



# TEST DATA OF PBA30F-9

Regulated DC Power Supply  
Sep 29, 2005

Approved by : Kuniaki Nagahara  
Kuniaki Nagahara Design Manager

Prepared by : Akito Jobaji  
Akito Jobaji Design Engineer

**COSEL CO.,LTD.**

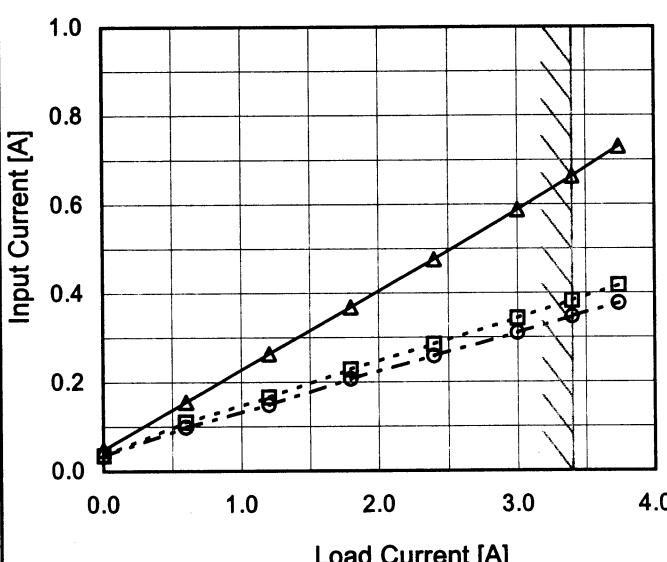


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Model	PBA30F-9	Temperature 25°C Testing Circuitry Figure A																																																					
Item	Input Current (by Load Current)																																																						
Object	_____	2.Values																																																					
1.Graph	<p style="text-align: center;"> <span style="color: black;">—△—</span> Input Volt. 100V  <span style="color: gray;">---□---</span> Input Volt. 200V  <span style="color: gray;">---○---</span> Input Volt. 230V         </p>  <p>Note: Slanted line shows the range of the rated load current.</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. 100[V]</th> <th>Input Volt. 200[V]</th> <th>Input Volt. 230[V]</th> </tr> </thead> <tbody> <tr> <td>0.00</td><td>0.048</td><td>0.035</td><td>0.034</td></tr> <tr> <td>0.60</td><td>0.156</td><td>0.110</td><td>0.099</td></tr> <tr> <td>1.20</td><td>0.264</td><td>0.166</td><td>0.149</td></tr> <tr> <td>1.80</td><td>0.369</td><td>0.228</td><td>0.207</td></tr> <tr> <td>2.40</td><td>0.476</td><td>0.285</td><td>0.259</td></tr> <tr> <td>3.00</td><td>0.588</td><td>0.344</td><td>0.311</td></tr> <tr> <td>3.40</td><td>0.663</td><td>0.383</td><td>0.347</td></tr> <tr> <td>3.74</td><td>0.730</td><td>0.418</td><td>0.377</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]	Input Current [A]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.00	0.048	0.035	0.034	0.60	0.156	0.110	0.099	1.20	0.264	0.166	0.149	1.80	0.369	0.228	0.207	2.40	0.476	0.285	0.259	3.00	0.588	0.344	0.311	3.40	0.663	0.383	0.347	3.74	0.730	0.418	0.377	--	-	-	-	--	-	-	-	--	-	-	-
