



# TEST DATA OF PBA10F-5

Regulated DC Power Supply  
Sep 29, 2005

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**COSEL CO.,LTD.**

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# COSEL

Model

PBA10F-5

Item

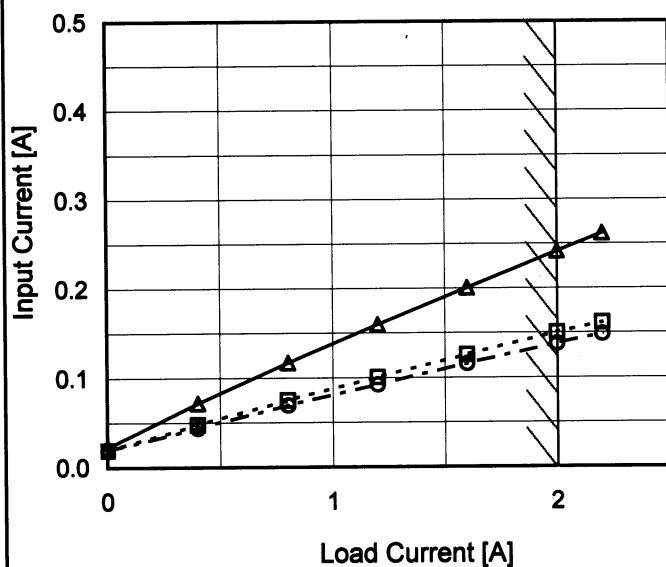
Input Current (by Load Current)

Object

 Temperature 25°C  
 Testing Circuitry Figure A

## 1. Graph

—△— Input Volt. 100V  
 ---□--- Input Volt. 200V  
 - - ○ - - Input Volt. 230V



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

## 2. Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	0.023	0.019	0.019
0.4	0.072	0.048	0.044
0.8	0.117	0.075	0.069
1.2	0.160	0.101	0.092
1.6	0.201	0.126	0.116
2.0	0.242	0.151	0.138
2.2	0.262	0.162	0.149
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

# COSEL

Model		PBA10F-5	
Item		Input Power (by Load Current)	
Object			

1.Graph

—△—

Input Volt.

100V

---□---

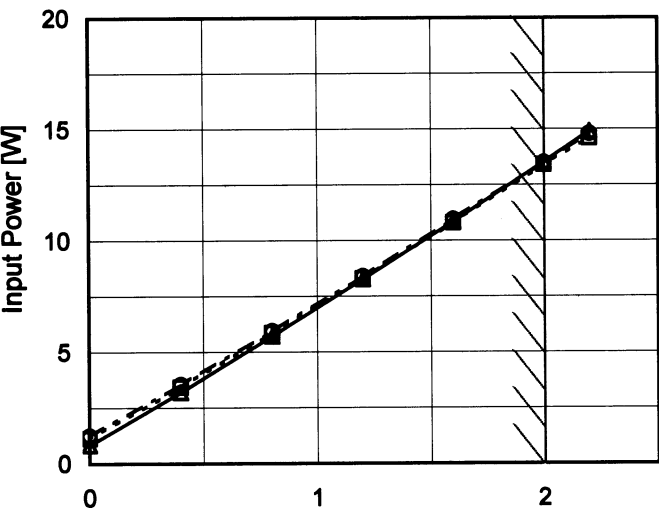
Input Volt.

200V

---○---

Input Volt.

230V



Input Power [W]

Load Current [A]

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

2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	0.83	1.13	1.25
0.4	3.21	3.43	3.55
0.8	5.72	5.86	5.95
1.2	8.27	8.30	8.40
1.6	10.86	10.80	10.96
2.0	13.54	13.40	13.50
2.2	14.91	14.60	14.80
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

# COSEL

Model	PBA10F-5	Temperature25°C Testing CircuitryFigure A																																	
Item	Efficiency (by Input Voltage)																																		
Object																																			
1.Graph		2.Values																																	
<div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> <table><thead><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Efficiency [%]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr></thead><tbody><tr><td>75</td><td>71.4</td><td>71.7</td></tr><tr><td>85</td><td>71.7</td><td>73.0</td></tr><tr><td>100</td><td>72.4</td><td>74.2</td></tr><tr><td>120</td><td>71.9</td><td>74.9</td></tr><tr><td>200</td><td>70.4</td><td>74.9</td></tr><tr><td>230</td><td>69.1</td><td>74.4</td></tr><tr><td>264</td><td>67.7</td><td>74.0</td></tr><tr><td>280</td><td>67.1</td><td>73.8</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table>		Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	75	71.4	71.7	85	71.7	73.0	100	72.4	74.2	120	71.9	74.9	200	70.4	74.9	230	69.1	74.4	264	67.7	74.0	280	67.1	73.8	--	-	-		
Input Voltage [V]	Efficiency [%]																																		
	Load 50%	Load 100%																																	
75	71.4	71.7																																	
85	71.7	73.0																																	
100	72.4	74.2																																	
120	71.9	74.9																																	
200	70.4	74.9																																	
230	69.1	74.4																																	
264	67.7	74.0																																	
280	67.1	73.8																																	
--	-	-																																	
Note: Slanted line shows the range of the rated input voltage.																																			

# COSEL

Model

PBA10F-5

Item

Efficiency (by Load Current)

Object

Temperature

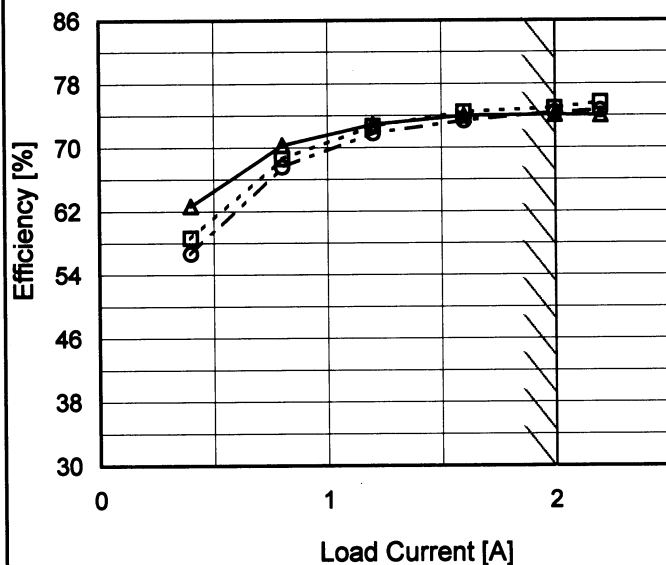
25°C

Testing Circuitry

Figure A

## 1. Graph

—△— Input Volt. 100V  
 ---□--- Input Volt. 200V  
 - - -○- - - Input Volt. 230V



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

## 2. Values

Load Current [A]	Efficiency [%]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	-	-	-
0.4	62.7	58.6	56.7
0.8	70.3	68.6	67.6
1.2	72.9	72.7	71.8
1.6	74.0	74.4	73.4
2.0	74.1	74.9	74.4
2.2	74.0	75.7	74.6
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

