

It is sawtooth waveform data where problems occurred due to constant change of C10.

At the beginning of re-observation, the same phenomenon could not be reproduced at the time of output start with the circuit diagram constant attached to the previous day.

So I confirmed the situation of constant adjustment at that time again.

It was found that the cause is caused by CR (10 kΩ + 0.047 μF) additionally mounted in parallel with R 25 in order to correct overshoot of the output rising.

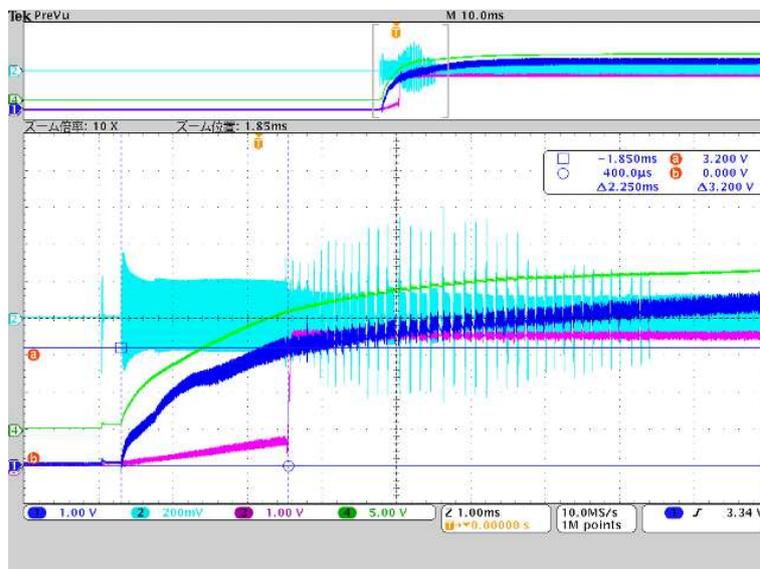
We think that this CR circuit affects the feedback control and the capacitance control capacitor C10 capacity increase from 0.01 → 0.015 μ F triggered a waveform failure.

In the following, the rising defect waveform (sawtooth wave) of 2 output modified product is displayed. Therefore, even if you change from C100.01 → 0.015 μ F with the circuit diagram constant sent by deleting the above CR, there is no problem.

(There is also almost no overshoot.)

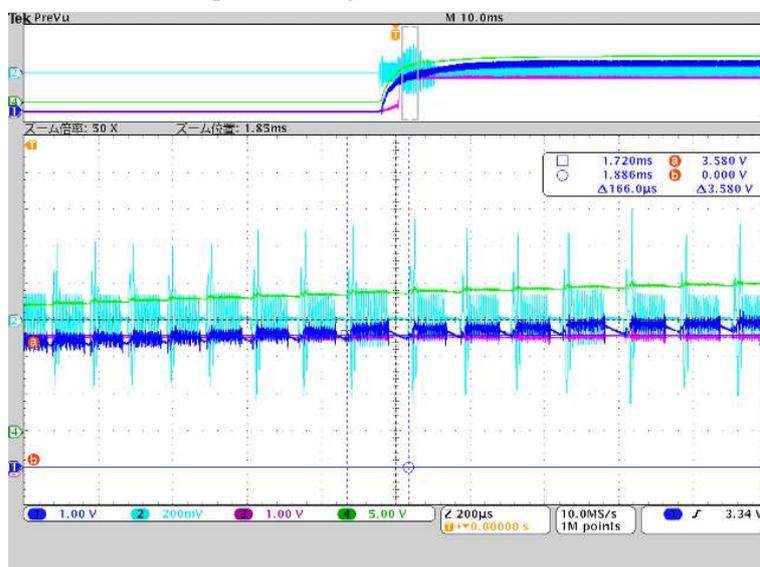
1. Output of two-output modified product Rising abnormal waveform (5V10A, 24V2A)

1-1 Sawtooth wave generation waveform at abnormality



- ① Blue:5Vout [1V/div]
  - ② LightBlue: Pri. trans. current [2A/div]
  - ③ Pink: LL/SS terminal [1V/div]
  - ④ Green: 24Vout [5V/div]
- H: [1mS (10mS) /div]

