



# TEST DATA OF LDA150W-9

(200V INPUT)

Regulated DC Power Supply  
Feb.14. 2005

Approved by : K. Shiho  
K. Shiho Design Manager

Prepared by : S. Ueda  
S. Ueda Design Engineer

**COSEL CO.,LTD.**

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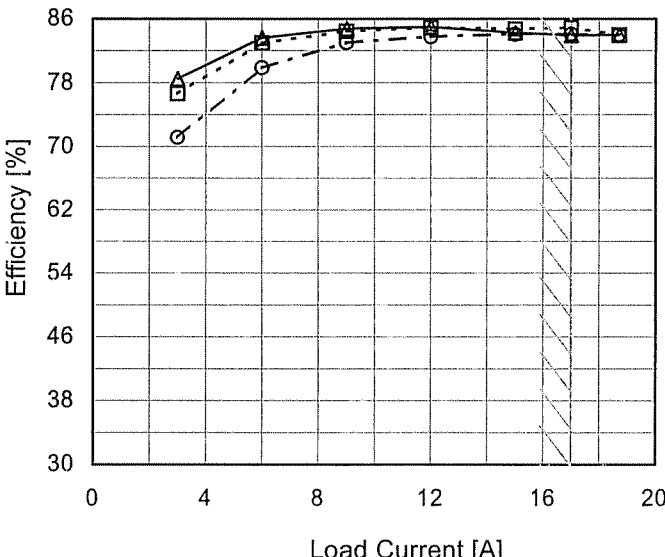
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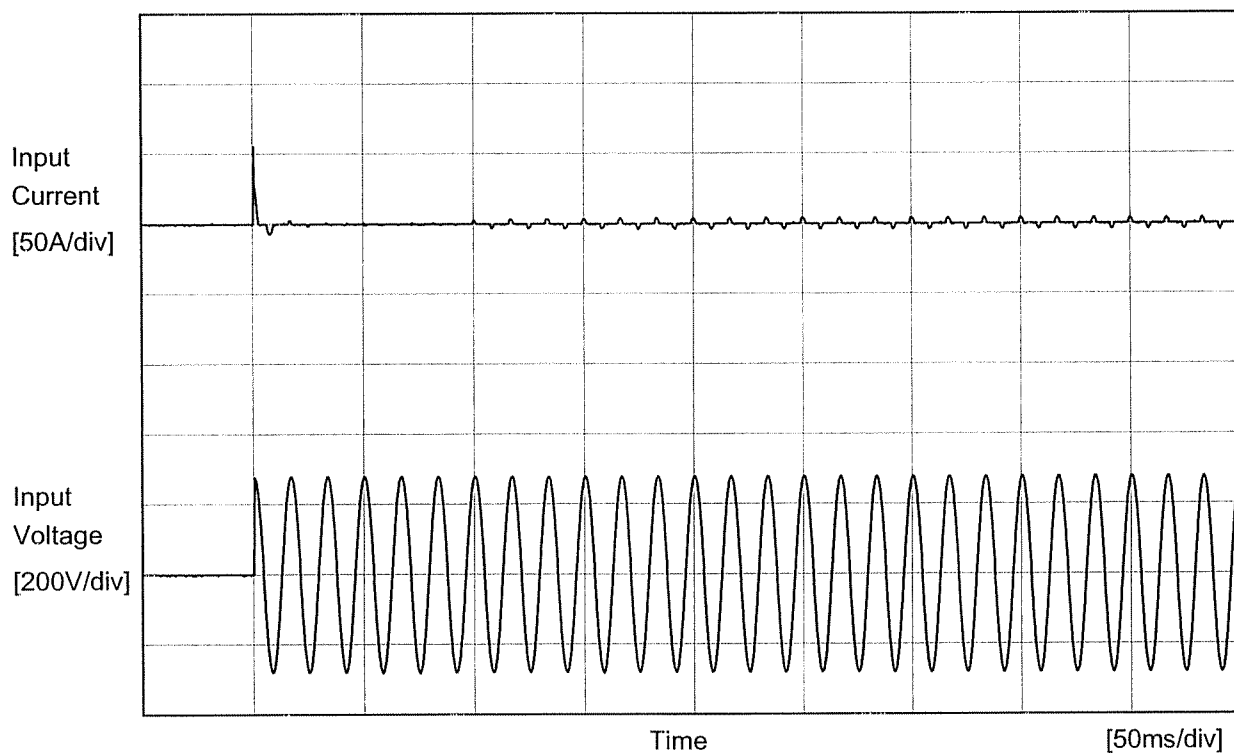
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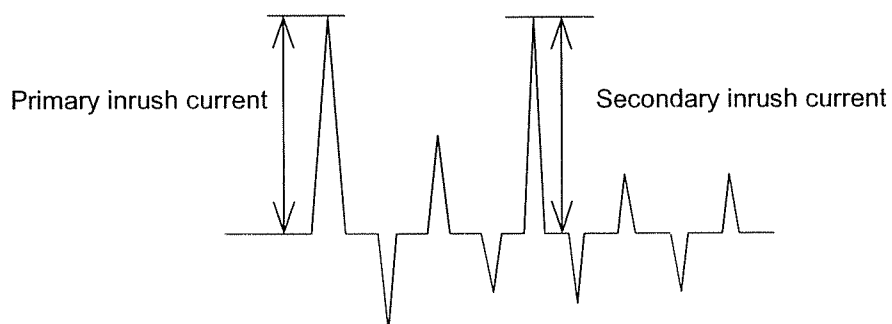
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Model	LDA150W-9	Temperature 25°C Testing Circuitry Figure A
Item	Inrush Current	
Object	_____	



