



# TEST DATA OF LDA100W-18

(100V INPUT)

Regulated DC Power Supply  
Dec.9. 2004

Approved by :           *K. Shiho*            
K.Shiho Design Manager

Prepared by :           *S. Ueda*            
S.Ueda Design Engineer

**COSEL CO.,LTD.**

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<p>Model LDA100W-18</p>		<p>Temperature 25°C Testing Circuitry Figure A</p>																																																			
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<p>1.Graph</p> <p>                     —△— Input Volt. 85V                      - - - □ - - Input Volt. 100V                      - · - ○ - · - Input Volt. 132V                 </p> <p>                     Note: Slanted line shows the range of the rated load current.                 </p>		<p>2.Values</p> <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>0.138</td><td>0.152</td><td>0.168</td></tr> <tr><td>0.80</td><td>0.509</td><td>0.503</td><td>0.448</td></tr> <tr><td>1.60</td><td>0.830</td><td>0.779</td><td>0.690</td></tr> <tr><td>2.40</td><td>1.143</td><td>1.035</td><td>0.900</td></tr> <tr><td>3.20</td><td>1.454</td><td>1.297</td><td>1.098</td></tr> <tr><td>4.00</td><td>1.762</td><td>1.562</td><td>1.306</td></tr> <tr><td>4.80</td><td>2.072</td><td>1.827</td><td>1.521</td></tr> <tr><td>5.60</td><td>2.384</td><td>2.102</td><td>1.738</td></tr> <tr><td>6.16</td><td>2.604</td><td>2.290</td><td>1.890</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	0.138	0.152	0.168	0.80	0.509	0.503	0.448	1.60	0.830	0.779	0.690	2.40	1.143	1.035	0.900	3.20	1.454	1.297	1.098	4.00	1.762	1.562	1.306	4.80	2.072	1.827	1.521	5.60	2.384	2.102	1.738	6.16	2.604	2.290	1.890	--	-	-	-	--	-	-	-
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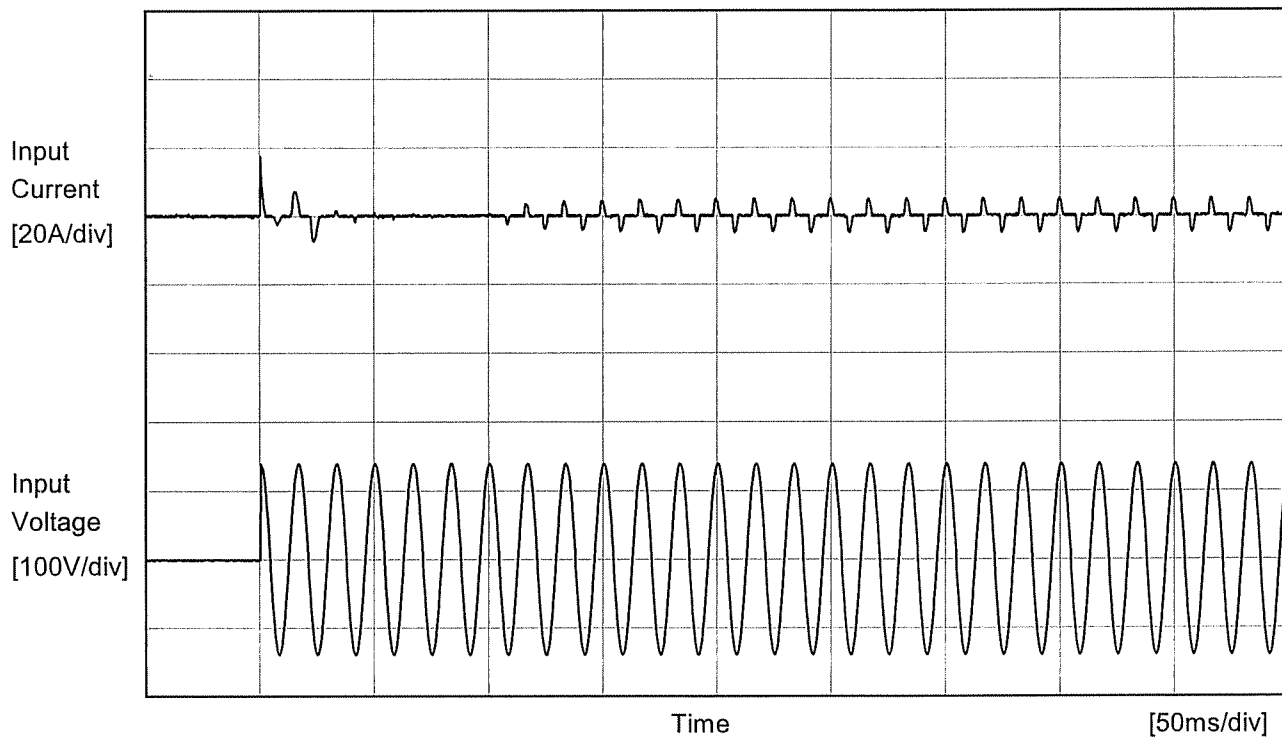
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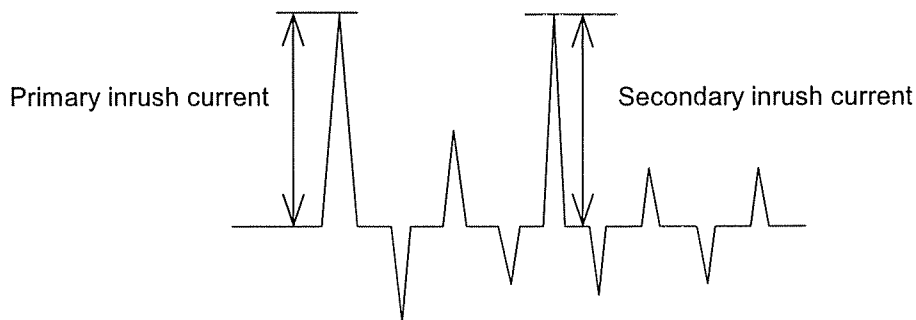


