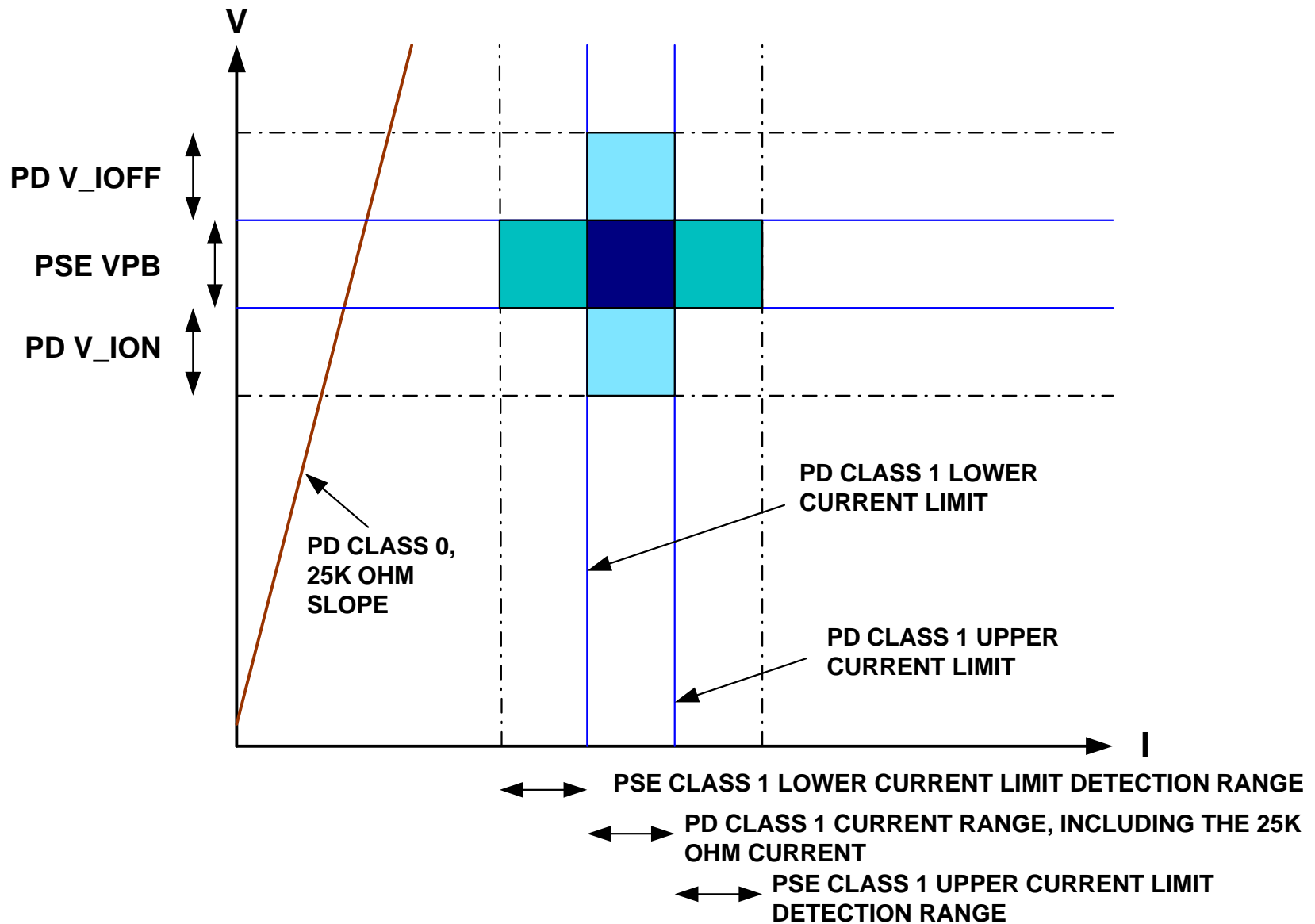


Classification Tolerances

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- ◆ REVIEW: CLASSIFICATION IN CURRENT DOMAIN
 - ◆ PSE sends a probing voltage
 - ◆ PD turns on the the classification current source when the probing voltage is within spec.
 - ◆ PSE reads the current to determine the class