Input Voltage 200 V  
Frequency 60 Hz  
Load 100 %

Primary inrush current 55.2 A  
Secondary inrush current 7.2 A

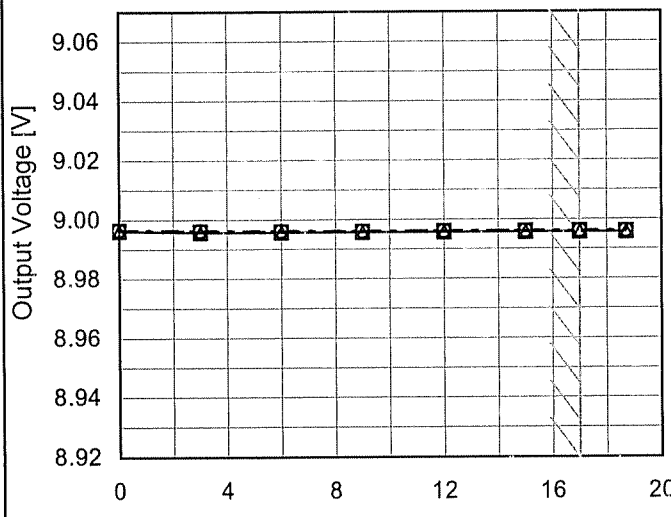




Model	LDA150W-9																																															
Item	Line Regulation	Temperature	25°C																																													
Object	+9V17A	Testing Circuitry	Figure A																																													
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Item	Load Regulation																																																						
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1.Graph		2.Values																																																					
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Model	LDA150W-9		
Item	Dynamic Load Response	Temperature	25°C
Object	+9V17A	Testing Circuitry	Figure A

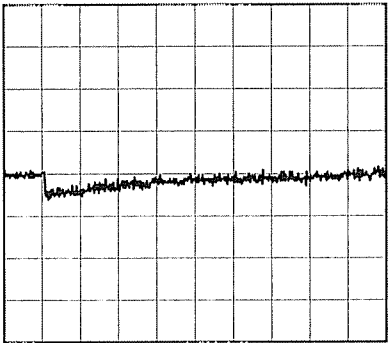
Input Volt.      200 V  
Cycle              1000 ms

Load Current

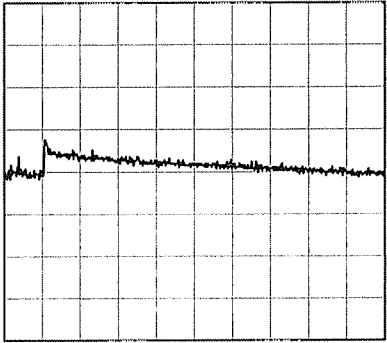


Min. Load (0A) ←→  
Load 100% (17A)

