

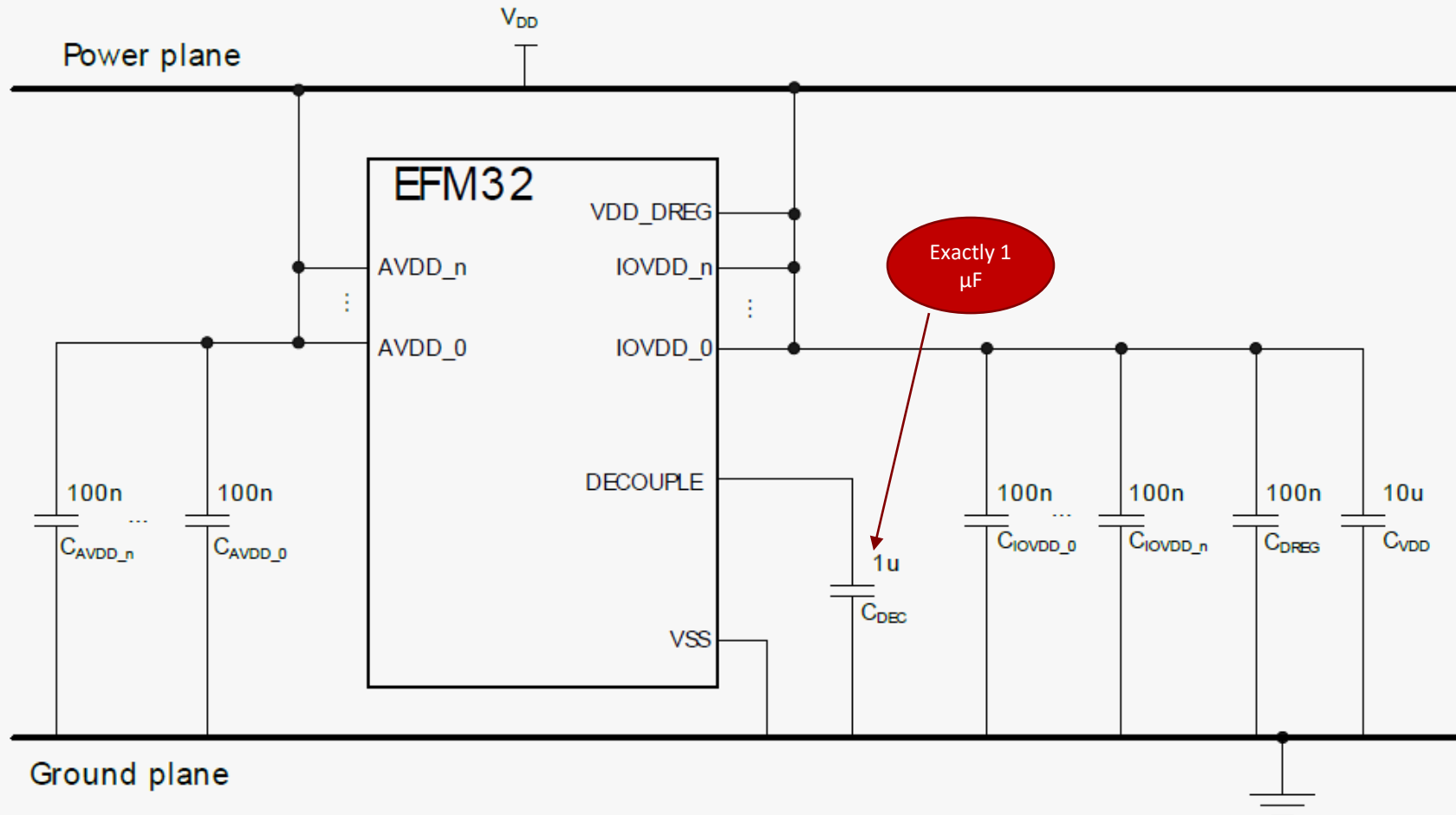


EFM32 Series 0: Hardware Design



Power supply option #1

