

Acceptance Test Procedure

And Results (ATP + ATR)

for

SEMTECH / LAMBDA

Overvoltage Protector

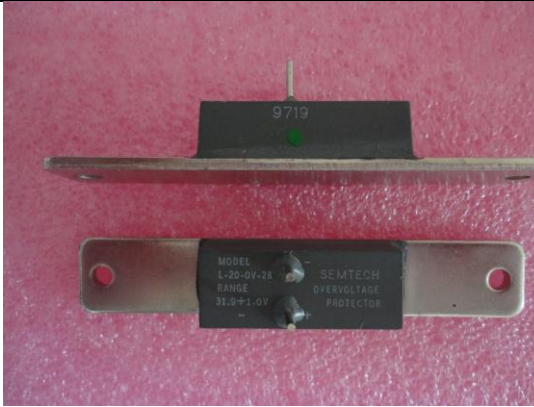

Part Number: L-20-OV-15

#	Name	Date	signature
Written by	Dan Gilboa	30 April 2013	DG
Checked by	Dan Gilboa	30 April 2013	DG
Customer			
Order no.			
Tested Dates	30 April, 1 May 2013		

1. The Overvoltage Protector type L-20-OV-15, of LAMBDA / SEMTECH is used in legacy power supply units for protecting output devices from overvoltage.
2. The L-20-OV-15 is legacy “Overvoltage Protector” of LAMBDA / SEMTECH. Since it is old component it can be bought through dealers and “hard to get” jobbers. The requirements for original documents and certification cannot be addressed.
3. In order to verify the originality and the functionality of the components, tests are taken:
 - a. Visual inspection of the component.
 - b. Acetone test for marking
 - c. Functional tests
4. Tests to be performed:
 - a. Visual Test - Comparing the label on the component to know original label.
 - b. Visual Test - Verify the completeness of the components (no sign of wear, scratches, component pins are without sign of wear).
 - c. Acetone test for marking (1 unit only)
 - d. Visual Test – Measuring mechanical dimensions
 - e. Functional Test - Checking the voltage trip off at 25 deg.

Tests Results

- Comparing component label to known original label:

<p>Original example of similar component: SEMTECH L-20-OV-28 (reference)</p>	<p>Component taken photo: SEMTECH L-20-OV-15</p>
 <p>A photograph of a SEMTECH L-20-OV-28 overvoltage protector. It is a rectangular metal component with a black label that reads: 'MODEL L-20-OV-28 RANGE 31.0±1.0V SEMTECH OVERVOLTAGE PROTECTOR'. A small green dot is visible on the top surface.</p>	<p>SEMTECH L-20-OV-15 and LAMNDA L-20-OV-15</p>  <p>A photograph showing two overvoltage protectors side-by-side. The top one is a SEMTECH L-20-OV-15 with a label: 'MODEL L-20-OV-15 RANGE 17.0±0.5V SEMTECH OVERVOLTAGE PROTECTOR'. The bottom one is a LAMNDA L-20-OV-15 with a label: 'MODEL L-20-OV-15 RANGE 17.1±0.5V LAMNDA OVERVOLTAGE PROTECTOR'.</p>
	<p>12 pcs of SEMTECH L-20-OV-15</p>  <p>A photograph showing a row of 12 SEMTECH L-20-OV-15 overvoltage protectors, all oriented the same way.</p>
	<p>Detailed view:</p>  <p>A close-up photograph of four SEMTECH L-20-OV-15 overvoltage protectors stacked vertically. Each label clearly shows: 'MODEL L-20-OV-15 RANGE 17.0±0.5V SEMTECH OVERVOLTAGE PROTECTOR'.</p>



2. Checking sign of wear with magnifying glass

Summary:

All 12 units were tested with magnifying glass and found without wear.

Date Code: 9802 – Manufacturing year 1998, week 02.

3. Acetone Test – Permanency test

Unit #12 was tested.