# COSEL

Model

PBA10F-5

Item

Power Factor (by Input Voltage)

Object

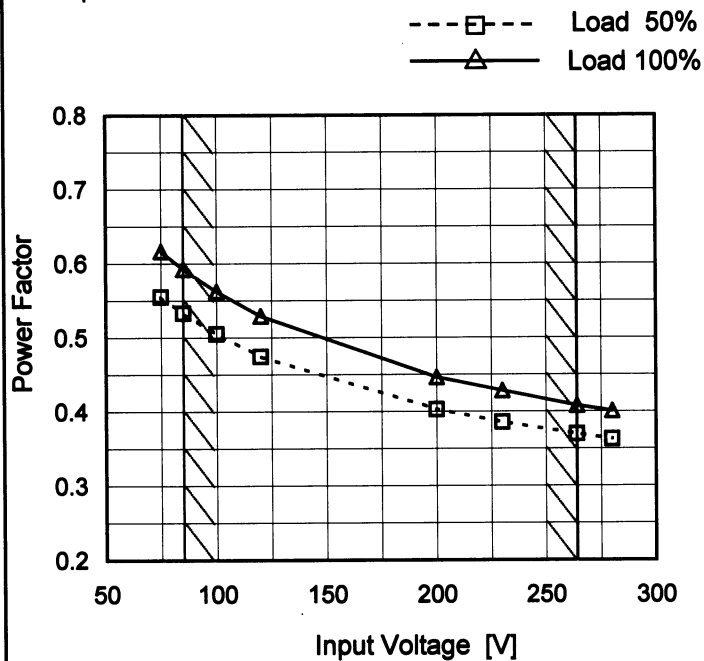
Temperature

25°C

Testing Circuitry

Figure A

## 1. Graph



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

## 2. Values

Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
75	0.555	0.617
85	0.533	0.592
100	0.505	0.563
120	0.475	0.529
200	0.403	0.447
230	0.386	0.429
264	0.370	0.408
280	0.363	0.401
--	-	-

# COSEL

Model

PBA10F-5

Item

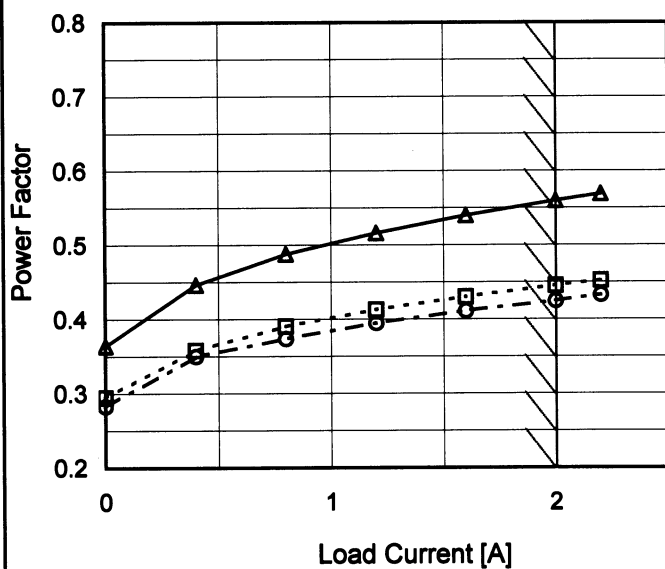
Power Factor (by Load Current)

