1 Questions to TI

1.1 Summary

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There is an output intermittent issue related to common mode noise on the input voltage at Vblk observed with the fly-back controller using TI p/n: UCC28700QDBVRQ1
When DC input (Vblk) contains common mode noise due to boosting PWM operation at 470 kHz, output voltage become unstable or drop out and drop in
(See waveforms)

1.1.2 Question to TI FAE

1) Please go over this report. Any comments are appreciated
2) What are the common reasons for the fly-back switching become irregular?
3) Sometime DRV signal turn on Primary winding longer than other times. What condition determine the turn on duration?
4) Please let me know if you have any question

Thank you,
Dung Do,
Electrical Engineer,
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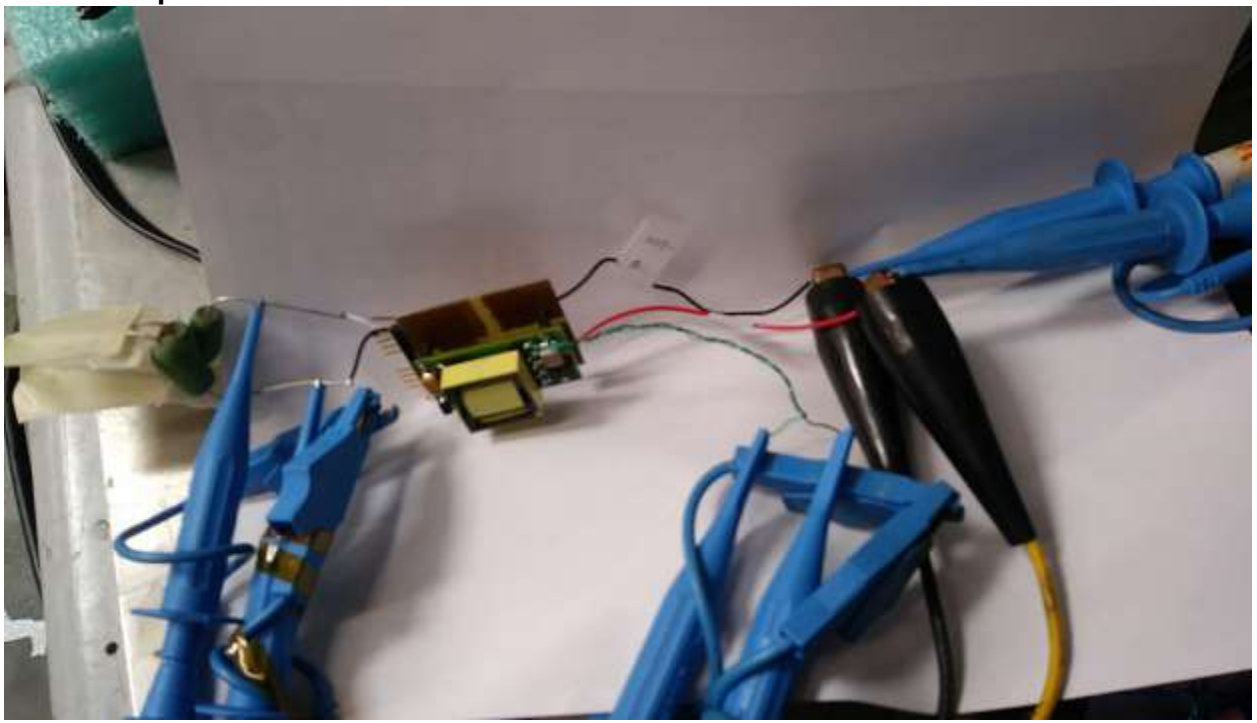
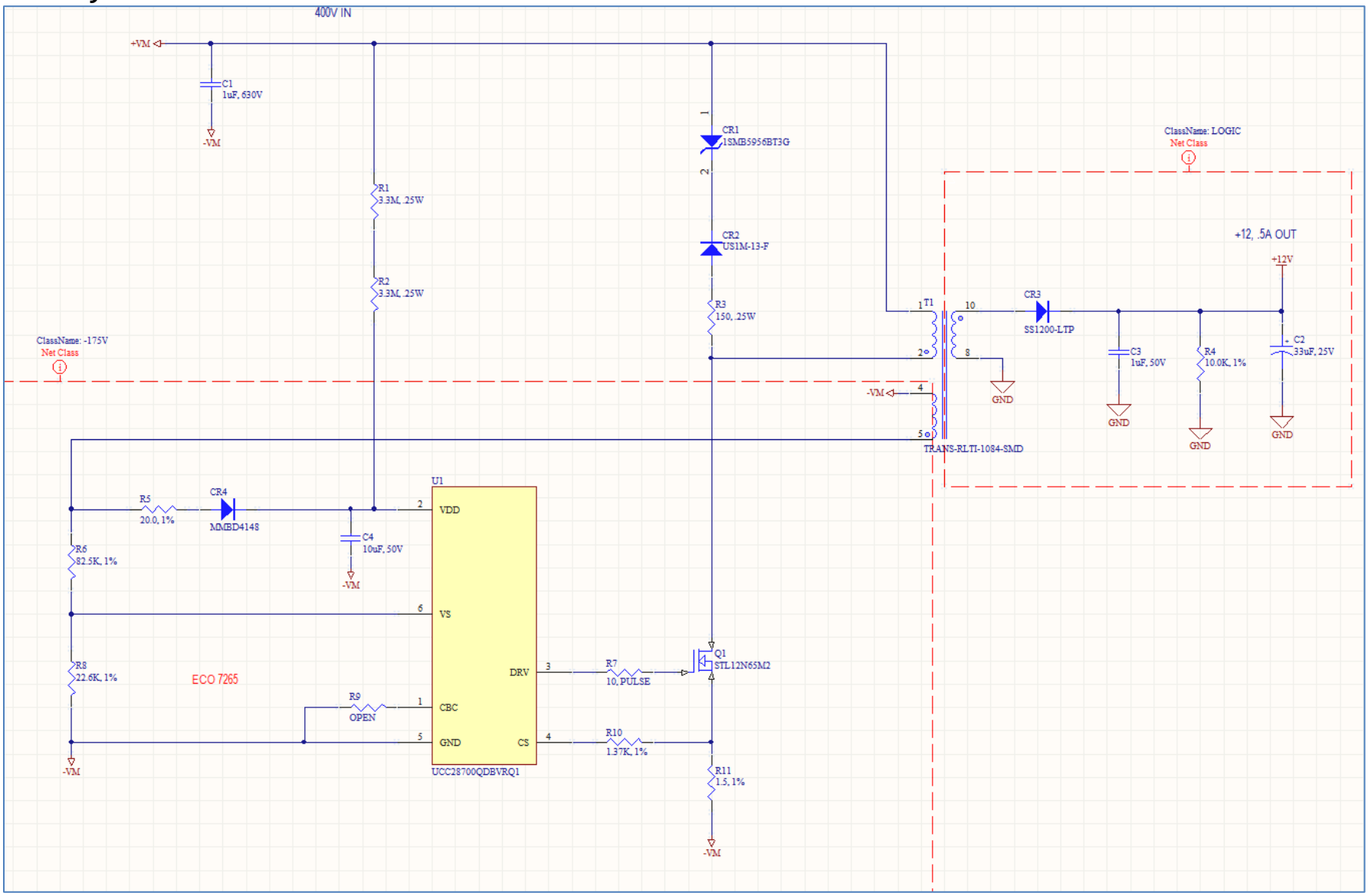
1.2 Setup



