



TEST DATA OF LDA150W-18

(100V INPUT)

Regulated DC Power Supply
Feb.14. 2005

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K. Shiho Design Manager

Prepared by : S. Ueda
S. Ueda Design Engineer

COSEL CO.,LTD.



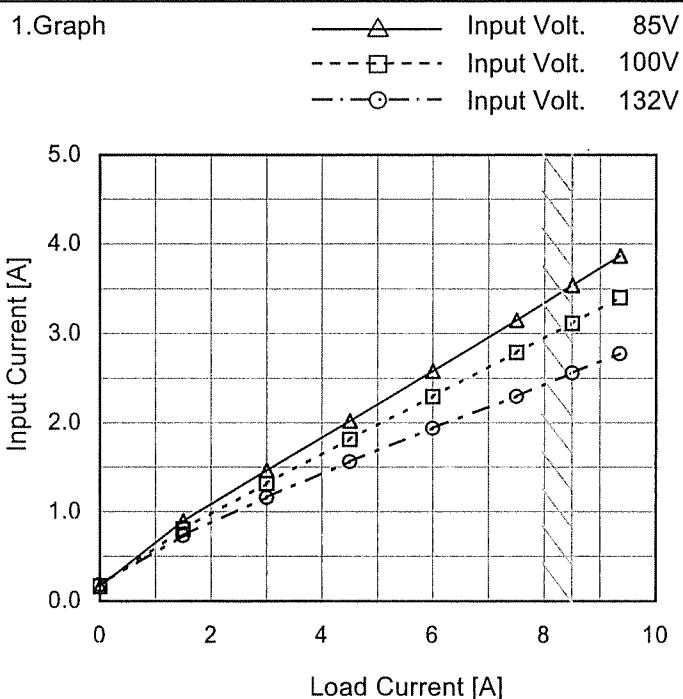
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Model	LDA150W-18
Item	Input Current (by Load Current)
Object	_____



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

Temperature 25°C
Testing Circuitry Figure A

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	0.164	0.169	0.184
1.50	0.898	0.803	0.731
3.00	1.466	1.318	1.160
4.50	2.024	1.814	1.562
6.00	2.581	2.294	1.940
7.50	3.150	2.791	2.299
8.50	3.541	3.116	2.561
9.35	3.870	3.400	2.775
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--	-	-	-

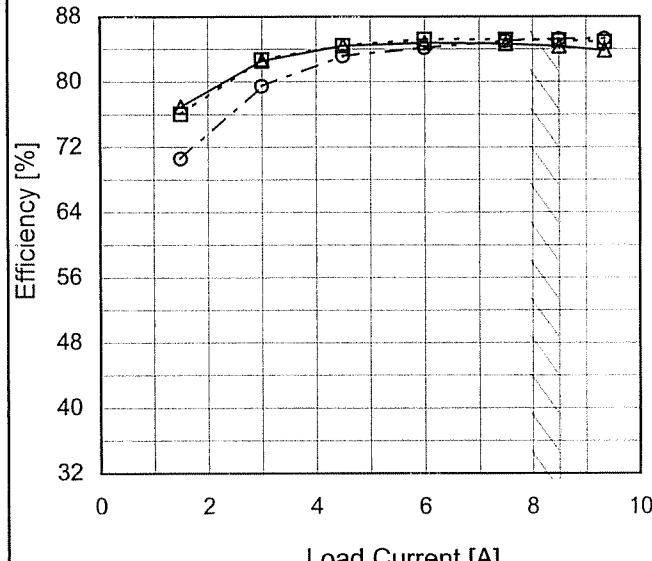
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Model	LDA150W-18																																																					
Item	Input Power (by Load Current)	Temperature Testing Circuitry	25°C Figure A																																																			
Object	_____																																																					
1.Graph	<p>—△— Input Volt. 85V ---□--- Input Volt. 100V ---○--- Input Volt. 132V</p>																																																					
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1.Graph																																		
<p>The graph plots Efficiency [%] on the y-axis (60 to 88) 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 efficiency increasing slightly with input voltage. A slanted line 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>83.7</td><td>82.0</td></tr> <tr><td>80</td><td>83.9</td><td>83.7</td></tr> <tr><td>85</td><td>84.2</td><td>84.3</td></tr> <tr><td>90</td><td>85.0</td><td>84.6</td></tr> <tr><td>100</td><td>84.4</td><td>85.1</td></tr> <tr><td>110</td><td>83.9</td><td>85.3</td></tr> <tr><td>120</td><td>83.3</td><td>85.3</td></tr> <tr><td>132</td><td>82.5</td><td>85.2</td></tr> <tr><td>140</td><td>81.9</td><td>85.1</td></tr> </tbody> </table>			Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	75	83.7	82.0	80	83.9	83.7	85	84.2	84.3	90	85.0	84.6	100	84.4	85.1	110	83.9	85.3	120	83.3	85.3	132	82.5	85.2	140	81.9	85.1		
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Model	LDA150W-18
Item	Efficiency (by Load Current)
Object	_____
1.Graph	
<p style="text-align: center;"> —△— Input Volt. 85V ---□--- Input Volt. 100V —○— Input Volt. 132V </p>  <p>The graph plots Efficiency [%] on the Y-axis (32 to 88) against Load Current [A] on the X-axis (0 to 10). Three data series are shown for input voltages of 85V, 100V, and 132V. The 85V series (triangles) starts at ~75% efficiency at 1A and rises to ~85% at 10A. The 100V series (squares) starts at ~78% at 1A and rises to ~85% at 10A. The 132V series (circles) starts at ~72% at 1A and rises to ~85% at 10A. A slanted line connects the points (2, 80), (4, 85), (6, 85), (8, 85), and (10, 85), representing the rated load current range.</p>	

