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ON Semiconductor®

Test Procedure for the NCP1397GANGEVB Evaluation Board

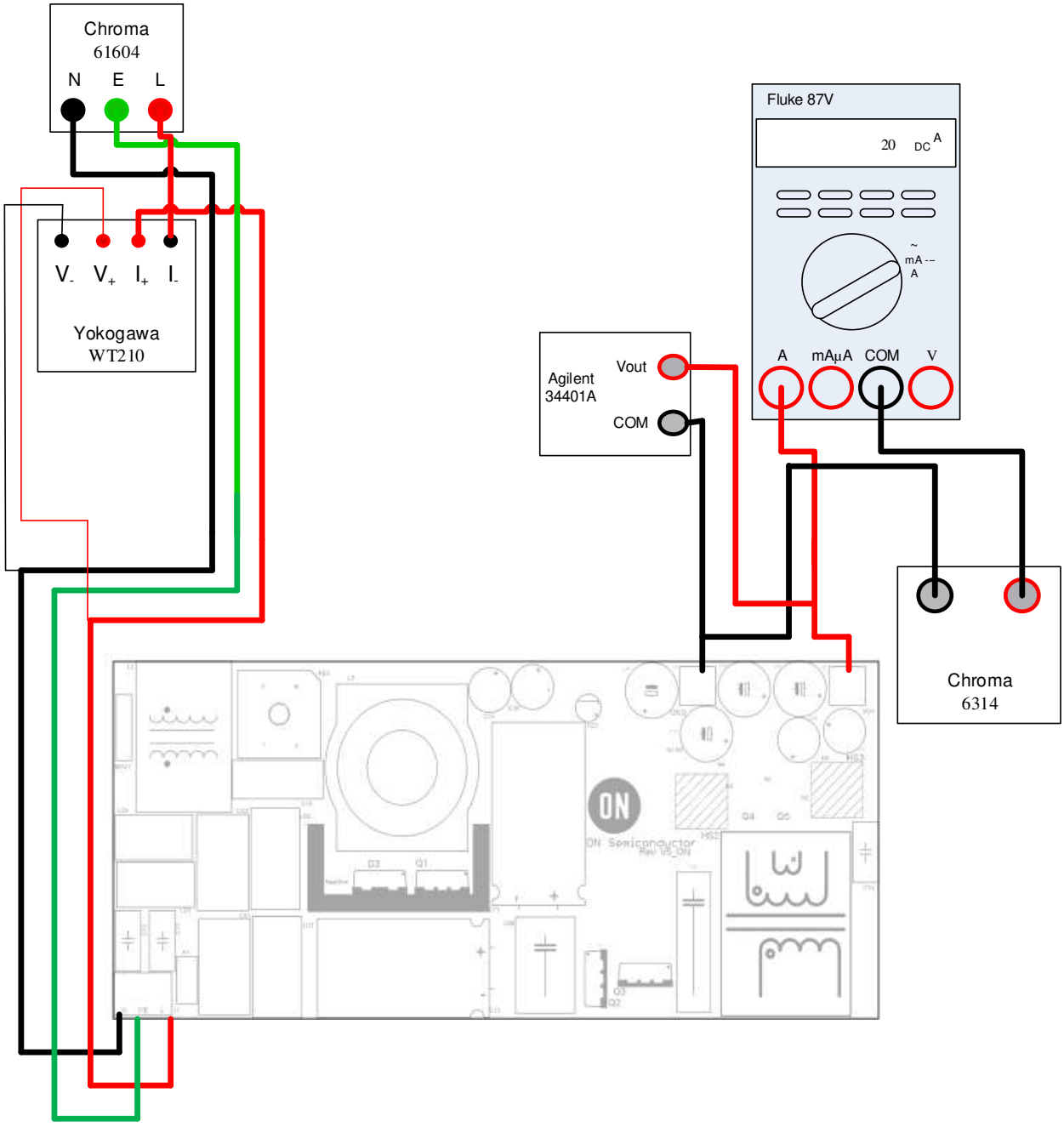

Table 1: Required Equipment

*Chroma 61604 AC Power Source	*Yokogawa WT210 Power Analyzer	*Agilent 34401A Digital Multimeter
*Chroma 6314 Electronic Load with *Chroma 63103 Load Module	*Fluke 87V True RMS Multimeter	One NCP1937 Evaluation Board

*Equivalent test equipment may be substituted

Test Procedure:

1. Connect the Fluke 87V in series between the J2- J3 output and the Chroma 63103 load module. Reference figure 1.
2. Set Chroma 63103 load module to CCH mode.
3. Set load current on Chroma 63103 module to 500mA
4. Connect the Agilent 34401A multimeter to the J2- J3 output as shown on figure 1.
5. Connect the AC power source and power analyzer as shown in figure 1.
6. Set the AC power source to 90 VAC, 60Hz and turn on power source
7. Wait 10 seconds and verify that the voltage measured on Agilent meter is 12.10 +/- 0.25V. Verify load current on Fluke meter.
8. Place a cooling fan facing the GaN HEMTs heat sink of PFC (provide a minimum of 30 CFM air flow). In general use the cooling fan for operations over 150 Watt output power.
9. Set the load current to 20A. Verify on Fluke meter that current is 20A +/- 1%
10. Allow evaluation board to run for approximately 1 minute then use Yokogawa to measure input power and power factor. Calculate the efficiency and record measurements.
11. Repeat step 9 at 115 VAC / 60 Hz, 230 VAC / 50 Hz, 265 VAC, 50 Hz. Verify the results are within the limits of Table 2.
12. Reduce load current to 10A. Verify on Fluke meter that current is 10A +/- 1%
13. Repeat step 9 for 90 VAC / 60 Hz, 115 VAC / 60 Hz, 230 VAC / 50 Hz, 265 VAC, 50 Hz. Verify the results are within the limits of Table 3.
14. Turn off the AC power source.
15. Since high voltage will be present on bulk capacitor, C3, use a dc voltmeter to verify voltage is less than 50 VDC before continuing.
16. Disconnect the ac source.
17. Disconnect the electronic load
18. Disconnect multimeters
19. End of test

Table 2: Full Load Results

90 VAC / 60 Hz	**Vo = 12.10 +/- 0.25V**
	PF > 0.98
	η > 91%
115 VAC / 60 Hz	**Vo = 12.10 +/- 0.25V**
	PF > 0.98
	η > 92.55
230 VAC / 50 Hz	**Vo = 12.10 +/- 0.25V**
	PF > 0.95
	η > 94.2%
265 VAC / 50 Hz	**Vo = 12.10 +/- 0.25V**
	PF > 0.95
	η > 94.5%

Table 3: Half Load Results

90 VAC / 60 Hz	**Vo = 12.10 +/- 0.25V**
	PF >.98
	η > 93%
115 VAC / 60 Hz	**Vo = 12.10 +/- 0.25V**
	PF >.97
	η > 94%
230 VAC / 50 Hz	**Vo = 12.10 +/- 0.25V**
	PF >95
	η > .94
265 VAC / 50 Hz	**Vo = 12.10 +/- 0.25V**
	PF >.92
	η > 94.5%