



# TEST DATA OF LDA75F-18

Regulated DC Power Supply  
Dec.7. 2004

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J.Uchida

Prepared by : A. Kawai Design Engineer  
A.Kawai

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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Model	LDA75F-18	Temperature Testing Circuitry	25°C Figure A																																																
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Note: Slanted line shows the range of the rated load current.

## 2.Values

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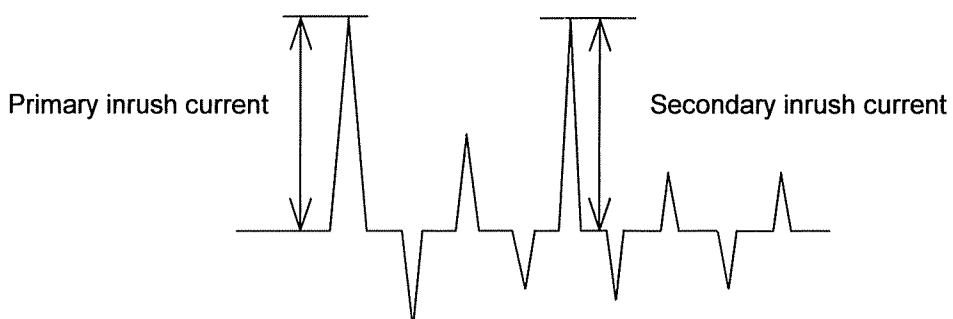
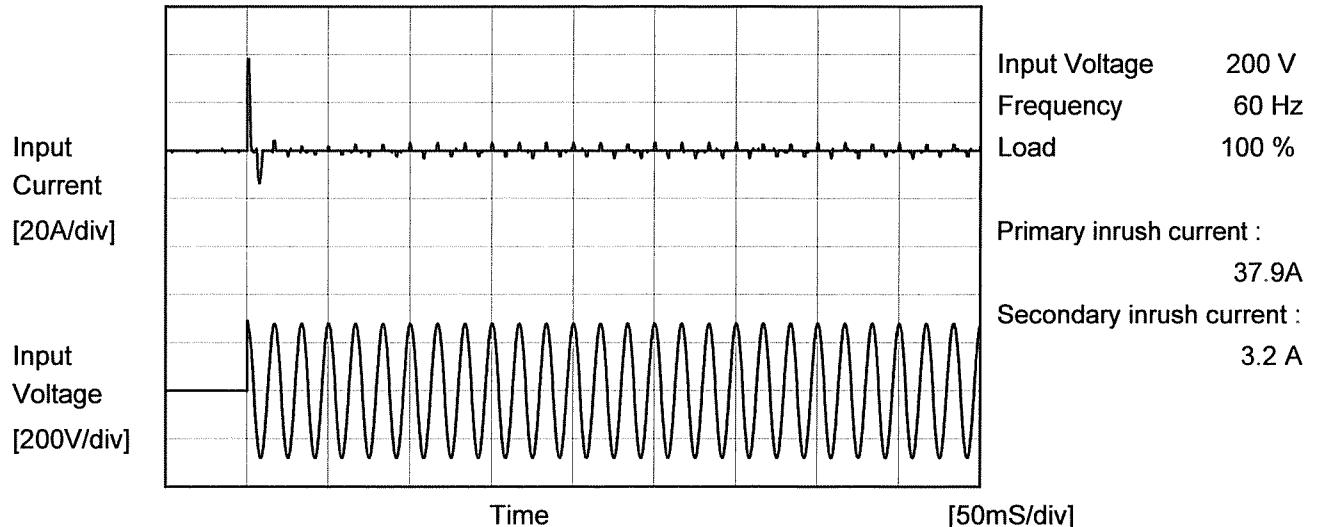
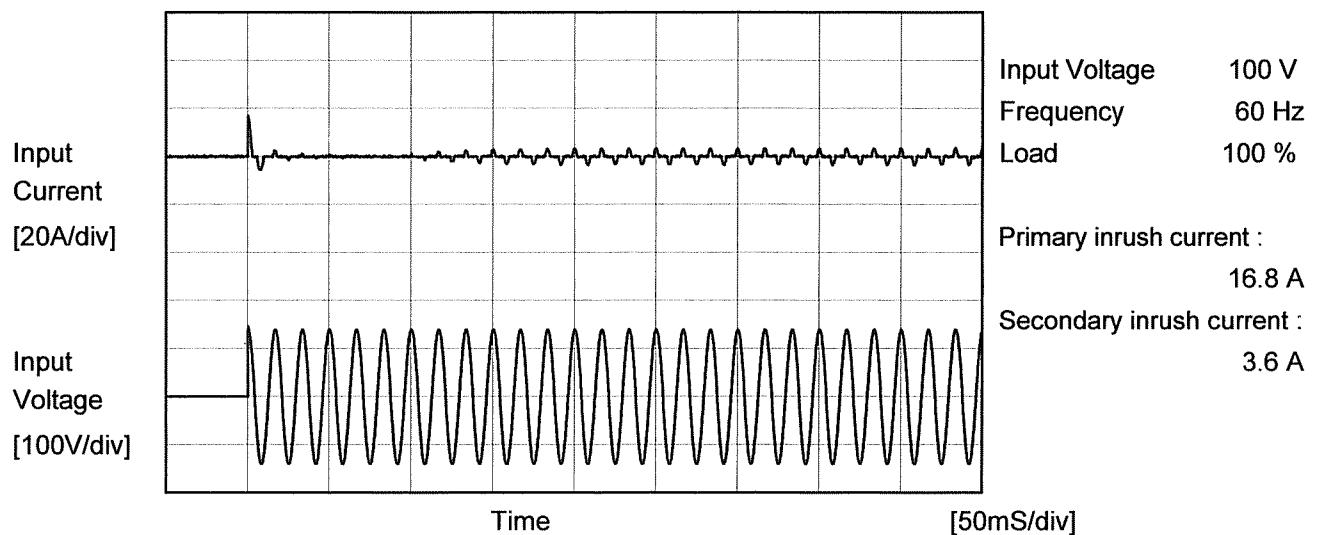
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<p>The graph plots Efficiency [%] on the y-axis (30 to 86) against Input Voltage [V] on the x-axis (50 to 300). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show a 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>85</td><td>83.1</td><td>83.8</td></tr> <tr><td>100</td><td>83.7</td><td>84.9</td></tr> <tr><td>120</td><td>83.1</td><td>85.2</td></tr> <tr><td>200</td><td>78.5</td><td>83.4</td></tr> <tr><td>230</td><td>76.1</td><td>82.6</td></tr> <tr><td>264</td><td>73.7</td><td>81.2</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>				Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	85	83.1	83.8	100	83.7	84.9	120	83.1	85.2	200	78.5	83.4	230	76.1	82.6	264	73.7	81.2	--	-	-	--	-	-	--	-	-
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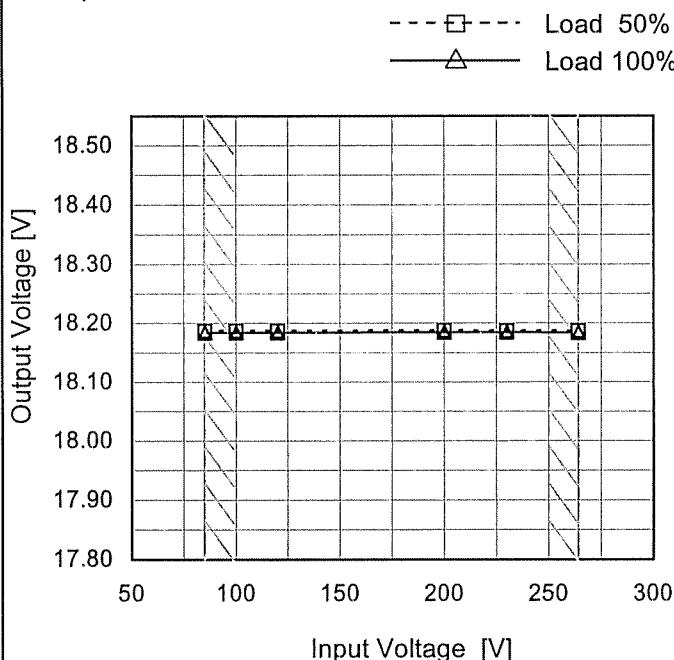
Model	LDA75F-18	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	_____		



