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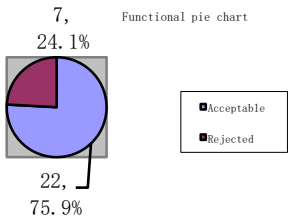
Construction Analysis Report

Applicant	Customer: 深圳市先研科技有限公司
Product Spec.	Date Received: Oct-08-2022
	Device Part Number: 5962R1022102VSC
	Date Code: N/A
	Device Type: Synchronous Buck Converter
	Manufacturer: Texas Instruments
	Quantity Received: 29
	Issue No: Top22101742-Final
Item selection	**Visual Inspection** ☐
	Solderability Test ☐
	De-Cap Inspection ☐
	Functional Tests ■
	X-Ray Inspection ☐
	Programming Testing ☐
	Electrical Silicon Test ☐
	ROHS Test ☐
Tested by	 
	Signature() Joyce / Signature() Fr. Anthong
Review by	
	Signature() Patrick Dunn / Signature() Oct-17-2022

Visual Inspection Test Result Chart	Functional result chart
Tested sample(s): PCS Acceptable Sample(s): PCS Rejected Sample(s): PCS	Tested sample(s): 29 PCS Acceptable Sample(s): 22 PCS Rejected Sample(s): 7 PCS



Shipment Details

Number of tubes received	2
Condition of tubes	□Good ■Fair □Poor □ Other
Packing Material	□Anti-static Bag □desiccant pouches ■Other
Type of carrier	□trays ■tubes □reels □bags □other
Condition of protection	□ESD protection □MSL protection ■Other
Tubes open date/time	□Parts transport process ■After received □Other
Tray Conditions (if applicable)	□Suitable trays □Unsuitable trays ■Not applicable
Type of Parts Package 20-Pin CFP	Manufacturer logo TEXAS INSTRUMENTS

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Functional Test

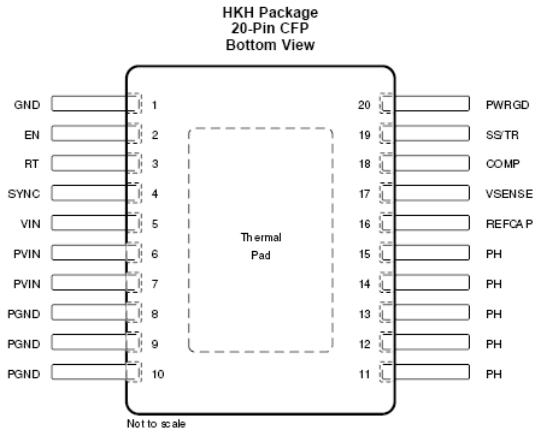
Description

All 29 devices were tested for Input Voltage Range, Enable pin logic, PH pin Switching signal, feedback regulation Voltage and Output Voltage Range tests at room temperature.

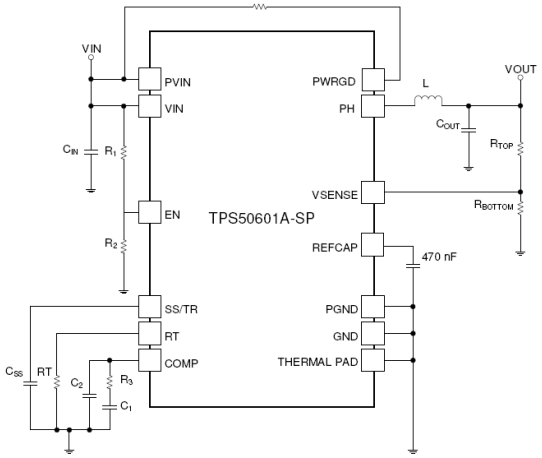
Device Features

- peak efficiency: 96.6% (VO = 3.3 V)
- Integrated 58-mΩ /50-mΩ MOSFETs
- Power rail: 3 to 7 V on VIN
- 6-A Maximum output current
- Flexible switching frequency options:
  - 100-kHz to 1-MHz Adjustable internal oscillator

