



TEST DATA OF LCA50S-48

Regulated DC Power Supply
Aug.6. 2004

Approved by : Kenji Shiho
Kenji Shiho Design Manager

Prepared by : Saori Ueda
Saori Ueda Design Engineer

COSEL CO.,LTD.



CONTENTS

1.Input Current (by Load Current)	1
2.Input Power (by Load Current)	2
3.Efficiency (by Input Voltage)	3
4.Efficiency (by Load Current)	4
5.Inrush Current	5
6.Line Regulation	6
7.Load Regulation	7
8.Dynamic Load Response	8
9.Ripple Voltage (by Load Current)	9
10.Ripple-Noise	10
11.Ripple Voltage (by Ambient Temperature)	11
12.Ambient Temperature Drift	12
13.Output Voltage Accuracy	13
14.Time Lapse Drift	14
15.Rise and Fall Time	15
16.Hold-Up Time	16
17.Instantaneous Interruption Compensation	17
18.Minimum Input Voltage for Regulated Output Voltage	18
19.Overcurrent Protection	19
20.Overvoltage Protection	20
21.Figure of Testing Circuitry	21

(Final Page 21)



Model	LCA50S-48																																																					
Item	Input Current (by Load Current)	Temperature Testing Circuitry	25°C Figure A																																																			
Object	_____																																																					
1.Graph	Input Volt. 85V Input Volt. 100V Input Volt. 132V																																																					
<p>Note: Slanted line shows the range of the rated load current.</p>																																																						
2.Values																																																						
<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>Input Volt. 85[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 132[V]</th> </tr> </thead> <tbody> <tr> <td>0.00</td><td>0.088</td><td>0.090</td><td>0.087</td></tr> <tr> <td>0.20</td><td>0.319</td><td>0.305</td><td>0.274</td></tr> <tr> <td>0.40</td><td>0.530</td><td>0.487</td><td>0.421</td></tr> <tr> <td>0.60</td><td>0.741</td><td>0.666</td><td>0.563</td></tr> <tr> <td>0.80</td><td>0.955</td><td>0.849</td><td>0.708</td></tr> <tr> <td>1.00</td><td>1.170</td><td>1.034</td><td>0.854</td></tr> <tr> <td>1.20</td><td>1.388</td><td>1.222</td><td>1.004</td></tr> <tr> <td>1.30</td><td>1.498</td><td>1.320</td><td>1.082</td></tr> <tr> <td>1.43</td><td>1.638</td><td>1.444</td><td>1.180</td></tr> <tr> <td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>				Load Current [A]	Input Current [A]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	0.00	0.088	0.090	0.087	0.20	0.319	0.305	0.274	0.40	0.530	0.487	0.421	0.60	0.741	0.666	0.563	0.80	0.955	0.849	0.708	1.00	1.170	1.034	0.854	1.20	1.388	1.222	1.004	1.30	1.498	1.320	1.082	1.43	1.638	1.444	1.180	--	-	-	-	--	-	-	-
Load Current [A]	Input Current [A]																																																					
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																			
0.00	0.088	0.090	0.087																																																			
0.20	0.319	0.305	0.274																																																			
0.40	0.530	0.487	0.421																																																			
0.60	0.741	0.666	0.563																																																			
0.80	0.955	0.849	0.708																																																			
1.00	1.170	1.034	0.854																																																			
1.20	1.388	1.222	1.004																																																			
1.30	1.498	1.320	1.082																																																			
1.43	1.638	1.444	1.180																																																			
--	-	-	-																																																			
--	-	-	-																																																			

COSEL

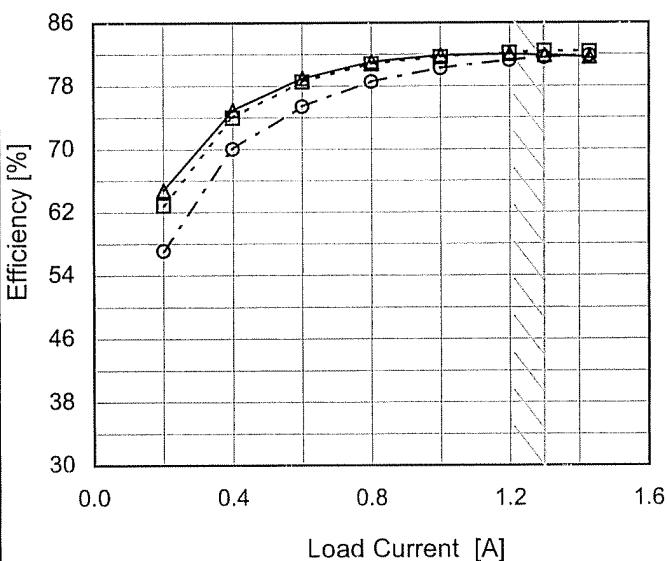
Model	LCA50S-48																																																					
Item	Input Power (by Load Current)	Temperature Testing Circuitry	25°C Figure A																																																			
Object	_____																																																					
1.Graph	Input Volt. 85V 100V 132V	2.Values																																																				
<p>The graph shows three linear plots of Input Power [W] versus Load Current [A] for different input voltages. The curves are as follows:</p> <ul style="list-style-type: none"> Input Volt. 85V: Starts at (0.0, 0) and ends at approximately (1.3, 85). Input Volt. 100V: Starts at (0.0, 0) and ends at approximately (1.3, 75). Input Volt. 132V: Starts at (0.0, 0) and ends at approximately (1.3, 65). <p>A slanted line is drawn across the graph, starting from the origin (0,0) and extending to approximately (1.3, 85), indicating the range of the rated load current.</p>																																																						
<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Power [W]</th> </tr> <tr> <th>Input Volt. 85[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 132[V]</th> </tr> </thead> <tbody> <tr> <td>0.00</td><td>3.00</td><td>3.34</td><td>4.01</td></tr> <tr> <td>0.20</td><td>13.98</td><td>14.37</td><td>15.84</td></tr> <tr> <td>0.40</td><td>25.00</td><td>25.30</td><td>26.80</td></tr> <tr> <td>0.60</td><td>36.00</td><td>36.20</td><td>37.70</td></tr> <tr> <td>0.80</td><td>47.00</td><td>47.20</td><td>48.50</td></tr> <tr> <td>1.00</td><td>58.40</td><td>58.60</td><td>59.60</td></tr> <tr> <td>1.20</td><td>70.10</td><td>70.00</td><td>70.80</td></tr> <tr> <td>1.30</td><td>76.20</td><td>75.70</td><td>76.40</td></tr> <tr> <td>1.43</td><td>84.10</td><td>83.40</td><td>83.90</td></tr> <tr> <td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>				Load Current [A]	Input Power [W]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	0.00	3.00	3.34	4.01	0.20	13.98	14.37	15.84	0.40	25.00	25.30	26.80	0.60	36.00	36.20	37.70	0.80	47.00	47.20	48.50	1.00	58.40	58.60	59.60	1.20	70.10	70.00	70.80	1.30	76.20	75.70	76.40	1.43	84.10	83.40	83.90	--	-	-	-	--	-	-	-
Load Current [A]	Input Power [W]																																																					
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																			
0.00	3.00	3.34	4.01																																																			
0.20	13.98	14.37	15.84																																																			
0.40	25.00	25.30	26.80																																																			
0.60	36.00	36.20	37.70																																																			
0.80	47.00	47.20	48.50																																																			
1.00	58.40	58.60	59.60																																																			
1.20	70.10	70.00	70.80																																																			
1.30	76.20	75.70	76.40																																																			
1.43	84.10	83.40	83.90																																																			
--	-	-	-																																																			
--	-	-	-																																																			

Note: Slanted line shows the range of the rated load current.

