

# TEST DATA OF PJA150F-24

Regulated DC Power Supply  
August 30, 2016

Approved by : Yukihiro Takehashi  
Yukihiro Takehashi Design Manager

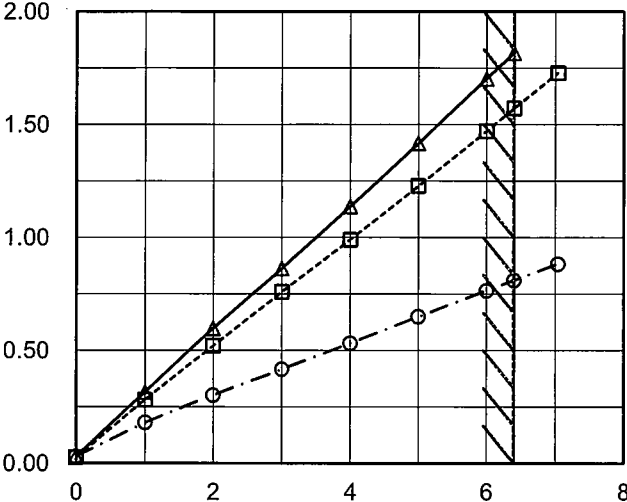
Prepared by : Atsushi Nishikawa  
Atsushi Nishikawa Design Engineer

**COSEL CO.,LTD.**

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(Final Page 25)

Model		PJA150F-24		Temperature 25°C																																																				
Item		Input Current (by Load Current)		Testing Circuitry Figure A																																																				
Object		_____																																																						
1.Graph		<div><div>—△—</div>Input Volt. 100V</div> <div><div>---□---</div>Input Volt. 115V</div> <div><div>---○---</div>Input Volt. 230V</div>		2.Values																																																				
<div><div><div>Input Current [A]</div><div></div><div>Load Current [A]</div></div></div>		<table><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. 115[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>0.00</td><td>0.030</td><td>0.026</td><td>0.031</td></tr><tr><td>1.00</td><td>0.315</td><td>0.281</td><td>0.181</td></tr><tr><td>2.00</td><td>0.597</td><td>0.520</td><td>0.302</td></tr><tr><td>3.00</td><td>0.863</td><td>0.759</td><td>0.417</td></tr><tr><td>4.00</td><td>1.137</td><td>0.990</td><td>0.532</td></tr><tr><td>5.00</td><td>1.417</td><td>1.228</td><td>0.649</td></tr><tr><td>6.00</td><td>1.703</td><td>1.471</td><td>0.765</td></tr><tr><td>6.40</td><td>1.817</td><td>1.572</td><td>0.811</td></tr><tr><td>7.04</td><td>-</td><td>1.728</td><td>0.883</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]	Input Current [A]			Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]	0.00	0.030	0.026	0.031	1.00	0.315	0.281	0.181	2.00	0.597	0.520	0.302	3.00	0.863	0.759	0.417	4.00	1.137	0.990	0.532	5.00	1.417	1.228	0.649	6.00	1.703	1.471	0.765	6.40	1.817	1.572	0.811	7.04	-	1.728	0.883	--	-	-	-	--	-	-	-		
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2.Values <table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Input Power [W]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 115[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>0.00</td><td>1.3</td><td>1.1</td><td>0.8</td></tr><tr><td>1.00</td><td>29.3</td><td>29.1</td><td>29.9</td></tr><tr><td>2.00</td><td>56.6</td><td>56.3</td><td>56.3</td></tr><tr><td>3.00</td><td>84.0</td><td>83.4</td><td>82.5</td></tr><tr><td>4.00</td><td>111.7</td><td>110.8</td><td>109.1</td></tr><tr><td>5.00</td><td>139.8</td><td>138.7</td><td>136.0</td></tr><tr><td>6.00</td><td>168.4</td><td>166.7</td><td>163.1</td></tr><tr><td>6.40</td><td>179.8</td><td>177.7</td><td>173.4</td></tr><tr><td>7.04</td><td>-</td><td>196.0</td><td>190.9</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]	Input Power [W]			Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]	0.00	1.3	1.1	0.8	1.00	29.3	29.1	29.9	2.00	56.6	56.3	56.3	3.00	84.0	83.4	82.5	4.00	111.7	110.8	109.1	5.00	139.8	138.7	136.0	6.00	168.4	166.7	163.1	6.40	179.8	177.7	173.4	7.04	-	196.0	190.9	--	-	-	-	--	-	-	-
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Model		PJA150F-24		Temperature 25°C Testing Circuitry Figure A
Item		Efficiency (by Load Current)		
Object				
1.Graph				
		<div>—△— Input Volt. 100V</div> <div>---□--- Input Volt. 115V</div> <div>---○--- Input Volt. 230V</div>		
<div><div>Efficiency [%]</div><div><div>Load Current [A]</div></div></div>				
Note: Slanted line shows the range of the rated load current.				

2.Values			
Load Current [A]	Efficiency [%]		
	Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]
0.00	-	-	-
1.00	82.8	83.4	81.3
2.00	85.8	86.2	86.3
3.00	86.7	87.3	88.3
4.00	86.9	87.7	89.0
5.00	86.8	87.5	89.3
6.00	86.4	87.3	89.2
6.40	86.3	87.2	89.2
7.04	-	86.6	89.0
--	-	-	-
--	-	-	-

