TPS568215 Data Sheet description
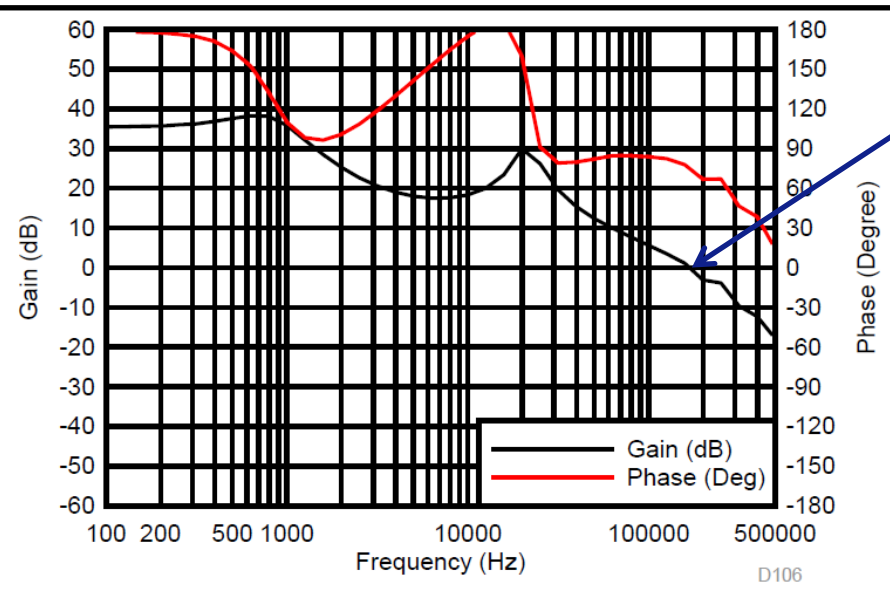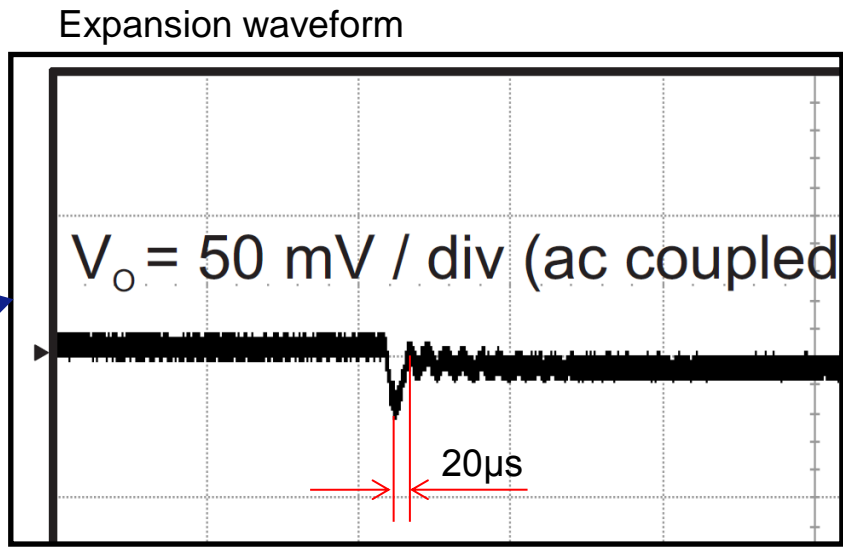

Figure 29. Loop Response, I_{OUT} = 6 A

V_o= 50 mV / div (ac coupled)

I_o = 2 A / div

Load step = 2 A - 6 A, slew rate = 500 mA / μsec

Time = 200 μsec / div

Figure 40. Transient Response

Loop bandwidth：170kHz

Time ：1/ Loop bandwidth
=5.86μs
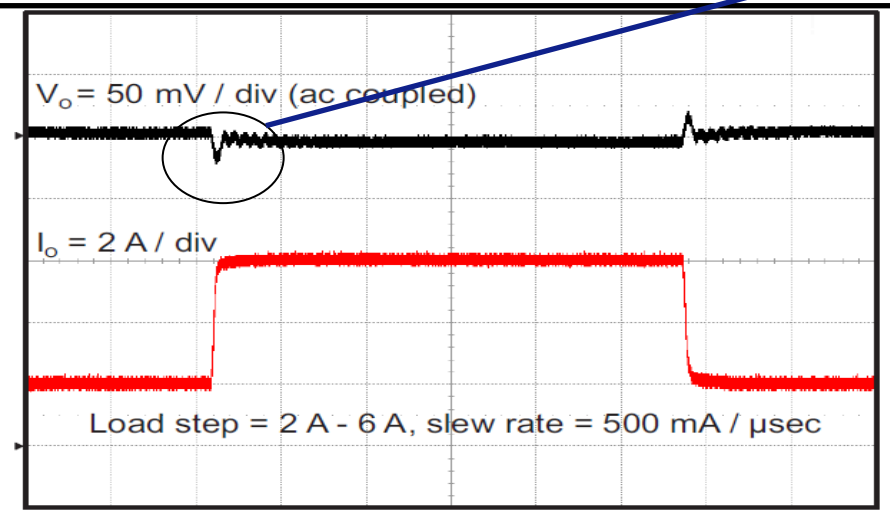
Expansion waveform