Object

 Temperature 25°C  
 Testing Circuitry Figure A

## 1. Graph

—△— Input Volt. 100V  
 ---□--- Input Volt. 200V  
 -·-○-·- Input Volt. 230V



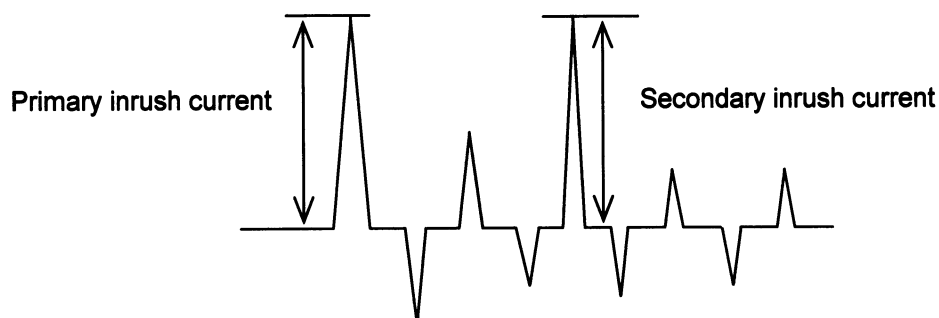
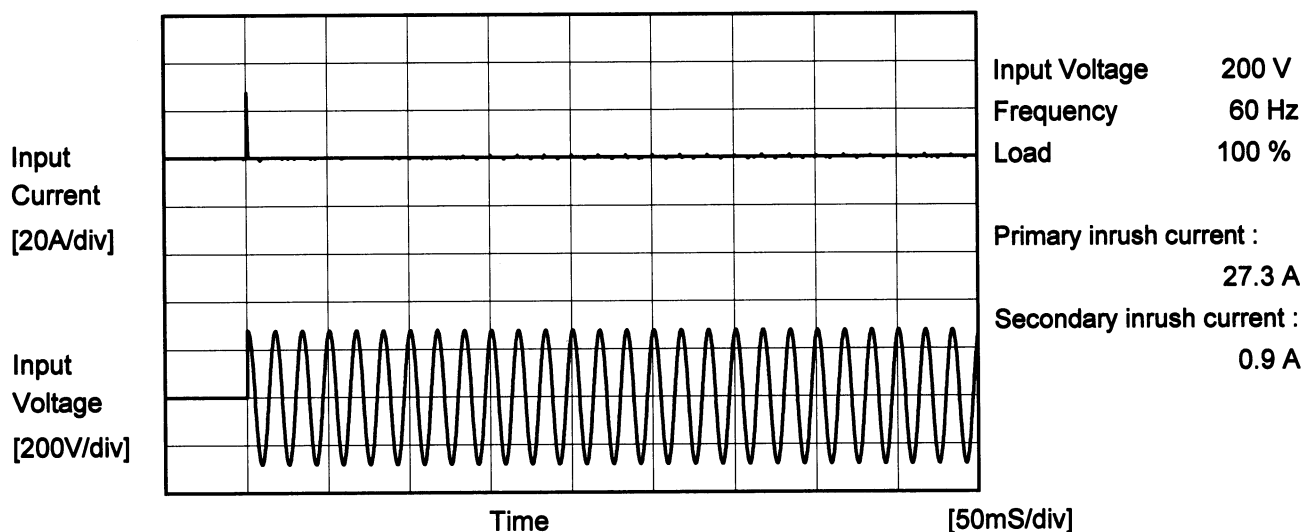
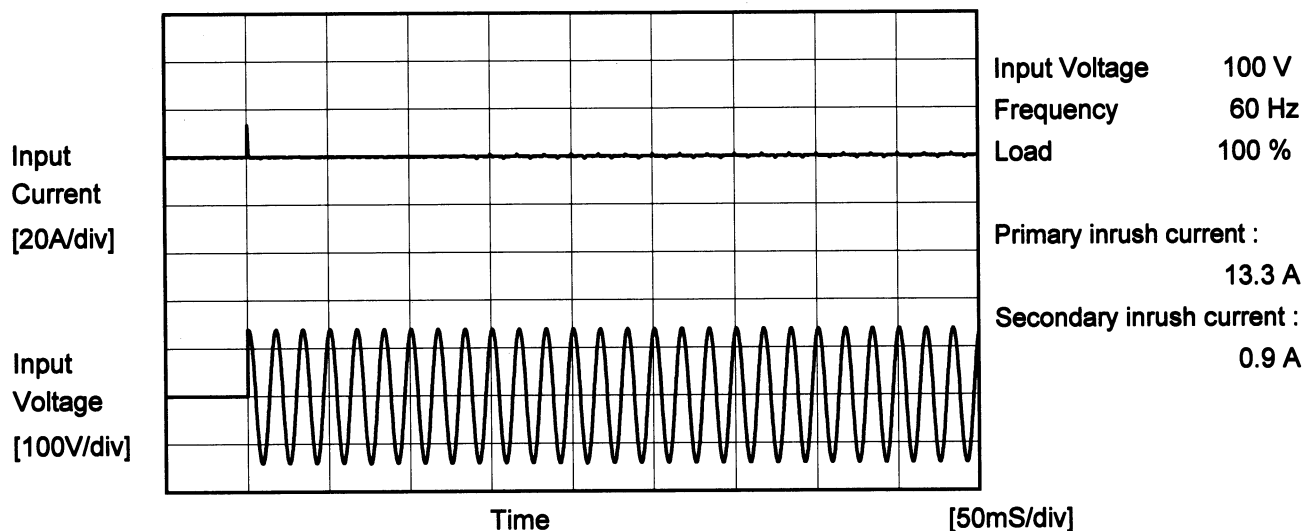
Note: Slanted line shows the range of the rated load current.

## 2. Values

Load Current [A]	Power Factor		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	0.364	0.295	0.283
0.4	0.446	0.358	0.350
0.8	0.488	0.390	0.374
1.2	0.517	0.413	0.395
1.6	0.540	0.430	0.411
2.0	0.560	0.445	0.425
2.2	0.569	0.452	0.433
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

# COSEL

Model		PBA10F-5	Temperature 25°C Testing Circuitry Figure A
Item		Inrush Current	
Object		_____	





Model		PBA10F-5	Temperature 25°C Testing Circuitry Figure B
Item		Leakage Current	
Object			

## 1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	240 [V]	
DEN-AN	Both phases	0.05	0.11	0.13	Operation
	One of phase	0.09	0.21	0.25	stand by
IEC60950	Both phases	0.06	0.14	0.17	Operation
	One of phase	0.09	0.20	0.24	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.

# COSEL

Model

PBA10F-5

Item

Line Regulation

Object

+5V2A

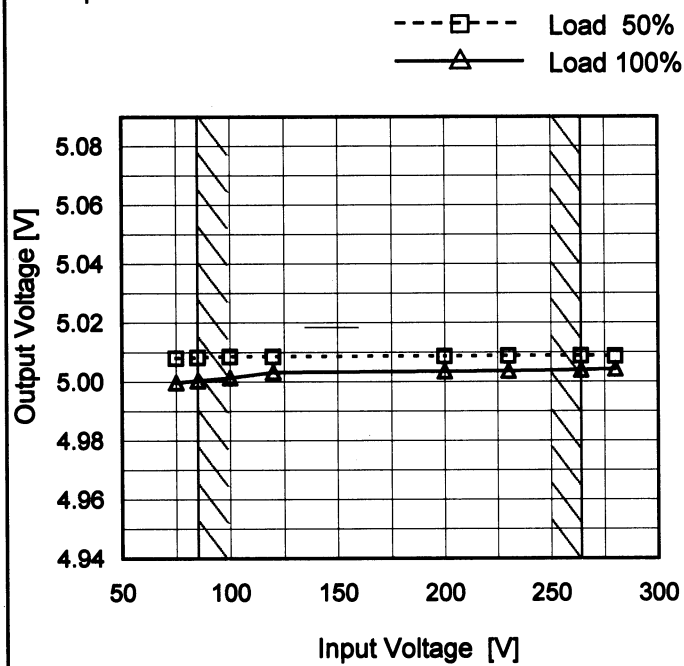
Temperature

25°C

Testing Circuitry

Figure A

## 1. Graph



## 2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
75	5.008	5.000
85	5.008	5.000
100	5.009	5.001
120	5.009	5.003
200	5.009	5.004
230	5.009	5.004
264	5.009	5.004
280	5.009	5.004
--	-	-

