Test Procedure for the CCRACGEVB Evaluation Board

CAUTION: VERY HIGH VOLTAGE. MAY CAUSE SEVERE INJURY OR DEATH.

Test Equipment Required:

1. Adjustable, isolated AC power source capable of providing a range of 0 to 120 V_{ac}.
2. Two or more digital multi-meters to measure the output current and load voltage.
3. Dimmer light switch.

Setup: (Figure 1)

1. Connect AC power source across VIN1 and VIN2. Polarity does not matter.
2. Connect a voltmeter across TP10(+) and TP11(-) to measure voltage across R14 in mV_{DC} (1mV = 1mA). This will be the LED current measurement.
3. Connect a voltmeter across TP9(+) and TP10(-) to measure the LED Voltage in V_{DC}.
4. Remove any jumpers that may be on the board.
5. **Always be sure that the voltage is off before changing jumpers.**

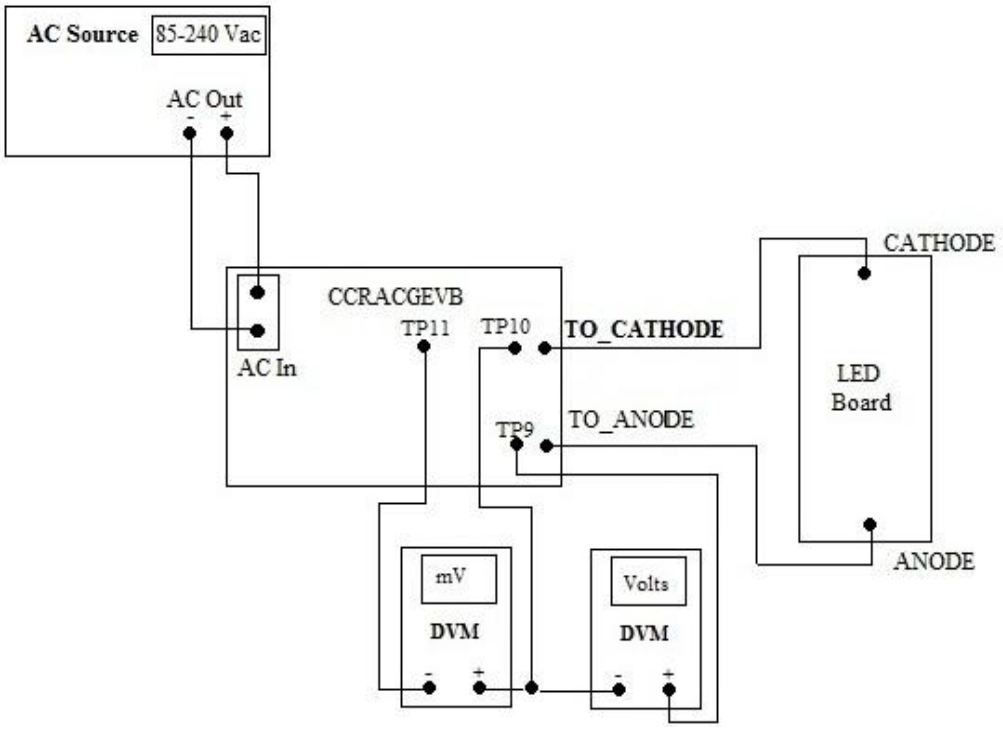


Figure 1: Setup for Circuits 1, 2, and 3.