Model		PJA150F-24	
Item		Power Factor (by Input Voltage)	
Object			

1.Graph

Load 50%

Load 100%

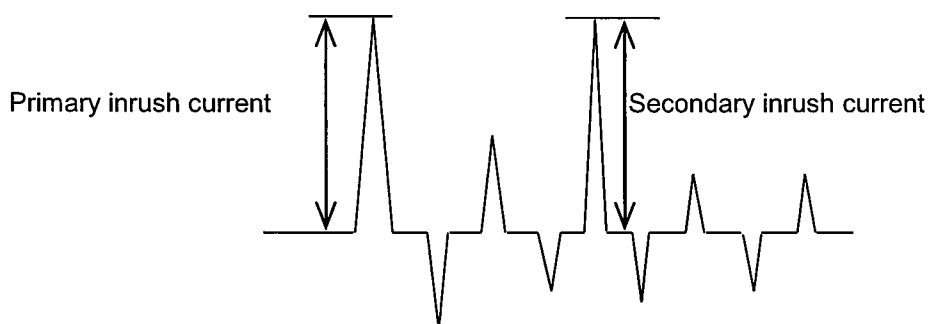
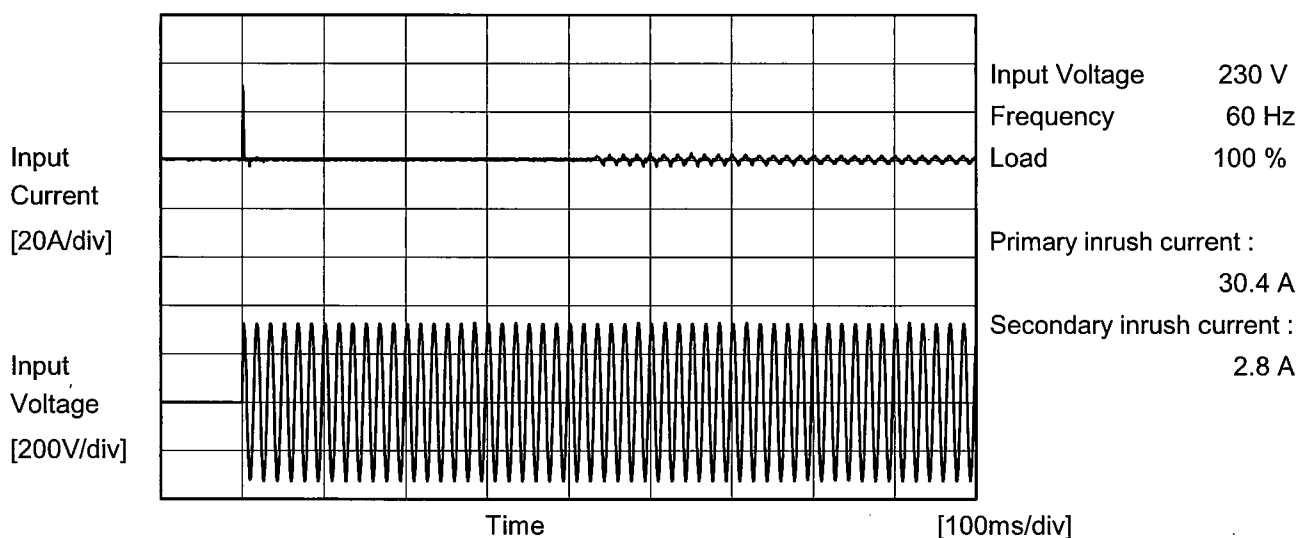
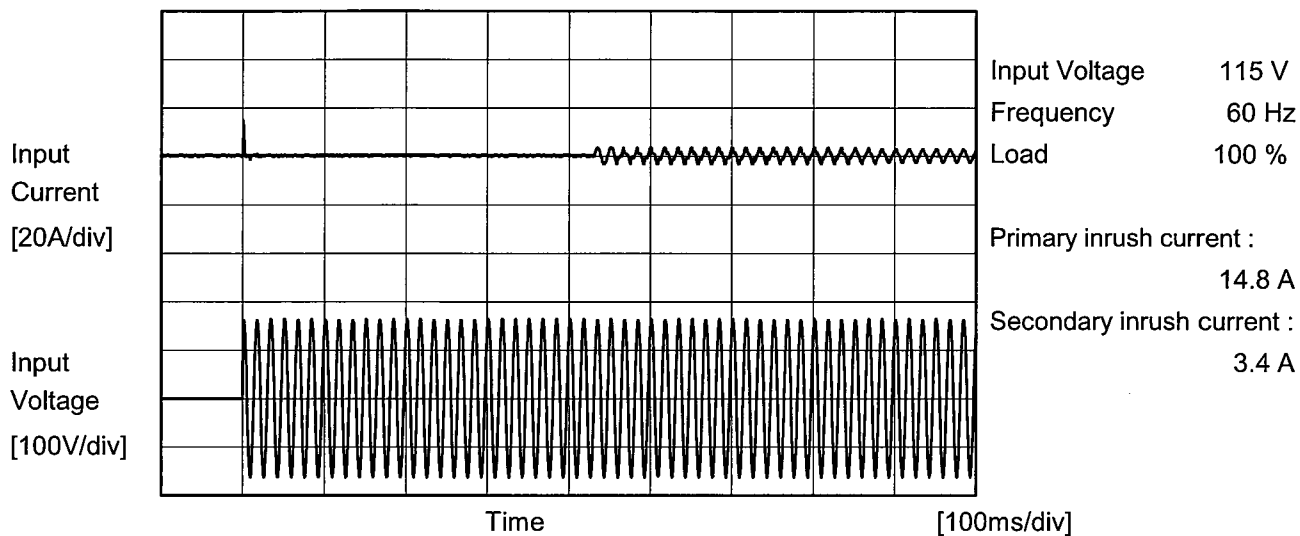


