



TEST DATA OF PBA150F-12

Regulated DC Power Supply
Apr.8. 2004

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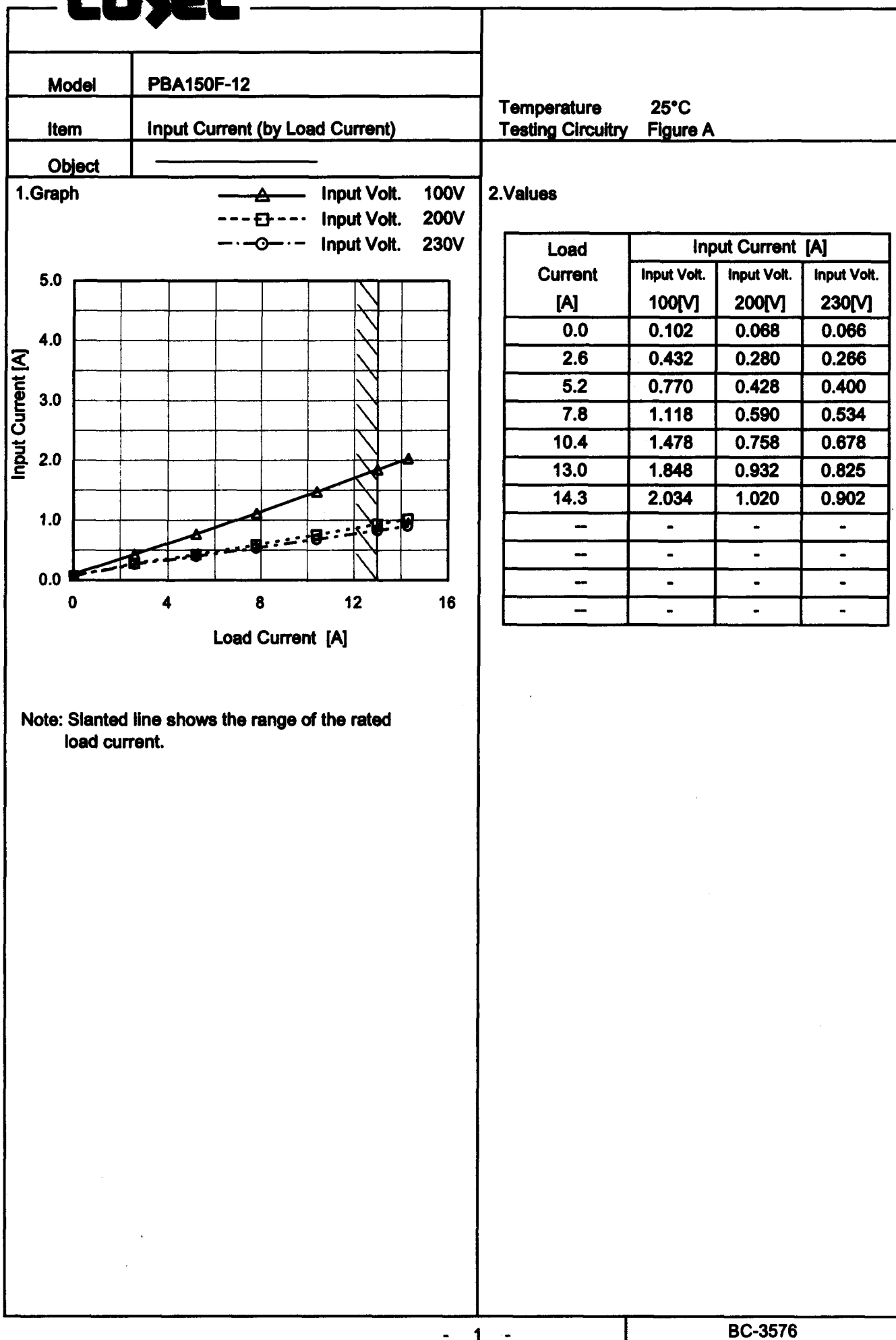
COSEL CO.,LTD.

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Model PBA150F-12

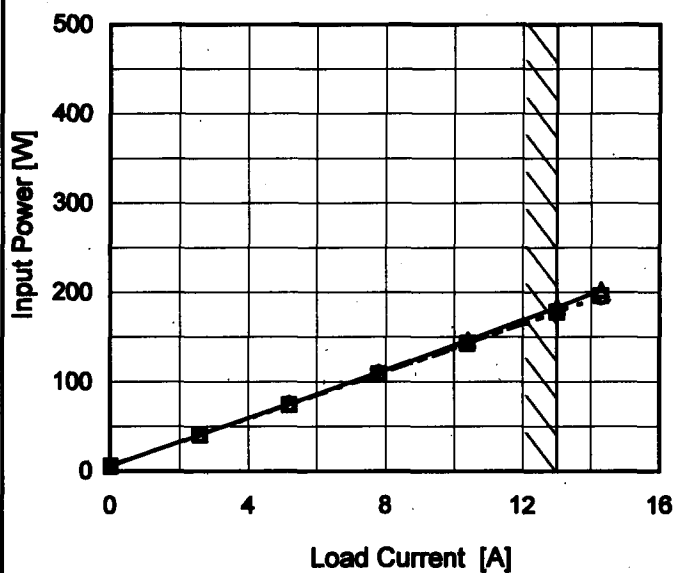
Item Input Power (by Load Current)

