参考資料

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TEST DATA OF PBA1500T-12

Regulated DC Power Supply
Mar. 27. 2007

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COSEL CO.,LTD.

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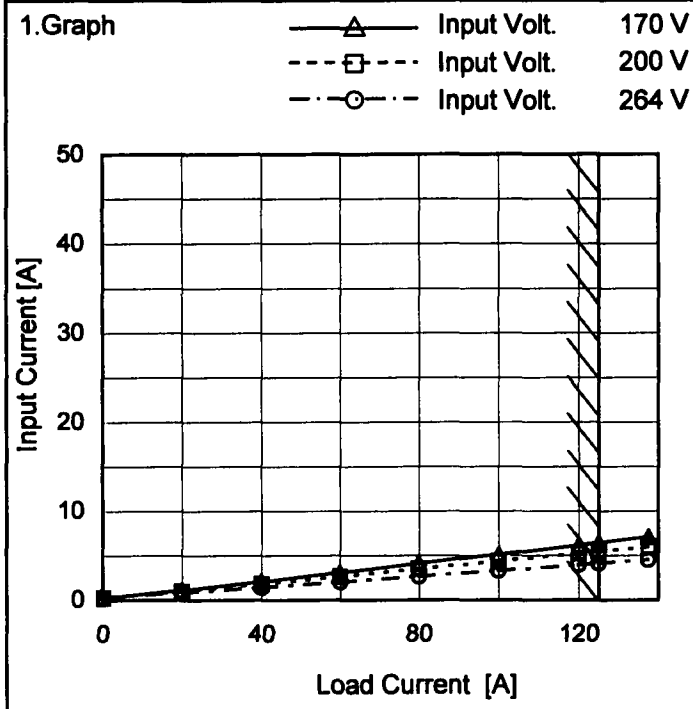
Model	PBA1500T-12
Item	Input Current (by Load Current)
Object	———————

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	0.240	0.267	0.333
20.0	1.127	0.980	0.813
40.0	2.097	1.793	1.393
60.0	3.103	2.635	2.010
80.0	4.093	3.470	2.639
100.0	5.109	4.325	3.277
120.0	6.156	5.201	3.931
125.0	6.418	5.420	4.095
137.5	7.059	5.964	4.503
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BC-10078

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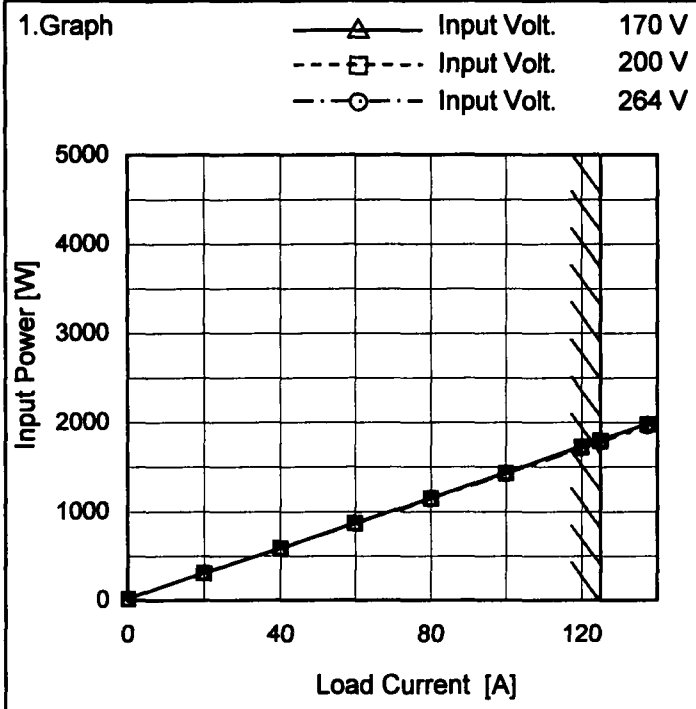
Model	PBA1500T-12
Item	Input Power (by Load Current)
Object	———————

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	20	19	16
20.0	308	307	307
40.0	585	584	580
60.0	870	866	857
80.0	1150	1144	1137
100.0	1435	1427	1418
120.0	1730	1717	1706
125.0	1804	1790	1777
137.5	1984	1971	1955
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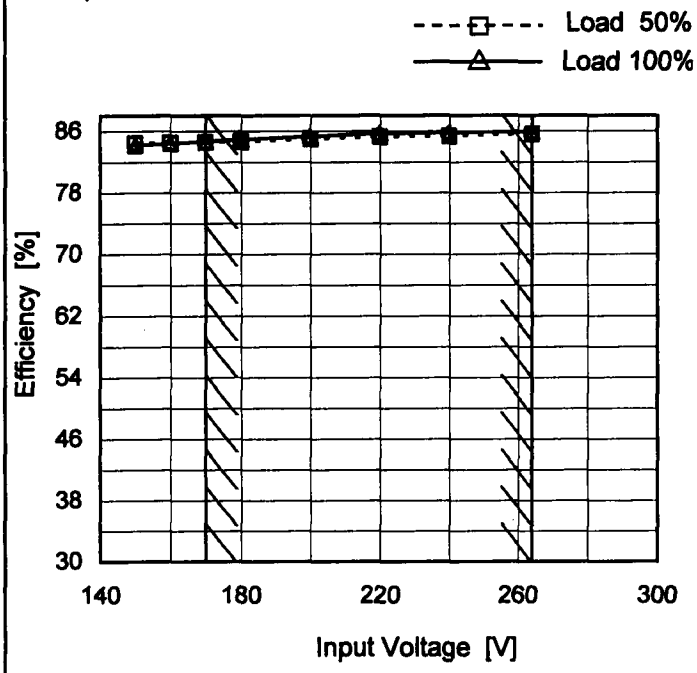
BC-10078

COSEL

Model	PBA1500T-12
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	84.4	84.2
160	84.5	84.4
170	84.5	84.7
180	84.6	84.9
200	84.9	85.3
220	85.3	85.7
240	85.4	85.8
264	85.6	85.9
–	–	–

