



TEST DATA OF LDA100W-24-H

(200V INPUT)

Regulated DC Power Supply
Jan.18. 2005

Approved by :

A handwritten signature in black ink, appearing to read "K. Shiho".

Design Manager

Prepared by :

A handwritten signature in black ink, appearing to read "S. Ueda".

Design Engineer

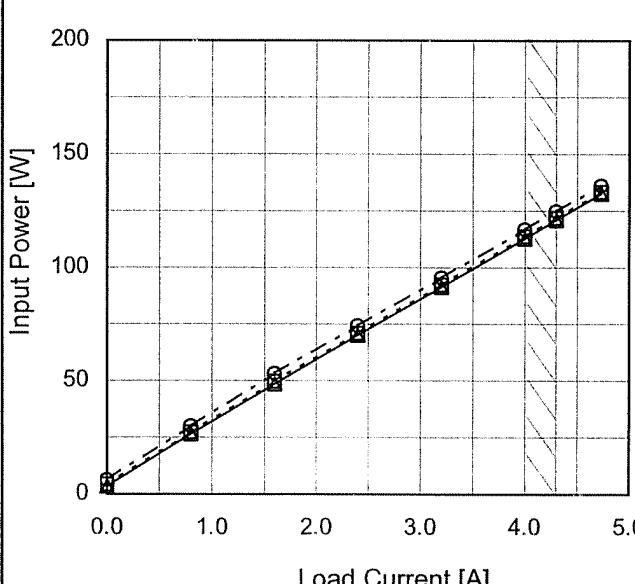
COSEL CO.,LTD.

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)

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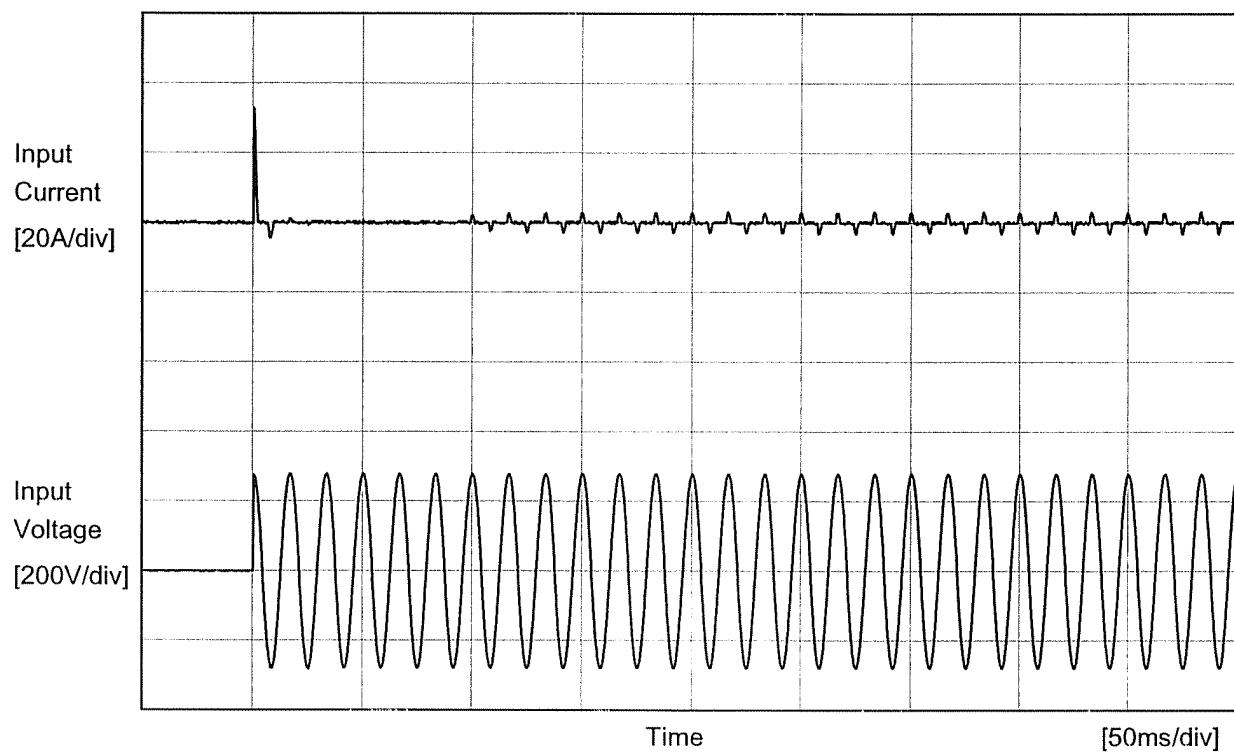
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<p>The graph plots Efficiency [%] on the y-axis (60 to 88) against Input Voltage [V] on the x-axis (140 to 300). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show a general downward trend 