Model		LDA100W-18	Temperature 25°C Testing Circuitry Figure A
Item		Inrush Current	
Object		_____	



Input Voltage 100 V  
 Frequency 60 Hz  
 Load 100 %

Primary inrush current 17.5 A  
 Secondary inrush current 5.5 A





<p>Model LDA100W-18</p>		<p>Temperature 25°C Testing Circuitry Figure A</p>																																
<p>Item</p>	<p>Line Regulation</p>																																	
<p>Object</p>	<p>+18V5.6A</p>																																	
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<p>1.Graph</p> <p>                     ---△--- Input Volt. 85V                      ---□--- Input Volt. 100V                      ---○--- Input Volt. 132V                 </p> <p>Output Voltage [V]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p>		<p>2.Values</p> <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>18.111</td><td>18.112</td><td>18.111</td></tr> <tr><td>0.80</td><td>18.110</td><td>18.110</td><td>18.110</td></tr> <tr><td>1.60</td><td>18.108</td><td>18.108</td><td>18.109</td></tr> <tr><td>2.40</td><td>18.107</td><td>18.107</td><td>18.107</td></tr> <tr><td>3.20</td><td>18.105</td><td>18.105</td><td>18.106</td></tr> <tr><td>4.00</td><td>18.104</td><td>18.104</td><td>18.104</td></tr> <tr><td>4.80</td><td>18.102</td><td>18.103</td><td>18.103</td></tr> <tr><td>5.60</td><td>18.101</td><td>18.101</td><td>18.101</td></tr> <tr><td>6.16</td><td>18.100</td><td>18.100</td><td>18.100</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	18.111	18.112	18.111	0.80	18.110	18.110	18.110	1.60	18.108	18.108	18.109	2.40	18.107	18.107	18.107	3.20	18.105	18.105	18.106	4.00	18.104	18.104	18.104	4.80	18.102	18.103	18.103	5.60	18.101	18.101	18.101	6.16	18.100	18.100	18.100	--	-	-	-	--	-	-	-
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Model		LDA100W-18	
Item		Temperature	25°C
Object		Testing Circuitry	Figure A
		+18V5.6A	

Input Volt. 100 V  
Cycle 1000 ms

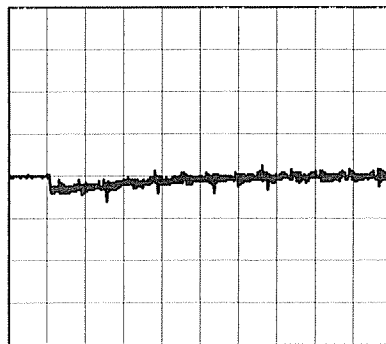
Load Current



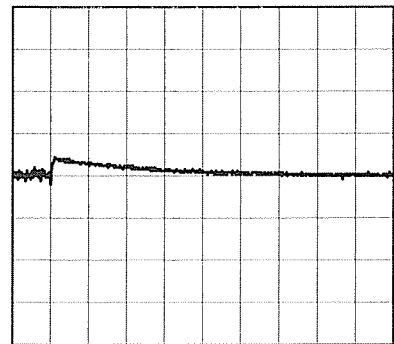
Min. Load (0A) ←→

Load 100% (5.6A)