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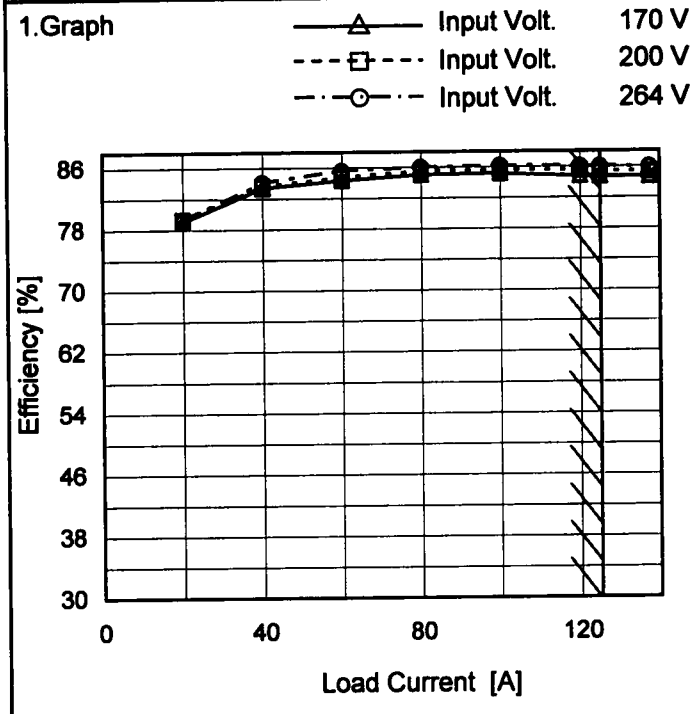
Model	PBA1500T-12
Item	Efficiency (by Load Current)
Object	————————

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	—	—	—
20.0	79.0	79.3	79.2
40.0	83.4	83.6	84.1
60.0	84.3	84.7	85.6
80.0	85.0	85.4	86.0
100.0	85.1	85.6	86.1
120.0	84.8	85.5	86.0
125.0	84.7	85.4	86.0
137.5	84.7	85.3	85.9
—	—	—	—
—	—	—	—

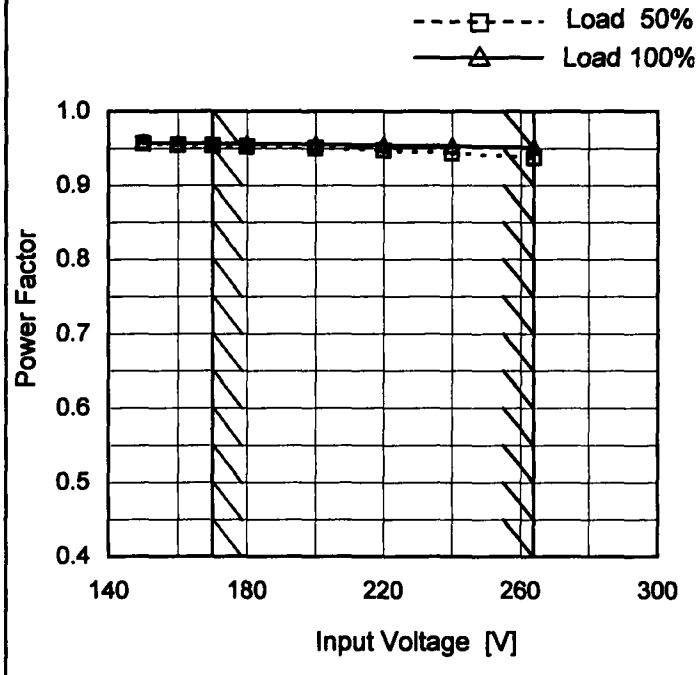
BC-10078

COSEL

Model	PBA1500T-12
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

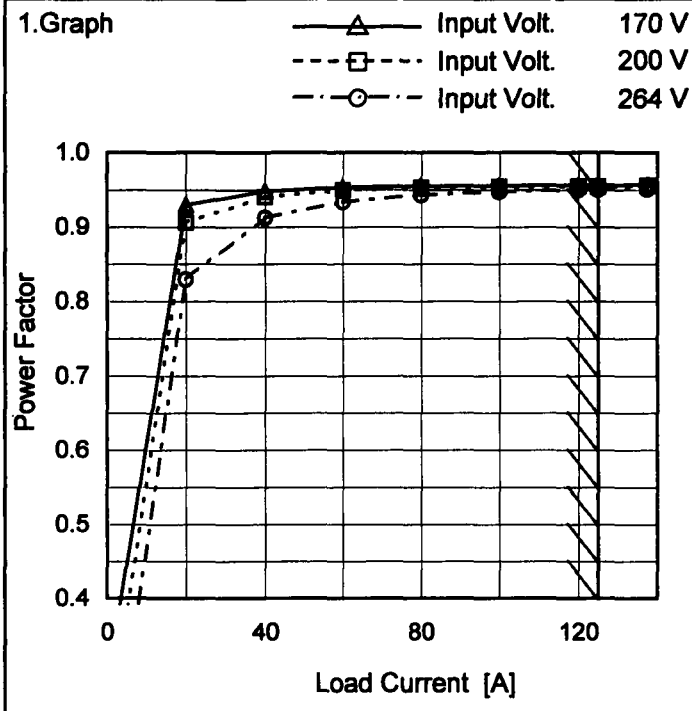
Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
150	0.957	0.959
160	0.955	0.957
170	0.954	0.957
180	0.953	0.957
200	0.950	0.956
220	0.947	0.955
240	0.944	0.954
264	0.937	0.952
--	--	--

