Functional Test Case

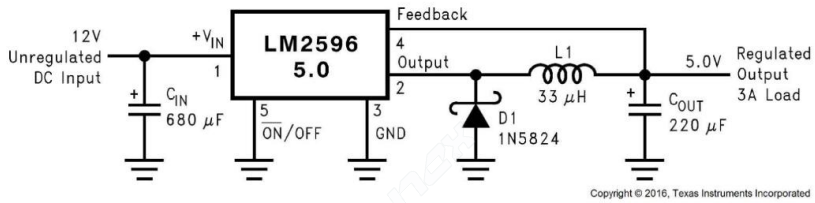
Tested Model:LM2596SX-5.0

The LM2596SX-5.0 is a high-efficiency step-down switching regulator chip capable of delivering a 3A output load current and providing a stable 5V DC output. It features a fi xed switching frequency (150kHz), high integration, and simple peripheral circuitry, ma king it widely used in various power conversion applications.

The related test process is as follows:

I. Test Circuit

As shown in the figure below, this test adopts the same circuit diagram and peripheral component parameters as those specified in the official datasheet.



(Fixed Output Voltage Versions)

Typical Application

II. Output Voltage and Load Test

Based on the circuit diagram, the output voltage was measured under no-load conditions and at load currents of 1A, 2A, and 3A respectively.

a）At a nominal input voltage of 12V and with no load, the output voltage was 4.9882 V. Compared with the official datasheet, the measured value falls within the specified r ange of 4.75V to 5.25V.



Vout=4.9882V@Vin=12V，Iload=0A

b）At an input voltage of 12V and a load current of 1A, the output voltage was 4.9451V . Compared with the official datasheet, the measured value falls within the specified range of 4.75V to 5.25V.



Vout=4.9451V@Vin=12V，Iload=1A

c）At an input voltage of 12V and a load current of 2A, the output voltage was 4.9095V . Compared with the official datasheet, the measured value falls within the specified range of 4.75V to 5.25V.



Vout=4.9095V@Vin=12V，Iload=2A

d）At an input voltage of 12V and a load current of 3A, the output voltage was 4.8612V. Compared with the official datasheet, the measured value falls within the specified range of 4.75V to 5.25V.



Vout=4.8612V@Vin=12V，Iload=3A

III. Summary

The above functional tests verified that the LM2596SX-5.0 can stably output a 5V DC voltage at a maximum load current of 3A. The test results show that both the output voltage and load current tests are qualified, confirming that the device can start up and operate normally, with the output results meeting expectations.