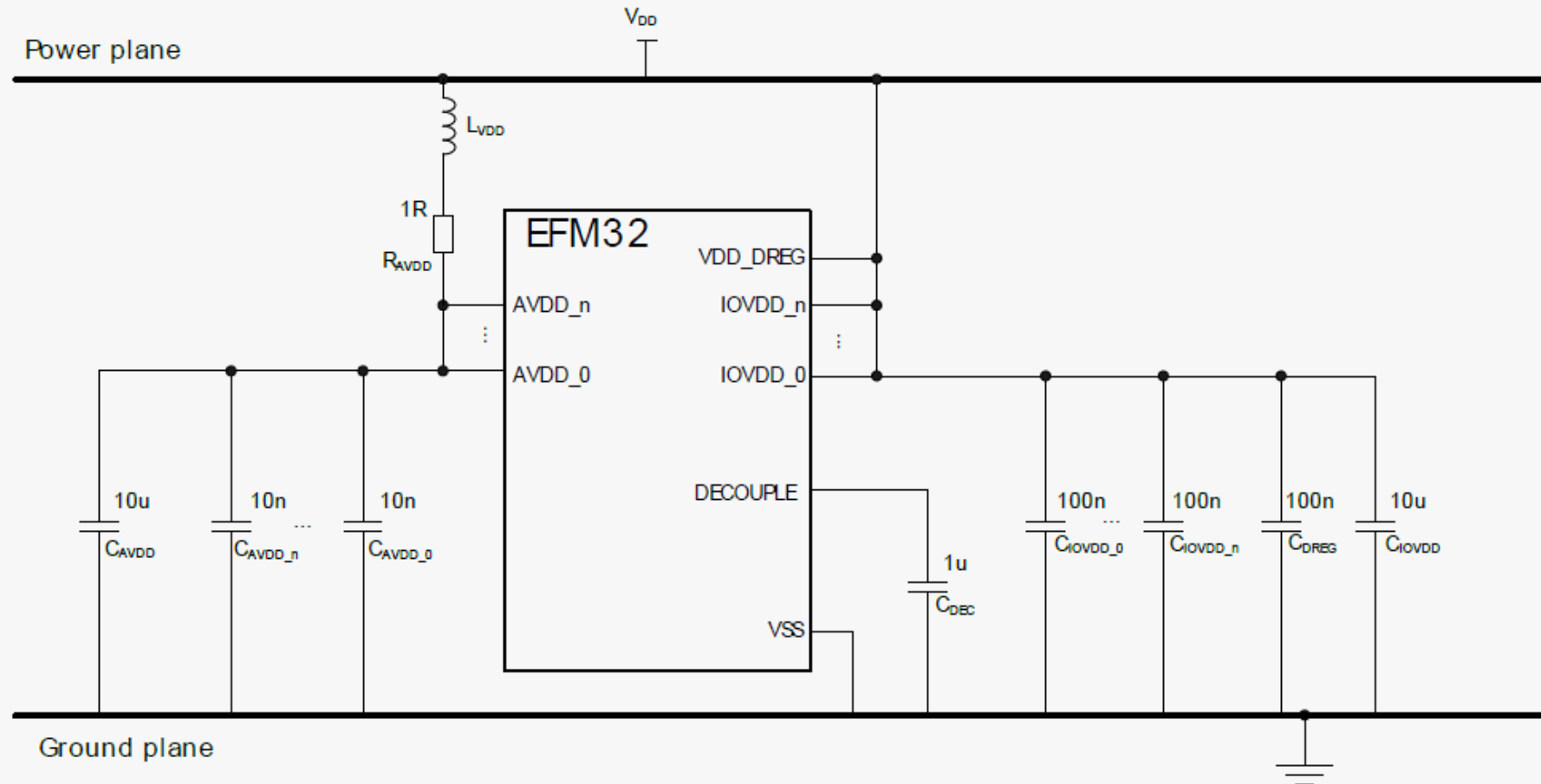
- Minimum recommended decoupling
- Decouple caps should be physically close to relevant pins!