Circuit 1: Testing CCRs

1. Verify input voltage is set to 0 volts (off) and ON/OFF switch is in the "ON" position.
2. Remove all jumpers.
3. Place jumpers on J1, J11, J18, J19, J20, and J22 on driver board, and J26 on LED board.
4. Connect LED board by connecting TO_ANODE on the driver board to ANODE on the LED board and TO_CATHODE on driver board to CATHODE on LED board.
5. Apply an input voltage of 120 V_{ac} across VIN1 and VIN2.
6. Verify that LEDs D11-D15 are emitting light. Look at the voltage across R14 to obtain the current (1 mV = 1 mA). Current should be 12 to 20 mA_{DC}.
7. Look at the voltage across the LEDs. Voltage should be 72 to 78 V_{DC}.
8. Return Vin to 0 V.
9. Remove jumper J11 and place a jumper on J12.
10. Repeat steps 5-8. The current should be 20 to 28 mA_{DC}. Voltage should be 72 to 78 V_{DC}.
11. Remove jumper J12 and place a jumper on J13.
12. Repeat steps 5-8. The current should be 30 to 40 mA_{DC}. Voltage should be 75 to 81 V_{DC}.
13. Return Vin to 0 V.
14. Remove jumper J13 and place a jumper on J14 on the driver board. Place a jumper on J23 on the LED board.
15. **Apply an input voltage of 85 V_{ac} across VIN1 and VIN2.**
16. Verify that LEDs D11-D20 are emitting light. Look at the voltage across R14 to obtain the current (1 mV = 1 mA). Current should be 70 to 82 mA_{DC}. Voltage should be 70 to 76 V_{DC}.
17. Return Vin to 0 V.
18. Remove all jumpers.
19. Leave other connections as they are.

Circuit 2: Cap Drop

1. Verify input voltage is set to 0 volts (off) and ON/OFF switch is in the "ON" position.
2. Remove all jumpers.
3. Place jumpers on J2, J13, J18, J19, J20, and J22 on driver board, and J26 on LED board.
4. Apply an input voltage of 120 V_{ac} across VIN1 and VIN2.
5. Verify that LEDs D11-D15 are emitting light. The current should be 18 to 25 mA_{DC}. Voltage should be 70 to 75 V_{DC}.
6. Return Vin to 0 V.
7. Remove jumper J2 and place a jumper on J3.
8. Repeat steps 4-6. The current should be 32 to 40 mA_{DC}. Voltage should be 73 to 80 V_{DC}.
9. Remove jumper J3 and place a jumper on J4.
10. Repeat steps 4-6. The current should be 32 to 40 mA_{DC}. Voltage should be 73 to 80 V_{DC}.
11. Remove jumper J4 and place a jumper on J5.
12. Repeat steps 4-6. The current should be 32 to 40 mA_{DC}. Voltage should be 73 to 80 V_{DC}.

13. Remove jumper J5 and place a jumper on J6.

14. Repeat steps 4-6. The current should be 32 to 40 mA_{DC}. Voltage should be 73 to 80 V_{DC}.

15. Return Vin to 0 V.

16. Remove all jumpers.

17. Leave other connections as they are.

Circuit 3: Chopper

1. Verify input voltage is set to 0 volts (off) and ON/OFF switch is in the "ON" position.
2. Remove all jumpers.
3. Place jumpers on J1, J8, J9, J10, J11, J19, and J22 on driver board, and J25 and J26 on LED board.
4. Measure the resistance between TP6 and TP7. Set the resistance to ~ 3.35k Ω by adjusting the potentiometer R10.
5. Apply an input voltage of 120 V_{ac} across VIN1 and VIN2.
6. Verify that LEDs D11-D13 are emitting light. Measure the voltage across R14 to obtain the current (1 mV = 1 mA). Current should be 20 to 27 mA_{DC}.
7. Measure the voltage across the LEDs. Voltage should be 50 to 55 V_{DC}.
8. Return Vin to 0 V.
9. Remove all jumpers.
10. Leave other connections as they are.

