



TEST DATA OF PBA1500F-12

Regulated DC Power Supply
Jun.3. 2003

Approved by : Takahiro Yoneda
Design Manager

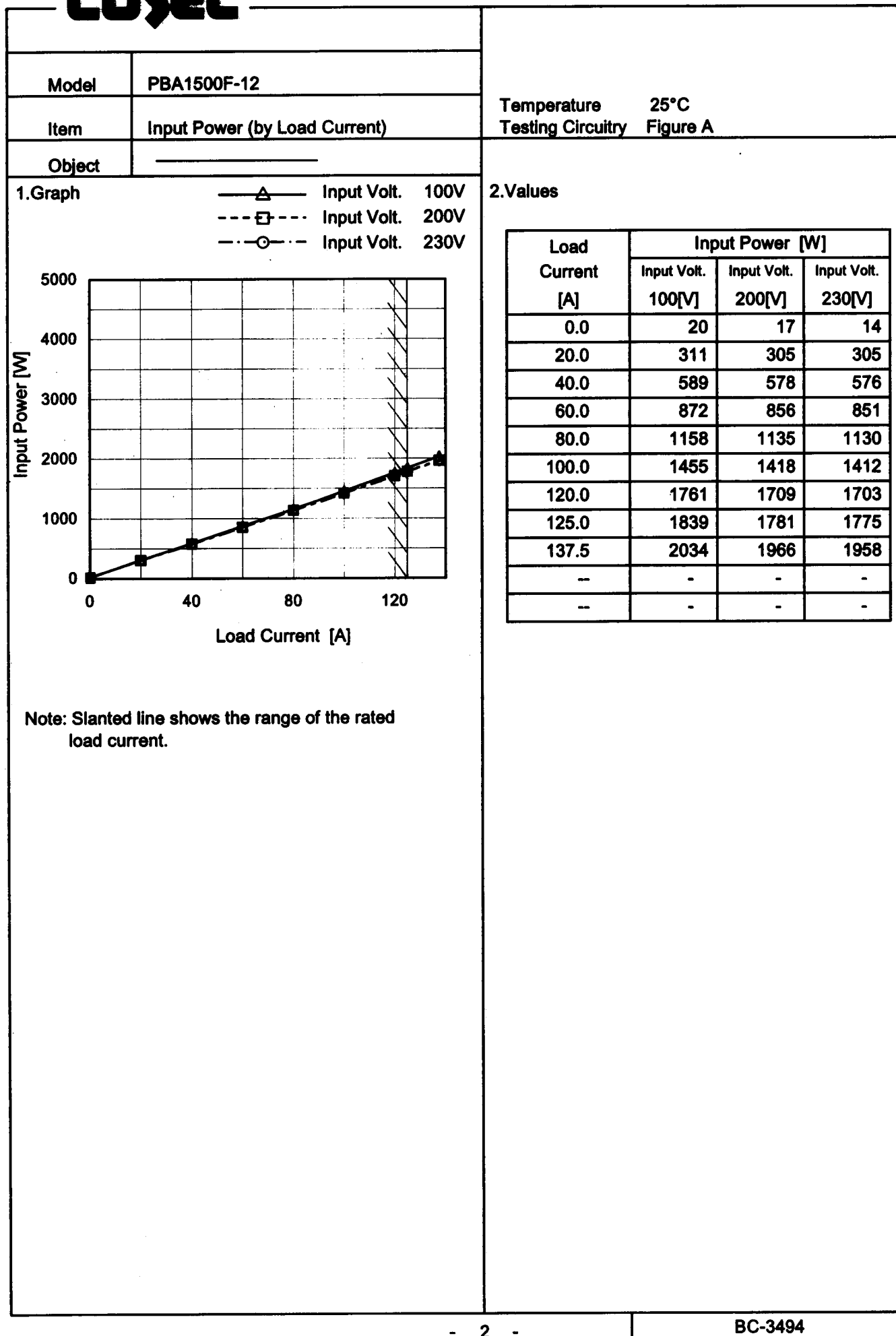
Prepared by : Takasa Sugimoto
Design Engineer

COSEL CO.,LTD.

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Model		PBA1500F-12	
Item		Efficiency (by Input Voltage)	
Object			
1.Graph		2.Values	
<div><div><div><div><div></div><div></div></div><div></div></div><div>Load 50%</div></div><div><div><div><div></div><div></div></div><div></div></div><div>Load 100%</div></div></div> 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<div><div><div>—△— Input Volt. 100V</div><div>---□--- Input Volt. 200V</div><div>-·-○-·- Input Volt. 230V</div></div><div>Efficiency [%]</div><div>Load Current [A]</div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Efficiency [%]</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>20.0</td><td>77.4</td><td>78.7</td><td>78.7</td></tr><tr><td>40.0</td><td>81.7</td><td>83.2</td><td>83.5</td></tr><tr><td>60.0</td><td>82.9</td><td>84.5</td><td>85.0</td></tr><tr><td>80.0</td><td>83.2</td><td>84.9</td><td>85.3</td></tr><tr><td>100.0</td><td>82.8</td><td>84.9</td><td>85.3</td></tr><tr><td>120.0</td><td>82.2</td><td>84.7</td><td>85.0</td></tr><tr><td>125.0</td><td>81.9</td><td>84.6</td><td>84.9</td></tr><tr><td>137.5</td><td>81.4</td><td>84.3</td><td>84.6</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]	Efficiency [%]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.0	-	-	-	20.0	77.4	78.7	78.7	40.0	81.7	83.2	83.5	60.0	82.9	84.5	85.0	80.0	83.2	84.9	85.3	100.0	82.8	84.9	85.3	120.0	82.2	84.7	85.0	125.0	81.9	84.6	84.9	137.5	81.4	84.3	84.6	--	-	-	-	--	-	-	-
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Note: Slanted line shows the range of the rated load current.																																																						

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Model		PBA1500F-12	
Item		Power Factor (by Input Voltage)	
Object			

1.Graph

□

Load 50%

△

Load 100%

Power Factor

1.0

0.9

0.8

0.7

0.6

0.5

0.4

50

100

150

200

250

300

Input Voltage [V]

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

2.Values

Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
85	0.987	0.999
100	0.984	0.997
120	0.978	0.995
200	0.946	0.977
230	0.931	0.967
264	0.879	0.937
--	-	-
--	-	-
--	-	-

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Model		PBA1500F-12	
Item		Power Factor (by Load Current)	
Object			

1.Graph

—△—

Input Volt.