Results:

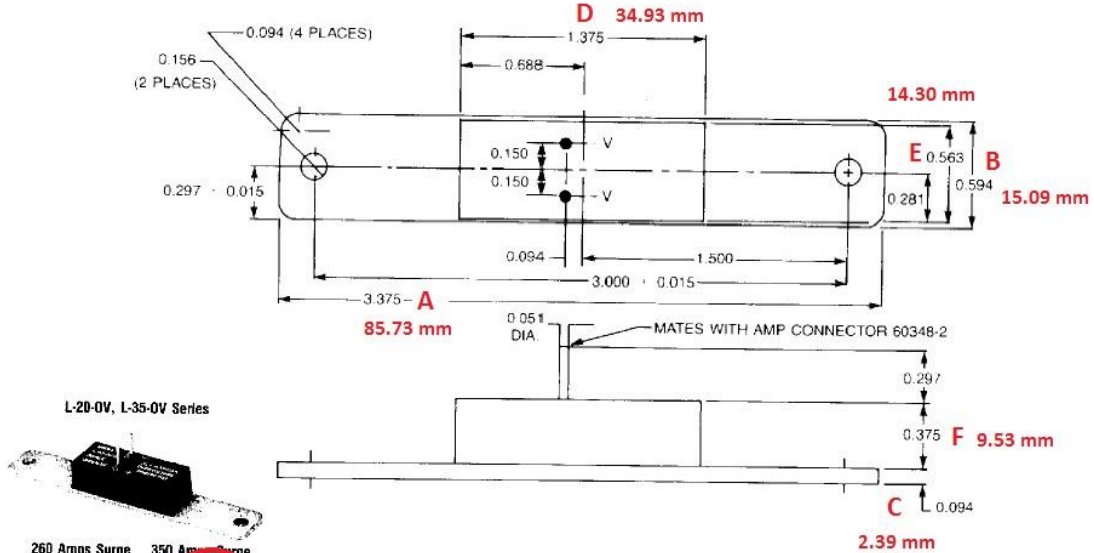
- Marking is steady.
- No blacktop marking was found.

Summary: OK.

4. Dimensions Test



DEVICE OUTLINE



NOTE: All dimensions are in inches.

1 oz = 28.35 gr

SEMTECH CORPUS CHRISTI

16-8

Note: from other similar components, we know that the dimensions in the “Device Outline” are not exact...

SEMTECH	Weight (gr)	Mechanical Dim. (mm)						
L-20-OV-15		A	B	C	D	E	F	
Specifications								
	28.35	85.73	15.09	2.39	34.93	14.30	9.53	
Results								
SN								Summary
988609	27.52	85.79	14.81	2.40	34.99	13.79	9.33	OK
988610	27.95	85.80	14.81	2.39	34.93	13.59	9.37	OK
988611	28.02	85.80	14.85	2.35	34.94	13.76	10.00	OK
988612	27.79	85.80	14.84	2.29	34.84	13.74	9.35	OK
988613	27.88	85.76	14.85	2.31	34.90	13.79	9.51	OK
988614	27.99	85.82	14.83	2.29	34.81	13.82	9.47	OK
988615	27.53	85.76	14.82	2.23	34.85	13.81	9.56	OK
988616	27.72	85.75	14.79	2.31	34.82	13.75	9.45	OK
988617	27.99	85.83	14.82	2.28	34.88	13.80	9.56	OK
988618	27.67	85.84	14.82	2.23	34.85	13.80	9.40	OK
988619	27.82	85.81	14.81	2.26	34.70	13.83	9.37	OK
988621	27.26	85.76	14.80	2.28	34.97	13.75	9.45	OK

Measurement accuracy:

- Weight: 0.1gr (electronic scale for jewelry)
- Length: 0.2mm (digital caliber)