100 mV/div



10 ms/div

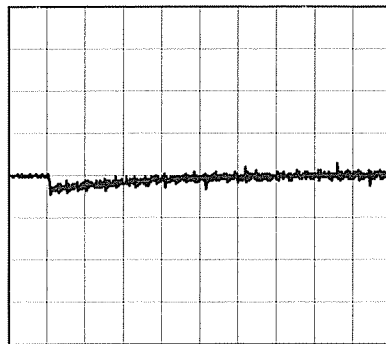


10 ms/div

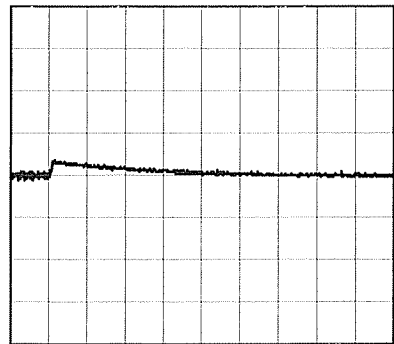
Min. Load (0A) ←→

Load 50% (2.8A)

100 mV/div



10 ms/div



10 ms/div

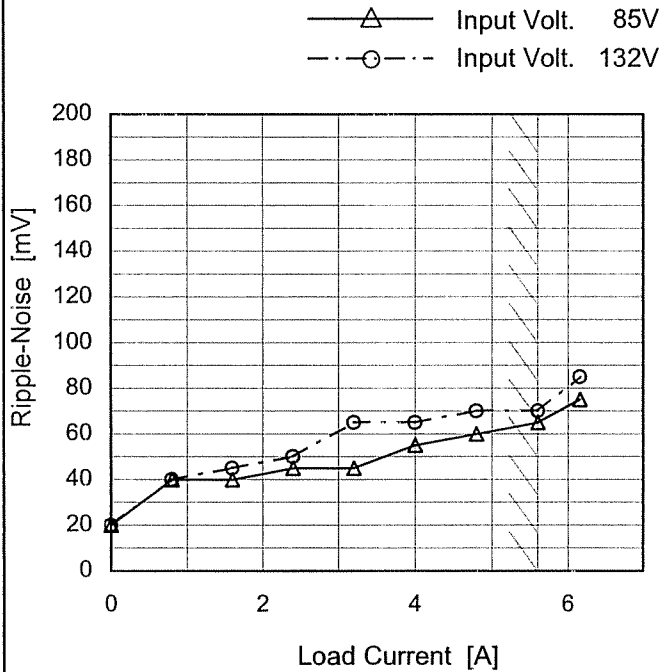


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Item	Ripple Voltage (by Load Current)																																							
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<p>1. Graph</p> <div style="text-align: right;"> <p>—△— Input Volt. 85V - -○- - Input Volt. 132V</p> </div> <p>Measured 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>2. Values</p> <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>15</td><td>15</td></tr> <tr><td>0.80</td><td>25</td><td>25</td></tr> <tr><td>1.60</td><td>25</td><td>30</td></tr> <tr><td>2.40</td><td>30</td><td>30</td></tr> <tr><td>3.20</td><td>30</td><td>35</td></tr> <tr><td>4.00</td><td>30</td><td>35</td></tr> <tr><td>4.80</td><td>30</td><td>35</td></tr> <tr><td>5.60</td><td>35</td><td>35</td></tr> <tr><td>6.16</td><td>35</td><td>35</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	15	15	0.80	25	25	1.60	25	30	2.40	30	30	3.20	30	35	4.00	30	35	4.80	30	35	5.60	35	35	6.16	35	35	--	-	-	--	-	-
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0.00	15	15																																						
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1.60	25	30																																						
2.40	30	30																																						
3.20	30	35																																						
4.00	30	35																																						
4.80	30	35																																						
5.60	35	35																																						
6.16	35	35																																						
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<p>T1: Due to AC Input Line T2: Due to Switching</p> <p>Fig. Complex Ripple Wave Form</p>																																								



Model	LDA100W-18	Temperature	25°C
Item	Ripple-Noise	Testing Circuitry	Figure A
Object	+18V5.6A		

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	20	20
0.80	40	40
1.60	40	45
2.40	45	50
3.20	45	65
4.00	55	65
4.80	60	70
5.60	65	70
6.16	75	85
--	-	-
--	-	-