Power supply option #2

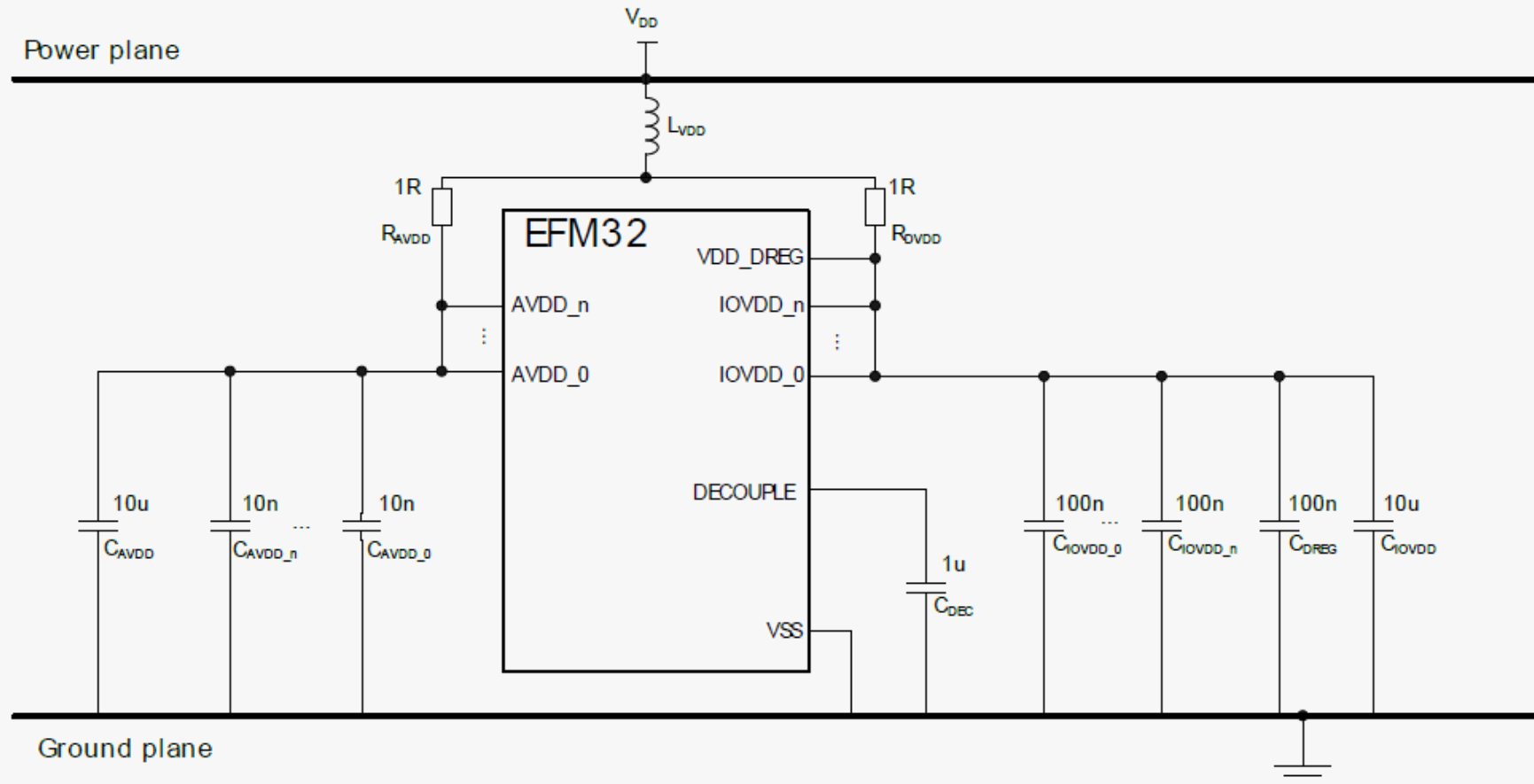
➤ Analog filtering

- Ferrite bead and 1 Ohm resistor filters analog power
- Use when digital domain is too noisy
- AVDD must come up no more than 10 μ s after VDD_DREG