Temperature 25°C
 Testing Circuitry Figure A

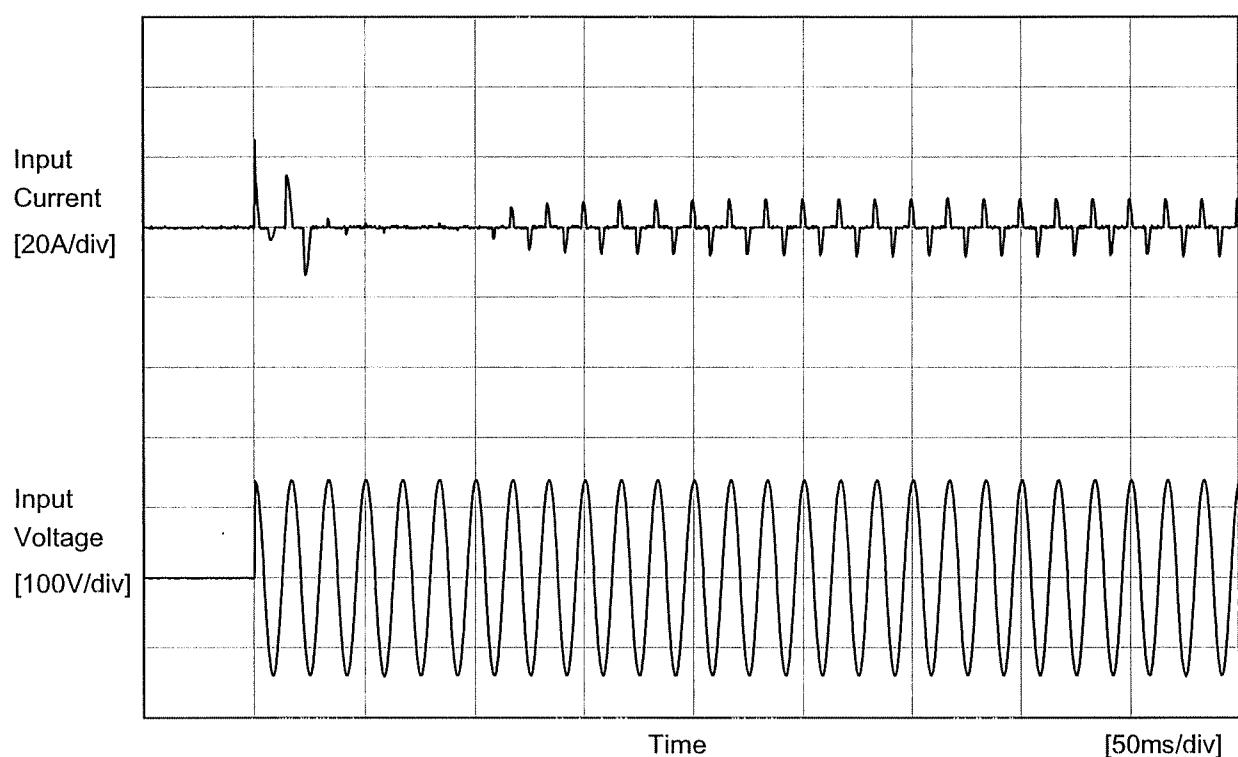
2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
0.00	-	-	-
1.50	77.0	76.1	70.6
3.00	82.6	82.7	79.5
4.50	84.5	84.4	83.1
6.00	84.8	85.2	84.2
7.50	84.7	85.1	85.0
8.50	84.4	85.1	85.2
9.35	83.8	84.9	85.2
--	-	-	-
--	-	-	-
--	-	-	-

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

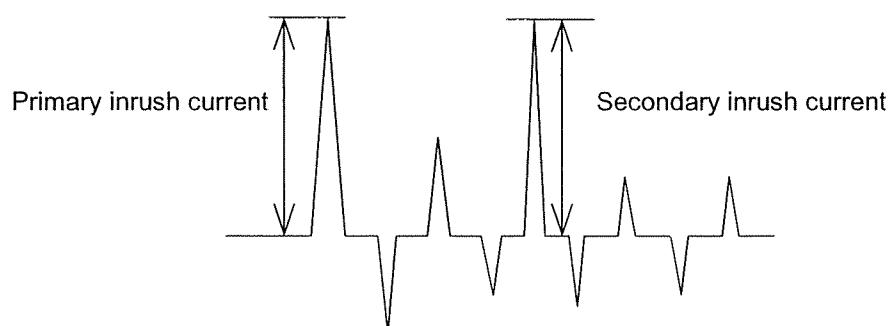
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Model	LDA150W-18	Temperature Testing Circuitry	25°C Figure A
Item	Inrush Current		
Object	<hr/>		