100V

---□---

Input Volt.

200V

---○---

Input Volt.

230V

Power Factor

Load Current [A]

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

2.Values

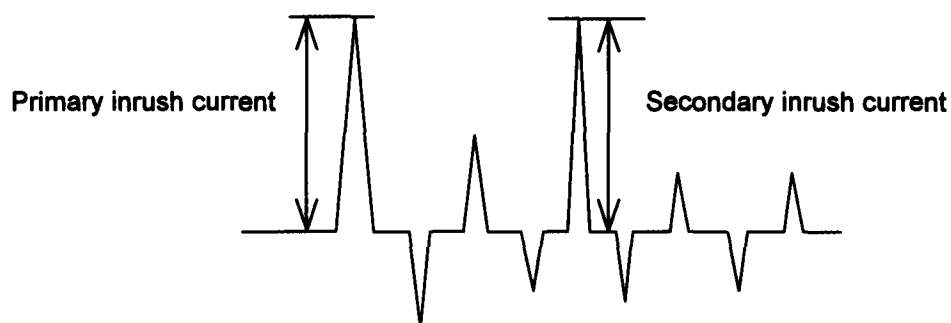
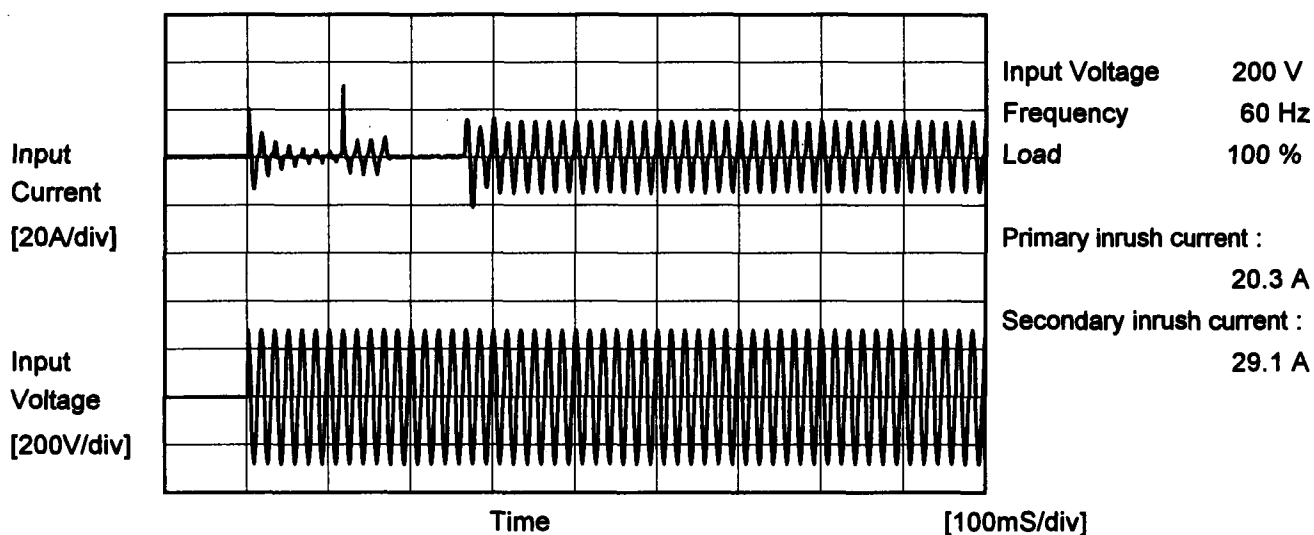
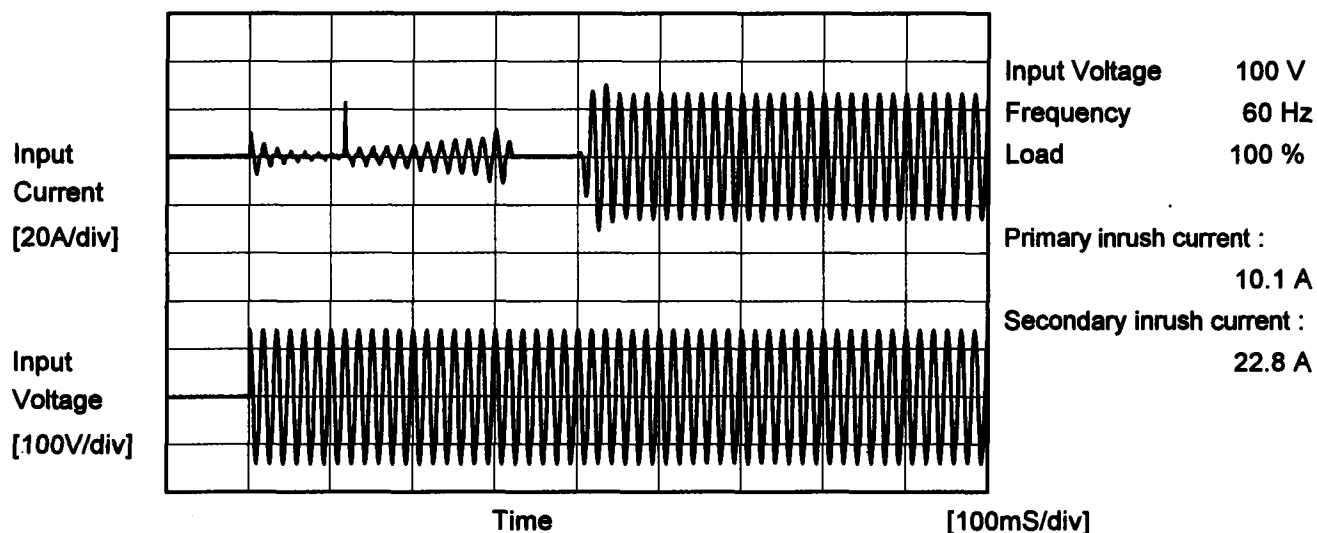
Load Current [A]	Power Factor		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	0.696	0.395	0.275
20.0	0.939	0.869	0.850
40.0	0.967	0.920	0.901
60.0	0.983	0.943	0.928
80.0	0.990	0.959	0.946
100.0	0.995	0.967	0.957
120.0	0.997	0.976	0.966
125.0	0.997	0.977	0.967
137.5	0.998	0.979	0.970
--	-	-	-
--	-	-	-

