

## ***Low Voltage Brushed Motor System***

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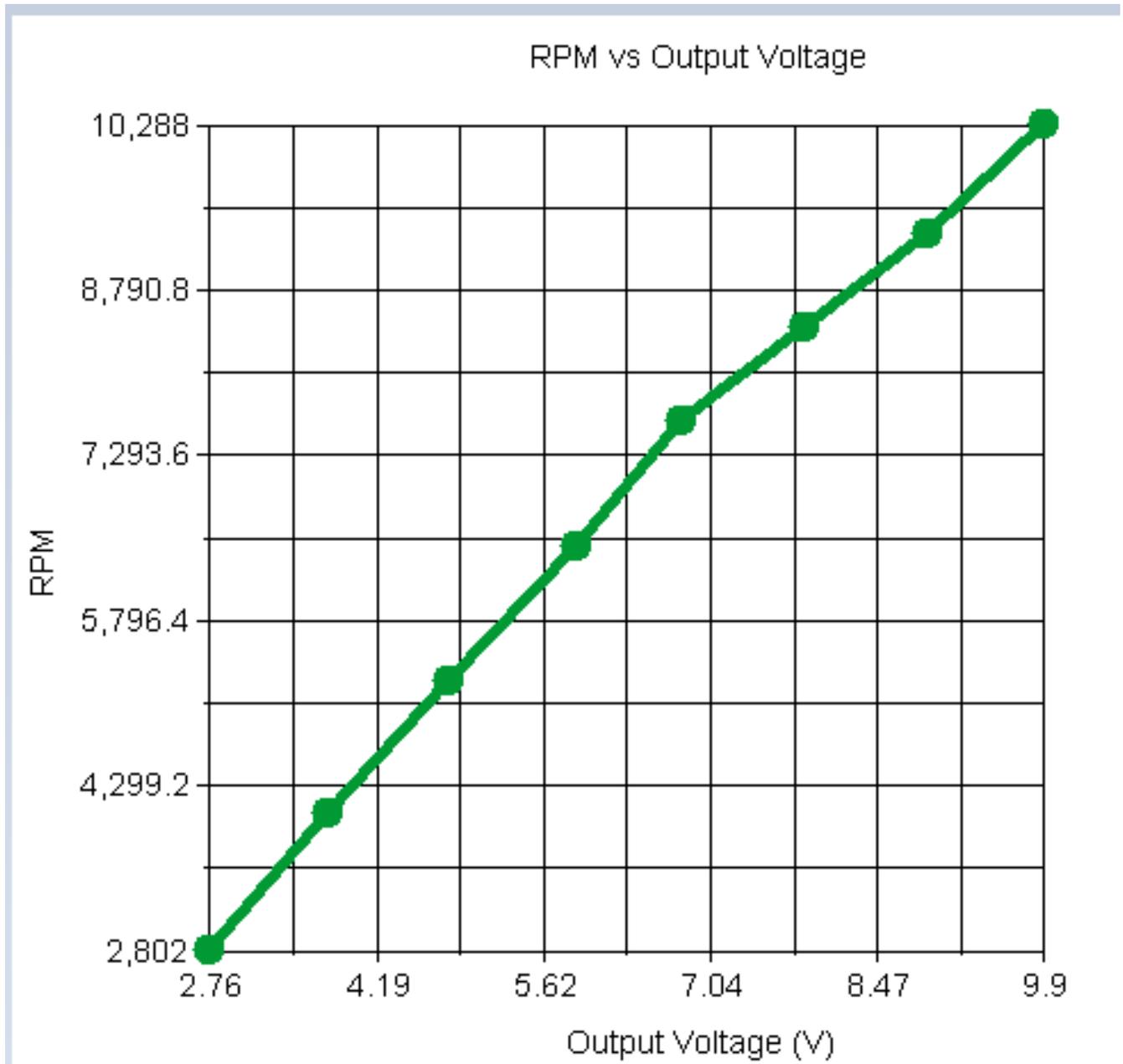
Tests performed:

