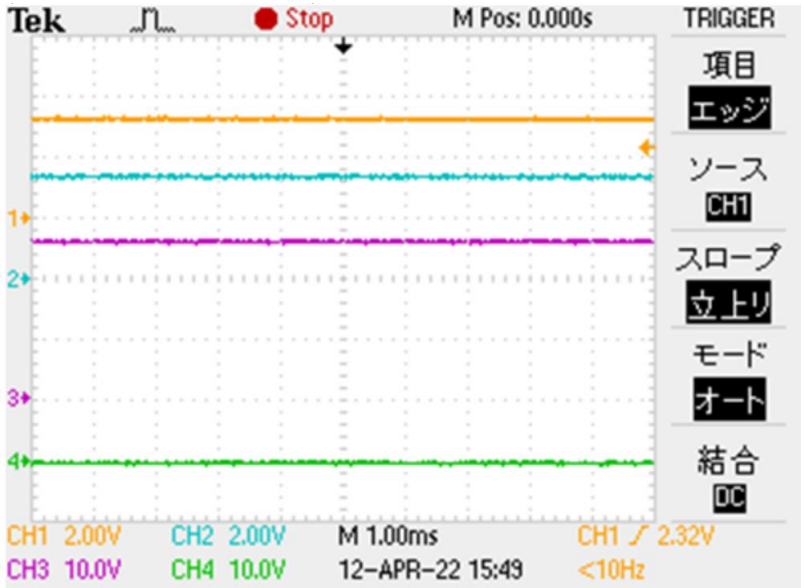
Conditions before the test：Power Up Reset(POR) → Toggling nSleep(Low→High) → Make the device operate
Decay setting = Ripple control decay

There are two kinds of short tests.

Test condition A：Customer condition
<Procedure>
①APH=AEN=high(please refer to Waveform1.)
②A few sec wait(2～3sec)
③AOUT1 and AOUT2 short



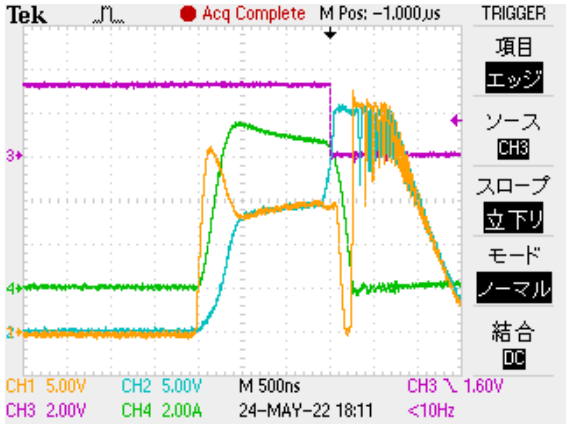
Waveforem1

CH1:AEN
CH2:APH
CH3:AOUT1
CH4:AOUT2

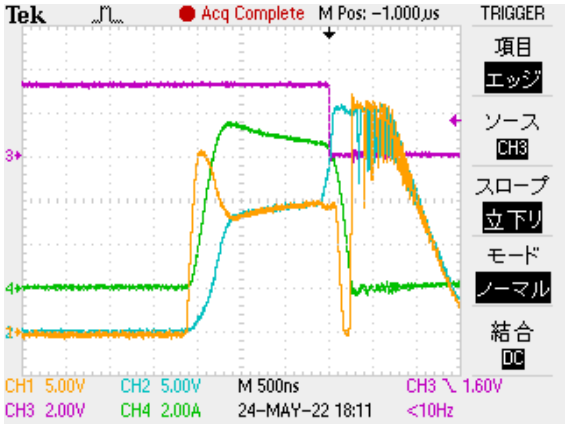
Test condition B：Pelikan-san's advice
"I guess Itrip circuit can switch current off without additional delay (1us blanking time) if APH and AEN terminals have been ON long enough before short occurs."
<Procedure>
①AOUT1 and AOUT2 short
②APH=AEN=high