- 6 -

BC-3494

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Model	PBA1500F-12	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	_____		





		Temperature 25°C Testing Circuitry Figure B
Model	PBA1500F-12	
Item	Leakage Current	
Object		

1.Results

[mA]

Standards		Input Volt.			Note
		100[V]	200[V]	240[V]	
DEN-AN	Both phases	0.31	0.58	0.71	Operation
	One of phase	0.57	1.20	1.36	stand by
IEC60950	Both phases	0.34	0.67	0.81	Operation
	One of phase	0.57	1.15	1.41	stand by

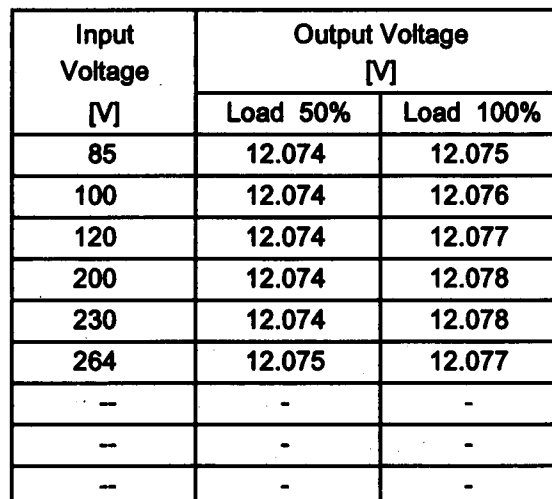
The value for "One phase" is the reference value only.

2.Condition

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

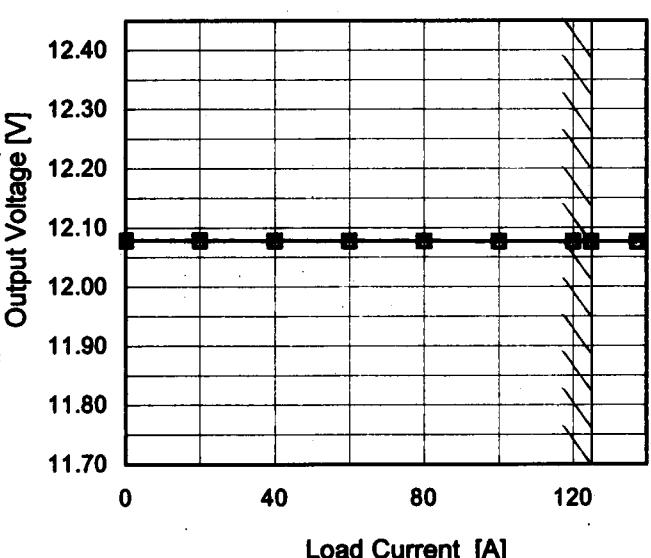
Temperature 25°C
Testing Circuitry Figure A

2.Values



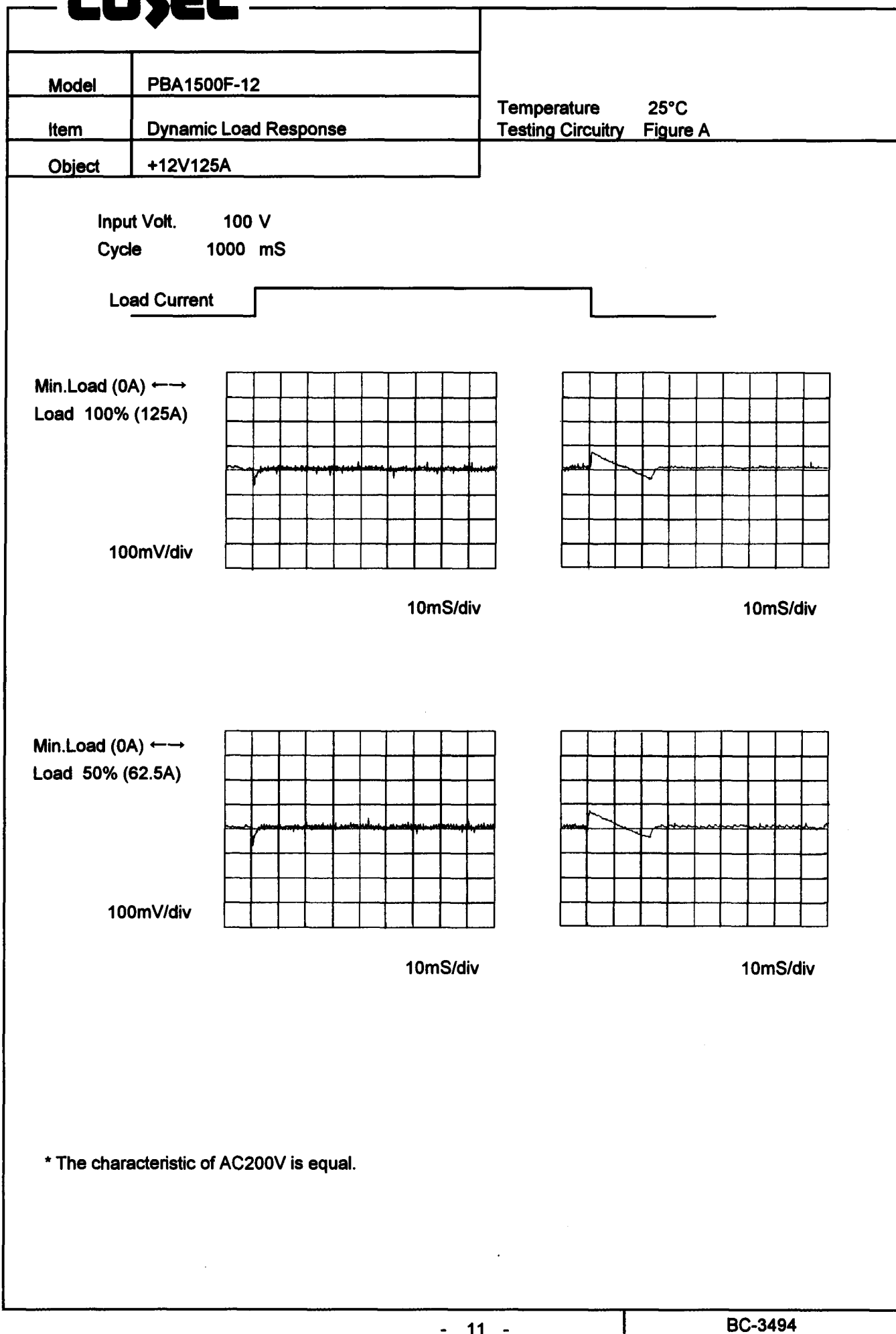
Note: Slanted line shows the range of the rated input voltage.