1. RPM vs Output Voltages
2. Thermal Imaging
3. Output Voltage, Output Current, and Direction Voltage for 100% duty Cycle
  - a. Forward Direction
  - b. Reverse Direction
  - c. Sleep Mode
4. Output Voltage, Output Current, and Direction Voltage for 50% duty Cycle
  - a. Forward Direction
  - b. Reverse Direction
  - c. Sleep Mode
5. Output Voltage, Output Current, and Direction Voltage for 20% duty Cycle
  - a. Forward Direction
  - b. Reverse Direction
  - c. Sleep Mode

## Section 1: RPM vs Output Voltages

Data was collected with a voltage supply of 10 volts. The tests were done under no load to the motor. The onboard potentiometer was used to adjust to the Output Voltages below in the Output Voltage vs RPM table. The RPM measurement was taken using a Digital Tachometer. A brushed motor was used.

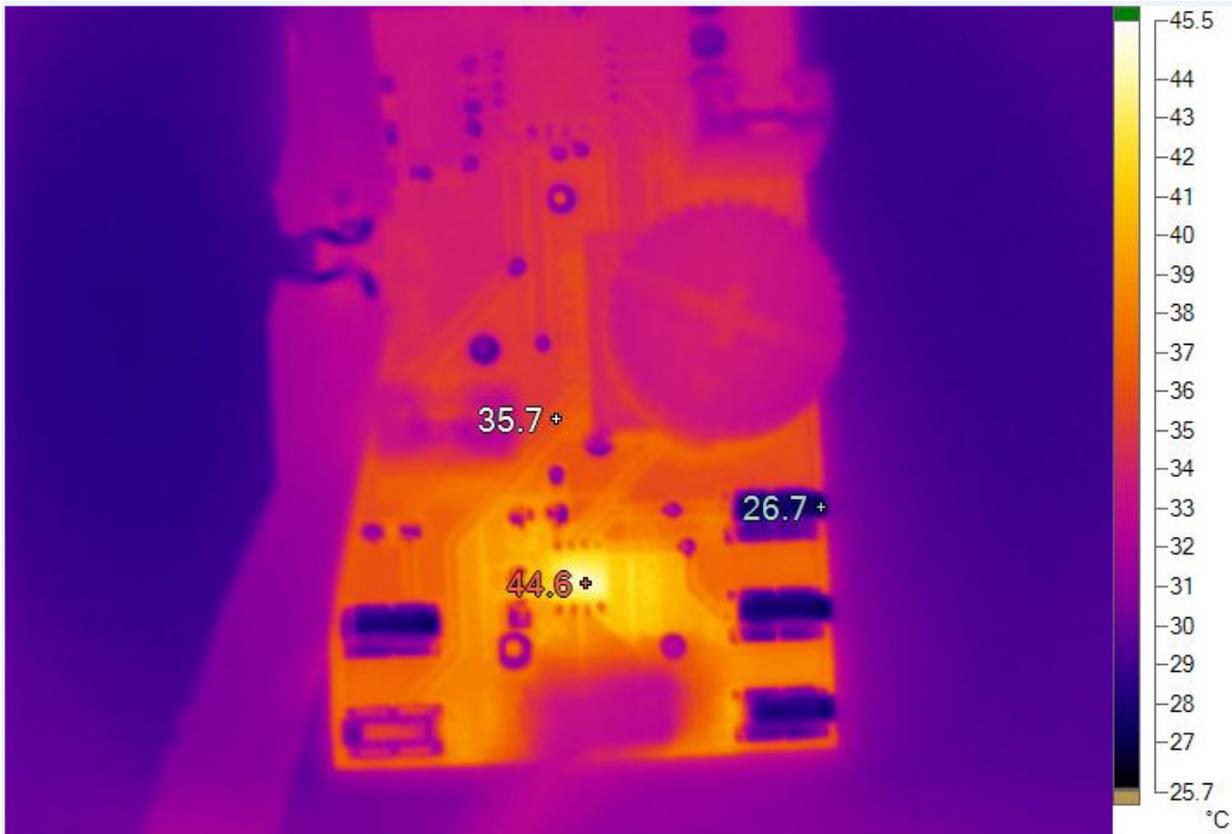
Output Voltage	RPM
2.76 V	2802
3.76 V	4036
4.80 V	5240
5.90 V	6448
6.78 V	7581
7.85 V	8440
8.89 V	9282
9.90 V	10288



## Section 2: Thermal Imaging

This test used a 10 volt supply with 100% duty cycle. The same motor as mentioned in section 1 was used for these test drawing an rms current of 912 mA shown below.