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	<p>The graph shows three linear plots representing different input voltages. The 100V curve (solid line with triangles) has the steepest slope. The 200V curve (dashed line with squares) is in the middle. The 230V curve (dash-dot line with circles) has the least steep slope. All curves originate from the origin (0,0) and extend towards the top right. A diagonal line with a negative slope is drawn across the graph, representing the rated load current range.</p>																																																					
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	<p>The graph shows efficiency increasing with load current for all input voltages. The 100V curve is the highest, followed by 200V, and then 230V. A slanted line on the graph indicates the rated load current range.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <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>-</td><td>-</td><td>-</td></tr> <tr><td>0.60</td><td>66.2</td><td>60.1</td><td>59.3</td></tr> <tr><td>1.20</td><td>72.5</td><td>72.5</td><td>72.1</td></tr> <tr><td>1.80</td><td>75.3</td><td>74.4</td><td>73.3</td></tr> <tr><td>2.40</td><td>76.1</td><td>76.9</td><td>76.1</td></tr> <tr><td>3.00</td><td>76.2</td><td>78.0</td><td>77.6</td></tr> <tr><td>3.40</td><td>75.9</td><td>78.5</td><td>78.1</td></tr> <tr><td>3.74</td><td>75.7</td><td>78.8</td><td>78.5</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]	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.00	-	-	-	0.60	66.2	60.1	59.3	1.20	72.5	72.5	72.1	1.80	75.3	74.4	73.3	2.40	76.1	76.9	76.1	3.00	76.2	78.0	77.6	3.40	75.9	78.5	78.1	3.74	75.7	78.8	78.5	--	-	-	-	--	-	-	-	--	-	-	-