Object

Temperature 25°C
Testing Circuitry Figure A

1. Graph

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



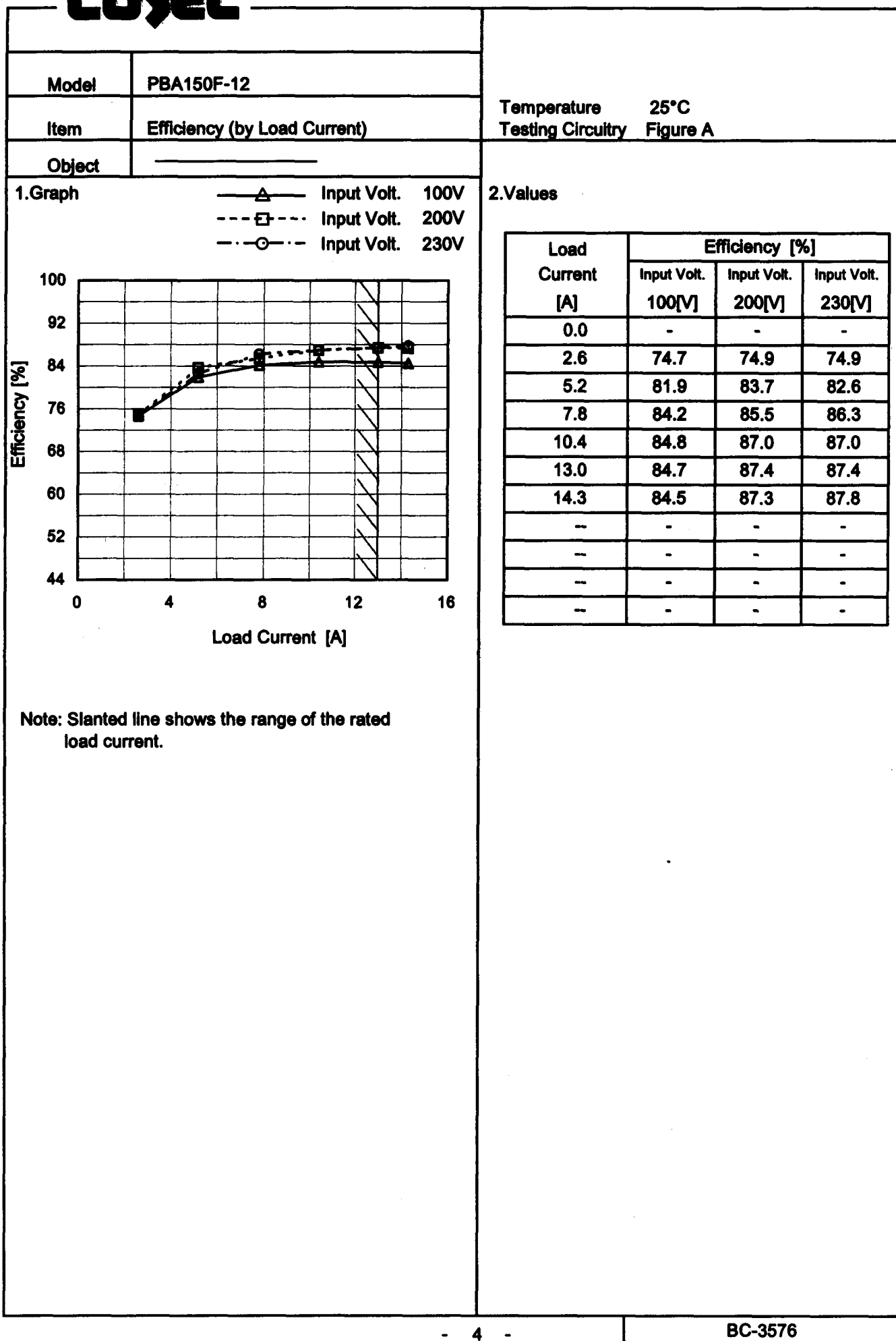
Note: Slanted line shows the range of the rated load current.

2. Values

Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	5.7	5.9	6.0
2.6	41.1	41.0	41.0
5.2	75.6	74.0	75.0
7.8	110.7	109.0	108.0
10.4	146.7	143.0	143.0
13.0	183.6	178.0	178.0
14.3	202.5	196.0	195.0
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
75	82.1	82.4
85	82.9	83.6
100	83.7	84.9
120	84.3	85.9
200	84.3	87.4
230	84.3	87.9
264	84.3	87.9
280	84.3	88.4
--	-	-

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Model		PBA150F-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

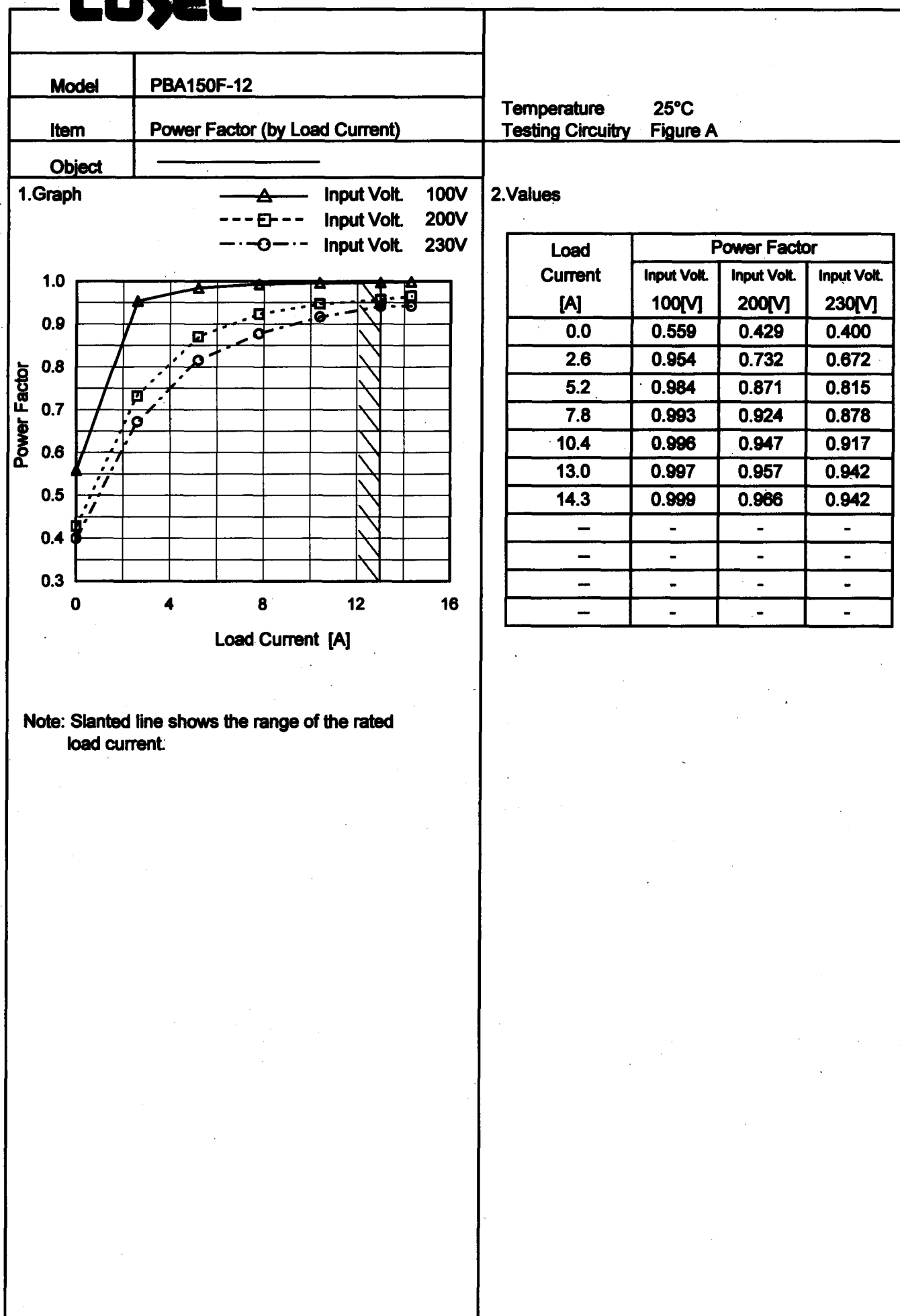
Input Voltage [V]

