

DC456 Test Procedure

1. Before proceeding to test, insert a jumper into JP1, the 1.8V output voltage, jumper J1 into the Force Continuous position, and jumper J2 into the OFF position. Check Vout; it should measure 0V.
2. Apply 5V at Vin with a 100 mA load. Change Jumper J2 from the OFF position to the ON position. Measure Vout; it should be 1.8V +/- 3% (1.746V to 1.854V).
3. Observe the voltage waveform at the switch node (pin). Verify the switching frequency is between 800 kHz and 1.2 MHz ($T = 1.25\text{ us}$ and 0.833 us).
4. Measure the output ripple voltage; it should measure less than 20 mVAC. Reduce the input voltage to 2.7V.
5. Vary the input voltage from 2.7V to 5.5V. The output voltage should be within +/- 3.5% tolerance (1.737V and 1.863V). When finished, set the input voltage back to 5V.
6. Increase the load current from 100 mA to 2.5A. The output voltage should be within a tolerance of +/- 4% (1.728V and 1.872V).
7. Observe the voltage waveform at the switch node (pin) - again. Verify the switching frequency is between 800 kHz and 1.2 MHz ($T = 1.25\text{ us}$ and 0.833 us).
8. With the load current at 2.5A, observe the output ripple voltage. It should be less than 20 mVAC. Decrease the load current to 100 mA.
9. Change Jumper J2 from the ON position to the OFF position. The IC should shut down, so the output should measure 0V (Check). With the circuit shut down, change jumper J1 from Force Continuous to the Burst-Mode position. Return Jumper J2 to the ON position. The IC should turn back on, and repeat steps 2 thru 8, with one exception: The maximum allowable output ripple voltage in step #4 is now 200 mV.
10. After finishing step 8 (a second time) with the circuit in Burst-Mode operation, turn off the part with jumper J2. Move the jumper from JP1, the 1.8V position, to JP2, the 2.5V position, and repeat steps 2 thru 8 for both the Force Continuous and Burst-Mode operations. Again one change: 3V is the minimum input voltage in step #5 (the line regulation test).

11. After the 2.5V option is checked, repeat the process for the 3.3V option. Again one change: 4V is the minimum input voltage in step #5 (the line regulation test).