

Test Procedure for the LB11685AV Evaluation Board

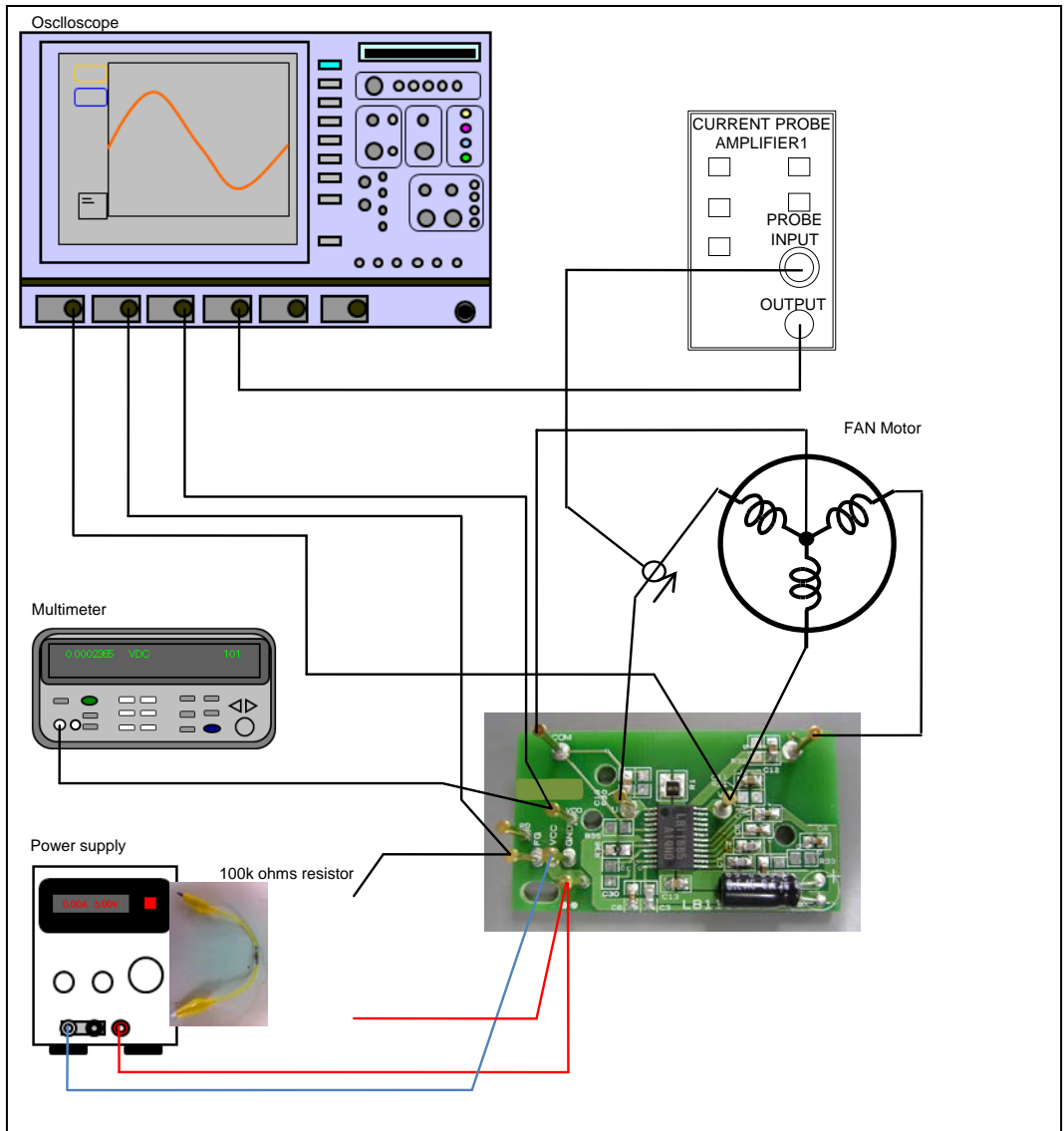


Table: Required Equipment

Equipment	Efficiency
Power supply	18V-3A
Multimeter	5V
Oscilloscope	4 channel
Current probe	
LB11685AV Evaluation Board	
Resistor	100k ohms
Motor	12V-3W

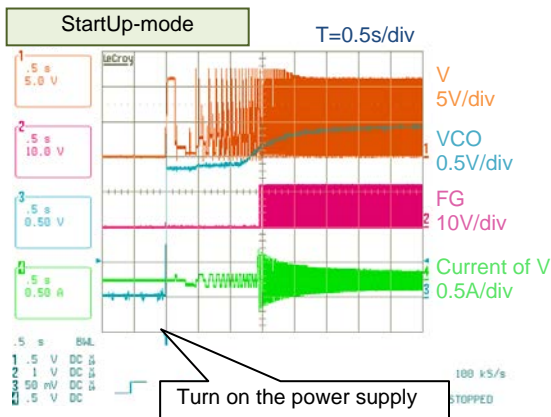
Test Procedure:

1. Connect the test setup as shown above.
2. Initial check
 Boot up at the VCC = 4.5V.
 Confirm that the motor rotates smoothly and in a right direction.
3. Booting check (StartUp-mode)
 Check whether a booting of a motor is stable. (Booting)
 Boot up at the VCC = 4.5V and 18V.
 Then, at each VCC, check whether a motor boots 100 times in 100times.

Check lowest VCC which a motor can start. (StartUp voltage)
 Boot up at the VCC by 0.1V step from 2.5V to 4.5V.
 When the VCC is changed, turn it off once.
 The lowest voltage which a motor can boot is the StartUp voltage.
 Check whether this StartUp voltage is less than 4.0V.

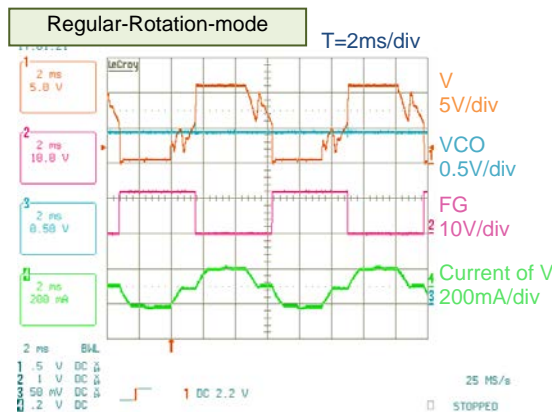
Check the some waveforms. (Booting waveforms)
 Boot up at the VCC =12V.
 Check the V, FG and VCO voltage waveform at scope CH1, CH2 and CH3, and the output current waveform of V at scope CH4 by the Oscilloscope.

ex) These waveforms are different by each motor.



4. Normal rotation check (Regular-Rotation-mode)
 Check the some waveforms. (Rotation waveforms)
 Supply the VCC=12V.
 Check the V, FG and VCO voltage waveform at scope CH1, CH2 and CH3, and the output current waveform of V at scope CH4 by the Oscilloscope.

ex) These waveforms are different by each motor.



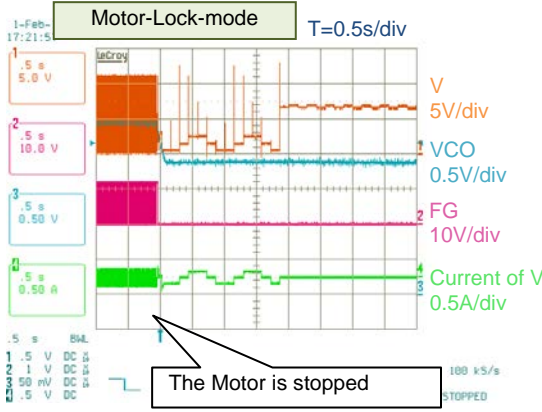
Check the VCO voltage. (VCO voltage)
 Supply the VCC=4.5V and 18V.
 At each VCC, check the VCO voltage by a multimeter whether the voltage is within 2.10V and 2.7V at Normal Rotation (Regular-Rotation-mode).

Check the output current. (Io)
 Supply the VCC=4.5V and 18V.
 At each VCC, check the current of the power supply.

5. Lock detection check (Motor-Lock-mode)

Check the Lock detection behavior. (Lock)
 Supply the VCC=4.5V, 12V and 18V.
 At each VCC, stop the Motor by your hand forcibly.
 Then, check the V, FG and VCO voltage waveform at scope CH1, CH2 and CH3, and the output current waveform of V at scope CH4 by the Oscilloscope.

ex) These waveforms are different by each motor.



6. Checking result

The Checking table is shown below.

VCC	Booting	Booting waveforms	Rotation waveforms	VCO voltage	Io	Lock
4.5V	100/100 OK	-	-	2.10 to 2.70V OK	value	OK
12V	-	OK	OK	-	-	OK
18V	100/100 OK	-	-	2.10 to 2.70V OK	value	OK

StartUp voltage < 4.0V : OK

A sample of checking result is shown below.

VCC	Booting	Booting waveforms	Rotation waveforms	VCO voltage	Io	Lock
4.5V	100/100	-	-	2.16V	0.03A	OK
12V	-	OK	OK	-	-	OK
18V	100/100	-	-	2.58V	0.20A	OK

StartUp voltage = 3.2V