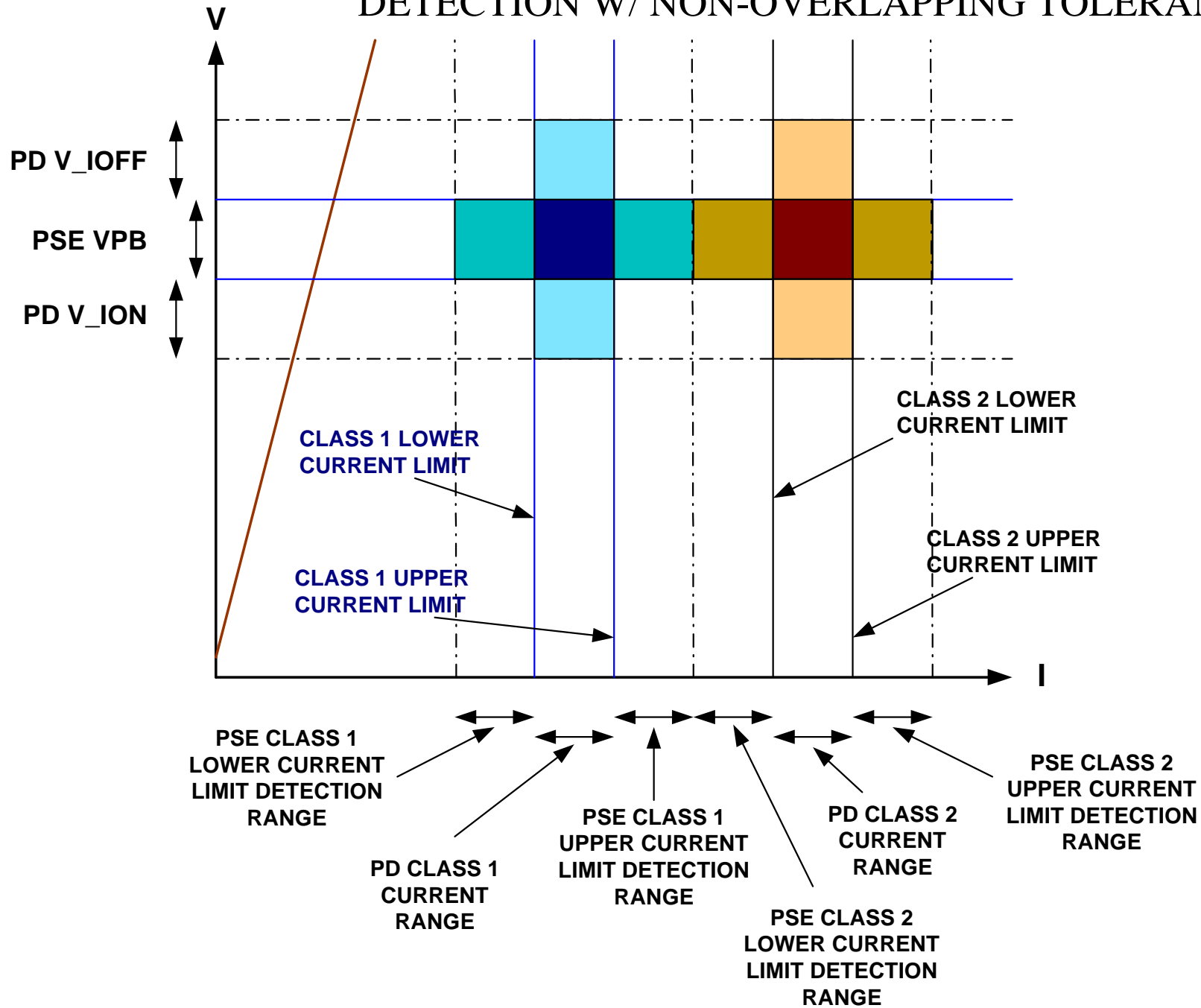
LEGEND:

PD V_IOFF: VOLTAGE RANGE IN WHICH THE PD TURNS OFF ITS CLASSIFICATION CURRENT SOURCE

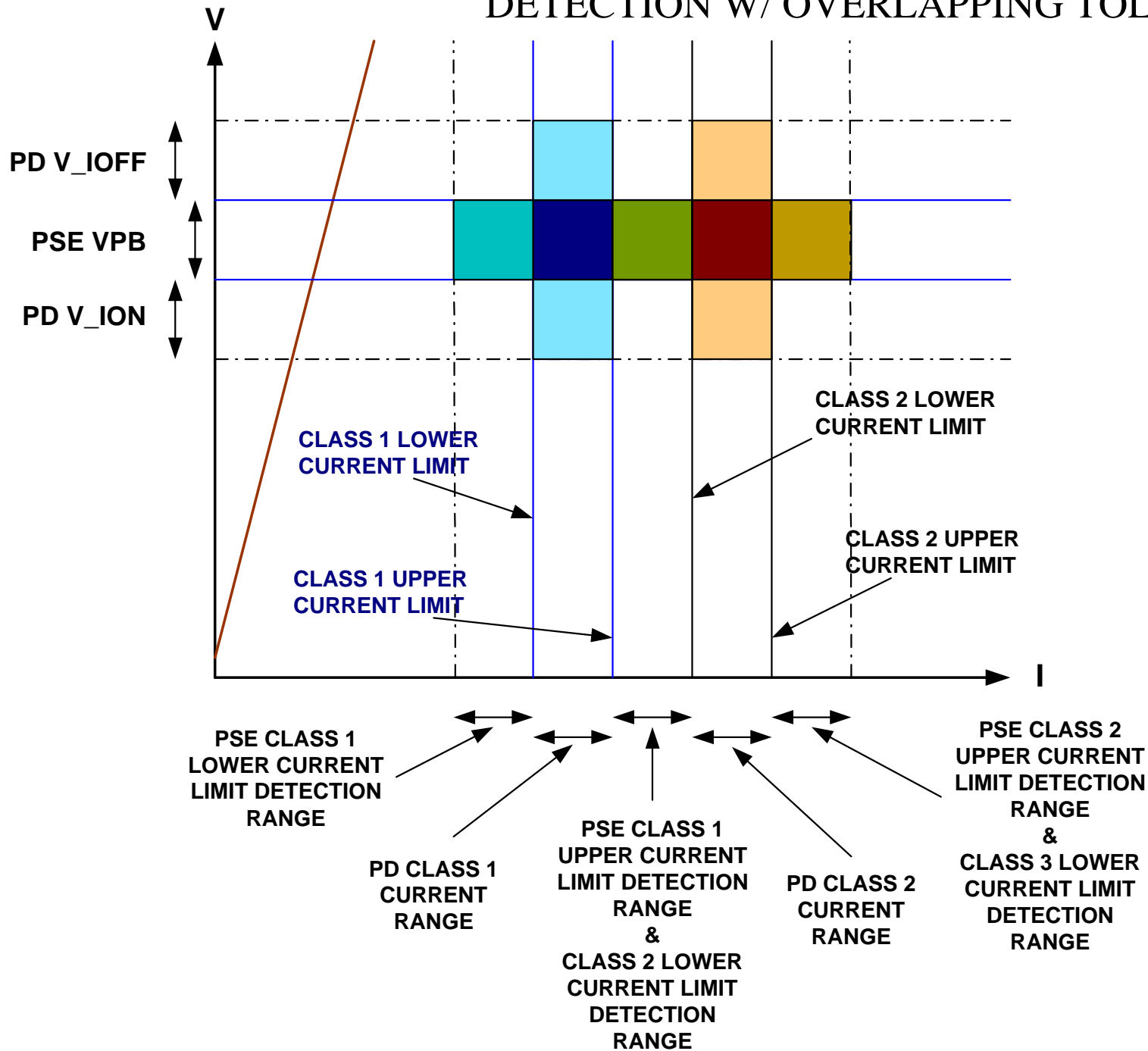
PSE VPB: THE PSE PROBING VOLTAGE RANGE

PD V_ION: VOLTAGE IN WHICH THE PD TURNS ON ITS CLASSIFICATION CURRENT SOURCE

DETECTION W/ NON-OVERLAPPING TOLERANCE



DETECTION W/ OVERLAPPING TOLERANCE



Classification Tolerances							
<i>PD Classification Current Errors:</i>							
Voltage reference over temperature and process variation						+/-2.5%	
External resistor						+/-1%	
Change in 25k resistor current over 4V & percentage around 8mA					80uA	+/-1%	
Change in leakage current & percentage around 8mA					100uA	+/-1.25%	
Total error							+/-5.75%
						PD tolerance used (+/-%):	7.75
<i>PSE Current Detection Tolerance:</i>							
Voltage reference over temperature and process variation						+/-1%	
On-chip, current-sense, resistor matching						+/-1%	
On-chip, current mirror matching (used in current sense)						+/-1%	
Total error							+/-3%
						PSE tolerance used (+/-%):	5

NOTE: All numbers below are in units of mA.

Detection with non-overlapping tolerances:											
	PSE: Lower current limit detection range				PD classification window				PSE: Upper current limit detection range		
	min	typ	max		min	typ	max		min	typ	max
Class 1	6.68	7.03	7.38		7.38	8	8.62		8.62	9.07	9.53
Class 2	9.53	10.03	10.53		10.53	11.41	12.30		12.30	12.95	13.59
Class 3	13.59	14.31	15.03		15.03	16.29	17.55		17.55	18.47	19.40
Class 4	19.40	20.42	21.44		21.44	23.24	25.04		25.04	26.36	27.68

NOTE: All numbers below are in units of mA.

Detection with overlapping tolerances:											
	PSE: Lower current limit detection range				PD classification window				PSE: Upper current limit detection range		