100 mV/div



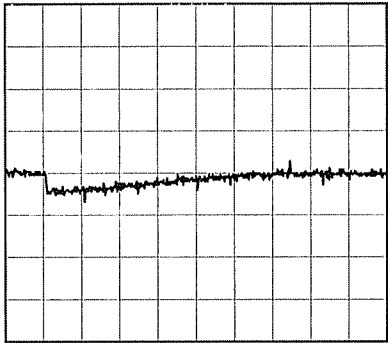
10 ms/div



10 ms/div

Min. Load (0A) ←→  
Load 50% (8.5A)

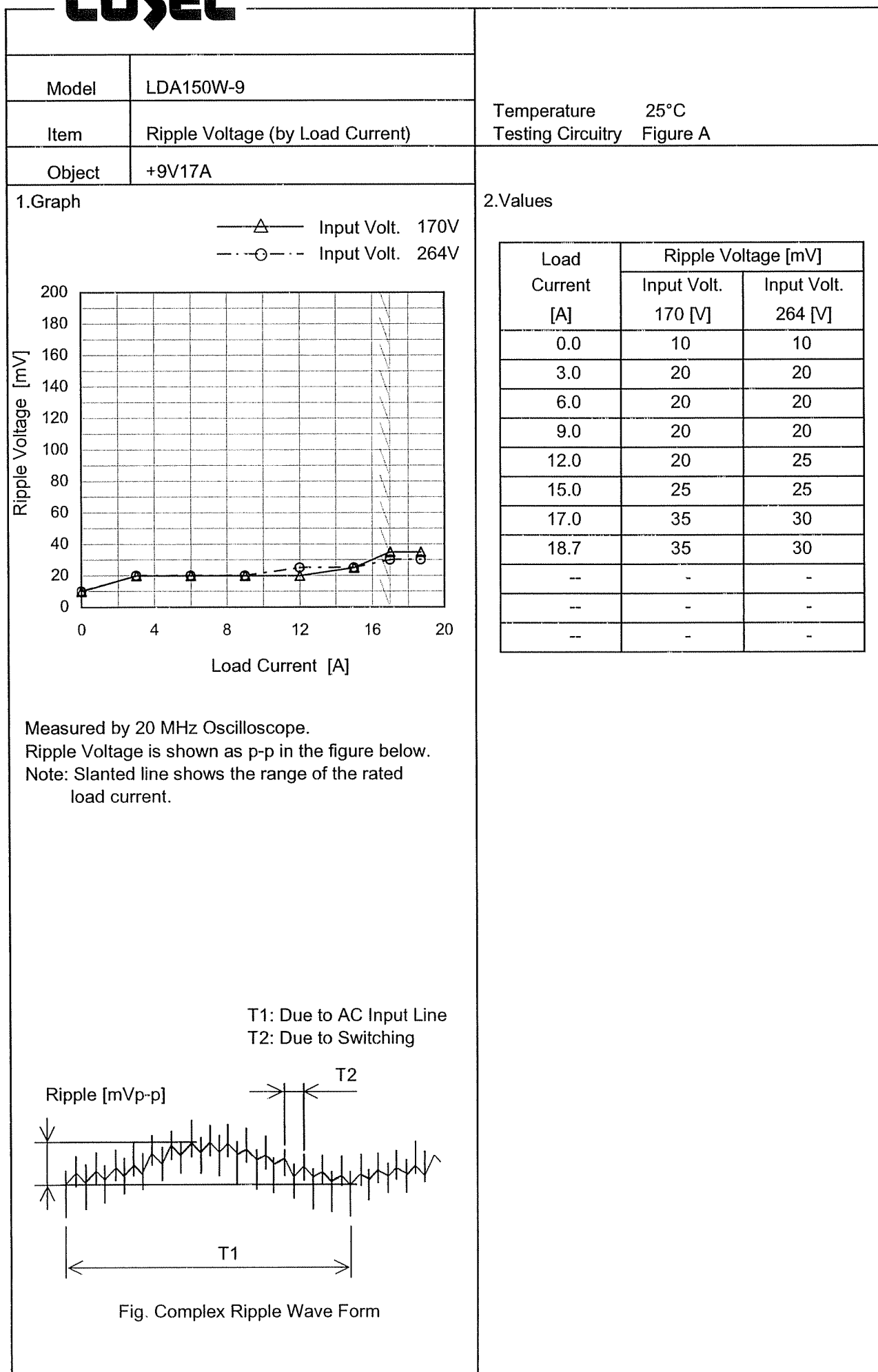
100 mV/div



10 ms/div



10 ms/div



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<div>Measured by 20 MHz Oscilloscope.</div> <div>Ripple-Noise is shown as p-p in the figure below.</div> <div>Note: Slanted line shows the range of the rated load current.</div>																																									
<div><div><div>T1: Due to AC Input Line</div><div>T2: Due to Switching</div></div><div>Ripple-Noise [mVp-p]</div><div>T1</div><div>T2</div></div>																																									
Fig. Complex Ripple Wave Form																																									

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Object		+9V17A																																																				
1.Graph		2.Values																																																				
<div><div><div>—△—</div><div>Input Volt. 170V</div></div><div><div>---□---</div><div>Input Volt. 200V</div></div><div><div>---○---</div><div>Input Volt. 264V</div></div></div> <div><p>Output Voltage [V]</p><p>Ambient Temperature [°C]</p><p>Load 100%</p><p>Note: Slanted line shows the range of the rated ambient temperature.</p></div>		<table><tr><th rowspan="2">Ambient Temperature [°C]</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><tr><td>-20</td><td>9.001</td><td>9.002</td><td>9.002</td></tr><tr><td>-10</td><td>9.002</td><td>9.002</td><td>9.003</td></tr><tr><td>0</td><td>9.002</td><td>9.003</td><td>9.003</td></tr><tr><td>10</td><td>9.003</td><td>9.003</td><td>9.003</td></tr><tr><td>20</td><td>9.002</td><td>9.002</td><td>9.003</td></tr><tr><td>25</td><td>9.002</td><td>9.002</td><td>9.002</td></tr><tr><td>30</td><td>9.001</td><td>9.001</td><td>9.001</td></tr><tr><td>40</td><td>8.999</td><td>8.999</td><td>8.999</td></tr><tr><td>50</td><td>8.994</td><td>8.994</td><td>8.994</td></tr><tr><td>60</td><td>8.989</td><td>8.989</td><td>8.989</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]	