UCC28700-Q1 unstable switching

Schematics
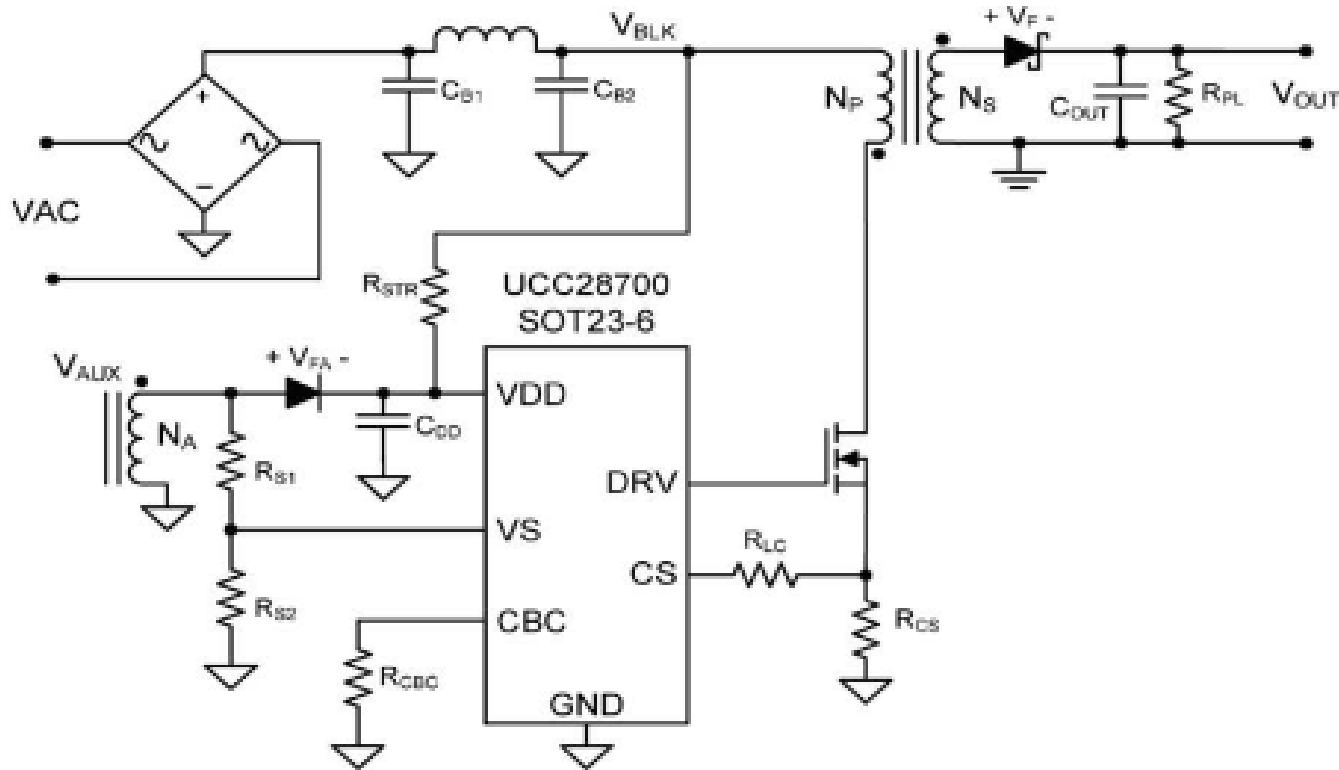
V_BLK	30-600V
Vout	10V
Iout	1-3A
Lp	86uH
Np	48T
Ns	8T
Na	8T
Rs1	36.9k Ω
Rs2	13.2k Ω
Rlc	470 Ω
Rcs	142m Ω
C_BULK	6uF
Cout	990uF
Cdd	1uF

Phenomenon

At light load condition(500mA Load), the switching waveform is unstable and big output voltage ripple is occurred. This phenomenon is occurred regardless of whatever the input voltage range. Incleasing Rcs from 142mohm to 270mohm, it resolve this phenomenon. But this solution makes the maximum load current is reduced. They want to know the cause and the solution about this.
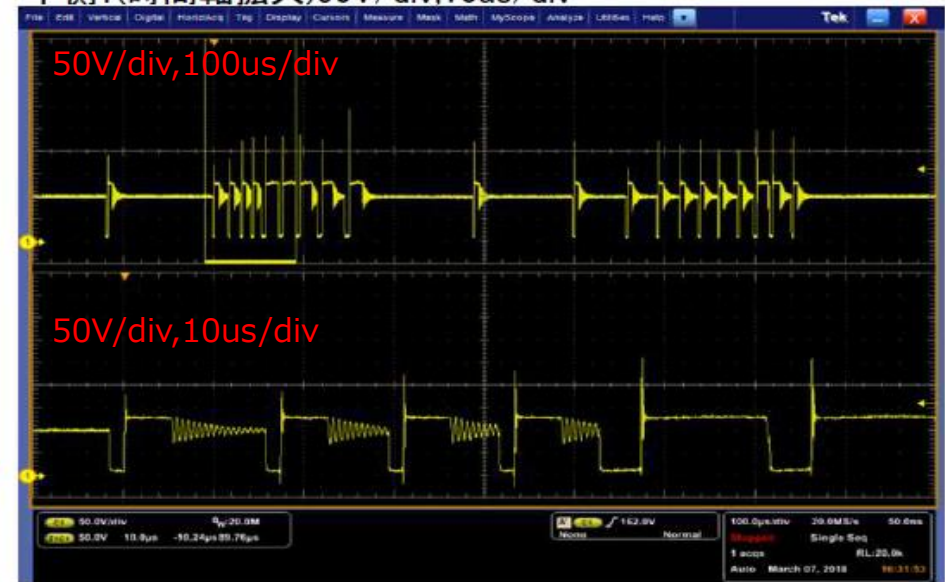
1. Stable waveform
   V_BLK=100V
   Iout=0A