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<p>Graph showing Power Factor vs Input Voltage for PBA30F-9 at 25°C. The Y-axis is Power Factor (0.2 to 0.8) and the X-axis is Input Voltage [V] (50 to 300). Two curves are shown: Load 50% (dashed line with squares) and Load 100% (solid line with triangles). Both curves show a decreasing trend as input voltage increases. A slanted line indicates the rated input voltage range.</p>			<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Power Factor</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr> <td>75</td><td>0.623</td><td>0.654</td> </tr> <tr> <td>85</td><td>0.602</td><td>0.629</td> </tr> <tr> <td>100</td><td>0.576</td><td>0.605</td> </tr> <tr> <td>120</td><td>0.547</td><td>0.575</td> </tr> <tr> <td>200</td><td>0.470</td><td>0.497</td> </tr> <tr> <td>230</td><td>0.457</td><td>0.482</td> </tr> <tr> <td>264</td><td>0.441</td><td>0.465</td> </tr> <tr> <td>280</td><td>0.436</td><td>0.458</td> </tr> <tr> <td>--</td><td>-</td><td>-</td> </tr> </tbody> </table>	Input Voltage [V]	Power Factor		Load 50%	Load 100%	75	0.623	0.654	85	0.602	0.629	100	0.576	0.605	120	0.547	0.575	200	0.470	0.497	230	0.457	0.482	264	0.441	0.465	280	0.436	0.458	--	-	-
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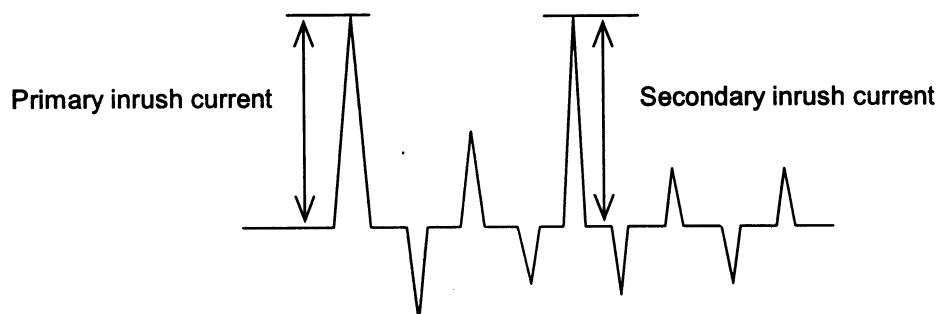
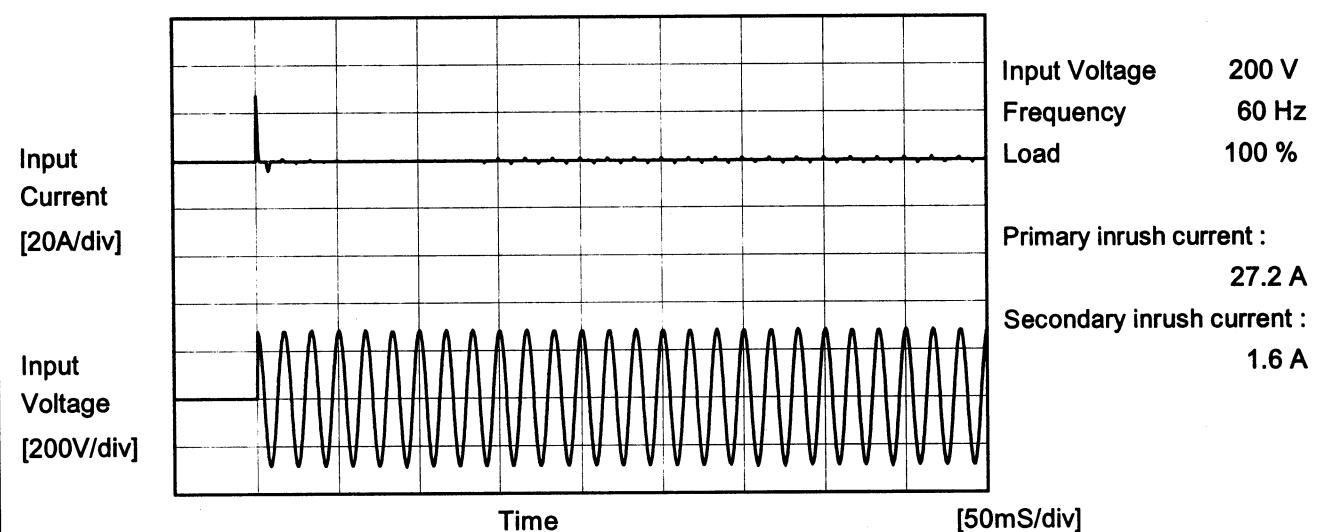
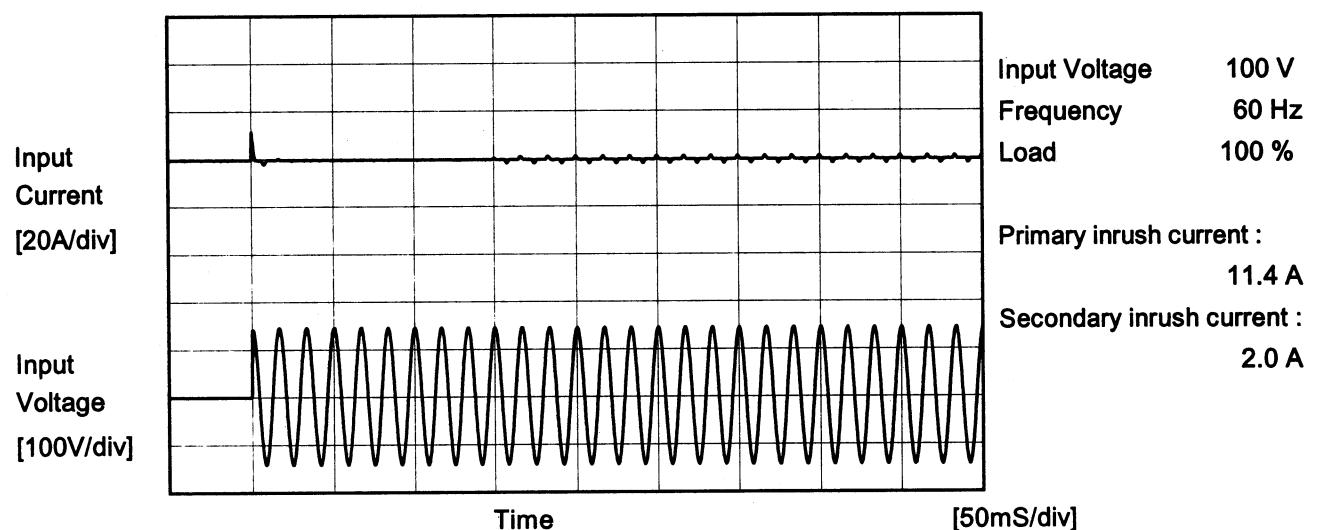
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Note: Slanted line shows the range of the rated load current.