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

2.Values

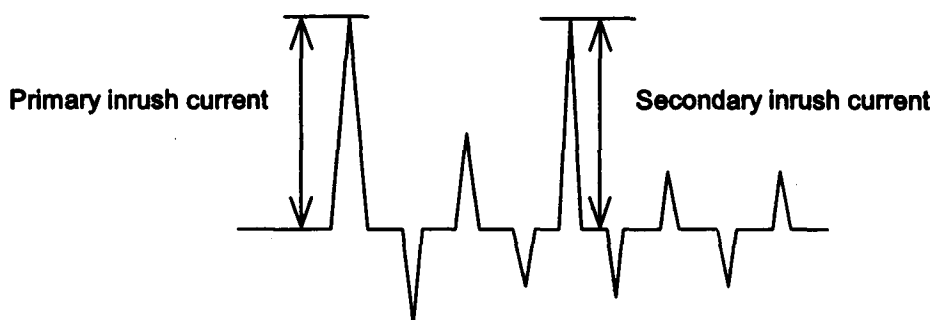
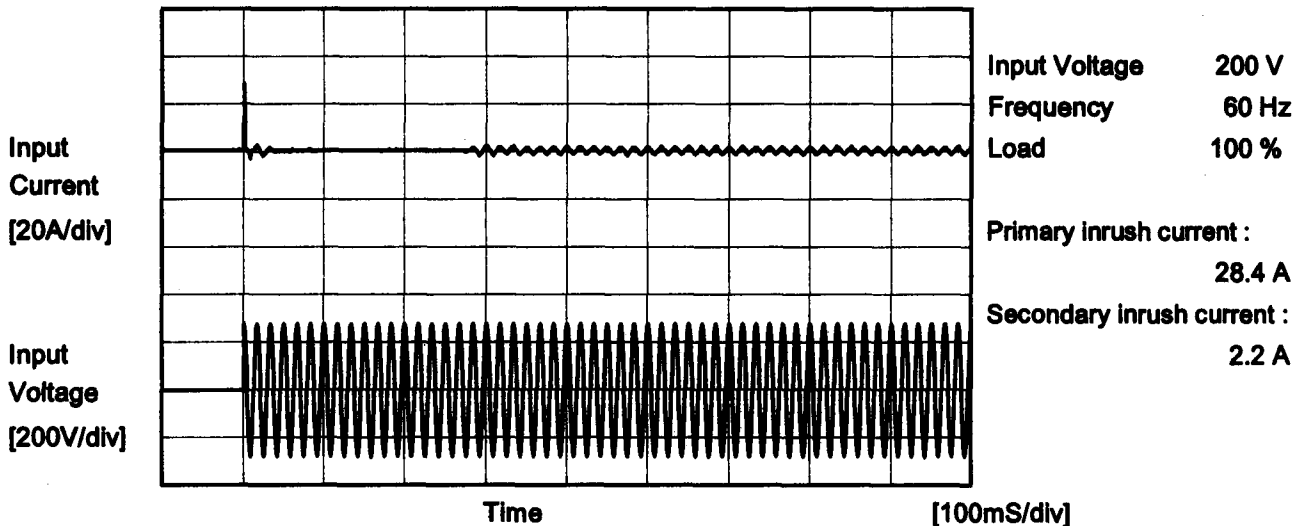
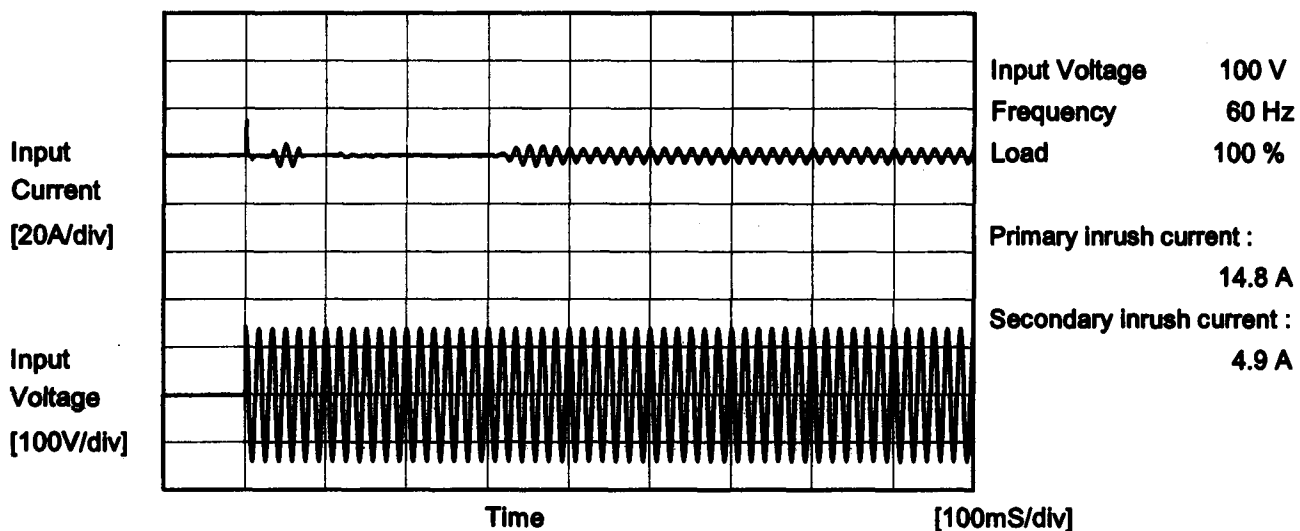
Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
75	0.997	0.999
85	0.995	0.999
100	0.989	0.997
120	0.978	0.994
200	0.892	0.957
230	0.860	0.937
264	0.740	0.908
280	0.662	0.834
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Model	PBA150F-12	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object			





		Temperature 25°C Testing Circuitry Figure B
Model	PBA150F-12	
Item	Leakage Current	
Object	_____	

1.Results

[mA]

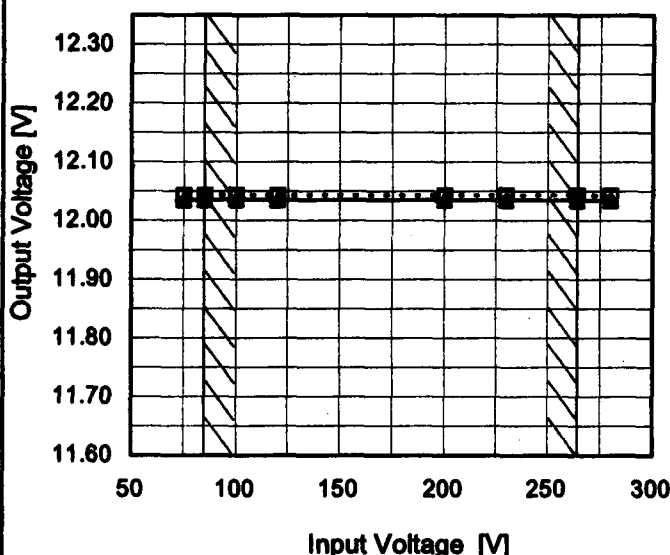
Standards		Input Volt.			Note
		100 [V]	200 [V]	230 [V]	
DEN-AN	Both phases	0.19	0.37	0.43	Operation
	One of phase	0.27	0.54	0.62	stand by
IEC60950	Both phases	0.19	0.38	0.48	Operation
	One of phase	0.27	0.58	0.71	stand by