COSEL

Model	PBA1500T-12
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	0.286	0.204	0.103
20.0	0.930	0.906	0.829
40.0	0.948	0.940	0.912
60.0	0.953	0.949	0.934
80.0	0.955	0.953	0.943
100.0	0.955	0.954	0.948
120.0	0.956	0.954	0.950
125.0	0.957	0.954	0.950
137.5	0.957	0.955	0.951
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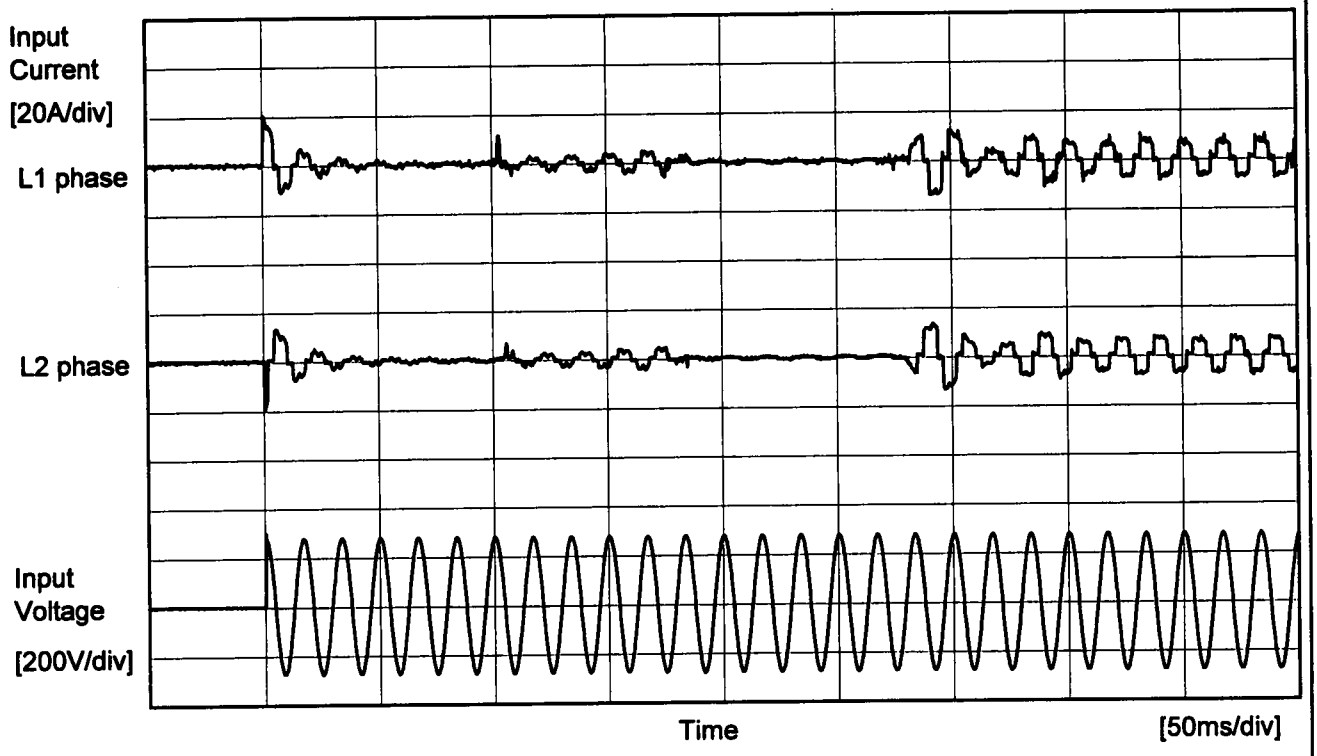
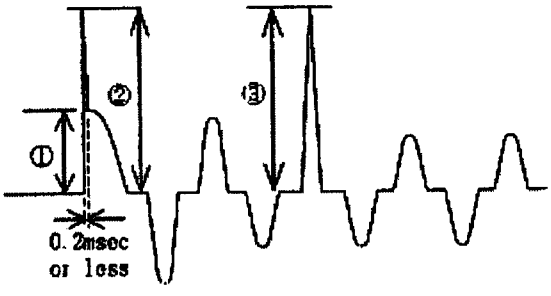
COSEL

Model	PBA1500T-12
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	18.3 A	
②	20.4 A	(0.2ms or less)*1
③	13.6 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-12	Input AC 3-phase Temperature 25°C Testing Circuitry Figure B
Item	Leakage Current	
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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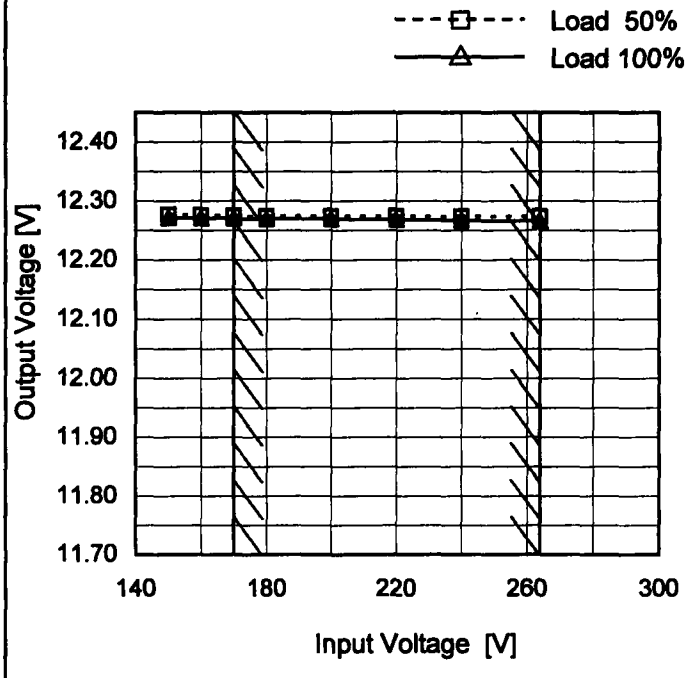
Model	PBA1500T-12
Item	Line Regulation
Object	+12V125A

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

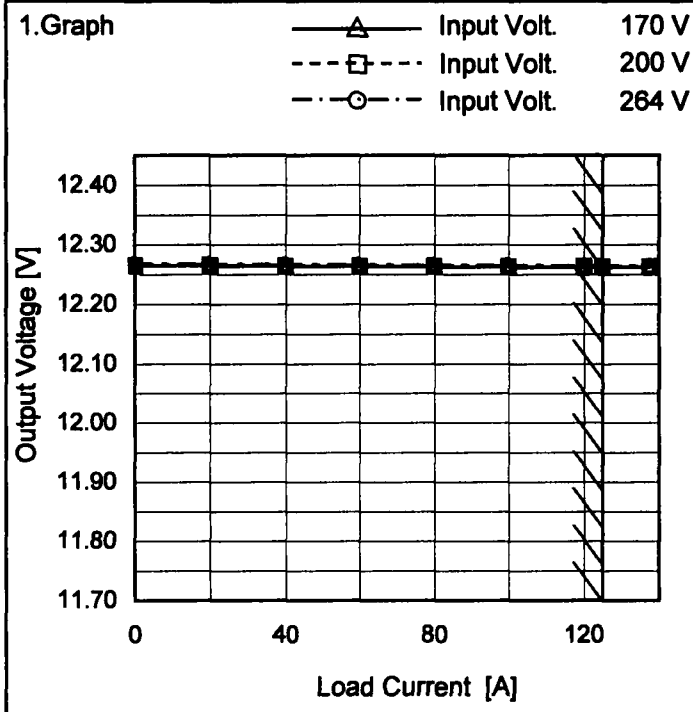
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
150	12.277	12.271
160	12.275	12.271
170	12.275	12.271
180	12.274	12.270
200	12.274	12.270
220	12.274	12.268
240	12.274	12.267
264	12.273	12.266
–	–	–

