参考資料

COSEL

TEST DATA OF PBA1500T-5

Regulated DC Power Supply
Apr. 18. 2007

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COSEL CO.,LTD.

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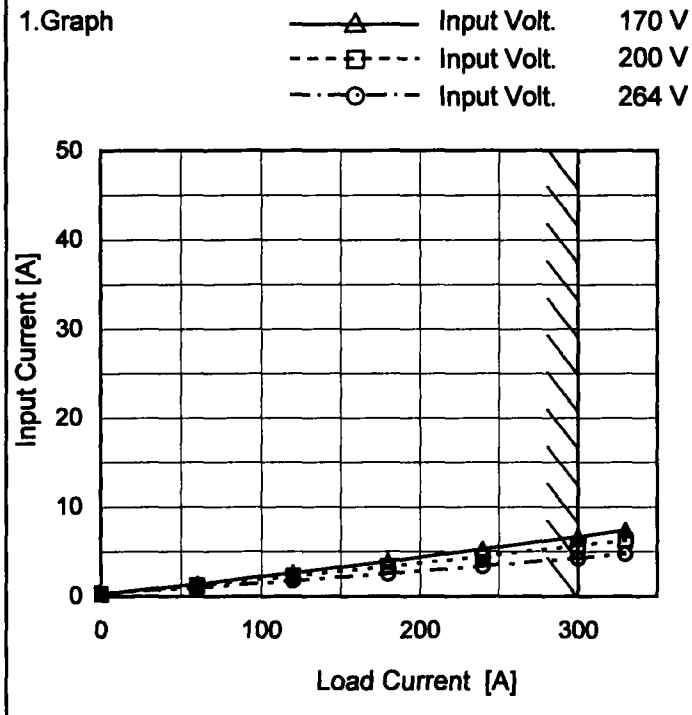
Model	PBA1500T-5
Item	Input Current (by Load Current)
Object	————————

Input AC 3-phase
Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0	0.241	0.267	0.333
60	1.375	1.182	0.952
120	2.610	2.221	1.707
180	3.885	3.300	2.510
240	5.238	4.433	3.355
300	6.658	5.622	4.240
330	7.375	6.227	4.700
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–

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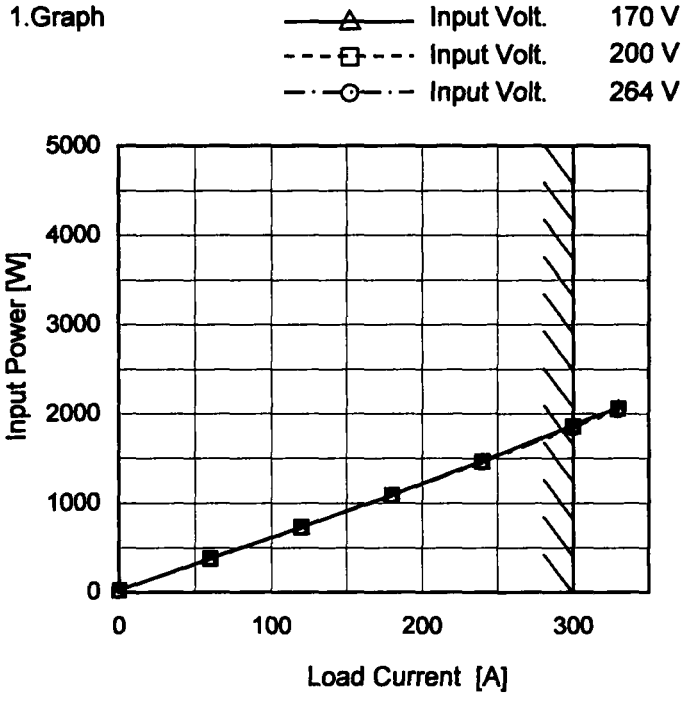
Model	PBA1500T-5
Item	Input Power (by Load Current)
Object	————————

Input AC 3-phase
Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0	21	19	16
60	379	377	375
120	730	727	721
180	1090	1086	1080
240	1470	1462	1452
300	1869	1855	1840
330	2070	2056	2041
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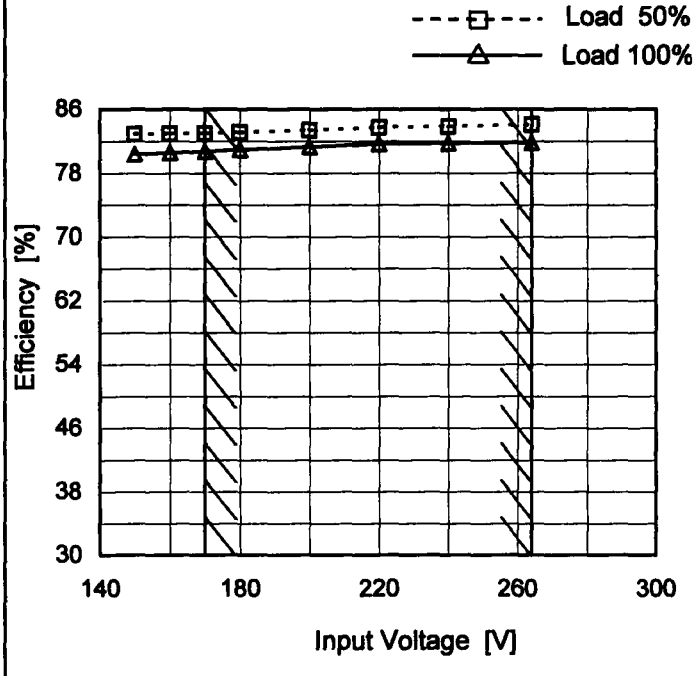
COSEL

Model	PBA1500T-5
Item	Efficiency (by Input Voltage)
Object	———————————

Input AC 3-phase
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]	Efficiency [%]	
	Load 50%	Load 100%
150	82.9	80.4
160	82.9	80.6
170	83.0	80.7
180	83.1	80.9
200	83.4	81.3
220	83.7	81.6
240	83.8	81.7
264	84.1	81.8
–	–	–

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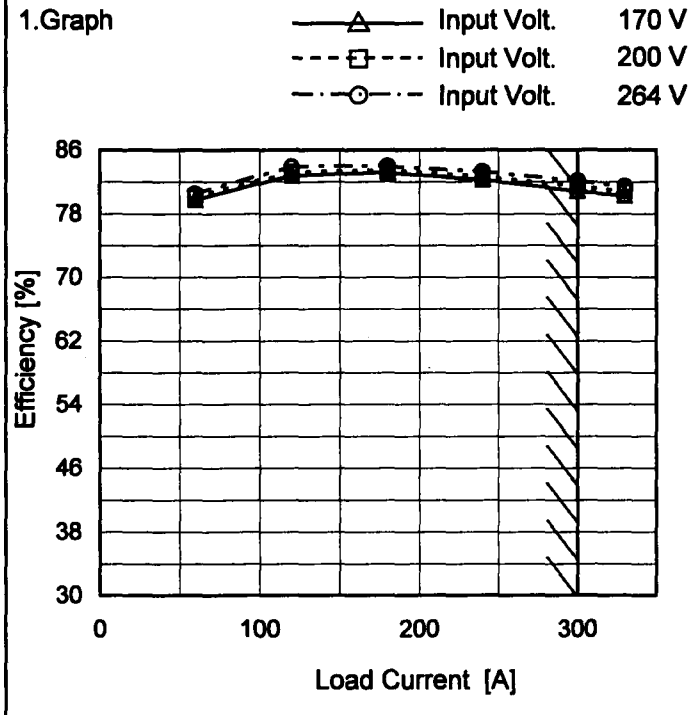
Model	PBA1500T-5
Item	Efficiency (by Load Current)
Object	———————

