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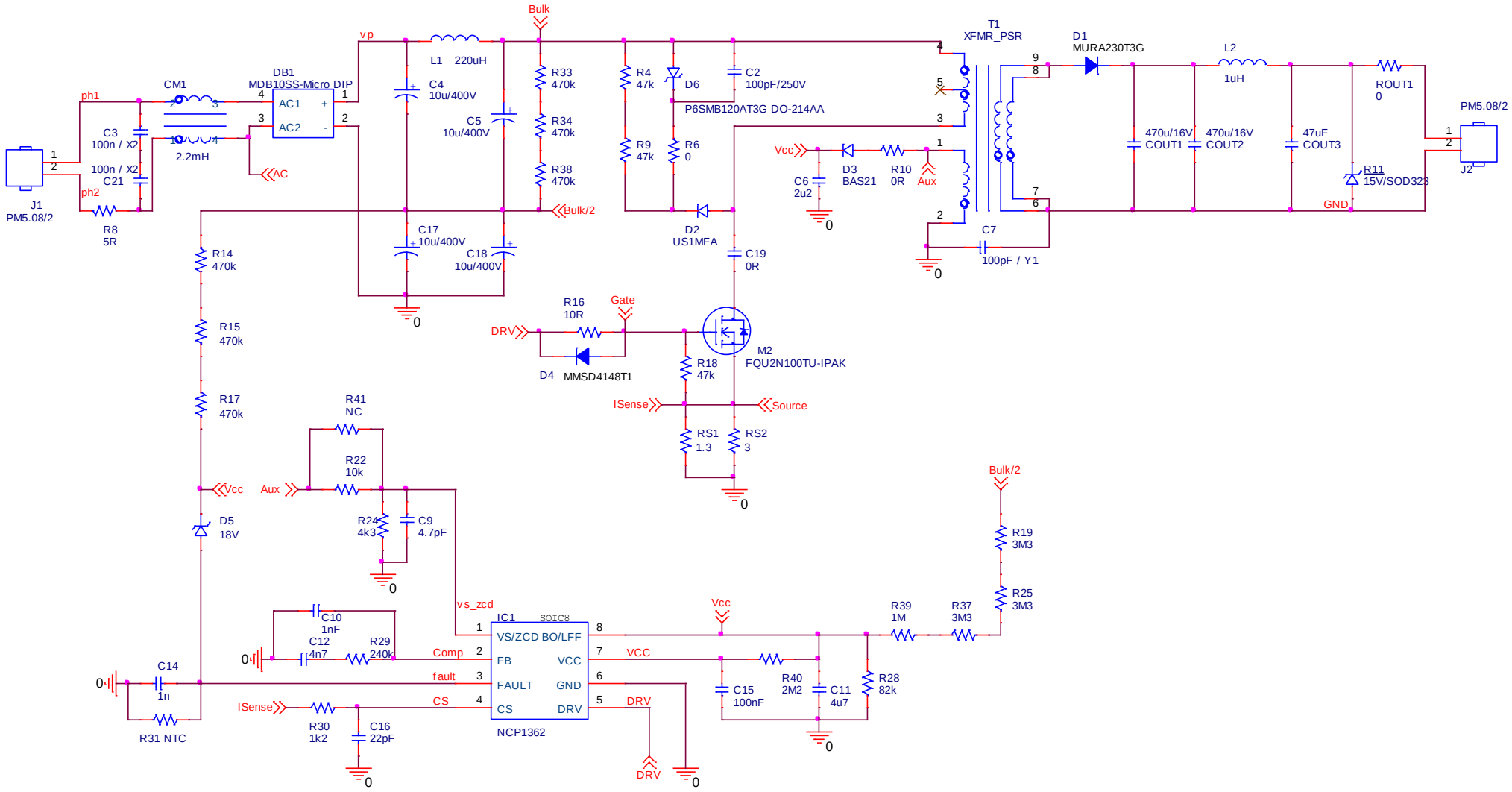
Test Procedure for the NCP1362 HV Evaluation Board