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>150</td><td>83.0</td><td>85.3</td></tr> <tr><td>160</td><td>82.8</td><td>86.0</td></tr> <tr><td>170</td><td>82.5</td><td>86.0</td></tr> <tr><td>180</td><td>82.5</td><td>86.0</td></tr> <tr><td>220</td><td>79.5</td><td>85.9</td></tr> <tr><td>260</td><td>76.5</td><td>85.5</td></tr> <tr><td>280</td><td>76.0</td><td>83.1</td></tr> </tbody> </table>			Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	150	83.0	85.3	160	82.8	86.0	170	82.5	86.0	180	82.5	86.0	220	79.5	85.9	260	76.5	85.5	280	76.0	83.1								
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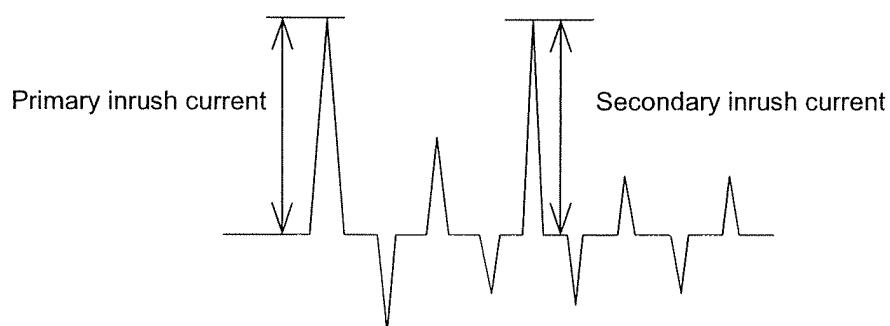
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Model	LDA100W-24-H	Temperature Testing Circuitry 25°C Figure A
Item	Inrush Current	
Object	_____	



