



TEST DATA OF PBA30F-12

Regulated DC Power Supply
Sep 29, 2005

Approved by : Kuniaki Nagahara Design Manager

Prepared by : Akito Joboji Design Engineer

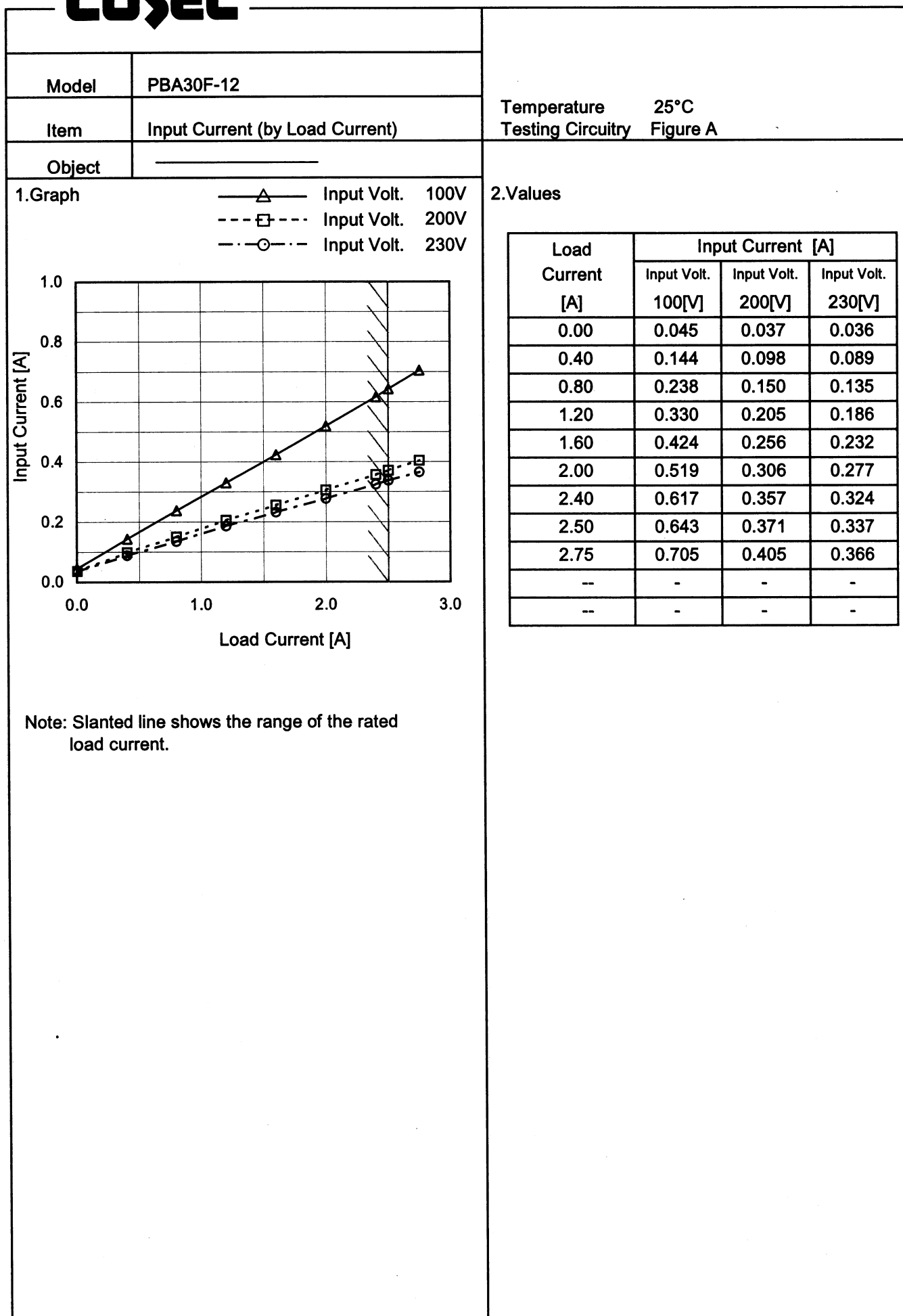
COSEL CO.,LTD.

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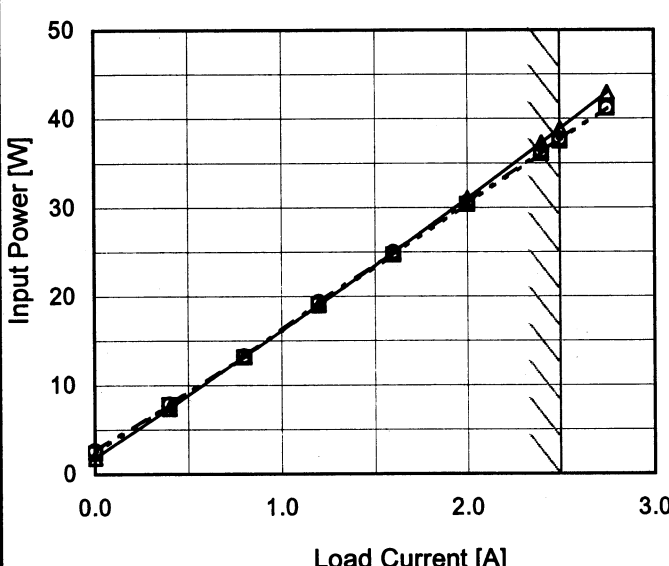
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(Final Page 24)

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Model		PBA30F-12	
Item		Input Power (by Load Current)	
Object			
1.Graph		<div><div><div>—△—</div><div>---□---</div><div>---○---</div></div><div><div>Input Volt. 100V</div><div>Input Volt. 200V</div><div>Input Volt. 230V</div></div></div> <div></div>	
Note: Slanted line shows the range of the rated load current.			

