

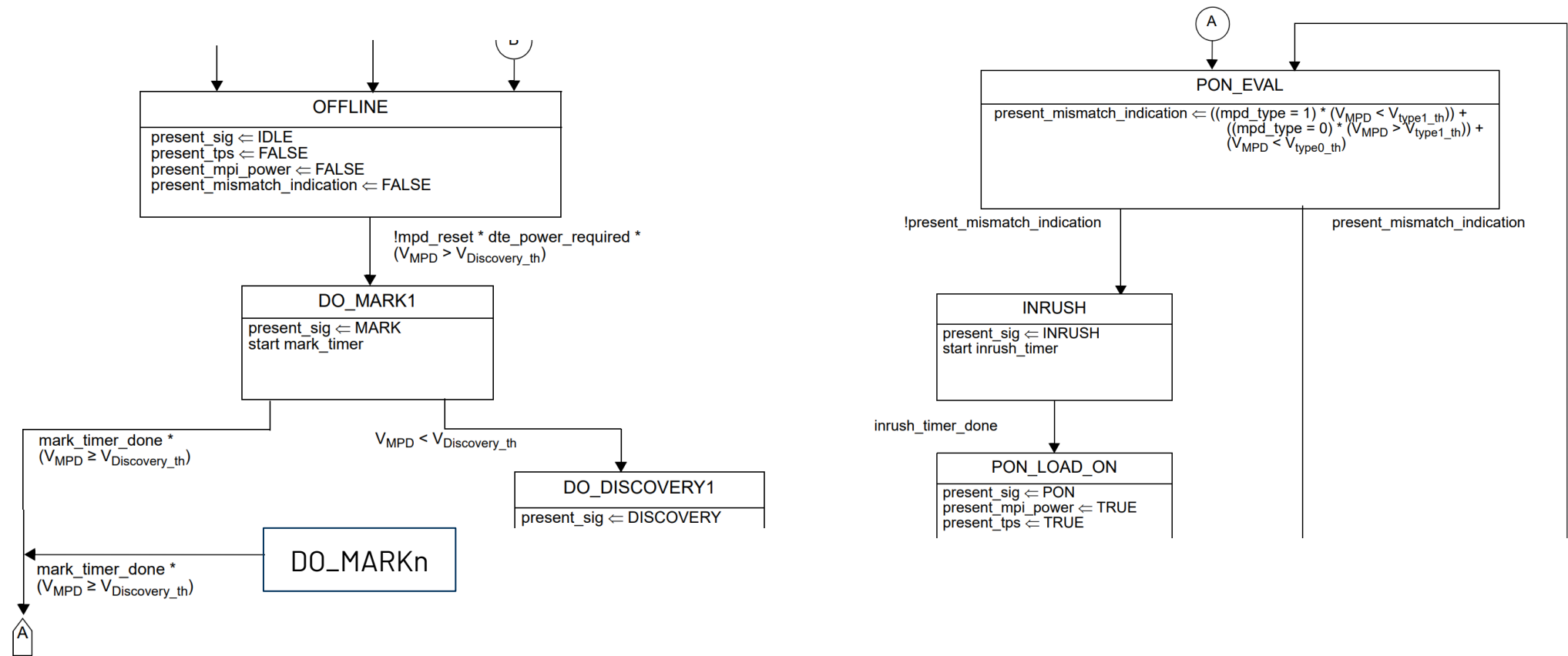


MPD Inrush Sequence

Michael Paul

analog.com

PD Inrush State Machine



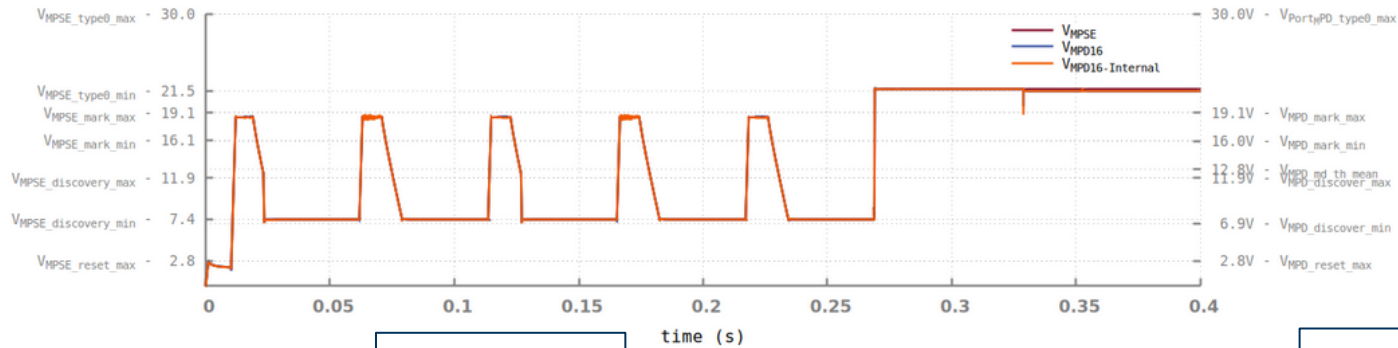
189.5.5.2 MPD inrush and Power On

An MPD evaluates the MPSE system type when V_{MPD} is greater than $V_{\text{type0_th}}$ and T_{Mark} time has elapsed. If V_{MPD} is greater than $V_{\text{type0_th}}$, the T_{Mark} time has elapsed, and the voltages at both MP1 and MP2 are in a range that is compatible with the MPD type, the MPD proceeds to the INRUSH state.

Table 189–9—MPD power supply limits (continued)

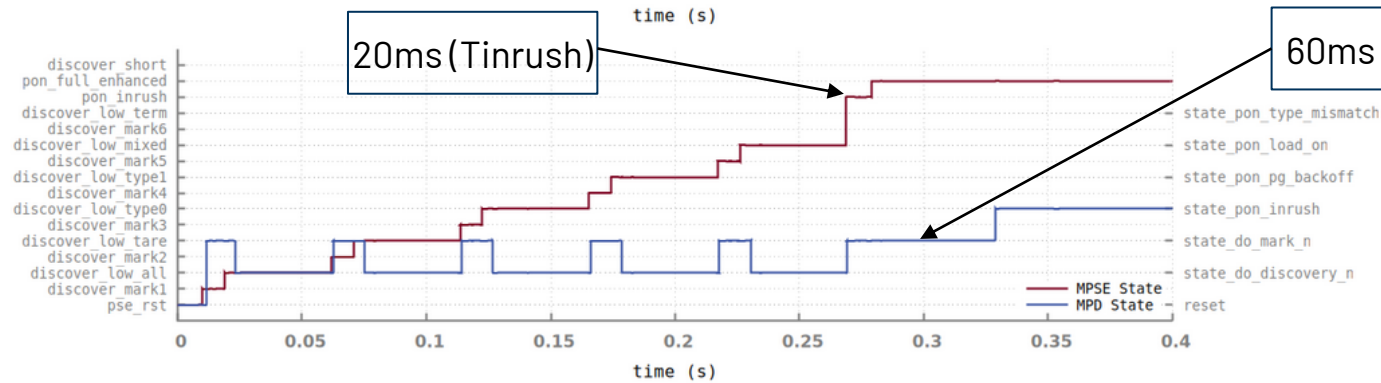
Item	Parameter	Symbol	Unit	Min	Max	Type	Additional Information