Confidential

Board Electrical Schematic

Ac input voltage

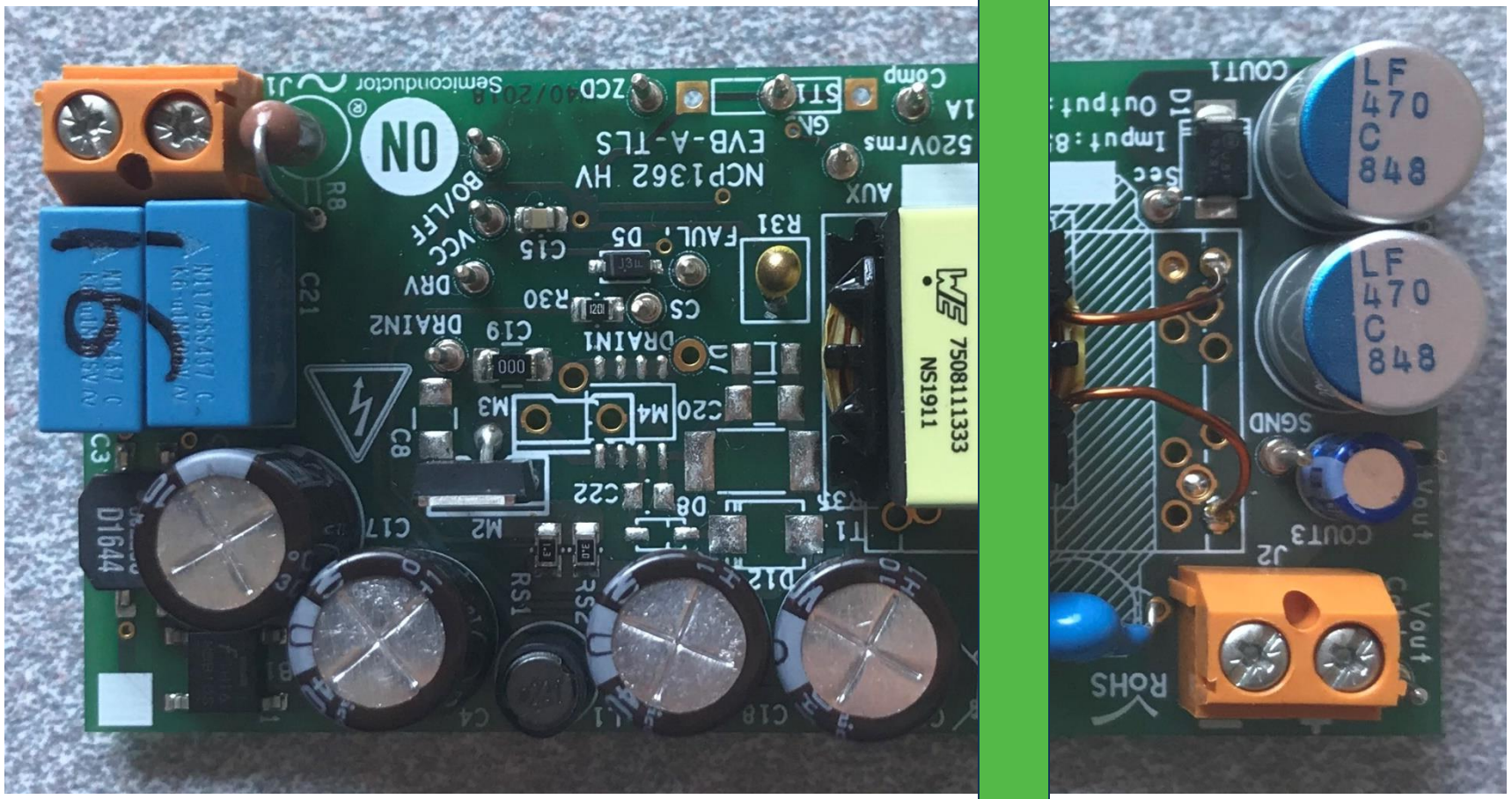


Dc output voltage

Board Picture

Live parts, lethal voltages

Isolated output



Input voltage from 85 V rms to 500 V rms

Output voltage is 12 V
Nominal current is 1.0 A

Needed Equipment

- The needed equipements are the following:

  ✓An ac source (85 to 500 V rms, 60 / 50 Hz), needed power is below 30 W

  ✓An input ac watt-meter, up to 30 W and 530 V rms

  ✓A dc load with Constant Resistance mode absorbing up to 30 V, $V_{in(max)}$ < 30 V, $I_{out(max)}$ < 2 A