# COSEL

Model

PBA10F-5

Item

Load Regulation

Object

+5V2A

Temperature

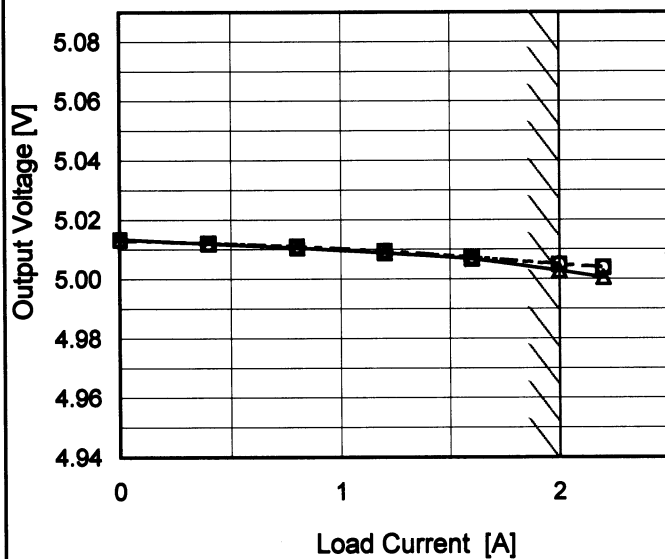
25°C

Testing Circuitry

Figure A

## 1. Graph

—△— Input Volt. 100V  
 ---□--- Input Volt. 200V  
 ---○--- Input Volt. 230V



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

## 2. Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	5.014	5.013	5.013
0.4	5.012	5.012	5.012
0.8	5.011	5.011	5.011
1.2	5.009	5.009	5.010
1.6	5.007	5.007	5.007
2.0	5.003	5.005	5.005
2.2	5.001	5.004	5.004
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

# COSEL

Model	PBA10F-5	Temperature	25℃
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+5V2A		

Input Volt. 100 V  
Cycle 1000 ms

Load Current

Min. Load (0A) ↔  
Load 100% (2A)

100 mV/div



5 ms/div



5 ms/div

Min. Load (0A) ↔  
Load 50% (1A)

100 mV/div



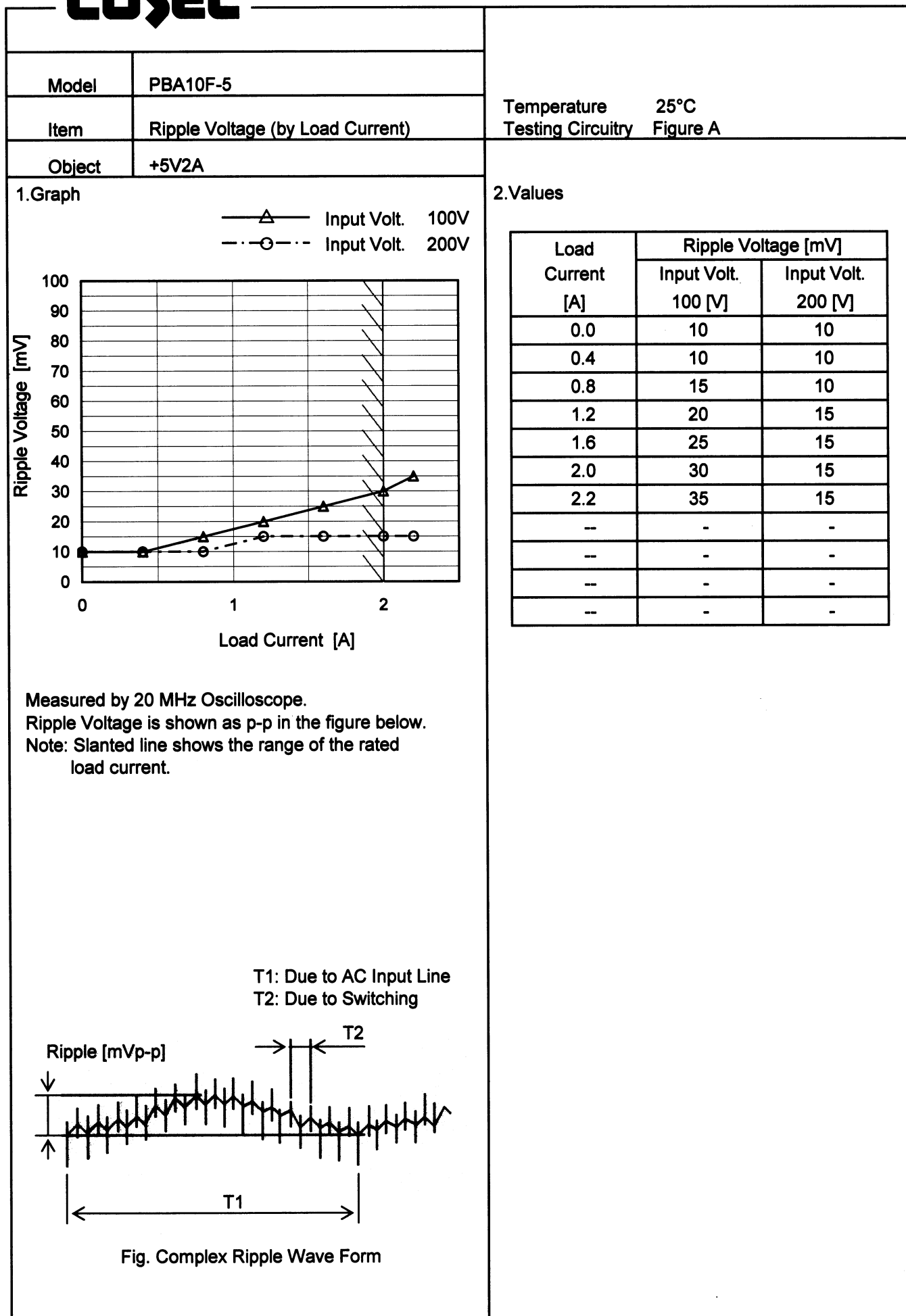
5 ms/div



5 ms/div

\* The characteristic of AC200V is equal.