Input Voltage 100 V
 Frequency 60 Hz
 Load 100 %

Primary inrush current 24.7 A
 Secondary inrush current 14.8 A

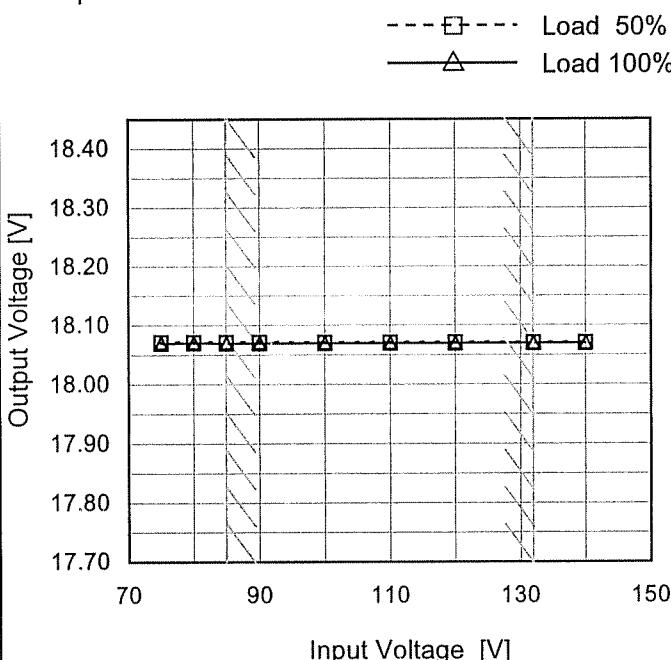




Model	LDA150W-18
Item	Line Regulation
Object	+18V8.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

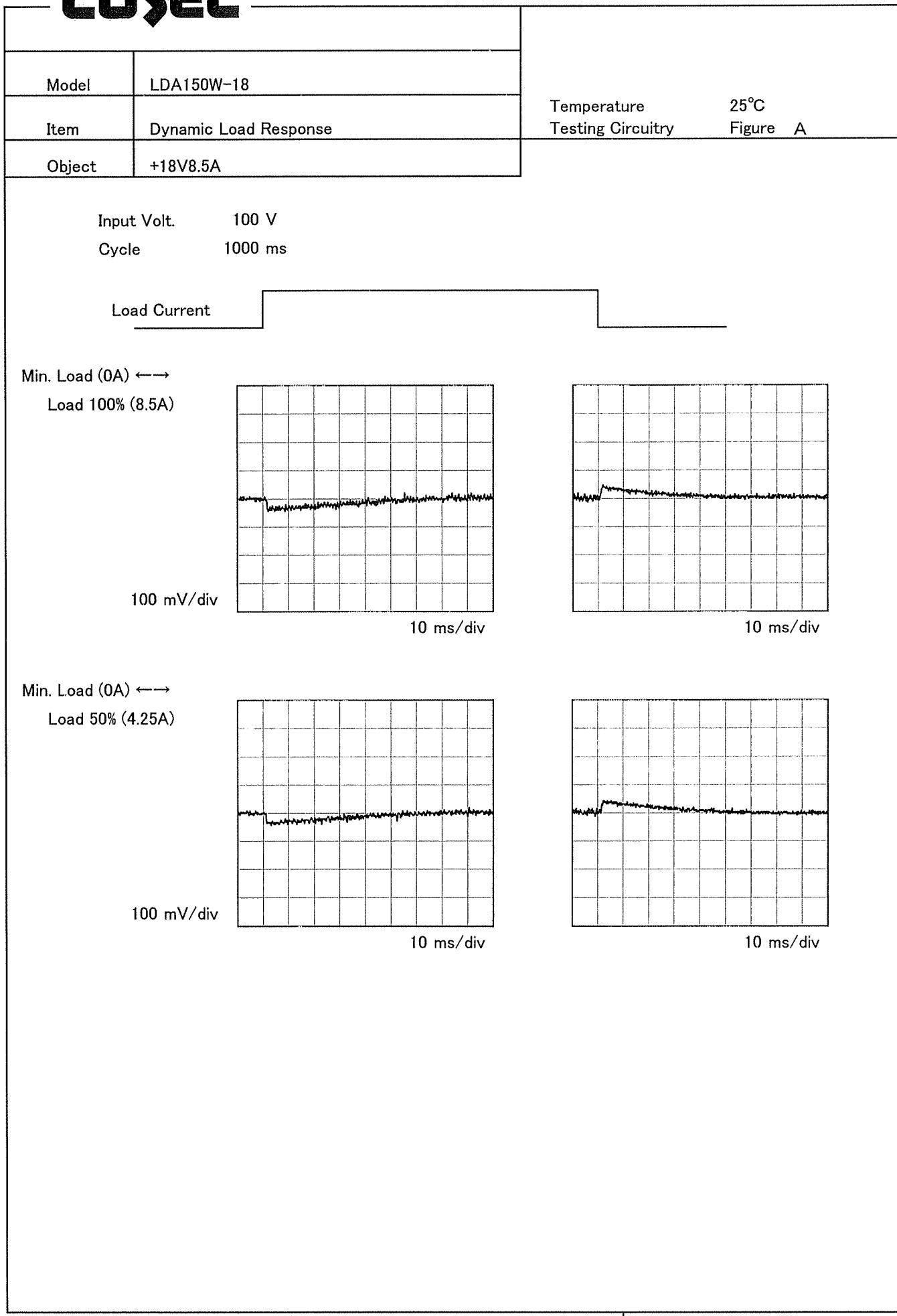
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	18.072	18.070
80	18.071	18.070
85	18.071	18.070
90	18.071	18.070
100	18.071	18.070
110	18.071	18.070
120	18.071	18.070
132	18.071	18.070
140	18.071	18.070

