Test Procedure for the 45-W High Density NCP1339H Evaluation Board

Board Electrical Schematic

Dc output voltage

Ac input voltage

NCP1339 demoboard 19 V / 45 W
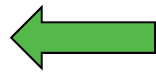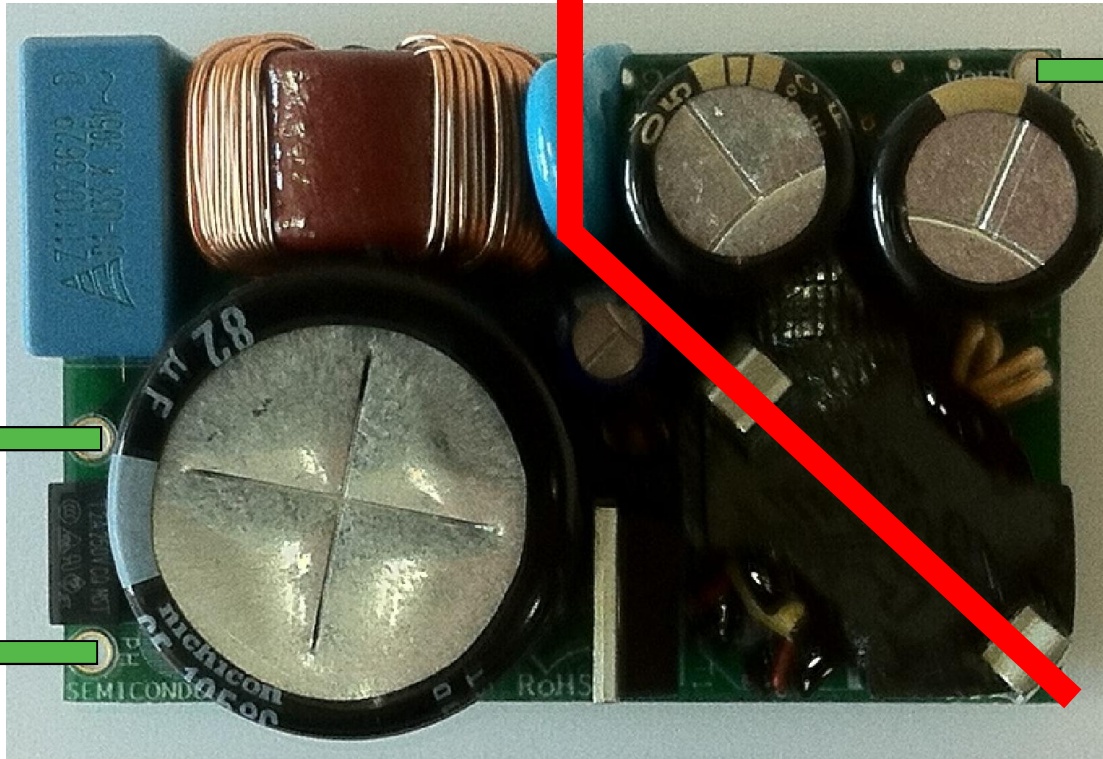ON Semiconductor - Confidential property

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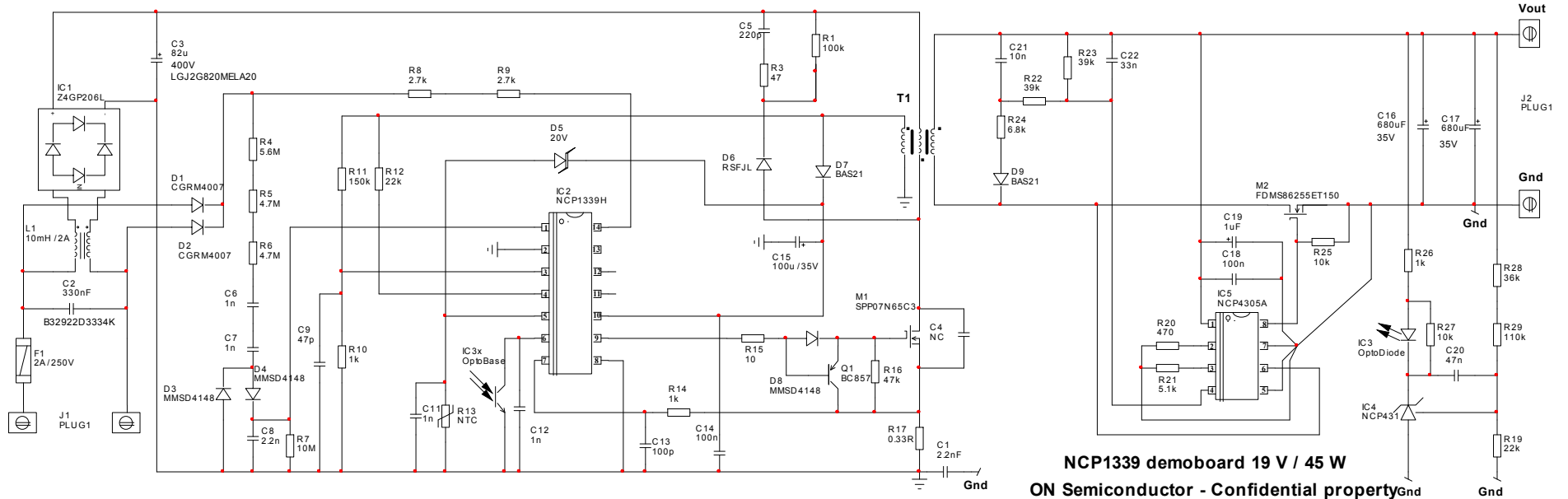
Board Picture