Temperature 25°C	
Testing Circuitry Figure A	

2.Values

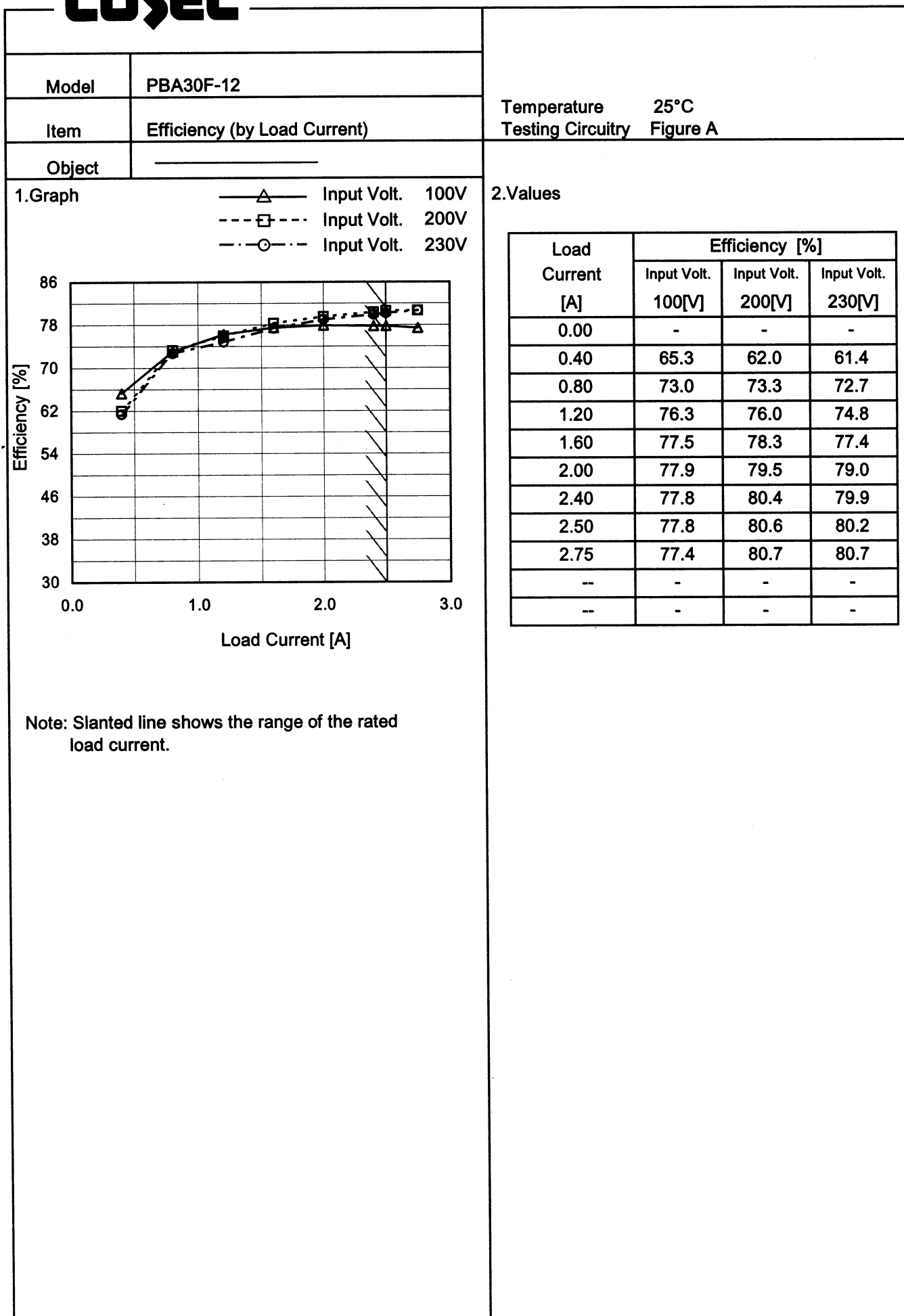
Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	1.82	2.39	2.66
0.40	7.41	7.80	7.88
0.80	13.24	13.20	13.30
1.20	19.03	19.10	19.40
1.60	24.96	24.70	25.00
2.00	31.03	30.40	30.60
2.40	37.30	36.10	36.30
2.50	38.86	37.50	37.70
2.75	42.93	41.20	41.20
--	-	-	-
--	-	-	-

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Model		PBA30F-12	
Item		Efficiency (by Input Voltage)	
Object			
1.Graph		2.Values	