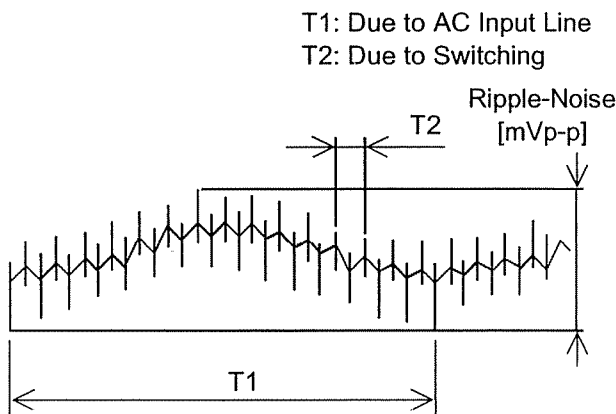


Fig. Complex Ripple Wave Form



<b>COSEL</b>																																								
Model	LDA100W-18																																							
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry Figure A																																						
Object	+18V5.6A																																							
<p>1.Graph</p> <div style="text-align: right;"> <p>---□--- Load 50%</p> <p>—△— Load 100%</p> </div> <p style="text-align: center;">Ambient Temperature [°C]</p> <p style="text-align: center;">Input Volt. 100V</p>		<p>2.Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="2">Ripple Voltage [mV]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>-20</td><td>45</td><td>55</td></tr> <tr><td>-10</td><td>40</td><td>50</td></tr> <tr><td>0</td><td>30</td><td>35</td></tr> <tr><td>10</td><td>30</td><td>35</td></tr> <tr><td>25</td><td>25</td><td>30</td></tr> <tr><td>40</td><td>20</td><td>25</td></tr> <tr><td>50</td><td>20</td><td>25</td></tr> <tr><td>60</td><td>20</td><td>25</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>---</td><td>-</td><td>-</td></tr> </tbody> </table>	Ambient Temperature [°C]	Ripple Voltage [mV]		Load 50%	Load 100%	-20	45	55	-10	40	50	0	30	35	10	30	35	25	25	30	40	20	25	50	20	25	60	20	25	--	-	-	--	-	-	---	-	-
Ambient Temperature [°C]	Ripple Voltage [mV]																																							
	Load 50%	Load 100%																																						
-20	45	55																																						
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10	30	35																																						
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<p>Measured by 20 MHz Oscilloscope.                  Note: Slanted line shows the range of the rated ambient temperature.</p>																																								



Model		LDA100W-18		Testing Circuitry Figure A																																																					
Item		Ambient Temperature Drift																																																							
Object		+18V5.6A																																																							
1.Graph			—△— Input Volt. 85V	2.Values																																																					
			---□--- Input Volt. 100V																																																						
			-·-○-·- Input Volt. 132V																																																						
Output Voltage [V]				<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</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>-20</td><td>18.132</td><td>18.132</td><td>18.133</td></tr> <tr><td>-10</td><td>18.129</td><td>18.129</td><td>18.129</td></tr> <tr><td>0</td><td>18.124</td><td>18.125</td><td>18.125</td></tr> <tr><td>10</td><td>18.120</td><td>18.120</td><td>18.121</td></tr> <tr><td>25</td><td>18.115</td><td>18.115</td><td>18.115</td></tr> <tr><td>40</td><td>18.107</td><td>18.106</td><td>18.106</td></tr> <tr><td>50</td><td>18.094</td><td>18.094</td><td>18.093</td></tr> <tr><td>60</td><td>18.078</td><td>18.078</td><td>18.077</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>			Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	-20	18.132	18.132	18.133	-10	18.129	18.129	18.129	0	18.124	18.125	18.125	10	18.120	18.120	18.121	25	18.115	18.115	18.115	40	18.107	18.106	18.106	50	18.094	18.094	18.093	60	18.078	18.078	18.077	--	-	-	-	--	-	-	-	--	-	-	-
								Ambient Temperature [°C]	Output Voltage [V]																																																
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-10	18.129	18.129	18.129																																																						
0	18.124	18.125	18.125																																																						
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25	18.115	18.115	18.115																																																						
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<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																																									



<b>COSEL</b>		
Model	LDA100W-18	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+18V5.6A	

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 - 5.6A

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

\* 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	18.138	±24	±0.1
Minimum Voltage	50	132	5.6	18.091		