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			<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Power Factor</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 115[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>0.00</td><td>0.441</td><td>0.370</td><td>0.116</td></tr><tr><td>1.00</td><td>0.932</td><td>0.903</td><td>0.718</td></tr><tr><td>2.00</td><td>0.948</td><td>0.942</td><td>0.810</td></tr><tr><td>3.00</td><td>0.974</td><td>0.955</td><td>0.861</td></tr><tr><td>4.00</td><td>0.983</td><td>0.974</td><td>0.892</td></tr><tr><td>5.00</td><td>0.987</td><td>0.982</td><td>0.910</td></tr><tr><td>6.00</td><td>0.990</td><td>0.986</td><td>0.927</td></tr><tr><td>6.40</td><td>0.991</td><td>0.987</td><td>0.932</td></tr><tr><td>7.04</td><td>-</td><td>0.987</td><td>0.938</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]	Power Factor			Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]	0.00	0.441	0.370	0.116	1.00	0.932	0.903	0.718	2.00	0.948	0.942	0.810	3.00	0.974	0.955	0.861	4.00	0.983	0.974	0.892	5.00	0.987	0.982	0.910	6.00	0.990	0.986	0.927	6.40	0.991	0.987	0.932	7.04	-	0.987	0.938	--	-	-	-	--	-	-	-
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# COSEL

Model	PJA150F-24	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	_____		



**COSEL**

		Temperature 25°C Testing Circuitry Figure B
Model	PJA150F-24	
Item	Leakage Current	
Object	_____	

## 1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	115 [V]	240 [V]	
DEN-AN	Both phases	0.20	0.21	0.43	Operation
	One of phases	0.27	0.31	0.69	Stand by
IEC60950-1	Both phases	0.14	0.16	0.44	Operation
	One of phases	0.26	0.30	0.68	Stand by

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

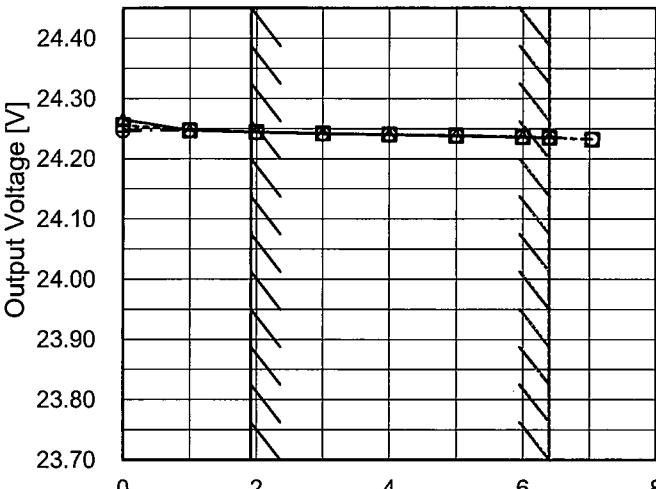
## 2.Condition

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



Model		PJA150F-24	Temperature25°C Testing CircuitryFigure A																																
Item		Line Regulation																																	
Object		+24V6.4A																																	
1.Graph			2.Values																																
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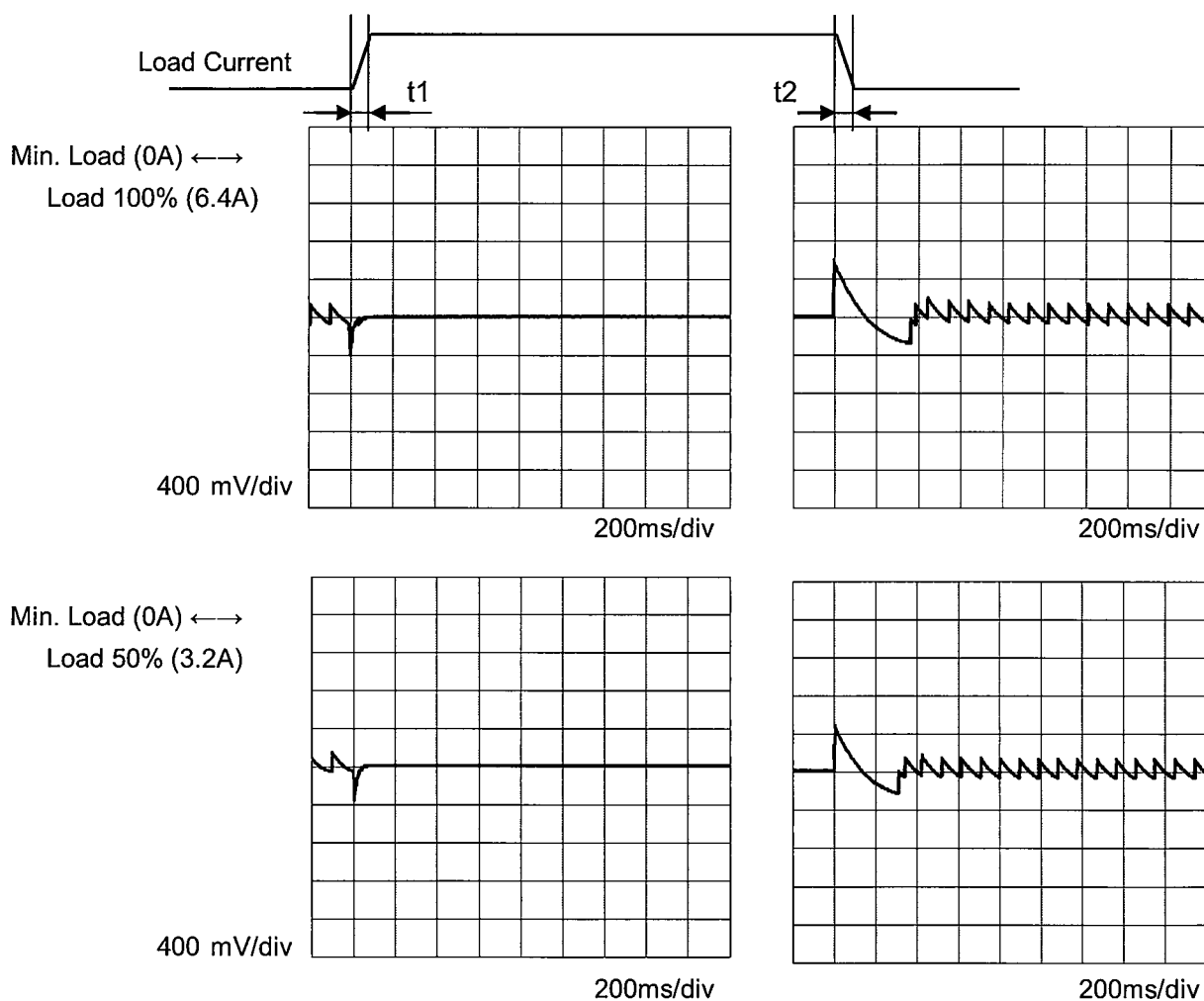
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Model	PJA150F-24	Temperature Testing Circuitry	25° C Figure A
Item	Dynamic Load Response		
Object	+24V6.4A		