COSEL

Model	PBA1500T-12
Item	Load Regulation
Object	+12V125A

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	12.265	12.266	12.267
20.0	12.265	12.266	12.267
40.0	12.264	12.265	12.266
60.0	12.264	12.265	12.266
80.0	12.263	12.264	12.265
100.0	12.263	12.264	12.265
120.0	12.262	12.263	12.264
125.0	12.262	12.263	12.264
137.5	12.262	12.263	12.264
--	--	--	--
--	--	--	--

COSEL

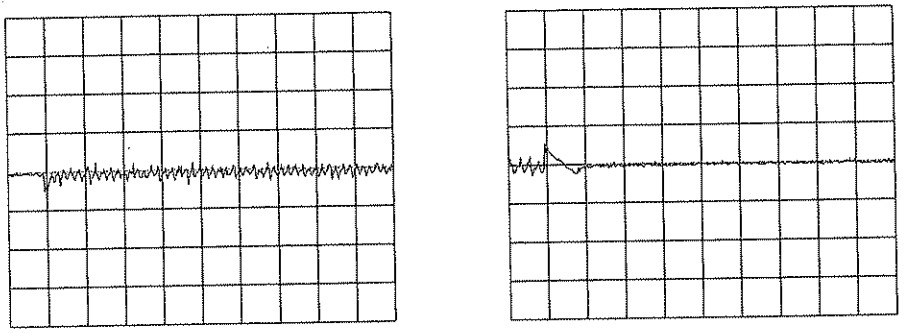
Model	PBA1500T-12
Item	Dynamic Load Response
Object	+12V125A

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% (125A)

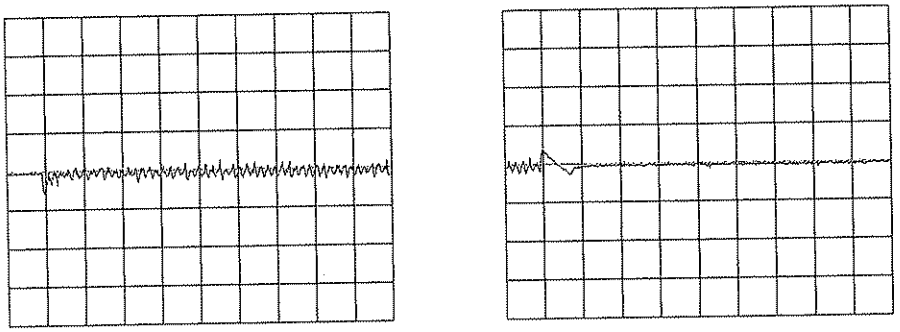


100mV/div

10ms/div

10ms/div

Min.Load (0A) ⟷
Load 50% (62.5A)



100mV/div

10ms/div

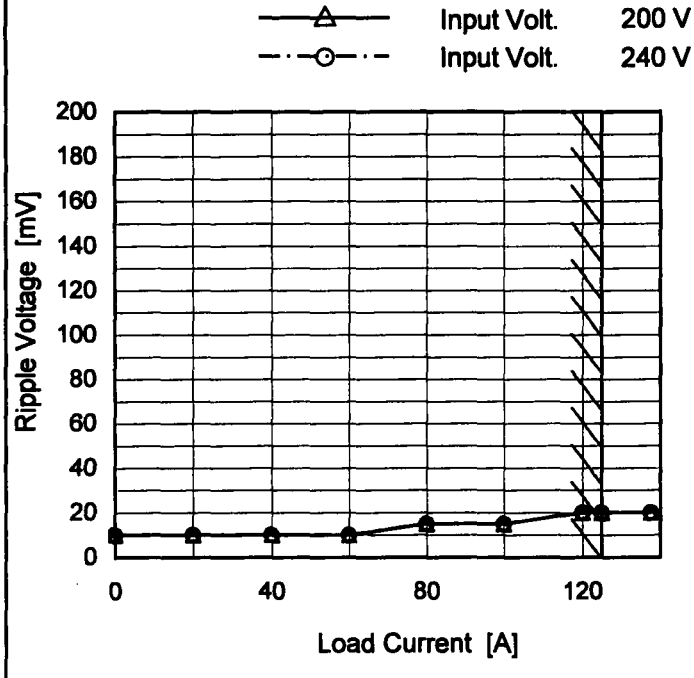
10ms/div

COSEL

Model	PBA1500T-12
Item	Ripple Voltage (by Load Current)
Object	+12V125A

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

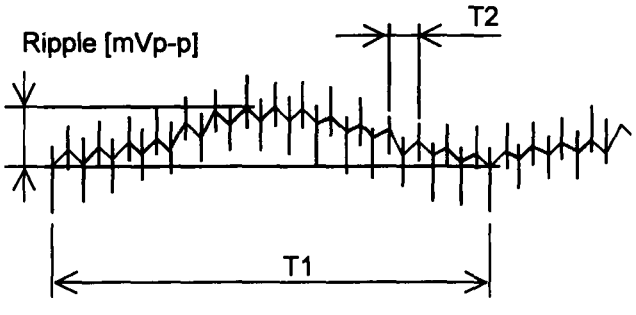


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Output Voltage [mV]	
	Input Volt. 200[V]	Input Volt. 240[V]
0	10	10
20.0	10	10
40.0	10	10
60.0	10	10
80.0	15	15
100.0	15	15
120.0	20	20
125.0	20	20
137.5	20	20
–	–	–
–	–	–

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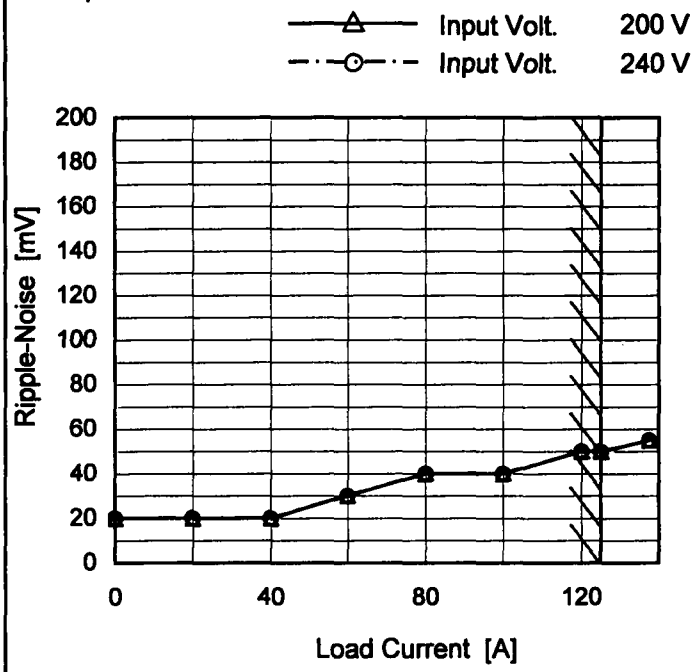
Model	PBA1500T-12
Item	Ripple-Noise
Object	+12V125A

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.