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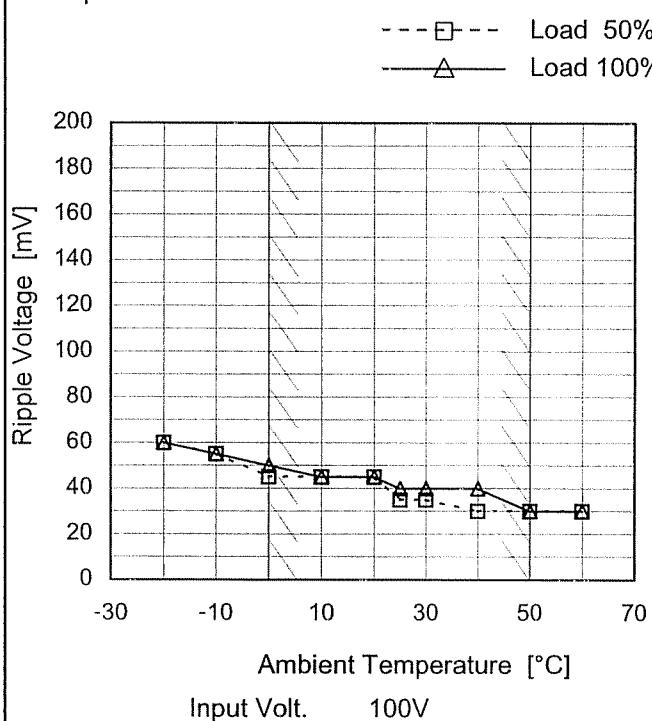
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<p>Measured by 20 MHz Oscilloscope. Ripple Voltage is shown as p-p in the figure below. Note: Slanted line shows the range of the rated load current.</p>																																								
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2.Values																																								
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Load Current [A]	Ripple-Noise [mV]																																							
	Input Volt. 85 [V]	Input Volt. 132 [V]																																						
0.00	15	20																																						
1.50	30	45																																						
3.00	35	50																																						
4.50	40	60																																						
6.00	50	65																																						
7.50	50	70																																						
8.50	50	75																																						
9.35	60	80																																						
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<p>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.</p>																																								
<p>T1: Due to AC Input Line T2: Due to Switching</p> <p>Ripple-Noise [mVp-p]</p>																																								
<p>Fig. Complex Ripple Wave Form</p>																																								

Model	LDA150W-18
Item	Ripple Voltage (by Ambient Temp.)
Object	+18V8.5A

1.Graph



Measured by 20 MHz Oscilloscope.

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

Testing Circuitry Figure A

2.Values

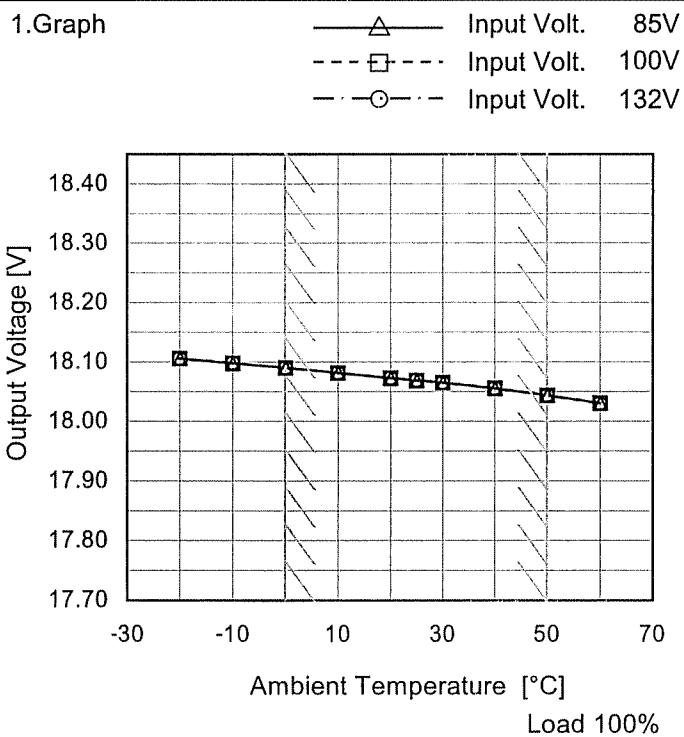
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-20	60	60
-10	55	55
0	45	50
10	45	45
20	45	45
25	35	40
30	35	40
40	30	40
50	30	30
60	30	30
--	-	-

COSEL

Model LDA150W-18

Item Ambient Temperature Drift

Object +18V8.5A



Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	18.106	18.106	18.106
-10	18.098	18.098	18.098
0	18.091	18.090	18.090
10	18.082	18.082	18.082
20	18.073	18.073	18.073
25	18.069	18.069	18.069
30	18.066	18.066	18.065
40	18.056	18.056	18.056
50	18.044	18.044	18.044
60	18.031	18.031	18.030
--	-	-	-