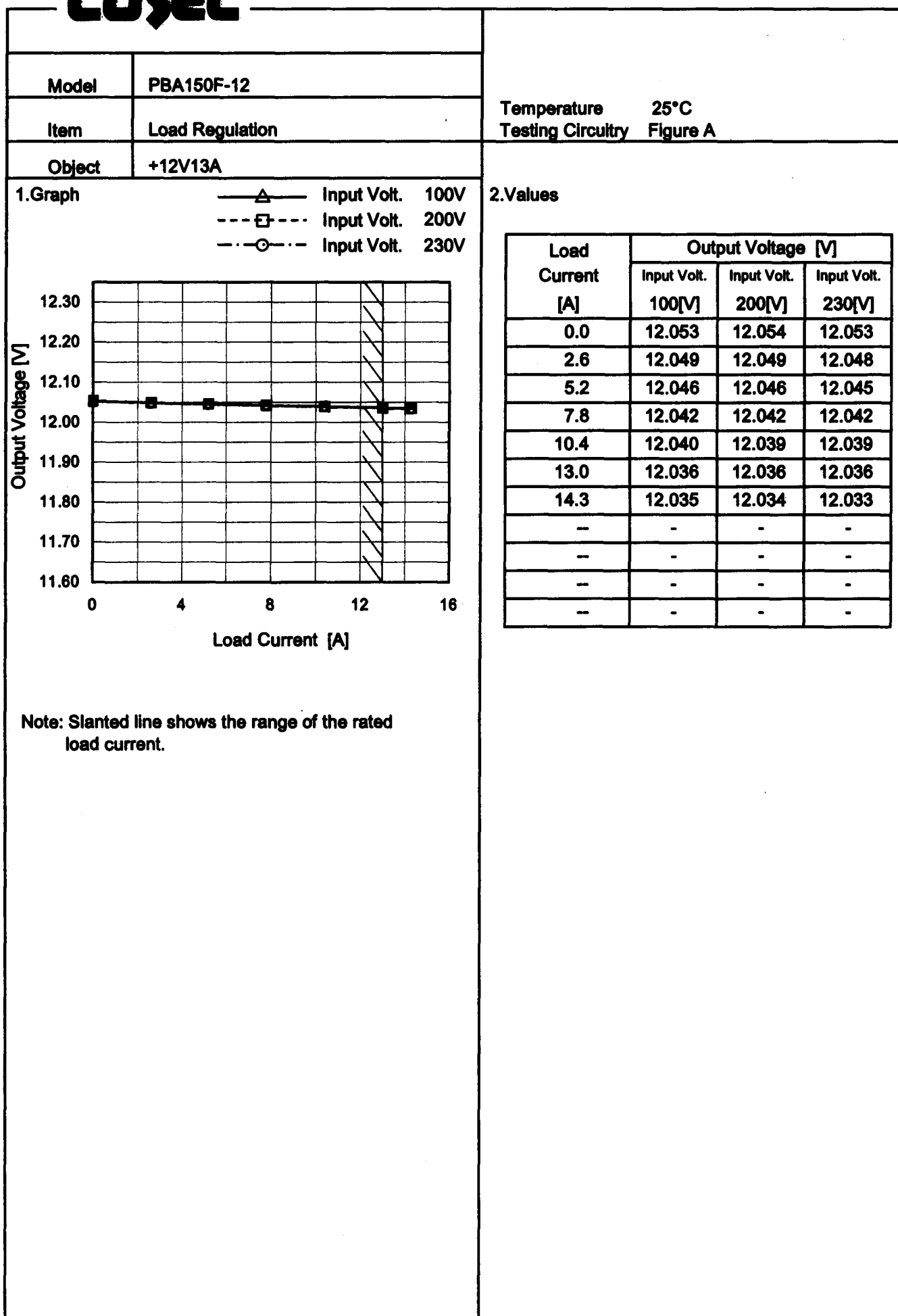
The value for "One phase" is the reference value only.

2.Condition

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

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Model	PBA150F-12																																		
Item	Line Regulation	Temperature	25°C																																
Object	+12V13A	Testing Circuitry	Figure A																																
1.Graph		2.Values																																	
<div><div>---□---</div> Load 50%</div> <div><div>—△—</div> Load 100%</div>  <p>Output Voltage [V]</p> <p>Input Voltage [V]</p>		<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Output Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>75</td><td>12.043</td><td>12.036</td></tr><tr><td>85</td><td>12.043</td><td>12.036</td></tr><tr><td>100</td><td>12.043</td><td>12.036</td></tr><tr><td>120</td><td>12.043</td><td>12.035</td></tr><tr><td>200</td><td>12.043</td><td>12.036</td></tr><tr><td>230</td><td>12.043</td><td>12.036</td></tr><tr><td>264</td><td>12.043</td><td>12.035</td></tr><tr><td>280</td><td>12.043</td><td>12.035</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	75	12.043	12.036	85	12.043	12.036	100	12.043	12.036	120	12.043	12.035	200	12.043	12.036	230	12.043	12.036	264	12.043	12.035	280	12.043	12.035	--	-	-
Input Voltage [V]	Output Voltage [V]																																		
	Load 50%	Load 100%																																	
75	12.043	12.036																																	
85	12.043	12.036																																	
100	12.043	12.036																																	
120	12.043	12.035																																	
200	12.043	12.036																																	
230	12.043	12.036																																	
264	12.043	12.035																																	
280	12.043	12.035																																	
--	-	-																																	
Note: Slanted line shows the range of the rated input voltage.																																			

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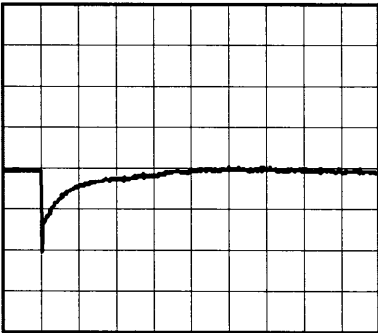
Model	PBA150F-12		
Item	Dynamic Load Response	Temperature	25°C
Object	+12V13A	Testing Circuitry	Figure A

Input Volt. 100 V
Cycle 1000 ms

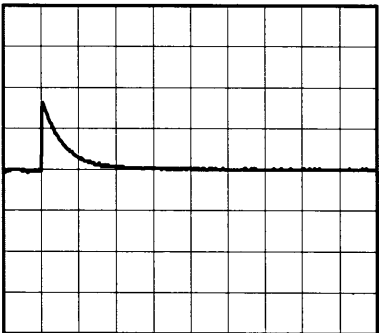


Min. Load (0A) ←→
Load 100% (13A)

100 mV/div



10 ms/div



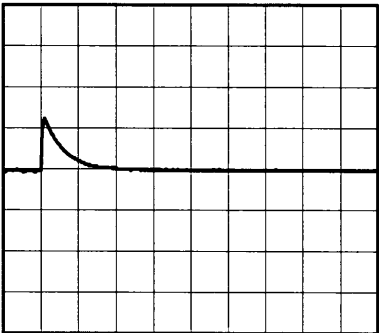
10 ms/div

Min. Load (0A) ←→
Load 50% (6.5A)