<b>COSEL</b>																								
Model	LDA100W-18	Temperature 25°C Testing Circuitry Figure A																						
Item	Time Lapse Drift																							
Object	+18V5.6A																							
1.Graph		2.Values																						
<p style="text-align: center;">Time [H]</p> <p>Input Volt. 100V 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>18.110</td></tr> <tr><td>0.5</td><td>18.101</td></tr> <tr><td>1.0</td><td>18.102</td></tr> <tr><td>2.0</td><td>18.102</td></tr> <tr><td>3.0</td><td>18.102</td></tr> <tr><td>4.0</td><td>18.102</td></tr> <tr><td>5.0</td><td>18.102</td></tr> <tr><td>6.0</td><td>18.102</td></tr> <tr><td>7.0</td><td>18.102</td></tr> <tr><td>8.0</td><td>18.102</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	18.110	0.5	18.101	1.0	18.102	2.0	18.102	3.0	18.102	4.0	18.102	5.0	18.102	6.0	18.102	7.0	18.102	8.0	18.102
Time since start [H]	Output Voltage [V]																							
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6.0	18.102																							
7.0	18.102																							
8.0	18.102																							

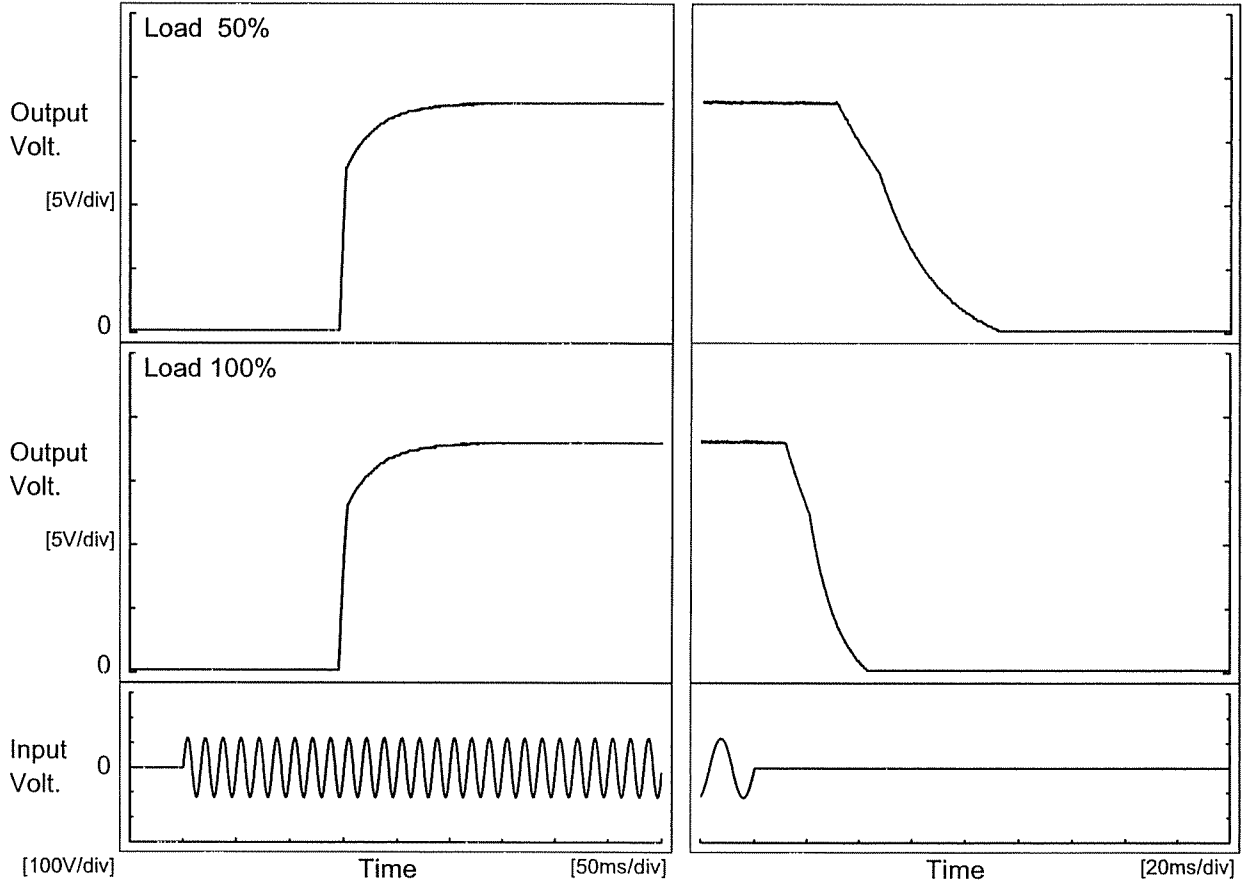




Model	LDA100W-18	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+18V5.6A		

1. Graph

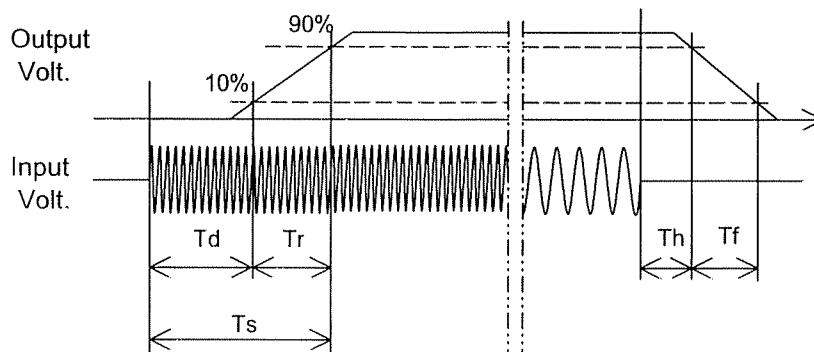
Input Volt. 100 V



2. Values

[ms]

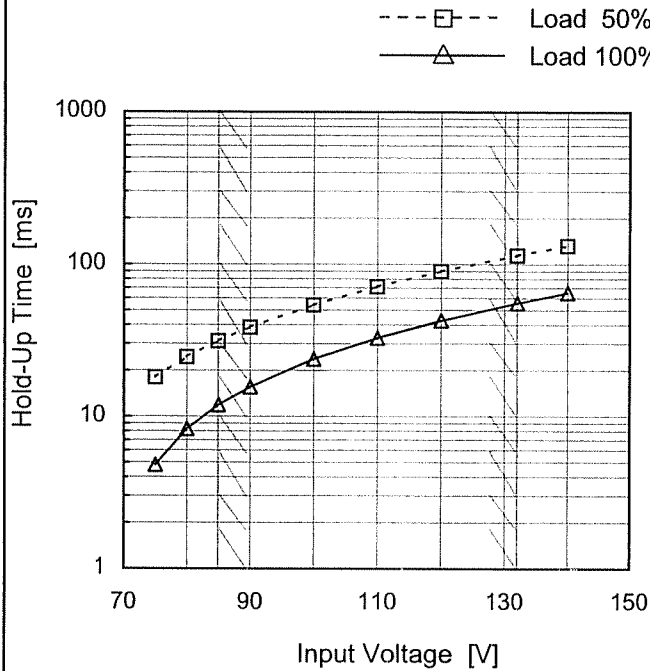
Load \ Time	Td	Tr	Ts	Th	Tf
50 %	146.0	40.5	186.5	35.3	42.8
100 %	146.0	40.8	186.8	13.9	22.2





Model	LDA100W-18	Temperature	25°C
Item	Hold-Up Time	Testing Circuitry	Figure A
Object	+18V5.6A		

1.Graph



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.

2.Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
75	18	5
80	25	8
85	31	12
90	38	16
100	54	24
110	71	33
120	90	43
132	114	56
140	132	65