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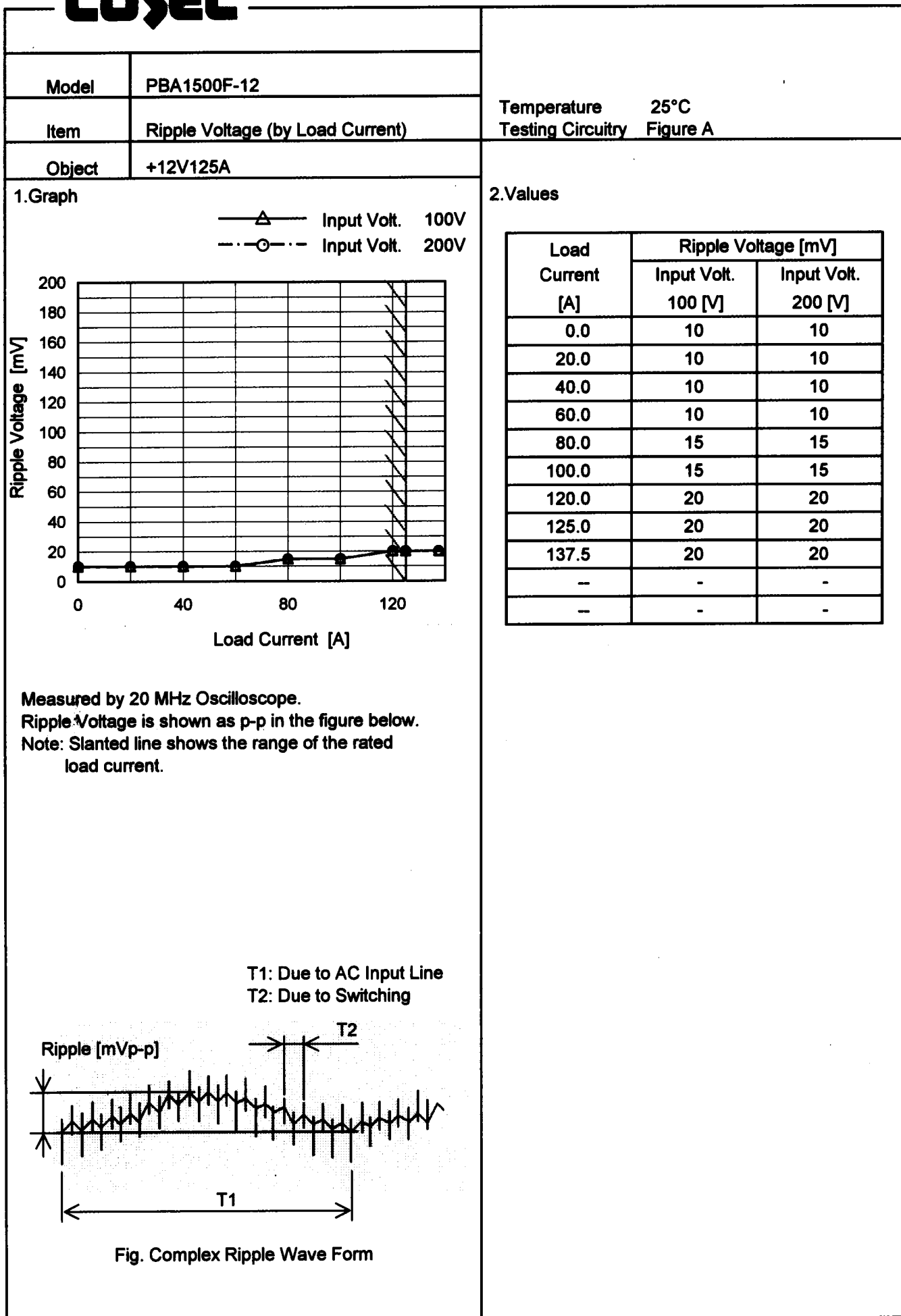
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<div><div><div>—△—</div><div>Input Volt.</div><div>100V</div></div><div><div>---□---</div><div>Input Volt.</div><div>200V</div></div><div><div>---○---</div><div>Input Volt.</div><div>230V</div></div></div>  <p>Note: Slanted line shows the range of 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>0.0</td><td>12.079</td><td>12.079</td><td>12.078</td></tr><tr><td>20.0</td><td>12.078</td><td>12.079</td><td>12.079</td></tr><tr><td>40.0</td><td>12.078</td><td>12.078</td><td>12.078</td></tr><tr><td>60.0</td><td>12.078</td><td>12.078</td><td>12.078</td></tr><tr><td>80.0</td><td>12.078</td><td>12.077</td><td>12.078</td></tr><tr><td>100.0</td><td>12.077</td><td>12.077</td><td>12.077</td></tr><tr><td>120.0</td><td>12.077</td><td>12.077</td><td>12.076</td></tr><tr><td>125.0</td><td>12.077</td><td>12.076</td><td>12.076</td></tr><tr><td>137.5</td><td>12.077</td><td>12.076</td><td>12.076</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]	0.0	12.079	12.079	12.078	20.0	12.078	12.079	12.079	40.0	12.078	12.078	12.078	60.0	12.078	12.078	12.078	80.0	12.078	12.077	12.078	100.0	12.077	12.077	12.077	120.0	12.077	12.077	12.076	125.0	12.077	12.076	12.076	137.5	12.077	12.076	12.076	--	-	-	-	--	-	-	-
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- 10 -