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 200[V]	Input Volt. 240[V]
0	20	20
20.0	20	20
40.0	20	20
60.0	30	30
80.0	40	40
100.0	40	40
120.0	50	50
125.0	50	50
137.5	55	55
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T1: Due to AC Input Line
T2: Due to Switching

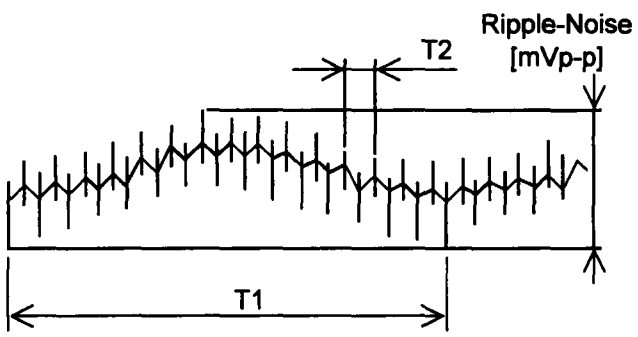


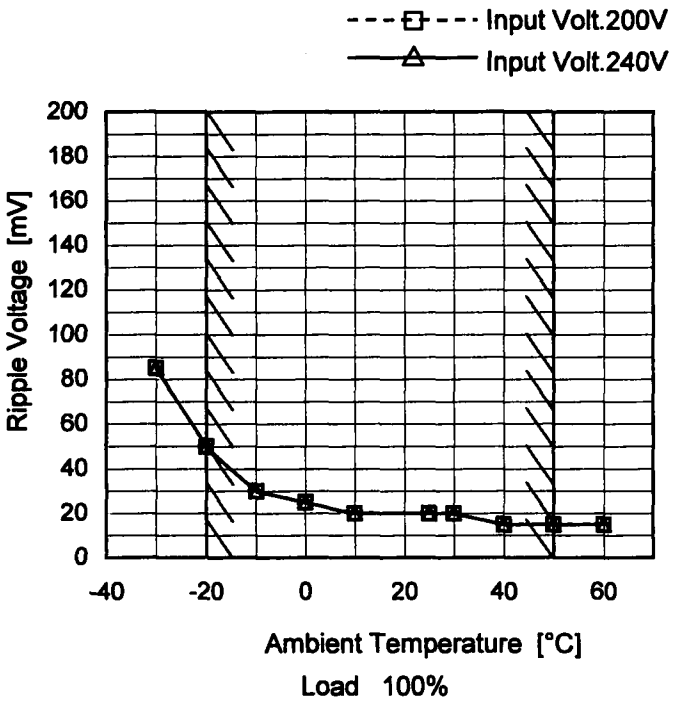
Fig. Complex Ripple Wave Form

COSEL

Model	PBA1500T-12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V125A

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

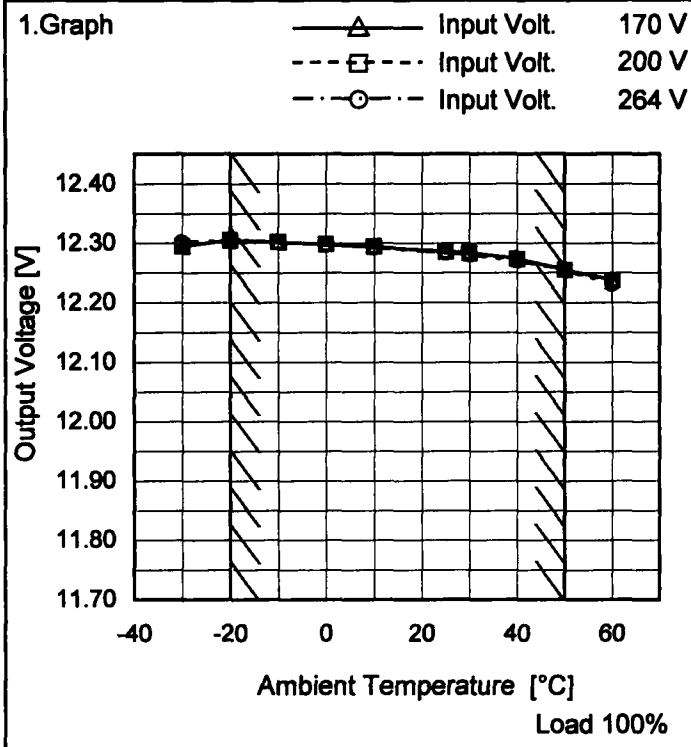
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 200 [V]	Input Volt. 240 [V]
-30	85	85
-20	50	50
-10	30	30
0	25	25
10	20	20
25	20	20
30	20	20
40	15	15
50	15	15
60	15	15
–	–	–

COSEL

Model	PBA1500T-12
Item	Ambient Temperature Drift
Object	+12V125A

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	12.295	12.295	12.301
-20	12.305	12.305	12.304
-10	12.303	12.302	12.301
0	12.299	12.298	12.297
10	12.295	12.294	12.293
25	12.286	12.285	12.284
30	12.284	12.283	12.281
40	12.274	12.273	12.271
50	12.256	12.254	12.255
60	12.238	12.236	12.231
–	–	–	–

COSEL

Model	PBA1500T-12	
Item	Output Voltage Accuracy	Input AC 3-phase Testing Circuitry Figure A
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 : 170 – 264V
Load Current : 0 – 125A

* 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

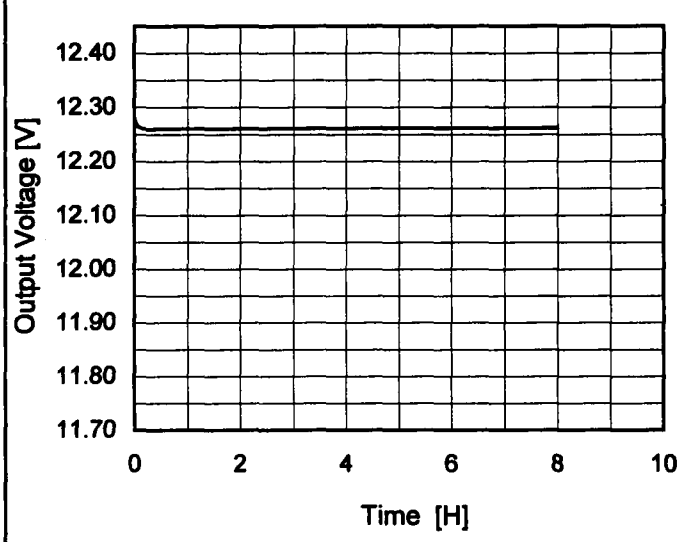
Item	Temperature [°C]	Input Voltage [V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-20	264	0	12.307	±35	±0.3
Minimum Voltage	50	200	125	12.238		