COSEL

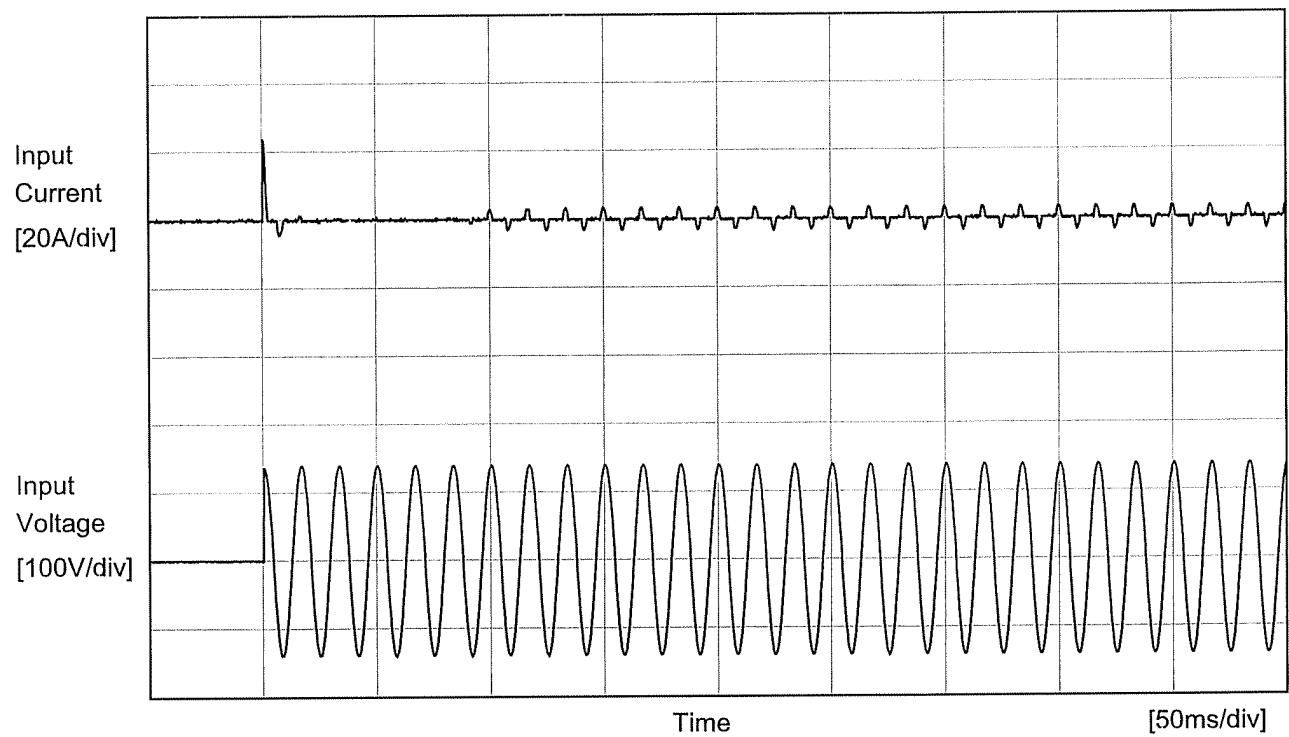
Model	LCA50S-48																																	
Item	Efficiency (by Input Voltage)	Temperature 25°C Testing Circuitry Figure A																																
Object	<hr/>																																	
1.Graph																																		
<p>The graph plots Efficiency [%] on the y-axis (58 to 86) against Input Voltage [V] on the x-axis (70 to 150). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show a slight decrease in efficiency as input voltage increases. A slanted line on the graph indicates the rated input voltage range.</p> <table border="1"> <thead> <tr> <th>Input Voltage [V]</th> <th>Efficiency Load 50% [%]</th> <th>Efficiency Load 100% [%]</th> </tr> </thead> <tbody> <tr><td>75</td><td>80.0</td><td>80.8</td></tr> <tr><td>80</td><td>80.2</td><td>81.7</td></tr> <tr><td>85</td><td>80.1</td><td>82.1</td></tr> <tr><td>90</td><td>79.9</td><td>82.4</td></tr> <tr><td>100</td><td>79.6</td><td>82.5</td></tr> <tr><td>110</td><td>78.7</td><td>82.4</td></tr> <tr><td>120</td><td>77.7</td><td>82.0</td></tr> <tr><td>132</td><td>76.4</td><td>81.7</td></tr> <tr><td>140</td><td>75.5</td><td>81.3</td></tr> </tbody> </table>			Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	75	80.0	80.8	80	80.2	81.7	85	80.1	82.1	90	79.9	82.4	100	79.6	82.5	110	78.7	82.4	120	77.7	82.0	132	76.4	81.7	140	75.5	81.3		
Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]																																
75	80.0	80.8																																
80	80.2	81.7																																
85	80.1	82.1																																
90	79.9	82.4																																
100	79.6	82.5																																
110	78.7	82.4																																
120	77.7	82.0																																
132	76.4	81.7																																
140	75.5	81.3																																
2.Values																																		
<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Efficiency [%]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>75</td><td>80.0</td><td>80.8</td></tr> <tr><td>80</td><td>80.2</td><td>81.7</td></tr> <tr><td>85</td><td>80.1</td><td>82.1</td></tr> <tr><td>90</td><td>79.9</td><td>82.4</td></tr> <tr><td>100</td><td>79.6</td><td>82.5</td></tr> <tr><td>110</td><td>78.7</td><td>82.4</td></tr> <tr><td>120</td><td>77.7</td><td>82.0</td></tr> <tr><td>132</td><td>76.4</td><td>81.7</td></tr> <tr><td>140</td><td>75.5</td><td>81.3</td></tr> </tbody> </table>			Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	75	80.0	80.8	80	80.2	81.7	85	80.1	82.1	90	79.9	82.4	100	79.6	82.5	110	78.7	82.4	120	77.7	82.0	132	76.4	81.7	140	75.5	81.3
Input Voltage [V]	Efficiency [%]																																	
	Load 50%	Load 100%																																
75	80.0	80.8																																
80	80.2	81.7																																
85	80.1	82.1																																
90	79.9	82.4																																
100	79.6	82.5																																
110	78.7	82.4																																
120	77.7	82.0																																
132	76.4	81.7																																
140	75.5	81.3																																
<p>Note: Slanted line shows the range of the rated input voltage.</p>																																		