V_O = 50 mV / div (ac coupled

20μs

Transient Response Time：20μs

If Transient Response time is 20μs,
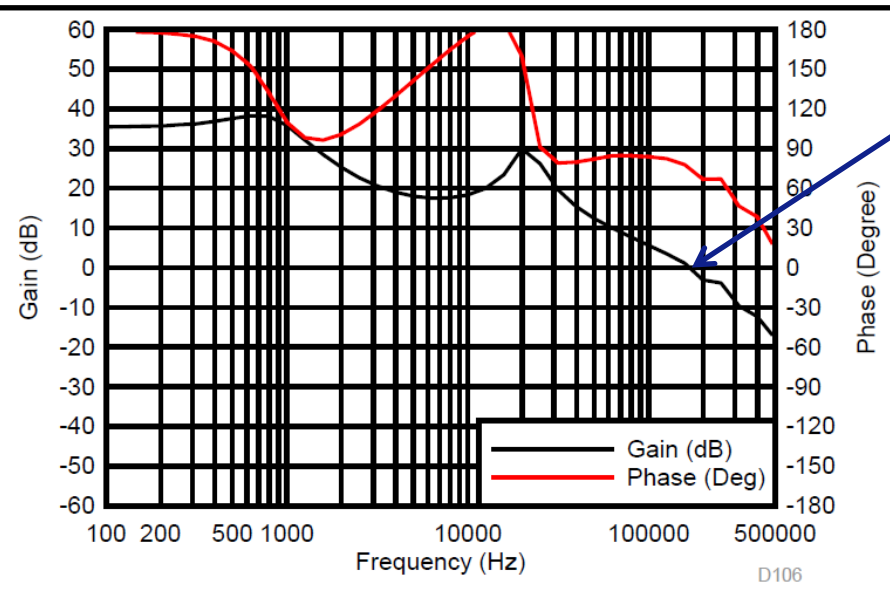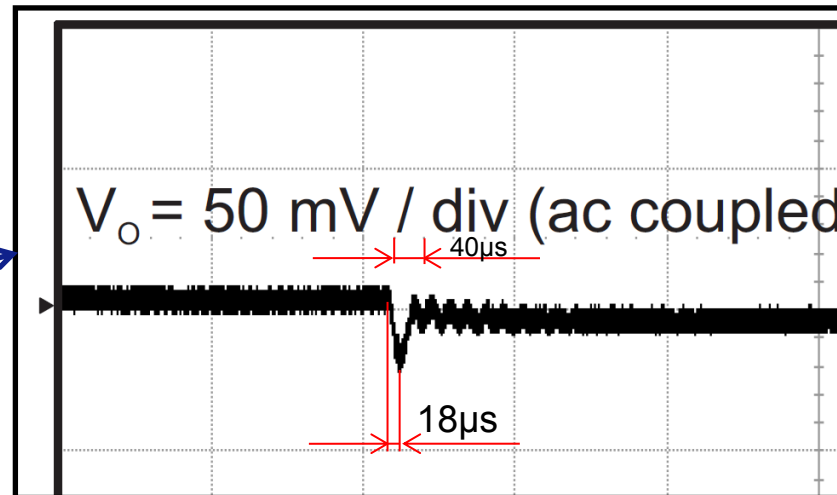Loop Response is 50kHz.
Why different?
What internal control have?

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Figure 29. Loop Response, I_{OUT} = 6 A

Loop bandwidth fc：170kHz

$$Tp = 1/4 \times fc$$
$$= 1.47\mu s$$

Expansion waveform

V_O = 50 mV / div (ac coupled)

40μs

18μs

Transient Response Time Tp：18μs

V_o = 50 mV / div (ac coupled)
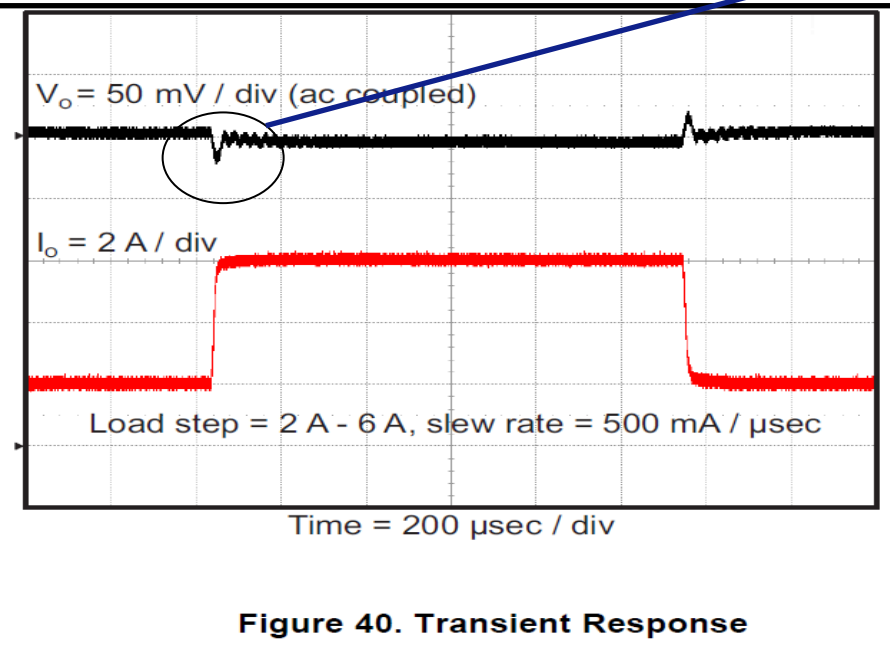
I_o = 2 A / div

Load step = 2 A - 6 A, slew rate = 500 mA / μsec

Time = 200 μsec / div

Figure 40. Transient Response

Tp is 1.47μs from Loop response.
Tp is 18μs from Transient Response.
Why different?

Do D-CAP3 have Duty-cycle limiting?

1