Input Volt. 115 V  
Cycle 1000 ms

Response.  $t_1=t_2=50\mu\text{s}$ . Typ



Model		PJA150F-24	Temperature		25°C																																																																										
Item		Ripple Voltage (by Load Current)	Testing Circuitry		Figure C																																																																										
Object		+24V6.4A																																																																													
1.Graph			2.Values																																																																												
<div><div><div><div></div><div>—△—</div><div>Input Volt. 115V</div></div><div><div>-·-○-·-</div><div>Input Volt. 230V</div></div></div><div><table><thead><tr><th>Load Current [A]</th><th>Input Volt. 115 [V]</th><th>Input Volt. 230 [V]</th></tr></thead><tbody><tr><td>0.00</td><td>270</td><td>270</td></tr><tr><td>1.00</td><td>30</td><td>30</td></tr><tr><td>2.00</td><td>35</td><td>35</td></tr><tr><td>3.00</td><td>30</td><td>35</td></tr><tr><td>4.00</td><td>30</td><td>35</td></tr><tr><td>5.00</td><td>30</td><td>35</td></tr><tr><td>6.00</td><td>35</td><td>35</td></tr><tr><td>6.40</td><td>35</td><td>35</td></tr><tr><td>7.04</td><td>40</td><td>40</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table></div></div> <div><p>Measured by 20 MHz Oscilloscope.</p><p>Ripple Voltage is shown as p-p in the figure below.</p><p>Note: Slanted line shows the range of the rated load current.</p></div> <div><div><div><div></div><div>T1: Due to AC Input Line</div><div>T2: Due to Switching</div></div><div><p>Fig. Complex Ripple Wave Form</p></div></div></div>			Load Current [A]	Input Volt. 115 [V]	Input Volt. 230 [V]	0.00	270	270	1.00	30	30	2.00	35	35	3.00	30	35	4.00	30	35	5.00	30	35	6.00	35	35	6.40	35	35	7.04	40	40	--	-	-	--	-	-	<table><thead><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 115 [V]</th><th>Input Volt. 230 [V]</th></tr></thead><tbody><tr><td>0.00</td><td>270</td><td>270</td></tr><tr><td>1.00</td><td>30</td><td>30</td></tr><tr><td>2.00</td><td>35</td><td>35</td></tr><tr><td>3.00</td><td>30</td><td>35</td></tr><tr><td>4.00</td><td>30</td><td>35</td></tr><tr><td>5.00</td><td>30</td><td>35</td></tr><tr><td>6.00</td><td>35</td><td>35</td></tr><tr><td>6.40</td><td>35</td><td>35</td></tr><tr><td>7.04</td><td>40</td><td>40</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. 115 [V]	Input Volt. 230 [V]	0.00	270	270	1.00	30	30	2.00	35	35	3.00	30	35	4.00	30	35	5.00	30	35	6.00	35	35	6.40	35	35	7.04	40	40	--	-	-	--	-	-
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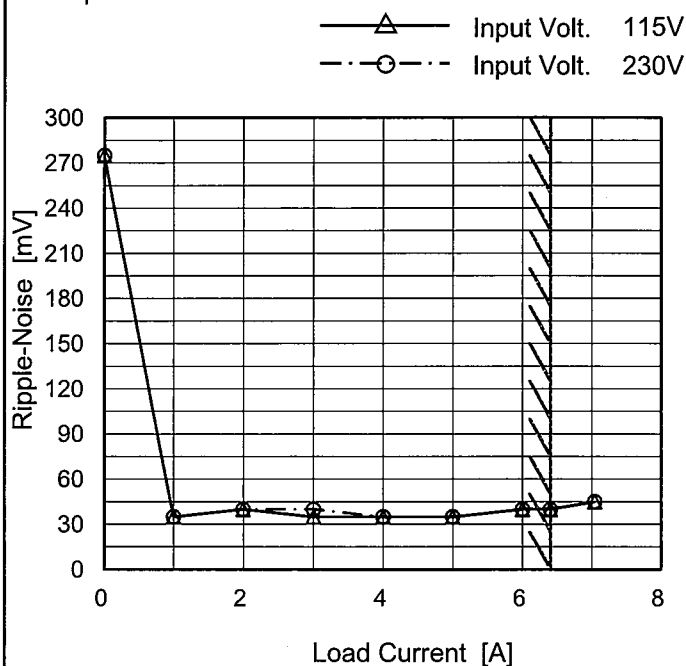
Model PJA150F-24