COSEL

Model	LCA50S-48																																																					
Item	Efficiency (by Load Current)	Temperature Testing Circuitry	25°C Figure A																																																			
Object	<u> </u>																																																					
1.Graph	<p>—△— Input Volt. 85V - - -□- Input Volt. 100V - - ○- Input Volt. 132V</p>  <p>The graph plots Efficiency [%] on the y-axis (30 to 86) against Load Current [A] on the x-axis (0.0 to 1.6). Three data series are shown: 85V (solid line with triangles), 100V (dashed line with squares), and 132V (dash-dot line with circles). All curves show efficiency increasing with load current. A slanted line is drawn through the 85V curve between approximately 0.3A and 1.3A, indicating the rated load current range.</p>																																																					
2.Values	<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Efficiency [%]</th> </tr> <tr> <th>Input Volt. 85[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 132[V]</th> </tr> </thead> <tbody> <tr> <td>0.00</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>0.20</td><td>64.8</td><td>62.9</td><td>57.1</td></tr> <tr> <td>0.40</td><td>75.0</td><td>74.0</td><td>70.0</td></tr> <tr> <td>0.60</td><td>79.0</td><td>78.6</td><td>75.4</td></tr> <tr> <td>0.80</td><td>81.1</td><td>80.8</td><td>78.6</td></tr> <tr> <td>1.00</td><td>81.9</td><td>81.6</td><td>80.2</td></tr> <tr> <td>1.20</td><td>82.1</td><td>82.2</td><td>81.3</td></tr> <tr> <td>1.30</td><td>81.9</td><td>82.4</td><td>81.6</td></tr> <tr> <td>1.43</td><td>81.7</td><td>82.3</td><td>81.9</td></tr> <tr> <td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>			Load Current [A]	Efficiency [%]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	0.00	-	-	-	0.20	64.8	62.9	57.1	0.40	75.0	74.0	70.0	0.60	79.0	78.6	75.4	0.80	81.1	80.8	78.6	1.00	81.9	81.6	80.2	1.20	82.1	82.2	81.3	1.30	81.9	82.4	81.6	1.43	81.7	82.3	81.9	--	-	-	-	--	-	-	-
Load Current [A]	Efficiency [%]																																																					
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																			
0.00	-	-	-																																																			
0.20	64.8	62.9	57.1																																																			
0.40	75.0	74.0	70.0																																																			
0.60	79.0	78.6	75.4																																																			
0.80	81.1	80.8	78.6																																																			
1.00	81.9	81.6	80.2																																																			
1.20	82.1	82.2	81.3																																																			
1.30	81.9	82.4	81.6																																																			
1.43	81.7	82.3	81.9																																																			
--	-	-	-																																																			
--	-	-	-																																																			
Note:	Slanted line shows the range of the rated load current.																																																					