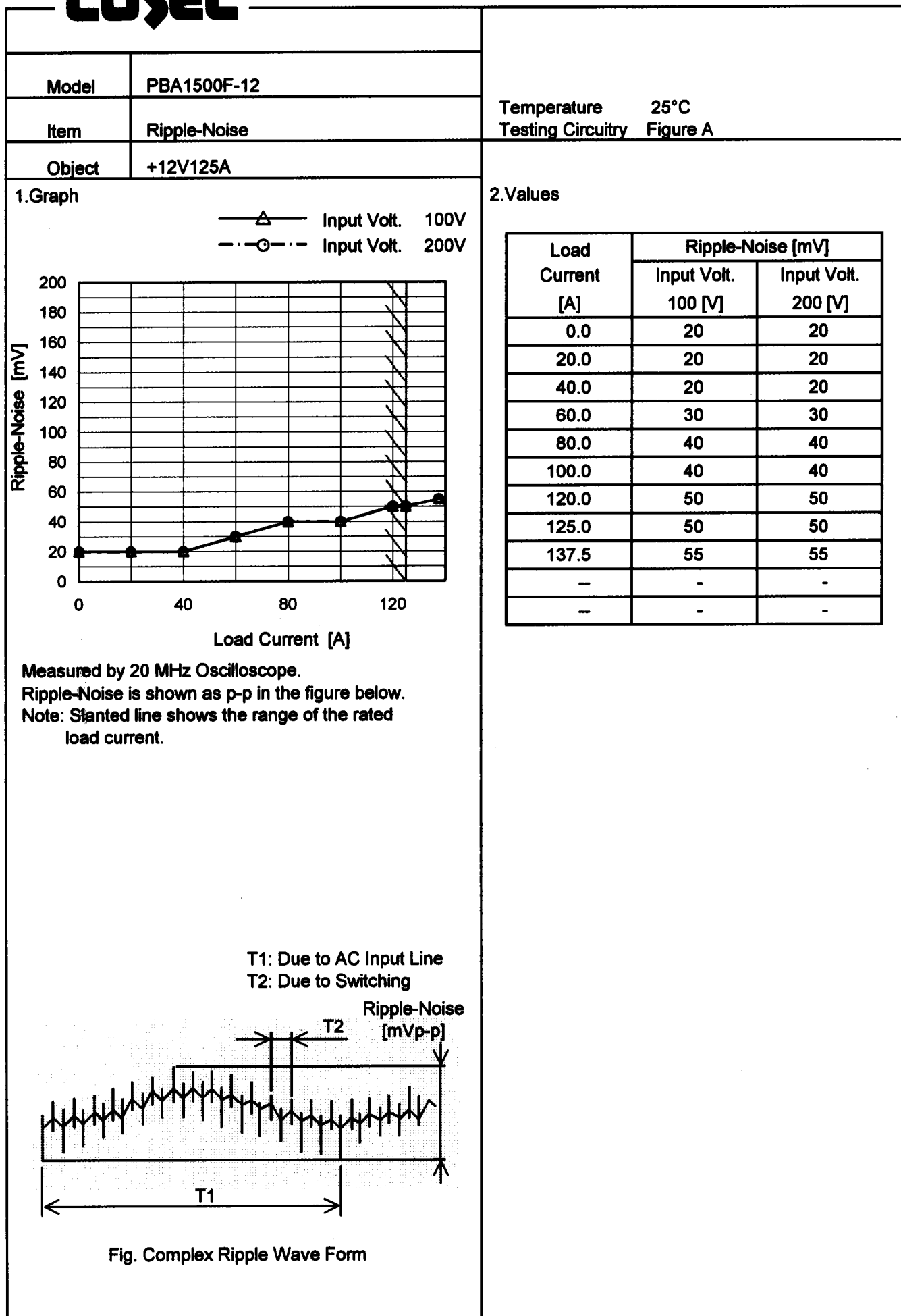
BC-3494

COSEL

COSEL



COSEL



COSEL

Model		PBA1500F-12	
Item		Ripple Voltage (by Ambient Temp.)	
Object		+12V125A	

1.Graph

---□---

Input Volt. 100V

—△—

Input Volt. 200V

200

180

160

140

120

100

80

60

40

20

0

40

20

0

20

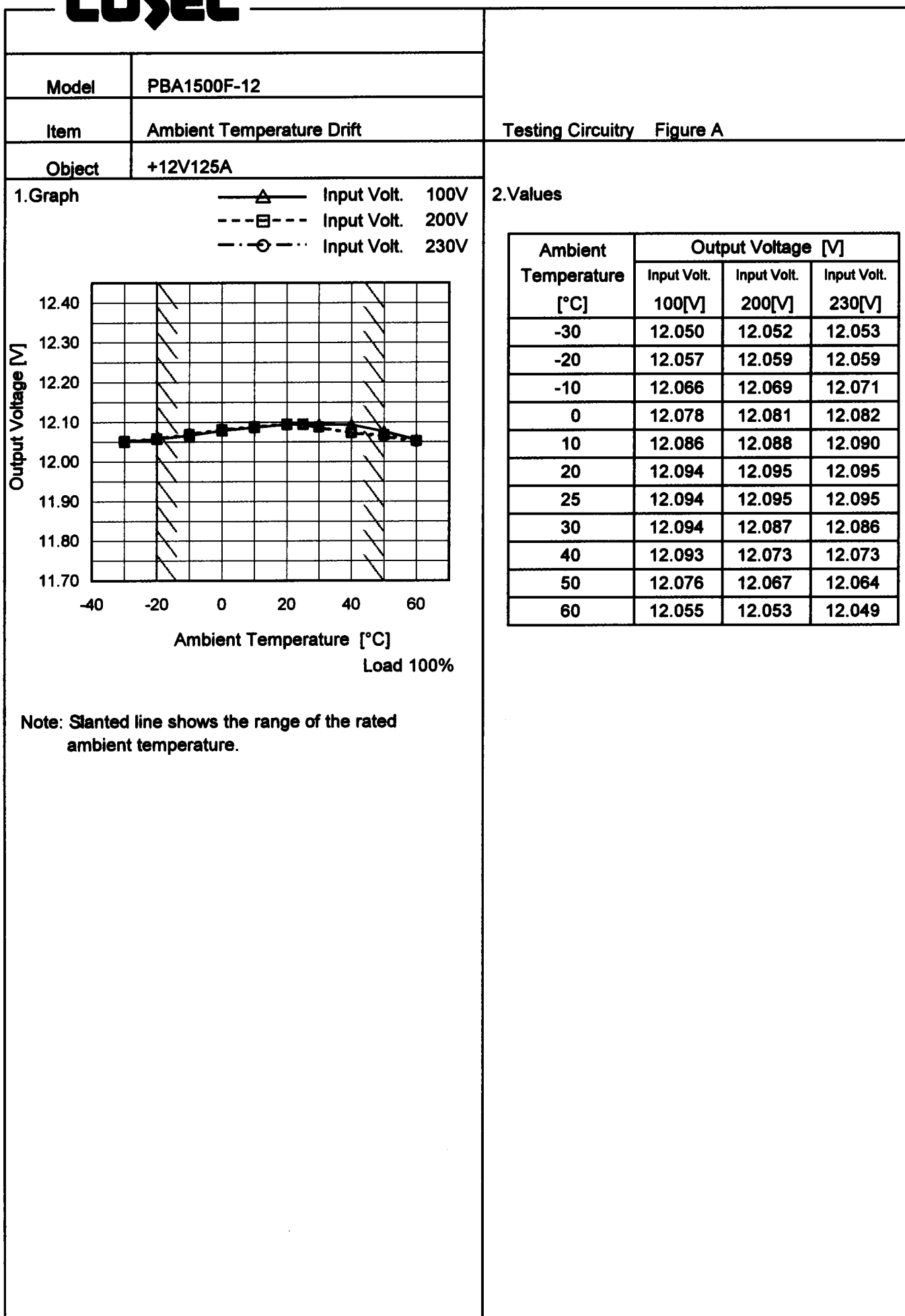
40

60

Ambient Temperature [°C]

Load 100 %

</





		Testing Circuitry Figure A
Model	PBA1500F-12	
Item	Output Voltage Accuracy	
Object	+12V125A	

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 : -20 - 50°C

Input Voltage : 85 - 264V

Load Current : 0 - 125A

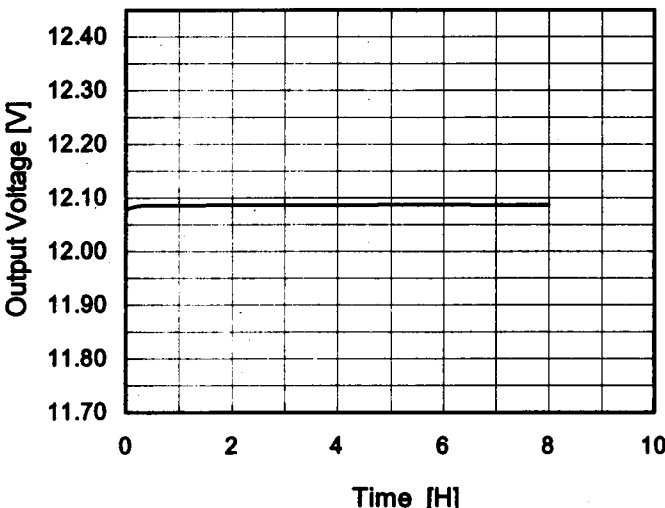
* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

* 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	25	85	0	12.072	±17	±0.1
Minimum Voltage	50	200	125	12.038		