Input AC 3-phase
Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0	--	--	--
60	79.7	80.2	80.5
120	82.8	83.2	83.9
180	83.2	83.5	84.0
240	82.3	82.7	83.3
300	80.9	81.5	82.2
330	80.3	80.9	81.5
--	--	--	--
--	--	--	--
--	--	--	--
--	--	--	--

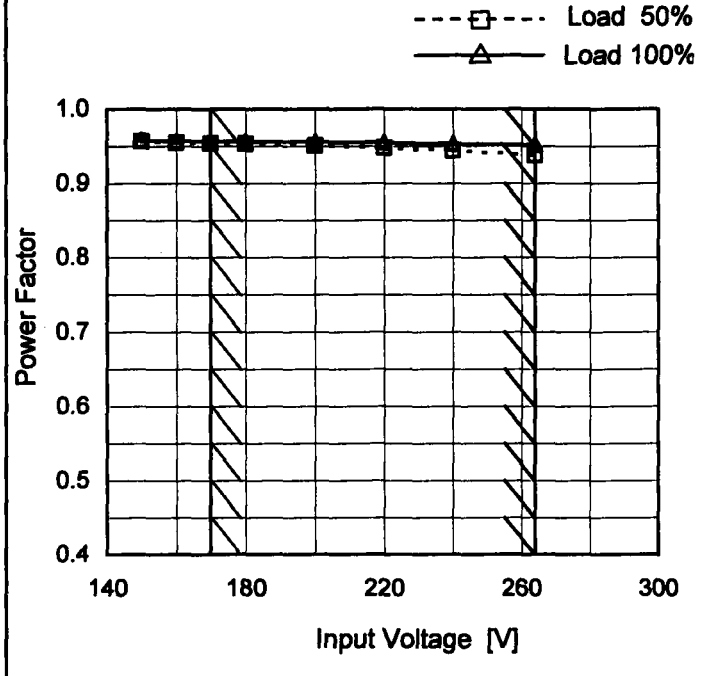
BC-10077

COSEL

Model	PBA1500T-5
Item	Power Factor (by Input Voltage)
Object	————————

Input AC 3-phase
Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

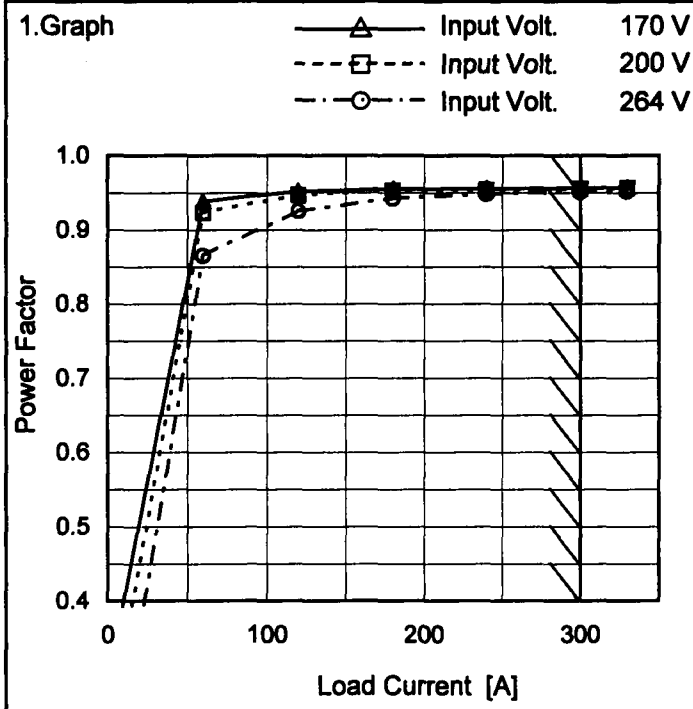
Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
150	0.957	0.959
160	0.955	0.957
170	0.954	0.957
180	0.953	0.957
200	0.951	0.956
220	0.948	0.955
240	0.944	0.954
264	0.938	0.952
--	--	--

COSEL

Model	PBA1500T-5
Item	Power Factor (by Load Current)
Object	————————

Input AC 3-phase
Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Power Factor		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0	0.290	0.210	0.106
60	0.938	0.923	0.865
120	0.952	0.947	0.926
180	0.955	0.952	0.942
240	0.955	0.954	0.948
300	0.956	0.955	0.951
330	0.957	0.956	0.952
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–