100 mV/div



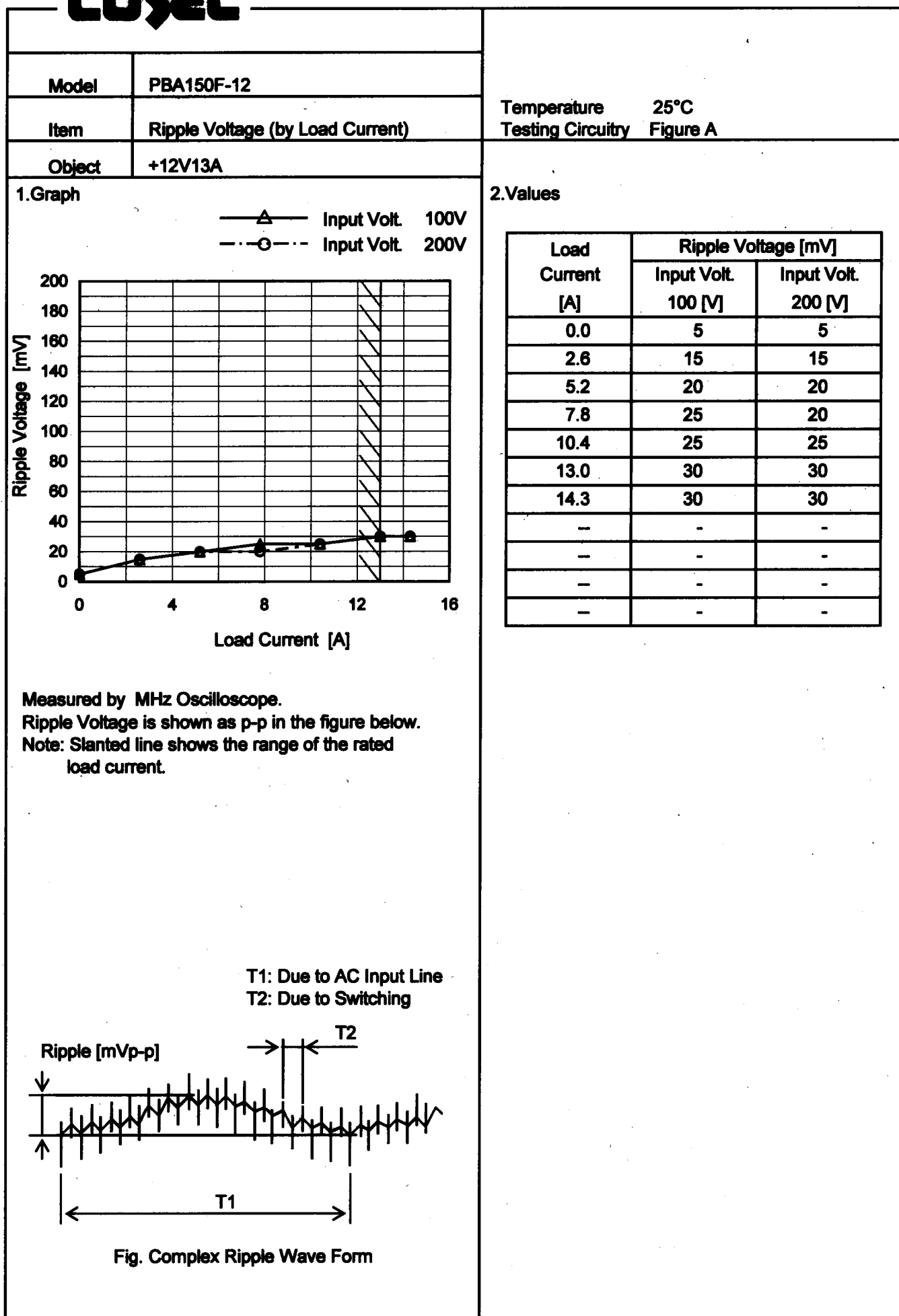
10 ms/div

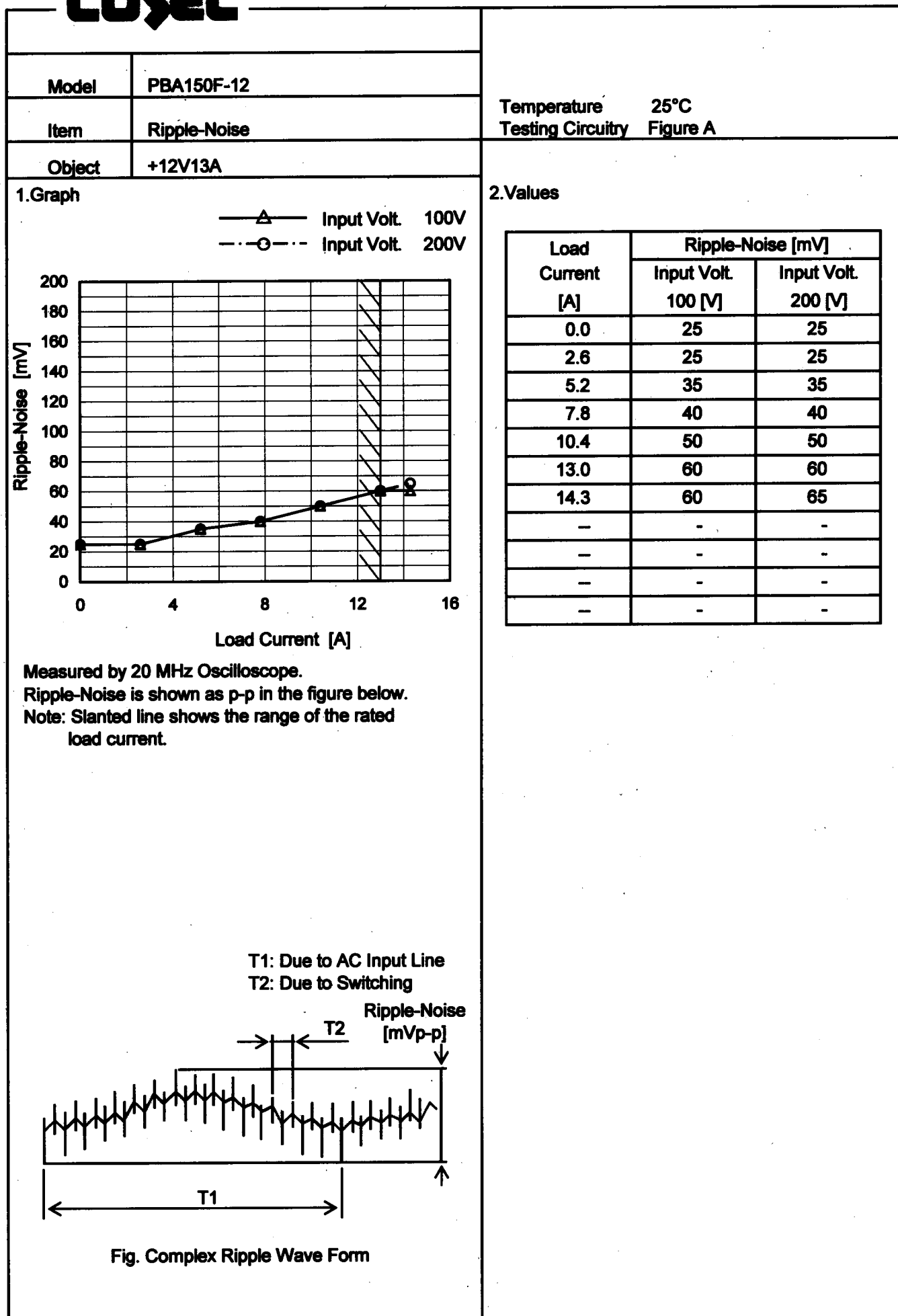


10 ms/div

* The characteristic of AC200V is equal.