COSEL

Model	LCA50S-48	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	_____		



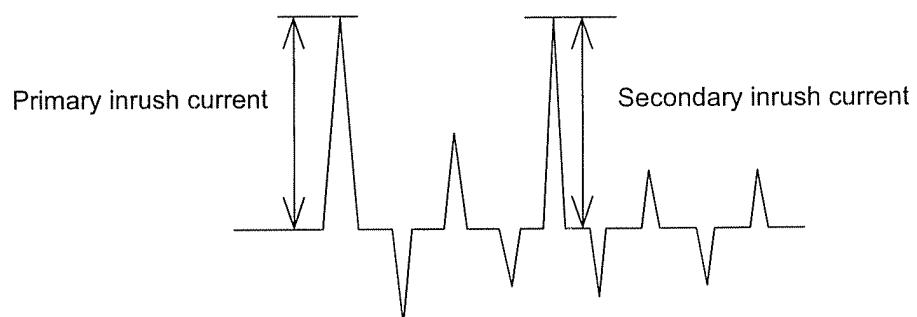
Input Voltage 100 V

Frequency 60 Hz

Load 100 %

Primary inrush current 23.6 A

Secondary inrush current 3.6 A

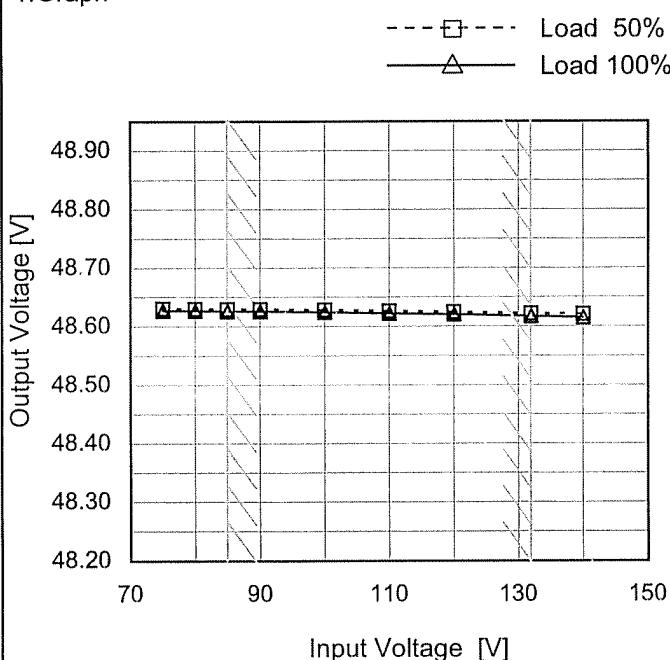


COSEL

Model	LCA50S-48
Item	Line Regulation
Object	+48V1.3A

Temperature 25°C
 Testing Circuitry Figure A

1.Graph

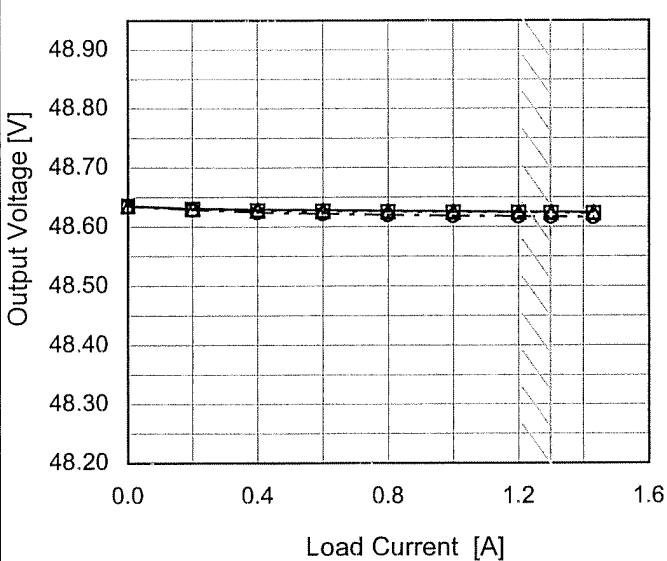


2.Values

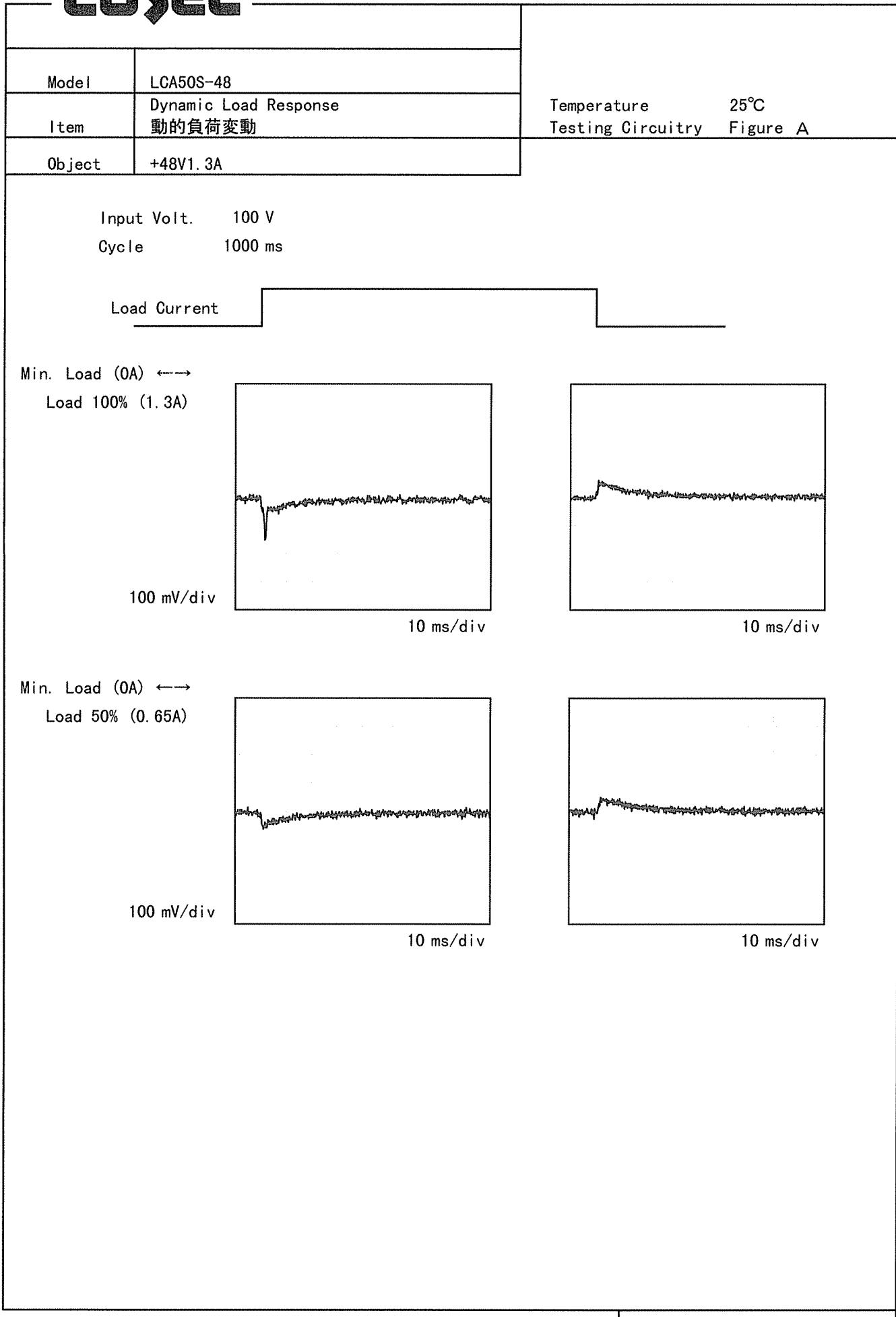
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	48.630	48.628
80	48.630	48.627
85	48.630	48.626
90	48.629	48.626
100	48.628	48.625
110	48.626	48.622
120	48.625	48.621
132	48.622	48.618
140	48.621	48.616

Note: Slanted line shows the range of the rated input voltage.

COSEL

Model	LCA50S-48	Temperature Testing Circuitry Figure A	25°C																																																			
Item	Load Regulation		Figure A																																																			
Object	+48V1.3A																																																					
1.Graph	<p>—△— Input Volt. 85V - - +--- Input Volt. 100V - - ○--- Input Volt. 132V</p>  <p>Output Voltage [V]</p> <p>Load Current [A]</p>	2.Values																																																				
			<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Output Voltage [V]</th> </tr> <tr> <th>Input Volt. 85[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 132[V]</th> </tr> </thead> <tbody> <tr> <td>0.00</td> <td>48.635</td> <td>48.635</td> <td>48.634</td> </tr> <tr> <td>0.20</td> <td>48.631</td> <td>48.630</td> <td>48.628</td> </tr> <tr> <td>0.40</td> <td>48.630</td> <td>48.627</td> <td>48.624</td> </tr> <tr> <td>0.60</td> <td>48.628</td> <td>48.626</td> <td>48.622</td> </tr> <tr> <td>0.80</td> <td>48.627</td> <td>48.625</td> <td>48.620</td> </tr> <tr> <td>1.00</td> <td>48.626</td> <td>48.624</td> <td>48.618</td> </tr> <tr> <td>1.20</td> <td>48.625</td> <td>48.623</td> <td>48.617</td> </tr> <tr> <td>1.30</td> <td>48.625</td> <td>48.623</td> <td>48.616</td> </tr> <tr> <td>1.43</td> <td>48.625</td> <td>48.622</td> <td>48.616</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> <td>-</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>	Load Current [A]	Output Voltage [V]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	0.00	48.635	48.635	48.634	0.20	48.631	48.630	48.628	0.40	48.630	48.627	48.624	0.60	48.628	48.626	48.622	0.80	48.627	48.625	48.620	1.00	48.626	48.624	48.618	1.20	48.625	48.623	48.617	1.30	48.625	48.623	48.616	1.43	48.625	48.622	48.616	--	-	-	-	--	-	-	-
Load Current [A]	Output Voltage [V]																																																					
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																			
0.00	48.635	48.635	48.634																																																			
0.20	48.631	48.630	48.628																																																			
0.40	48.630	48.627	48.624																																																			
0.60	48.628	48.626	48.622																																																			
0.80	48.627	48.625	48.620																																																			
1.00	48.626	48.624	48.618																																																			
1.20	48.625	48.623	48.617																																																			
1.30	48.625	48.623	48.616																																																			
1.43	48.625	48.622	48.616																																																			
--	-	-	-																																																			
--	-	-	-																																																			

Note: Slanted line shows the range of the rated load current.