-20	9.001	9.002	9.002	-10	9.002	9.002	9.003	0	9.002	9.003	9.003	10	9.003	9.003	9.003	20	9.002	9.002	9.003	25	9.002	9.002	9.002	30	9.001	9.001	9.001	40	8.999	8.999	8.999	50	8.994	8.994	8.994	60	8.989	8.989	8.989	--	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																					
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]																																																			
-20	9.001	9.002	9.002																																																			
-10	9.002	9.002	9.003																																																			
0	9.002	9.003	9.003																																																			
10	9.003	9.003	9.003																																																			
20	9.002	9.002	9.003																																																			
25	9.002	9.002	9.002																																																			
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50	8.994	8.994	8.994																																																			
60	8.989	8.989	8.989																																																			
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		Testing Circuitry Figure A
Model	LDA150W-9	
Item	Output Voltage Accuracy	
Object	+9V17A	

### 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 : 0 - 50°C

Input Voltage : 170 - 264V

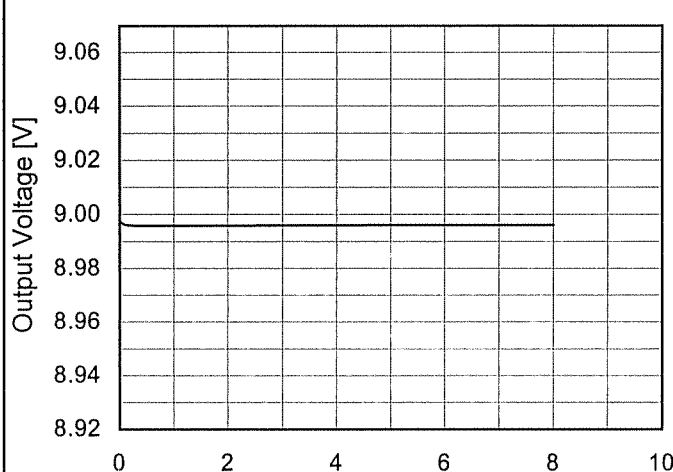
Load Current : 0 - 17A

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

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

### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	0	200	0	9.003	±5	±0.1
Minimum Voltage	50	170	17	8.993		