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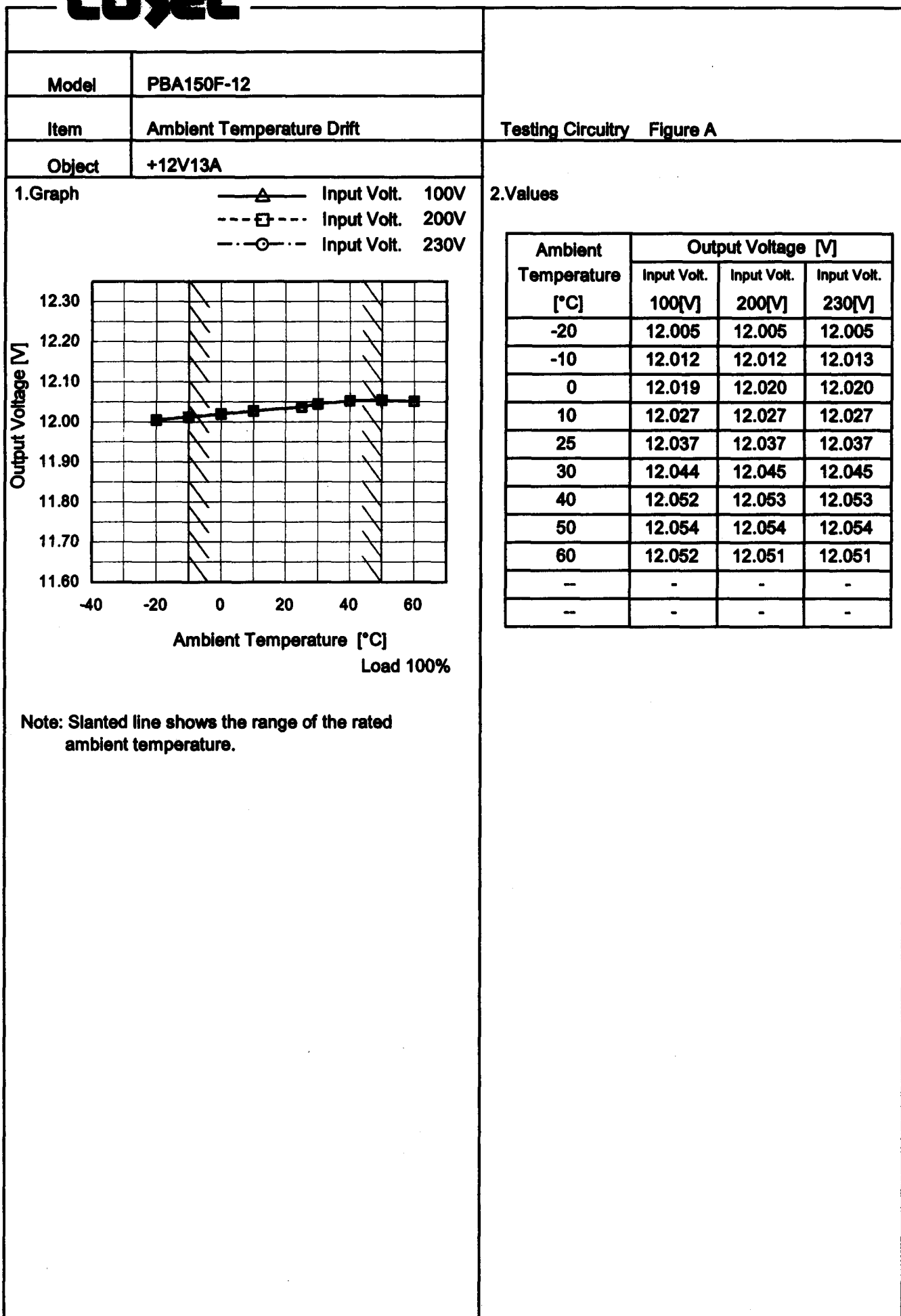


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Model		PBA150F-12																			
Item		Ripple Voltage (by Ambient Temp.)																			
Object		+12V13A																			
1.Graph																					
<div><div><div><div>---□---</div><div>Input Volt. 100V</div></div><div><div>---△---</div><div>Input Volt. 200V</div></div></div><div><table border="1"><caption>Graph Data Points (Estimated)</caption><thead><tr><th>Ambient Temp [°C]</th><th>100V Input [mV]</th><th>200V Input [mV]</th></tr></thead><tbody><tr><td>-30</td><td>110</td><td>-</td></tr><tr><td>-10</td><td>45</td><td>45</td></tr><tr><td>0</td><td>40</td><td>30</td></tr><tr><td>25</td><td>30</td><td>30</td></tr><tr><td>50</td><td>30</td><td>30</td></tr></tbody></table></div></div>				Ambient Temp [°C]	100V Input [mV]	200V Input [mV]	-30	110	-	-10	45	45	0	40	30	25	30	30	50	30	30
Ambient Temp [°C]	100V Input [mV]	200V Input [mV]																			
-30	110	-																			
-10	45	45																			
0	40	30																			
25	30	30																			
50	30	30																			
Measured by 20 MHz Oscilloscope.																					
Note: Slanted line shows the range of the rated ambient temperature.																					

Testing Circuitry Figure A		
2.Values		
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	110	110
-10	45	45
0	40	40
25	30	30
50	30	30
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-
-	-	-

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		Testing Circuitry Figure A
Model	PBA150F-12	
Item	Output Voltage Accuracy	
Object	+12V13A	

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 - 13A

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

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

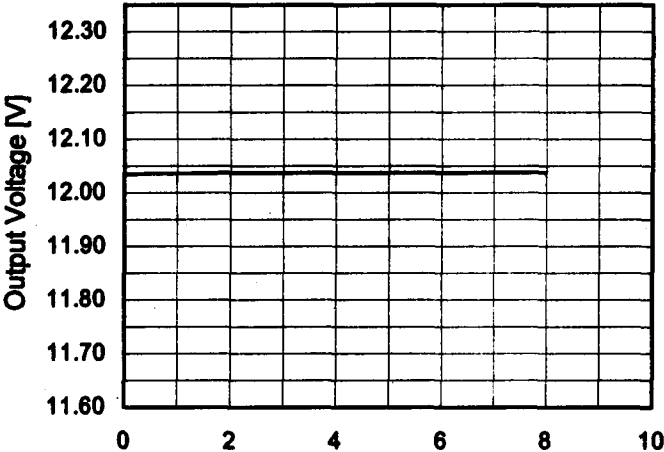
2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	50	85	0	12.071	±29	±0.2
Minimum Voltage	-10	85	13	12.014		

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Model		PBA150F-12	
Item		Time Lapse Drift	
Object		+12V13A	

1.Graph



Output Voltage [V]

Time [H]

Input Volt. 100V

Load 100%

* The characteristic of AC200V is equal.

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.038
0.5	12.036
1.0	12.036
2.0	12.037
3.0	12.037
4.0	12.037
5.0	12.038
6.0	12.037
7.0	12.038
8.0	12.038