COSSEL

COSEL

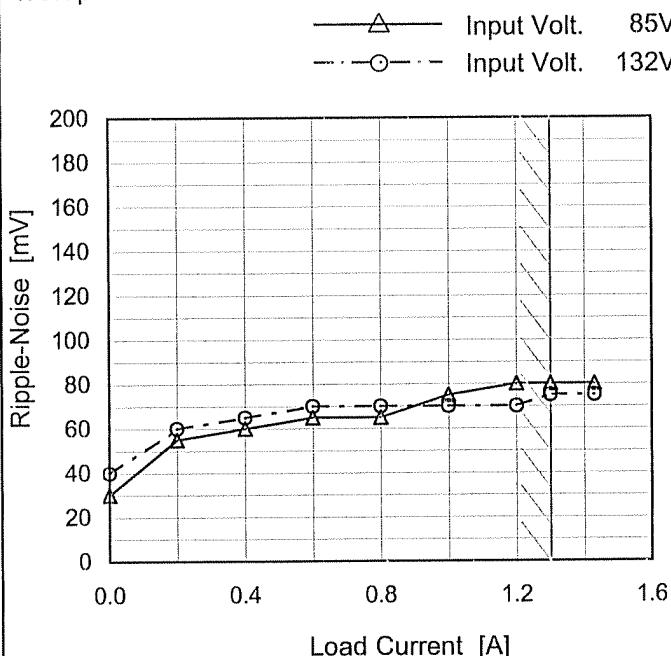
Model	LCA50S-48																																							
Item	Ripple Voltage (by Load Current)	Temperature 25°C Testing Circuitry Figure A																																						
Object	+48V1.3A																																							
1.Graph																																								
<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The Y-axis ranges from 0 to 200 mV, and the X-axis ranges from 0.0 to 1.6 A. Two sets of data points are plotted: Input Volt. 85V (solid line with triangles) and Input Volt. 132V (dashed line with circles). A slanted line indicates the rated load current range.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Ripple Voltage [mV] (Input Volt. 85V)</th> <th>Ripple Voltage [mV] (Input Volt. 132V)</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>20</td><td>20</td></tr> <tr><td>0.20</td><td>40</td><td>40</td></tr> <tr><td>0.40</td><td>50</td><td>45</td></tr> <tr><td>0.60</td><td>55</td><td>50</td></tr> <tr><td>0.80</td><td>60</td><td>50</td></tr> <tr><td>1.00</td><td>60</td><td>55</td></tr> <tr><td>1.20</td><td>65</td><td>55</td></tr> <tr><td>1.30</td><td>75</td><td>55</td></tr> <tr><td>1.43</td><td>75</td><td>55</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>		Load Current [A]	Ripple Voltage [mV] (Input Volt. 85V)	Ripple Voltage [mV] (Input Volt. 132V)	0.00	20	20	0.20	40	40	0.40	50	45	0.60	55	50	0.80	60	50	1.00	60	55	1.20	65	55	1.30	75	55	1.43	75	55	--	-	-	--	-	-			
Load Current [A]	Ripple Voltage [mV] (Input Volt. 85V)	Ripple Voltage [mV] (Input Volt. 132V)																																						
0.00	20	20																																						
0.20	40	40																																						
0.40	50	45																																						
0.60	55	50																																						
0.80	60	50																																						
1.00	60	55																																						
1.20	65	55																																						
1.30	75	55																																						
1.43	75	55																																						
--	-	-																																						
--	-	-																																						
2.Values																																								
<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="2">Ripple Voltage [mV]</th> </tr> <tr> <th>Input Volt. 85 [V]</th> <th>Input Volt. 132 [V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>20</td><td>20</td></tr> <tr><td>0.20</td><td>40</td><td>40</td></tr> <tr><td>0.40</td><td>50</td><td>45</td></tr> <tr><td>0.60</td><td>55</td><td>50</td></tr> <tr><td>0.80</td><td>60</td><td>50</td></tr> <tr><td>1.00</td><td>60</td><td>55</td></tr> <tr><td>1.20</td><td>65</td><td>55</td></tr> <tr><td>1.30</td><td>75</td><td>55</td></tr> <tr><td>1.43</td><td>75</td><td>55</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>			Load Current [A]	Ripple Voltage [mV]		Input Volt. 85 [V]	Input Volt. 132 [V]	0.00	20	20	0.20	40	40	0.40	50	45	0.60	55	50	0.80	60	50	1.00	60	55	1.20	65	55	1.30	75	55	1.43	75	55	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																							
	Input Volt. 85 [V]	Input Volt. 132 [V]																																						
0.00	20	20																																						
0.20	40	40																																						
0.40	50	45																																						
0.60	55	50																																						
0.80	60	50																																						
1.00	60	55																																						
1.20	65	55																																						
1.30	75	55																																						
1.43	75	55																																						
--	-	-																																						
--	-	-																																						
<p>Measured by 20 MHz Oscilloscope. Ripple Voltage is shown as p-p in the figure below. Note: Slanted line shows the range of the rated load current.</p> <p>T1: Due to AC Input Line T2: Due to Switching</p> <p>Fig. Complex Ripple Wave Form</p>																																								

COSEL

Model	LCA50S-48
Item	Ripple-Noise
Object	+48V1.3A

 Temperature 25°C
 Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.

Ripple-Noise is shown as p-p in the figure below.

Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 85 [V]	Input Volt. 132 [V]
0.00	30	40
0.20	55	60
0.40	60	65
0.60	65	70
0.80	65	70
1.00	75	70
1.20	80	70
1.30	80	75
1.43	80	75
--	-	-
--	-	-

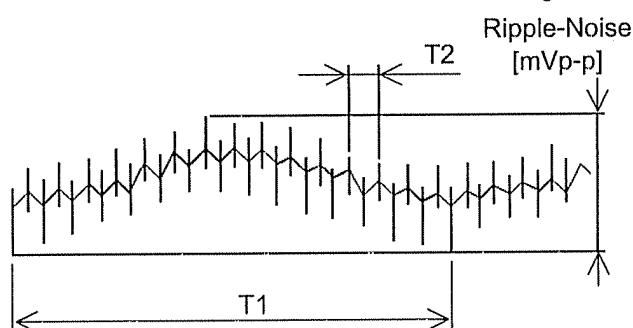
 T1: Due to AC Input Line
 T2: Due to Switching