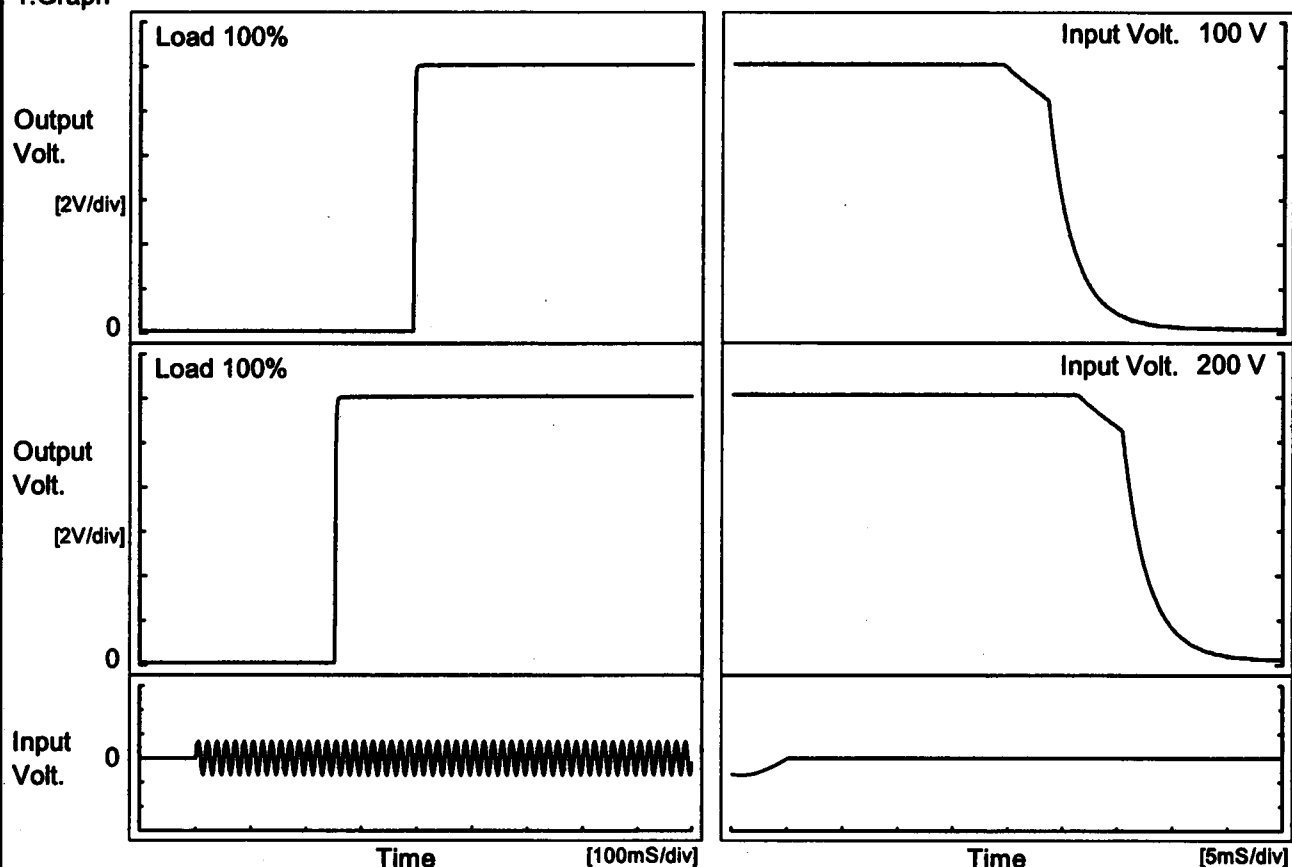
COSEL

Model	PBA1500F-12																								
Item	Time Lapse Drift	Temperature	25°C																						
Object	+12V125A	Testing Circuitry	Figure A																						
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 100V</p><p>Load 100%</p></div>		<table><thead><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr></thead><tbody><tr><td>0.0</td><td>12.076</td></tr><tr><td>0.5</td><td>12.086</td></tr><tr><td>1.0</td><td>12.086</td></tr><tr><td>2.0</td><td>12.087</td></tr><tr><td>3.0</td><td>12.087</td></tr><tr><td>4.0</td><td>12.086</td></tr><tr><td>5.0</td><td>12.087</td></tr><tr><td>6.0</td><td>12.087</td></tr><tr><td>7.0</td><td>12.087</td></tr><tr><td>8.0</td><td>12.087</td></tr></tbody></table>		Time since start [H]	Output Voltage [V]	0.0	12.076	0.5	12.086	1.0	12.086	2.0	12.087	3.0	12.087	4.0	12.086	5.0	12.087	6.0	12.087	7.0	12.087	8.0	12.087
Time since start [H]	Output Voltage [V]																								
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6.0	12.087																								
7.0	12.087																								
8.0	12.087																								
* The characteristic of AC200V is equal.																									

COSEL

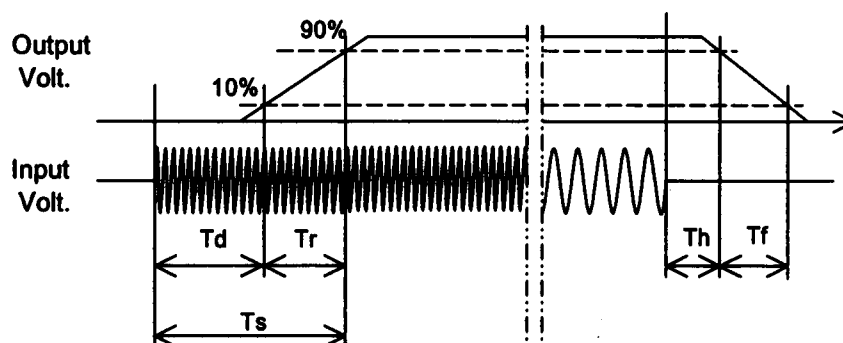
Model	PBA1500F-12	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+12V125A		

1. Graph



2. Values

[mS]					
Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	393.0	3.0	396.0	22.5	6.3
200 V	252.0	3.0	255.0	29.4	6.4



COSEL

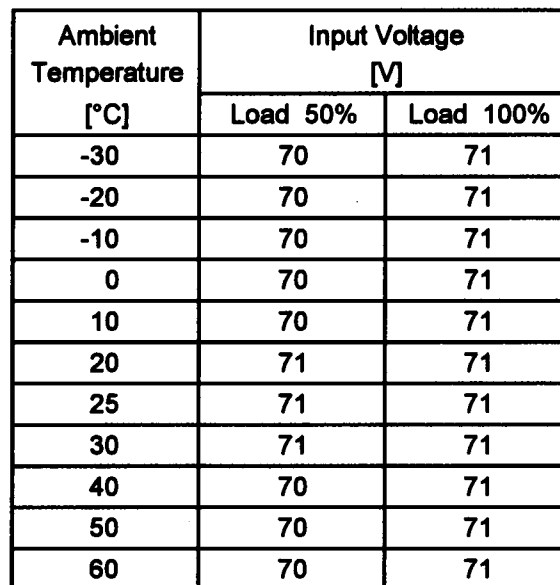
Model	PBA1500F-12																																																																
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Object	+12V125A	Testing Circuitry	Figure A																																																														
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<div><div><div>---</div><div>□</div><div>---</div></div><div>Load 50%</div></div> <div><div>—</div><div>△</div><div>—</div></div> <div>Load 100%</div> <div><div>Hold-Up Time [mS]</div><div><table><thead><tr><th>Input Voltage [V]</th><th>Load 50% [mS]</th><th>Load 100% [mS]</th></tr></thead><tbody><tr><td>85</td><td>47</td><td>17</td></tr><tr><td>100</td><td>50</td><td>20</td></tr><tr><td>120</td><td>53</td><td>23</td></tr><tr><td>200</td><td>59</td><td>27</td></tr><tr><td>230</td><td>59</td><td>28</td></tr><tr><td>264</td><td>60</td><td>28</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><div>Input Voltage [V]</div></div></div> <div><div>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.</div><div>Note: Slanted line shows the range of the rated input voltage.