Input Voltage 200 V
 Frequency 60 Hz
 Load 100 %

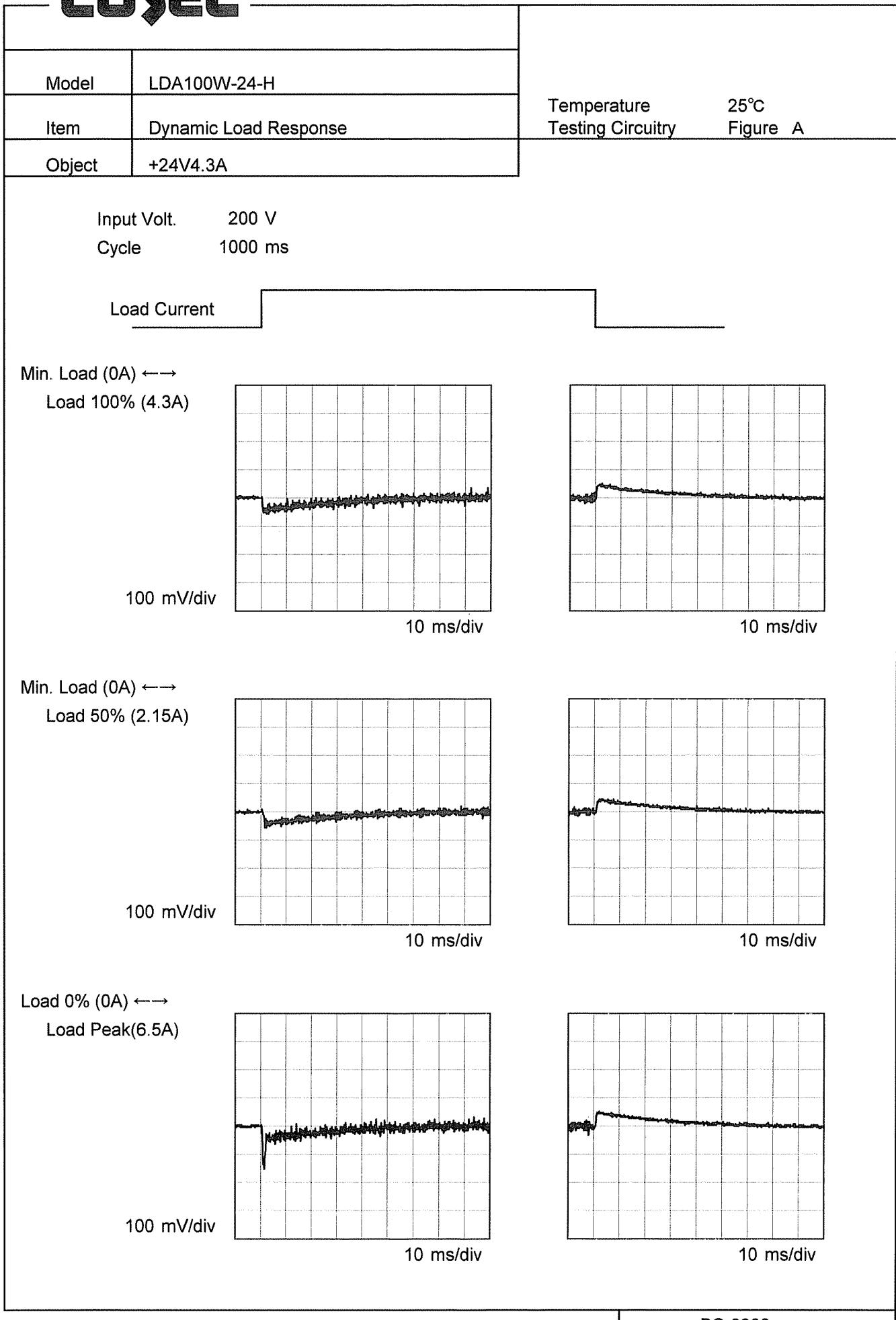
Primary inrush current 32.7 A
 Secondary inrush current 3.3 A



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<p>The graph plots Output Voltage [V] on the Y-axis (23.90 to 24.60) against Load Current [A] on the X-axis (0.0 to 5.0). Three data series are shown for different input voltages: 170V (solid line with open circles), 200V (dashed line with open squares), and 264V (dash-dot line with open triangles). All series show a nearly horizontal line at approximately 24.28V, indicating excellent load regulation. A slanted line on the right side of the graph marks the rated load current range.</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. 170[V]</th> <th>Input Volt. 200[V]</th> <th>Input Volt. 264[V]</th> </tr> </thead> <tbody> <tr> <td>0.00</td> <td>24.282</td> <td>24.282</td> <td>24.282</td> </tr> <tr> <td>0.80</td> <td>24.281</td> <td>24.282</td> <td>24.282</td> </tr> <tr> <td>1.60</td> <td>24.281</td> <td>24.282</td> <td>24.282</td> </tr> <tr> <td>2.40</td> <td>24.281</td> <td>24.282</td> <td>24.282</td> </tr> <tr> <td>3.20</td> <td>24.281</td> <td>24.282</td> <td>24.282</td> </tr> <tr> <td>4.00</td> <td>24.282</td> <td>24.282</td> <td>24.282</td> </tr> <tr> <td>4.30</td> <td>24.282</td> <td>24.282</td> <td>24.282</td> </tr> <tr> <td>4.73</td> <td>24.282</td> <td>24.282</td> <td>24.282</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> <td>-</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. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]	0.00	24.282	24.282	24.282	0.80	24.281	24.282	24.282	1.60	24.281	24.282	24.282	2.40	24.281	24.282	24.282	3.20	24.281	24.282	24.282	4.00	24.282	24.282	24.282	4.30	24.282	24.282	24.282	4.73	24.282	24.282	24.282	--	-	-	-	--	-	-	-	--	-	-	-
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Note: Slanted line shows the range of the rated load current.