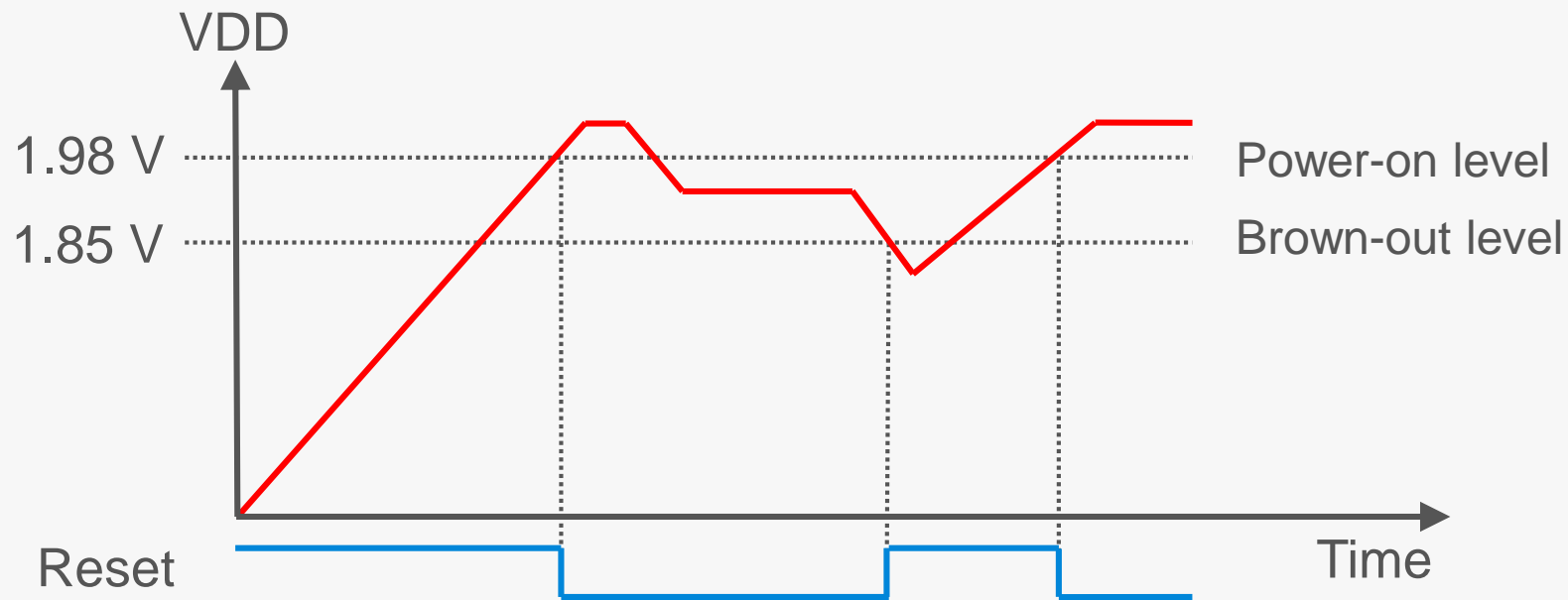
Power supply option #3

- Separate filtering of analog and digital
 - No problems with power-on reset
 - In most cases recommended over option #2