Device Pin Configuration



Reference Tested Circuit



Device test data and details were shown as below:

Tested parameters:

1. Input Voltage Range P_{VIN}&V_{IN}: 3V~7V
2. Enable pin ON/OFF logic
3. PH pin Switching signal
4. Output Voltage reference V_{REF} : 0.792V~0.816V
5. Output Voltage Range V_{OUT}: 1.584V~1.632V(R_{TOP}= R_{BOTTOM} =10kΩ)

Test data(Pass):

Device Quantity	Input Voltage Range P_{VIN}&V_{IN}: 3V~7V	Enable pin ON/OFF logic	PH pin Switching signal	Output Voltage reference V_{REF} : 0.792V~ 0.816V	Output Voltage Range V_{OUT}: 1.584V~1.632V	Results
22	Pass	Pass	Pass	Pass	Pass	Favorable

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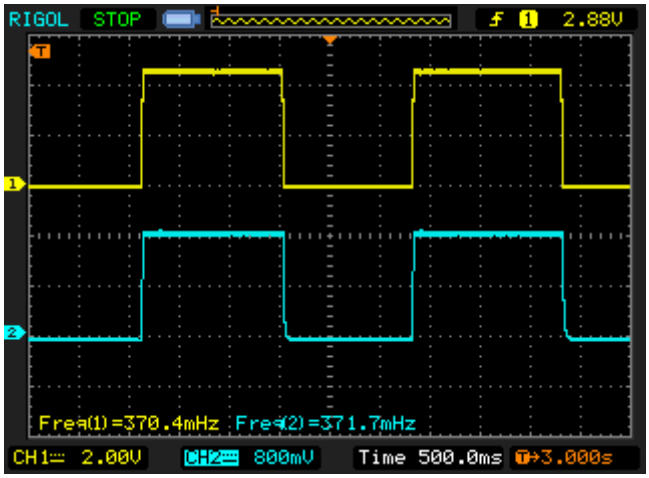
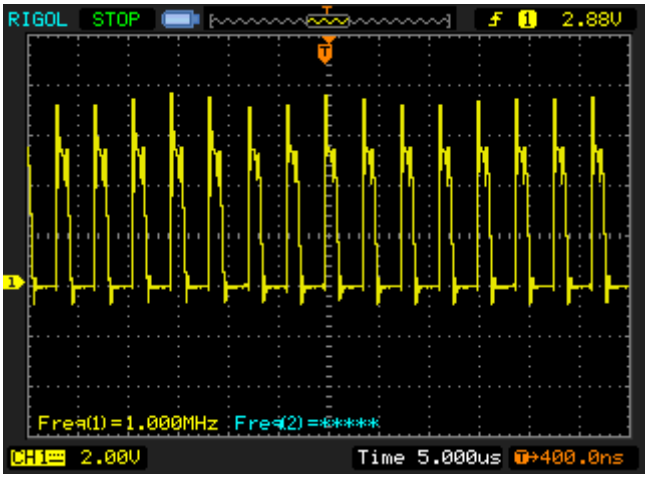
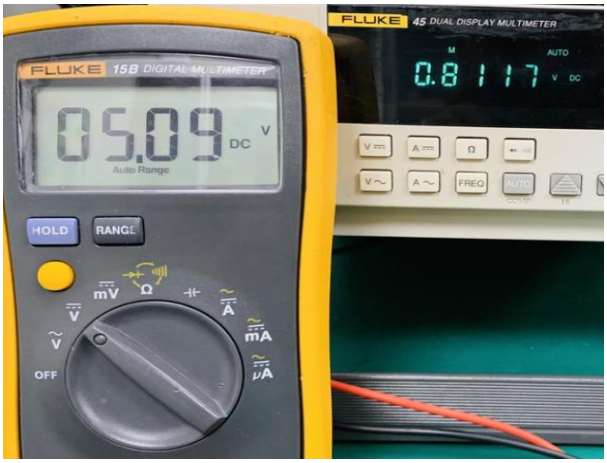
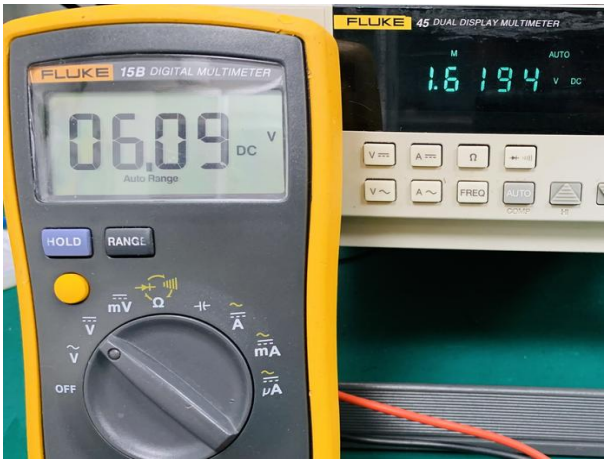
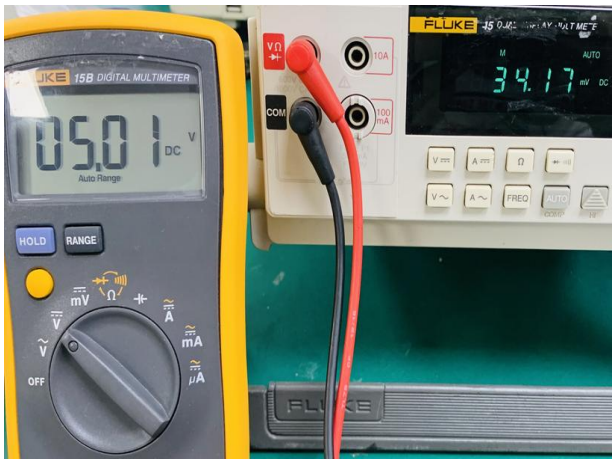
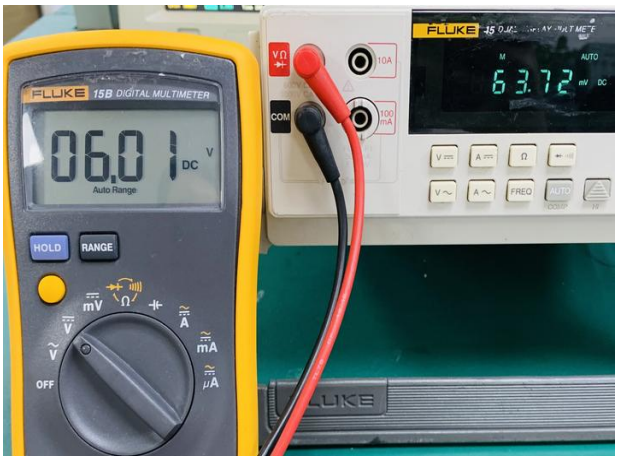
Test data(Failed):