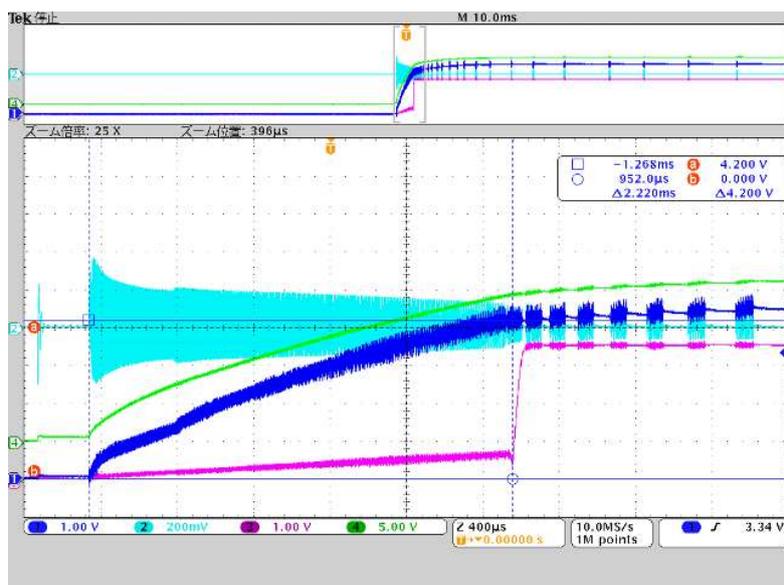
1-2 The abnormal part enlarged waveform



- ① Blue:5Vout [1V/div]
  - ② LightBlue: Pri. trans. current [2A/div]
  - ③ Pink: LL/SS terminal [1V/div]
  - ④ Green: 24Vout [5V/div]
- H: [200 μ s (10mS) /div]

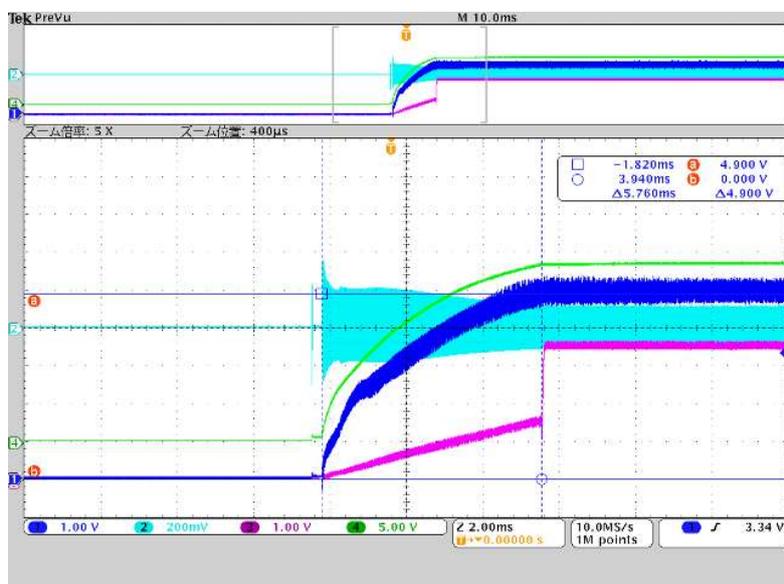
## 2. Normal output of two-output modified product Rising waveform (5V10A, 24V2A)

### 2-1 No load (After output rising, it operates in burst mode)



- ① Blue:5Vout [1V/div]
  - ② LightBlue: Pri. trans. current [2A/div]
  - ③ Pink: LL/SS terminal [1V/div]
  - ④ Green: 24Vout [5V/div]
- H: [400 μs (10ms) /div]