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



Model	LDA150W-18	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+18V8.5A	

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 : 85 - 132V

Load Current : 0 - 8.5A

* 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

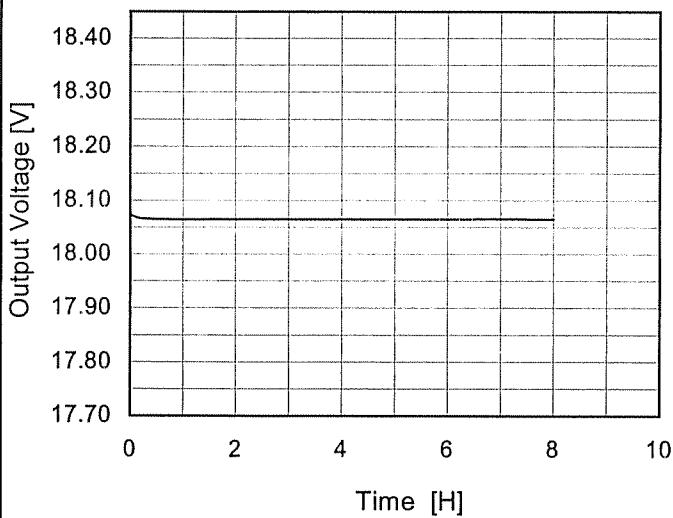
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	0	85	0	18.089	± 24	± 0.1
Minimum Voltage	50	85	8.5	18.041		

coSEL

Model	LDA150W-18
Item	Time Lapse Drift
Object	+18V8.5A

 Temperature 25°C
 Testing Circuitry Figure A

1.Graph



2.Values

Time since start [H]	Output Voltage [V]
0.0	18.077
0.5	18.065
1.0	18.065
2.0	18.065
3.0	18.066
4.0	18.066
5.0	18.065
6.0	18.065
7.0	18.066
8.0	18.065