Device Quantity		Input Voltage Range P_{VIN}&V_{IN}: 3V~7V	Enable pin ON/OFF logic	PH pin Switching signal	Output Voltage reference V_{REF} : 0.792V~ 0.816V	Output Voltage Range V_{OUT}: 1.584V~1.632V	Results
d/c: 106	1	Failed	Failed	Failed	34.17mV	63.72mV	Unfavorable
d/c: 105	1	Failed	Failed	Failed	24.09mV	54.06mV	Unfavorable
d/c: 306	1	Failed	Failed	Failed	34.20mV	63.72mV	Unfavorable
d/c: 332	1	Failed	Failed	Failed	24.16mV	54.05mV	Unfavorable
d/c: 102	1	Failed	Failed	Failed	34.00mV	63.89mV	Unfavorable
d/c: 343	1	Failed	Failed	Failed	43.85mV	74.09mV	Unfavorable
d/c: 333	1	Failed	Failed	Failed	24.21mV	43.73mV	Unfavorable

Note: The pictures of details were shown as below

Test traces:

Pic#1: Enable pin logic (Pass)	Pic#2: PH pin Switching signal (Pass)
	
Note: The yellow line was input EN signal, the blue line was output V_{OUT}	**Note**: The yellow line was PH pin Switching signal