</div></div>		Input Voltage [V]	Load 50% [mS]	Load 100% [mS]	85	47	17	100	50	20	120	53	23	200	59	27	230	59	28	264	60	28	--	-	-	--	-	-	--	-	-	<table><thead><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Hold-Up Time [mS]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr></thead><tbody><tr><td>85</td><td>47</td><td>17</td></tr><tr><td>100</td><td>50</td><td>20</td></tr><tr><td>120</td><td>53</td><td>23</td></tr><tr><td>200</td><td>59</td><td>27</td></tr><tr><td>230</td><td>59</td><td>28</td></tr><tr><td>264</td><td>60</td><td>28</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]	Hold-Up Time [mS]		Load 50%	Load 100%	85	47	17	100	50	20	120	53	23	200	59	27	230	59	28	264	60	28	--	-	-	--	-	-	--	-	-
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COSEL

Model	PBA1500F-12																																																					
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Object	+12V125A	Testing Circuitry	Figure A																																																			
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Testing Circuitry Figure A

2.Values



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

COSEL

Model	PBA1500F-12																																											
Item	Overcurrent Protection	Temperature	25°C																																									
Object	+12V125A	Testing Circuitry	Figure A																																									
1.Graph		2.Values																																										
<div><div><div></div>Input Volt. 100V</div><div><div></div>Input Volt. 200V</div></div> <p>Note: Slanted line shows the range of the rated load current.</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>157.00</td><td>157.23</td></tr><tr><td>11.4</td><td>157.44</td><td>156.91</td></tr><tr><td>10.8</td><td>157.69</td><td>156.72</td></tr><tr><td>9.6</td><td>157.17</td><td>157.01</td></tr><tr><td>8.4</td><td>0.00</td><td>0.00</td></tr><tr><td>7.2</td><td>0.00</td><td>0.00</td></tr><tr><td>6.0</td><td>0.00</td><td>0.00</td></tr><tr><td>4.8</td><td>0.00</td><td>0.00</td></tr><tr><td>3.6</td><td>0.00</td><td>0.00</td></tr><tr><td>2.4</td><td>0.00</td><td>0.00</td></tr><tr><td>1.2</td><td>0.00</td><td>0.00</td></tr><tr><td>0.0</td><td>0.00</td><td>0.00</td></tr></table>		Output Voltage [V]	Load Current [A]		Input Volt. 100[V]	Input Volt. 200[V]	12.0	157.00	157.23	11.4	157.44	156.91	10.8	157.69	156.72	9.6	157.17	157.01	8.4	0.00	0.00	7.2	0.00	0.00	6.0	0.00	0.00	4.8	0.00	0.00	3.6	0.00	0.00	2.4	0.00	0.00	1.2	0.00	0.00	0.0	0.00	0.00
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0.0	0.00	0.00																																										

COSEL

Model		PBA1500F-12	
Item		Overvoltage Protection	
Object		+12V125A	

1.Graph

—△—

Input Volt.