Item Ripple-Noise

Object +24V6.4A

Temperature 25°C  
Testing Circuitry Figure C

## 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. 115 [V]	Input Volt. 230 [V]
0.00	275	275
1.00	35	35
2.00	40	40
3.00	35	40
4.00	35	35
5.00	35	35
6.00	40	40
6.40	40	40
7.04	45	45
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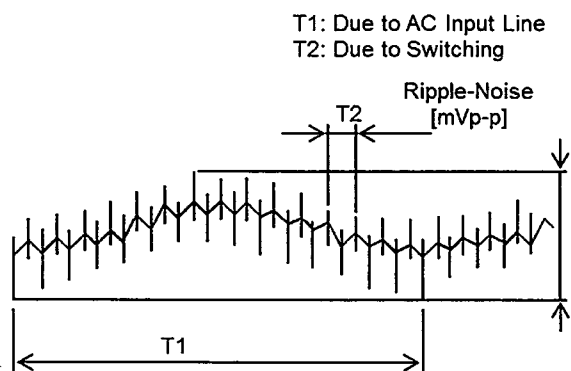
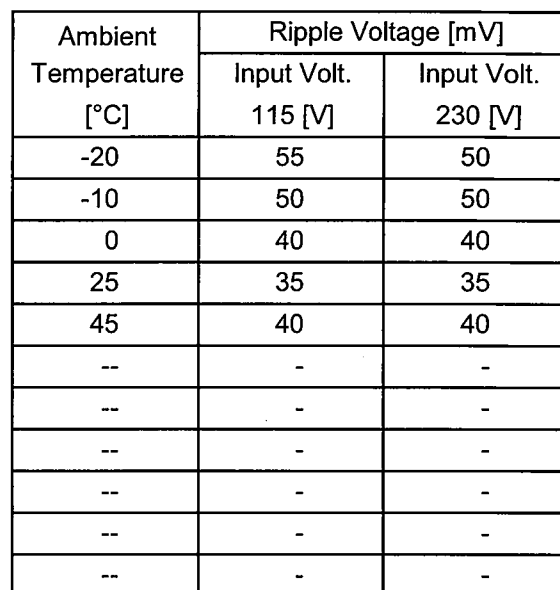


Fig. Complex Ripple Wave Form

Testing Circuitry Figure C

## 2.Values



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



# COSEL

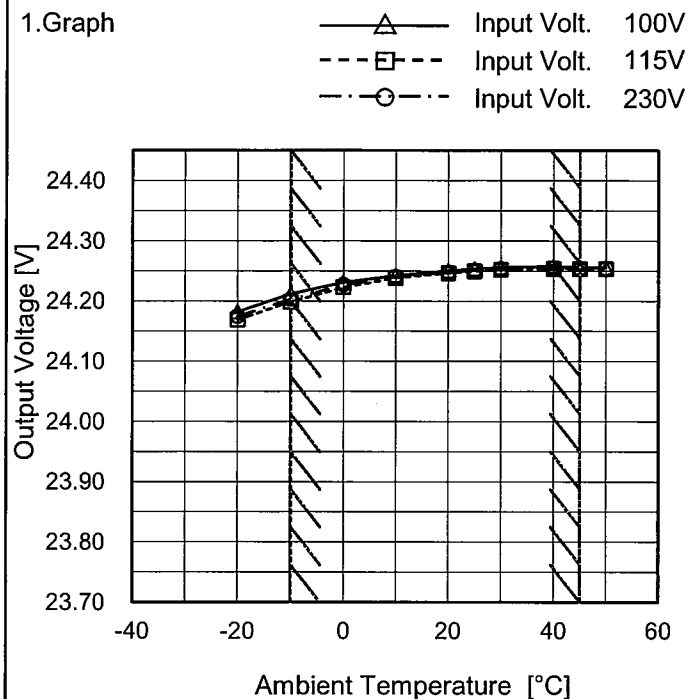
Model PJA150F-24

Item Ambient Temperature Drift

Object +24V6.4A

Testing Circuitry Figure A

## 1.Graph



## 2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]
-20	24.182	24.169	24.175
-10	24.212	24.199	24.203
0	24.231	24.223	24.227
10	24.243	24.239	24.241
20	24.250	24.247	24.248
25	24.254	24.250	24.251
30	24.256	24.252	24.254
40	24.258	24.254	24.255
45	24.256	24.253	24.254
50	24.256	24.253	24.254
--	-	-	-

Note: In case of Input Volt. 100V, Load 90%.  
 Other case Load 100%.

**COSEL**

		Testing Circuitry Figure A
Model	PJA150F-24	
Item	Output Voltage Accuracy	
Object	+24V6.4A	

### 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 - 45°C

Input Voltage : 115 - 264V

Load Current : 1.92 - 6.4A

\* 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	45	230	6.4	24.254	±28	±0.1
Minimum Voltage	-10	115	6.4	24.198		