Pic#3: Output Voltage reference V_{REF} (Pass)	Pic#4: Output Voltage Range(Pass)
	
Note: The left is V_{IN}: 5.09V, the right is V_{FB}: 0.8177V.	**Note**: The left is V_{IN}: 6.09V, the right is V_{OUT}: 1.6194V.
Pic#5: Output Voltage reference V_{REF} (Failed) (d/c:106)	Pic#6: Output Voltage Range (Failed) (d/c:106)
	
Note: The left is V_{IN}: 5.01V, the right is V_{FB}: 34.17mV.	**Note**: The left is V_{IN}: 6.01V, the right is V_{OUT}: 63.72mV.

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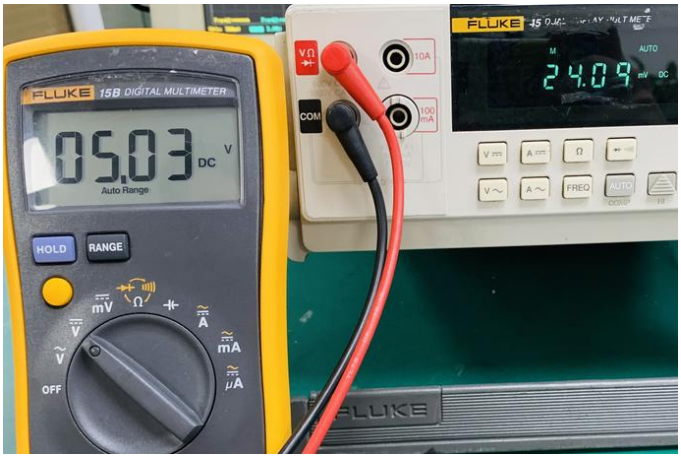
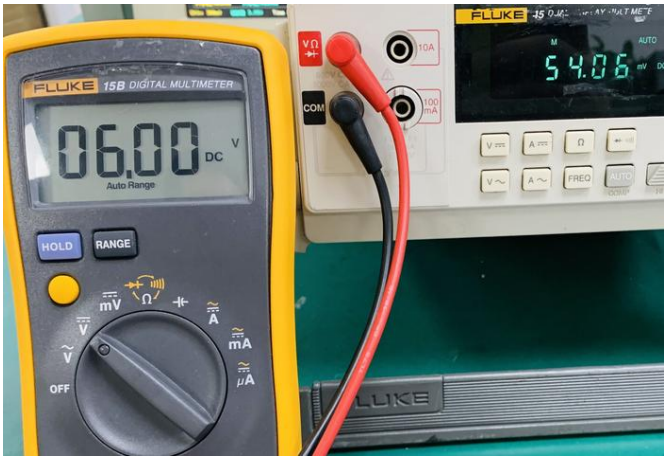
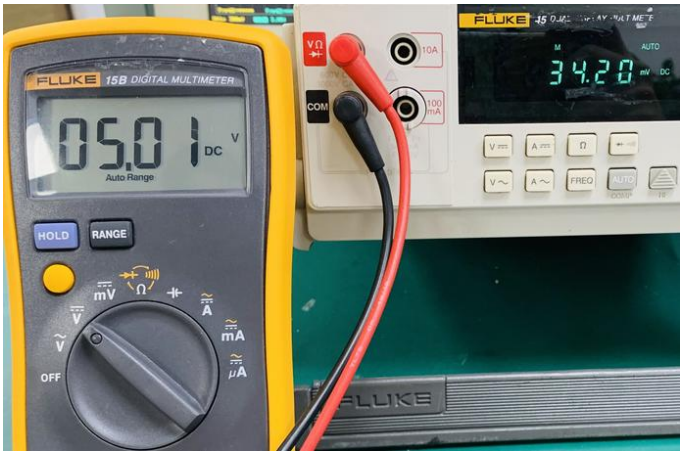
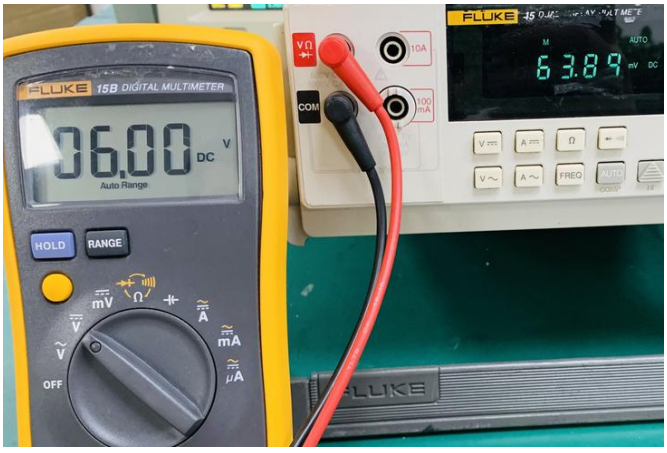
Pic#7: Output Voltage reference V_{REF} (Failed) (d/c:105)	Pic#8: Output Voltage Range (Failed) (d/c:105)
	