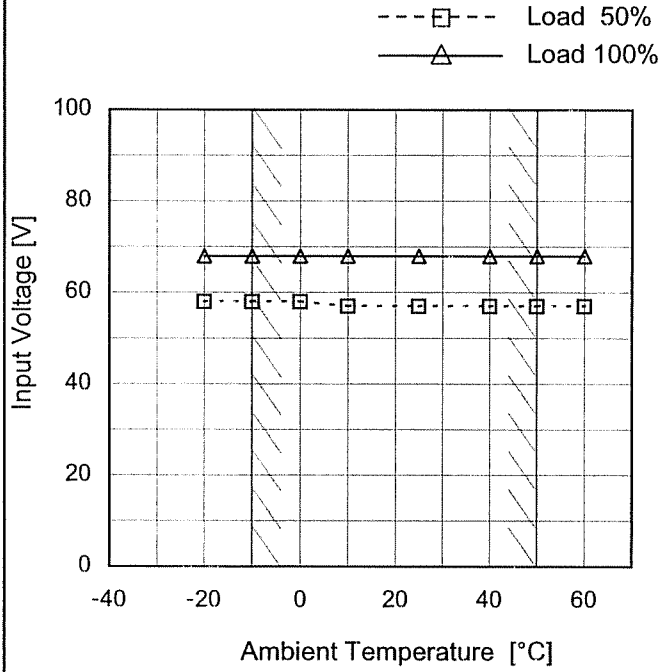


<p>Model LDA100W-18</p>		<p>Temperature 25°C Testing Circuitry Figure A</p>																																																			
<p>Item Instantaneous Interruption Compensation</p>																																																					
<p>Object +18V5.6A</p>																																																					
<p>1.Graph</p> <p>                     -----△----- Input Volt. 85V                      ----□---- Input Volt. 100V                      - - -○- - - Input Volt. 132V                 </p> <p>Instantaneous Compensation Time [ms]</p> <p>Load Current [A]</p>		<p>2.Values</p> <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>0.80</td><td>99</td><td>165</td><td>363</td></tr> <tr><td>1.60</td><td>51</td><td>91</td><td>200</td></tr> <tr><td>2.40</td><td>34</td><td>59</td><td>137</td></tr> <tr><td>3.20</td><td>18</td><td>42</td><td>101</td></tr> <tr><td>4.00</td><td>18</td><td>34</td><td>80</td></tr> <tr><td>4.80</td><td>10</td><td>26</td><td>70</td></tr> <tr><td>5.60</td><td>10</td><td>18</td><td>54</td></tr> <tr><td>6.16</td><td>3</td><td>17</td><td>46</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	-	-	-	0.80	99	165	363	1.60	51	91	200	2.40	34	59	137	3.20	18	42	101	4.00	18	34	80	4.80	10	26	70	5.60	10	18	54	6.16	3	17	46	--	-	-	-	--	-	-	-
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<p>Note: Slanted line shows the range of the rated load current.</p>																																																					



Model	LDA100W-18	Testing Circuitry Figure A
Item	Minimum Input Voltage for Regulated Output Voltage	
Object	+18V5.6A	

1.Graph



2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	58	68
-10	58	68
0	58	68
10	57	68
25	57	68
40	57	68
50	57	68
60	57	68
--	-	-
--	-	-
--	-	-

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

<p>Model LDA100W-18</p>		<p>Temperature 25°C Testing Circuitry Figure A</p>																																																							
<p>Item Overcurrent Protection</p>																																																									
<p>Object +18V5.6A</p>																																																									
<p>1.Graph</p> <p> <span style="display: inline-block; width: 20px; border-bottom: 1px solid black; margin-right: 5px;"></span> Input Volt. 85V  <span style="display: inline-block; width: 20px; border-bottom: 3px double black; margin-right: 5px;"></span> Input Volt. 100V  <span style="display: inline-block; width: 20px; border-bottom: 2px dashed black; margin-right: 5px;"></span> Input Volt. 132V                 </p> <p style="text-align: center;">Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p>		<p>2.Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="3">Load 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>18.0</td><td>7.41</td><td>7.30</td><td>7.34</td></tr> <tr><td>17.1</td><td>7.42</td><td>7.34</td><td>7.40</td></tr> <tr><td>16.2</td><td>7.44</td><td>7.38</td><td>7.47</td></tr> <tr><td>14.4</td><td>7.51</td><td>7.50</td><td>7.62</td></tr> <tr><td>12.6</td><td>7.62</td><td>7.63</td><td>7.78</td></tr> <tr><td>10.8</td><td>7.76</td><td>7.77</td><td>7.91</td></tr> <tr><td>9.0</td><td>7.88</td><td>7.92</td><td>8.03</td></tr> <tr><td>7.2</td><td>7.96</td><td>8.01</td><td>8.25</td></tr> <tr><td>5.4</td><td>8.08</td><td>8.10</td><td>8.43</td></tr> <tr><td>3.6</td><td>8.15</td><td>8.27</td><td>8.53</td></tr> <tr><td>1.8</td><td>8.12</td><td>8.18</td><td>8.28</td></tr> <tr><td>0.0</td><td>7.48</td><td>7.40</td><td>7.50</td></tr> </tbody> </table>	Output Voltage [V]	Load Current [A]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	18.0	7.41	7.30	7.34	17.1	7.42	7.34	7.40	16.2	7.44	7.38	7.47	14.4	7.51	7.50	7.62	12.6	7.62	7.63	7.78	10.8	7.76	7.77	7.91	9.0	7.88	7.92	8.03	7.2	7.96	8.01	8.25	5.4	8.08	8.10	8.43	3.6	8.15	8.27	8.53	1.8	8.12	8.18	8.28	0.0	7.48	7.40	7.50
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<b>Model</b>		LDA100W-18		Testing Circuitry Figure A																																																					
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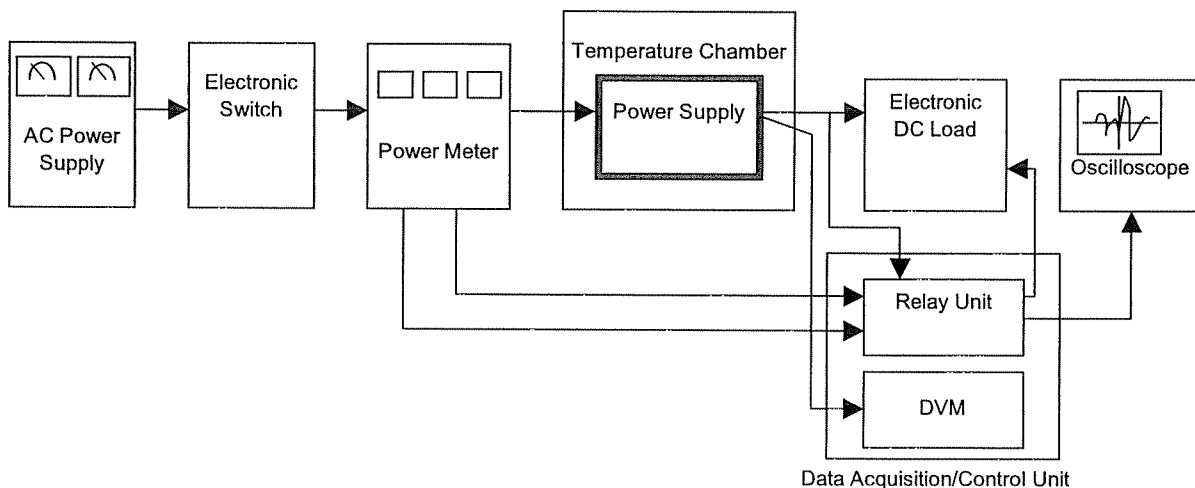


