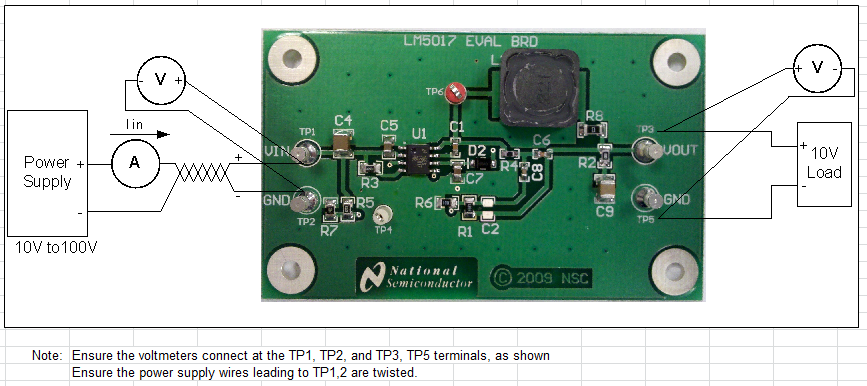
**TEXAS INSTRUMENTS**

**LM5017EVAL Test Procedure**

**Revision A**

**March 7, 2013**

1. **General**
   1. **Purpose**
      1. The purpose of this document is to provide instructions for testing EVM Modules.
   2. **Scope**
      1. This document provides details of test, safety, quality and disposition of the **LM5017EVAL**, assembly number **SV600711-001**. Additional information on the boards may be listed in the Reference Documentation section.
   3. **Reference Documentation**
      1. **LM5017EVAL** Application Note, **AN-2200**
   4. **Definitions**
      1. DMM is reference to Digital Multimeters
      2. LED Load is reference to boards with mounted LEDs
      3. UUT is reference to Unit under Test
      4. EVM is reference to Evaluation Module assembly, in this case the UUT
      5. “Hi Voltage” is defined as DC voltages greater than 75V and AC voltages greater than 50 volts (RMS)
   5. **General Test Guidelines**
      1. Always check test equipments’ capabilities in terms of power, current and voltage to make sure it can support the test requirements for UUT. Failing to follow equipment specs may cause equipment damages, board assembly damages and could pose a hazard to safety of the operator
      2. A quick open/short test of the input and output terminals of the UUT is recommended to make sure upon power up, the terminals are not shorted to ground. High current surge can occur as a result of a short and could damage the equipment as well as pose a hazard to operator
2. **Safety**
   1. **General Safety**
      1. This test must be performed by qualified personnel trained in electronics theory and who understand the risks and hazards of the assembly to be tested
   2. **Electrostatic Discharge (ESD)**
      1. Personnel handing ESD sensitive material must be familiar with ESD prevention procedures and be equipped with the appropriate attire listed in the Apparel section of this document.
      2. ESD precautions must be followed while handling assemblies
      3. NO ESD wrist strap to be worn for Hi Voltage testing
   3. **Eye Protection**
      1. Safety glasses are to be worn
      2. If LEDs are present on the UUT or used as loading the UUTs, dark glasses are to be worn to protect the eyes from bright LED lights
   4. **Thermal or Shock Hazards**
      1. Precautions are to taken to avoid touching areas of the assembly that may get hot or present a shock hazard during testing
3. **Quality**
   1. Boards under test are to be visually examined for physical defects, damages or missing components. Defects are to be separated and disposed of as stated in the Material Disposition section.
   2. Test limits are to be followed strictly. Borderline or sporadic pass/fail are considered a FAIL
   3. In the event that the failure rate is greater than 5%, recorded data for the failed units are to be kept for further investigation.
4. **Apparel**
   1. Electrostatic Smock
   2. Electrostatic gloves or finger cots
   3. Safety glasses with dark lenses
5. **Training & Qualifications**
   1. This test must be performed by qualified personnel trained in electronics theory and PCB assembly testing. The testing technician must be familiar with standard bench test equipment and know how to safely operate them
6. **Test Equipment/Software/Material**
   1. **Power Supplies**
      1. Chroma Programmable DC Supply (62006P-100-25) or equivalent capable of 100V/1A
   2. **Load**
      1. Electronic load or equivalent power resistor capable of handling 1A/7W.
   3. **Meters**
      1. 2 voltmeters capable of accurately measuring and displaying around 100V
      2. Ammeter capable of accurately measuring and displaying around 1A
      3. Alternate: current probe
   4. **Oscilloscopes**
      1. Capable of accurately measuring and displaying current around 1A
   5. **Test Leads and Other Cabling**
      1. 4 red banana-to-alligator clips or EZ hooks, AWG18
      2. 4 black banana-to-alligator clips or EZ hooks, AWG18
      3. Banana-to-banana, AWG18
7. **Equipment Setup**
   1. **Power Supply**
      1. With the power supply disconnected from the unit under test (UUT), set the supply to 13VDC/1A and disable the supply’s output
      2. Using the specified test leads, connect the power supply’s positive terminal (+) to VIN and negative terminal (-) to GND on UUT
   2. **Meter**
      1. The DMM is used to measure VIN current, VOUT voltage.
   3. **Load**
      1. Use an Electronic Load or a power resistor as a load. Connect as shown in the connection diagram to VOUT and GND
8. **Connection Diagram (Preferred)**
   1. A complete setup should resemble the diagram below