Live parts, lethal voltages ← → Isolated output

Output voltage is 19 V, nominal current is 2.4 A

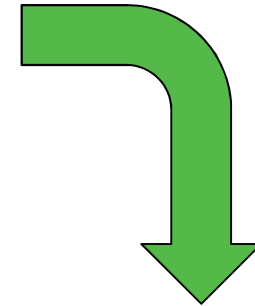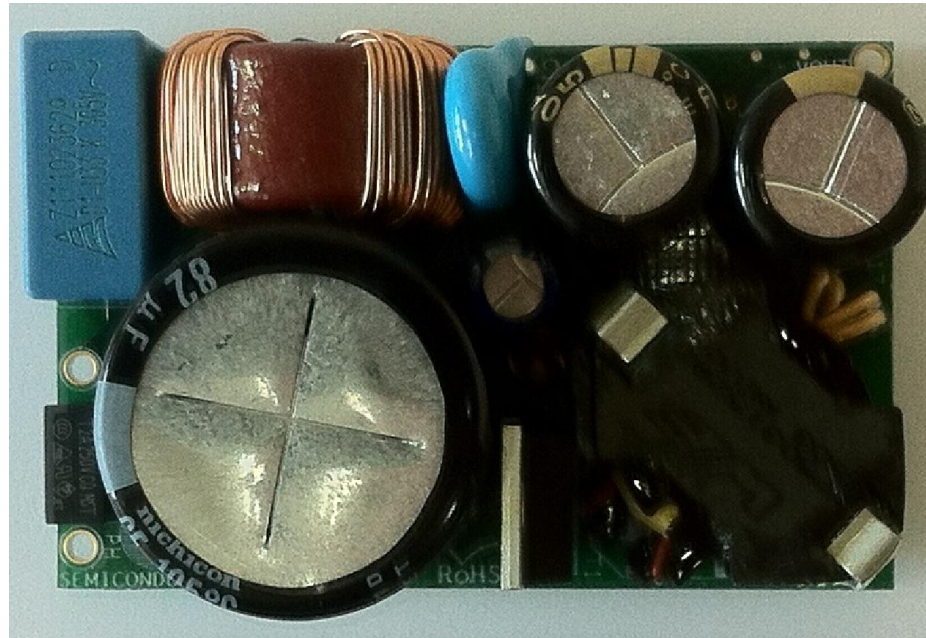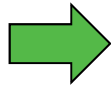Input voltage from 85 V rms to 265 V rms

Needed Equipment

➢ The needed equipements are the following:

- ✓ An ac source (85 to 265 V rms, 60 / 50 Hz), needed power is below 100 W

- ✓ An input ac watt-meter, up to 100 W

- ✓ A dc load absorbing up to 50 V, $V_{in(max)}$ < 30 V, $I_{out(max)}$ < 6 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.*
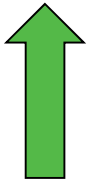
Connecting the Board for Testing

Watt-meter
Input power

19 V

Electronic load

Ac source
85 to 265 V rms

Yann Vaquette - 6/15/2015   Public Information   **ON Semiconductor**®

Test n°1: No-load Standby

➢ Apply the input voltage 115 V rms to J1 connector

➢ Electronic load is disconnected or set to no load

    ✓ *Check that output voltage is 19 V (±5%)*

    ✓ *Verify that input power is below 35 mW*

➢ Apply the input voltage to 230 V rms

➢ Repeat above steps

    ✓ *Input power must be below 40 mW*

Test n°2: Nominal Power

➢ Apply the input voltage 115 V rms to J1 connector

➢ Connect electronic load to J2 connector

➢ Load is set to 2.4 A

✓ *Check that output voltage is 19 V (±5%)*

✓ *Verify that input power is: $P_{in} < 50$ W*

➢ Apply the input voltage to 230 V rms

➢ Repeat above steps

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Test n°3: Maximum Power

➢ Apply the input voltage 115 V rms to J1 connector

➢ Connect electronic load to J2 connector

➢ Load is increased over nominal current (2.4 A)

➢ At a certain point, $I_{out(max)}$, V_{out} collapses and the converter enters in auto-recovery mode (typical is 3.5 A)

    ✓ *Maximum output current is: 2.7 A < $I_{out(max)}$ < 5.1 A*

➢ Apply the input voltage to 265 V rms

➢ Repeat above steps

➢ $I_{out(max)}$ is now typically 5.1 A

Test n°4: Short-circuit

➤ Apply the input voltage 115 V rms to J1 connector

➤ Short-circuit is applied at the output via the electronic load for instance

➤ Load is increased over nominal current (2.4 A)

✓ V_{out} must collapse and the converter enters in auto-recovery mode

✓ *Verify that average input power is below 3 W*

➤ Apply the input voltage to 265 V rms

➤ Repeat above steps

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