Test B results

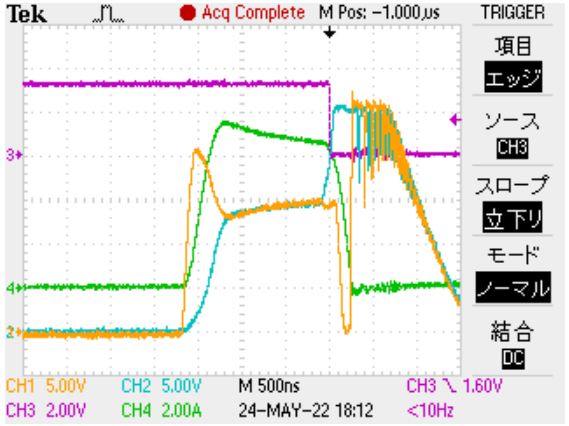
Waveform2



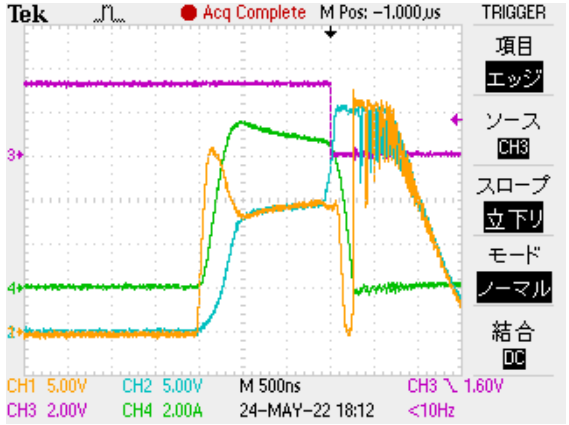
Waveform3



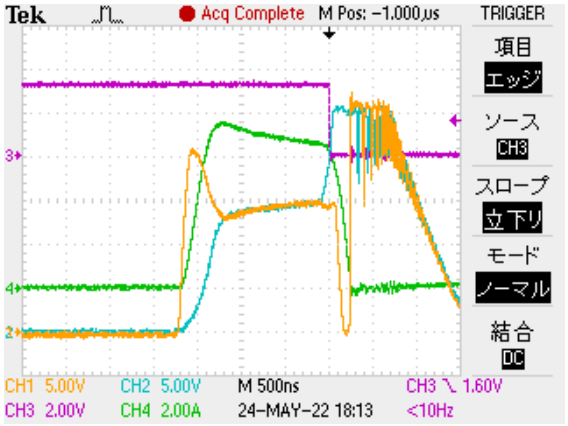
Waveform4



Waveform5



Waveform6



CH1:AOUT1
CH2:AOUT2
CH3:nFault
CH4:Short Current

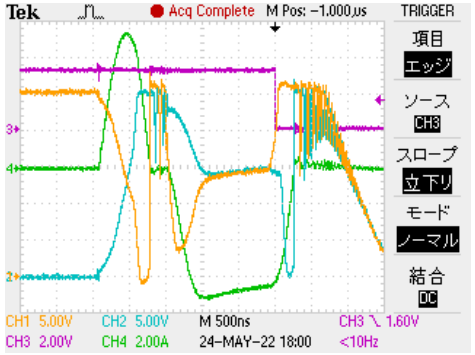
All waveforms showed the same tendency

Additional test：Test C

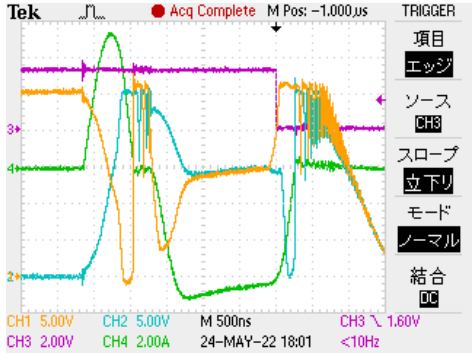
In order to isolate the problem, we asked the customer to change decay setting and Toff settings.