<

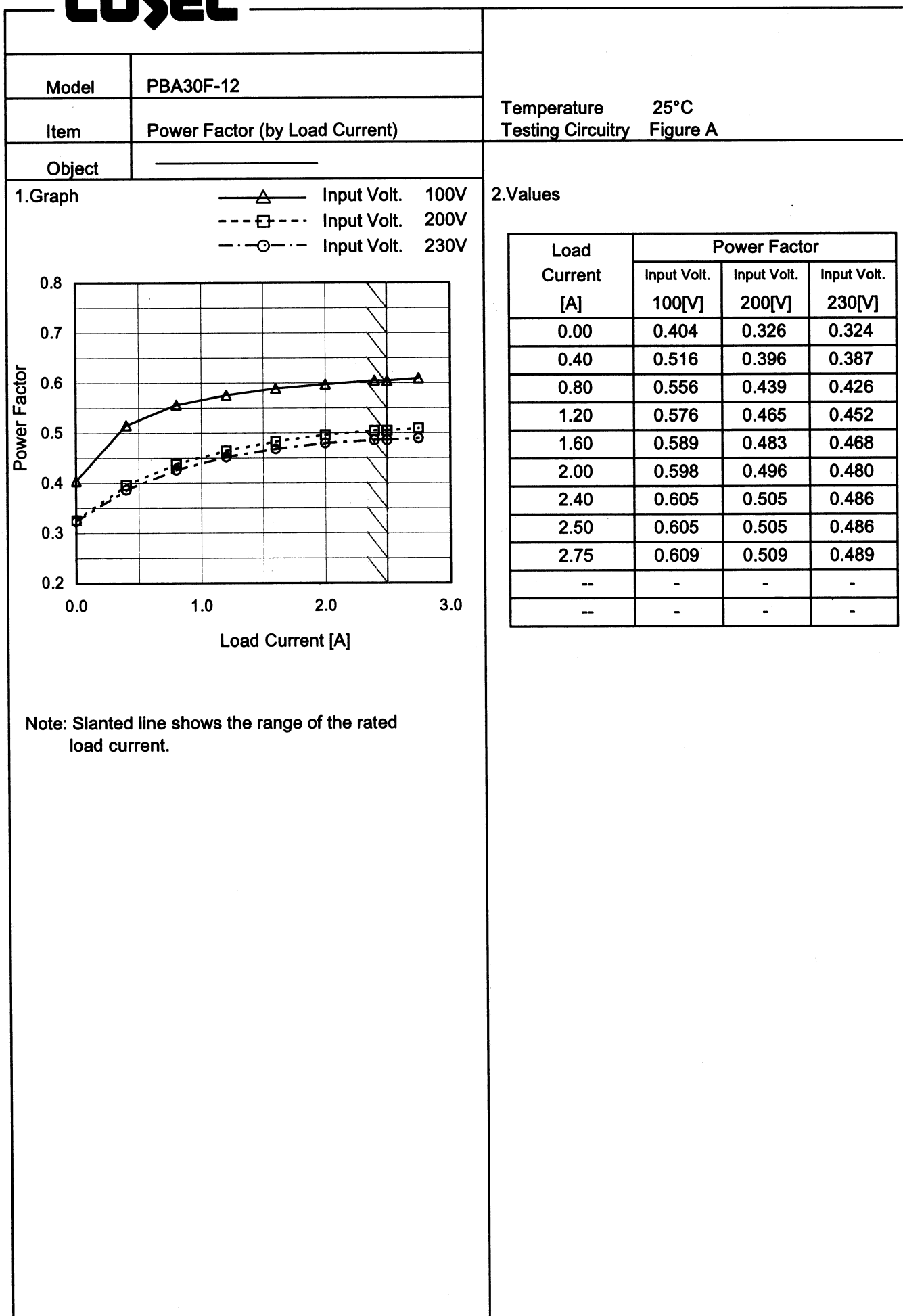
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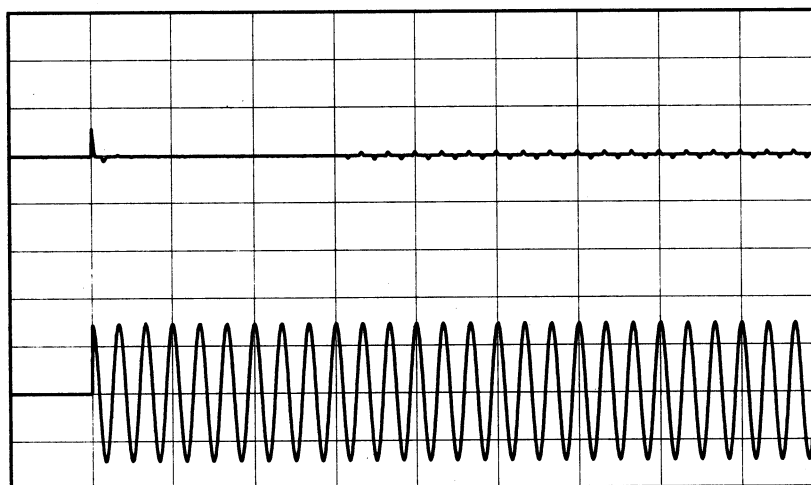
Model		PBA30F-12		Temperature 25°C																																	
Item		Power Factor (by Input Voltage)		Testing Circuitry Figure A																																	
Object																																					
1.Graph				2.Values																																	
<div><div><div>---</div><div>□</div><div>---</div></div><div>Load 50%</div><div><div>—</div><div>△</div><div>—</div></div><div>Load 100%</div></div> <p>Power Factor</p> <p>Input Voltage [V]</p> <p>Note: Slanted line shows the range of the rated input voltage.</p>				<table><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><tr><td>75</td><td>0.622</td><td>0.651</td></tr><tr><td>85</td><td>0.598</td><td>0.627</td></tr><tr><td>100</td><td>0.571</td><td>0.602</td></tr><tr><td>120</td><td>0.543</td><td>0.571</td></tr><tr><td>200</td><td>0.466</td><td>0.491</td></tr><tr><td>230</td><td>0.451</td><td>0.477</td></tr><tr><td>264</td><td>0.435</td><td>0.460</td></tr><tr><td>280</td><td>0.429</td><td>0.452</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Input Voltage [V]	Power Factor		Load 50%	Load 100%	75	0.622	0.651	85	0.598	0.627	100	0.571	0.602	120	0.543	0.571	200	0.466	0.491	230	0.451	0.477	264	0.435	0.460	280	0.429	0.452	--	-	-
Input Voltage [V]	Power Factor																																				
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--	-	-																																			

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Model		PBA30F-12	Temperature 25°C Testing Circuitry Figure A
Item		Inrush Current	
Object		_____	

Input
Current
[20A/div]Input
Voltage
[100V/div]

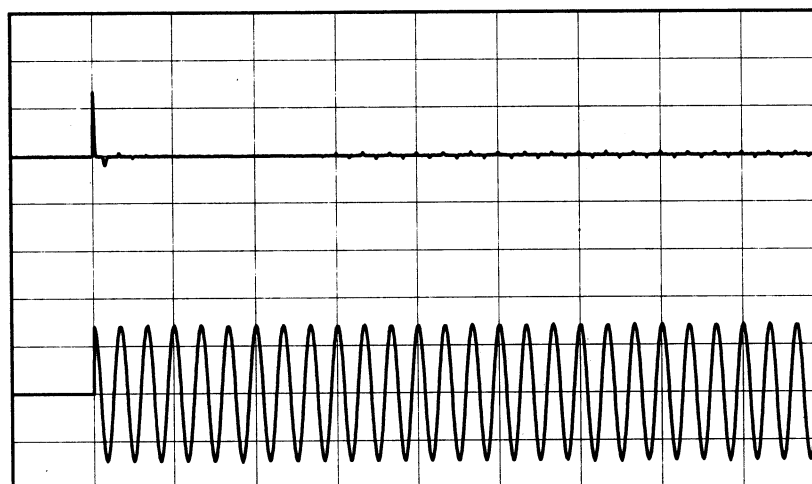
Time

[50ms/div]

Input Voltage 100 V

Frequency 60 Hz

Load 100 %

Primary inrush current :
11.2 ASecondary inrush current :
2.0 AInput
Current
[20A/div]Input
Voltage
[200V/div]

Time

[50ms/div]

Input Voltage 200 V

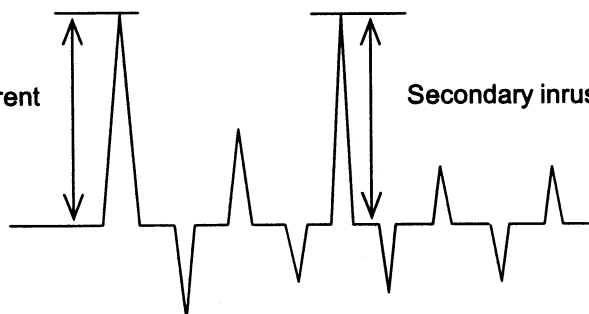
Frequency 60 Hz

Load 100 %

Primary inrush current :
26.8 ASecondary inrush current :
1.6 A

Primary inrush current

Secondary inrush current



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		Temperature 25°C Testing Circuitry Figure B
Model	PBA30F-12	
Item	Leakage Current	
Object		

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.