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Model	LDA75F-18
Item	Line Regulation
Object	+18V4.2A

## 1.Graph



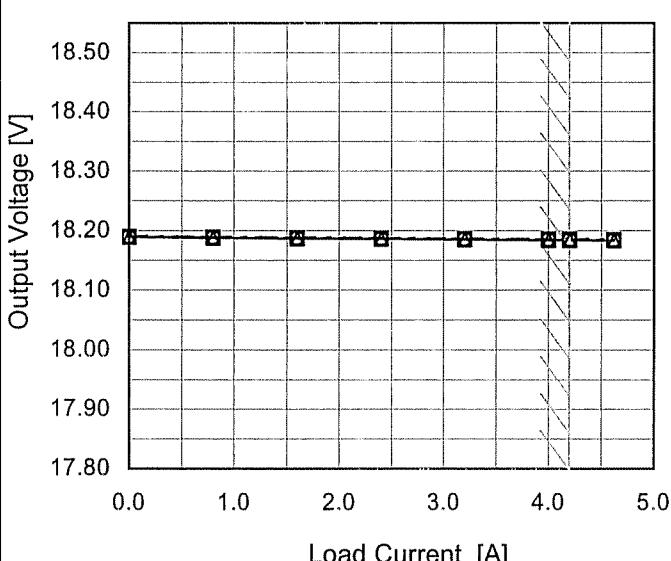
Note: Slanted line shows the range of the rated input voltage.

