

TPS23881: no output issue



Offline [Tommy Tz...](#)

Genius 3370 points

Community Member

Part Number: [TPS23881](#)

Other Parts Discussed in Thread: [TPS2373-4EVM-758](#)

Hi Sir,

The currently problem is: a total of 20pcs is produced, 10pcs are good products, and 10pcs are failure.

The output of the good product is 56V 1.08A (60W), and the output of the problem product is only 56V 0.4A. After 0.4A, there will be no output.

May we know what caused it? attached is schematic.

[A160-8560110N 小板 20210717.pdf](#)

[12 days ago](#)



Offline [Darwin Fernandez](#) *10 days ago*

[TI_Mastermind](#) 37320 points

Hi Tommy, for the good product and problem product, can you take a waveform during detection and classification on the port? Maybe on the PD input if you can so we can see what signal is being sent to the PD?

Also, can you take a waveform during startup of your PSE of VPWR and VDD?

Thanks!



Online [Chen Wei Hung](#) *9 days ago*

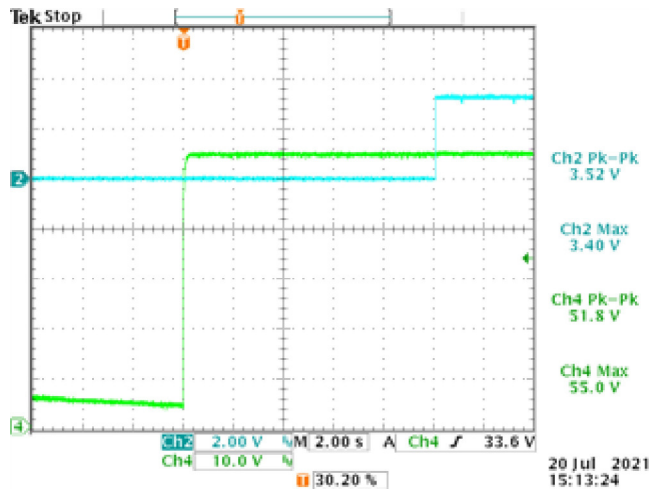
[Prodigy](#) 50 points

Dear Sir:

Attached file is startup of PSE of VPWR and VDD waveform,thanks.

CH2 is VDD.

CH4 is VPWR.



Offline [Darwin Fernandez](#) *9 days ago* in reply to [Chen Wei Hung](#) [TI_Mastermind](#) 37320 points

Hi Tommy thanks for taking the power waveform. This looks good on my side.

Did you have a chance to take the port voltage waveform as well? I'd like to see what was negotiated and if there are any differences between the good working boards and bad working boards.



Online [Chen Wei Hung](#) *8 days ago* [Prodigy](#) 50 points

Dear Sir:

Sorry, I don't understand your mean? Which one port voltage waveform are you want in attached schematic? Please help mark let me know, thanks

[7522.A160-8560110N 小板_20210717.pdf](#)



Offline [Darwin Fernandez](#) *8 days ago* in reply to [Chen Wei Hung](#) [TI_Mastermind](#) 37320 points

Hi Chen, if you can take 2 waveform on the same graph across the PSE FETs (VDS) during negotiation (detection and class) then this would help us see the behavior of the PSE/PD interaction and why the PSE is limiting the power. It should be similar like below except below is across the port and I'm asking you to take it across the FETs. If you can take a graph picture on good board and one on back board so I can look at the differences that would be great. Thanks!