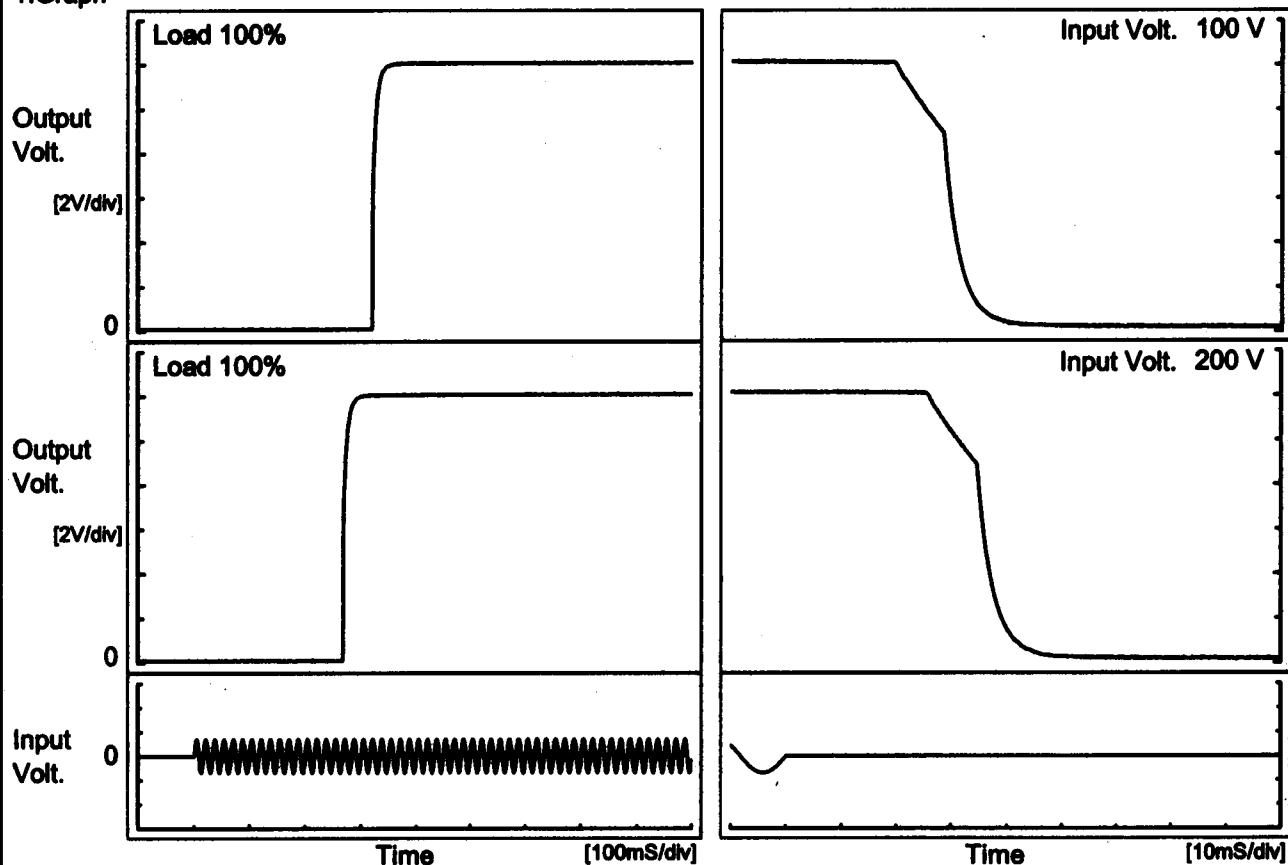
- 17 -

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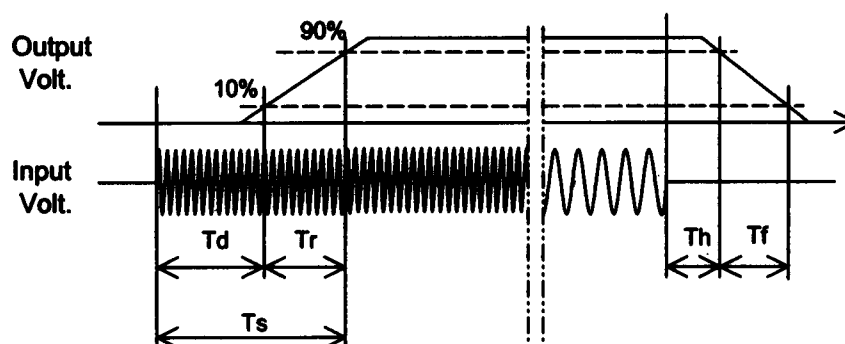
Model	PBA150F-12	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+12V13A		

1. Graph



2. Values

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	320.5	11.0	331.5	22.7	11.9
200 V	268.0	11.0	279.0	28.7	12.0



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Model	PBA150F-12																																		
Item	Hold-Up Time	Temperature	25°C																																
Object	+12V13A	Testing Circuitry	Figure A																																
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> <div>Load 100%</div> <div><div>Hold-Up Time [mS]</div><div><div>1000</div><div>100</div><div>10</div><div>1</div></div><div><div>50</div><div>100</div><div>150</div><div>200</div><div>250</div><div>300</div></div><div>Input Voltage [V]</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>		<table><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><tr><td>75</td><td>42</td><td>15</td></tr><tr><td>85</td><td>45</td><td>17</td></tr><tr><td>100</td><td>48</td><td>20</td></tr><tr><td>120</td><td>50</td><td>22</td></tr><tr><td>200</td><td>56</td><td>26</td></tr><tr><td>230</td><td>58</td><td>27</td></tr><tr><td>264</td><td>59</td><td>28</td></tr><tr><td>280</td><td>59</td><td>28</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Input Voltage [V]	Hold-Up Time [mS]		Load 50%	Load 100%	75	42	15	85	45	17	100	48	20	120	50	22	200	56	26	230	58	27	264	59	28	280	59	28	--	-	-
Input Voltage [V]	Hold-Up Time [mS]																																		
	Load 50%	Load 100%																																	
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85	45	17																																	
100	48	20																																	
120	50	22																																	
200	56	26																																	
230	58	27																																	
264	59	28																																	
280	59	28																																	
--	-	-																																	

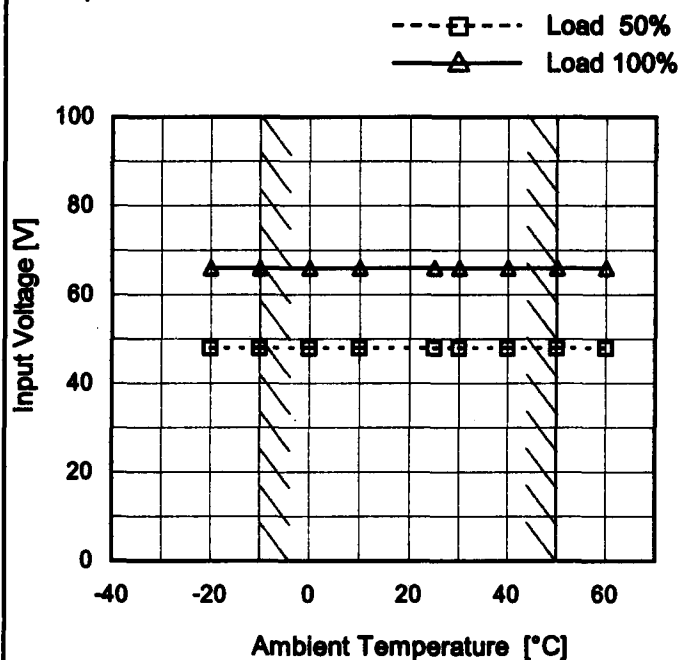
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Model	PBA150F-12																																																						
Item	Instantaneous Interruption Compensation																																																						
Object	+12V13A																																																						
1.Graph		2.Values																																																					
<div><div><div><div><div></div><div>—△—</div><div>Input Volt. 100V</div></div><div><div>---□---</div><div>Input Volt. 200V</div></div><div><div>---○---</div><div>Input Volt. 230V</div></div></div><div><p>Instantaneous Compensation Time [mS]</p><p>Load Current [A]</p></div></div><div><p>Note: Slanted line shows the range of the rated load current.</p></div></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>2.6</td><td>98</td><td>138</td><td>140</td></tr><tr><td>5.2</td><td>62</td><td>71</td><td>73</td></tr><tr><td>7.8</td><td>39</td><td>46</td><td>48</td></tr><tr><td>10.4</td><td>27</td><td>32</td><td>35</td></tr><tr><td>13.0</td><td>20</td><td>25</td><td>27</td></tr><tr><td>14.3</td><td>18</td><td>23</td><td>23</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	-	-	-	2.6	98	138	140	5.2	62	71	73	7.8	39	46	48	10.4	27	32	35	13.0	20	25	27	14.3	18	23	23	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
Load Current [A]	Time [mS]																																																						
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																				
0.0	-	-	-																																																				
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-	-	-	-																																																				