Note: The left is V_{IN}: 5.03V, the right is V_{FB}: 24.09mV.	**Note**: The left is V_{IN}: 6.00V, the right is V_{OUT}: 54.06mV.
Pic#9: Output Voltage reference V_{REF} (Failed) (d/c:306)	**Pic#10: Output Voltage Range (Failed) (d/c:306)**
	
Note: The left is V_{IN}: 5.01V, the right is V_{FB}: 34.20mV.	**Note**: The left is V_{IN}: 6.00V, the right is V_{OUT}: 63.89mV.

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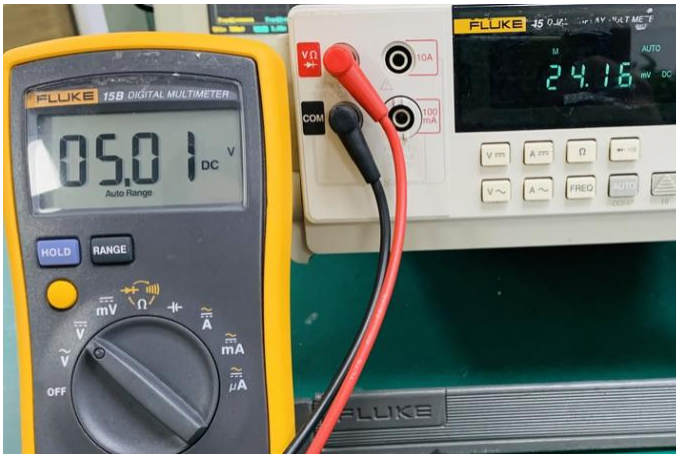
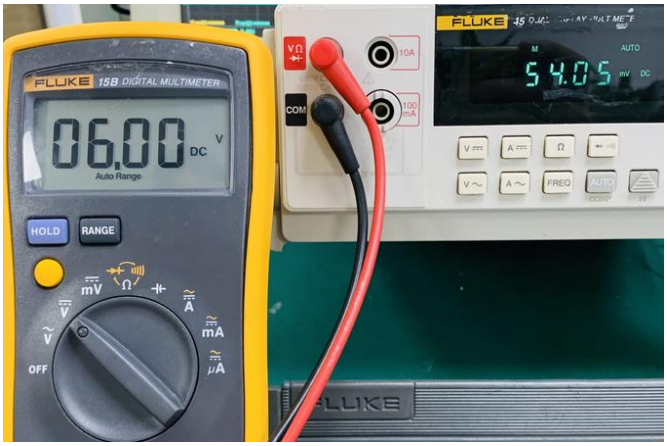
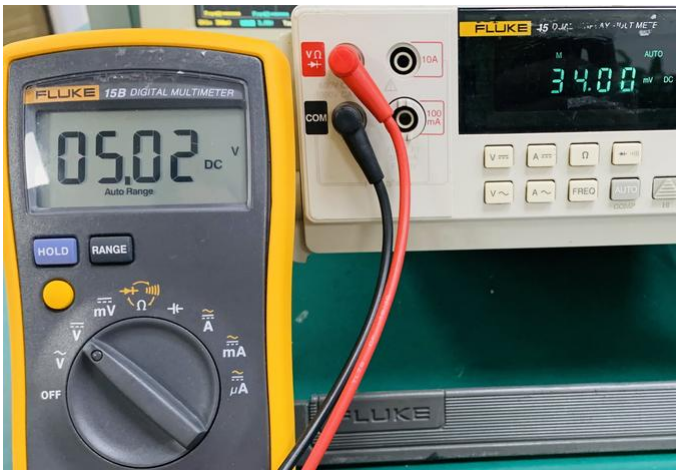
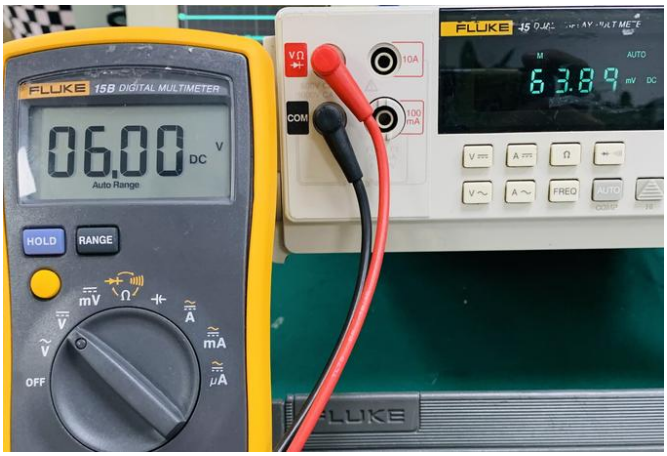
Pic#11: Output Voltage reference V_{REF} (Failed) (d/c:332)	Pic#12: Output Voltage Range (Failed) (d/c:332)
	
Note: The left is V_{IN}: 5.01V, the right is V_{FB}: 24.16mV.	**Note**: The left is V_{IN}: 6.00V, the right is V_{OUT}: 54.05mV.
Pic#13: Output Voltage reference V_{REF} (Failed) (d/c:102)	Pic#14: Output Voltage Range (Failed) (d/c:102)
	
Note: The left is V_{IN}: 5.02V, the right is V_{FB}: 34.00mV.	**Note**: The left is V_{IN}: 6.00V, the right is V_{OUT}: 63.89mV.