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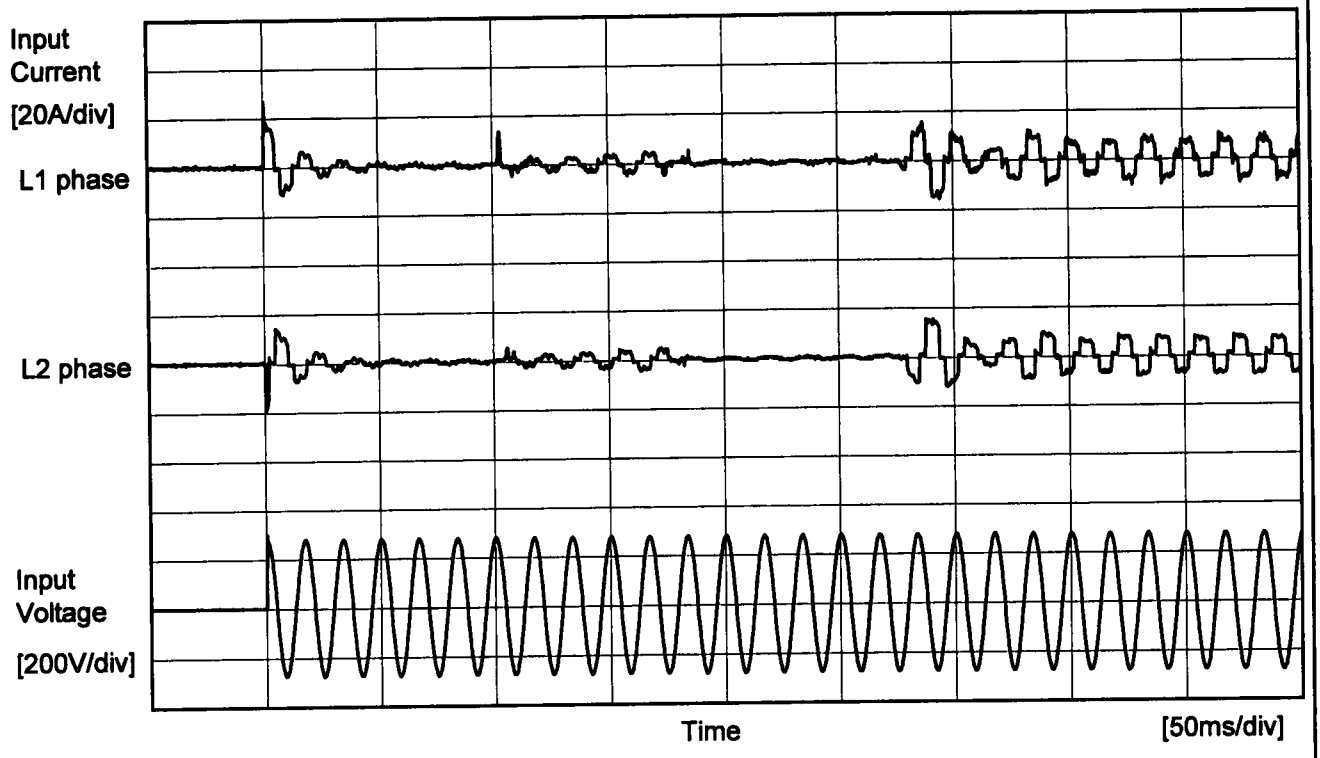
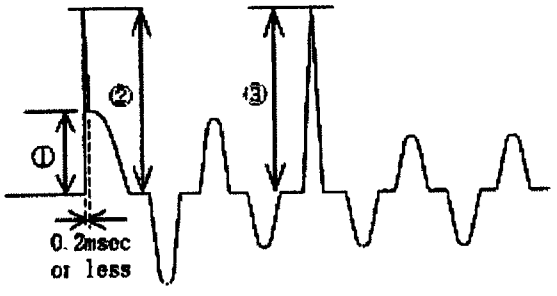
Model	PBA1500T-5
Item	Inrush Current
Object	————————

Input AC 3-phase
Temperature 25°C
Testing Circuitry Figure A



Input Voltage	200 V	
Frequency	60 Hz	
Load	100 %	
Inrush Current		
①	18.0 A	
②	26.8 A	(0.2ms or less)*1
③	15.6 A	



*1 The specification of the inrush current (primary surge) means that the surge current to a built-in noise filter (0.2ms or less :waveform②) is excluded

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Model	PBA1500T-5	Input	AC 3-phase
		Temperature	25°C
Item	Leakage Current	Testing Circuitry	Figure B
Object	———————————		

1.Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A)DEN-AN	–	–	–
(B)IEC60950	–	–	–

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 240 [V]	Input Volt. 264 [V]
(B)IEC60950	0.77	1.12	1.25

2.Condition

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

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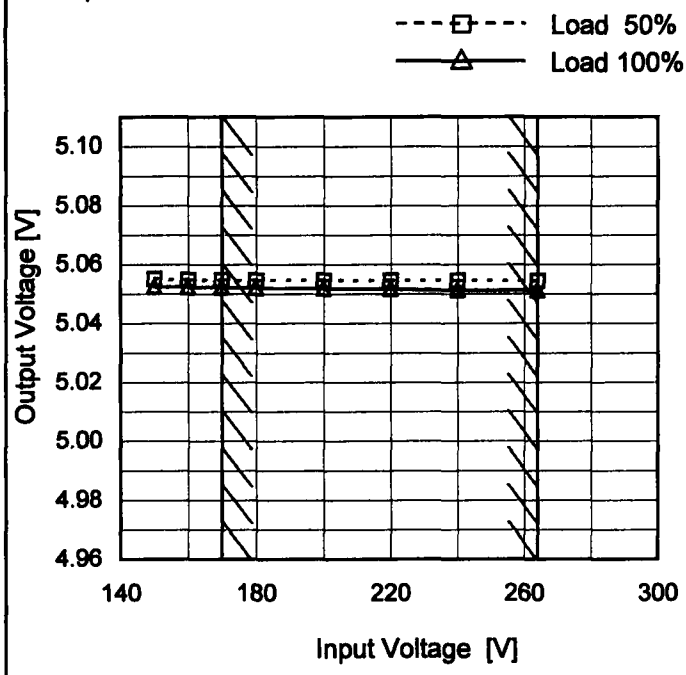
Model	PBA1500T-5
Item	Line Regulation
Object	+5V300A

Input AC 3-phase
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]	Output Voltage [V]	
	Load 50%	Load 100%
150	5.055	5.053
160	5.055	5.052
170	5.055	5.052
180	5.055	5.052
200	5.055	5.052
220	5.055	5.052
240	5.055	5.051
264	5.054	5.051
--	--	--

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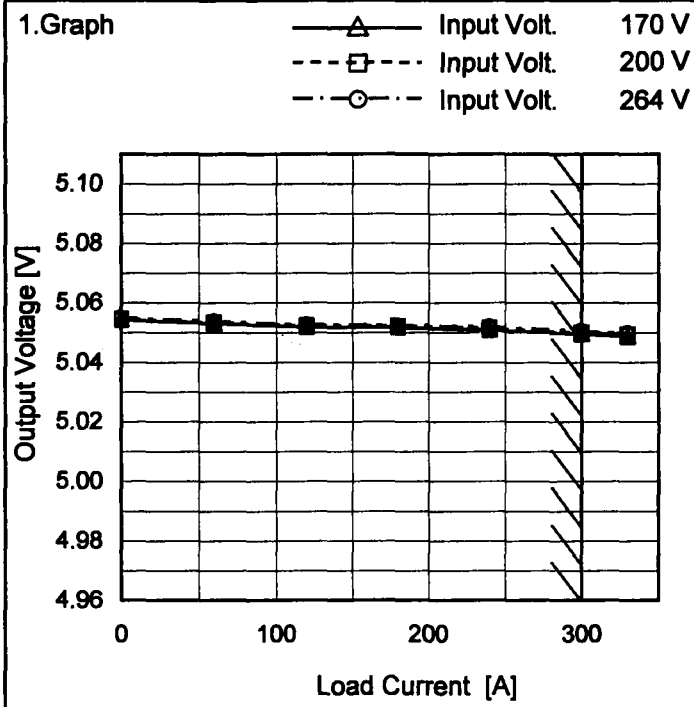
Model	PBA1500T-5
Item	Load Regulation
Object	+5V300A

Input AC 3-phase
Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0	5.054	5.055	5.055
60	5.053	5.053	5.054
120	5.052	5.052	5.053
180	5.052	5.052	5.052
240	5.051	5.051	5.052
300	5.050	5.050	5.050
330	5.049	5.049	5.050
–	–	–	–
–	–	–	–
–	–	–	–
–	–	–	–

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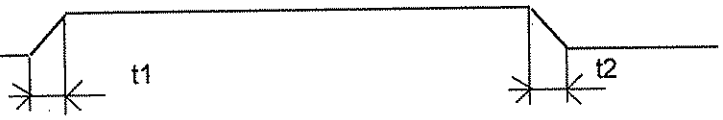
Model	PBA1500T-5
Item	Dynamic Load Response
Object	+5V300A