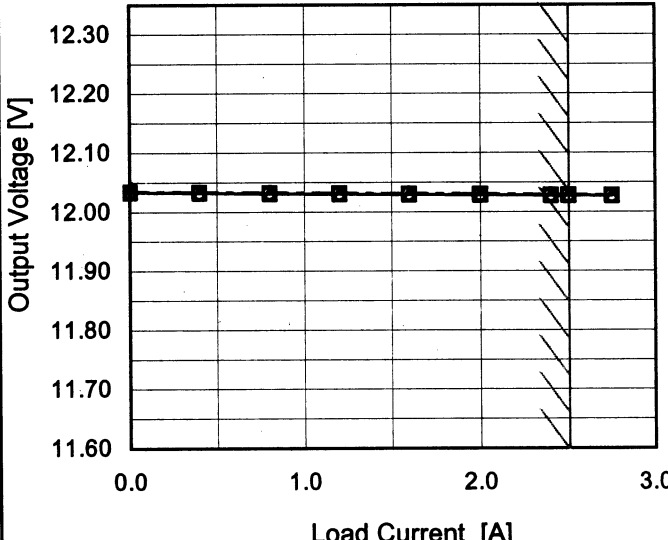
2.Condition

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

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Model	PBA30F-12																																
Item	Line Regulation	Temperature	25°C																														
Object	+12V2.5A	Testing Circuitry	Figure A																														
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>Input Voltage [V]</th><th>Output Voltage [V] Load 50%</th><th>Output Voltage [V] Load 100%</th></tr></thead><tbody><tr><td>75</td><td>12.031</td><td>12.028</td></tr><tr><td>85</td><td>12.031</td><td>12.029</td></tr><tr><td>100</td><td>12.031</td><td>12.029</td></tr><tr><td>120</td><td>12.032</td><td>12.029</td></tr><tr><td>200</td><td>12.032</td><td>12.029</td></tr><tr><td>230</td><td>12.032</td><td>12.030</td></tr><tr><td>264</td><td>12.033</td><td>12.030</td></tr><tr><td>280</td><td>12.033</td><td>12.030</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table> <p>Note: Slanted line shows the range of the rated input voltage.</p>		Input Voltage [V]	Output Voltage [V] Load 50%	Output Voltage [V] Load 100%	75	12.031	12.028	85	12.031	12.029	100	12.031	12.029	120	12.032	12.029	200	12.032	12.029	230	12.032	12.030	264	12.033	12.030	280	12.033	12.030	--	-	-		
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Item	Load Regulation	Temperature	25°C																																																			
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<div><div><div>—△—</div><div>Input Volt.</div><div>100V</div></div><div><div>---□---</div><div>Input Volt.</div><div>200V</div></div><div><div>---○---</div><div>Input Volt.</div><div>230V</div></div></div>  <p>Note: Slanted line shows the range of the rated load current.</p>		<table><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><tr><td>0.00</td><td>12.034</td><td>12.034</td><td>12.034</td></tr><tr><td>0.40</td><td>12.033</td><td>12.033</td><td>12.033</td></tr><tr><td>0.80</td><td>12.031</td><td>12.032</td><td>12.032</td></tr><tr><td>1.20</td><td>12.031</td><td>12.032</td><td>12.032</td></tr><tr><td>1.60</td><td>12.030</td><td>12.031</td><td>12.031</td></tr><tr><td>2.00</td><td>12.029</td><td>12.030</td><td>12.030</td></tr><tr><td>2.40</td><td>12.028</td><td>12.029</td><td>12.029</td></tr><tr><td>2.50</td><td>12.028</td><td>12.028</td><td>12.029</td></tr><tr><td>2.75</td><td>12.027</td><td>12.028</td><td>12.028</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]	Output Voltage [V]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.00	12.034	12.034	12.034	0.40	12.033	12.033	12.033	0.80	12.031	12.032	12.032	1.20	12.031	12.032	12.032	1.60	12.030	12.031	12.031	2.00	12.029	12.030	12.030	2.40	12.028	12.029	12.029	2.50	12.028	12.028	12.029	2.75	12.027	12.028	12.028	--	-	-	-	--	-	-	-
Load Current [A]	Output Voltage [V]																																																					
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Model	PBA30F-12	Temperature	25℃
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+12V2.5A		

Input Volt. 100 V

Cycle 1000 ms

Load Current

Min. Load (0A) ←→

Load 100% (2.5A)

200 mV/div



2 ms/div

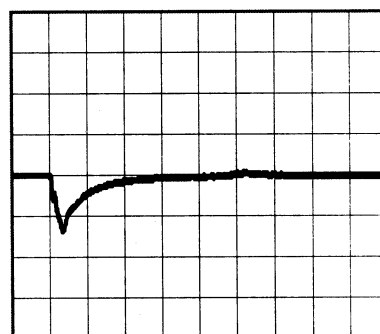


2 ms/div

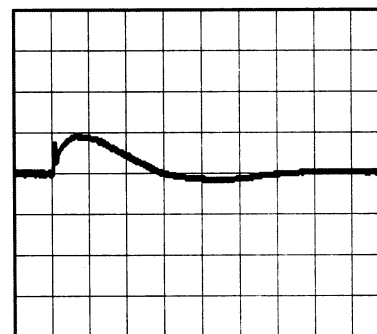
Min. Load (0A) ←→

Load 50% (1.25A)