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Model	PBA30F-9	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	_____		





Model	PBA30F-9	Temperature	25°C
Item	Leakage Current	Testing Circuitry	Figure B
Object	<hr/>		

### 1. Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	240 [V]	
DEN-AN	Both phases	0.15	0.32	0.39	Operation
	One of phase	0.30	0.64	0.79	stand by
IEC60950	Both phases	0.19	0.44	0.52	Operation
	One of phase	0.29	0.64	0.79	stand by

The value for "One of phase" is the reference value only.

### 2. Condition

Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

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Item	Line Regulation																																		
Object	+9V3.4A																																		
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Note: Slanted line shows the range of the rated input voltage.

# COSEL

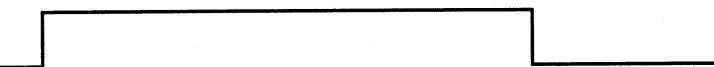
Model	PBA30F-9	Temperature	25°C																																																			
Item	Load Regulation	Testing Circuitry	Figure A																																																			
Object	+9V3.4A																																																					
1.Graph	<p>—▲— Input Volt. 100V        - - - □ - - - Input Volt. 200V        - - ○ - - - Input Volt. 230V</p>																																																					
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**COSEL**

Model	PBA30F-9	Temperature Testing Circuitry	25°C Figure A
Item	Dynamic Load Response		
Object	+9V3.4A		

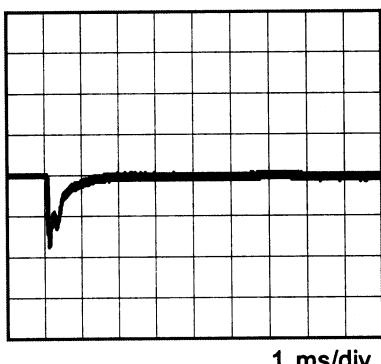
Input Volt. 100 V  
 Cycle 1000 ms

Load Current

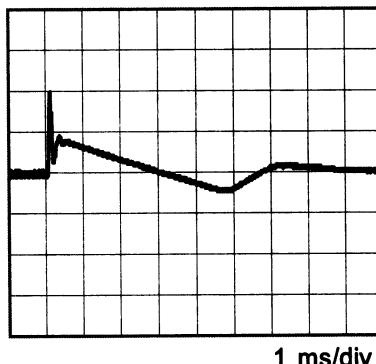


Min. Load (0A) ←→  
 Load 100% (3.4A)

200 mV/div



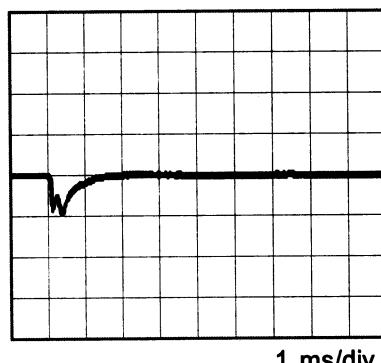
1 ms/div



1 ms/div

Min. Load (0A) ←→  
 Load 50% (1.7A)

200 mV/div



1 ms/div



1 ms/div

\* The characteristic of AC200V is equal.