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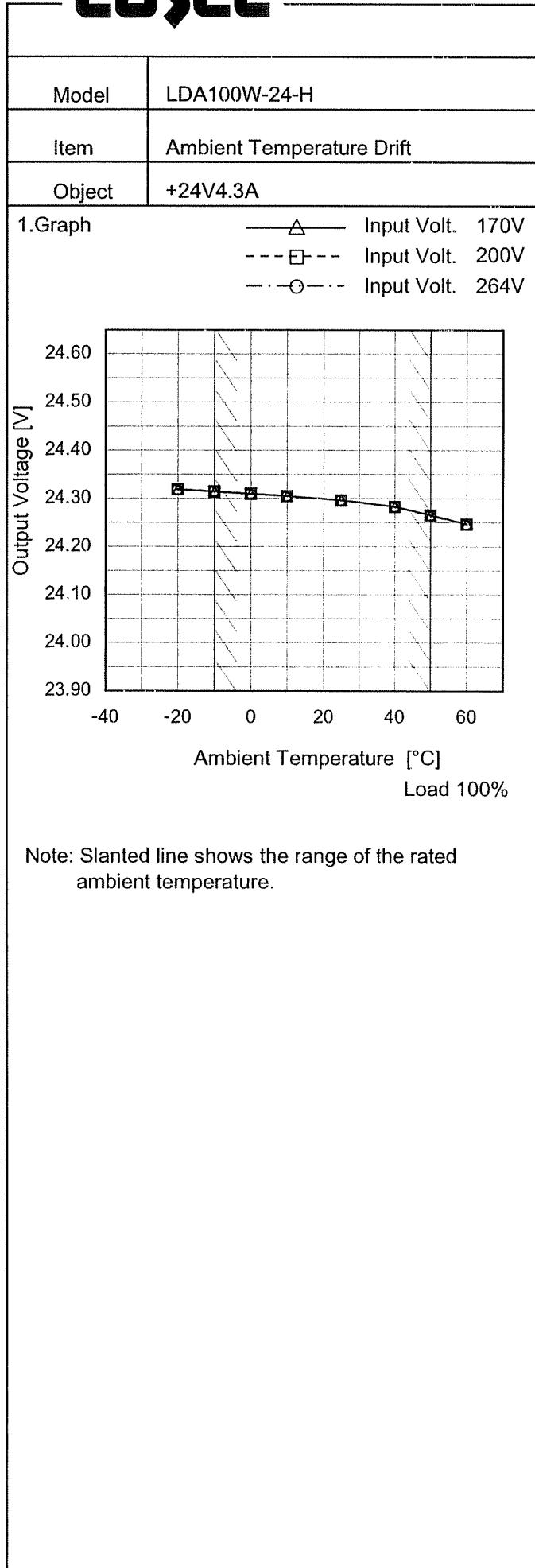
Model	LDA100W-24-H																																							
Item	Ripple Voltage (by Load Current)	Temperature 25°C Testing Circuitry Figure A																																						
Object	+24V4.3A																																							
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<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The Y-axis ranges from 0 to 200 mV, and the X-axis ranges from 0 to 6 A. Two curves are plotted: one for Input Volt. 170V (solid line with triangle markers) and one for Input Volt. 264V (dashed line with circle markers). Both curves show an increase in ripple voltage as load current increases. A slanted line on the graph indicates the range of the rated load current.</p>																																								
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<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>																																								

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Model	LDA100W-24-H																																				
Item	Ripple-Noise	Temperature 25°C Testing Circuitry Figure A																																			
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Load Current [A]	Ripple-Noise [mV] (170V)	Ripple-Noise [mV] (264V)																																			
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Model	LDA100W-24-H																																							
Item	Ripple Voltage (by Ambient Temp.)																																							
Object	+24V4.3A																																							
1.Graph																																								
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Ambient Temperature [°C]	Ripple Voltage [mV]																																							
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Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
-20	24.319	24.319	24.318
-10	24.315	24.314	24.315
0	24.310	24.310	24.310
10	24.305	24.304	24.304
25	24.297	24.296	24.296
40	24.283	24.283	24.283
50	24.266	24.265	24.265
60	24.248	24.247	24.246
--	-	-	-
--	-	-	-
--	-	-	-