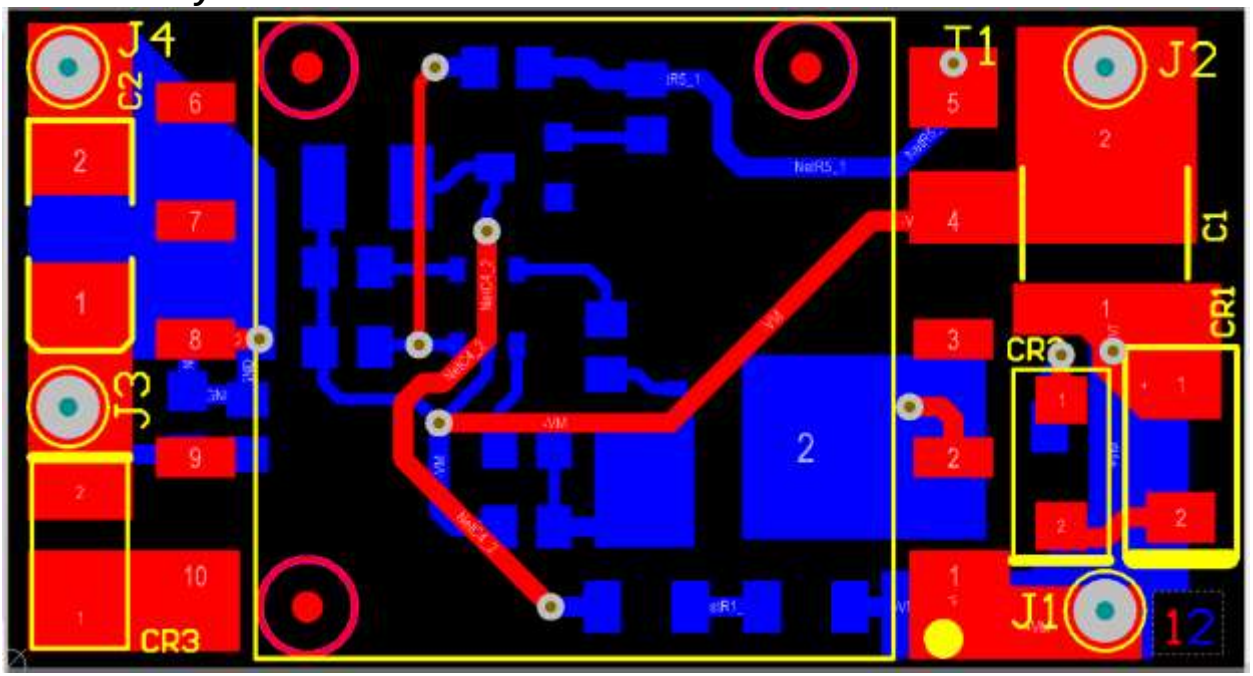
Vin: Red & Black wires, two scope probes vs CHS_GND
Vout: White & Black, two scope probes vs float returns connected together (measured differentially)
Vout is programmed to 12V and a resistor load of 30 Ohms is connected to the output