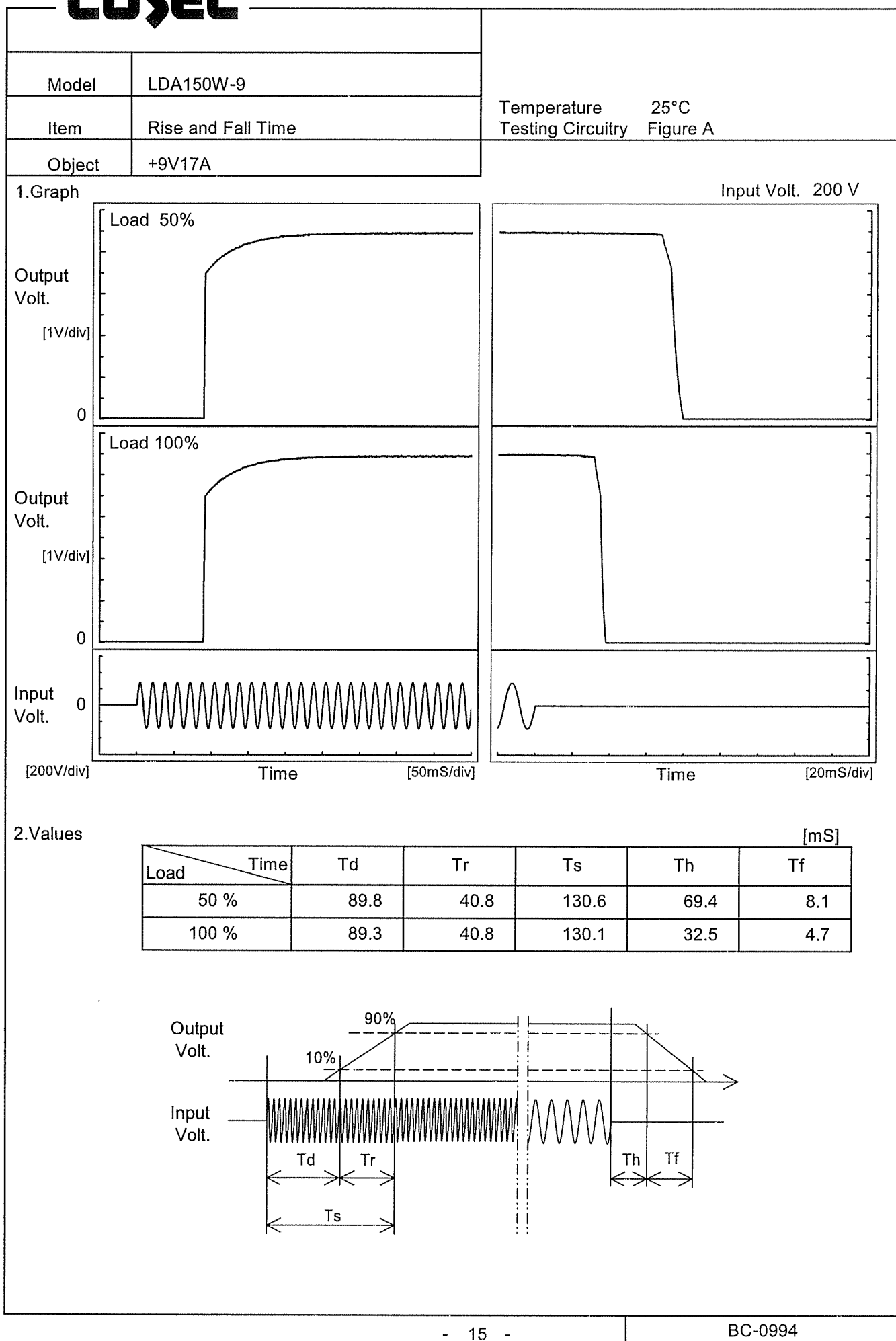
Model	LDA150W-9																								
Item	Time Lapse Drift	Temperature	25°C																						
		Testing Circuitry	Figure A																						
Object	+9V17A																								
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 200V</p><p>Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>8.998</td></tr><tr><td>0.5</td><td>8.996</td></tr><tr><td>1.0</td><td>8.996</td></tr><tr><td>2.0</td><td>8.996</td></tr><tr><td>3.0</td><td>8.996</td></tr><tr><td>4.0</td><td>8.996</td></tr><tr><td>5.0</td><td>8.996</td></tr><tr><td>6.0</td><td>8.996</td></tr><tr><td>7.0</td><td>8.996</td></tr><tr><td>8.0</td><td>8.996</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	8.998	0.5	8.996	1.0	8.996	2.0	8.996	3.0	8.996	4.0	8.996	5.0	8.996	6.0	8.996	7.0	8.996	8.0	8.996
Time since start [H]	Output Voltage [V]																								
0.0	8.998																								
0.5	8.996																								
1.0	8.996																								
2.0	8.996																								
3.0	8.996																								
4.0	8.996																								
5.0	8.996																								
6.0	8.996																								
7.0	8.996																								
8.0	8.996																								