Figure A

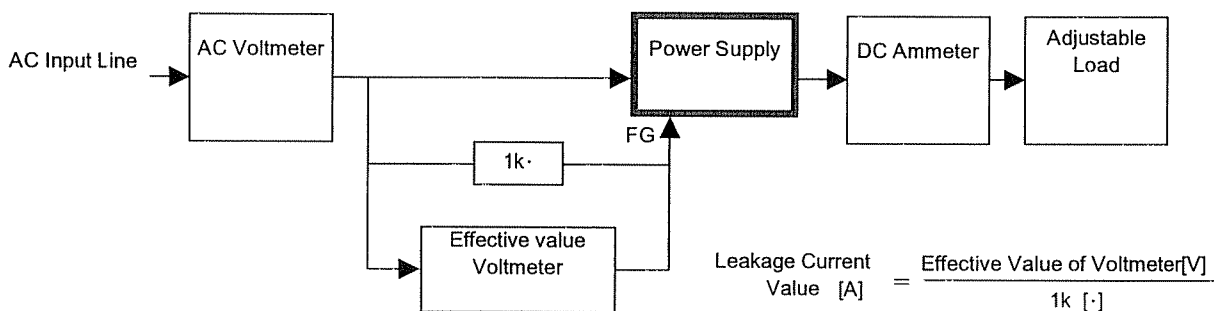


Figure B ( DEN-AN )

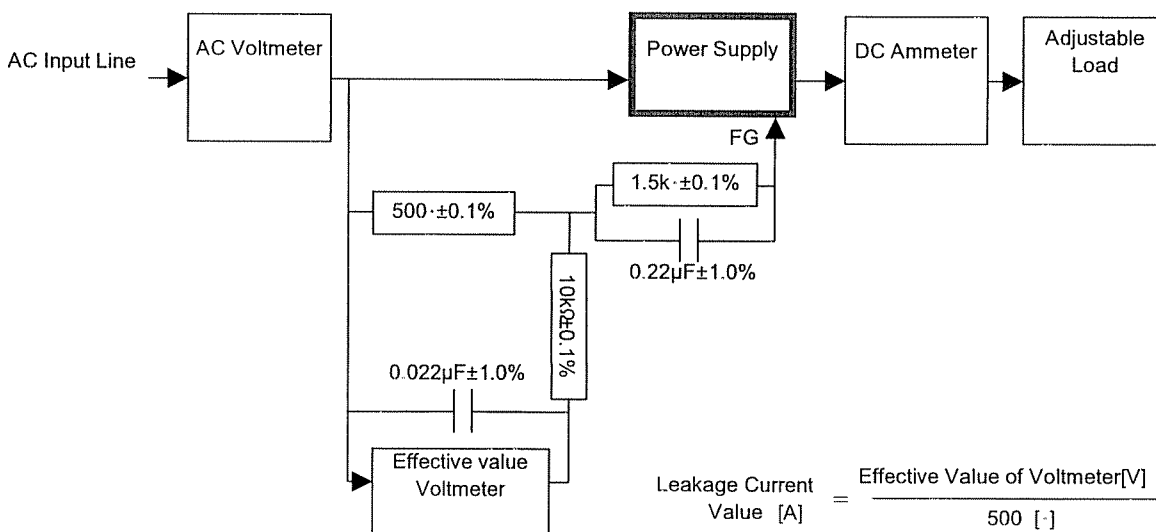


Figure B ( IEC60950 )