# COSEL



# COSEL

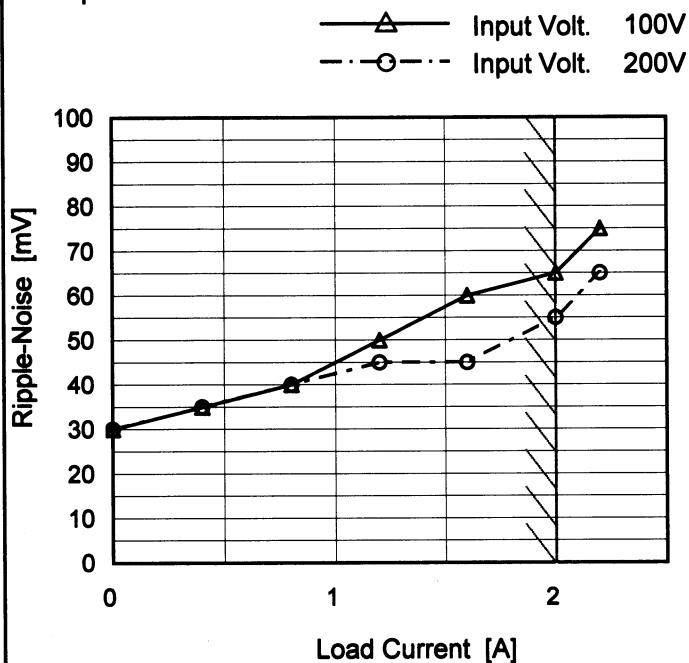
**Model** PBA10F-5

**Item** Ripple-Noise

**Object** +5V2A

**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]
0.0	30	30
0.4	35	35
0.8	40	40
1.2	50	45
1.6	60	45
2.0	65	55
2.2	75	65
--	-	-
--	-	-
--	-	-
--	-	-

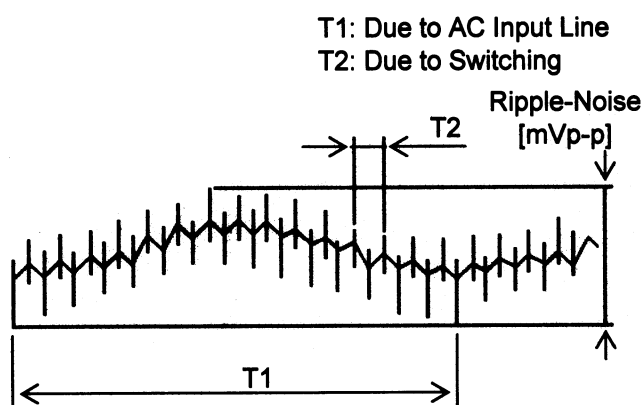


Fig. Complex Ripple Wave Form

# COSEL

Model

PBA10F-5

Item

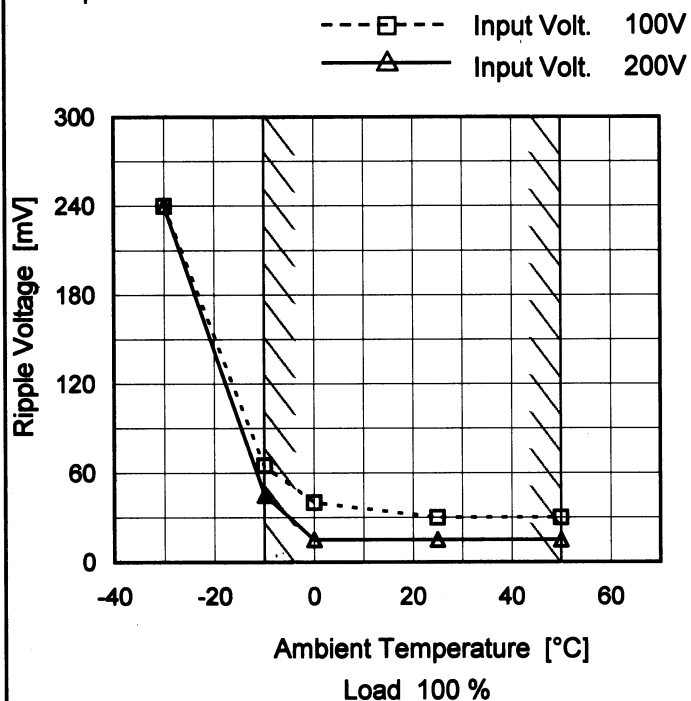
Ripple Voltage (by Ambient Temp.)

Object

+5V2A

Testing Circuitry Figure A

## 1. Graph






Measured by 20 MHz Oscilloscope.

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

## 2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	240	240
-10	65	45
0	40	15
25	30	15
50	30	15
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

### Testing Circuitry Figure A

	Input Volt.	100V
	Input Volt.	200V
	Input Volt.	230V



Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
-20	4.999	5.004	5.004
-10	5.001	5.005	5.005
0	5.003	5.007	5.007
10	5.005	5.009	5.010
20	5.008	5.012	5.013
25	5.009	5.013	5.014
30	5.010	5.013	5.014
40	5.012	5.015	5.016
50	5.013	5.016	5.017
60	5.012	5.015	5.015
--	-	-	-

**COSEL**

Model		Testing Circuitry    Figure A
PBA10F-5		
Item	Output Voltage Accuracy	
Object	+5V2A	

### 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 - 2A

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

\* 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	50	200	0	5.027	±12	±0.2
Minimum Voltage	-10	85	2	5.004		