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# COSEL



BC-0994

Model	LDA150W-9	Temperature	25°C																																																			
Item	Instantaneous Interruption Compensation	Testing Circuitry	Figure A																																																			
Object	+9V17A																																																					
1.Graph		2.Values																																																				
<div><div><div>—△—</div><div>Input Volt.</div><div>170V</div></div><div><div>---□---</div><div>Input Volt.</div><div>200V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>264V</div></div></div> <div>Instantaneous Compensation Time [ms]</div> <div>Load Current [A]</div> <div>Note: Slanted line shows the range of the rated load current.</div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</th></tr><tr><th>Input Volt. 170[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 264[V]</th></tr><tr><td>0.0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>3.0</td><td>131</td><td>191</td><td>360</td></tr><tr><td>6.0</td><td>67</td><td>105</td><td>197</td></tr><tr><td>9.0</td><td>43</td><td>70</td><td>131</td></tr><tr><td>12.0</td><td>32</td><td>50</td><td>97</td></tr><tr><td>15.0</td><td>25</td><td>40</td><td>77</td></tr><tr><td>17.0</td><td>20</td><td>35</td><td>66</td></tr><tr><td>18.7</td><td>20</td><td>31</td><td>62</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></table>		Load Current [A]	Time [ms]			Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]	0.0	-	-	-	3.0	131	191	360	6.0	67	105	197	9.0	43	70	131	12.0	32	50	97	15.0	25	40	77	17.0	20	35	66	18.7	20	31	62	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Time [ms]																																																					
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]																																																			
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6.0	67	105	197																																																			
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12.0	32	50	97																																																			
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Model	LDA150W-9																																																																						
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry    Figure A																																																																					
Object	+9V17A																																																																						
1.Graph		2.Values																																																																					
<div><div>---□---    Load 50%</div><div>—△—       Load 100%</div></div> <table border="1"><caption>Data for Graph: Minimum Input Voltage vs Ambient Temperature</caption><thead><tr><th>Ambient Temperature [°C]</th><th>Load 50% [V]</th><th>Load 100% [V]</th></tr></thead><tbody><tr><td>-20</td><td>52</td><td>63</td></tr><tr><td>-10</td><td>52</td><td>62</td></tr><tr><td>0</td><td>51</td><td>62</td></tr><tr><td>10</td><td>51</td><td>62</td></tr><tr><td>20</td><td>51</td><td>62</td></tr><tr><td>30</td><td>51</td><td>62</td></tr><tr><td>40</td><td>51</td><td>62</td></tr><tr><td>50</td><td>51</td><td>62</td></tr><tr><td>60</td><td>51</td><td>62</td></tr></tbody></table>		Ambient Temperature [°C]	Load 50% [V]	Load 100% [V]	-20	52	63	-10	52	62	0	51	62	10	51	62	20	51	62	30	51	62	40	51	62	50	51	62	60	51	62	<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Input Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>-20</td><td>52</td><td>63</td></tr><tr><td>-10</td><td>52</td><td>62</td></tr><tr><td>0</td><td>51</td><td>62</td></tr><tr><td>10</td><td>51</td><td>62</td></tr><tr><td>20</td><td>51</td><td>62</td></tr><tr><td>25</td><td>51</td><td>62</td></tr><tr><td>30</td><td>51</td><td>62</td></tr><tr><td>40</td><td>51</td><td>62</td></tr><tr><td>50</td><td>51</td><td>62</td></tr><tr><td>60</td><td>51</td><td>62</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Input Voltage [V]		Load 50%	Load 100%	-20	52	63	-10	52	62	0	51	62	10	51	62	20	51	62	25	51	62	30	51	62	40	51	62	50	51	62	60	51	62	--	-	-
Ambient Temperature [°C]	Load 50% [V]	Load 100% [V]																																																																					
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Note: Slanted line shows the range of the rated ambient temperature.																																																																							