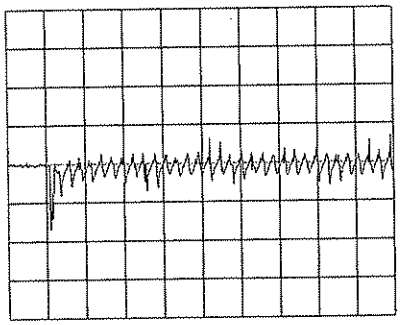
Input AC 3-phase
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 200 V
Cycle 1000 ms

Load Current
t1=t2=100 μ s

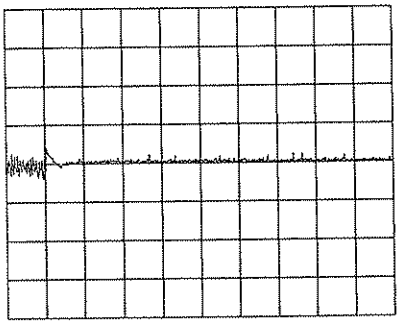


Min.Load (0A) ⟷
Load 100% (300A)



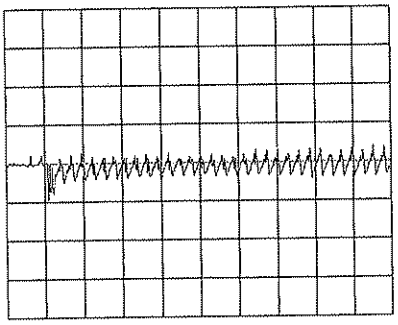
100mV/div

1ms/div



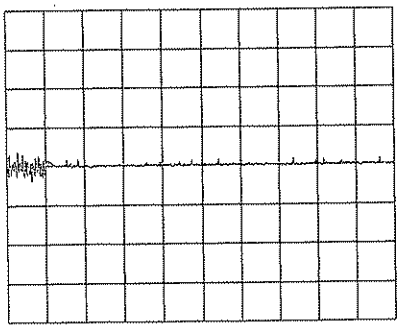
10ms/div

Min.Load (0A) ⟷
Load 50% (150A)



100mV/div

500 μ s/div



500 μ s/div

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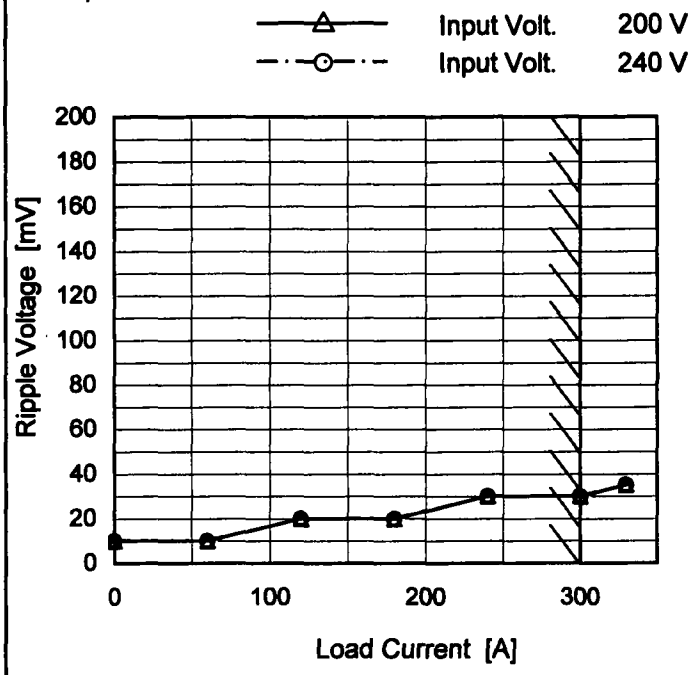
Model	PBA1500T-5
Item	Ripple Voltage (by Load Current)
Object	+5V300A

Input AC 3-phase
Temperature 25°C
Testing Circuitry Figure A

1.Graph



Measured by 20MHz Oscilloscope.
Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

T1: Due to AC Input Line
T2: Due to Switching

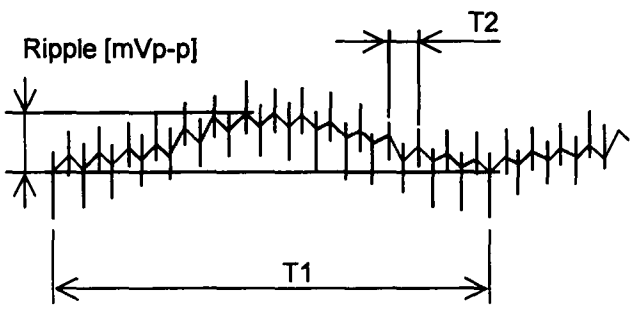


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Output Voltage [mV]	
	Input Volt. 200[V]	Input Volt. 240[V]
0	10	10
60	10	10
120	20	20
180	20	20
240	30	30
300	30	30
330	35	35
--	--	--
--	--	--
--	--	--
--	--	--

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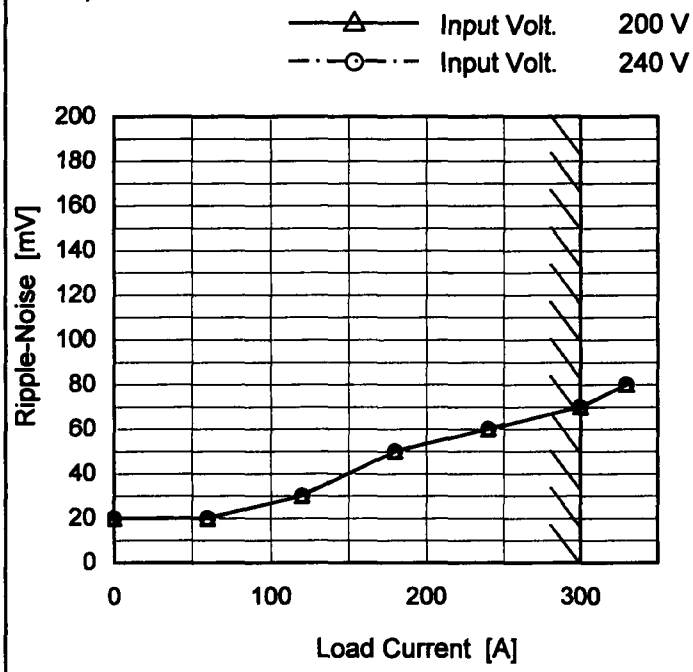
Model	PBA1500T-5
Item	Ripple-Noise
Object	+5V300A

Input AC 3-phase
Temperature 25°C
Testing Circuitry Figure A

1.Graph



Measured by 20MHz Oscilloscope.
Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