2. Unstable waveform
   V_BLK=100V
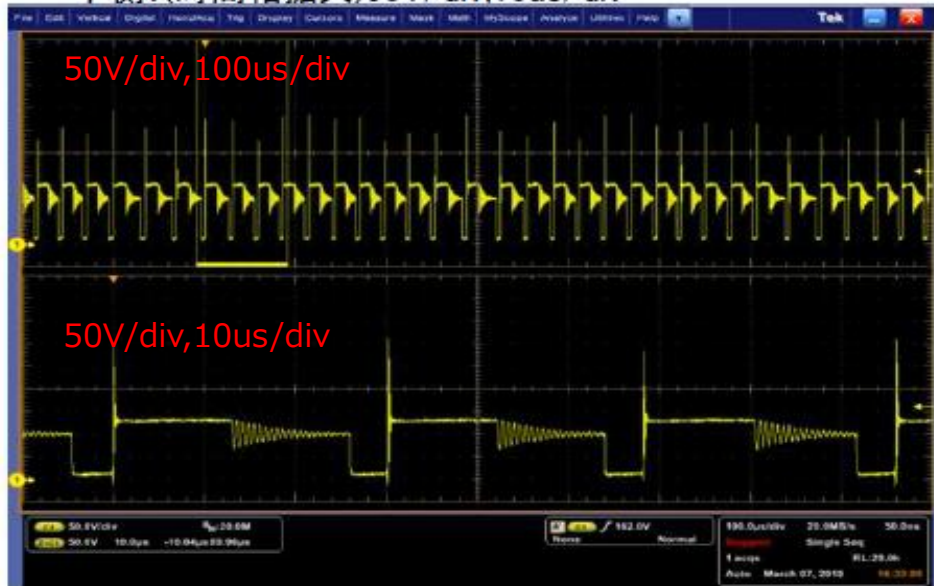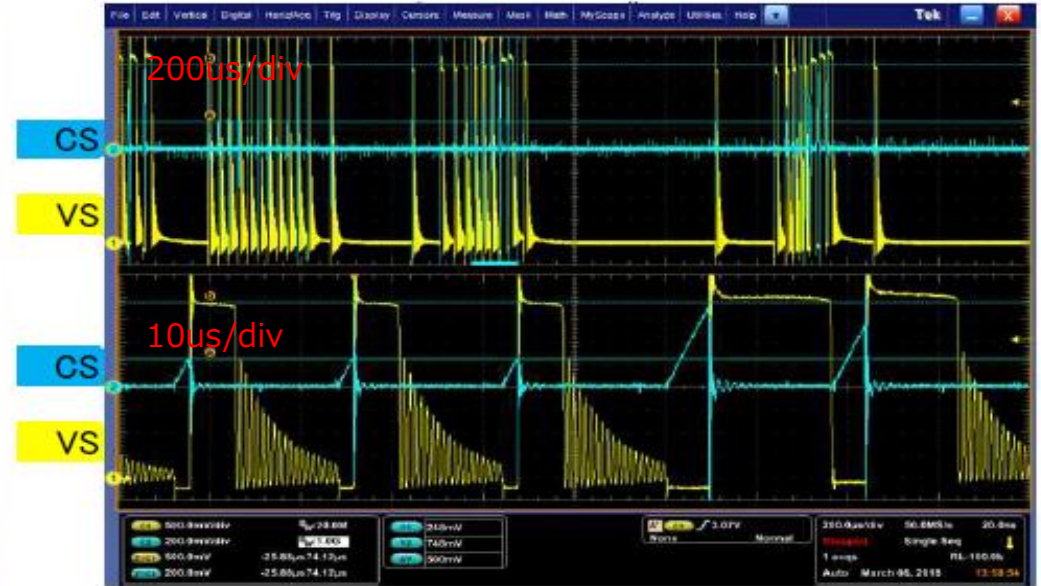   Iout=0.5A

Phenomenon

3. Stable waveform
   V_BLK=100V
   Iout=3A

4. Unstable waveform
   V_BLK=100V
   Iout=0.5A

Vvs=0.5V/div, Vcs=0.2V/div

Question

- Why does increasing Rcs resolve this phenomenon?

- Could you give us your opinion about what the cause and the solution of this phenomenon?