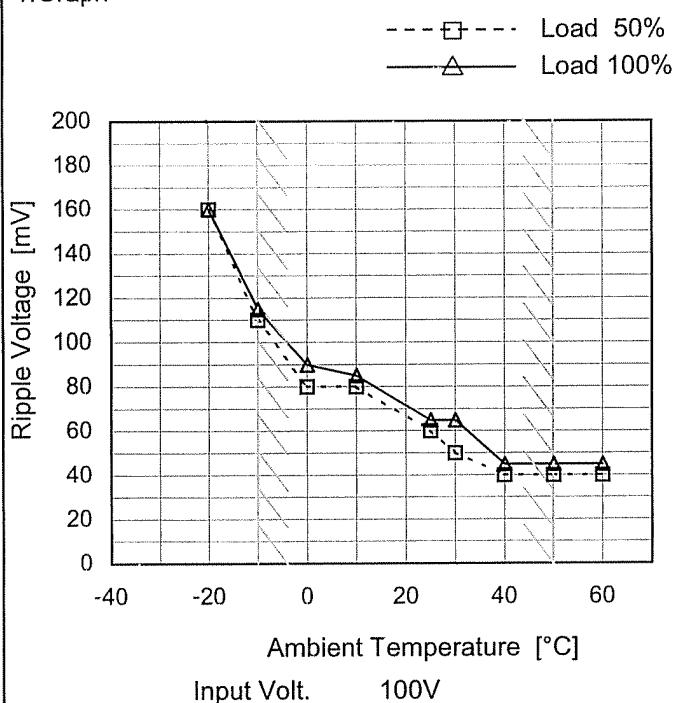
Fig. Complex Ripple Wave Form



Model	LCA50S-48
Item	Ripple Voltage (by Ambient Temp.)
Object	+48V1.3A

Testing Circuitry Figure A

1. Graph

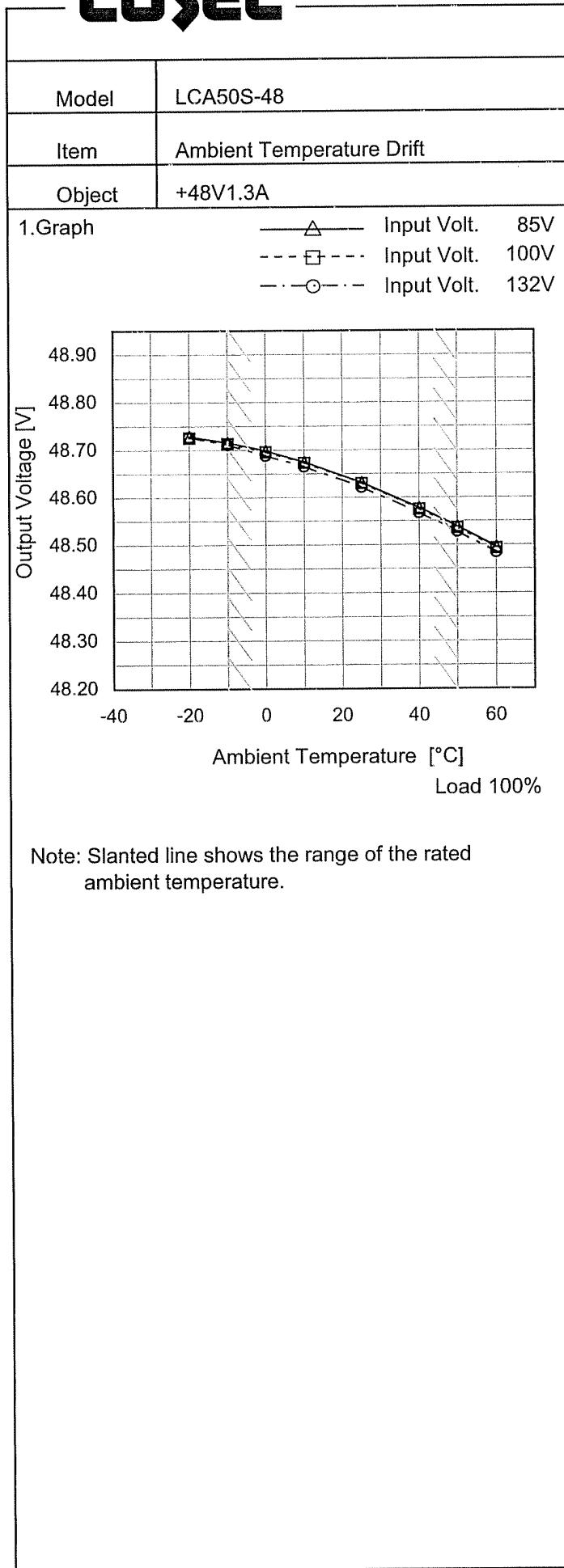


Measured by 20 MHz Oscilloscope.

Note: Slanted line shows the range of the rated ambient temperature.

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	160	160
-10	110	115
0	80	90
10	80	85
25	60	65
30	50	65
40	40	45
50	40	45
60	40	45
--	-	-
--	-	-



Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	48.729	48.726	48.727
-10	48.716	48.714	48.711
0	48.699	48.696	48.688
10	48.675	48.673	48.665
25	48.632	48.629	48.621
40	48.578	48.575	48.567
50	48.539	48.536	48.528
60	48.496	48.493	48.484
--	-	-	-
--	-	-	-
--	-	-	-



Model	LCA50S-48	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+48V1.3A	

1. Output Voltage Accuracy

This is defined as the value of the output voltage, regulation load, ambient temperature and input voltage varied at random in the range as specified below.

Temperature : -10 - 50°C

Input Voltage : 85 - 132V

Load Current : 0 - 1.3A

* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

$$\text{* Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

2. Values

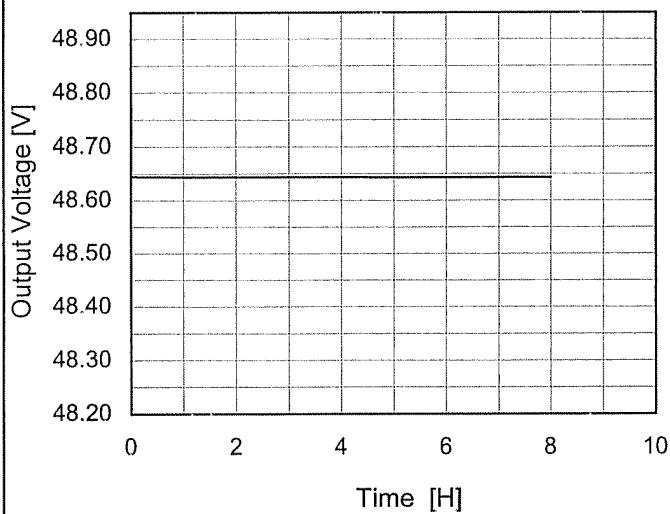
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	85	0	48.725	±101	±0.2
Minimum Voltage	50	132	1.3	48.523		

coSEL

Model	LCA50S-48
Item	Time Lapse Drift
Object	+48V1.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



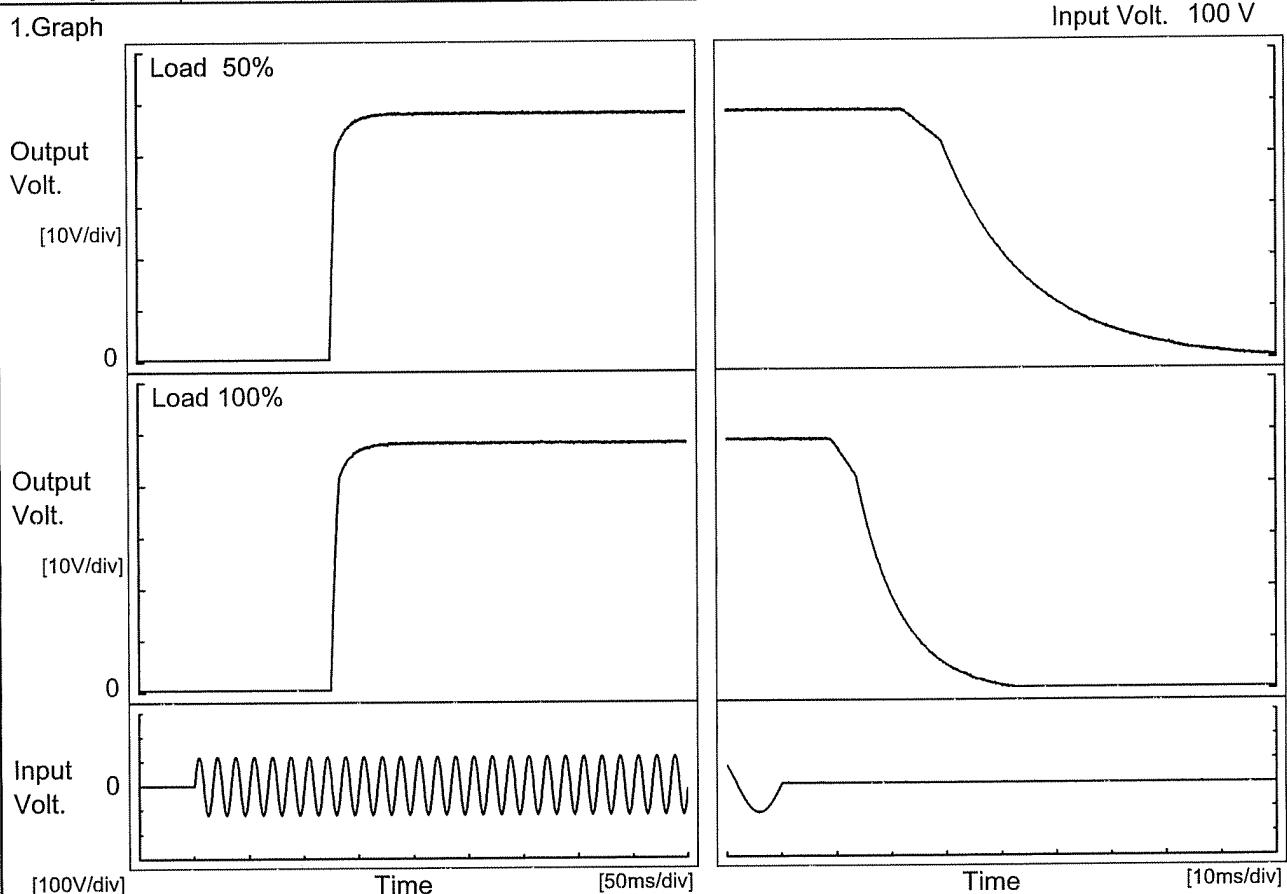
2.Values

Time since start [H]	Output Voltage [V]
0.0	48.645
0.5	48.644
1.0	48.644
2.0	48.644
3.0	48.644
4.0	48.644
5.0	48.643
6.0	48.643
7.0	48.643
8.0	48.643