T1: Due to AC Input Line
T2: Due to Switching

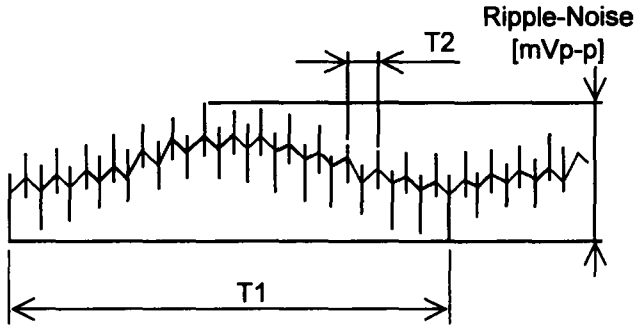


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 200[V]	Input Volt. 240[V]
0	20	20
60	20	20
120	30	30
180	50	50
240	60	60
300	70	70
330	80	80
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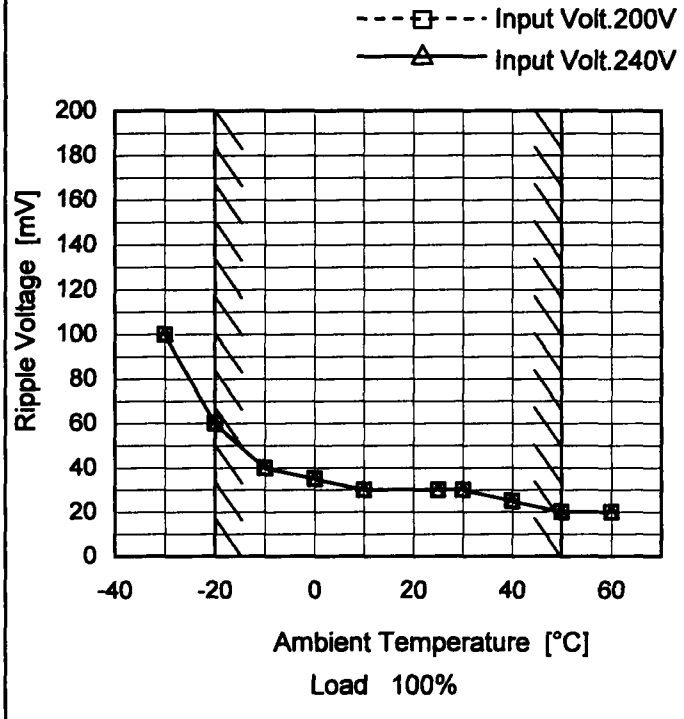
Model	PBA1500T-5
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V300A

Input AC 3-phase
Testing Circuitry Figure A

1.Graph



Load 100%

Measured by 20MHz Oscilloscope.
Note: Slanted line shows the range of the rated ambient temperature.

2.Values

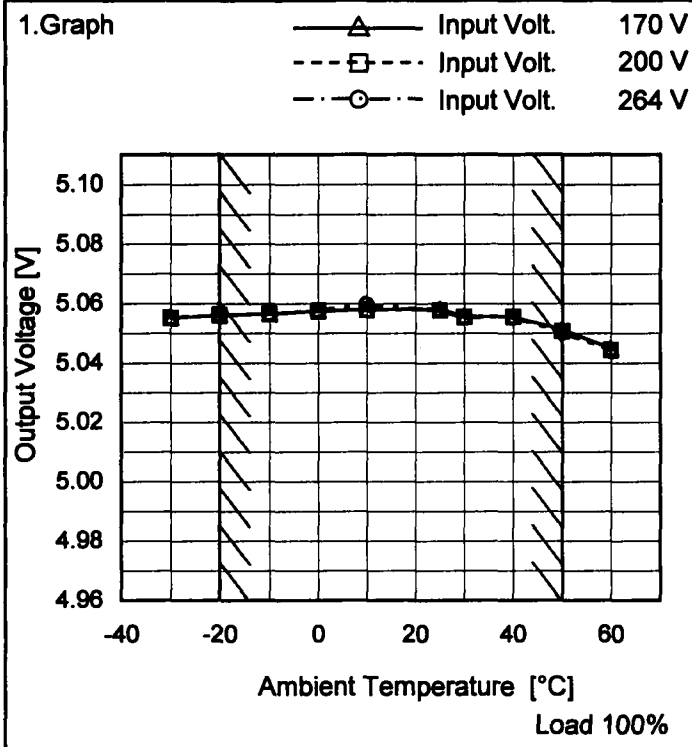
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 200 [V]	Input Volt. 240 [V]
-30	100	100
-20	60	60
-10	40	40
0	35	35
10	30	30
25	30	30
30	30	30
40	25	25
50	20	20
60	20	20
–	–	–

COSEL

Model	PBA1500T-5
Item	Ambient Temperature Drift
Object	+5V300A

Input AC 3-phase
Testing Circuitry Figure A

1.Graph



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

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
-30	5.055	5.055	5.055
-20	5.056	5.056	5.056
-10	5.056	5.056	5.057
0	5.057	5.058	5.058
10	5.058	5.058	5.060
25	5.058	5.058	5.058
30	5.056	5.055	5.055
40	5.056	5.056	5.055
50	5.051	5.051	5.050
60	5.045	5.044	5.044
–	–	–	–

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Model	PBA1500T-5	Input AC 3-phase
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V300A	

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 : 170 -- 264V
Load Current : 0 -- 300A

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

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

2.Values

Item	Temperature [°C]	Input Voltage [V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	200	0	5.061	±9	±0.2
Minimum Voltage	50	200	300	5.043		

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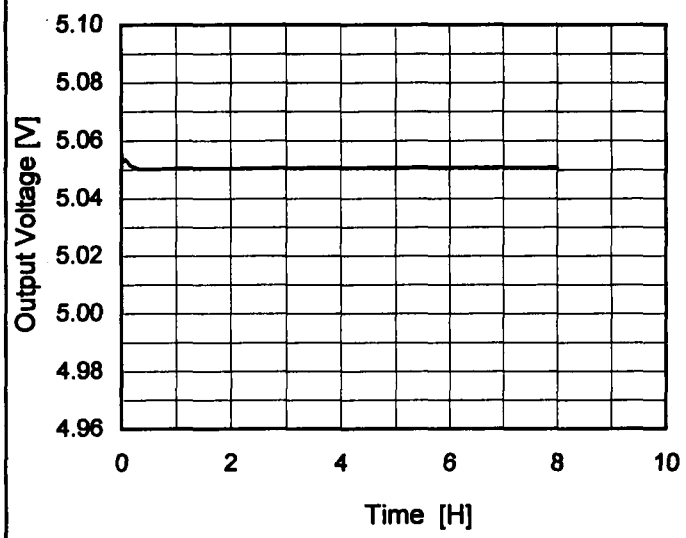
Model	PBA1500T-5
Item	Time Lapse Drift
Object	+5V300A

Input AC 3-phase
Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 200V
Load 100%