Model	LDA100W-24-H	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+24V4.3A	

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 : 170 - 264V

Load Current : 0 - 4.3A

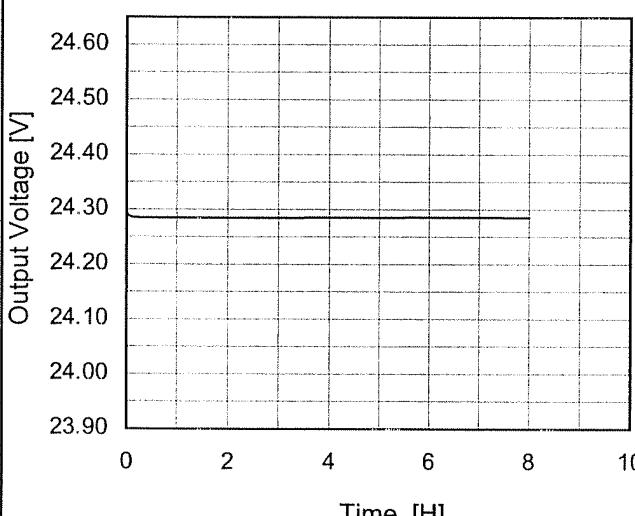
* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

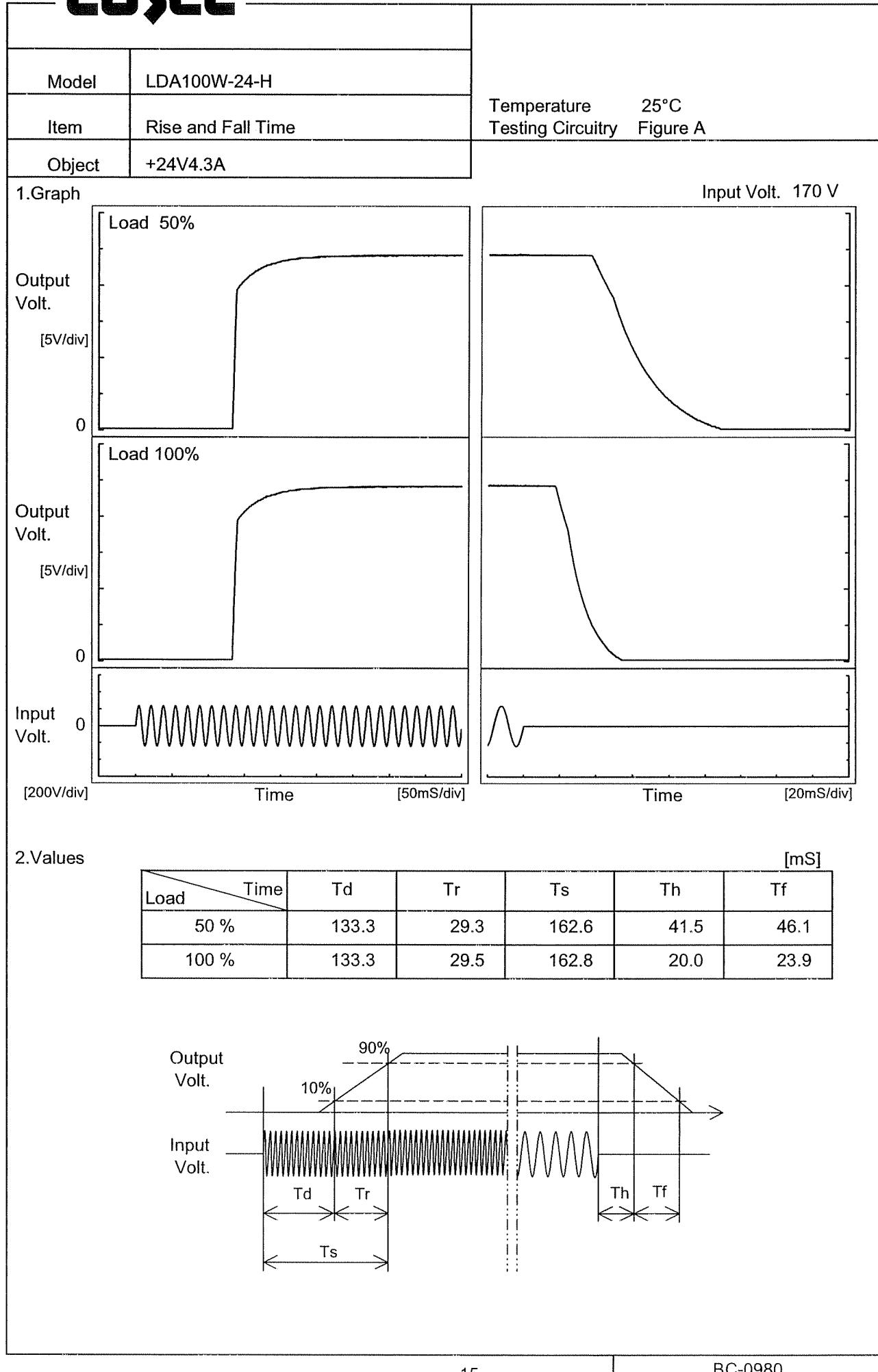
2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	170	0	24.315	± 28	± 0.1
Minimum Voltage	50	170	4.3	24.259		