- The conditions were the same as in Test A, and the following conditions(decay and Toff) were changed.
  Decay：Ripple control decay → Mixed Decay
  Toff：7us

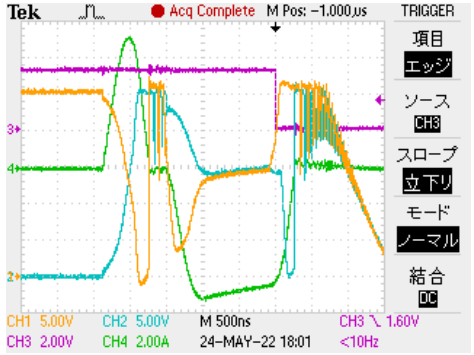
Waveform7



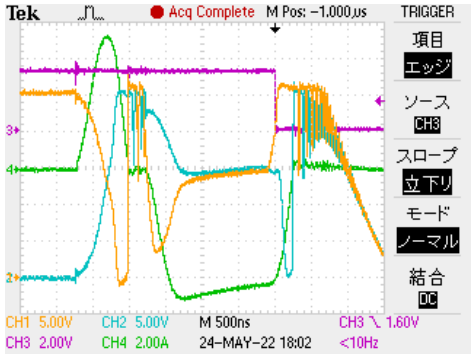
Waveform8



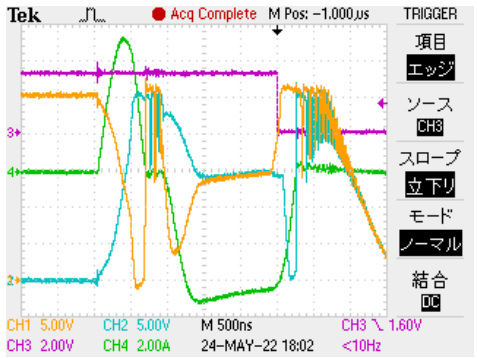
Waveform9



Waveform10



Waveform11



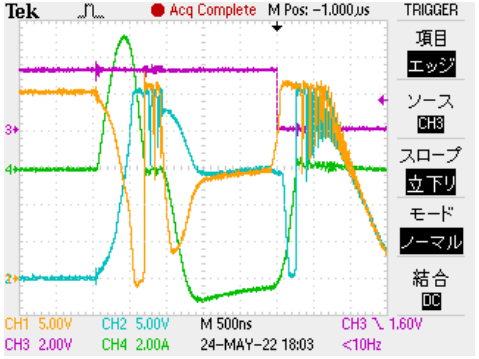
CH1:AOUT1
CH2:AOUT2
CH3:nFault
CH4:Short Current

All waveforms showed the same tendency

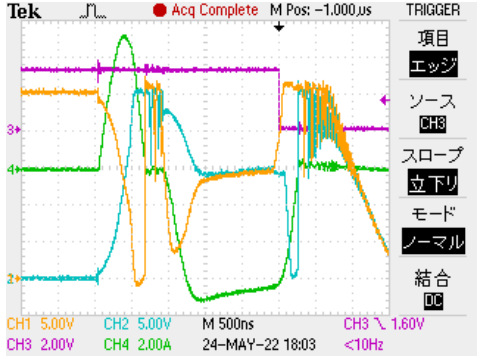
Additional test：Test D

- The conditions were the same as in Test A, and the following conditions(decay and Toff) were changed.
  Decay：Ripple control decay → Mixed Decay
  Toff：32us