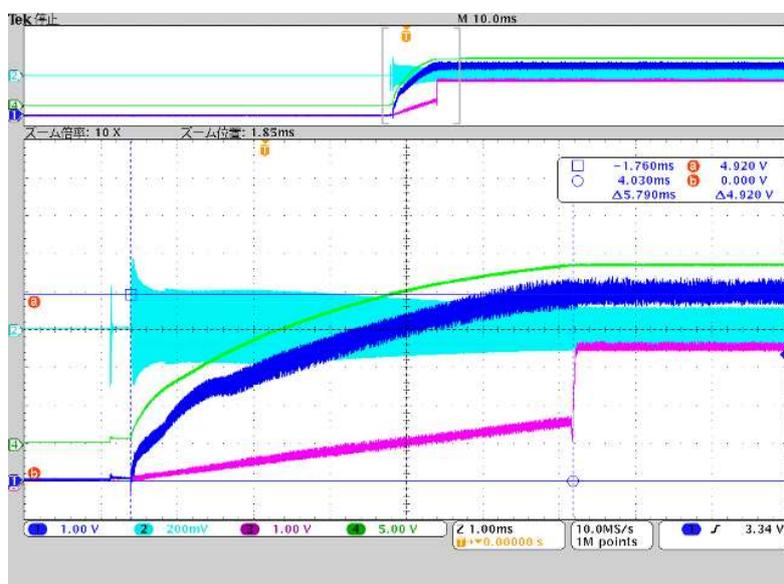
### 2-2 Max load



- ① Blue: 5Vout [1V/div]
  - ② LightBlue: Pri. trans. current [2A/div]
  - ③ Pink: LL/SS terminal [1V/div]
  - ④ Green: 24Vout [5V/div]
- H: [2mS (10mS) /div]

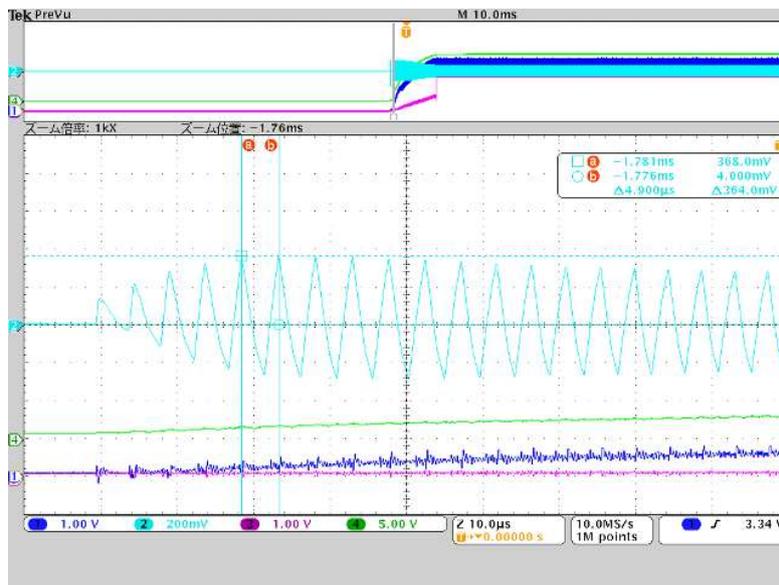
## 3 Expansion of primary transformer current waveform at normal rise (Max.load)

### 3-1 Full



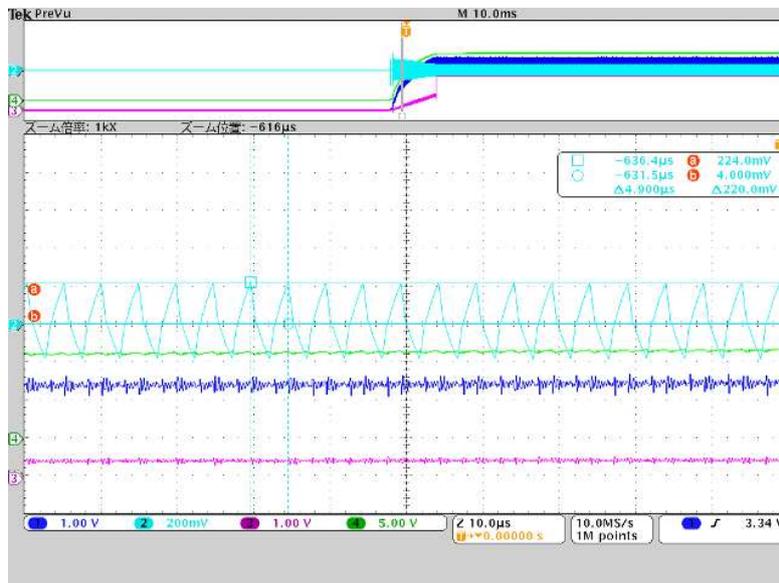
- ① Blue: 5Vout [1V/div]
  - ② LightBlue: Pri. trans. current [2A/div]
  - ③ Pink: LL/SS terminal [1V/div]
  - ④ Green: 24Vout [5V/div]
- H: [1mS (10mS) /div]