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Model	LDA100W-24-H	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+24V4.3A																								
1.Graph			2.Values																						
 <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 200V Load 100%</p>			<table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>24.295</td></tr> <tr><td>0.5</td><td>24.285</td></tr> <tr><td>1.0</td><td>24.285</td></tr> <tr><td>2.0</td><td>24.285</td></tr> <tr><td>3.0</td><td>24.285</td></tr> <tr><td>4.0</td><td>24.285</td></tr> <tr><td>5.0</td><td>24.286</td></tr> <tr><td>6.0</td><td>24.286</td></tr> <tr><td>7.0</td><td>24.286</td></tr> <tr><td>8.0</td><td>24.286</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	24.295	0.5	24.285	1.0	24.285	2.0	24.285	3.0	24.285	4.0	24.285	5.0	24.286	6.0	24.286	7.0	24.286	8.0	24.286
Time since start [H]	Output Voltage [V]																								
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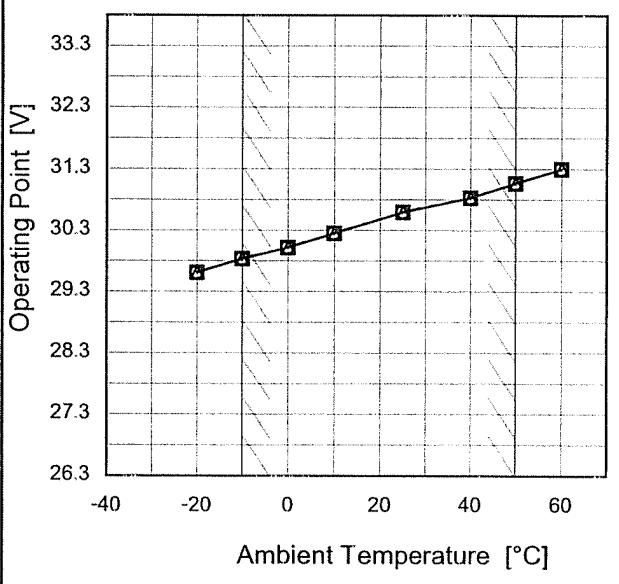
Model	LDA100W-24-H	Temperature	25°C																																
Item	Hold-Up Time	Testing Circuitry	Figure A																																
Object	+24V4.3A																																		
1. Graph																																			
<p>Y-axis: Hold-Up Time [ms] (logarithmic scale: 1, 10, 100, 1000)</p> <p>X-axis: Input Voltage [V] (linear scale: 140, 180, 220, 260, 300)</p> <p>Legend:</p> <ul style="list-style-type: none"> Load 50% (dashed line with squares) Load 100% (solid line with triangles) 																																			
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Input Voltage [V]	Hold-Up Time [ms]																																		
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<p>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.</p> <p>Note: Slanted line shows the range of the rated input voltage.</p>																																			