COSEL

Model	PBA1500T-12
Item	Time Lapse Drift
Object	+12V125A

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

1.Graph



Input Volt. 200V
Load 100%

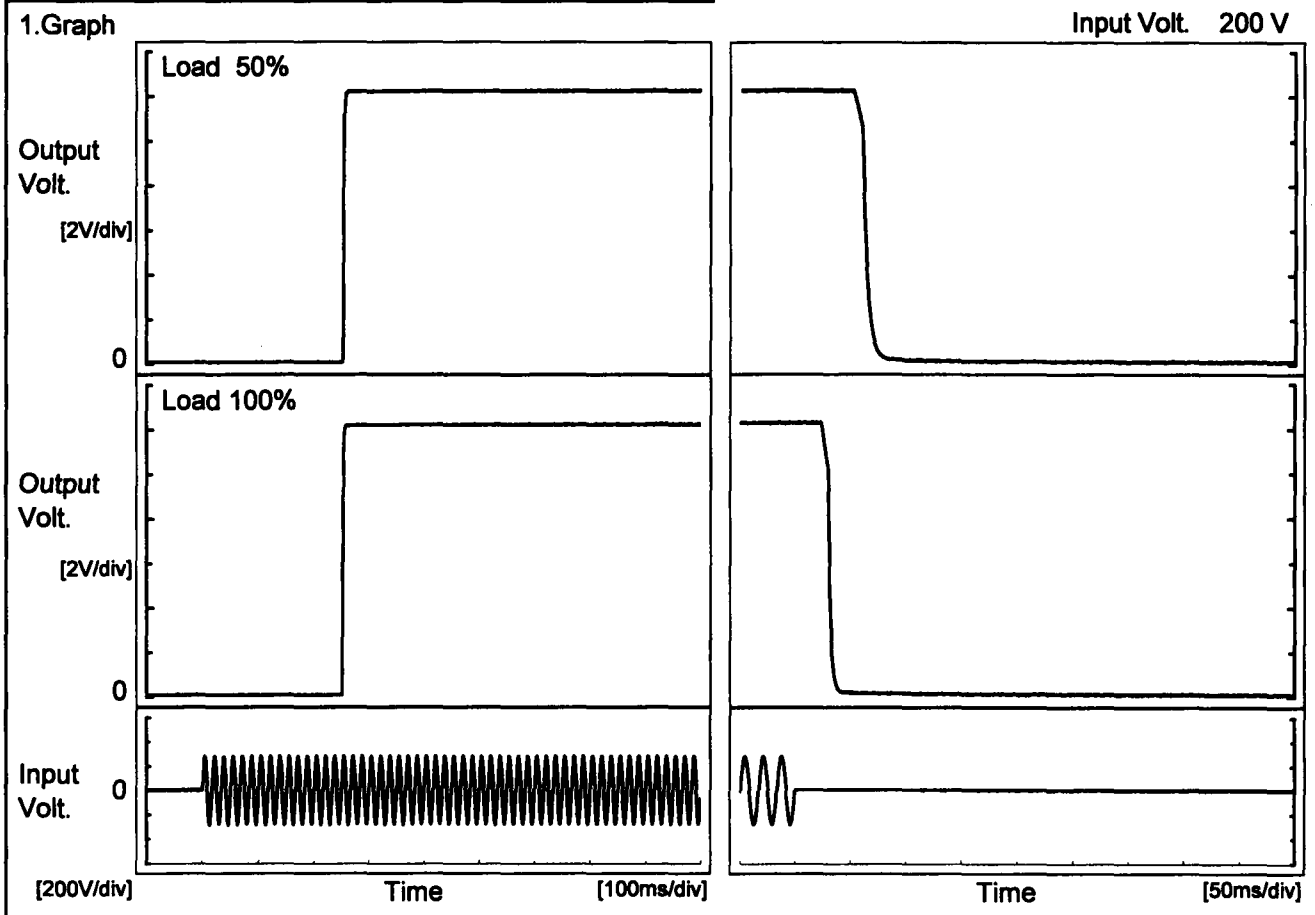
2.Values

Time since start [H]	Output Voltage [V]
0.0	12.281
0.5	12.260
1.0	12.260
2.0	12.261
3.0	12.261
4.0	12.261
5.0	12.262
6.0	12.262
7.0	12.262
8.0	12.262

COSEL

Model	PBA1500T-12	Input AC 3-phase
Item	Rise and Fall Time	Temperature 25°C
Object	+12V125A	Testing Circuitry Figure A

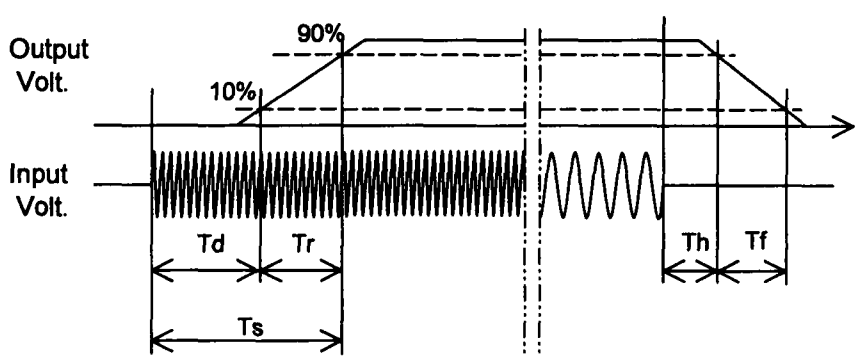
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	253.0	2.5	255.5	59.0	11.0
100 %	251.5	3.0	254.5	27.8	7.3