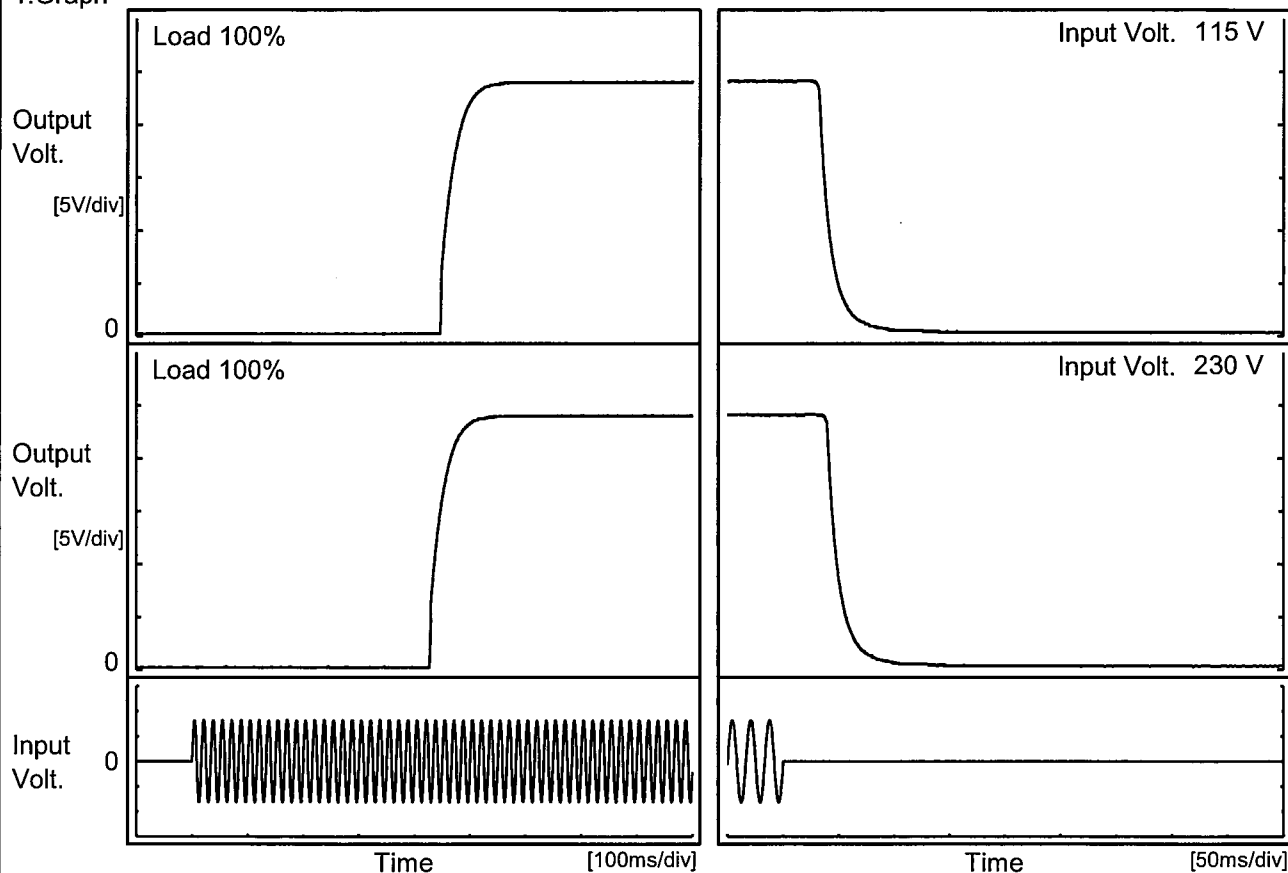


Model	PJA150F-24		
Item	Time Lapse Drift	Temperature	25°C
Object	+24V6.4A	Testing Circuitry	Figure A
1.Graph		2.Values	
<div><div><div>Output Voltage [V]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></di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# COSEL

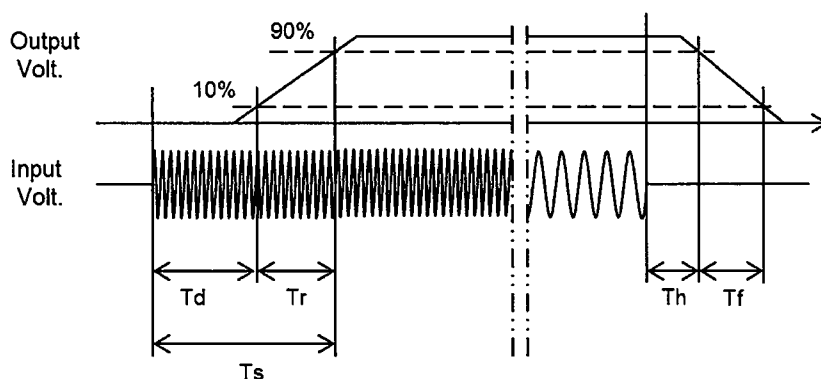
Model	PJA150F-24	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+24V6.4A		

## 1.Graph



## 2.Values

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
115 V	448.0	50.0	498.0	32.8	25.3
230 V	428.5	49.5	478.0	40.0	25.5



**COSEL**

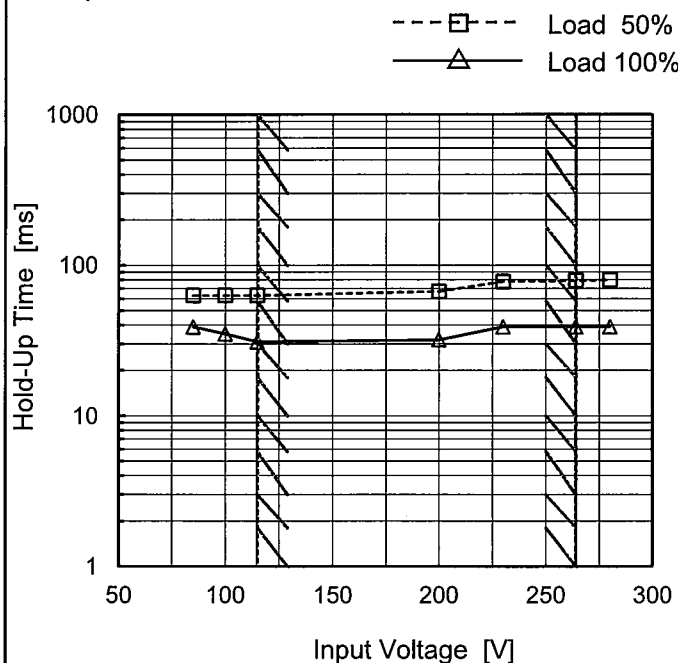
Model PJA150F-24

Item Hold-Up Time

Object +24V6.4A

Temperature 25°C  
Testing Circuitry Figure A

## 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%
85	63	39 ※1
100	63	35 ※2
115	63	31
200	67	32
230	78	39
264	79	39
280	80	39
--	-	-
--	-	-