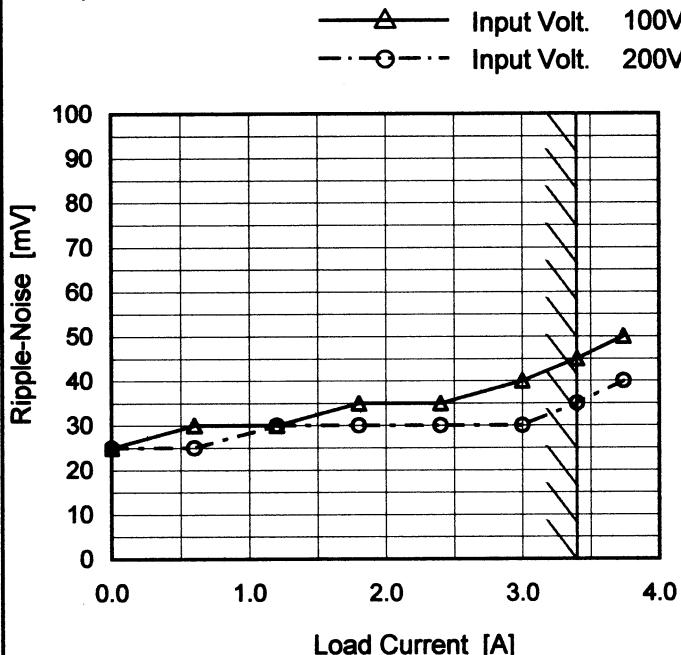
**COSEL**

Model	PBA30F-9																																							
Item	Ripple Voltage (by Load Current)	Temperature 25°C Testing Circuitry Figure A																																						
Object	+9V3.4A																																							
1. Graph																																								
2. Values																																								
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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>																																								

COSEL

Model	PBA30F-9
Item	Ripple-Noise
Object	+9V3.4A

## 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.

Temperature 25°C  
Testing Circuitry Figure A

## 2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.00	25	25
0.60	30	25
1.20	30	30
1.80	35	30
2.40	35	30
3.00	40	30
3.40	45	35
3.74	50	40
--	-	-
--	-	-
--	-	-

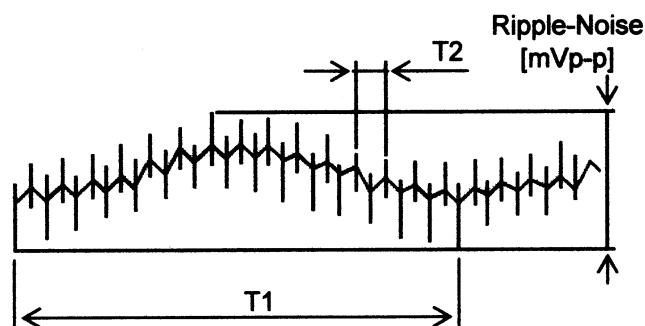
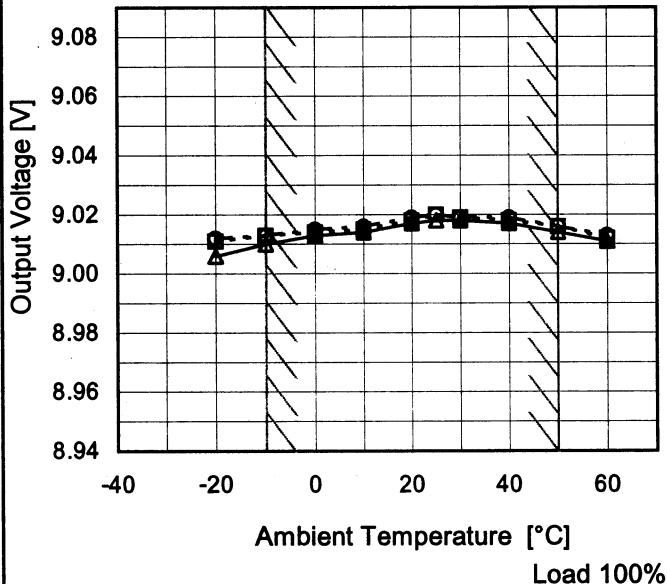
T1: Due to AC Input Line  
T2: Due to Switching