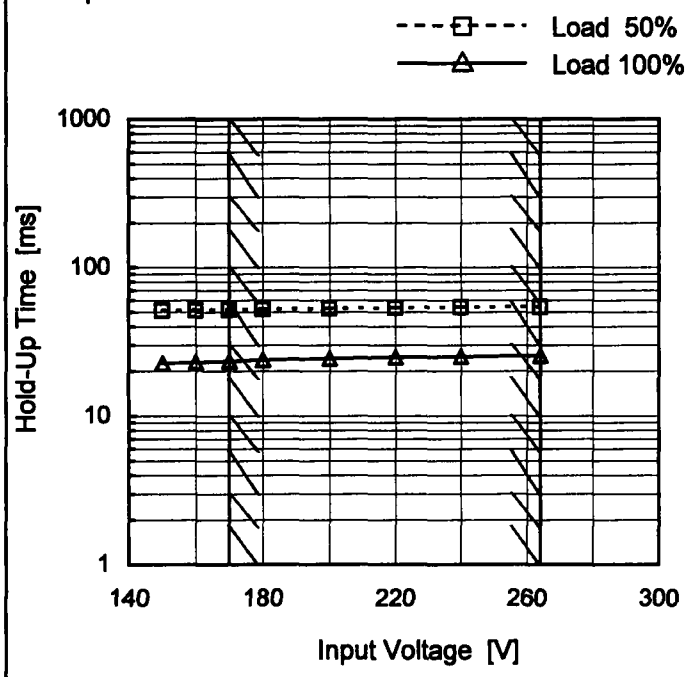


COSEL

Model	PBA1500T-12
Item	Hold-Up Time
Object	+12V125A

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	51	23
160	52	23
170	52	23
180	52	24
200	53	24
220	53	25
240	54	25
264	54	25
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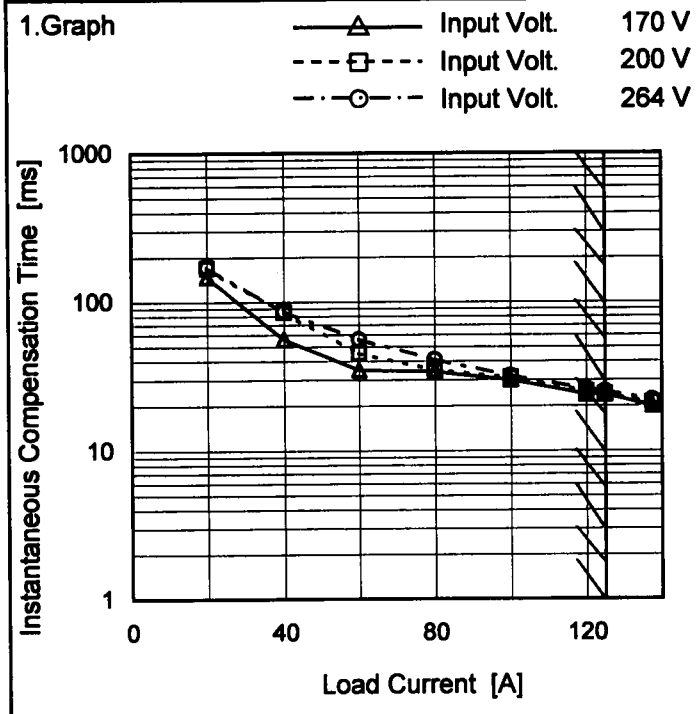
COSEL

Model	PBA1500T-12
Item	Instantaneous Interruption Compensation
Object	+12V125A

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

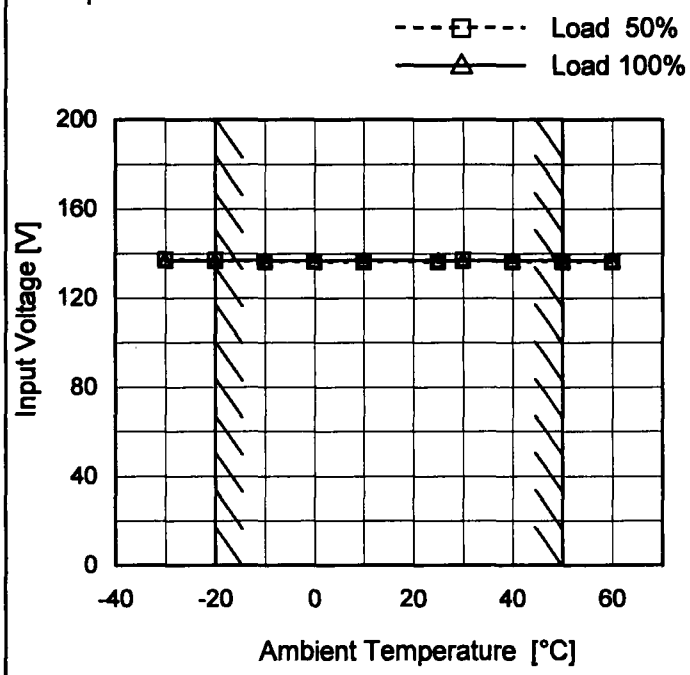
Load Current [A]	Time [ms] Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0	–	–	–
20.0	148	169	172
40.0	56	85	86
60.0	35	45	56
80.0	34	35	41
100.0	30	31	32
120.0	24	25	26
125.0	24	24	25
137.5	20	21	22
–	–	–	–
–	–	–	–

COSEL

Model	PBA1500T-12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V125A

Input AC 3-phase
Testing Circuitry Figure A

1.Graph



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

2.Values

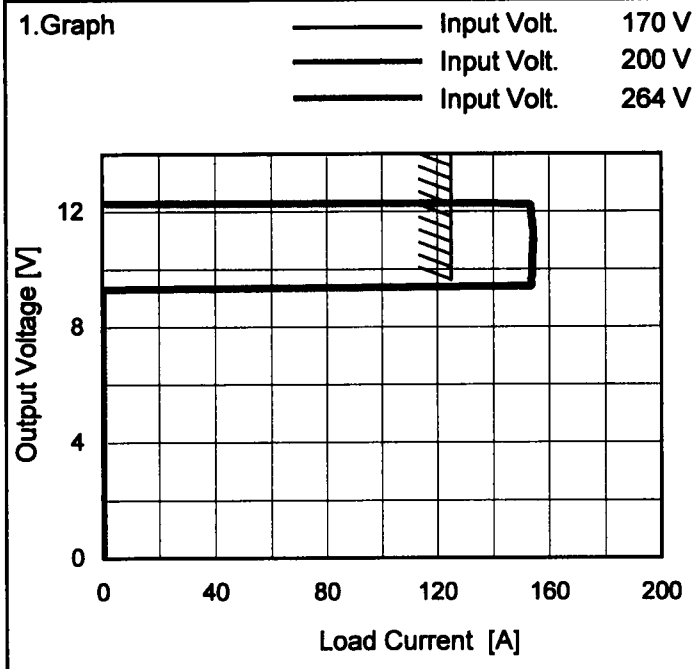
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	137	137
-20	137	137
-10	136	137
0	136	137
10	136	137
25	136	137
30	137	137
40	136	137
50	136	137
60	136	137
–	–	–