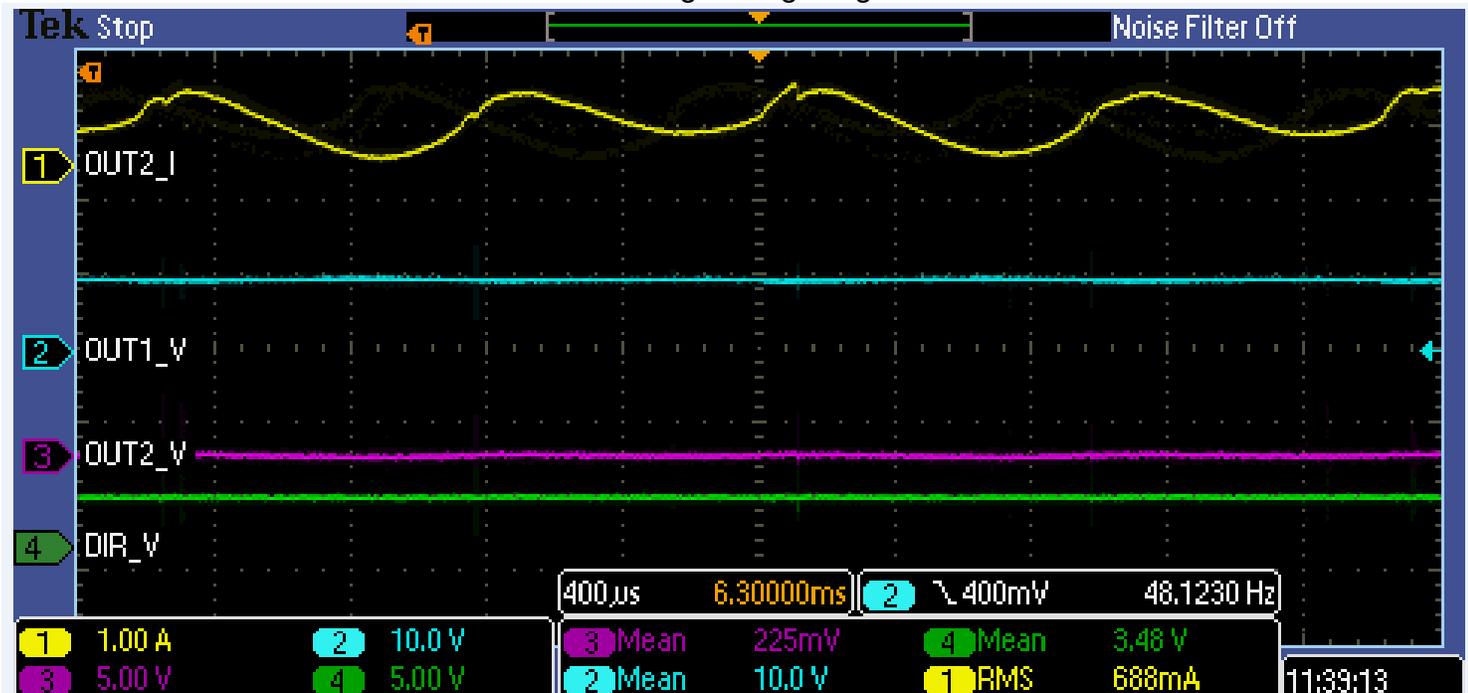
iR  
Thermal Imaging was taken using an infrared camera.