200 mV/div



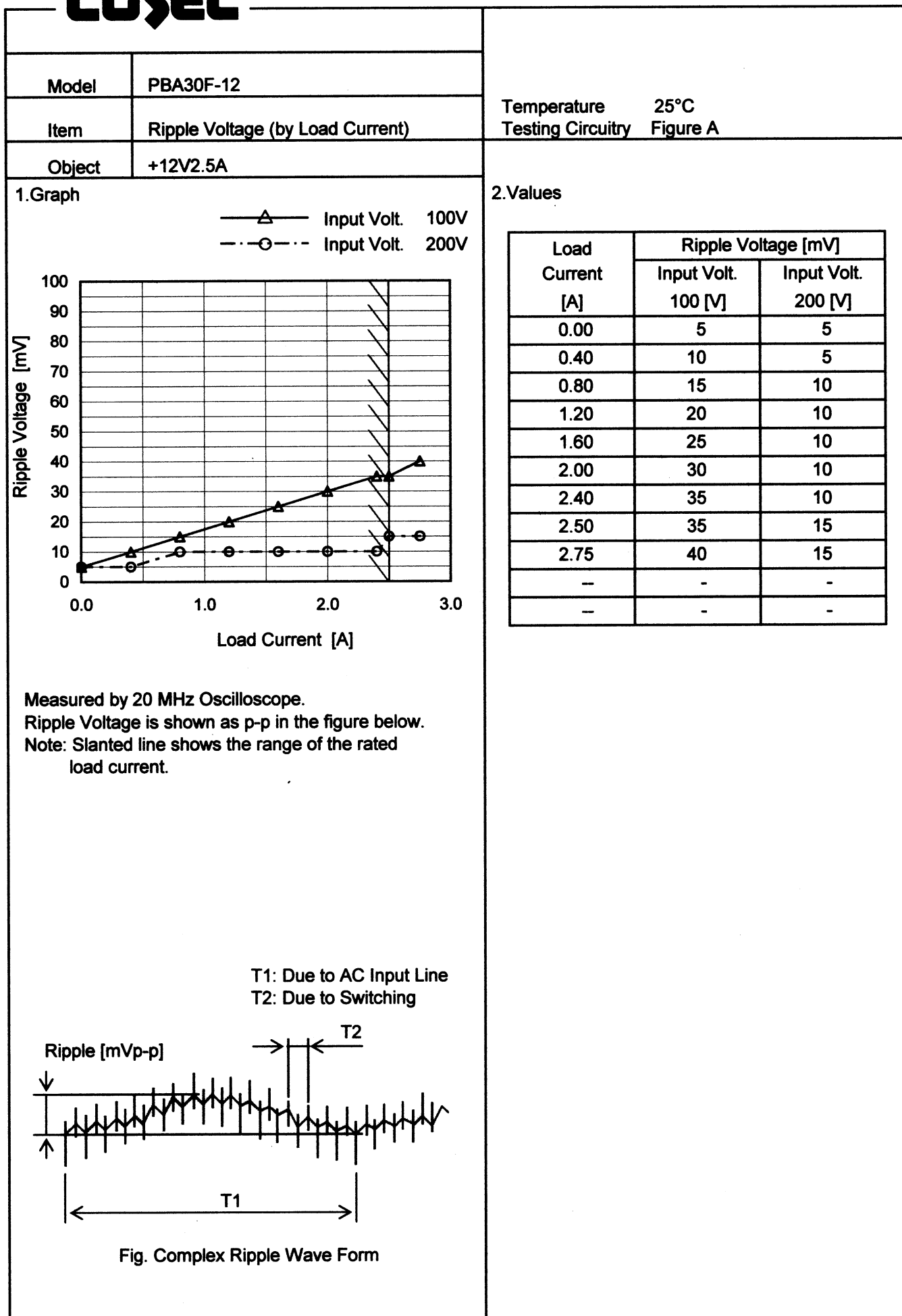
2 ms/div



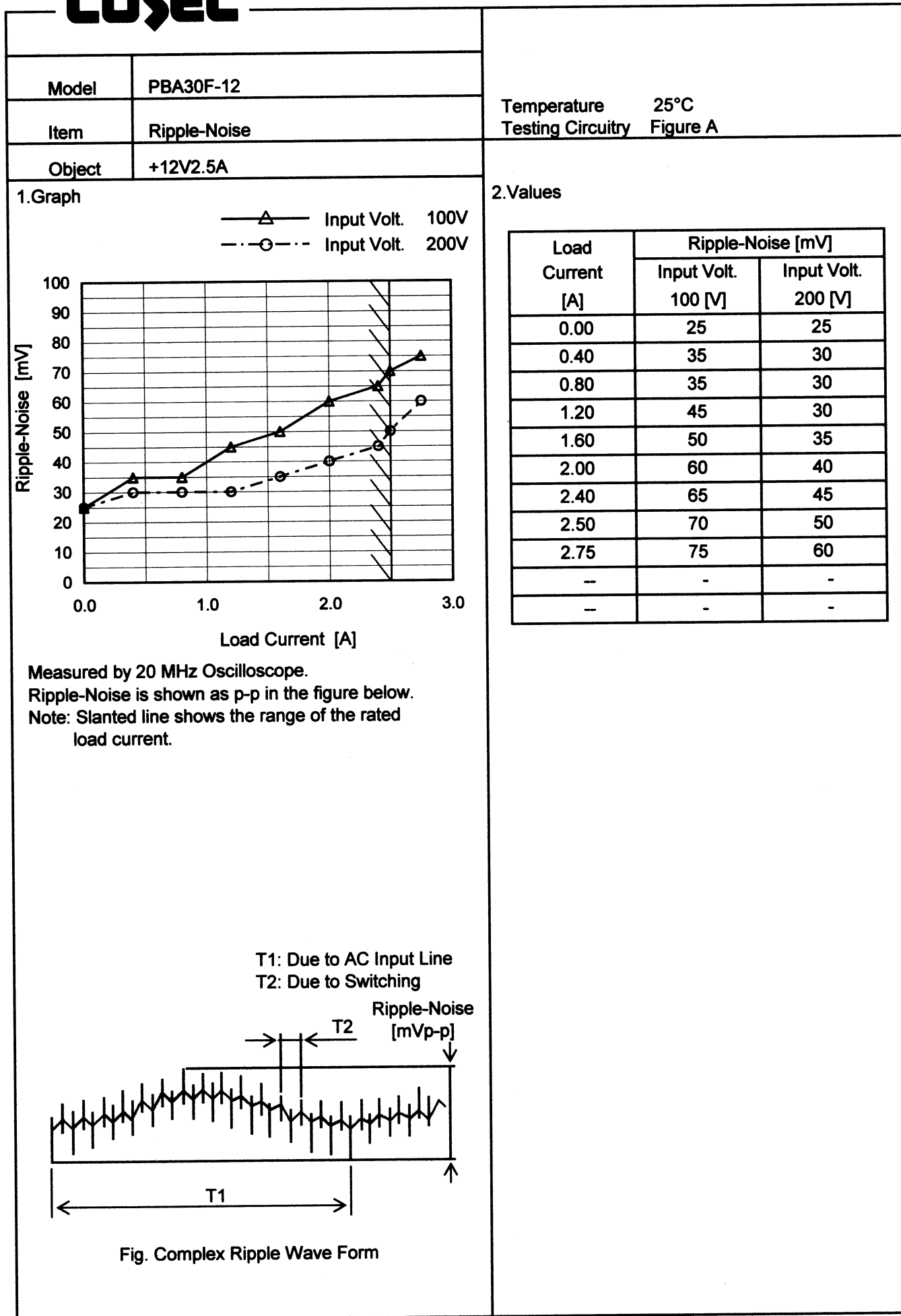
2 ms/div

* The characteristic of AC200V is equal.

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Model	PBA30F-12																																																													
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry Figure A																																																												
Object	+12V2.5A																																																													
1.Graph		2.Values																																																												
<div><div><div>---□---</div><div>Input Volt. 100V</div></div><div><div>—△—</div><div>Input Volt. 200V</div></div></div> <table border="1"><caption>Graph Data Points (Estimated)</caption><thead><tr><th>Ambient Temperature [°C]</th><th>100V Input Ripple [mV]</th><th>200V Input Ripple [mV]</th></tr></thead><tbody><tr><td>-30</td><td>95</td><td>55</td></tr><tr><td>-10</td><td>50</td><td>30</td></tr><tr><td>0</td><td>45</td><td>25</td></tr><tr><td>25</td><td>35</td><td>15</td></tr><tr><td>50</td><td>30</td><td>10</td></tr></tbody></table> <p>Measured by 20 MHz Oscilloscope. Note: Slanted line shows the range of the rated ambient temperature.</p>		Ambient Temperature [°C]	100V Input Ripple [mV]	200V Input Ripple [mV]	-30	95	55	-10	50	30	0	45	25	25	35	15	50	30	10	<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 100 [V]</th><th>Input Volt. 200 [V]</th></tr><tr><td>-30</td><td>95</td><td>55</td></tr><tr><td>-10</td><td>50</td><td>30</td></tr><tr><td>0</td><td>45</td><td>25</td></tr><tr><td>25</td><td>35</td><td>15</td></tr><tr><td>50</td><td>30</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></table>		Ambient Temperature [°C]	Ripple Voltage [mV]		Input Volt. 100 [V]	Input Volt. 200 [V]	-30	95	55	-10	50	30	0	45	25	25	35	15	50	30	10	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-
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Model		PBA30F-12	
Item		Ambient Temperature Drift	
Object		+12V2.5A	

1.Graph

—△—

Input Volt. 100V

---□---

Input Volt. 200V

---○---

Input Volt. 230V

Output Voltage [V]

Ambient Temperature [°C]

Load 100%

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

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
-20	12.000	12.002	12.002
-10	12.006	12.007	12.008
0	12.013	12.014	12.015
10	12.020	12.021	12.023
20	12.033	12.034	12.034
25	12.038	12.041	12.042
30	12.043	12.044	12.045
40	12.051	12.052	12.052
50	12.050	12.051	12.051
60	12.051	12.052	12.052
--	-	-	-

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		Testing Circuitry Figure A
Model	PBA30F-12	
Item	Output Voltage Accuracy	
Object	+12V2.5A	

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 : -10 - 50°C

Input Voltage : 85 - 264V

Load Current : 0 - 2.5A

* 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	40	264	0	12.058	±26	±0.2
Minimum Voltage	-10	85	2.5	12.006		