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Model	LDA150W-9																																																									
Item	Overcurrent Protection	Temperature	25°C																																																							
Object	+9V17A	Testing Circuitry	Figure A																																																							
1.Graph		2.Values																																																								
<div><div><div></div>Input Volt. 170V</div><div><div></div>Input Volt. 200V</div><div><div></div>Input Volt. 264V</div></div> <p>Note: Slanted line shows the range of the rated load current.</p>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 170[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 264[V]</th></tr><tr><td>9.00</td><td>18.07</td><td>17.98</td><td>18.00</td></tr><tr><td>8.55</td><td>21.38</td><td>21.37</td><td>21.51</td></tr><tr><td>8.10</td><td>21.42</td><td>21.42</td><td>21.50</td></tr><tr><td>7.20</td><td>21.52</td><td>21.57</td><td>21.58</td></tr><tr><td>6.30</td><td>21.64</td><td>21.62</td><td>21.70</td></tr><tr><td>5.40</td><td>21.68</td><td>21.73</td><td>21.81</td></tr><tr><td>4.50</td><td>21.78</td><td>21.78</td><td>21.84</td></tr><tr><td>3.60</td><td>21.83</td><td>21.87</td><td>21.90</td></tr><tr><td>2.70</td><td>21.90</td><td>21.92</td><td>21.96</td></tr><tr><td>1.80</td><td>21.95</td><td>21.91</td><td>21.84</td></tr><tr><td>0.90</td><td>21.66</td><td>21.58</td><td>21.40</td></tr><tr><td>0.00</td><td>21.33</td><td>21.21</td><td>21.05</td></tr></table>		Output Voltage [V]	Load Current [A]			Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]	9.00	18.07	17.98	18.00	8.55	21.38	21.37	21.51	8.10	21.42	21.42	21.50	7.20	21.52	21.57	21.58	6.30	21.64	21.62	21.70	5.40	21.68	21.73	21.81	4.50	21.78	21.78	21.84	3.60	21.83	21.87	21.90	2.70	21.90	21.92	21.96	1.80	21.95	21.91	21.84	0.90	21.66	21.58	21.40	0.00	21.33	21.21	21.05
Output Voltage [V]	Load Current [A]																																																									
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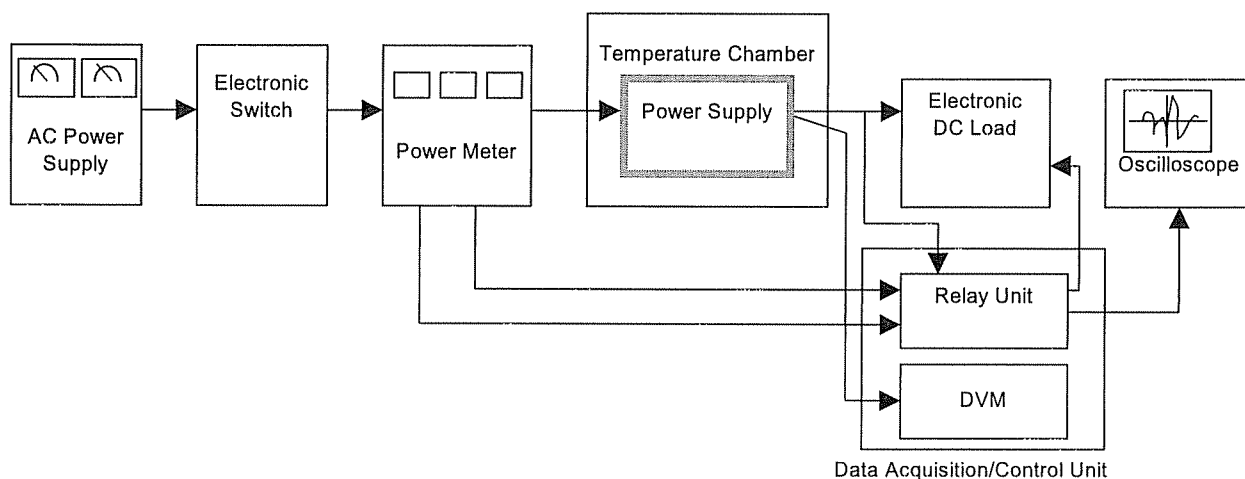