COSEL

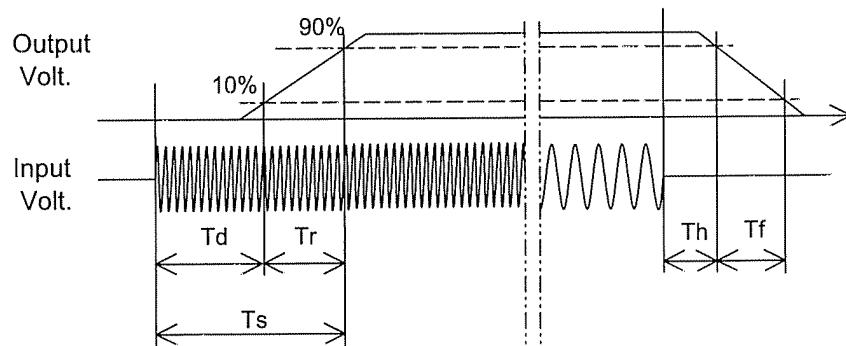
Model	LCA50S-48	Temperature Testing Circuitry Figure A	25°C
Item	Rise and Fall Time		
Object	+48V1.3A		

1. Graph



2. Values

Load	Time	Td	Tr	Ts	Th	Tf	[ms]
50 %		125.5	11.0	136.5	27.6	34.1	
100 %		125.5	11.8	137.3	12.1	17.2	



COSEL

Model	LCA50S-48																																	
Item	Hold-Up Time	25°C Testing Circuitry Figure A																																
Object	+48V1.3A																																	
1. Graph																																		
<p>The graph illustrates the relationship between input voltage and hold-up time for the LCA50S-48 module. The Y-axis represents Hold-Up Time in milliseconds (ms), ranging from 1 to 1000 on a logarithmic scale. The X-axis represents Input Voltage in Volts (V), ranging from 70 to 150. Two data series are plotted: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show an increasing trend of hold-up time as the input voltage decreases. A slanted line on the graph indicates the rated input voltage range.</p>																																		
2. Values																																		
<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Hold-Up Time [ms]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr> <td>75</td> <td>13</td> <td>4</td> </tr> <tr> <td>80</td> <td>18</td> <td>7</td> </tr> <tr> <td>85</td> <td>23</td> <td>9</td> </tr> <tr> <td>90</td> <td>29</td> <td>12</td> </tr> <tr> <td>100</td> <td>41</td> <td>19</td> </tr> <tr> <td>110</td> <td>54</td> <td>26</td> </tr> <tr> <td>120</td> <td>69</td> <td>34</td> </tr> <tr> <td>132</td> <td>89</td> <td>44</td> </tr> <tr> <td>140</td> <td>104</td> <td>52</td> </tr> </tbody> </table>			Input Voltage [V]	Hold-Up Time [ms]		Load 50%	Load 100%	75	13	4	80	18	7	85	23	9	90	29	12	100	41	19	110	54	26	120	69	34	132	89	44	140	104	52
Input Voltage [V]	Hold-Up Time [ms]																																	
	Load 50%	Load 100%																																
75	13	4																																
80	18	7																																
85	23	9																																
90	29	12																																
100	41	19																																
110	54	26																																
120	69	34																																
132	89	44																																
140	104	52																																
<p>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy. Note: Slanted line shows the range of the rated input voltage.</p>																																		

COSEL

Model	LCA50S-48	Temperature Testing Circuitry	25°C Figure A																																																			
Item	Instantaneous Interruption Compensation																																																					
Object	+48V1.3A																																																					
1.Graph	<p>—△— Input Volt. 85V - - -□- - Input Volt. 100V - - ○ - - Input Volt. 132V</p>																																																					
2.Values	<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Time [ms]</th> </tr> <tr> <th>Input Volt. 85[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 132[V]</th> </tr> </thead> <tbody> <tr> <td>0.00</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>0.20</td><td>72</td><td>121</td><td>248</td></tr> <tr> <td>0.40</td><td>39</td><td>67</td><td>140</td></tr> <tr> <td>0.60</td><td>25</td><td>45</td><td>97</td></tr> <tr> <td>0.80</td><td>18</td><td>32</td><td>73</td></tr> <tr> <td>1.00</td><td>13</td><td>26</td><td>59</td></tr> <tr> <td>1.20</td><td>11</td><td>22</td><td>49</td></tr> <tr> <td>1.30</td><td>10</td><td>19</td><td>45</td></tr> <tr> <td>1.43</td><td>5</td><td>14</td><td>40</td></tr> <tr> <td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr> <td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>			Load Current [A]	Time [ms]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	0.00	-	-	-	0.20	72	121	248	0.40	39	67	140	0.60	25	45	97	0.80	18	32	73	1.00	13	26	59	1.20	11	22	49	1.30	10	19	45	1.43	5	14	40	--	-	-	-	--	-	-	-
Load Current [A]	Time [ms]																																																					
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																			
0.00	-	-	-																																																			
0.20	72	121	248																																																			
0.40	39	67	140																																																			
0.60	25	45	97																																																			
0.80	18	32	73																																																			
1.00	13	26	59																																																			
1.20	11	22	49																																																			
1.30	10	19	45																																																			
1.43	5	14	40																																																			
--	-	-	-																																																			
--	-	-	-																																																			

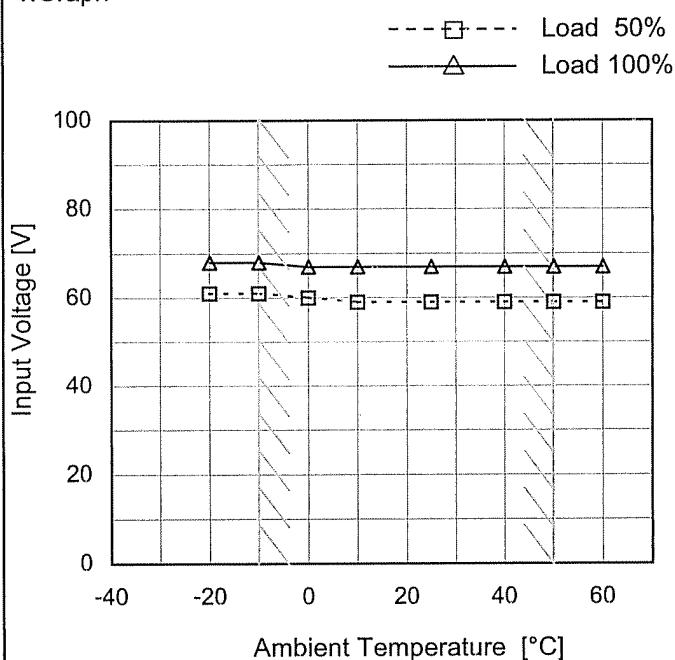
Note: Slanted line shows the range of the rated load current.