100V

---□---

Input Volt.

200V

Operating Point [V]

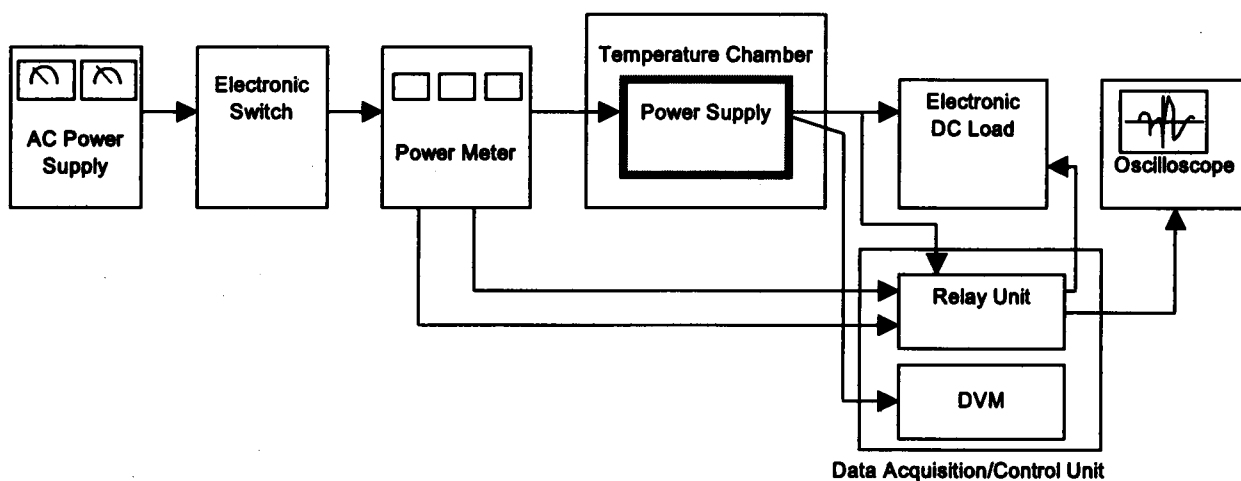


Figure A

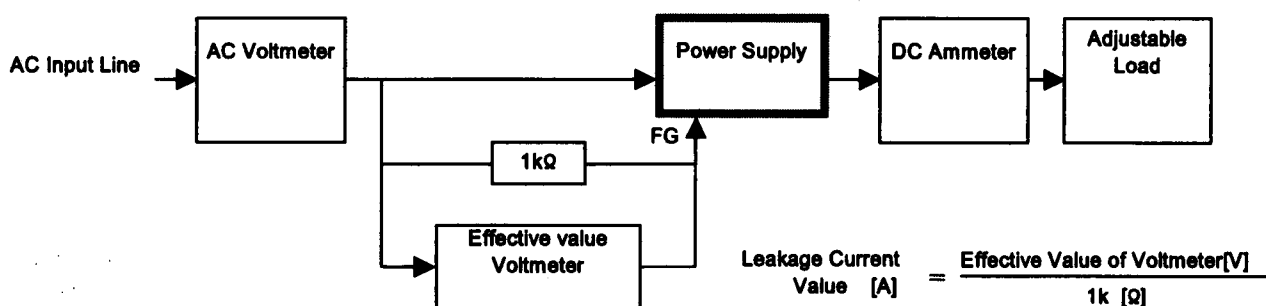


Figure B (DEN-AN)

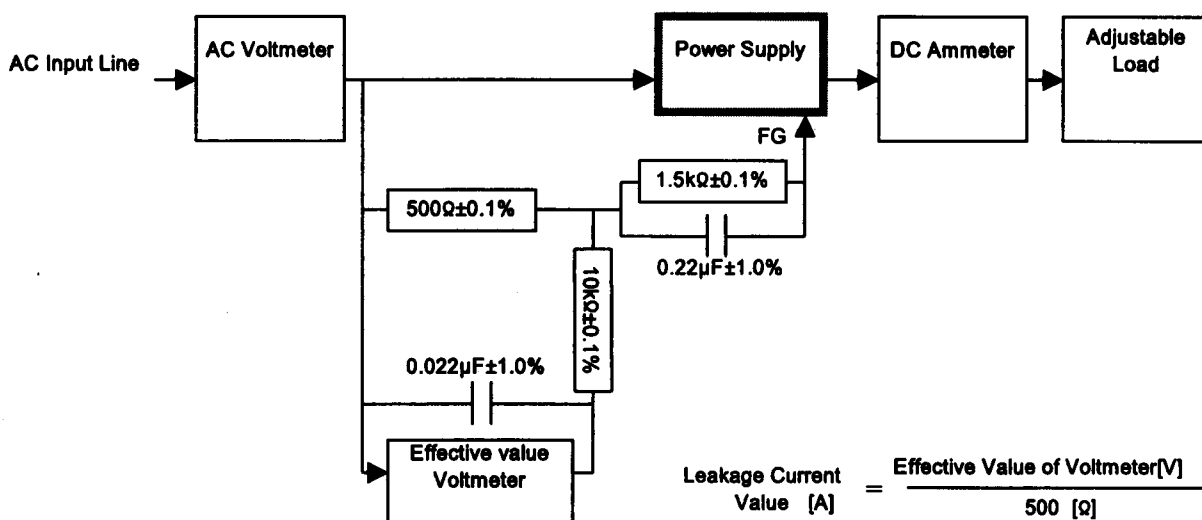


Figure B (IEC60950)