Figure A

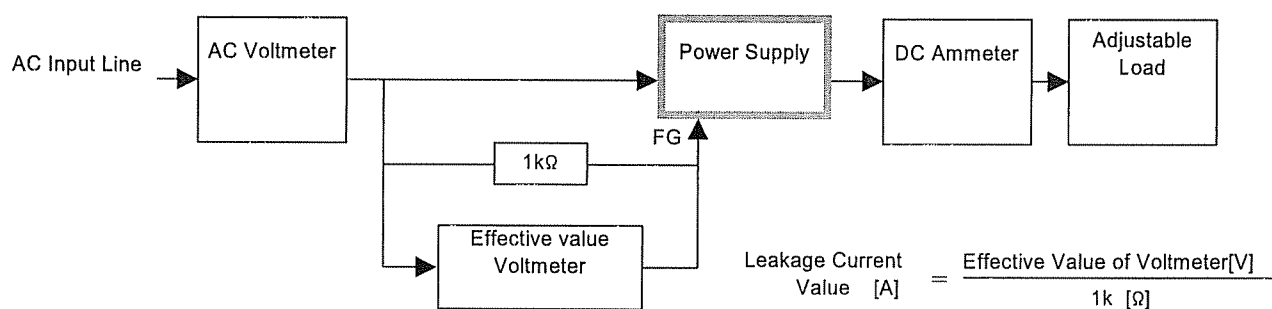


Figure B ( DEN-AN )

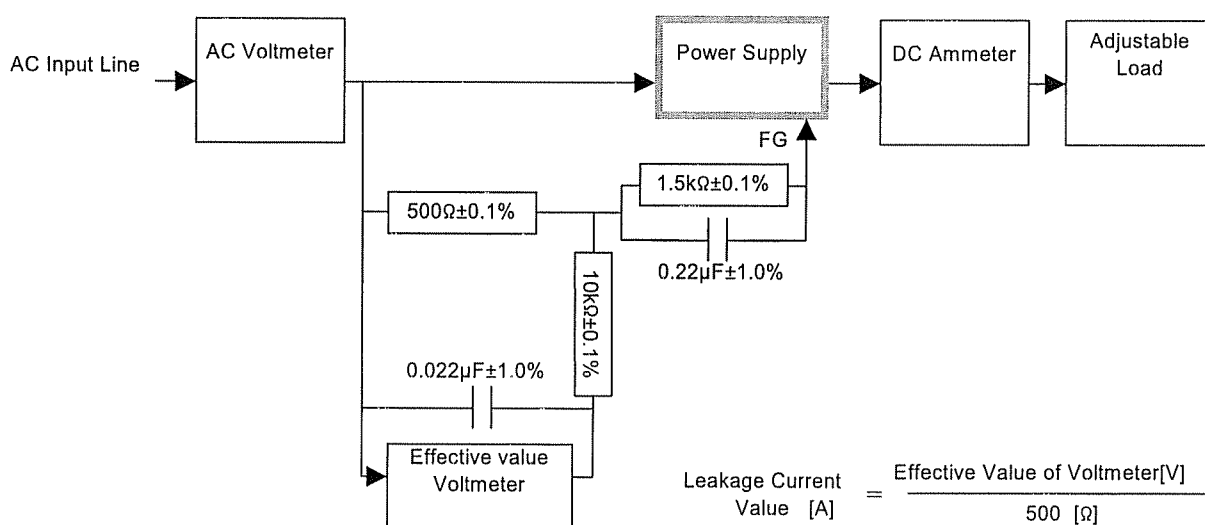


Figure B ( IEC60950 )