Model	LDA100W-24-H	Temperature Testing Circuitry 25°C Figure A																																																			
Item	Instantaneous Interruption Compensation																																																				
Object	+24V4.3A																																																				
1.Graph	<p>—△— Input Volt. 170V - - -□--- Input Volt. 200V - - -○--- Input Volt. 264V</p> <table border="1"> <caption>Data points estimated from Graph 1</caption> <thead> <tr> <th>Load Current [A]</th> <th>170V [ms]</th> <th>200V [ms]</th> <th>264V [ms]</th> </tr> </thead> <tbody> <tr><td>0.80</td><td>95</td><td>161</td><td>303</td></tr> <tr><td>1.60</td><td>64</td><td>82</td><td>161</td></tr> <tr><td>2.40</td><td>43</td><td>56</td><td>108</td></tr> <tr><td>3.20</td><td>30</td><td>40</td><td>90</td></tr> <tr><td>4.00</td><td>25</td><td>36</td><td>70</td></tr> <tr><td>4.30</td><td>22</td><td>36</td><td>66</td></tr> <tr><td>4.73</td><td>21</td><td>28</td><td>62</td></tr> </tbody> </table>	Load Current [A]	170V [ms]	200V [ms]	264V [ms]	0.80	95	161	303	1.60	64	82	161	2.40	43	56	108	3.20	30	40	90	4.00	25	36	70	4.30	22	36	66	4.73	21	28	62																				
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Note:	Slanted line shows the range of the rated load current.																																																				

Model	LDA100W-24-H																																							
Item	Minimum Input Voltage for Regulated Output Voltage																																							
Object	+24V4.3A																																							
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Model	LDA100W-24-H		
Item	Overcurrent Protection	Temperature Testing Circuitry	25°C Figure A
Object	+24V4.3A		
1.Graph			
<p>The graph plots Output Voltage [V] on the Y-axis (0 to 30) against Load Current [A] on the X-axis (0 to 12). Three curves represent different input voltages: 170V (top), 200V (middle), and 264V (bottom). All curves show a constant output voltage until a certain load current is reached, after which the voltage drops sharply. A slanted line is drawn across the graph, starting from approximately (4, 24) and ending at (8, 0), indicating the range of the rated load current.</p>			
Note: Slanted line shows the range of the rated load current.			
2.Values			
Output Voltage [V]	Load Current [A]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
24.0	7.13	7.09	7.18
22.8	7.17	7.16	7.28
21.6	7.22	7.23	7.38
19.2	7.34	7.38	7.55
16.8	7.50	7.54	7.70
14.4	7.65	7.71	7.85
12.0	7.79	7.85	8.00
9.6	7.88	7.97	8.14
7.2	8.01	8.10	8.29
4.8	8.11	8.17	8.35
2.4	8.00	7.98	8.01
0.0	7.76	7.72	7.86

		Testing Circuitry Figure A																																																				
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Object	+24V4.3A																																																					
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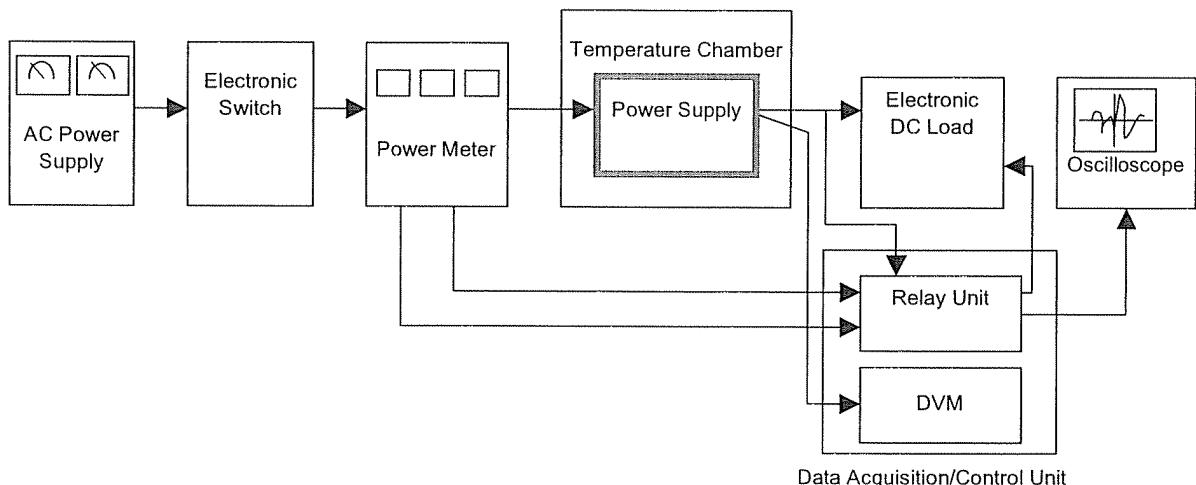