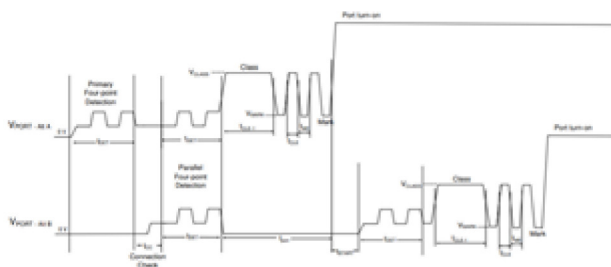


Figure 37. 4-Pair Dual Signature Detection, 3-Event Classification and Turn On



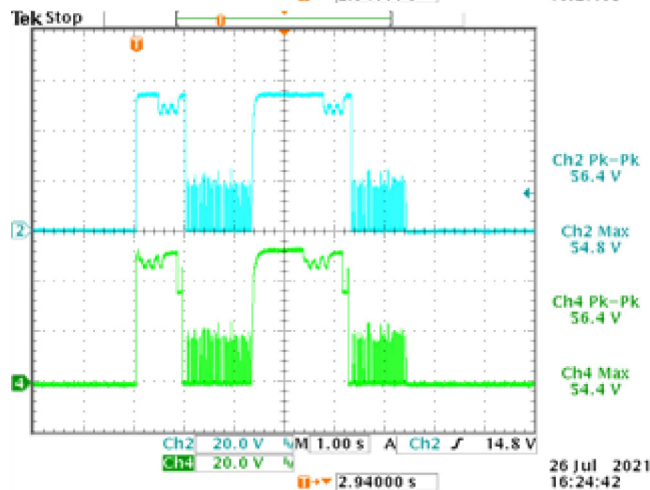
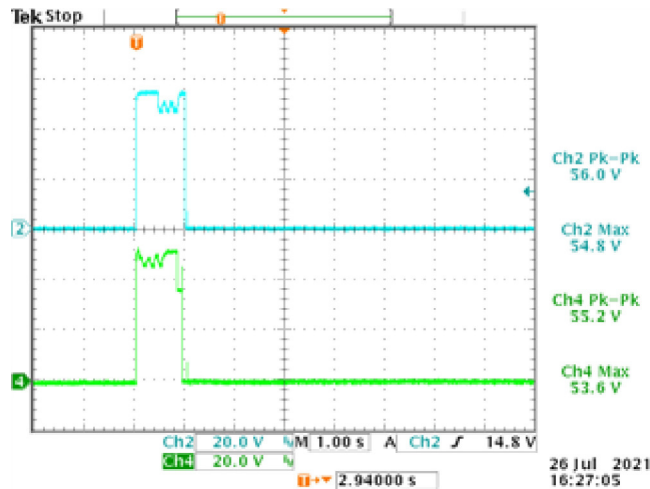
Online [Chen Wei Hung](#) *3 days ago* [Prodigy](#) 50 points

Dear Sir:

I have take 2 picture for Q501 and Q502 VDS waveform. It's differences between the good working boards and bad working boards.Thanks.

Good working boards:

Bad working boards:



Offline [Darwin Fernandez](#) 3 days ago in reply to [Chen Wei Hung](#) [TL Mastermind](#) 37320 points

Thanks for the waveforms Chen! a couple of comments regarding the waveform. First is that it looks like the PSE/PD is only negotiating 15W because I only see one class finger. Are you negotiating 60W with LLDP?

Next, the negotiation between the good and bad waveforms look identical so i don't believe negotiation is the issue. The bad waveform shows that it is failing inrush. For inrush issues, it is usually the PD. The fact that some are working and others not working could be that the PD is marginally failing inrush.

Is your PD an end product? or an EVM? Note the rule for PoE PD is that it must NOT power up to high power until 80ms after the PSE has powered up the port. This allows the PSE to finish it's inrush without the PD load stealing the current to charge the PD's bulk cap. You can probably confirm this by taking a TI PD EVM like TPS2373-4EVM-758 and connecting to your PSEs with no load on the PD EVM. If you get no issues, then i believe the original PD you're testing with could have been the issue.



Online [Chen Wei Hung](#) 2 days ago

[Prodigy](#) 50 points

Deae Sir:

I use a fixed PD to test every PSE products.You can see data before(total of 20pcs is produced, 10pcs are good products, and 10pcs are failure.).For to clarify the PD issue.Could you provide TPS2373-4EVM-758 Evaluation board let me test ? thanks.



Offline Darwin Fernandez *1 day ago in reply to Chen Wei Hung* [TL Mastermind](#) 37320 points

Hi Chen, the failure rate makes me wonder if the PD you're testing is marginal performance. So let's test with the EVM. I will reach out to the field team in your region to help get you an EVM for evaluation. Thanks!



Online Chen Wei Hung *1 day ago in reply to Darwin Fernandez*

[Prodigy](#) 50 points

Dear Sir:

Thanks.

My contact as below:

Company: Elementech International Corp., Ltd

Address :8F,No71,Jhouzih St.,Neihu Technology Park,Taipei City 114,Taiwan

Tel:+886 02-2659-9858 ext. 276

I have two other questions:

1. Is there FAE in Taiwan if have question need debug power ?
2. Demo board can use at 56V 1.08A(60W)?



Offline Darwin Fernandez *13 hours ago in reply to Chen Wei Hung* [TL Mastermind](#) 37320 points

Hi Chen,

Thanks we'll get the EVM shipped to you.

1. I'll check and we can discuss offline
2. The EVM will be a PD to see if it issue is present with a known passing BT compliant PD solution. It can do greater than 60W and accepts the PSE's 56V input. However, the PD's DCDC will drop the voltage to a regulated 5V output.

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