COSEL

Model	LCA50S-48
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+48V1.3A

Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	61	68
-10	61	68
0	60	67
10	59	67
25	59	67
40	59	67
50	59	67
60	59	67
--	-	-
--	-	-
--	-	-

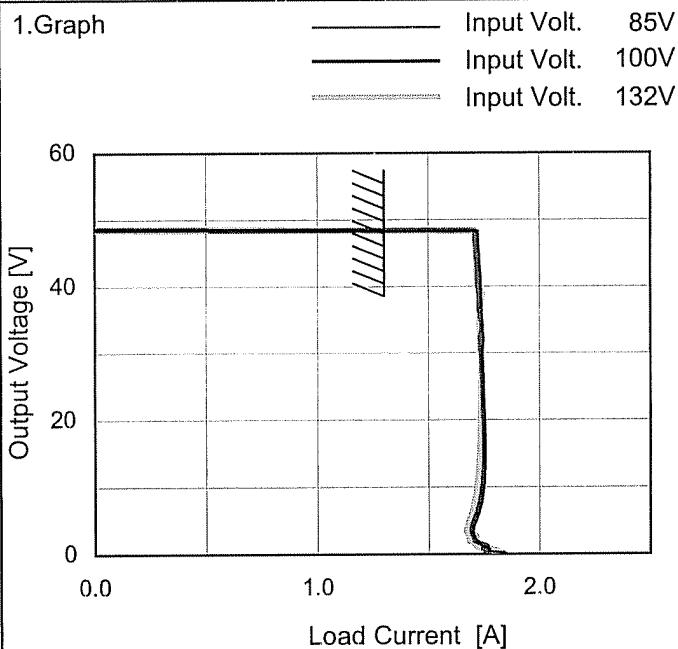
COSSEL

Model LCA50S-48

Item Overcurrent Protection

Object +48V1.3A

1.Graph



Note: Slanted line shows the range of the rated load current.

 Temperature 25°C
 Testing Circuitry Figure A

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
48.0	1.72	1.71	1.71
45.6	1.73	1.71	1.71
43.2	1.73	1.72	1.72
38.4	1.74	1.73	1.74
33.6	1.74	1.74	1.73
28.8	1.74	1.74	1.74
24.0	1.75	1.74	1.74
19.2	1.75	1.75	1.74
14.4	1.76	1.75	1.73
9.6	1.75	1.74	1.72
4.8	1.71	1.70	1.68
0.0	1.82	1.67	2.02



Model	LCA50S-48
Item	Overvoltage Protection
Object	+48V1.3A
1.Graph	<p>—△— Input Volt. 85V - - -□- - Input Volt. 100V - - ○- - Input Volt. 132V</p> <p>Operating Point [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 0%</p>
Note:	Slanted line shows the range of the rated ambient temperature.

Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	59.03	58.98	58.98
-10	59.68	59.62	59.68
0	60.17	60.11	60.05
10	60.64	60.64	60.64
25	61.51	61.46	61.46
40	62.21	62.28	62.28
50	62.80	62.75	62.75
60	63.33	63.27	63.33
--	-	-	-
--	-	-	-
--	-	-	-

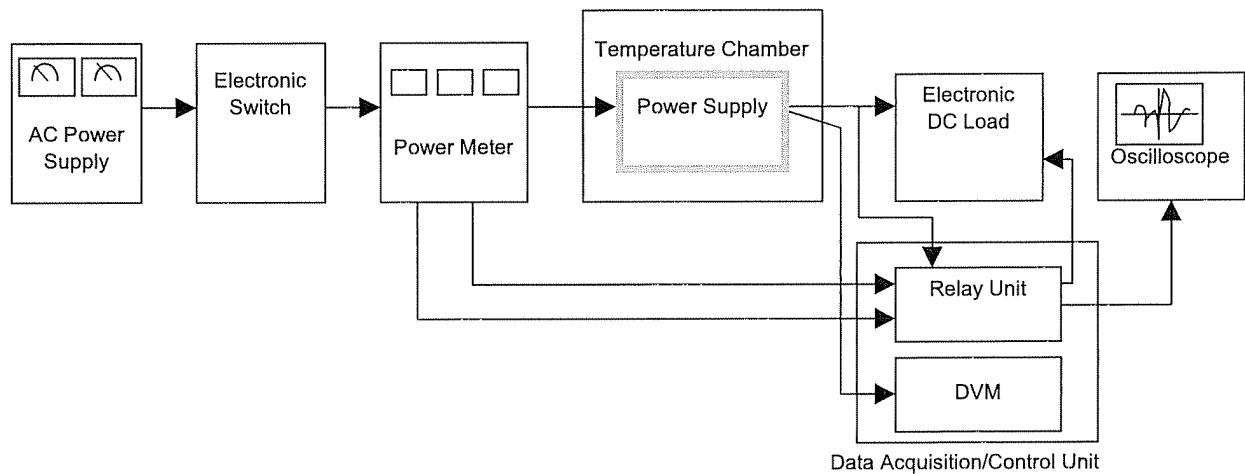


Figure A

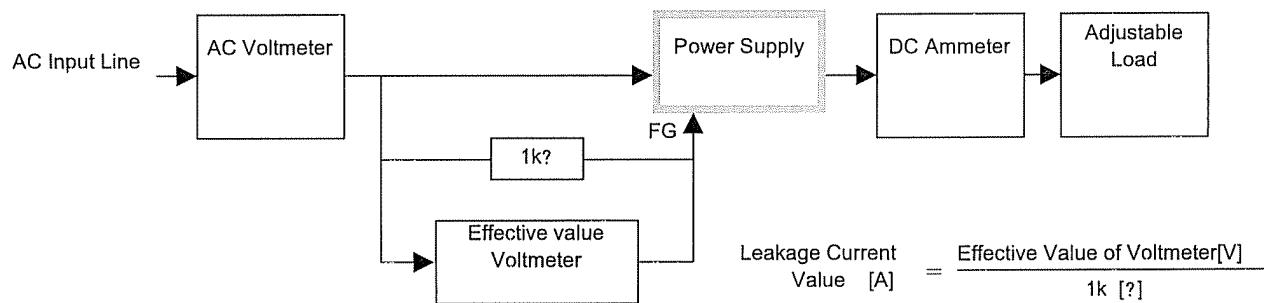


Figure B (DEN-AN)

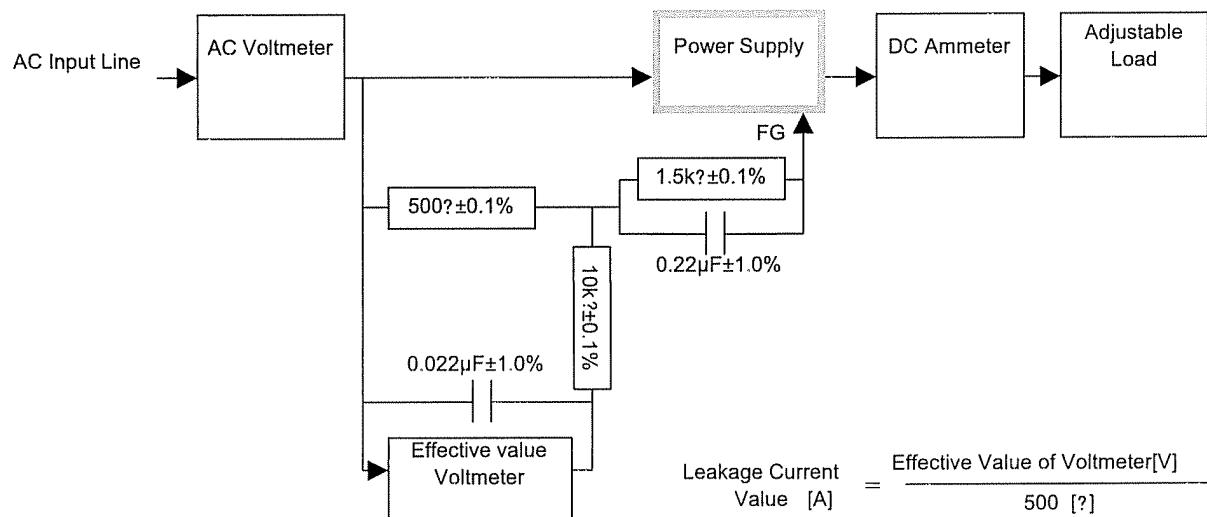


Figure B (IEC60950)