Figure A

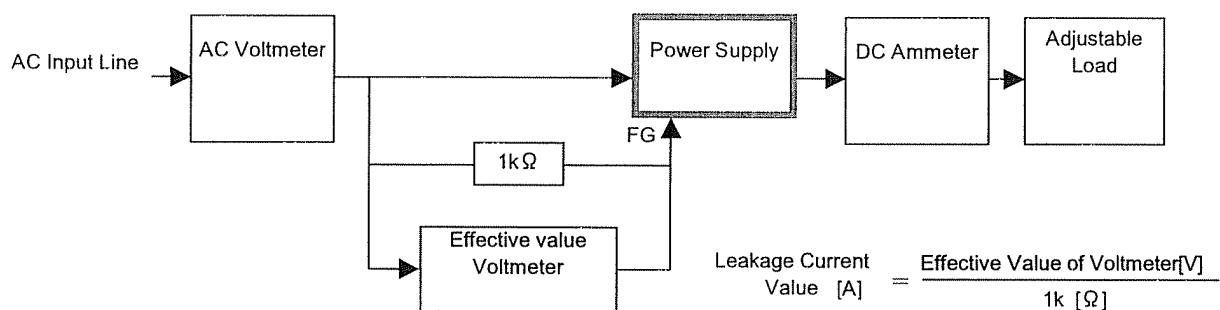


Figure B (DEN-AN)

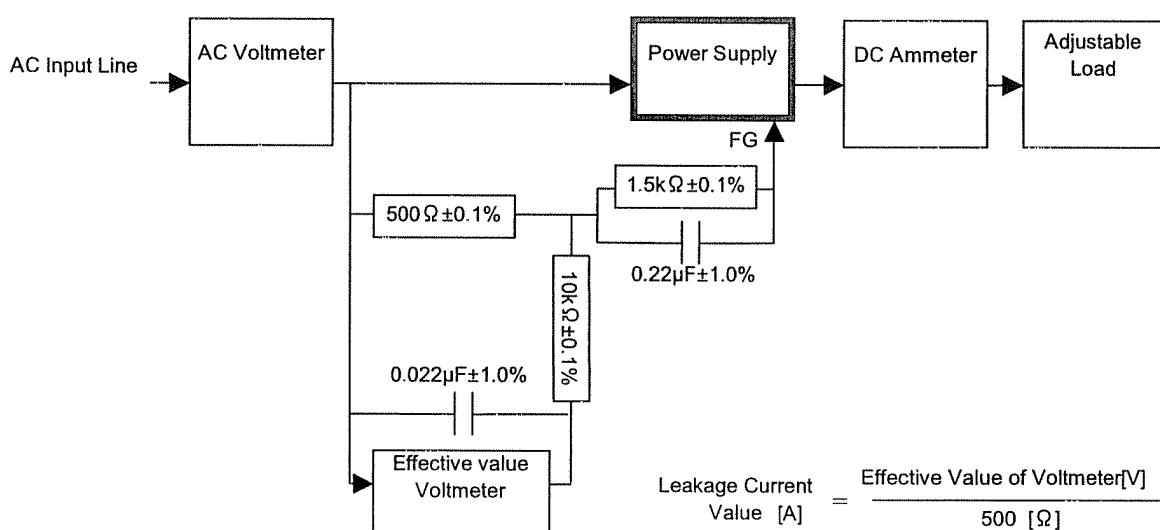


Figure B (IEC60950)