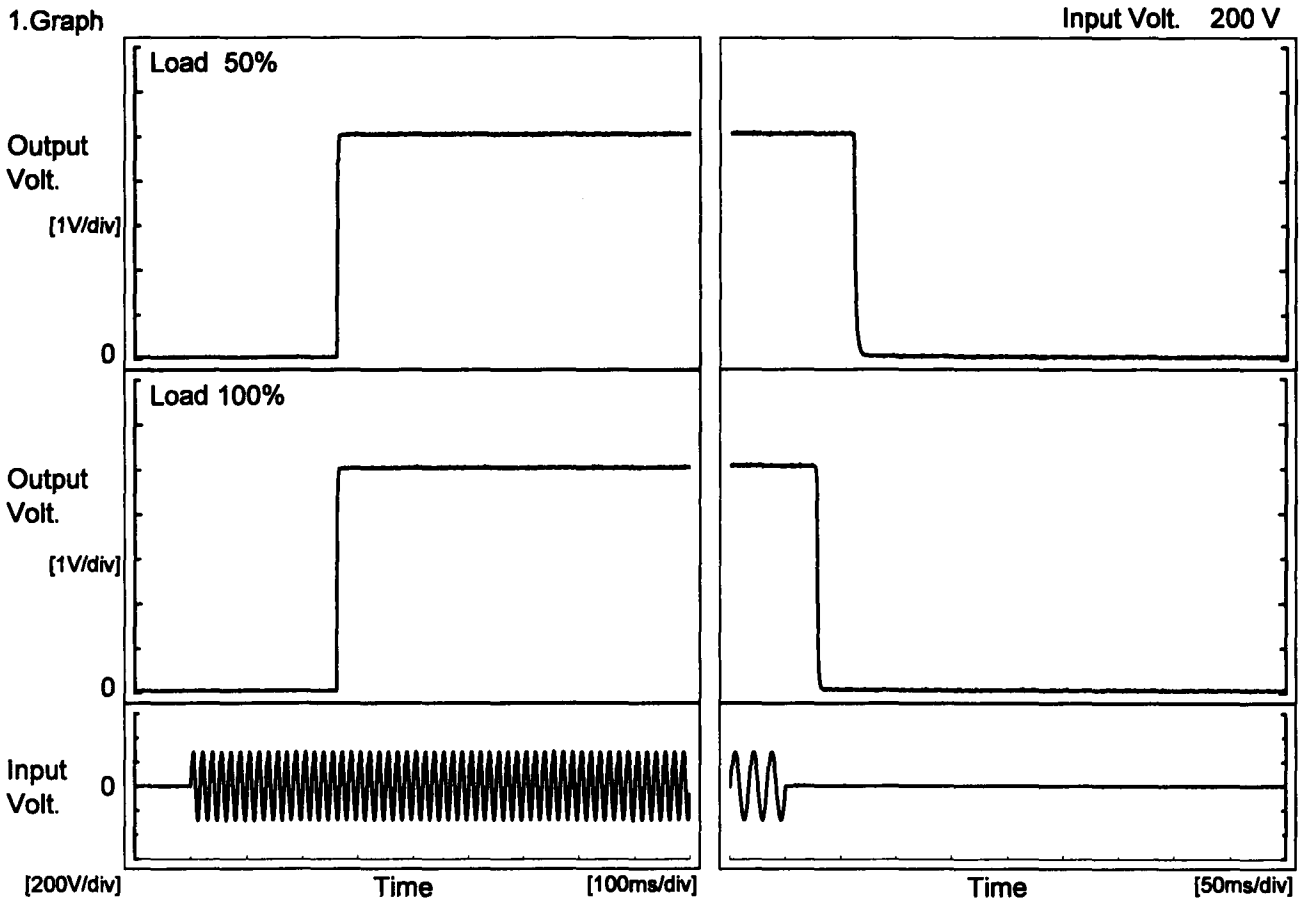
2.Values

Time since start [H]	Output Voltage [V]
0.0	5.056
0.5	5.050
1.0	5.050
2.0	5.050
3.0	5.051
4.0	5.051
5.0	5.051
6.0	5.051
7.0	5.051
8.0	5.051

COSEL

Model	PBA1500T-5	Input AC 3-phase
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+5V300A	

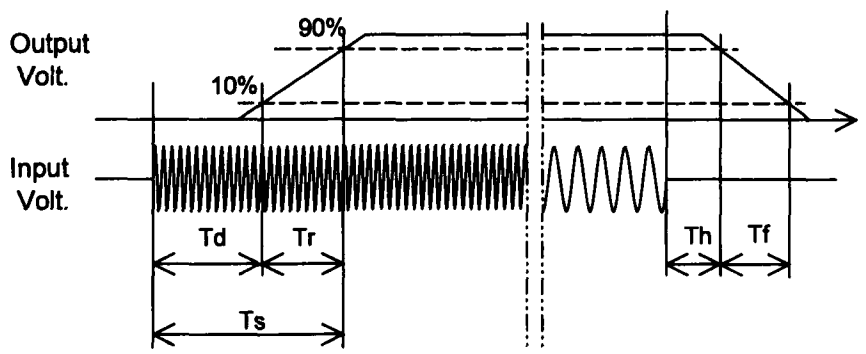
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	262.0	2.0	264.0	60.8	4.0
100 %	261.5	2.0	263.5	28.3	2.0