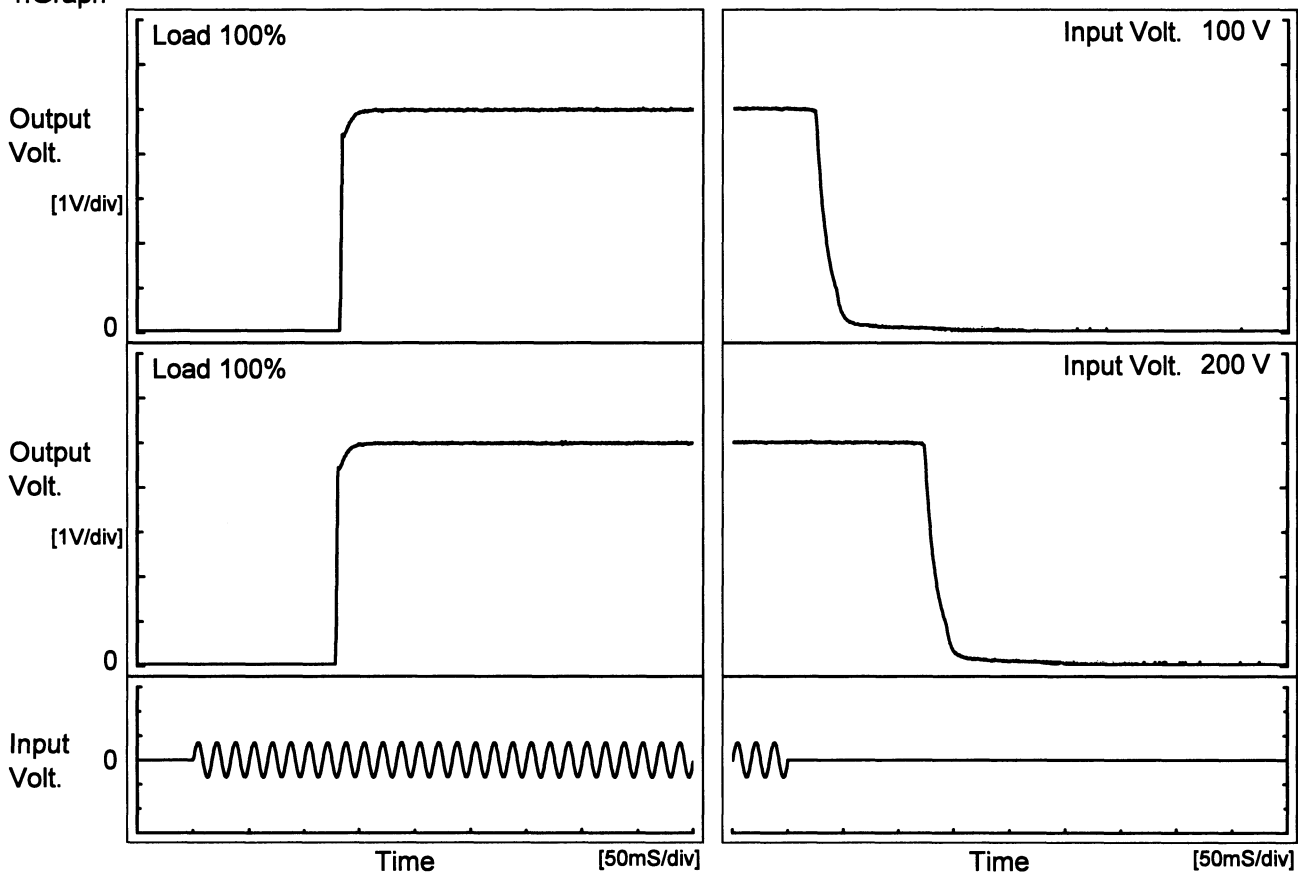
**COSEL**

Model	PBA10F-5	Temperature 25°C Testing Circuitry Figure A	
Item	Time Lapse Drift		
Object	+5V2A		
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

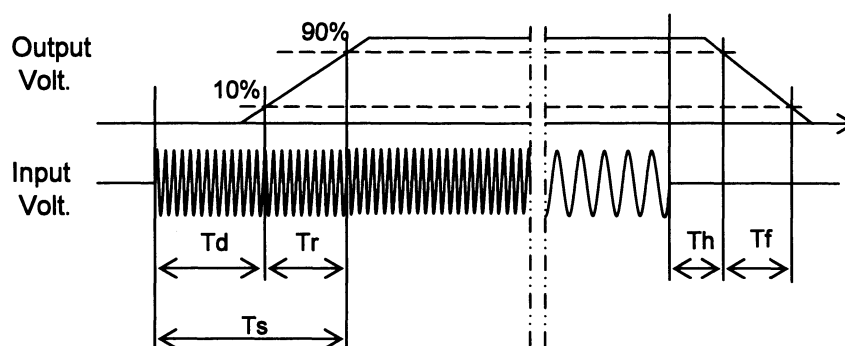
Model	PBA10F-5	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+5V2A		

## 1. Graph



## 2. Values

Input Volt.	Time	Td	Tr	Ts	Th	Tf
100 V		132.0	6.0	138.0	25.3	21.3
200 V		128.3	6.0	134.3	124.3	22.0



# COSEL

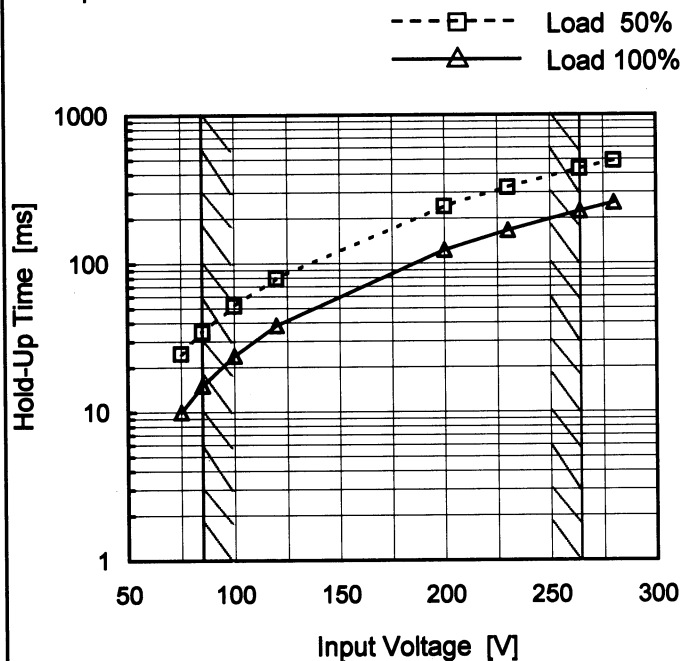
Model PBA10F-5

Item Hold-Up Time

Object +5V2A

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%
75	25	10
85	35	15
100	52	24
120	80	38
200	242	123
230	324	167
264	432	225
280	489	256
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# COSEL