COSEL

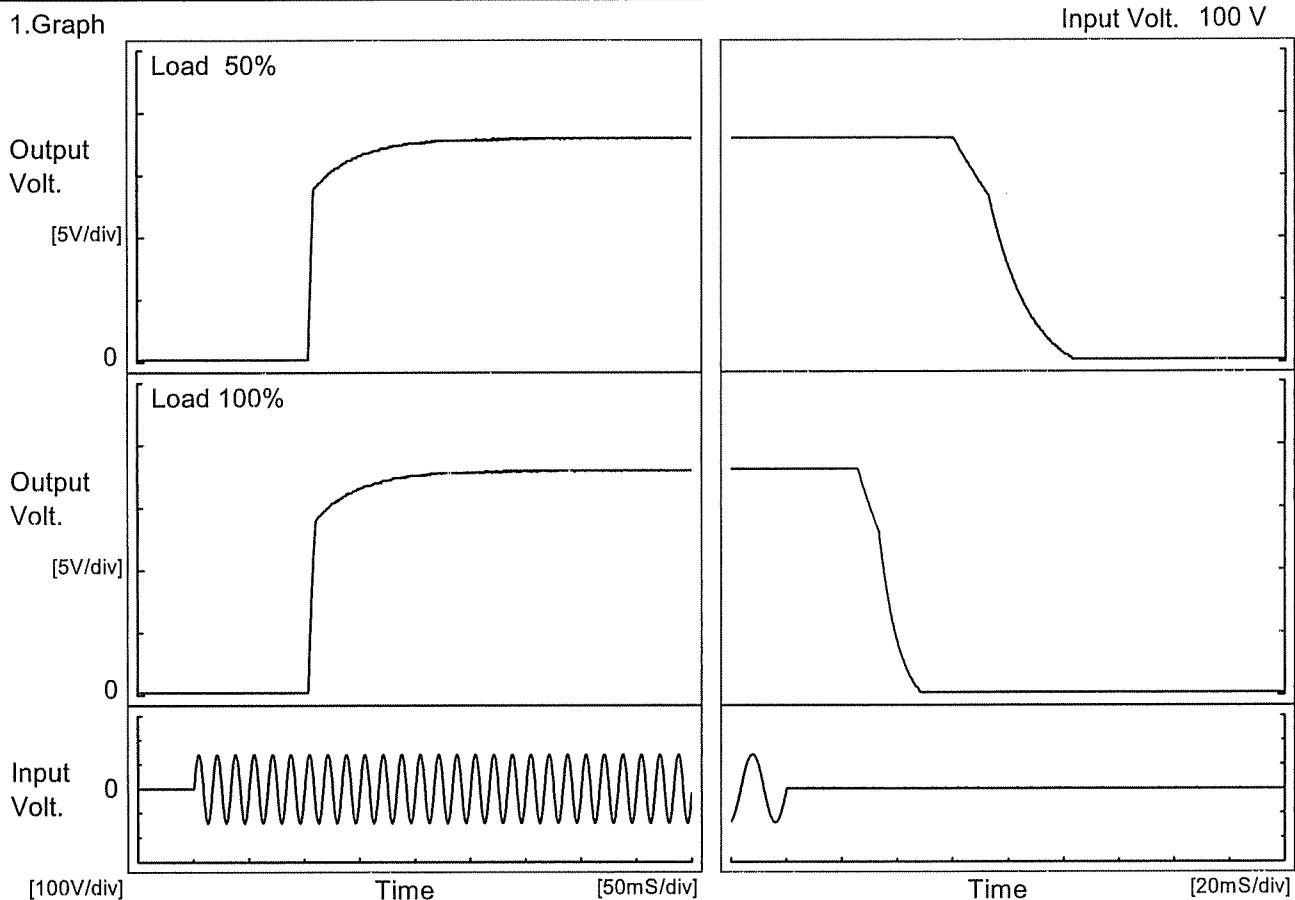
Model LDA150W-18

Item Rise and Fall Time

Object +18V8.5A

Temperature 25°C
Testing Circuitry Figure A

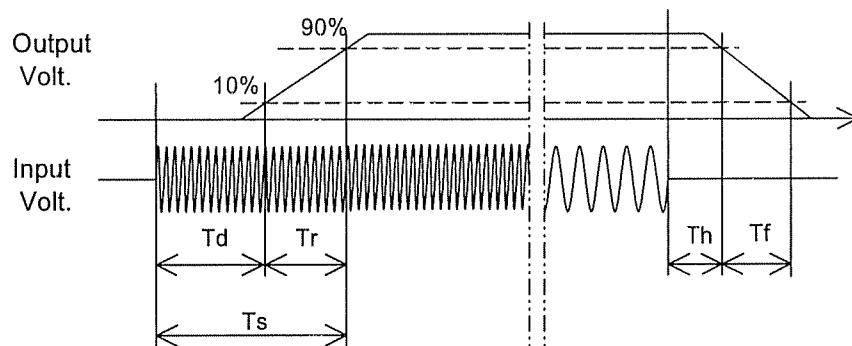
1.Graph



2.Values

[mS]

Load	Time	Td	Tr	Ts	Th	Tf
50 %		104.3	39.5	143.8	64.0	29.6
100 %		104.0	41.0	145.0	28.1	15.5

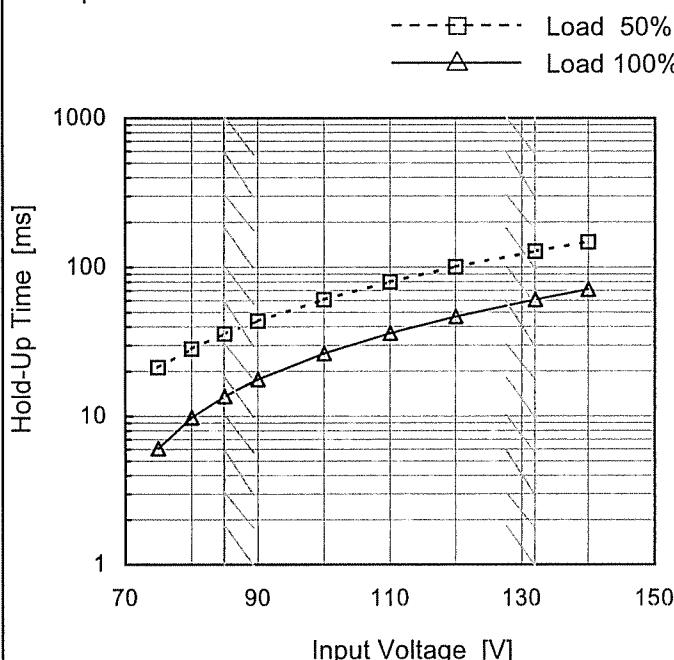


COSEL

Model	LDA150W-18
Item	Hold-Up Time
Object	+18V8.5A

Temperature 25°C
 Testing Circuitry Figure A

1.Graph



2.Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
75	21	6
80	28	10
85	36	14
90	44	18
100	61	27
110	80	36
120	101	47
132	128	61
140	147	71

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.

Model	LDA150W-18																																																					
Item	Instantaneous Interruption Compensation																																																					
Object	+18V8.5A																																																					
1.Graph	—△— Input Volt. 85V ---□--- Input Volt. 100V —○— Input Volt. 132V																																																					
<p>The graph plots Instantaneous Compensation Time [ms] on a logarithmic Y-axis (1 to 1000) against Load Current [A] on the X-axis (0 to 10). Three curves are shown for different input voltages: 85V (solid line with triangles), 100V (dashed line with squares), and 132V (dash-dot line with circles). All curves show a decrease in compensation time as load current increases. A slanted line on the graph indicates 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">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>1.50</td> <td>99</td> <td>170</td> <td>341</td> </tr> <tr> <td>3.00</td> <td>50</td> <td>82</td> <td>196</td> </tr> <tr> <td>4.50</td> <td>26</td> <td>50</td> <td>122</td> </tr> <tr> <td>6.00</td> <td>18</td> <td>34</td> <td>95</td> </tr> <tr> <td>7.50</td> <td>15</td> <td>26</td> <td>71</td> </tr> <tr> <td>8.50</td> <td>10</td> <td>18</td> <td>62</td> </tr> <tr> <td>9.35</td> <td>10</td> <td>17</td> <td>53</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]	Time [ms]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	0.00	-	-	-	1.50	99	170	341	3.00	50	82	196	4.50	26	50	122	6.00	18	34	95	7.50	15	26	71	8.50	10	18	62	9.35	10	17	53	--	-	-	-	--	-	-	-	--	-	-	-
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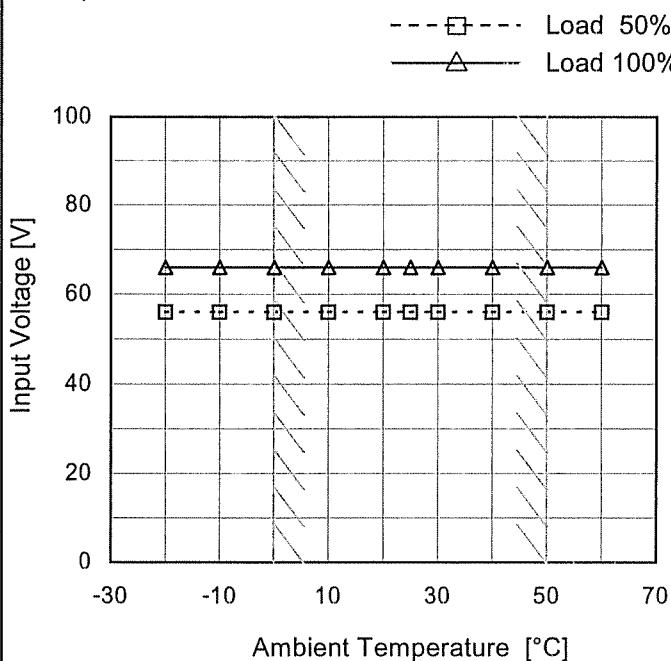
COSEL