### 3-2 Expansion in early start



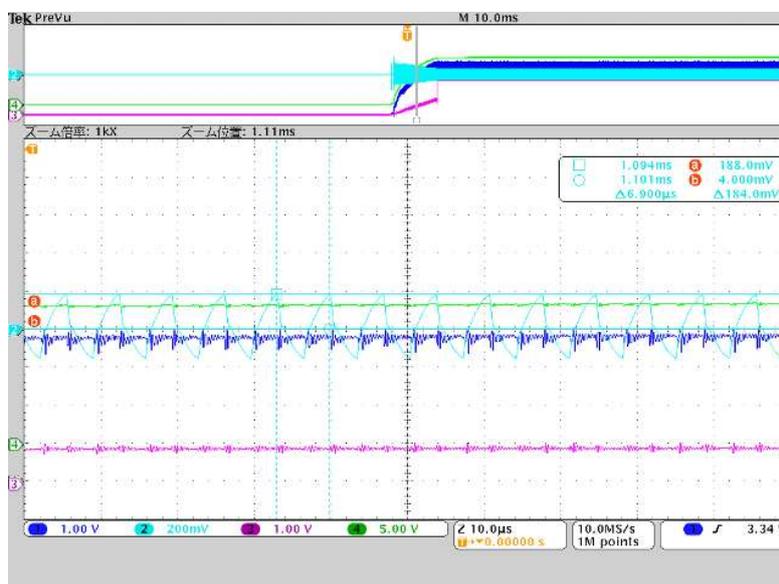
- ① Blue: 5Vout [1V/div]
  - ② LightBlue: Pri. trans. current [2A/div]
  - ③ Pink: LL/SS terminal [1V/div]
  - ④ Green: 24Vout [5V/div]
- H: [10uS (10mS)/div]

### 3-3 Expansion of the first half of the rise



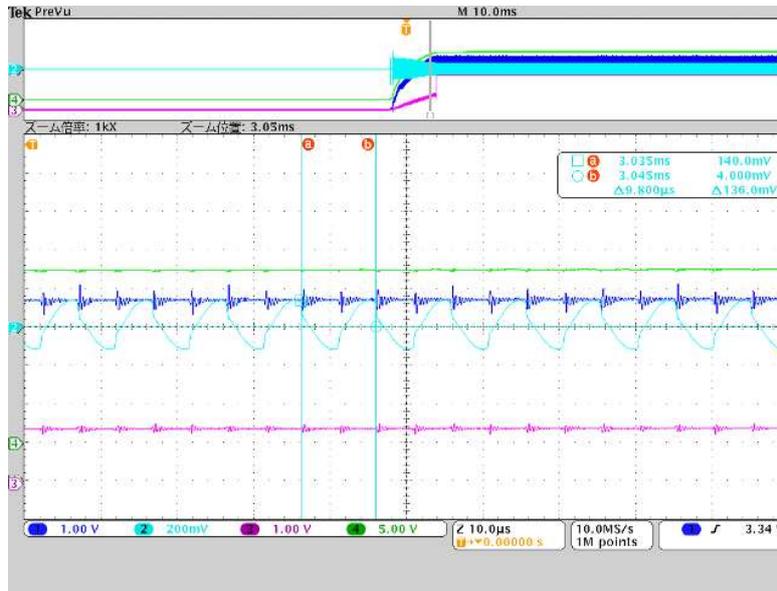
- ① Blue: 5Vout [1V/div]
  - ② LightBlue: Pri. trans. current [2A/div]
  - ③ Pink: LL/SS terminal [1V/div]
  - ④ Green: 24Vout [5V/div]
- H: [10uS (10mS)/div]