Model	PBA10F-5																																																					
Item	Instantaneous Interruption Compensation	Temperature	25°C																																																			
Object	+5V2A	Testing Circuitry	Figure A																																																			
1.Graph		2.Values																																																				
<div><div>Instantaneous Compensation Time [ms]</div><div><div>1000</div><div>100</div><div>10</div><div>1</div></div><div><div>0</div><div>1</div><div>2</div></div><div>Load Current [A]</div></div> <div><div>—△—</div> Input Volt. 100V <div>---□---</div> Input Volt. 200V <div>---○---</div> Input Volt. 230V</div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>0.0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.4</td><td>114</td><td>489</td><td>714</td></tr><tr><td>0.8</td><td>64</td><td>300</td><td>414</td></tr><tr><td>1.2</td><td>46</td><td>214</td><td>289</td></tr><tr><td>1.6</td><td>31</td><td>164</td><td>214</td></tr><tr><td>2.0</td><td>23</td><td>130</td><td>180</td></tr><tr><td>2.2</td><td>22</td><td>112</td><td>163</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><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>		Load Current [A]	Time [ms]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.0	-	-	-	0.4	114	489	714	0.8	64	300	414	1.2	46	214	289	1.6	31	164	214	2.0	23	130	180	2.2	22	112	163	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Time [ms]																																																					
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Note: Slanted line shows the range of the rated load current.																																																						

# COSEL

Model

PBA10F-5

Item

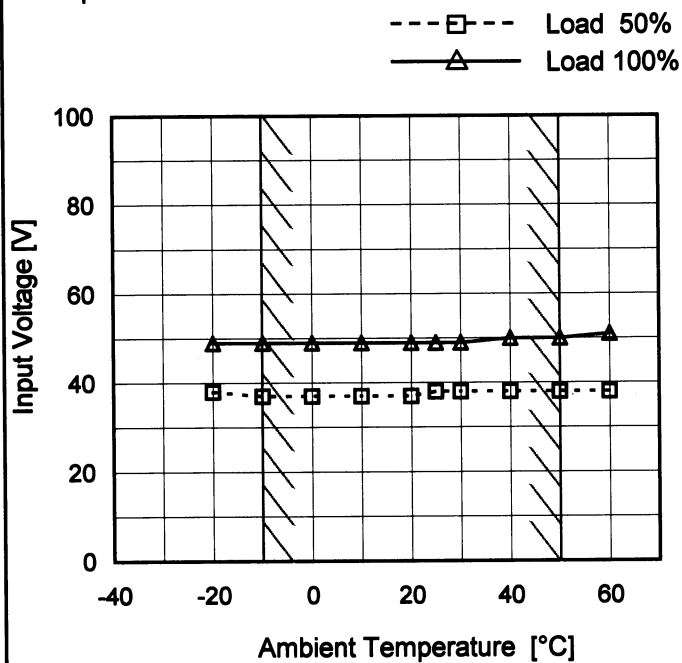
Minimum Input Voltage  
for Regulated Output Voltage

Object

+5V2A

Testing Circuitry Figure A

## 1. Graph



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

## 2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	38	49
-10	37	49
0	37	49
10	37	49
20	37	49
25	38	49
30	38	49
40	38	50
50	38	50
60	38	51
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# COSEL

Model	PBA10F-5	Temperature 25°C Testing Circuitry Figure A																																										
Item	Overcurrent Protection																																											
Object	+5V2A																																											
1.Graph		2.Values																																										
<div><div><div>△</div><div>Input Volt. 100V</div></div><div><div>○</div><div>Input Volt. 200V</div></div></div> <p>Note: Slanted line shows the range of the rated load current.</p> <p>Intermittent operation occurs when the output voltage is less than rated output voltage.</p>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="2">Load Current [A]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th></tr><tr><td>5.00</td><td>4.05</td><td>4.91</td></tr><tr><td>4.75</td><td>-</td><td>-</td></tr><tr><td>4.50</td><td>-</td><td>-</td></tr><tr><td>4.00</td><td>-</td><td>-</td></tr><tr><td>3.50</td><td>-</td><td>-</td></tr><tr><td>3.00</td><td>-</td><td>-</td></tr><tr><td>2.50</td><td>-</td><td>-</td></tr><tr><td>2.00</td><td>-</td><td>-</td></tr><tr><td>1.50</td><td>-</td><td>-</td></tr><tr><td>1.00</td><td>-</td><td>-</td></tr><tr><td>0.50</td><td>-</td><td>-</td></tr><tr><td>0.00</td><td>-</td><td>-</td></tr></table>		Output Voltage [V]	Load Current [A]		Input Volt. 100[V]	Input Volt. 200[V]	5.00	4.05	4.91	4.75	-	-	4.50	-	-	4.00	-	-	3.50	-	-	3.00	-	-	2.50	-	-	2.00	-	-	1.50	-	-	1.00	-	-	0.50	-	-	0.00	-	-
Output Voltage [V]	Load Current [A]																																											
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# COSEL