Model LDA150W-18

Item Minimum Input Voltage
for Regulated Output Voltage

Object +18V8.5A

1.Graph



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

Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	56	66
-10	56	66
0	56	66
10	56	66
20	56	66
25	56	66
30	56	66
40	56	66
50	56	66
60	56	66
--	-	-

COSEL

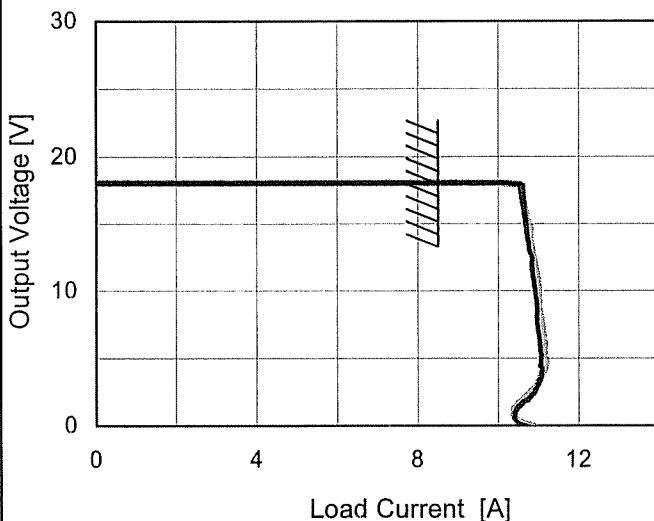
Model LDA150W-18

Item Overcurrent Protection

Object +18V8.5A

1. Graph

— Input Volt. 85V
 — Input Volt. 100V
 - - - - - Input Volt. 132V



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]
18.0	10.64	10.54	10.55
17.1	10.66	10.58	10.60
16.2	10.68	10.62	10.66
14.4	10.74	10.70	10.79
12.6	10.81	10.82	10.86
10.8	10.87	10.88	10.97
9.0	10.95	10.96	11.00
7.2	10.98	10.98	11.09
5.4	11.04	11.07	11.14
3.6	11.09	11.07	11.06
1.8	10.76	10.65	10.56
0.0	10.80	10.73	10.89

COSEL

Model	LDA150W-18	Testing Circuitry Figure A																																																					
Item	Ovv Protection																																																						
Object	+18V8.5A	2.Values																																																					
1.Graph	<p>Operating Point [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 0%</p> <p>Legend:</p> <ul style="list-style-type: none"> Input Volt. 85V Input Volt. 100V Input Volt. 132V 	<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="3">Operating Point [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>22.32</td> <td>22.21</td> <td>22.27</td> </tr> <tr> <td>-10</td> <td>22.50</td> <td>22.45</td> <td>22.38</td> </tr> <tr> <td>0</td> <td>22.62</td> <td>22.62</td> <td>22.62</td> </tr> <tr> <td>10</td> <td>22.86</td> <td>22.80</td> <td>22.80</td> </tr> <tr> <td>20</td> <td>22.97</td> <td>22.97</td> <td>22.97</td> </tr> <tr> <td>25</td> <td>23.09</td> <td>23.09</td> <td>23.03</td> </tr> <tr> <td>30</td> <td>23.21</td> <td>23.15</td> <td>23.09</td> </tr> <tr> <td>40</td> <td>23.32</td> <td>23.32</td> <td>23.32</td> </tr> <tr> <td>50</td> <td>23.50</td> <td>23.50</td> <td>23.50</td> </tr> <tr> <td>60</td> <td>23.62</td> <td>23.62</td> <td>23.62</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>			Ambient Temperature [°C]	Operating Point [V]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	-20	22.32	22.21	22.27	-10	22.50	22.45	22.38	0	22.62	22.62	22.62	10	22.86	22.80	22.80	20	22.97	22.97	22.97	25	23.09	23.09	23.03	30	23.21	23.15	23.09	40	23.32	23.32	23.32	50	23.50	23.50	23.50	60	23.62	23.62	23.62	--	-	-	-
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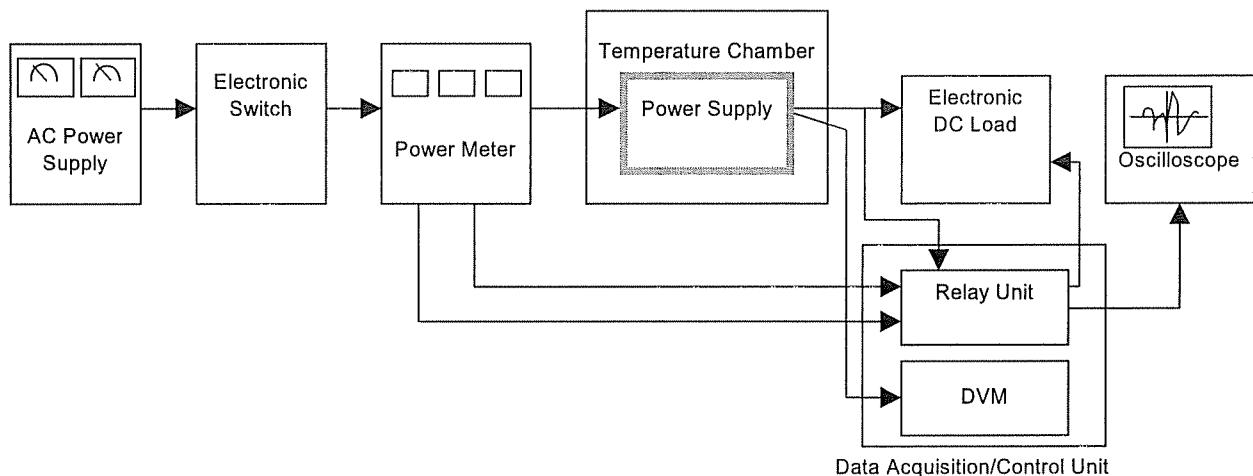