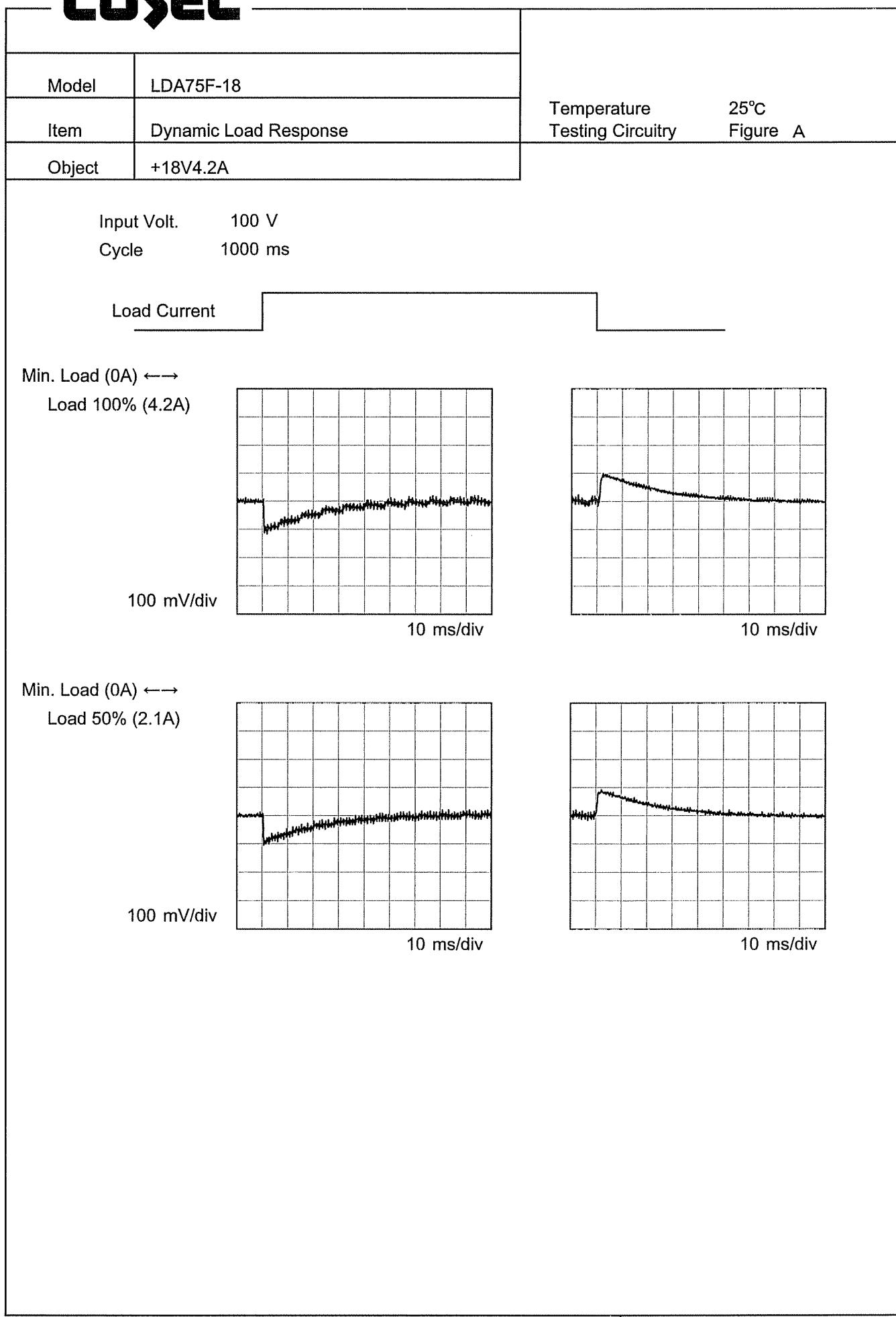
 Temperature 25°C  
 Testing Circuitry Figure A

## 2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	18.187	18.185
100	18.187	18.185
120	18.187	18.185
200	18.188	18.185
230	18.187	18.185
264	18.187	18.185
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**COSEL**

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<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Output Voltage [V]</th> </tr> <tr> <th>Input Volt. 100[V]</th> <th>Input Volt. 200[V]</th> <th>Input Volt. 230[V]</th> </tr> </thead> <tbody> <tr> <td>0.00</td> <td>18.190</td> <td>18.190</td> <td>18.190</td> </tr> <tr> <td>0.80</td> <td>18.188</td> <td>18.189</td> <td>18.189</td> </tr> <tr> <td>1.60</td> <td>18.187</td> <td>18.188</td> <td>18.188</td> </tr> <tr> <td>2.40</td> <td>18.186</td> <td>18.187</td> <td>18.187</td> </tr> <tr> <td>3.20</td> <td>18.185</td> <td>18.186</td> <td>18.186</td> </tr> <tr> <td>4.00</td> <td>18.184</td> <td>18.185</td> <td>18.185</td> </tr> <tr> <td>4.20</td> <td>18.184</td> <td>18.185</td> <td>18.184</td> </tr> <tr> <td>4.62</td> <td>18.184</td> <td>18.185</td> <td>18.184</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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.00	18.190	18.190	18.190	0.80	18.188	18.189	18.189	1.60	18.187	18.188	18.188	2.40	18.186	18.187	18.187	3.20	18.185	18.186	18.186	4.00	18.184	18.185	18.185	4.20	18.184	18.185	18.184	4.62	18.184	18.185	18.184	--	-	-	-	--	-	-	-	--	-	-	-
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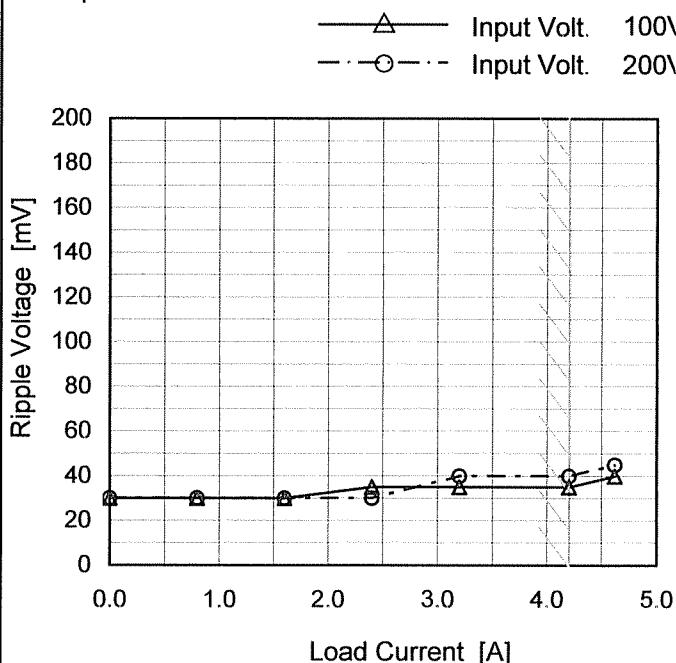
**COSEL**