※1: Load 80%

※2: Load 90%

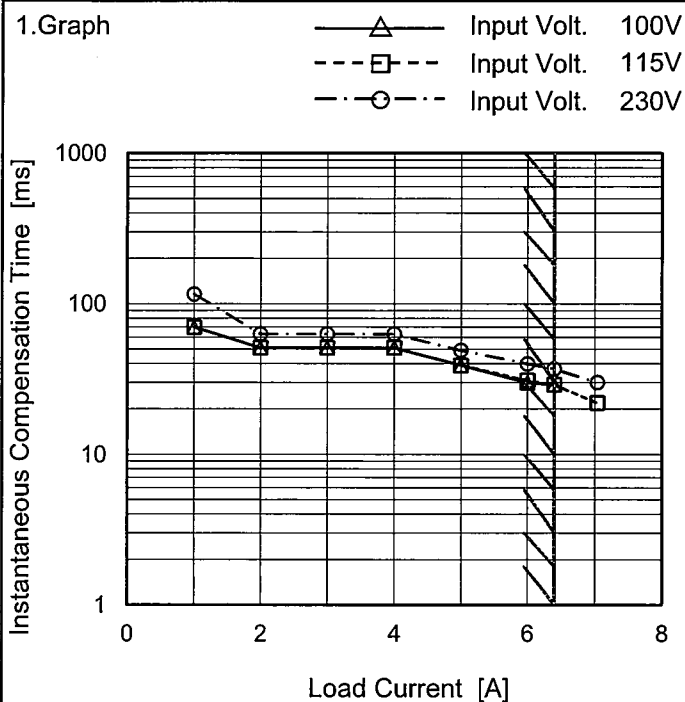
# COSEL

Model PJA150F-24

Item Instantaneous Interruption Compensation

Object +24V6.4A

Temperature 25°C  
Testing Circuitry Figure A



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

2.Values

Load Current [A]	Time [ms]		
	Input Volt. 100[V]	Input Volt. 115[V]	Input Volt. 230[V]
0.00	-	-	-
1.00	70	70	116
2.00	51	51	63
3.00	51	51	63
4.00	51	51	63
5.00	39	39	49
6.00	30	31	40
6.40	29	29	37
7.04	-	22	30
--	-	-	-
--	-	-	-

BC-11138

COSEL																																															
Model	PJA150F-24																																														
Item	Overcurrent Protection	Temperature	25°C																																												
Object	+24V6.4A	Testing Circuitry	Figure A																																												
1.Graph		2.Values																																													
<div><div><div></div>Input Volt. 115V</div><div><div></div>Input Volt. 230V</div></div> <p>Note: Slanted line shows the range of the rated load current.</p> <p>Intermittent operation occurs when the output voltage is from 11.8V to 0V.</p>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="2">Load Current [A]</th></tr><tr><th>Input Volt. 115[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>22.8</td><td>7.75</td><td>7.97</td></tr><tr><td>21.6</td><td>7.62</td><td>7.84</td></tr><tr><td>19.2</td><td>8.19</td><td>8.40</td></tr><tr><td>16.8</td><td>8.42</td><td>8.65</td></tr><tr><td>14.4</td><td>8.68</td><td>8.88</td></tr><tr><td>12.0</td><td>8.95</td><td>9.14</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></table>		Output Voltage [V]	Load Current [A]		Input Volt. 115[V]	Input Volt. 230[V]	22.8	7.75	7.97	21.6	7.62	7.84	19.2	8.19	8.40	16.8	8.42	8.65	14.4	8.68	8.88	12.0	8.95	9.14	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-
Output Voltage [V]	Load Current [A]																																														
	Input Volt. 115[V]	Input Volt. 230[V]																																													
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Model		PJA150F-24	Testing Circuitry    Figure A																																						
Item		Overvoltage Protection																																							
Object		+24V6.4A																																							
1.Graph			2.Values																																						
<div><div><div><div><div>—△—</div><div>Input Volt.    115V</div></div><div><div>---□---</div><div>Input Volt.    230V</div></div></div><div><p>Operating Point [V]</p><p>Ambient Temperature [°C]</p><p>Load 0%</p><p>Note: Slanted line shows the range of the rated ambient temperature.</p></div></div></div>			<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Operating Point [V]</th></tr><tr><th>Input Volt. 115[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>-20</td><td>31.60</td><td>31.63</td></tr><tr><td>-10</td><td>31.66</td><td>31.68</td></tr><tr><td>0</td><td>31.66</td><td>31.68</td></tr><tr><td>10</td><td>31.71</td><td>31.76</td></tr><tr><td>20</td><td>31.82</td><td>31.80</td></tr><tr><td>25</td><td>31.82</td><td>31.80</td></tr><tr><td>30</td><td>31.82</td><td>31.80</td></tr><tr><td>40</td><td>31.82</td><td>31.80</td></tr><tr><td>45</td><td>31.87</td><td>31.87</td></tr><tr><td>50</td><td>31.87</td><td>31.87</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>	Ambient Temperature [°C]	Operating Point [V]		Input Volt. 115[V]	Input Volt. 230[V]	-20	31.60	31.63	-10	31.66	31.68	0	31.66	31.68	10	31.71	31.76	20	31.82	31.80	25	31.82	31.80	30	31.82	31.80	40	31.82	31.80	45	31.87	31.87	50	31.87	31.87	--	-	-
Ambient Temperature [°C]	Operating Point [V]																																								
	Input Volt. 115[V]	Input Volt. 230[V]																																							
-20	31.60	31.63																																							
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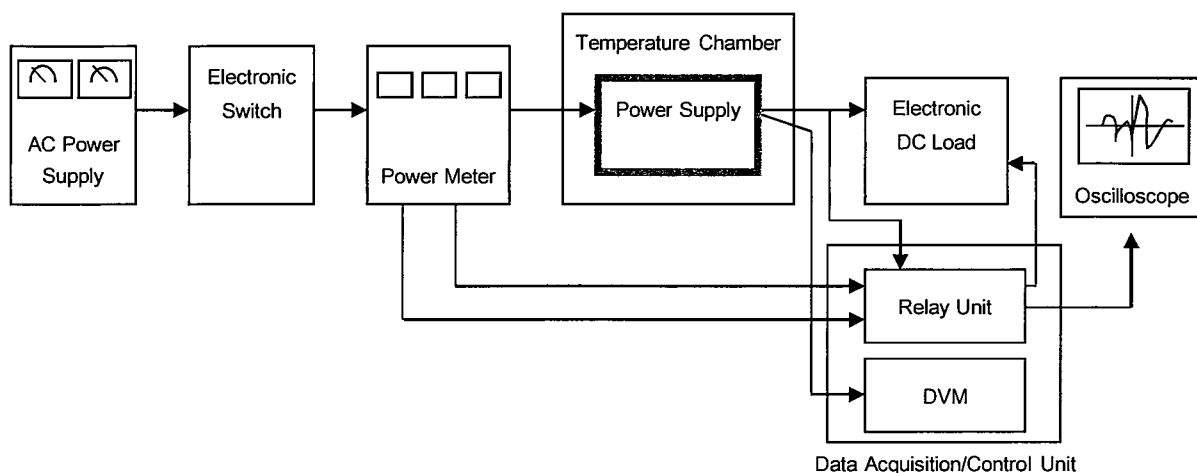