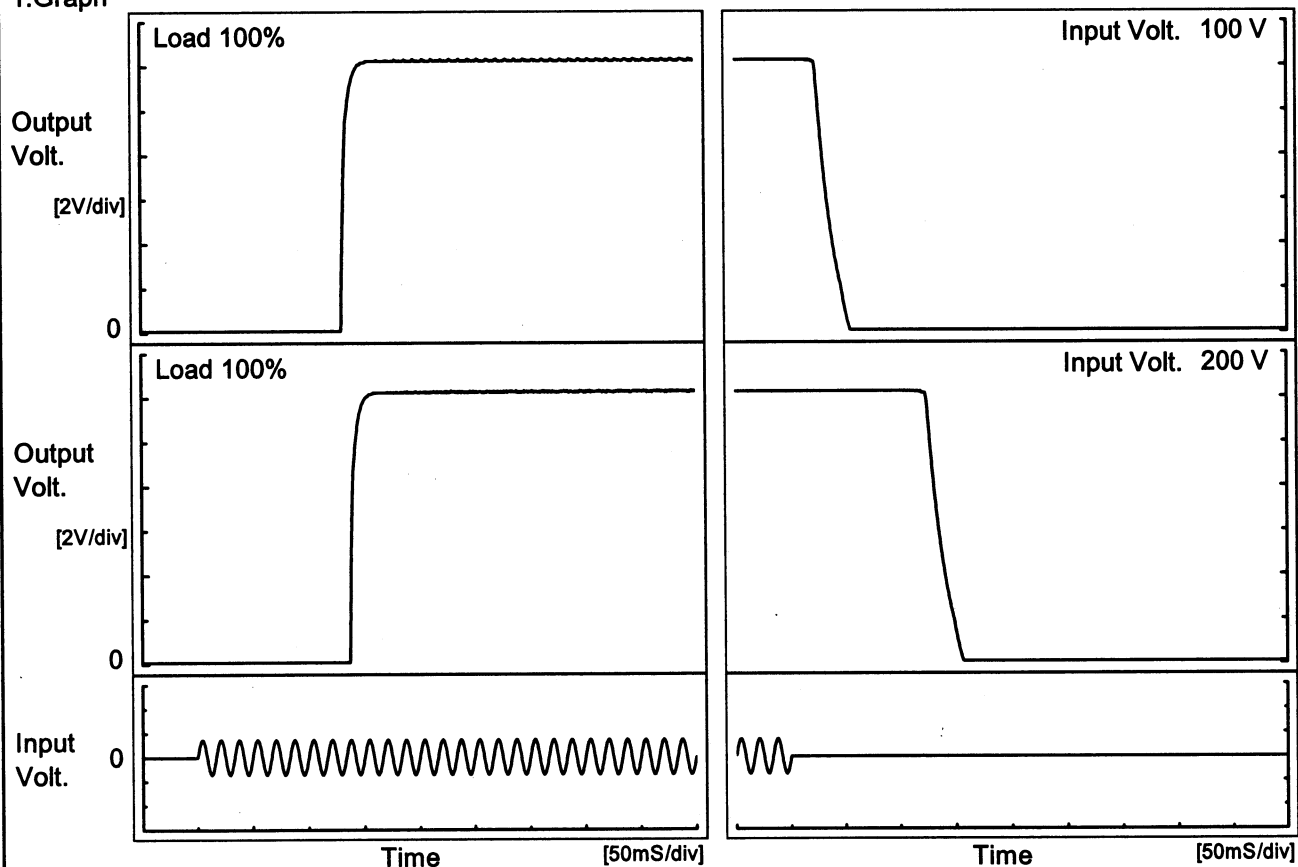
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Model	PBA30F-12		
Item	Time Lapse Drift	Temperature	25°C
Object	+12V2.5A	Testing Circuitry	Figure A
1.Graph		2.Values	
<div><div><div>Output Voltage [V]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></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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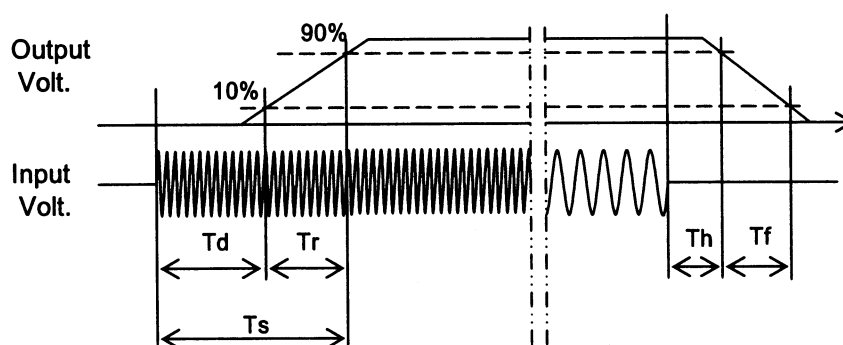
Model	PBA30F-12	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+12V2.5A		

1. Graph



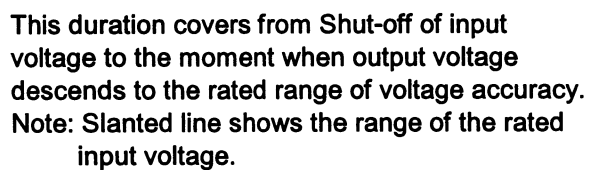
2. Values

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	130.5	7.8	138.3	25.0	24.8
200 V	137.3	7.5	144.8	125.8	25.3



Temperature 25°C
Testing Circuitry Figure A

2.Values



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Model	PBA30F-12																																																					
Item	Instantaneous Interruption Compensation	Temperature	25°C																																																			
Object	+12V2.5A	Testing Circuitry	Figure A																																																			
1.Graph		2.Values																																																				
<div><div><div>—△—</div><div>Input Volt.</div><div>100V</div></div><div><div>---□---</div><div>Input Volt.</div><div>200V</div></div><div><div>---○---</div><div>Input Volt.</div><div>230V</div></div></div> <p>Instantaneous Compensation Time [ms]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p>		<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>0.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.40</td><td>110</td><td>548</td><td>773</td></tr><tr><td>0.80</td><td>73</td><td>323</td><td>448</td></tr><tr><td>1.20</td><td>48</td><td>239</td><td>323</td></tr><tr><td>1.60</td><td>39</td><td>173</td><td>248</td></tr><tr><td>2.00</td><td>31</td><td>148</td><td>198</td></tr><tr><td>2.40</td><td>25</td><td>123</td><td>173</td></tr><tr><td>2.50</td><td>23</td><td>115</td><td>164</td></tr><tr><td>2.75</td><td>22</td><td>106</td><td>148</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]	0.00	-	-	-	0.40	110	548	773	0.80	73	323	448	1.20	48	239	323	1.60	39	173	248	2.00	31	148	198	2.40	25	123	173	2.50	23	115	164	2.75	22	106	148	--	-	-	-	--	-	-	-
Load Current [A]	Time [ms]																																																					
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COSEL

Model		PBA30F-12
Item		Minimum Input Voltage for Regulated Output Voltage
Object		+12V2.5A

1.Graph

□

Load 50%

—

△

—

Load 100%

Input Voltage [V]

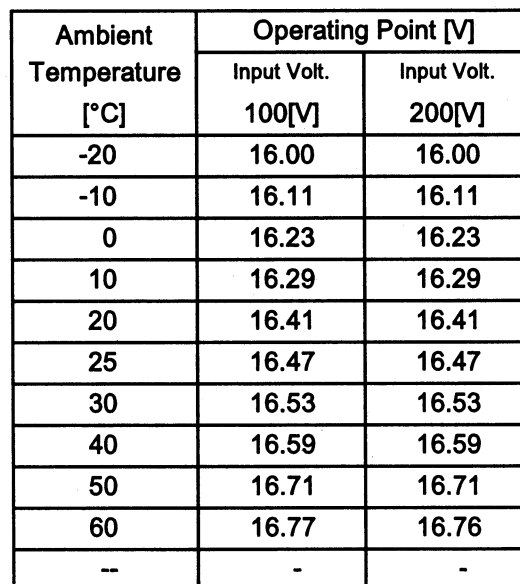
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Model	PBA30F-12	Temperature 25°C Testing Circuitry Figure A																																										
Item	Overcurrent Protection																																											
Object	+12V2.5A																																											
1.Graph		2.Values																																										
<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>12.0</td><td>4.40</td><td>5.70</td></tr><tr><td>11.4</td><td>-</td><td>-</td></tr><tr><td>10.8</td><td>-</td><td>-</td></tr><tr><td>9.6</td><td>-</td><td>-</td></tr><tr><td>8.4</td><td>-</td><td>-</td></tr><tr><td>7.2</td><td>-</td><td>-</td></tr><tr><td>6.0</td><td>-</td><td>-</td></tr><tr><td>4.8</td><td>-</td><td>-</td></tr><tr><td>3.6</td><td>-</td><td>-</td></tr><tr><td>2.4</td><td>-</td><td>-</td></tr><tr><td>1.2</td><td>-</td><td>-</td></tr><tr><td>0.0</td><td>-</td><td>-</td></tr></table>		Output Voltage [V]	Load Current [A]		Input Volt. 100[V]	Input Volt. 200[V]	12.0	4.40	5.70	11.4	-	-	10.8	-	-	9.6	-	-	8.4	-	-	7.2	-	-	6.0	-	-	4.8	-	-	3.6	-	-	2.4	-	-	1.2	-	-	0.0	-	-
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1.2	-	-																																										
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Testing Circuitry Figure A