COSEL

Model	LDA75F-18
Item	Ripple Voltage (by Load Current)
Object	+18V4.2A

Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



## 2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.00	30	30
0.80	30	30
1.60	30	30
2.40	35	30
3.20	35	40
4.20	35	40
4.62	40	45
--	-	-
--	-	-
--	-	-
--	-	-

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.

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

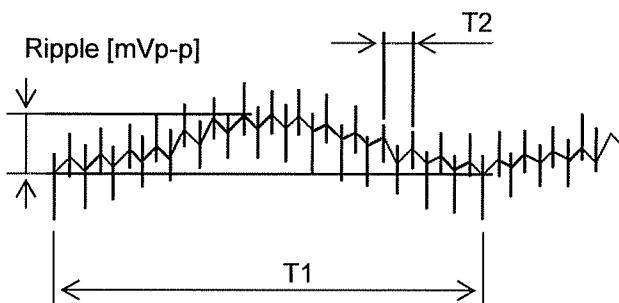


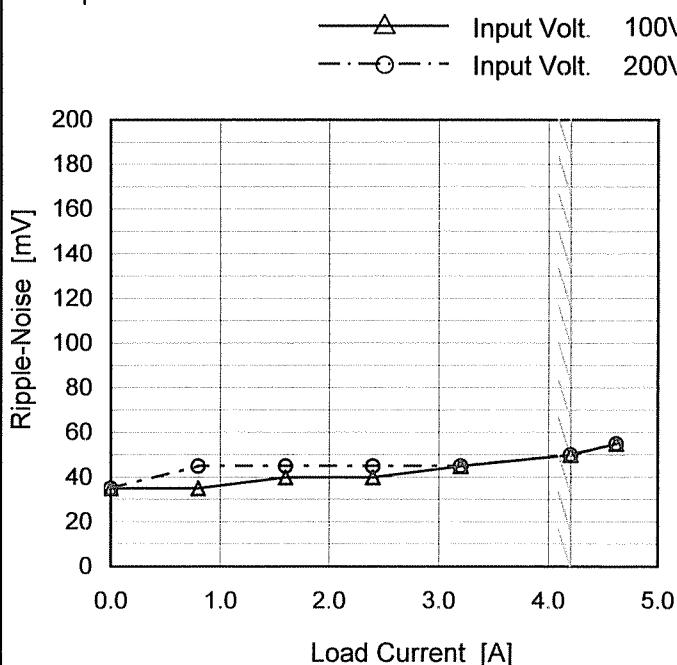
Fig. Complex Ripple Wave Form

**COSEL**

Model	LDA75F-18
Item	Ripple-Noise
Object	+18V4.2A

 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. 100 [V]	Input Volt. 200 [V]
0.00	35	35
0.80	35	45
1.60	40	45
2.40	40	45
3.20	45	45
4.20	50	50
4.62	55	55
--	-	-
--	-	-
--	-	-
--	-	-

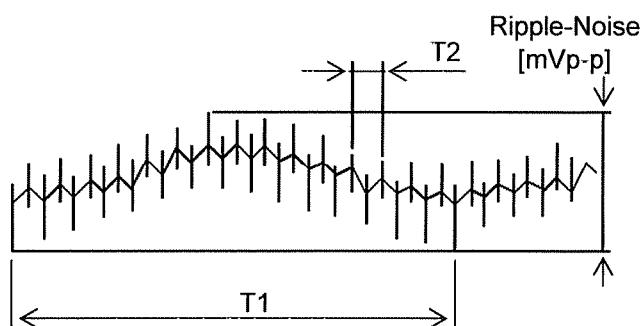
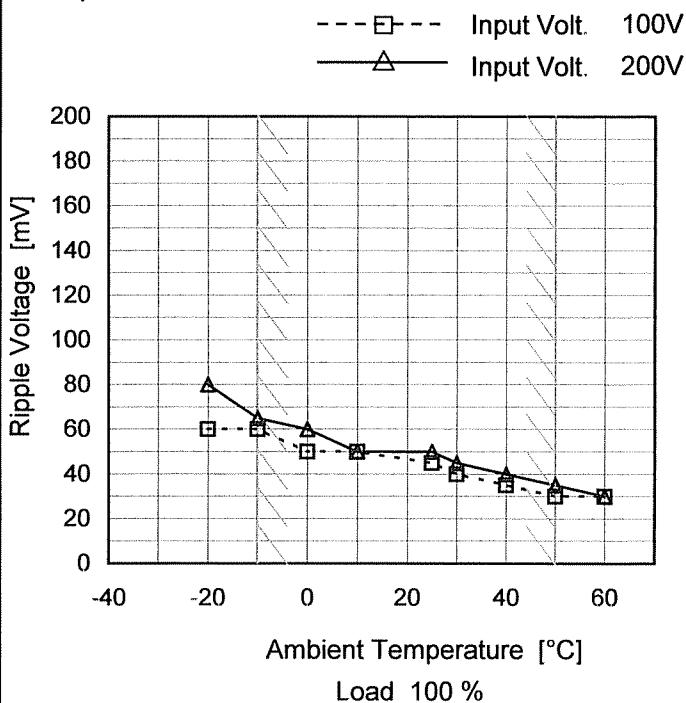
 T1: Due to AC Input Line  
 T2: Due to Switching