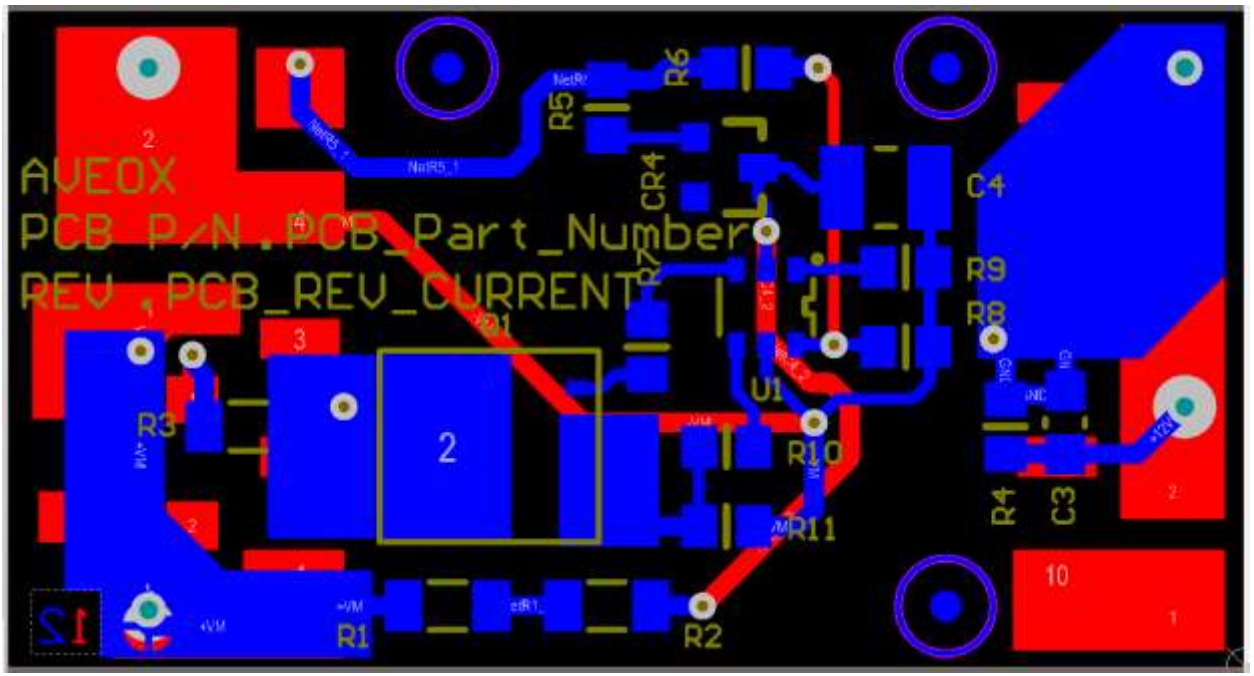
Vaux: Green & Black, two scope probes vs float return connected together (measure differentially)

1.3 Fly-back board Schematics



1.4 PCB Layout





1.5 Instruments

Scope probe: Yokogawa 700929: 10 MΩ/approx. 18 pF
Scope trace saved in Yokogawa #2: HD_0/Dung/1.5kv/20190801_144757_080.WDF

1.6 Observation

Ch4: Vdc+ vs CHS (input +)
Ch5:Vdc- vs CHS (input-)
ChR9Vin: Voltage drop across input (measured differentially)
ChR7+12: +12Vdc (Output voltage measured differentially)
ChR1Aux: Voltage across Auxiliary winding (measured differentially)

Waveform show +12V output when input is boosted up

	Zoom of above in non-boosting section showing Vout and Vaux operate normally
	Zoom of above in boosting section showing Vout and Vaux drop -in and drop-out

	Further zoom in at drop-out