Figure A

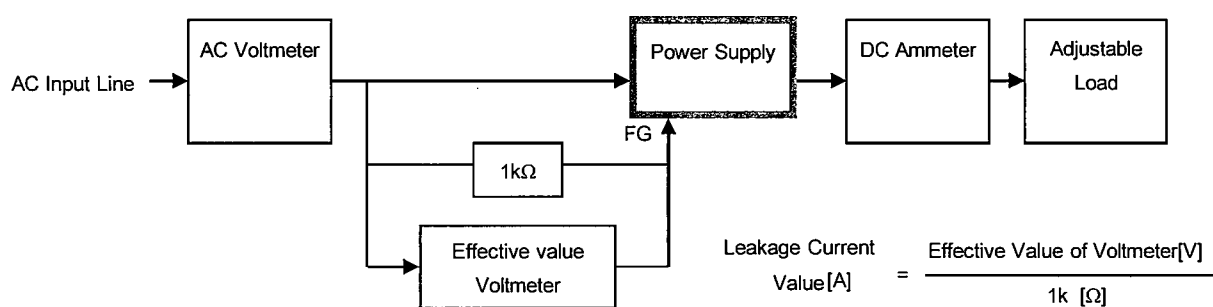


Figure B ( DEN-AN )

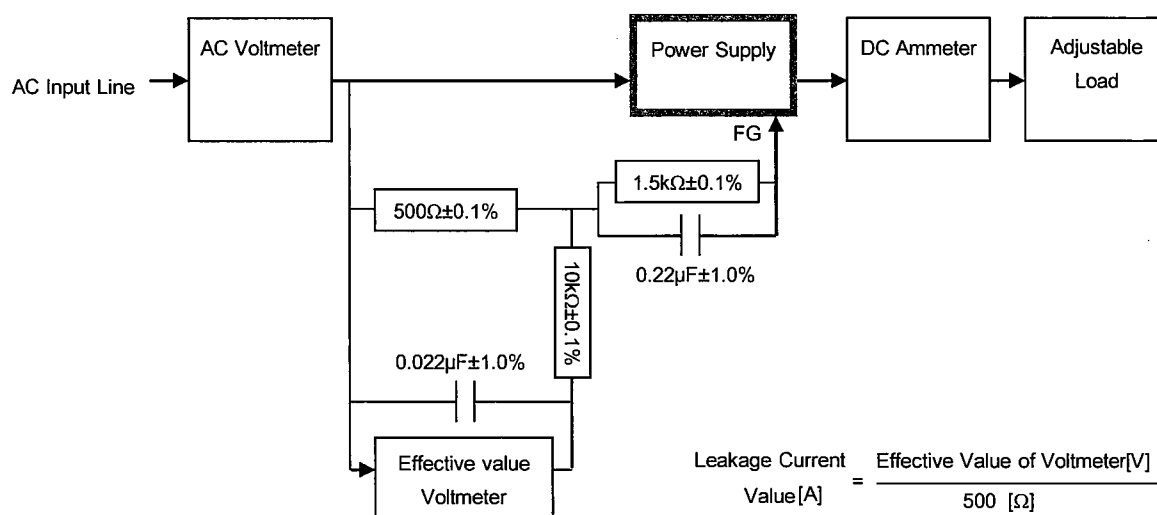


Figure B ( IEC60950-1 )

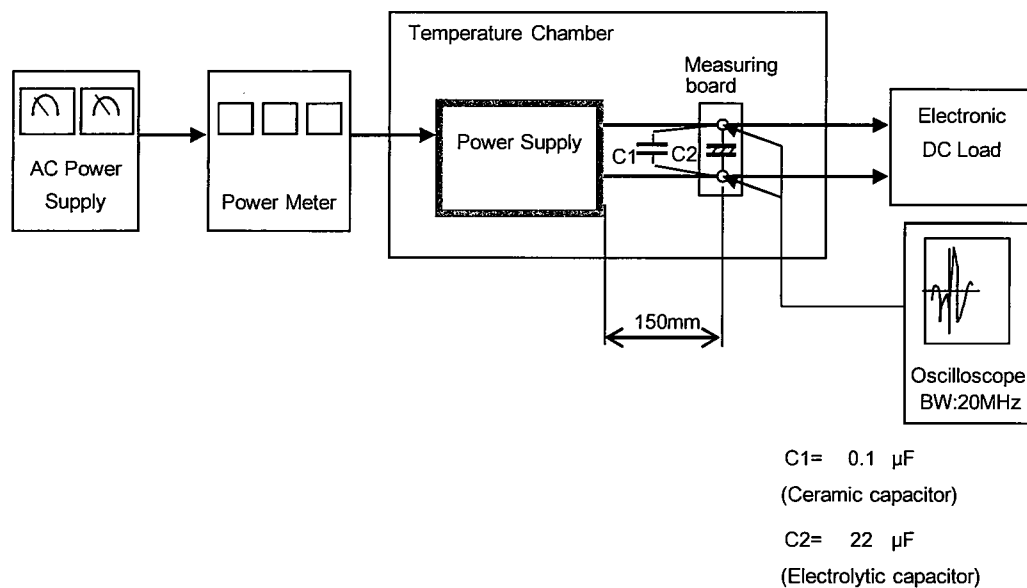


Figure C