Fig. Complex Ripple Wave Form

**COSEL**

Model	LDA75F-18
Item	Ripple Voltage (by Ambient Temp.)
Object	+18V4.2A

## 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]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-20	60	80
-10	60	65
0	50	60
10	50	50
25	45	50
30	40	45
40	35	40
50	30	35
60	30	30
--	-	-
--	-	-

**COSEL**

Model	LDA75F-18
Item	Ambient Temperature Drift
Object	+18V4.2A
1.Graph	
<p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> <p>Legend:</p> <ul style="list-style-type: none"> <li>Input Volt. 100V</li> <li>Input Volt. 200V</li> <li>Input Volt. 230V</li> </ul>	
<p>Note: Slanted line shows the range of the rated ambient temperature.</p>	

## Testing Circuitry Figure A

## 2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
-20	18.210	18.211	18.210
-10	18.204	18.205	18.204
0	18.200	18.200	18.200
10	18.197	18.197	18.197
25	18.194	18.194	18.194
40	18.188	18.189	18.188
50	18.181	18.181	18.180
60	18.170	18.170	18.170
--	-	-	-
--	-	-	-
--	-	-	-



Model	LDA75F-18	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+18V4.2A	

### 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 - 264V

Load Current : 0 - 4.2A

\* 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	18.208	$\pm 15$	$\pm 0.1$
Minimum Voltage	50	85	4.2	18.178		

**COSEL**

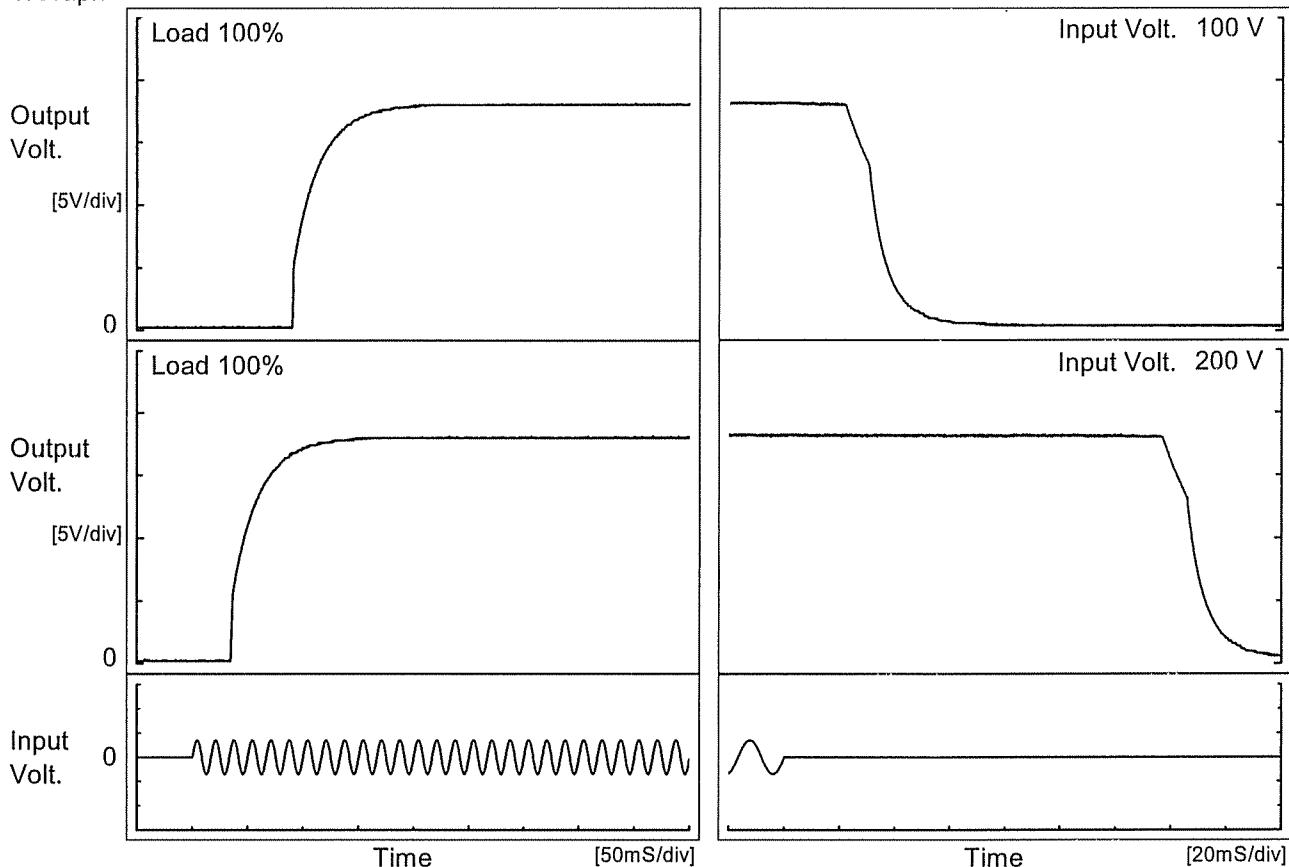
Model	LDA75F-18	Temperature Testing Circuitry 25°C Figure A																						
Item	Time Lapse Drift																							
Object	+18V4.2A																							
1.Graph		2.Values																						
<p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 100V</p> <p>Load 100%</p>		<table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>18.190</td></tr> <tr><td>0.5</td><td>18.183</td></tr> <tr><td>1.0</td><td>18.183</td></tr> <tr><td>2.0</td><td>18.183</td></tr> <tr><td>3.0</td><td>18.183</td></tr> <tr><td>4.0</td><td>18.183</td></tr> <tr><td>5.0</td><td>18.184</td></tr> <tr><td>6.0</td><td>18.184</td></tr> <tr><td>7.0</td><td>18.184</td></tr> <tr><td>8.0</td><td>18.184</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	18.190	0.5	18.183	1.0	18.183	2.0	18.183	3.0	18.183	4.0	18.183	5.0	18.184	6.0	18.184	7.0	18.184	8.0	18.184
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\* The characteristic of AC200V is equal.