### Section 3: Output Voltage, Output Current, and Direction Voltage for 100% duty Cycle

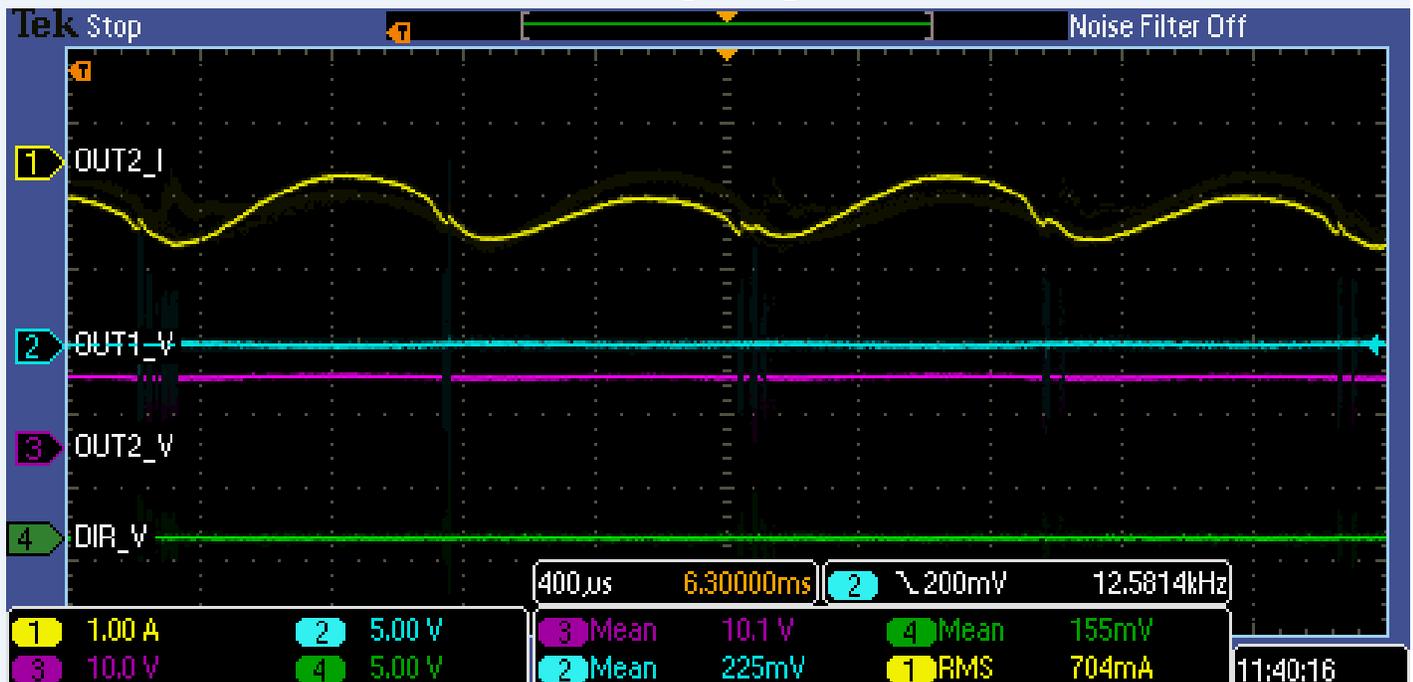
a. Forward Direction:

As denoted Forward Direction is when DIR voltage is logic high.

