

33.2.6.1 Detection probe requirements

The detection voltage V_{detect} shall be within the V_{valid} voltage range at the PSE PI as specified in Table 33–4 with a valid PD detection signature as defined in Table 33–5 connected.

In evaluating the presence of a valid PD, the PSE shall make at least two measurements with V_{detect} values that create at least a ΔV_{test} difference as specified in Table 33–4. The timing of the two test points shall meet T_{BP} as defined in Table 33–4.

NOTE—Settling time before voltage or current measurement: the voltage or current measurement should be taken after V_{detect} has settled to within 1% of its steady state condition.

The PSE shall control the slew rate of the probing detection voltage when switching between detection voltages to be less than V_{slew} as specified in Table 33–4.

The polarity of V_{detect} shall match the polarity of V_{port} as defined in 33.2.3.

Table 33–4—PSE PI detection mode electrical requirements

Item	Parameter	Symbol	Unit	Min	Max	Additional information
1	Open circuit voltage	V_{oc}	V		30	In detection mode only
2	Short circuit current	I_{sc}	mA		5	In detection mode only
3	Valid test voltage	V_{valid}	V	2.8	10	
4	Voltage difference between validation test points	ΔV_{test}	V	1		
5	Time between validation test points	T_{BP}	ms	2		This timing implies a 500 Hz maximum probing frequency.
6	Slew rate	V_{slew}	V/ μ s		0.1	

Table 33–5—Valid PD detection signature electrical characteristics

Item	Parameter	Symbol	Unit	Min	Max	Additional information
1	Accept signature resistance	R_{good}	$k\Omega$	19	26.5	
2	Accept signature capacitance	C_{good}	nF		150	
3	Signature offset voltage tolerance	V_{os}	V	0	2.0	See Annex 33A for examples of valid signatures.
4	Signature offset current tolerance	I_{os}	μA	0	12	

Table 33–6—Invalid PD detection signature electrical characteristics

Item	Parameter	Symbol	Unit	Min	Max	Additional information
1	Reject signature resistance	R_{bad}	$k\Omega$	15	33	
2	Reject signature capacitance	C_{bad}	μF	10		
3	Open circuit resistance	R_{open}	$k\Omega$	500		

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