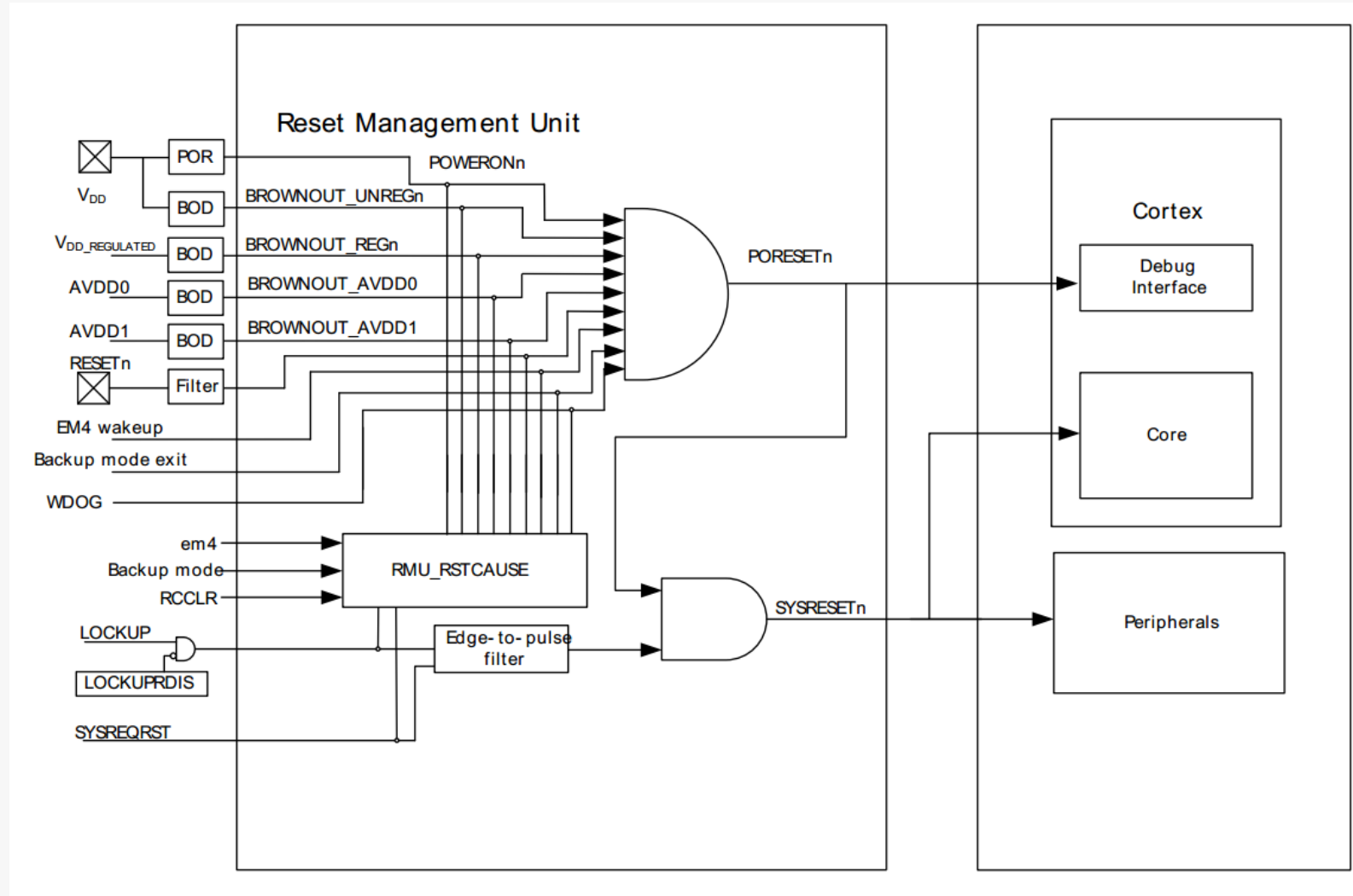


Supply voltage limits

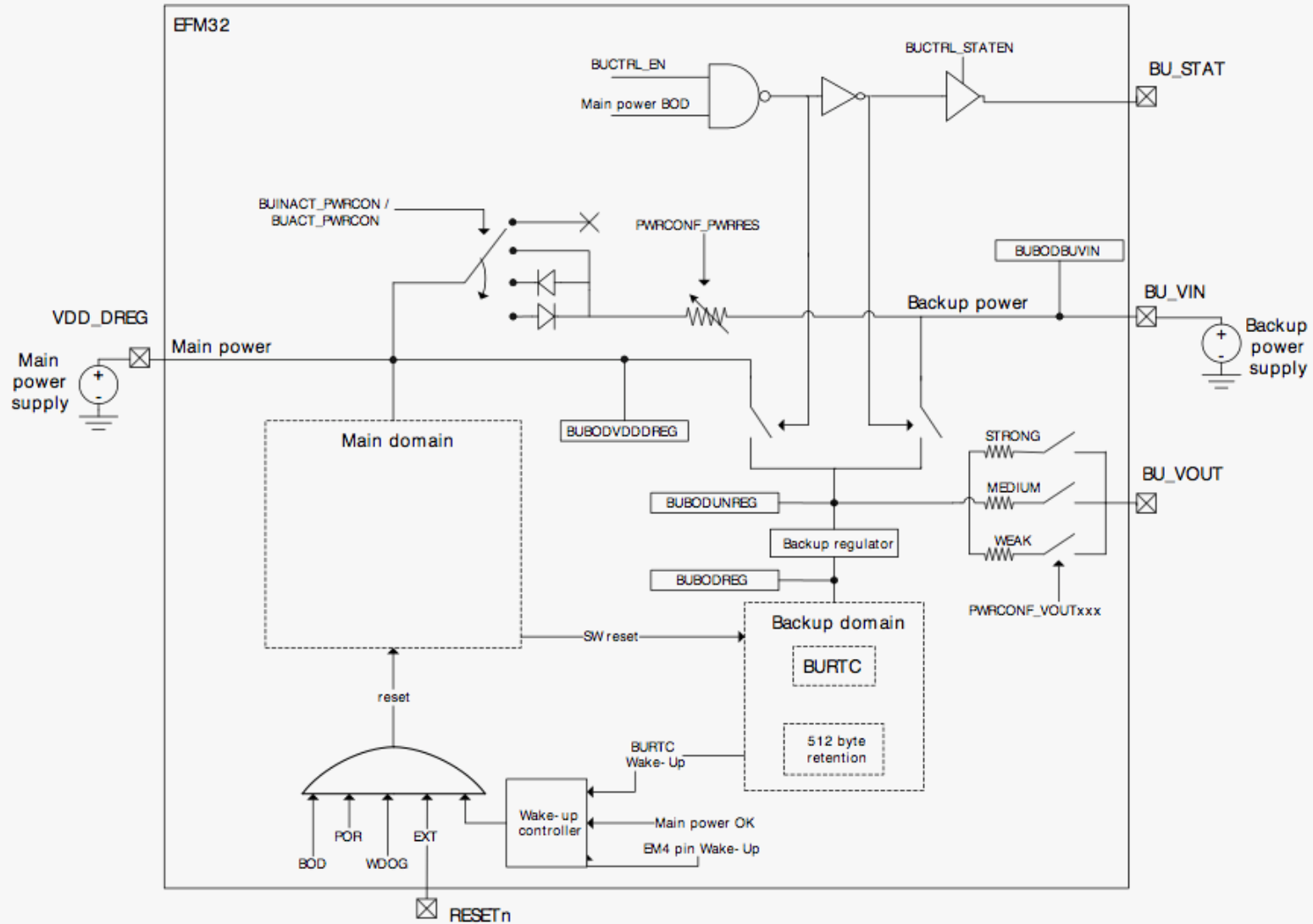
- Upper limit for EFM32 supply: 3.8 V
- Lower limit for EFM32 supply:
 - 1.98 V for regulated supplies
 - Down to 1.85V for batteries that start out above 1.98V
 - **Recent characterization: BOD threshold 1.77-1.90 V**



Reset



Backup Voltage Domain



Backup Mode Hidden Info

Information not in reference manual:

- Thresholds calibrated in production test:
 - Enter backup mode: $VDD < 1.95\text{ V}^*$
 - Condition: $BU_VIN > 1.90\text{ V}$
 - Exit backup mode: $VDD > 2.10\text{ V}^*$

*) Enter/exit thresholds are user configurable

- RESETn pin is pulled towards BU_VIN when in backup mode
- DECOUPLE pin is also used by backup voltage regulator

Debug Backup Mode

- Reset makes debugging difficult
- Tip 1: Print out RSTCAUSE register on wake-up
- Tip 2: Measure current consumption
 - BU mode expected: 300-500 nA with BURTC
- Tip 3: Monitor BU_STAT
 - High = BU mode active
- Tip 4: Measure voltage on RESETn (VDD or BU_VIN)
 - BU mode: internal pull-up to BU_VIN
- Tip 5: Measure voltage on DECOUPLE
 - Decouples BU voltage regulator



www.silabs.com/efm32