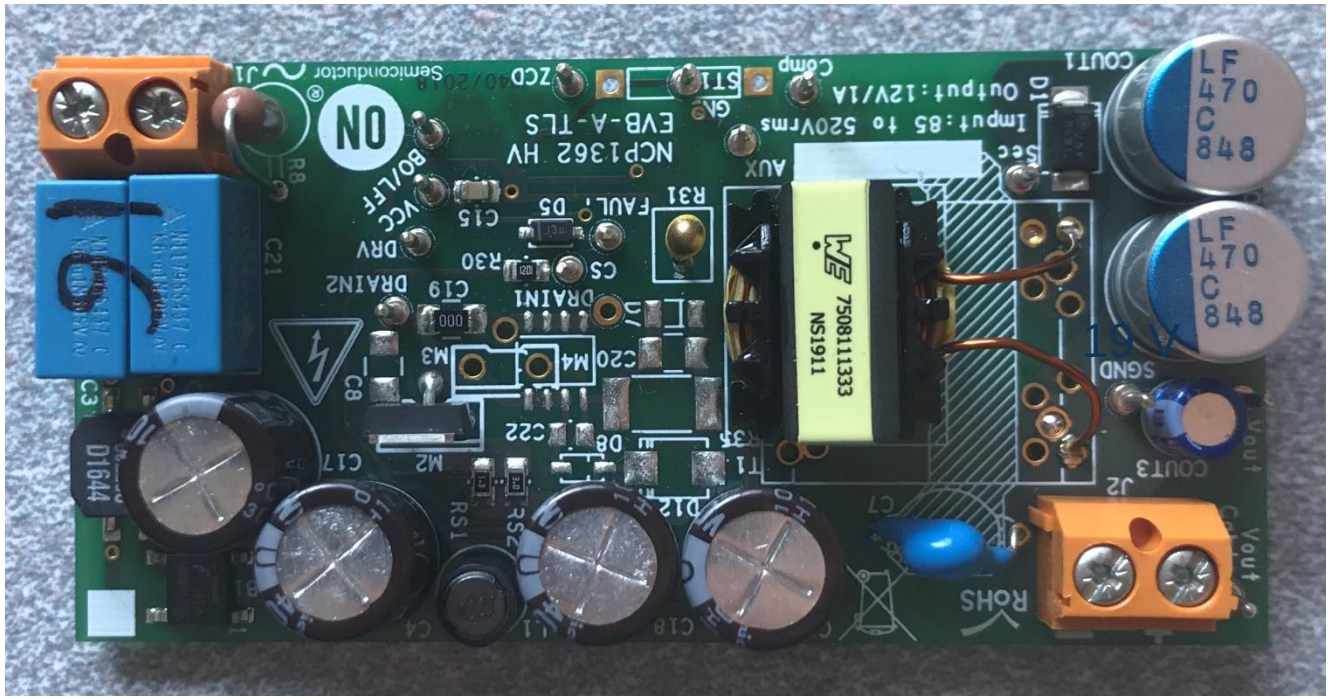
  ✓Usually, dc electronic load can display dc V and dc A. If not, an voltmeter and ampmeter will be needed

- *If the load does not use local Kelvin sensors, then the output voltage must be measured at the board level, not at the cable ends.*

Connecting the Board for Testing

Watt-meter
Input power

Ac source
85 to 500 V rms



Electronic load
in CR mode

Test n°1: No-load Standby

- Apply the input voltage 140 V rms to J1 connector
- Electronic load is disconnected

  - ✓*Check that output voltage is around 14 V (15 V max)*
  - ✓*Verify that input power is below 30 mW*

- Apply the input voltage to 425 V rms

  - ✓*Input power must be below 150 mW*

Test n°2: Nominal Power

- Apply the input voltage 140 V rms to J1 connector
- Connect electronic load (in CR mode) to J2 connector
- Load is set to 12 Ω

  - ✓*Check that output voltage is 12.1 V (±5%)*
  - ✓*Verify that input power is: 14 W < P_{in} < 16 W*

- Apply the input voltage to 425 V rms
- Repeat above steps

Test n°3: Constant Current Regulation – 140 V rms

- Apply the input voltage 140 V rms to J1 connector
- Connect electronic load (in CR mode) to J2 connector

- Load is set to 9.2 Ω
  - ✓*Check that output voltage is 10 V*
  - ✓*Check that output current is around 1.1 A*

- Load is set to 7.2 Ω
  - ✓*Check that output voltage is 8 V*
  - ✓*Check that output current is around 1.1 A*

Test n°4: Constant Current Regulation – 425 V rms

- Apply the input voltage 425 V rms to J1 connector
- Connect electronic load (in CR mode) to J2 connector

- Load is set to 8.8 Ω
  - ✓*Check that output voltage is 10 V*
  - ✓*Check that output current is around 1.15 A*

- Load is set to 6.9 Ω
  - ✓*Check that output voltage is 8 V*
  - ✓*Check that output current is around 1.17 A*

Test n°5: UVP Protection in CC Regulation

- Apply the input voltage 140 V rms to J1 connector
- Connect electronic load (in CR mode) to J2 connector
- Load is slowly decreased from 12 Ω to 5 Ω

  ✓*Check that the controller stops switching when the output voltage drops around 7.5 V*

- Apply the input voltage to 425 V rms
- Repeat above steps