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Model	PBA150F-12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V13A

1. Graph



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

Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	48	66
-10	48	66
0	48	66
10	48	66
25	48	66
30	48	66
40	48	66
50	48	66
60	48	66
--	-	-
--	-	-

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Model		PBA150F-12	
Item		Overcurrent Protection	
Object		+12V13A	

1.Graph

Input Volt. 100V

Input Volt. 200V

Output Voltage [V]

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Model	PBA150F-12
Item	Overvoltage Protection
Object	+12V13A

Testing Circuitry Figure A

1.Graph

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

Operating Point [V]

Ambient Temperature [°C]

Load 0%

Ambient Temperature [°C]	Operating Point [V] (100V)	Operating Point [V] (200V)
-20	15.83	15.83
-10	15.95	15.95
0	16.01	16.01
10	16.13	16.13
25	16.31	16.31
30	16.31	16.30
40	16.42	16.42
50	16.54	16.54
60	16.60	16.60
--	-	-
--	-	-

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	15.83	15.83
-10	15.95	15.95
0	16.01	16.01
10	16.13	16.13
25	16.31	16.31
30	16.31	16.30
40	16.42	16.42
50	16.54	16.54
60	16.60	16.60
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--	-	-

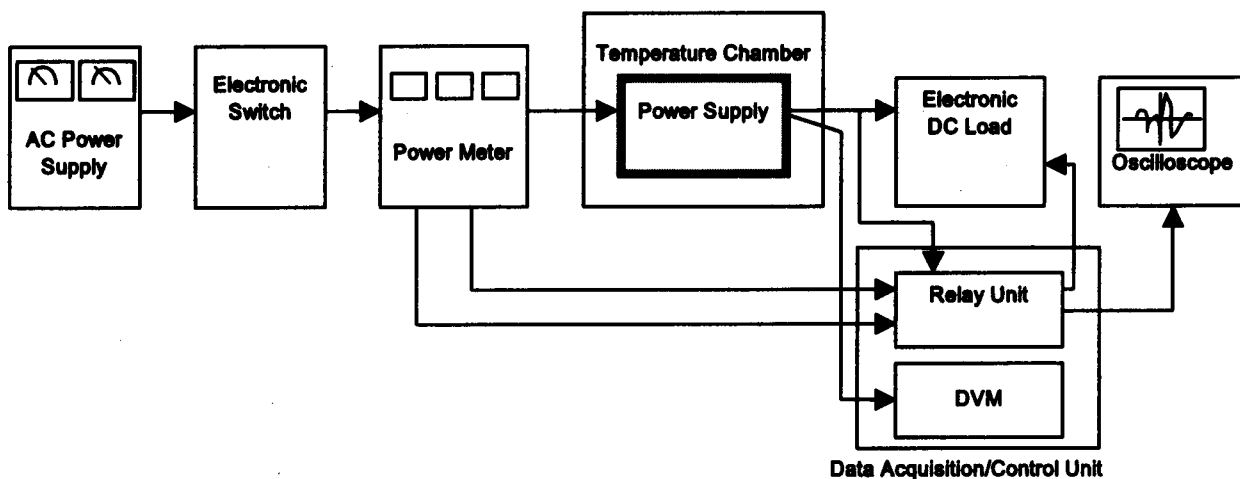


Figure A

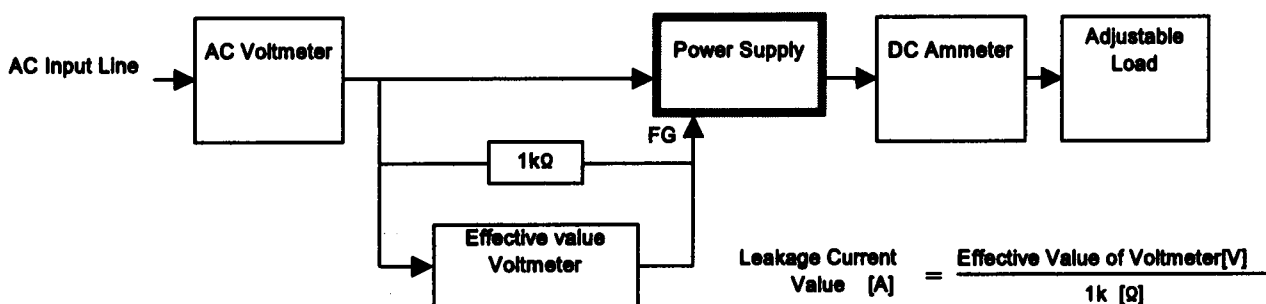


Figure B (DEN-AN)

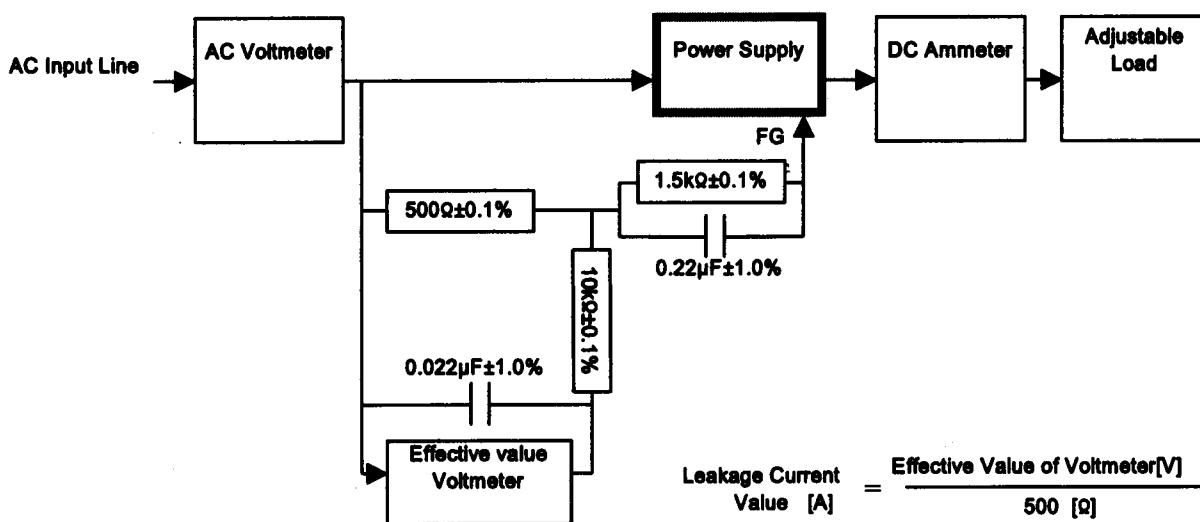


Figure B (IEC60950)