2.Values



- 23 -

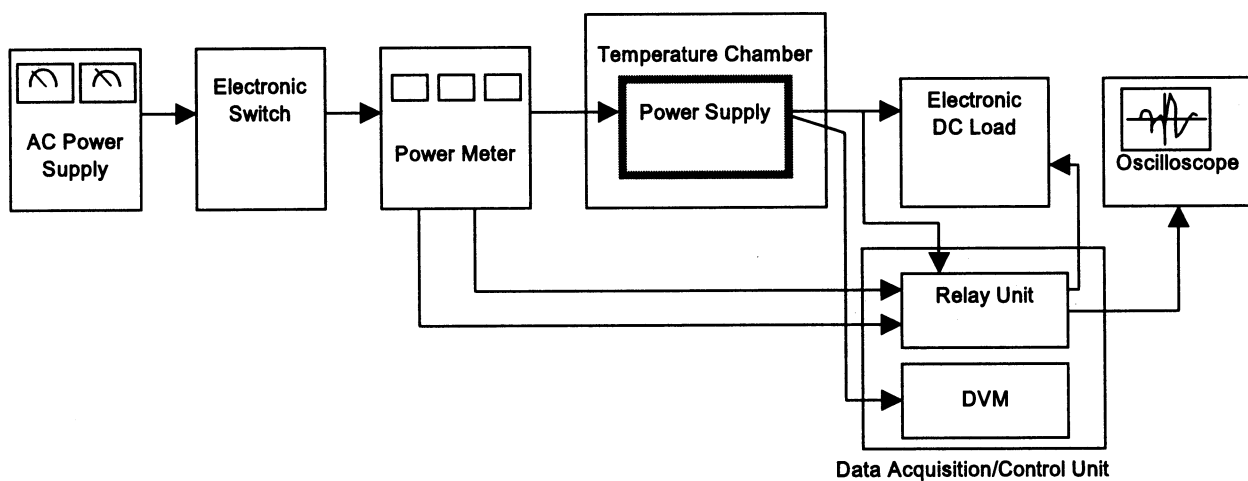


Figure A

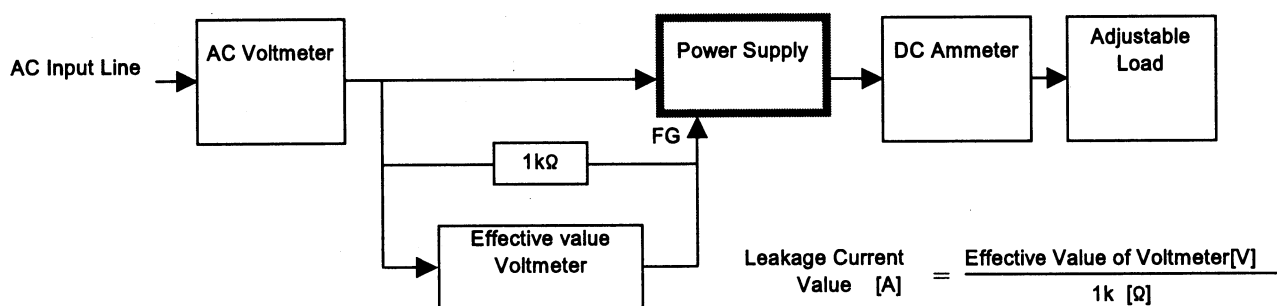


Figure B (DEN-AN)

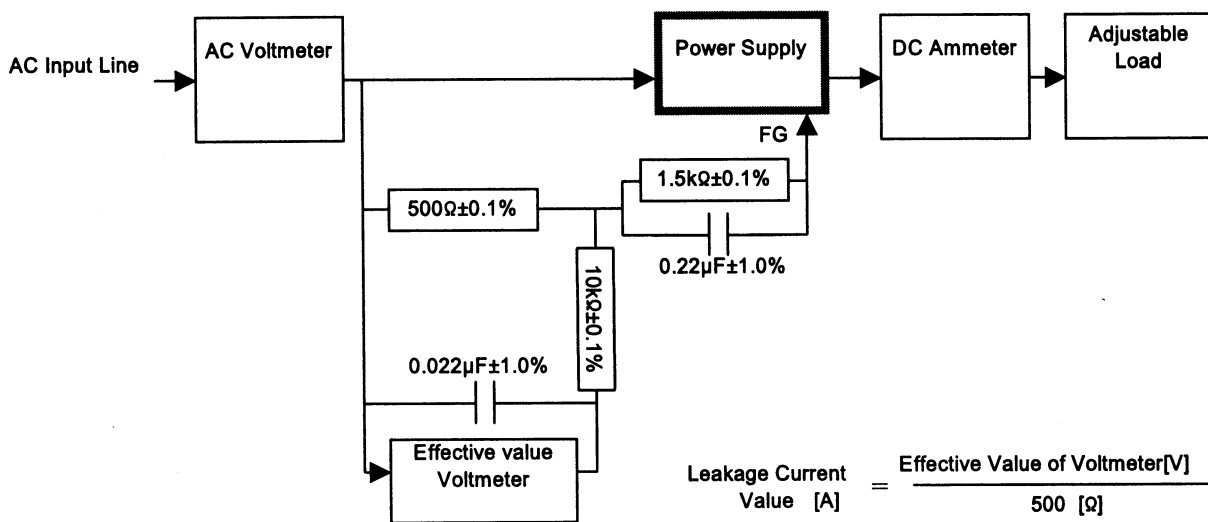


Figure B (IEC60950)