Figure A

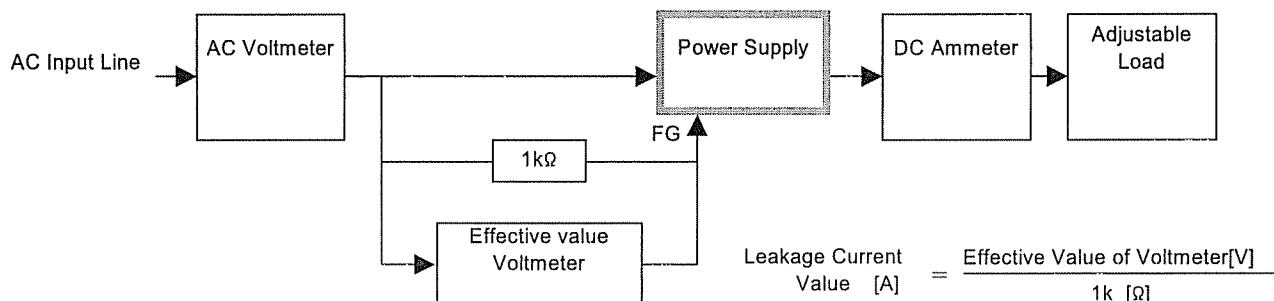


Figure B (DEN-AN)

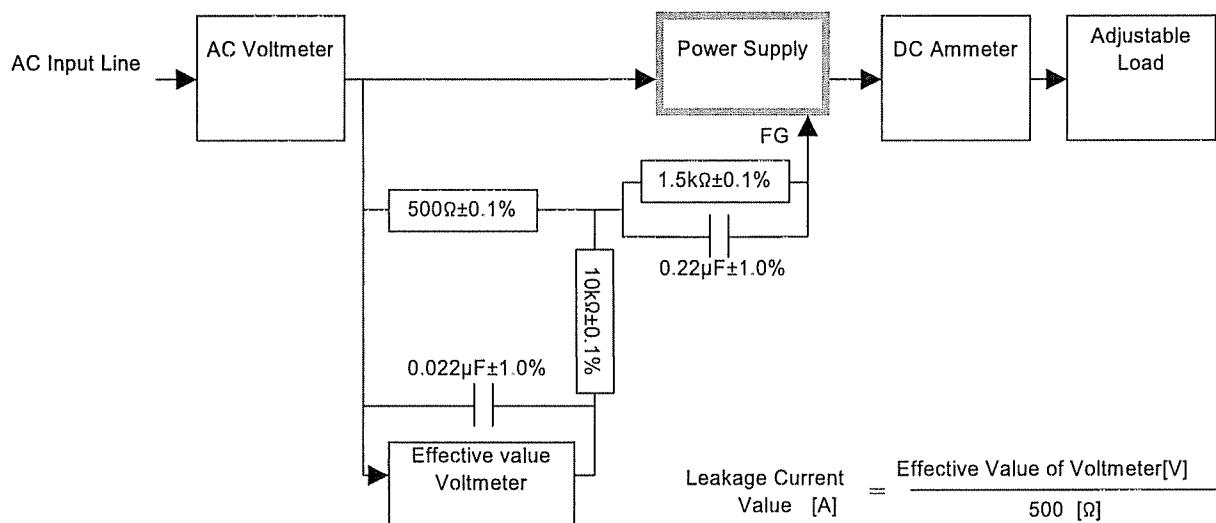


Figure B (IEC60950)