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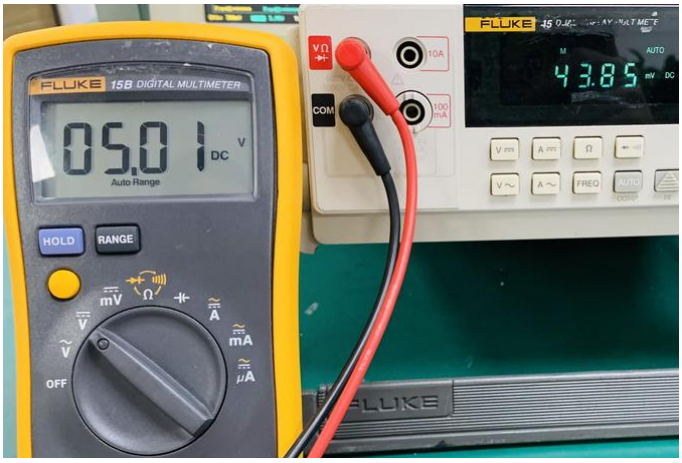
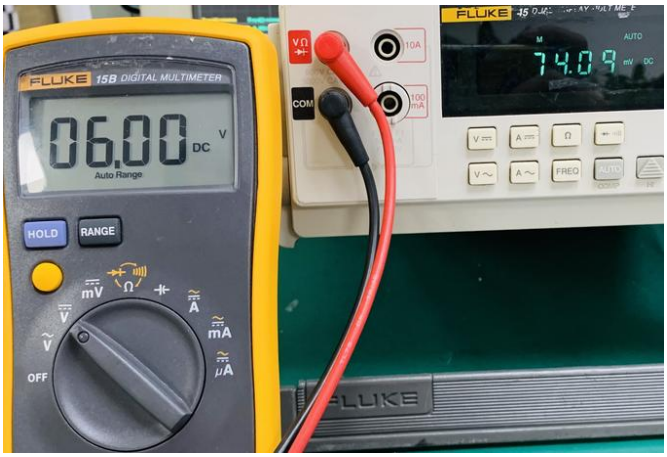
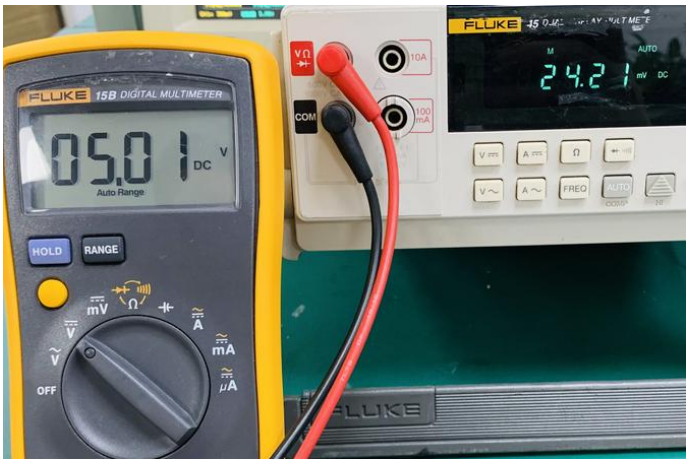
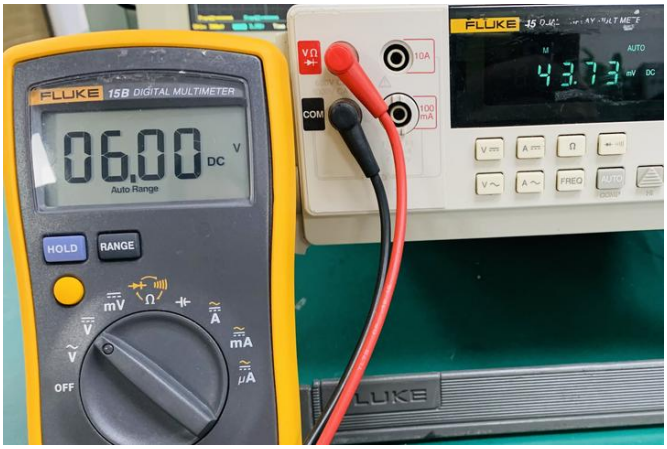
Pic#15: Output Voltage reference V_{REF} (Failed) (d/c:343)	Pic#16: Output Voltage Range (Failed) (d/c:343)
	
Note: The left is V_{IN}: 5.01V, the right is V_{FB}: 43.85mV.	**Note**: The left is V_{IN}: 6.00V, the right is V_{OUT}: 74.09mV.
Pic#17: Output Voltage reference V_{REF} (Failed) (d/c:333)	**Pic#18: Output Voltage Range (Failed) (d/c:333)**
	
Note: The left is V_{IN}: 5.01V, the right is V_{FB}: 24.21mV.	**Note**: The left is V_{IN}: 6.00V, the right is V_{OUT}: 43.73mV.

Functional Test Results

Test Sample(s): 29 PCS Passed Sample(s): 22 PCS

Failed Sample(s): 7 PCS Acceptability: 75.9 %

Appendix

Parts were received; the tubes(bags, reels, tubs, trays) and the device inspection figures were shown as below:

Tubes as received	
	
Device top view	**Device bottom view**