ON Semiconductor®

Test Procedure for the NIS5420MT1GEVB and NIS5420MT6GEVB Evaluation Boards

The following steps detail the basic test procedure for these boards:

Necessary Equipment:

- DC power supply that can go to at least 16 V and supply at least 3 A
- Multimeter

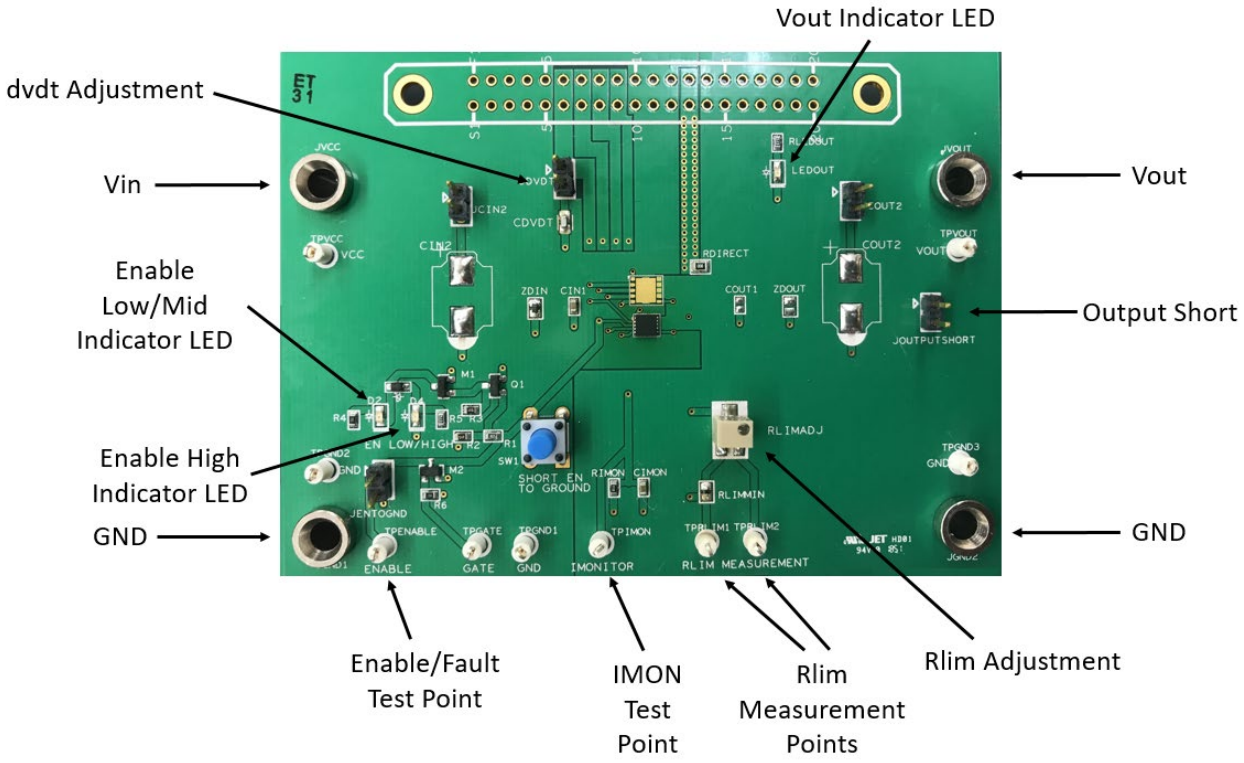

Figure 1: Test Setup

Test Procedure:

1. **Perform a thorough visual inspection of the board. Ensure all components are properly soldered and connected.**
2. **Remove all jumpers from the headers if there are any in place.**
3. **Connect an ohmmeter across the Rlim measurement test points and set it to 20 ohms with a small screwdriver.**
4. **Connect a DC supply from Vin to GND and apply 12 V.**
5. **Check that V_{out} = 12 V, V_{en} ~ 4.5 V and the green LEDs are on.**
6. **There are three ways to ground the enable pin, which turns the eFuse off. Try all three of these ways independently to verify that they each turn the eFuse off (both green LEDs will turn off and the yellow LED will turn on).**
    a. **Press and hold the blue button.**
    b. **Put a jumper on the header marked JENTOGND.**

c. **If possible, use a separate 5 Vdc supply and connect +5 V to the test point marked "GATE." If a separate supply is not available, then carefully take another cable from the power supply and apply 12 V to the test point marked "GATE." Be sure not to connect 12 V to any points besides Vin/Vcc and "GATE" as that can damage the eFuse.**

7. **Connect a load such as 12 or 24 ohms from Vout to GND. Observe a voltage proportional to current on the IMONITOR test point. For example if a 12 ohm load is being used, there will be about 1 A of current, so observing a voltage between 0.85 and 1.15 V would be reasonable on the IMON test point. Disconnect the load when done.**
8. **Short Vout to GND by connecting the JOUTPUT short jumper. If the part number contains MT1 then the part will latch off and the yellow LED will be on. If the part number contains MT6, then the part will auto-retry. For the MT1, after removing the short, toggle EN or power cycle the input voltage to reset. For the MT6, check that removing the short allows the green LEDs to come back on.**
9. **Having removed the short, check that V_{out} = 12 V, V_{en} ~ 4.5 V and both the green LEDs are on. Apply 16 V to Vin and verify that the output voltage is clamped to a level between 13.6 and 16 V.**
10. **If an oscilloscope is available, put a probe on Vout. Measure the difference in rise time of Vout with and without the JDVDT jumper engaged by toggling the EN pin to GND with the blue pushbutton switch. Without the jumper connected, Vout will rise in about 2 ms, and with the jumper connected Vout will rise in about 10 ms.**
11. **Turn the input voltage down to 0 and disconnect the board.**
12. **End of test.**

Note: After testing the boards please leave all headers unjumpered