8	Mark Timer duration	T_{Mark}	ms	50	75	ALL	See 189.5.5.2

Power Up Waveforms



Discovered MPDs start inrush **T_{mark}** after MPSEs start inrush

This ensures MPSE voltage is stable before MPDs evaluate Type0 / Type1 voltage compliance in PON_EVAL state

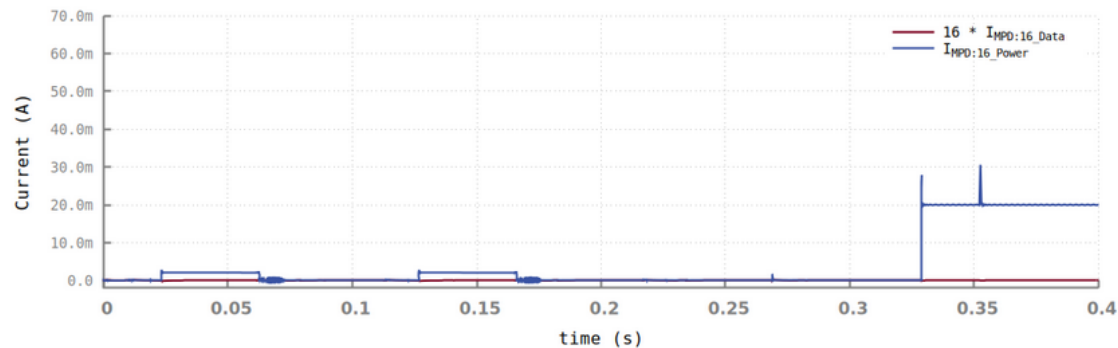


20ms (T_{inrush})

60ms (T_{mark})

Hotplugged MPDs wait **T_{mark}** before starting inrush

This ensures MPSE voltage is stable before MPDs evaluate Type0 / Type1 voltage compliance in PON_EVAL state



See this presentation for original MPD inrush description:
https://www.ieee802.org/3/da/public/0124/Paul_da_01_20240124.pdf