Fig. Complex Ripple Wave Form

**COSEL**

Model	PBA30F-9																																							
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry Figure A																																						
Object	+9V3.4A																																							
1.Graph		2.Values																																						
<p>Graph showing Ripple Voltage [mV] vs Ambient Temperature [°C]. The Y-axis ranges from 0 to 200 mV, and the X-axis ranges from -40 to 60 °C. The graph shows data for two input voltages: 100V (dashed line with squares) and 200V (solid line with triangles). The ripple voltage decreases as ambient temperature increases. A slanted line indicates the rated ambient temperature range.</p> <table border="1"> <thead> <tr> <th>Ambient Temperature [°C]</th> <th>Ripple Voltage [mV] (100V)</th> <th>Ripple Voltage [mV] (200V)</th> </tr> </thead> <tbody> <tr><td>-30</td><td>95</td><td>55</td></tr> <tr><td>-10</td><td>40</td><td>25</td></tr> <tr><td>0</td><td>35</td><td>20</td></tr> <tr><td>25</td><td>20</td><td>10</td></tr> <tr><td>50</td><td>15</td><td>10</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> <tr><td>--</td><td>-</td><td>-</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] (100V)	Ripple Voltage [mV] (200V)	-30	95	55	-10	40	25	0	35	20	25	20	10	50	15	10	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-
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**COSEL**

Model	PBA30F-9																																																					
Item	Ambient Temperature Drift	Testing Circuitry	Figure A																																																			
Object	+9V3.4A																																																					
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Model	PBA30F-9	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+9V3.4A	

### 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 - 3.4A

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

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

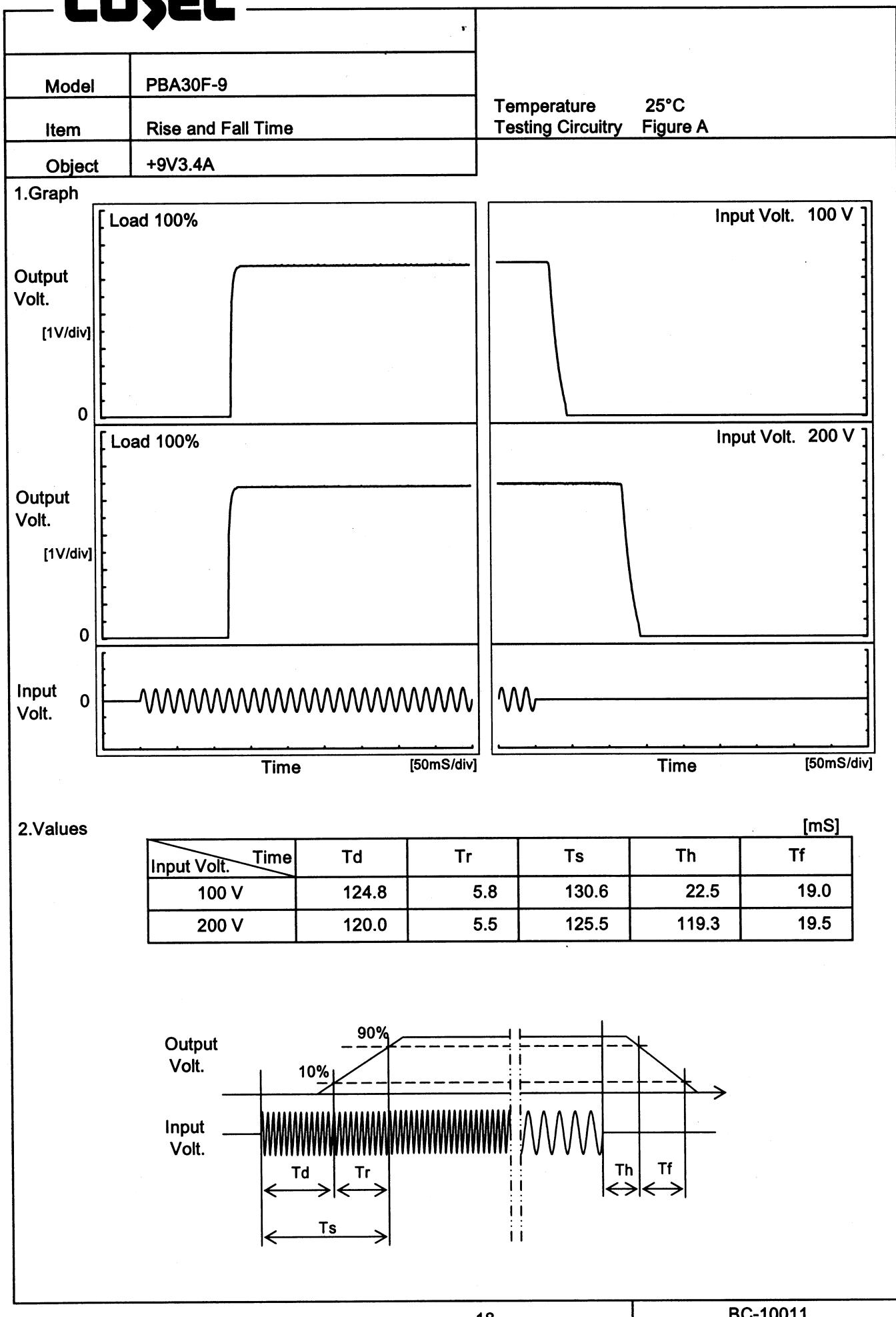
### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	264	0	9.027	±9	±0.1
Minimum Voltage	-10	85	3.4	9.010		