COSEL

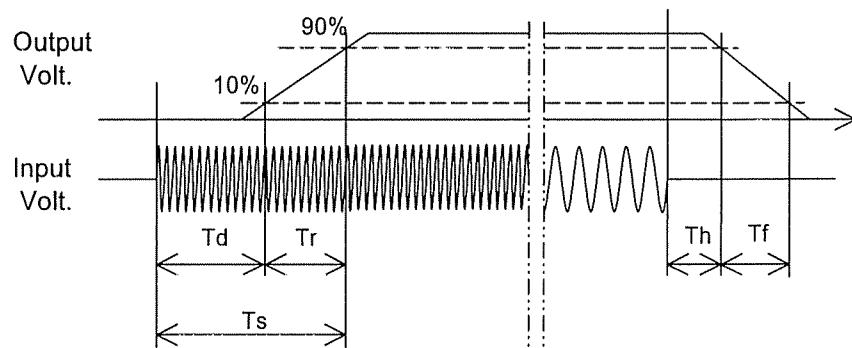
Model	LDA75F-18	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+18V4.2A		

## 1. Graph



## 2. Values

Input Volt.	Time	Td	Tr	Ts	Th	Tf	[mS]
100 V		90.8	48.8	139.6	24.2	20.9	
200 V		35.3	48.5	83.8	139.5	21.3	



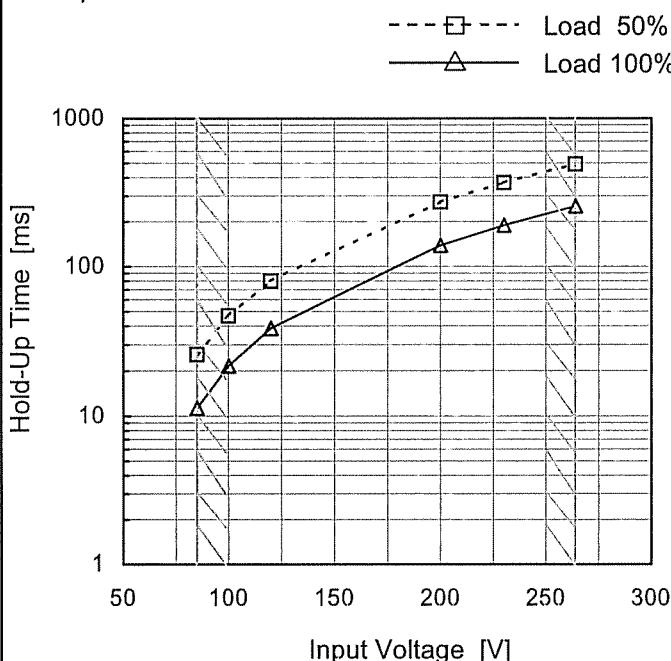
COSEL

Model LDA75F-18

Item Hold-Up Time

Object +18V4.2A

## 1. Graph

Temperature 25°C  
Testing Circuitry Figure A

## 2. Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
85	26	11
100	47	22
120	80	39
200	273	139
230	369	189
264	493	255
--	-	-
--	-	-
--	-	-

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.

COSEL

Model	LDA75F-18	Temperature Testing Circuitry 25°C Figure A																																																			
Item	Instantaneous Interruption Compensation																																																				
Object	+18V4.2A																																																				
1.Graph	<p>—△— Input Volt. 100V      - - -□- - Input Volt. 200V      - - ○ - - Input Volt. 230V</p> <table border="1"> <caption>Data extracted from Graph 1</caption> <thead> <tr> <th>Load Current [A]</th> <th>100V [ms]</th> <th>200V [ms]</th> <th>230V [ms]</th> </tr> </thead> <tbody> <tr><td>1.0</td><td>~150</td><td>~450</td><td>~350</td></tr> <tr><td>2.0</td><td>~80</td><td>~250</td><td>~200</td></tr> <tr><td>3.0</td><td>~60</td><td>~180</td><td>~150</td></tr> <tr><td>4.0</td><td>~40</td><td>~120</td><td>~100</td></tr> <tr><td>5.0</td><td>~30</td><td>~100</td><td>~80</td></tr> </tbody> </table>	Load Current [A]	100V [ms]	200V [ms]	230V [ms]	1.0	~150	~450	~350	2.0	~80	~250	~200	3.0	~60	~180	~150	4.0	~40	~120	~100	5.0	~30	~100	~80	2.Values																											
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Load Current [A]	Time [ms]																																																				
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Note: Slanted line shows the range of the rated load current.

