

PSE Inrush for D1.6 v101

Info (not part of baseline)

When implementing the inrush baseline for D1.6, the comment instruction said to remove all distinction between dual-signature with same or different class. This has caused part of the disconnect between total and pairset currents as well as between the PSE and the PD specification. The total inrush currents I_{Inrush} and I_{Inrush_PD} seem to be OK and compatible with each other. These have been taken as leading. Trouble illustrated:

Table 33–17—PSE output PI electrical requirements for all PD Classes, unless otherwise specified (continued)

Item	Parameter	Symbol	Unit	Min	Max	PSE Type	Additional information
7	Total output current of both pairsets of the same polarity in the POWER_UP state as function of assigned Class						
	Single-signature PD Class 0 to 4	I_{Inrush}	A	0.400	0.450	All	See 33.2.8.5, max value definition in Figure 33–26.
	Single-signature PD Class 5 to 6 Dual-signature PD Class 1 to 4			0.400	0.900	3, 4	
	Single-signature PD Class 7 to 8 Dual-signature PD Class 5			0.800	0.900	4	
8	Output current per pairset in the POWER_UP state as function of the assigned Class						
	Dual-signature PD Class 0 to 4	$I_{Inrush-2P}$	A	0.400	0.450	3, 4	See 33.2.8.5, max value definition in Figure 33–26.
	Single-signature PD Class 5 to 6 Dual-signature PD Class 1 to 4			0.150	0.600	3, 4	
	Single-signature PD Class 7 to 8 Dual-signature PD Class 5			0.400	0.600	4	

OK, no overlap, works with PD

OVERLAP

Table 33–28—PD power supply limits

Item	Parameter	Symbol	Unit	Min	Max	PD Type	Additional information
6	Input inrush current						
	Single-signature PD Class 0 to 6 Dual-signature PD Class 1 to 4	I_{Inrush_PD}	A		0.400	All	Peak value—See 33.3.7.3
	Single-signature PD Class 7 to 8 Dual-signature PD Class 5				0.800	4	
7	Input inrush current per pairset						
	Dual-signature PD	I_{Inrush_PD-2P}	A		0.400	3	Peak value—See 33.3.7.3
	Single-signature PD Class 5 to 6 Dual-signature PD Class 1 to 4				0.300/ TBD	3, 4	
	Single-signature PD Class 7 to 8 Dual-signature PD Class 5				0.600	4	

OVERLAP

Merge the additional information fields for Table 33–17, Item 7 as follows:

Item	Parameter	Symbol	Unit	Min	Max	PSE Type	Additional information
7	Total output current of both pairsets of the same polarity in the POWER_UP state as function of assigned Class						
	Single-signature PD, Class 0 to 4	I_{Inrush}	A	0.400	0.450	All	See 33.2.8.5, 33.2.8.5.1, max value definition in Figure 33–26.
	Single-signature PD, Class 5 to 6 Dual-signature PD, Class 1 to 4			0.400	0.900	3, 4	
Single-signature PD, Class 7 to 8 Dual-signature PD, Class 5	0.800			0.900	3, 4	See 33.2.8.5, max value definition in Figure 33–26. See 33.2.8.5.1 for conditions to use lower than I_{Inrush} min current values.	

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Based on these total I_{Inrush} currents, there is an impossibility in item 8 for $I_{Inrush-2P}$, as well as overlap in the dual-signature specification. The first row of $I_{Inrush-2P}$ is impossible given a total I_{Inrush} of 400mA for dual-signature PD Class 1 to 4.

Adopted inrush text: darshan_02.0116_Rev 011j.pdf

Given I_{Inrush} , the following would be the $I_{Inrush-2P}$ values:

Modify Table 33–17, item 8 as follows:

Item	Parameter	Symbol	Unit	Min	Max	PSE Type	Additional information
8	Output current per pairset in the POWER_UP state as function of the assigned Class						
	Dual-signature PD, Class 0 to 4	I _{Inrush-2P}	A	0.400	0.450	3,4	See 33.2.8.5, 33.2.8.5.1, max value definition in Figure 33–26.
	Single-signature PD, Class 5 to 6 Dual-signature PD, Class 1 to 4			0.150	0.600	3, 4	
Single-signature PD, Class 7 to 8 Dual-signature PD, Class 5	0.400			0.600	3, 4	See 33.2.8.5, max value definition in Figure 33–26. See 33.2.8.5.1 for conditions to use lower than I_{Inrush-2P} min current values.	