Model

PBA10F-5

Item

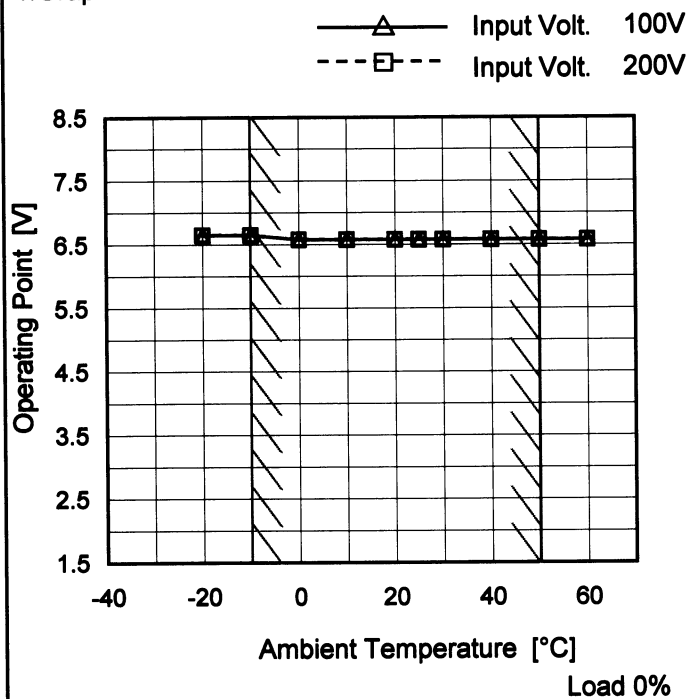
Overvoltage Protection

Object

+5V2A

Testing Circuitry Figure A

## 1. Graph



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

## 2. Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 100[V]	Input Volt. 200[V]
-20	6.65	6.65
-10	6.65	6.65
0	6.58	6.58
10	6.58	6.58
20	6.58	6.58
25	6.58	6.58
30	6.58	6.58
40	6.58	6.58
50	6.58	6.58
60	6.58	6.58
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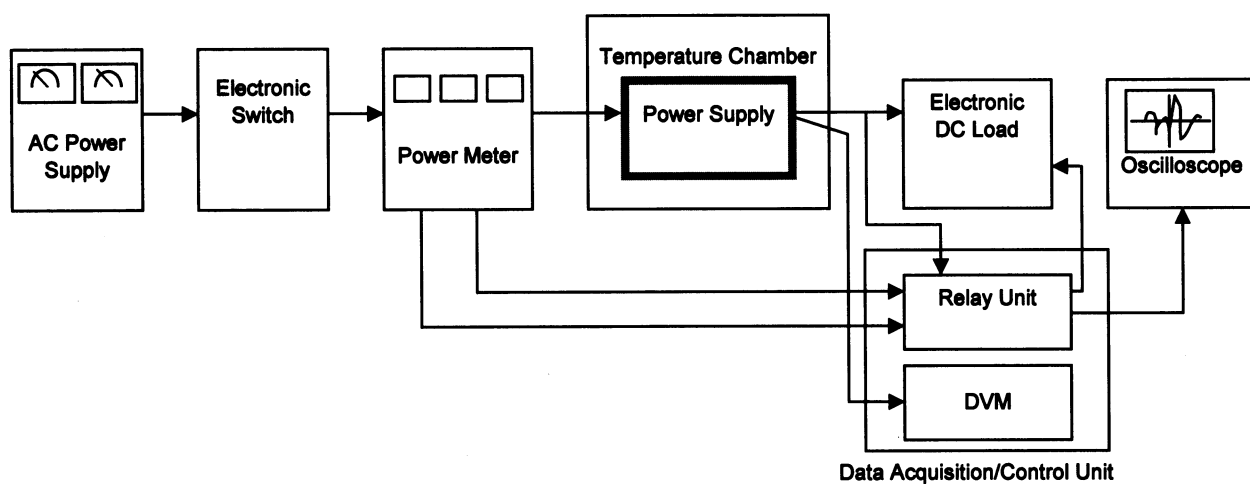


Figure A

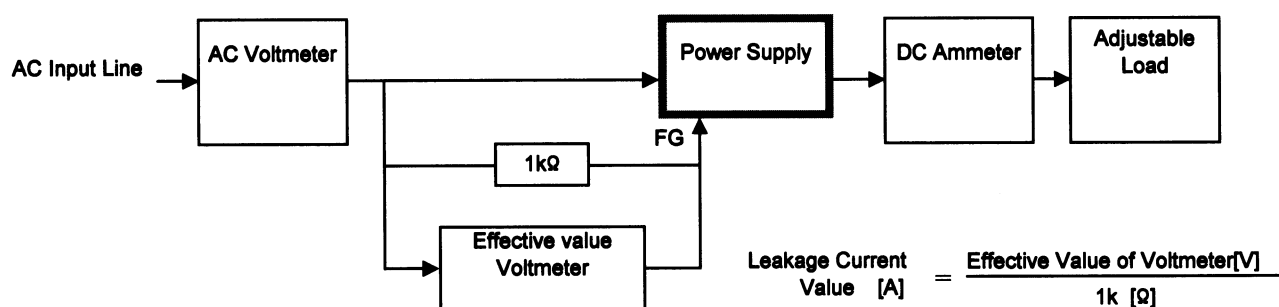


Figure B ( DEN-AN )

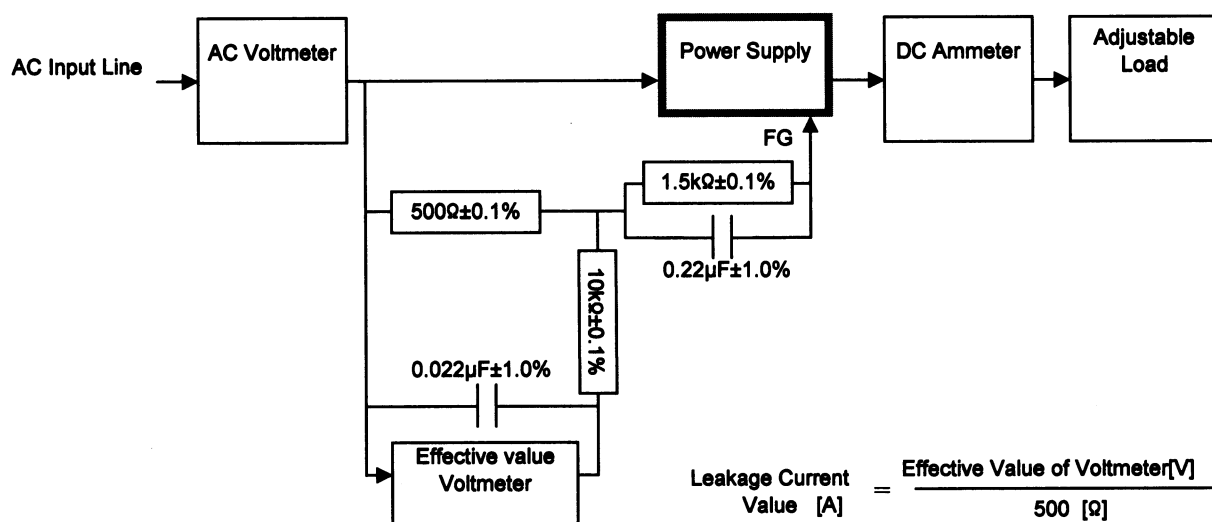


Figure B ( IEC60950 )