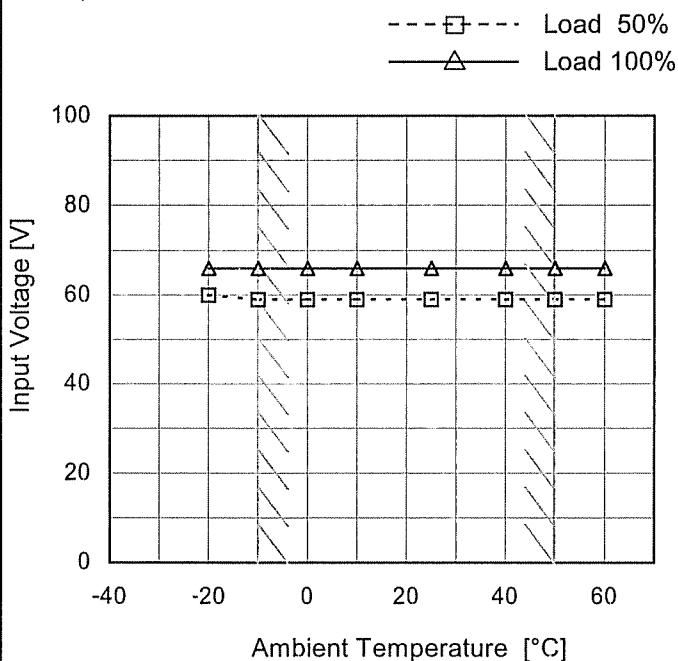
COSEL

Model LDA75F-18

Item Minimum Input Voltage  
for Regulated Output Voltage

Object +18V4.2A

## 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	60	66
-10	59	66
0	59	66
10	59	66
25	59	66
40	59	66
50	59	66
60	59	66
--	-	-
--	-	-
--	-	-

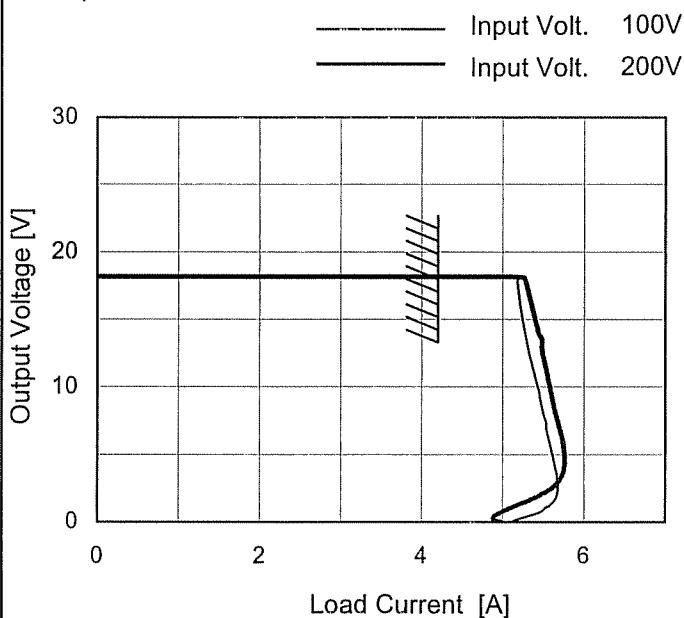
**COSEL**

Model LDA75F-18

Item Overcurrent Protection

Object +18V4.2A

## 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. 100[V]	Input Volt. 200[V]
18.0	5.18	5.27
17.1	5.19	5.31
16.2	5.21	5.35
14.4	5.26	5.42
12.6	5.32	5.49
10.8	5.40	5.55
9.0	5.46	5.62
7.2	5.54	5.69
5.4	5.60	5.76
3.6	5.67	5.74
1.8	5.66	5.40
0.0	5.08	5.04

**coSEL**

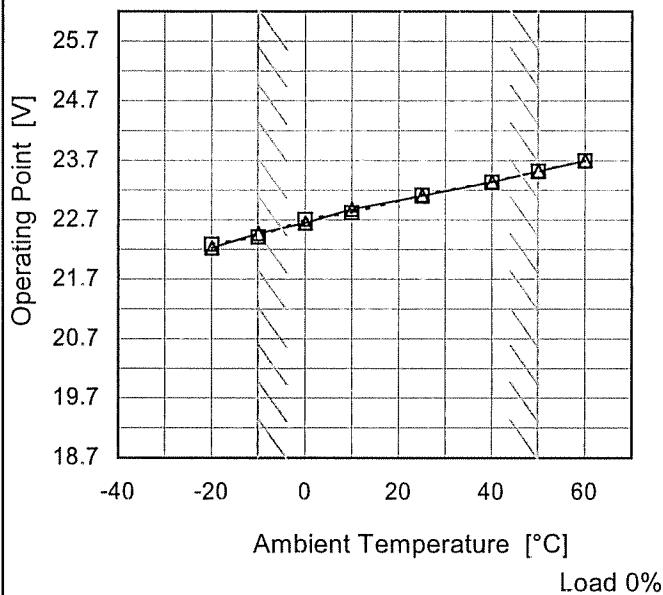
Model LDA75F-18

Item Overvoltage Protection

Object +18V4.2A

## 1.Graph

—△— Input Volt. 100V  
 - - -□- - - Input Volt. 200V



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. 100[V]	Input Volt. 200[V]
-20	22.20	22.26
-10	22.44	22.38
0	22.62	22.68
10	22.85	22.79
25	23.08	23.09
40	23.31	23.31
50	23.49	23.49
60	23.67	23.67
--	-	-
--	-	-
--	-	-