**COSEL**

Model	PBA30F-9	Temperature      25°C Testing Circuitry      Figure A																						
Item	Time Lapse Drift																							
Object	+9V3.4A																							
1.Graph		2.Values																						
<p>Output Voltage [V]</p> <p>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>9.011</td></tr> <tr><td>0.5</td><td>9.012</td></tr> <tr><td>1.0</td><td>9.012</td></tr> <tr><td>2.0</td><td>9.013</td></tr> <tr><td>3.0</td><td>9.013</td></tr> <tr><td>4.0</td><td>9.013</td></tr> <tr><td>5.0</td><td>9.013</td></tr> <tr><td>6.0</td><td>9.013</td></tr> <tr><td>7.0</td><td>9.013</td></tr> <tr><td>8.0</td><td>9.013</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	9.011	0.5	9.012	1.0	9.012	2.0	9.013	3.0	9.013	4.0	9.013	5.0	9.013	6.0	9.013	7.0	9.013	8.0	9.013
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\* The characteristic of AC200V is equal.

**COSEL**

**COSEL**

Model	PBA30F-9	Temperature Testing Circuitry 25°C Figure A																																
Item	Hold-Up Time																																	
Object	+9V3.4A																																	
1.Graph		2.Values																																
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**COSEL**

Model	PBA30F-9	Temperature Testing Circuitry 25°C Figure A																																																			
Item	Instantaneous Interruption Compensation																																																				
Object	+9V3.4A																																																				
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3.00	23	140	190																																																		
3.40	22	123	170																																																		
3.74	20	112	154																																																		
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Note: Slanted line shows the range of the rated load current.



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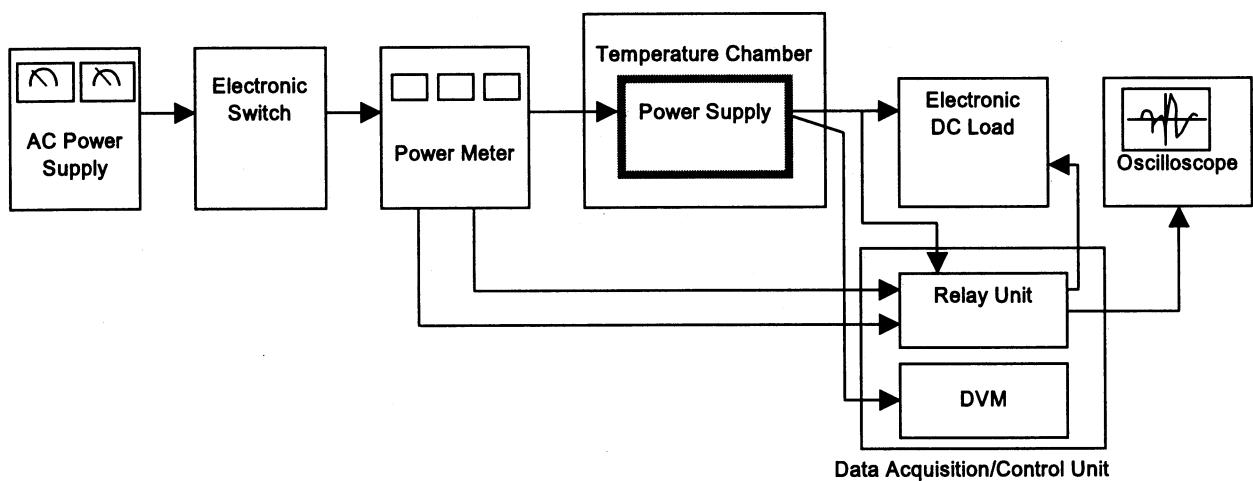


