How to Debug a LM4651/52
Class D Demo Board

Please read through all the steps listed below before starting.

1. Remove the load, the LM4652 and the output inductors.
2. Be sure the TSD input pin is tied to GND on the LM4651 (pin 12). The TSD input pin is active high and with out the LM4652 in the board noise will raise this pin so that the LM4651 thinks it needs to shut down. A simple fix so that the TSD input works correctly with or with out the LM4652 in the board is to add a 100KΩ resistor tied from pin 12 on the LM4651 to GND. This resistor will act as a pull down resistor.
3. Now power up with no load, no input, STBY off be sure the power supply is above +/-12V. With a scope probe, check the signal at the inductor holes. There should be a nice square wave with a 50% duty cycle at around 130kHz (if R_{osc} = 4KΩ). This square wave should be on both of the inductor holes that connect to the output of the LM4652. Add input and see if there is modulation.

If YES go to step #4.
If NO then replace the diver (LM4651) go to step #2.

4. Add the LM4652 back into the board, be sure power is off and has ramped down to less than +/-5V. Remove the GND on the TSD input pin done on step #2. If a 100KΩ resistor was added there is no need to remove it. Now power up slowly. If the current starts to go high (>1A) from the supply the LM4652 is bad. If this happens, power down, remove the LM4652 and go back to step #2. Use a new LM4652 when back at this step.
5. Check the output at the inductor holes as done in step #3. Add input and see if it modulates.

If YES go to step #5.
If NO then you need to go back to step #2 by removing the LM4652 and checking to see that the driver is still working correctly. Be sure STBY is not on and that Vcc/Vee is above +/-12V.

5. Power down, Add the inductors back into the board. With no load, no input, power on watching the current. Everything should be ok by now. If current goes high then back track to step #4.
6. Power down, add load, power on, test.