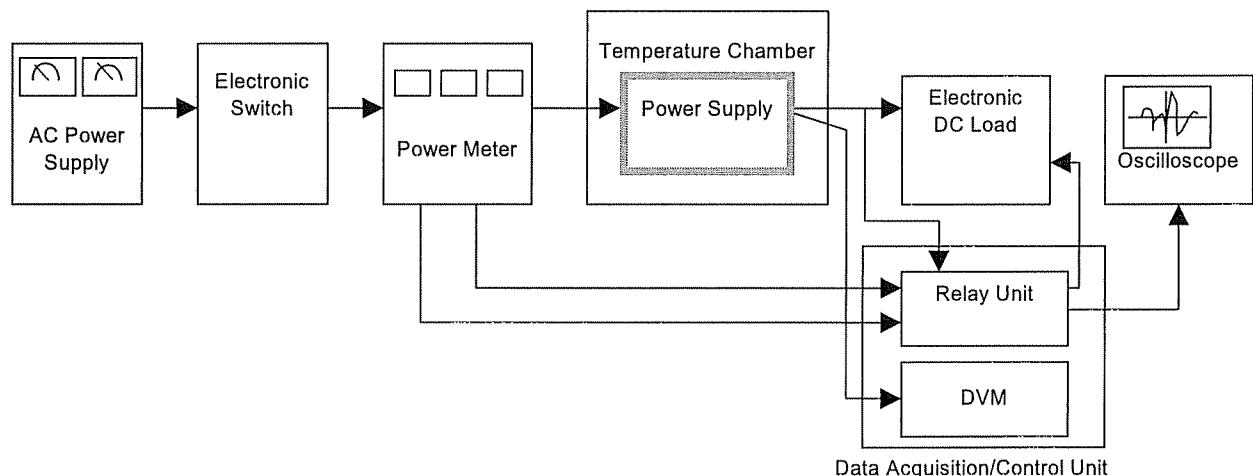


Figure A

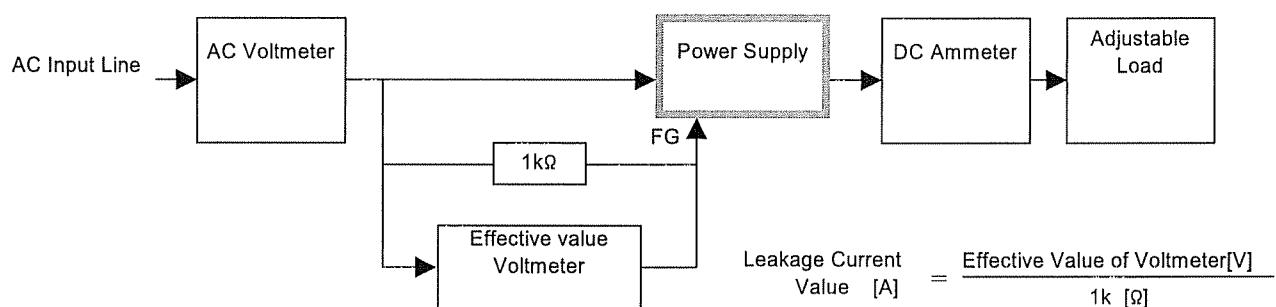


Figure B ( DEN-AN )

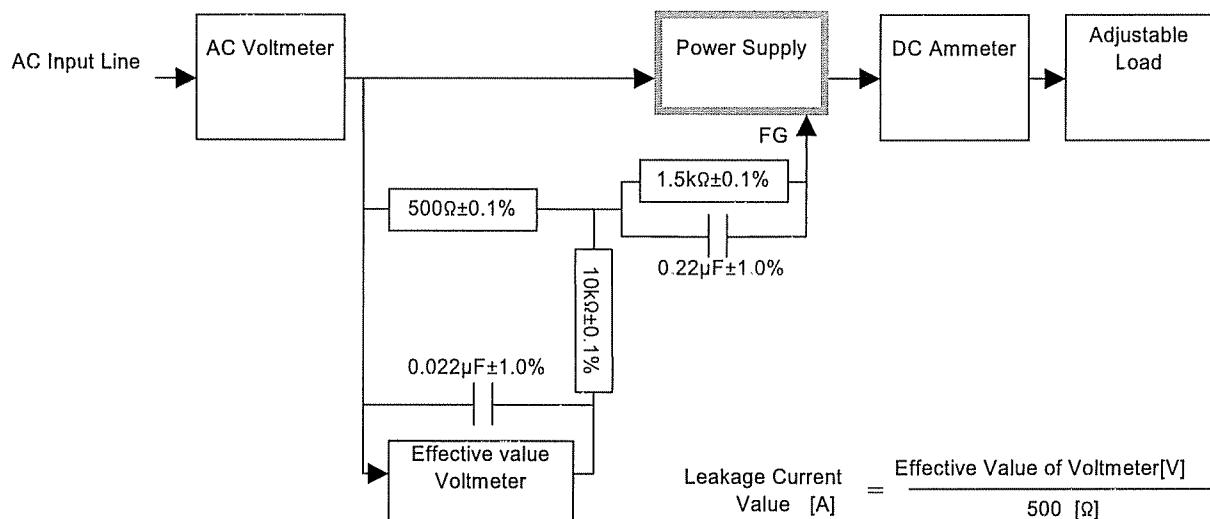


Figure B ( IEC60950 )