### 3-4 Mid-term expansion 2 expansion



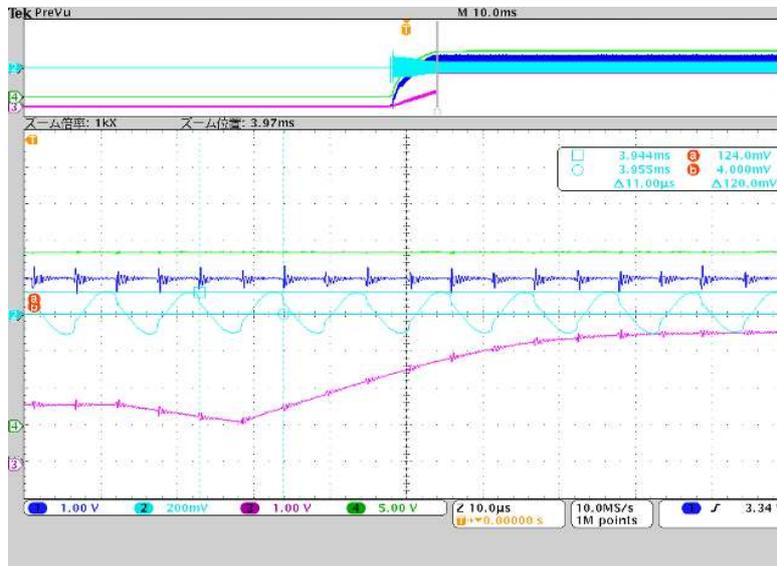
- ① Blue: 5Vout [1V/div]
  - ② LightBlue: Pri. trans. current [2A/div]
  - ③ Pink: LL/SS terminal [1V/div]
  - ④ Green: 24Vout [5V/div]
- H: [10uS (10mS)/div]

### 3-5 Expansion of late phase 1 rise



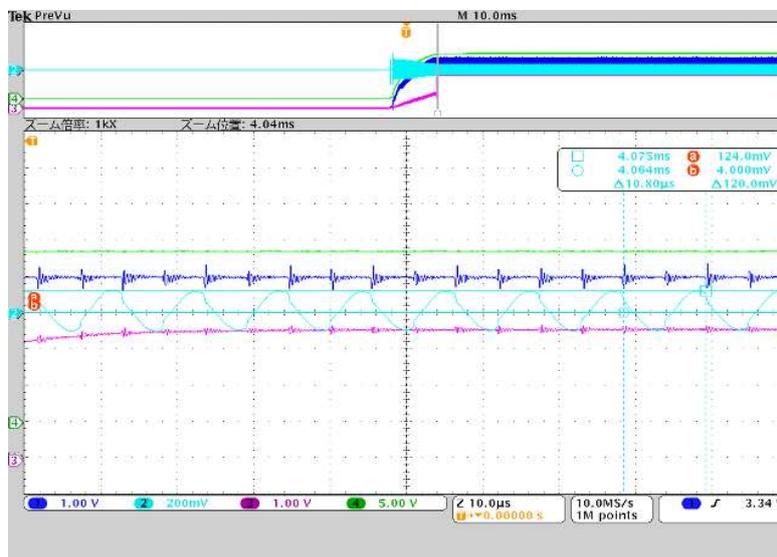
- ① Blue:5Vout[1V/div]
  - ② LightBlue:Pri. trans. current[2A/div]
  - ③ Pink:LL/SS terminal[1V/div]
  - ④ Green:24Vout[5V/div]
- H: [10uS(10mS)/div]

### 3-6 Expansion of late stage 2 rise



- ① Blue:5Vout[1V/div]
  - ② LightBlue:Pri. trans. current[2A/div]
  - ③ Pink:LL/SS terminal[1V/div]
  - ④ Green:24Vout[5V/div]
- H: [10uS(10mS)/div]

### 3-7 Late rise 3 (expansion of stable convergence period)



- ① Blue:5Vout[1V/div]
  - ② LightBlue:Pri. trans. current[2A/div]
  - ③ Pink:LL/SS terminal[1V/div]
  - ④ Green:24Vout[5V/div]
- H: [10uS(10mS)/div]