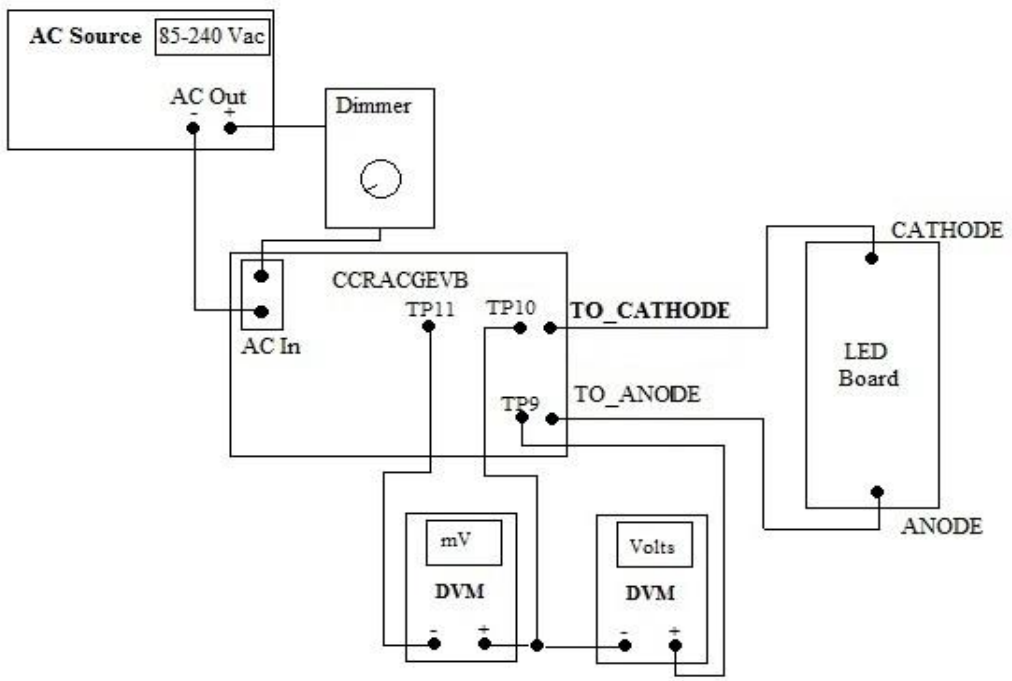


Figure 2: Setup for Circuits 4 and 5.

Circuit 4: Straight Dimmable (Requires Dimmer)

1. Verify input voltage is set to 0 volts (off) and ON/OFF switch is in the "ON" position.
2. Connect the source to the dimmer and then connect the dimmer to the CCRACGEVB.
3. Place jumpers on J1, J7, J9, J13, J15, J16, J18, J20, and J22 on driver board, and J26 on LED board.
4. Measure the resistance over TP5 and TP7. Set the resistance to ~ 85 Ω by adjusting the potentiometer R7.
5. Bring the dimmer to be fully on.
6. Apply an input voltage of 120 V_{ac} across VIN1 and VIN2.
7. Ensure that meters are connected as described in Setup: steps 2-3.
8. Verify that LEDs D11-D15 are emitting light. Measure the voltage across R14 to obtain the current (1 mV = 1 mA). Current should be 25 to 33 mA_{DC}.
9. Measure the voltage across the LEDs. Voltage should be 63 to 69 V_{DC}.
10. Adjust the dimmer and verify that the LEDs D11-D15 are dimming.
11. Return Vin to 0 V.
12. Remove all jumpers.
13. Leave other connections as they are.

Circuit 5: Chopper/Cap Drop Dimmable (Requires Dimmer)

1. Verify input voltage is set to 0 volts (off) and ON/OFF switch is in the "ON" position.
2. Connect the dimmer to the source and then connect the CCRACGEVB to the dimmer.
3. Remove all jumpers.
4. Place jumpers on J1, J13, J18, J19, J20, and J21 on driver board, and J26 on LED board.
5. Bring the dimmer to be fully on.
6. Apply an input voltage of 120 V_{ac} across VIN1 and VIN2.
7. Verify that LEDs D11-D15 are emitting light. The current should be 22 to 30 mA_{DC}. Voltage should be 70 to 75 V_{DC}.
8. Adjust the dimmer and verify that the LEDs D11-D15 are dimming.
9. Return Vin to 0 V.
10. Remove all jumpers.