1. **Photos (Optional)**
2. **Step-by-Step Test Procedure**
   1. Connect the setup as shown in the diagram above. Disconnect the load or set it to open circuit.
   2. Set the dc power supply current limit to 2A.
   3. Set the dc power supply voltage to 13V. Turn on the power supply. The VOUT should be (8-12V) range.
   4. Follow the table below for the remaining tests:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| ***No.*** | ***Description*** | ***Test point*** | ***Vin (V)*** | ***Load (mA)*** | ***min*** | ***max*** | ***units*** | **Notes** |
|  |  |  |  |  |  |  |  |  |
| 1 | VOUT @ no load and min VIN | TP3, TP5 | 13 | 0 | 9.5 | 10.8 | V | Measure output voltage acrossTP3 and TP5 |
| 2 | Input current @ no load and min VIN | Current into VIN (TP1) | 13 | 0 | 1.5 | 20 | mA | Measure input current into TP1 |
| 3 | VOUT @ max load and min VIN | TP3, TP5 | 13 | 600 | 9.5 | 10.8 | V | Measure output voltage acrossTP3 and TP5 |
| 4 | Input current @ max load and min VIN | Current into VIN (TP1) | 13 | 600 | 400 | 600 | mA | Measure input current into TP1 |
| 5 | VOUT @ no load and max VIN | TP3, TP5 | 100 | 0 | 9.5 | 10.8 | V | Measure output voltage acrossTP3 and TP5 |
| 6 | Input current @ no load and max VIN | Current into VIN (TP1) | 100 | 0 | 1.5 | 20 | mA | Measure input current into TP1 |
| 7 | VOUT @ max load and max VIN | TP3, TP5 | 100 | 600 | 9.5 | 10.8 | V | Measure output voltage acrossTP3 and TP5 |
| 8 | Input current @ max load and max VIN | Current into VIN (TP1) | 100 | 600 | 70 | 120 | mA | Measure input current into TP1 |

1. **Equipment Shutdown**
   1. No particular shutdown routine is required for this procedure
2. **Disposition**
   1. **Conforming Material**
      1. If applicable, state how the boards should be configured for customers, such as jumper settings.
      2. Units that have passed this test procedure shall be packaged into anti-static ESD approved bags, labeled per table below and shipped per the P.O.

|  |  |
| --- | --- |
| **Label 1**  **Assembly Number+Dash Number if Applicable** | **Label 2**  **Orderable Number** |
| **SV600711-001** | **LM5017EVAL/NoPB** |
|  |  |
|  |  |
|  |  |

* 1. **Non-conforming Material**
     1. If yield loss is 2% or less, scrap non-conforming units and adjust P.O. to reflect total amount shipped. If yield loss approaches or exceeds 5%, contact EVM coordinator for assistance