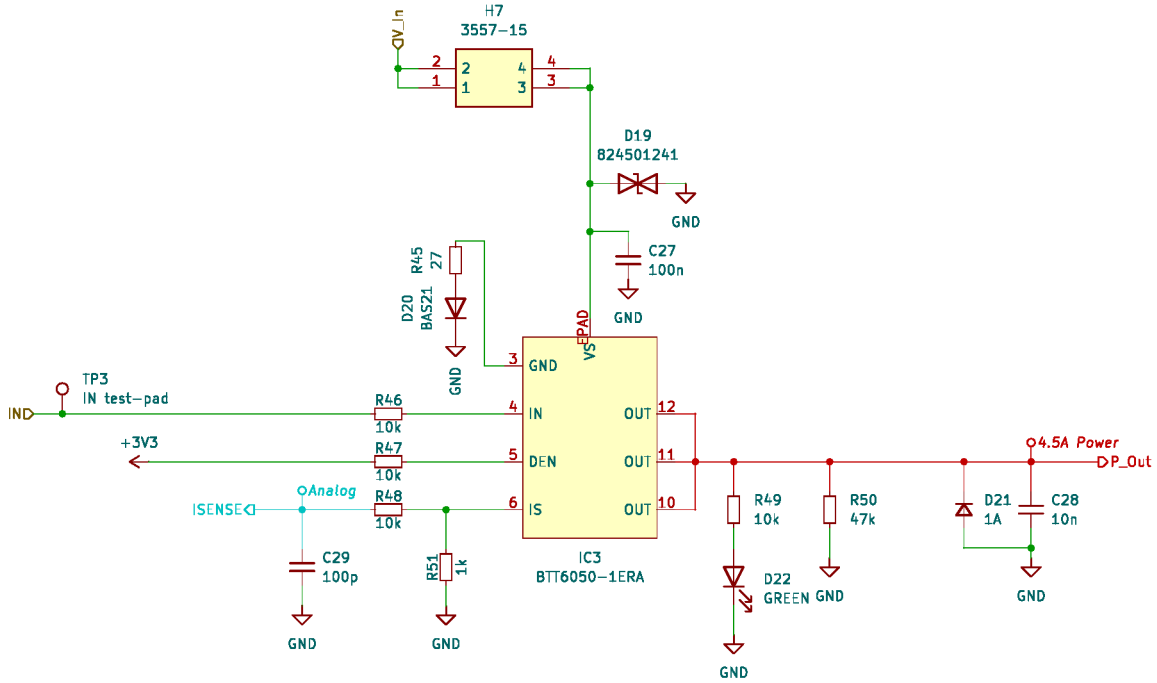
Project:Master_FT25	**Rev: V1**
	Date: 2025-03-01
Title: SDC Latching Circuit	Exp. Date: 2025-04-26
Author: Lene Marquardt	Size: A4 | Page: 10/15



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Title: PDU FT25	**Rev: V1.2**
	Date: 2025-01-15
Project: FT25_PDU	Exp. Date: 2025-04-28
Author: FaSTTUBe Electronics	Size: A4 | Page: 7/23

AMS & IMD latching

The latching is achieved with the MC14013BDG flip-flop. It can only be resetted by the AMS reset button in the error state. (the `Reset_Button_In` and `Reset_Button_Out` comes directly from the button located on the side of the car.)

Current Consumption

To calculate the current consumption, the load on the shutdown circuit must first be identified. As seen in the SDC schematic, the load consists of the AIRs, precharge relay, EBS Relay and the Discharge Circuit. The current consumption of the components are as follows:

- AIRs: 249 mA [1]
- Precharge relay: 8 mA [2]
- EBS relay: 9.6 mA [3]
- Discharge circuit: 4 mA [4]

We can then find the total consumption when we add all the the load together. $249\,\text{mA} \cdot 2 + 8\,\text{mA} + 9.6\,\text{mA} + 4\,\text{mA} \approx 520\,\text{mA}$.

Overcurrent Protection

The overcurrent protection is achieved with a physical fuse and a power switch (Infineon PROFET$^{\text{TM}}$ [5]) on our PDU (Power Distribution Unit) PCB. The 3557-15 in the schematic is the fuse-holder for the 1A fuse, and the BTT6050-1ERA is the PROFET$^{\text{TM}}$.

Reference

[1] *TE ECK100BH5AAA*. https://www.te.com, 11.2024

[2] *Pickering 104-1-A-24/5D*. https://www.pickeringrelay.com/pdfs/104-high-voltage-sil-reed-relays.pdf, 07.2024

[3] *Omron G6L1PDC24*. https://media.digikey.com/pdf/Data%20Sheets/Omron%20PDFs/G6L.pdf

[4] *WE 140356145200*. https://www.we-online.com/components/products/datasheet/140356145200.pdf, 08.2023

[5] *Infineon PROFET^{TM}*. https://www.infineon.com/dgdl/Infineon-BTT6050-1ERA-DS-v01_00-EN.pdf?fileId=5546d46269e1c019016a21fa5b7a0d8a, 03.2019