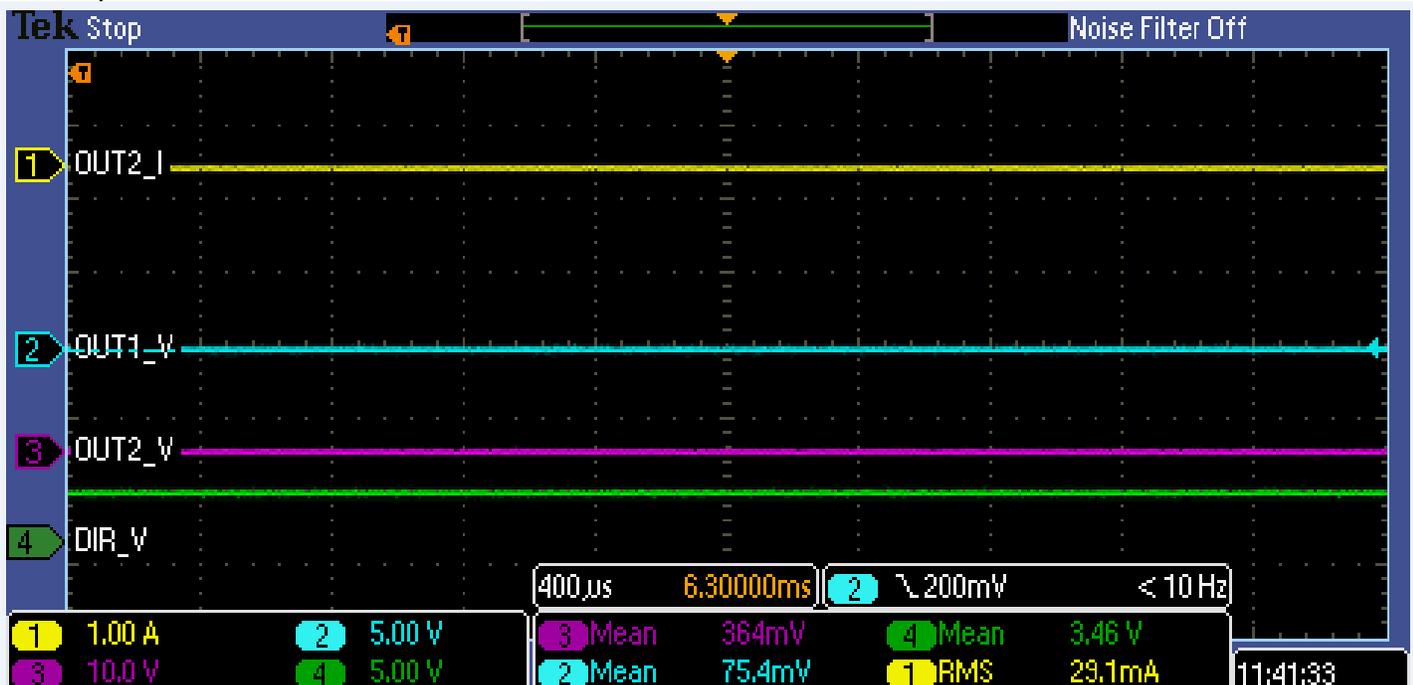


b. Reverse Direction:

As denoted Reverse Direction is when DIR voltage is logic low.



c. Sleep Mode:



#### Section 4: Output Voltage, Output Current, and Direction Voltage for 50% duty Cycle

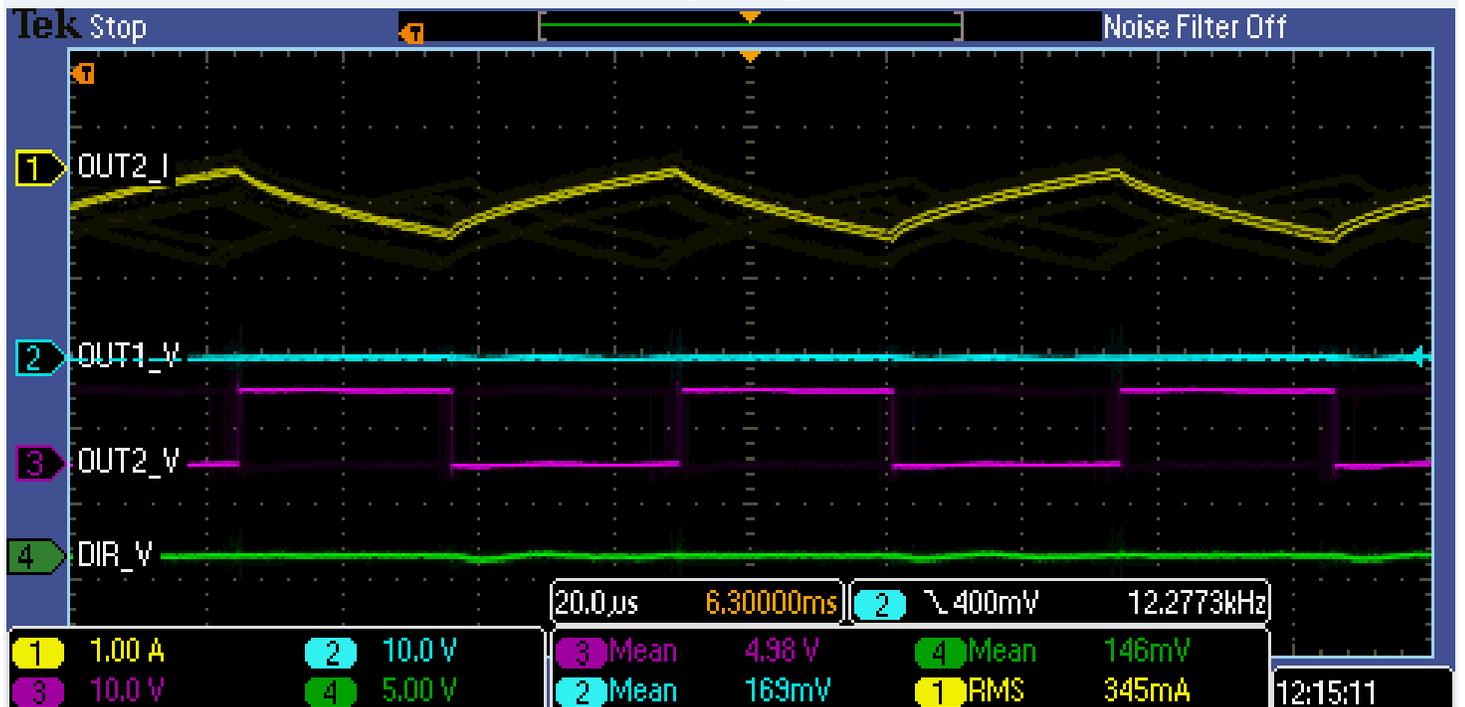
a. Forward Direction:

As denoted Forward Direction is when DIR voltage is logic high.



b. Reverse Direction:

As denoted Reverse Direction is when DIR voltage is logic low.



c. Sleep Mode:



### Section 5: Output Voltage, Output Current, and Direction Voltage for 20% duty Cycle

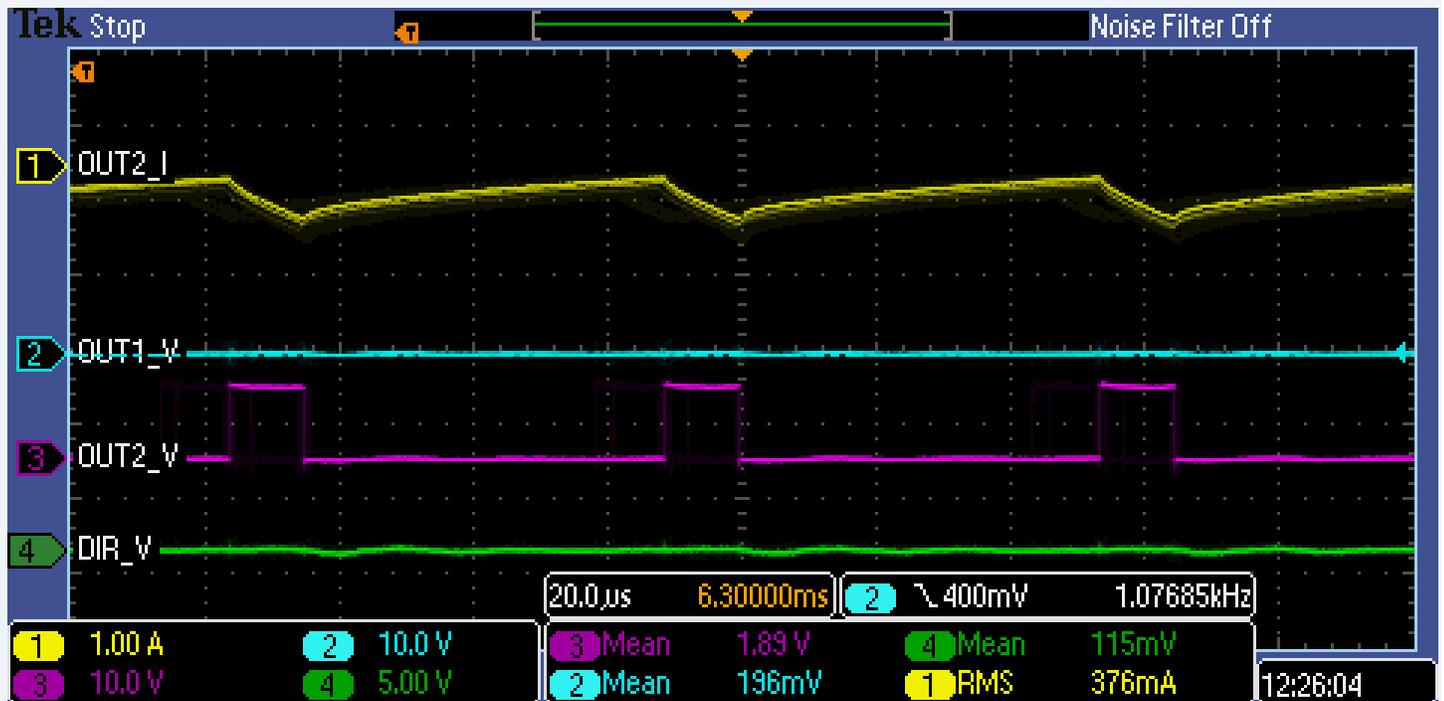
a. Forward Direction:

As denoted Forward Direction is when DIR voltage is logic high.

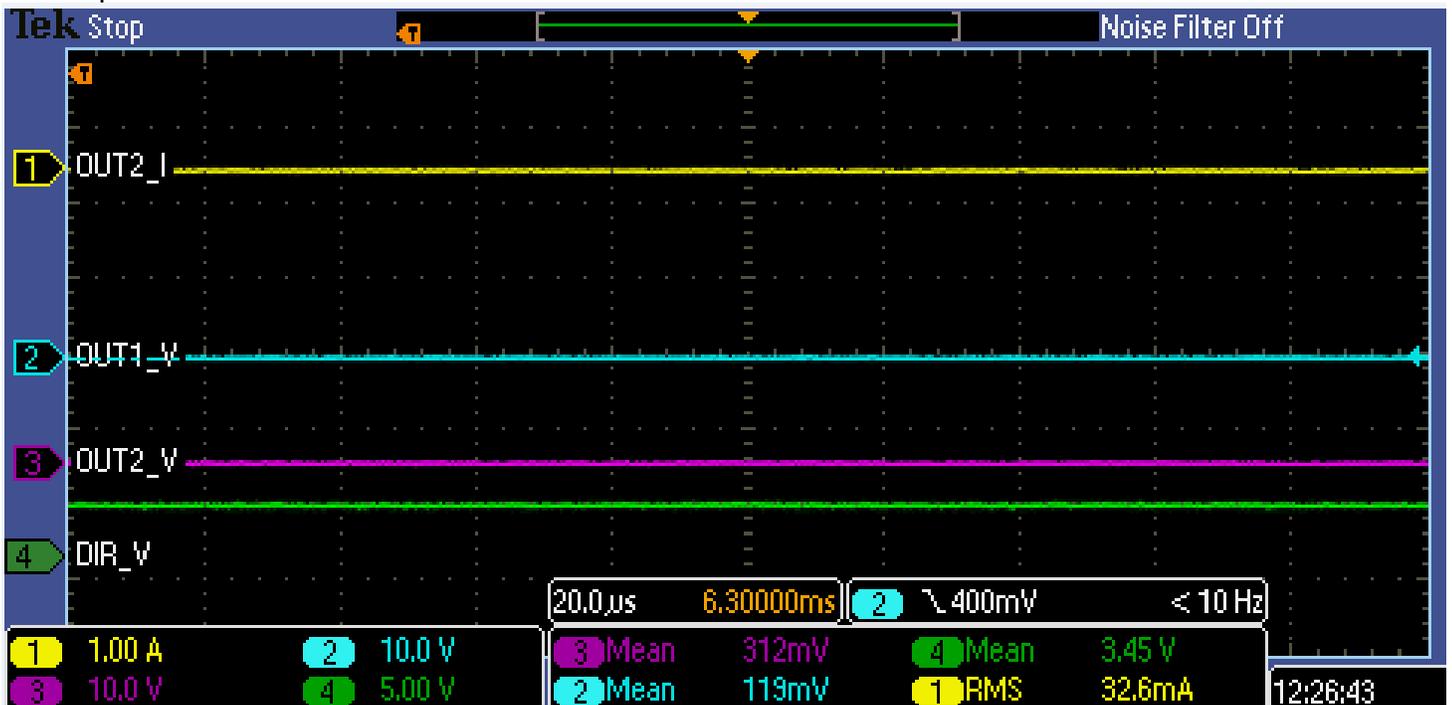


b. Reverse Direction:

As denoted Reverse Direction is when DIR voltage is logic low.



c. Sleep Mode:



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