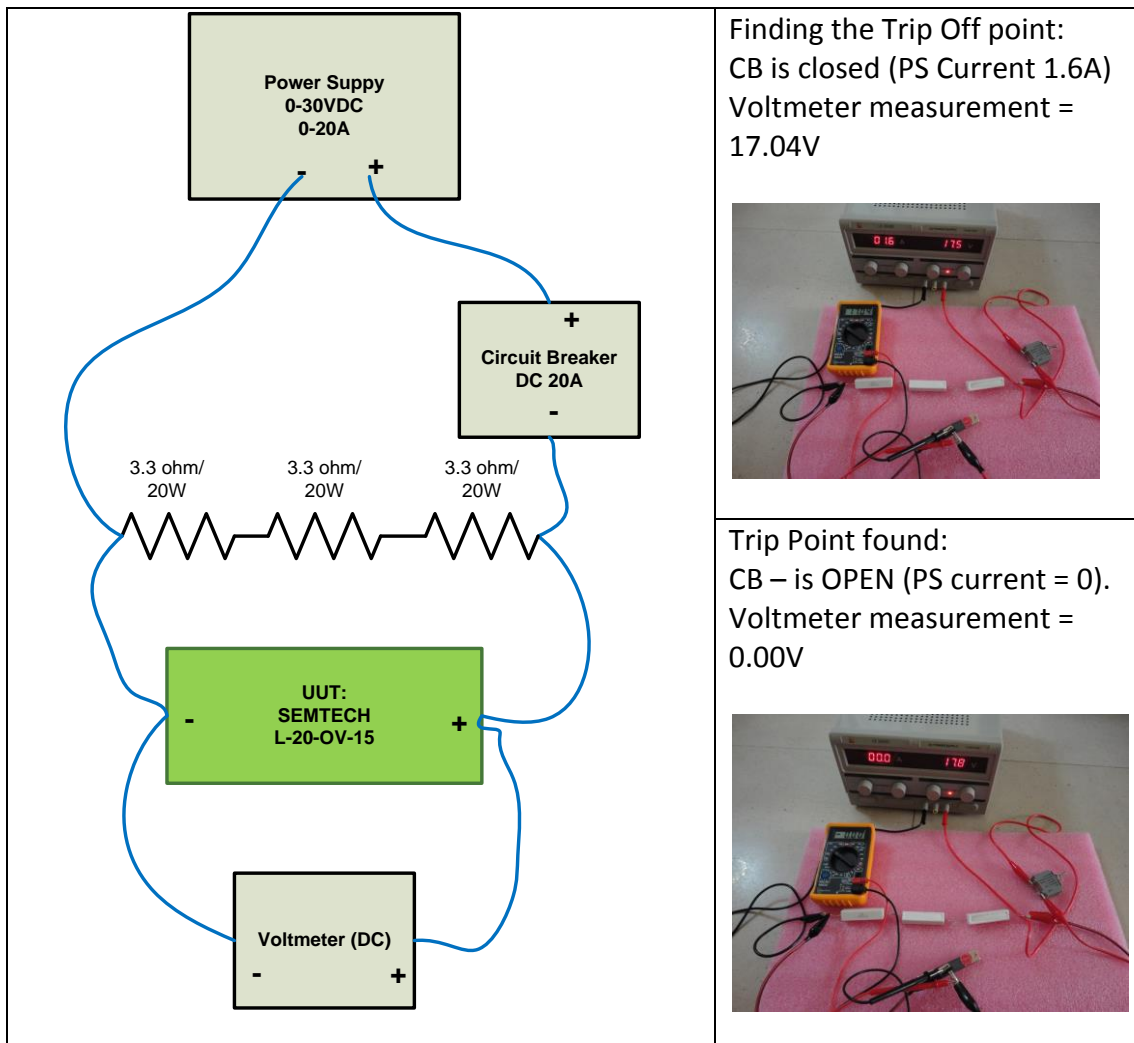


Weight Measurement Scale

5. Functional Setup Description

The functional tests are performed using:

- DC Power Supply (PS) 0-30VDC, 0-20A: LE 3020D
- DC Circuit Breaker (CB): API- M39019/01-333 (current 10A, delay B-F)
- Cable Set
- Digital Voltmeter: M832
- Unit Under Test (UUT): SEMTECH L-20-OV-15



L-20-OV-15 Test Setup

Test procedure:

- The setup is connected according to the above diagram.
- The CB is ON.
- The PS is switched ON, and the voltage is increased from 15V until the UUT is entered to action – Shorten the PS output ("Trip Off" point).
- The reading of the Voltmeter is taken continually. The voltage that the Trip Off accrued is measured.
- Repeat this process 5 times, with 1-2 minutes delay.

SEMTECH	Functional Test – Trip Off Voltage [V]					
L-20-OV-15	Specifications					
	+16.5V to +17.5V					
SN	Results					Summary
	Test #1	Test #2	Test #3	Test #4	Test #5	
988609	17.1	17.1	17.1	17.1	17.1	OK
988610	16.8	16.8	16.8	16.9	16.9	OK
988611	16.8	16.8	16.9	16.9	16.9	OK
988612	17.2	17.2	17.2	17.3	17.3	OK
988613	16.7	16.7	16.7	16.7	16.7	OK
988614	17.0	17.0	17.1	17.1	17.1	OK
988615	17.2	17.2	17.3	17.3	17.3	OK
988616	16.8	16.8	16.9	16.9	16.9	OK
988617	16.9	16.9	17.0	17.0	17.0	OK
988618	16.8	16.8	16.9	16.9	16.9	OK
988619	16.7	16.7	16.8	16.8	16.8	OK
988621	17.1	17.1	17.1	17.1	17.1	OK

Measurement Accuracy: 0.1 V

Checked by: **Dan Gilboa** dan@gilboa-ltd.com

Date: **1st May 2013**