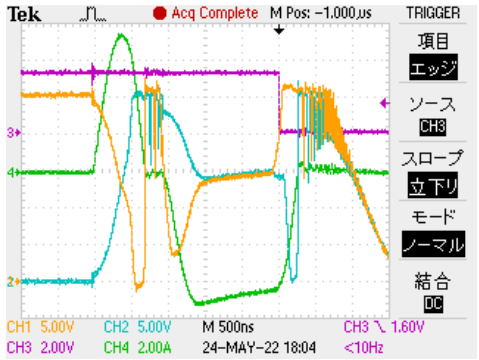
Waveform12



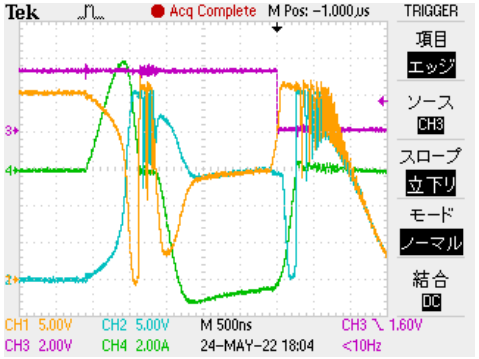
Waveform13



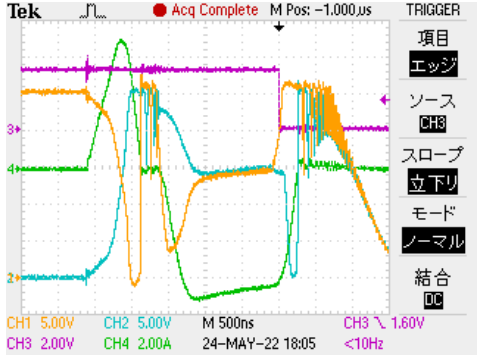
Waveform14



Waveform15



Waveform16



CH1:AOUT1
CH2:AOUT2
CH3:nFault
CH4:Short Current

All waveforms showed the same tendency

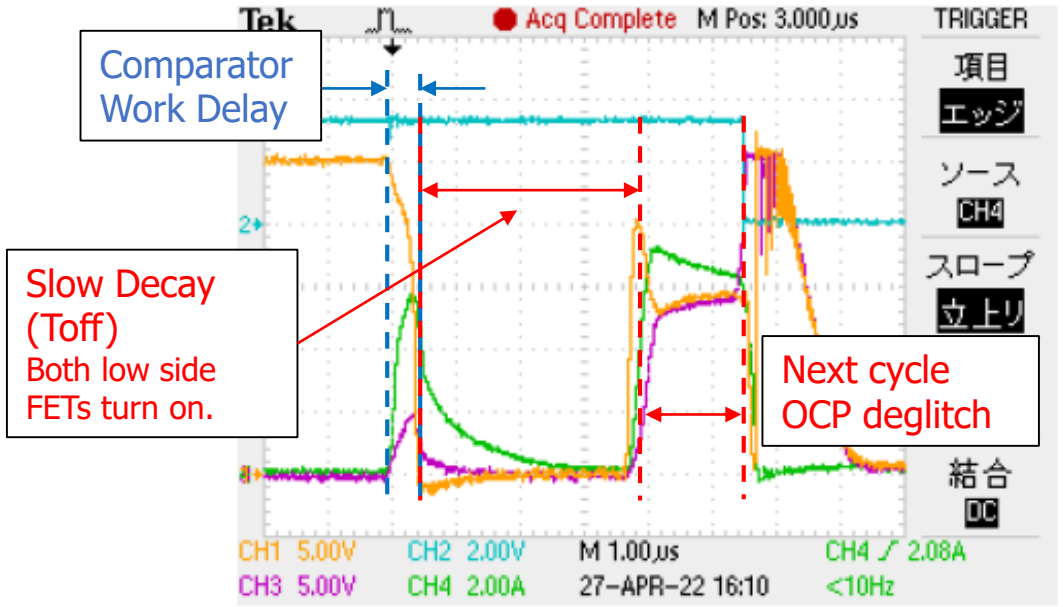
Our assumption

We assume the follows:

- From the results of Slide 2 (Test B), we assume that we could confirm the presence or absence of blanking time that would have been generated by the PH / EN edge transitions.

- The difference among waveforms are related to the presence or absence of blanking time.

- In the case of test A, we assume that the operation is like as the following waveform 17.



CH1:AOUT1
CH2:nFault
CH3:AOUT2
CH4:Short Current

waveform17

Could you give us your advice or opinion?