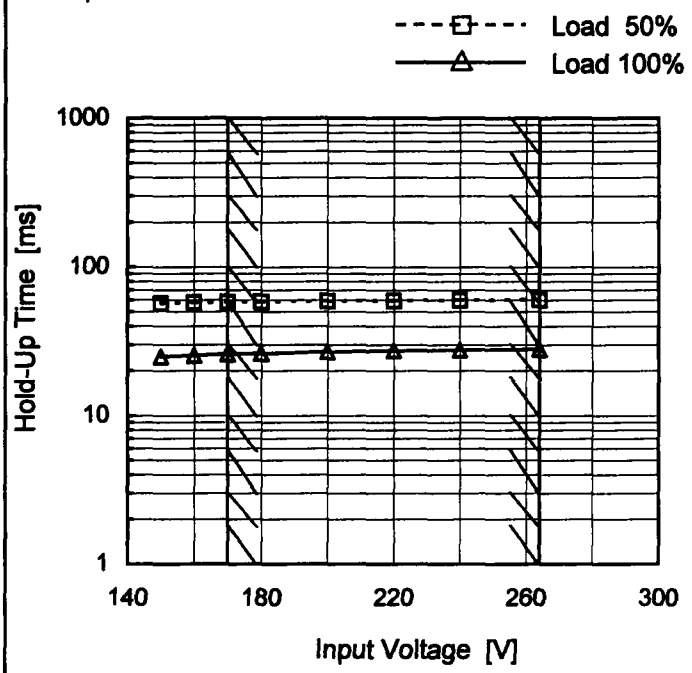


COSEL

Model	PBA1500T-5
Item	Hold-Up Time
Object	+5V300A

Input AC 3-phase
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

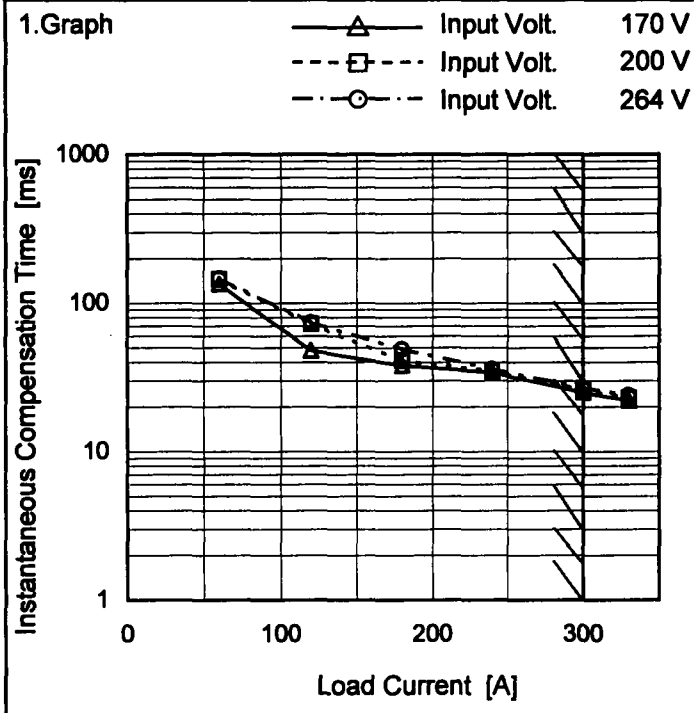
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
150	57	25
160	57	25
170	58	26
180	58	26
200	59	27
220	59	27
240	60	28
264	60	28
–	–	–

COSEL

Model	PBA1500T-5
Item	Instantaneous Interruption Compensation
Object	+5V300A

Input AC 3-phase
Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

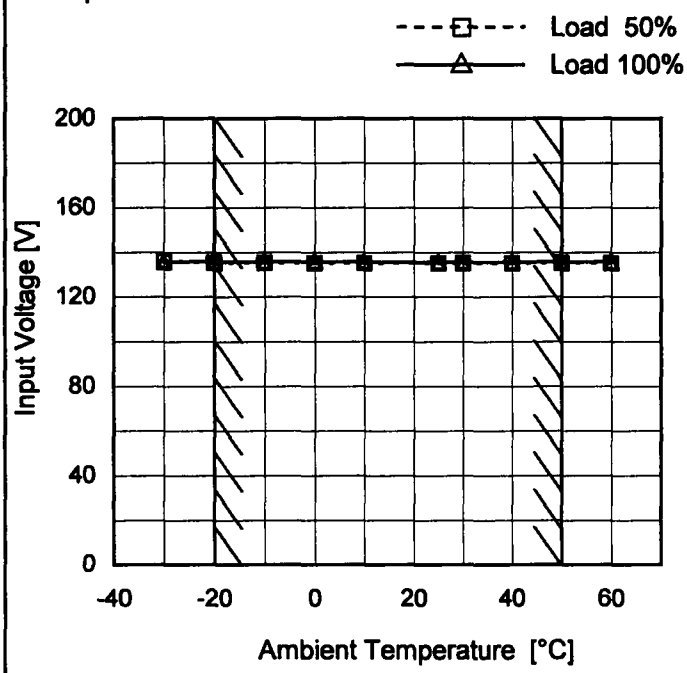
Load Current [A]	Time [ms] Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0	--	--	--
60	135	145	147
120	48	72	74
180	38	41	49
240	34	35	36
300	25	26	27
330	22	23	24
--	--	--	--
--	--	--	--
--	--	--	--
--	--	--	--

COSEL

Model	PBA1500T-5
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V300A

Input AC 3-phase
Testing Circuitry Figure A

1.Graph



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

2.Values

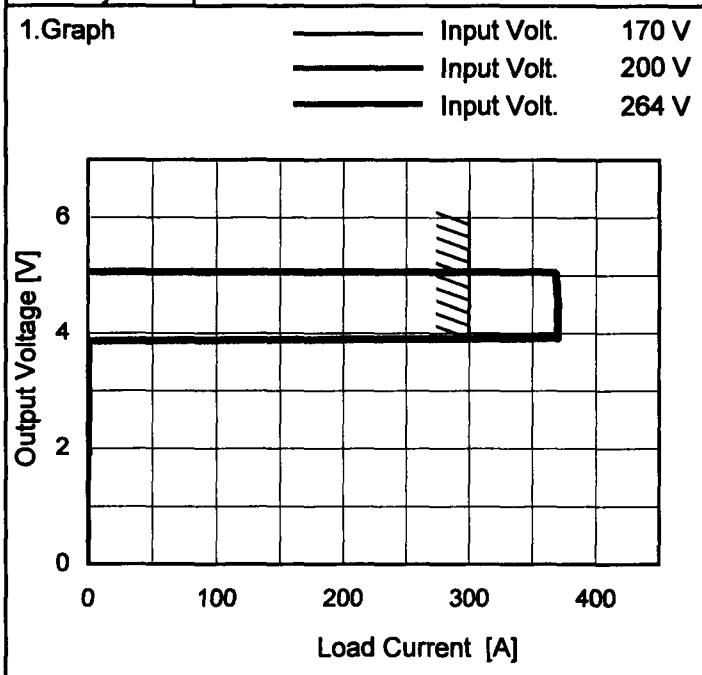
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	136	136
-20	135	136
-10	135	136
0	135	136
10	135	136
25	135	135
30	135	135
40	135	136
50	135	136
60	135	136
--	--	--

COSEL

Model	PBA1500T-5
Item	Overcurrent Protection
Object	+5V300A

Input AC 3-phase
Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

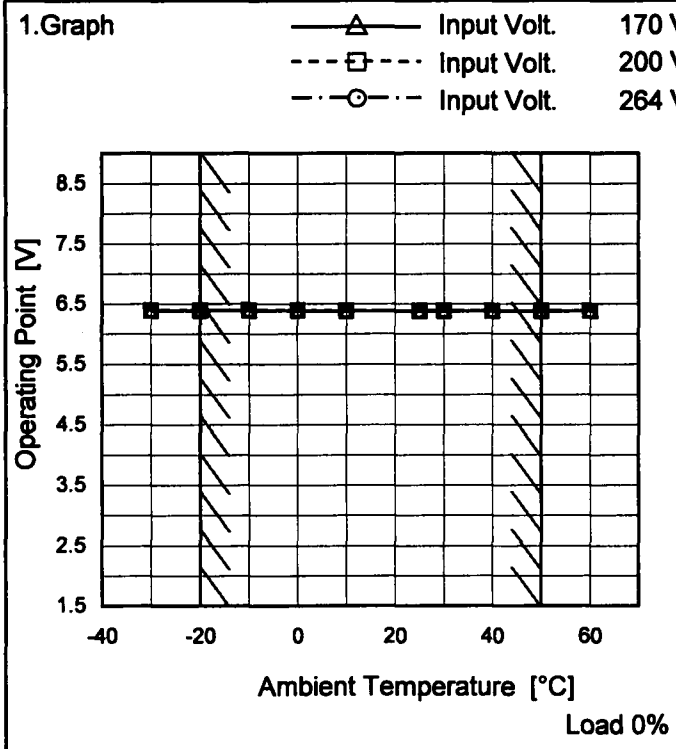
Output Voltage [V]	Load Current [A]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
5.00	368.76	368.57	315.27
4.75	368.90	368.97	369.35
4.50	369.57	369.72	370.07
4.00	369.96	369.88	370.23
3.50	0.00	0.00	0.00
3.00	0.00	0.00	0.00
2.50	0.00	0.00	0.00
2.00	0.00	0.00	0.00
1.50	0.00	0.00	0.00
1.00	0.00	0.00	0.00
0.50	0.00	0.00	0.00
0.00	0.00	0.00	0.00