	min	typ	max		min	typ	max		min	typ	max
Class 1	6.68	7.03	7.38		7.38	8	8.62		8.62	9.07	9.53
Class 2	8.62	9.07	9.53		9.53	10.33	11.13		11.13	11.71	12.30
Class 3	11.13	11.71	12.30		12.30	13.33	14.37		14.37	15.12	15.88
Class 4	14.37	15.12	15.88		15.88	17.21	18.55		18.55	19.52	20.50

NOTE: All numbers below are in units of mA.

Detection with overlapping tolerances & minimized R & Ilk effects:											
	PSE: Lower current limit detection range				PD classification window				PSE: Upper current limit detection range		
	min	typ	max		min	typ	max		min	typ	max
Class 1	6.77	7.12	7.48		7.48	8	8.62		8.62	9.07	9.53
Class 2	8.62	9.07	9.53		9.53	10.16	10.90		10.90	11.47	12.05
Class 3	10.90	11.47	12.05		12.05	12.83	13.72		13.72	14.44	15.16
Class 4	13.72	14.44	15.16		15.16	16.12	17.19		17.19	18.09	19.00

Classification Tolerances				
PD Classification Current Errors:				
PD tolerance used:			+/-7	%
Change in 25k resistor current over 4V & % around 8mA			0.08	(mA)
Change in leakage current & percentage around 8mA			0.1	(mA)
PSE Current Detection Tolerance:				
PSE tolerance used:			+/-7	%

NOTE: All numbers below are in units of mA.

Detection with overlapping tolerances & minimized R & Ilk effects:											
	PSE: Lower current limit detection range			PD classification window			PSE: Upper current limit detection range				
	min	typ	max	min	typ	max		min	typ	max	
Class 1	8.0	8.6	9.2	9.2	10.0	10.9		10.9	11.7	12.5	
Class 2	10.9	11.7	12.5	12.5	13.5	14.7		14.7	15.8	16.9	
Class 3	14.7	15.8	16.9	16.9	18.2	19.7		19.7	21.2	22.6	
Class 4	19.7	21.2	22.6	22.6	24.4	26.3		26.3	28.3	30.3	
Class 5	26.3	28.3	30.3	30.3	32.6	35.1		35.1	37.7	40.4	