Figure A

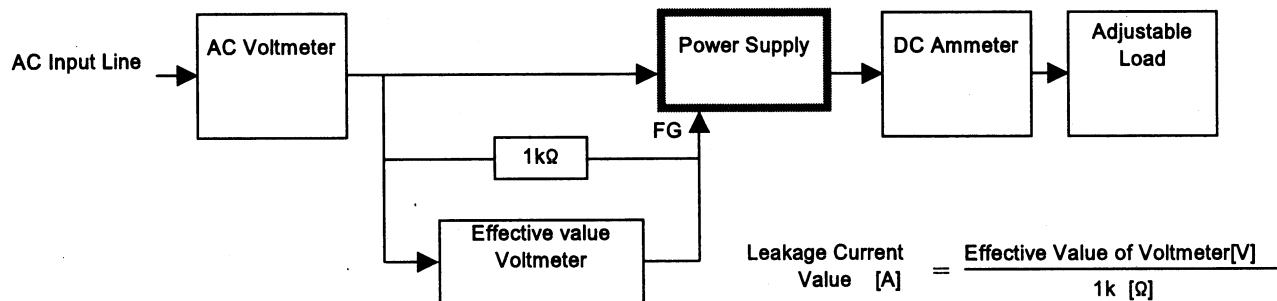


Figure B ( DEN-AN )

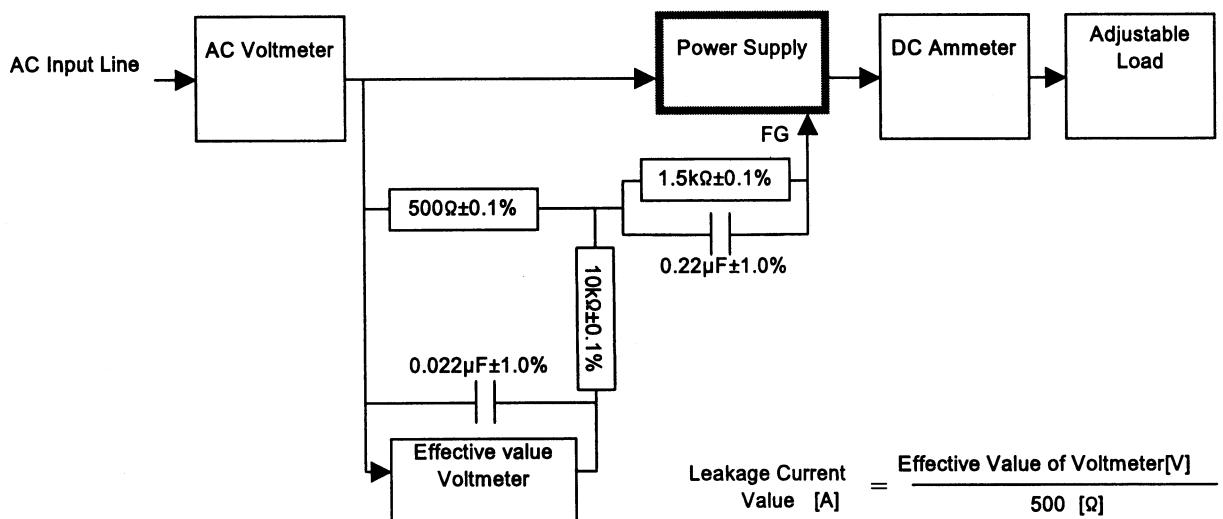


Figure B ( IEC60950 )