COSEL

Model	PBA1500T-5
Item	Overvoltage Protection
Object	+5V300A

Input AC 3-phase
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. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
-30	6.39	6.39	6.39
-20	6.39	6.39	6.39
-10	6.39	6.39	6.39
0	6.39	6.39	6.39
10	6.38	6.38	6.38
25	6.38	6.38	6.38
30	6.38	6.38	6.38
40	6.38	6.38	6.38
50	6.38	6.38	6.38
60	6.38	6.37	6.37
–	–	–	–

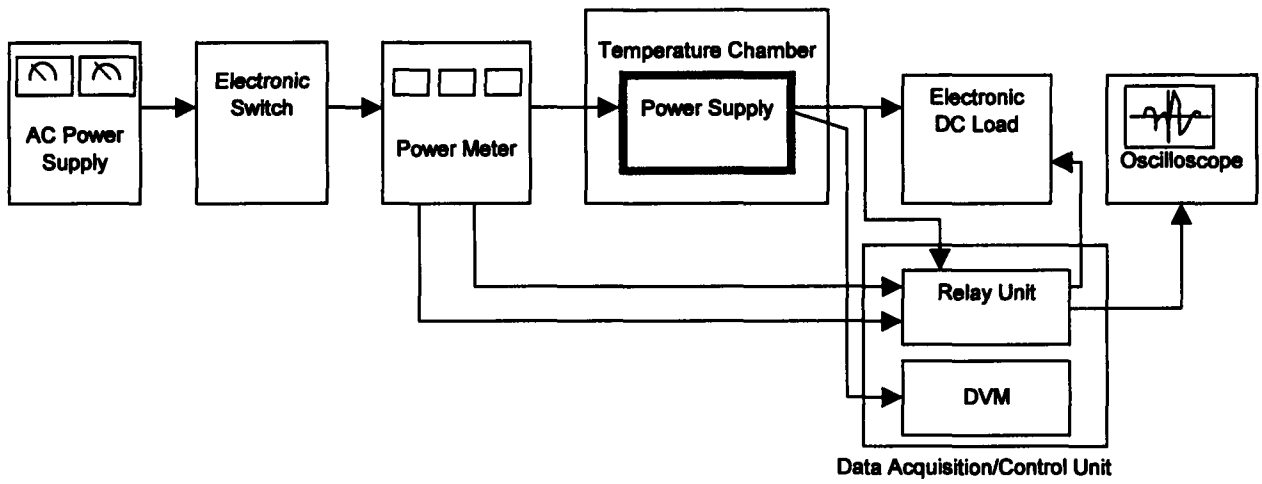


Figure A

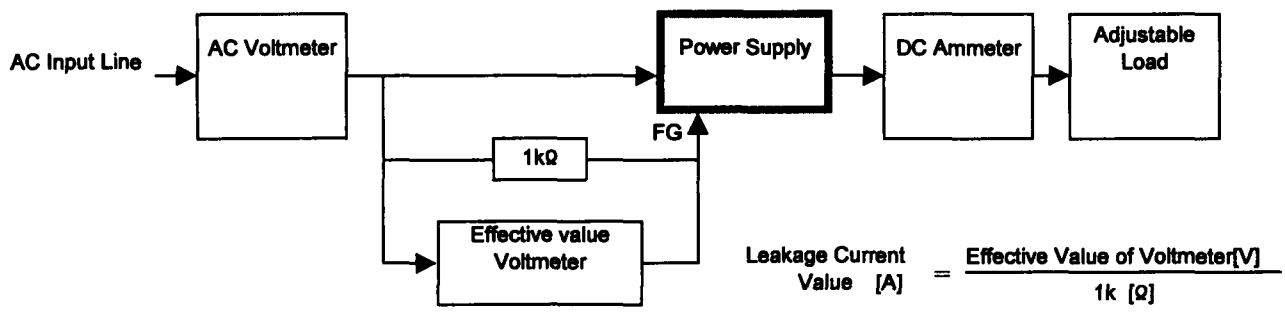


Figure B (DEN-AN)

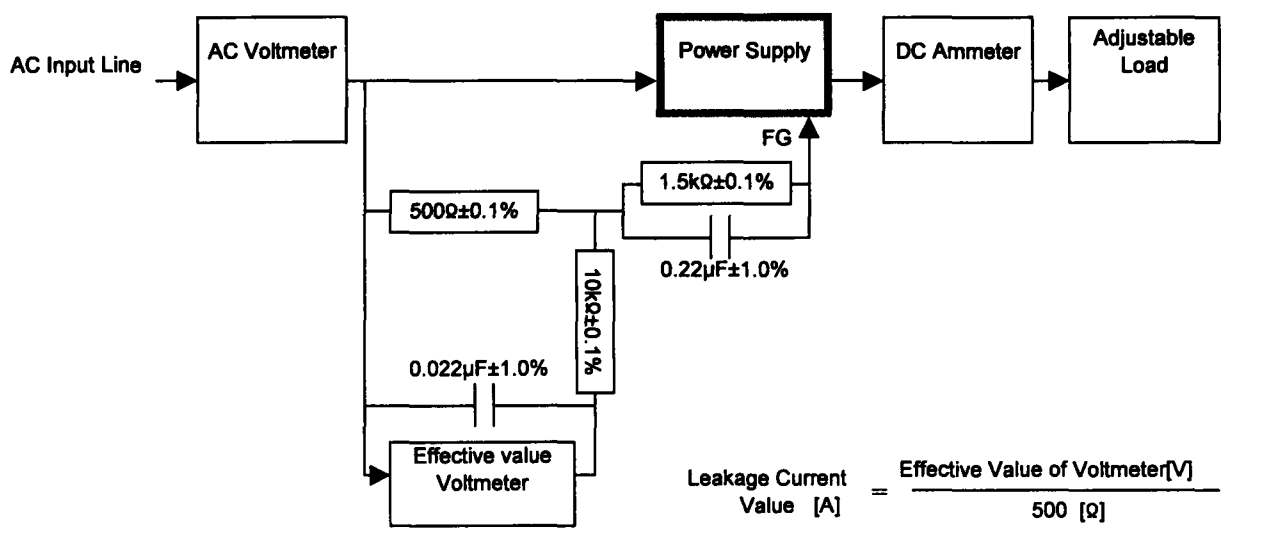


Figure B (IEC60950)