COSEL

Model	PBA1500T-12
Item	Overcurrent Protection
Object	+12V125A

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

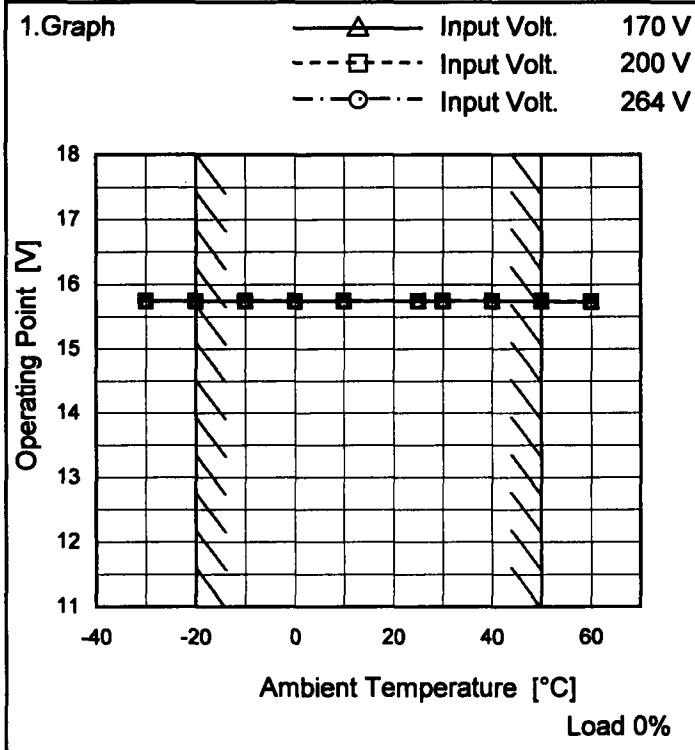
Output Voltage [V]	Load Current [A]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
12.0	152.97	153.15	153.28
11.4	154.00	154.13	154.33
10.8	154.48	154.41	154.24
9.6	153.76	153.82	153.79
8.4	0.00	0.00	0.00
7.2	0.00	0.00	0.00
6.0	0.00	0.00	0.00
4.8	0.00	0.00	0.00
3.6	0.00	0.00	0.00
2.4	0.00	0.00	0.00
1.2	0.00	0.00	0.00
0.0	0.00	0.00	0.00

COSEL

Model	PBA1500T-12
Item	Overvoltage Protection
Object	+12V125A

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	15.74	15.74	15.74
-20	15.74	15.74	15.74
-10	15.74	15.74	15.74
0	15.74	15.74	15.74
10	15.74	15.74	15.74
25	15.74	15.74	15.74
30	15.74	15.74	15.74
40	15.74	15.74	15.74
50	15.74	15.74	15.74
60	15.73	15.73	15.73
–	–	–	–

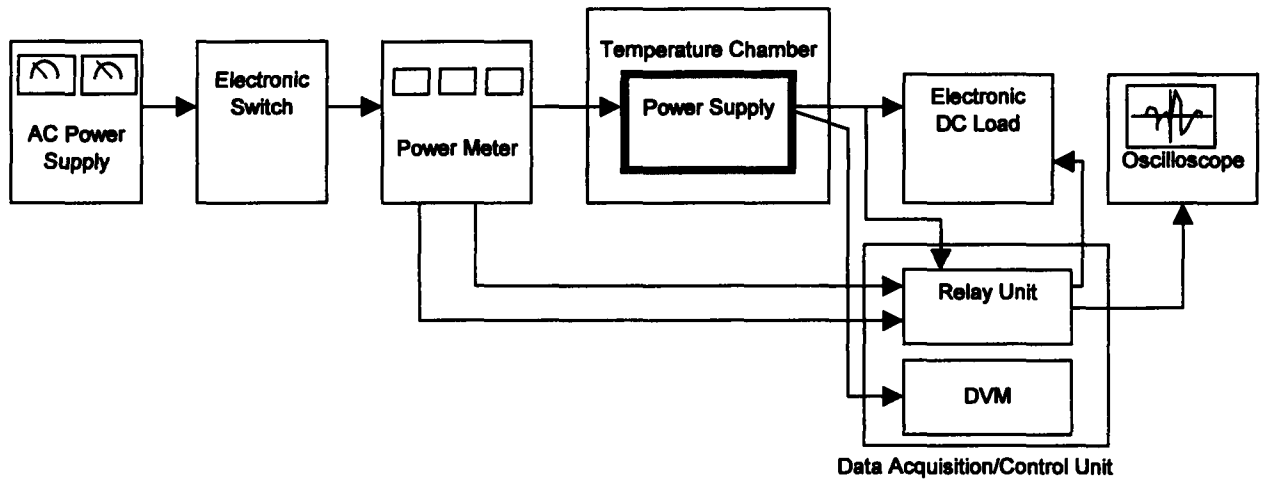


Figure A

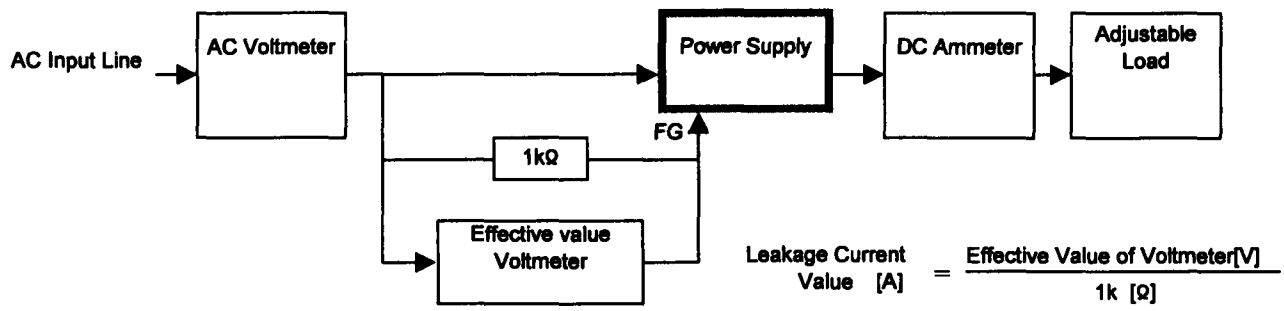


Figure B (DEN-AN)

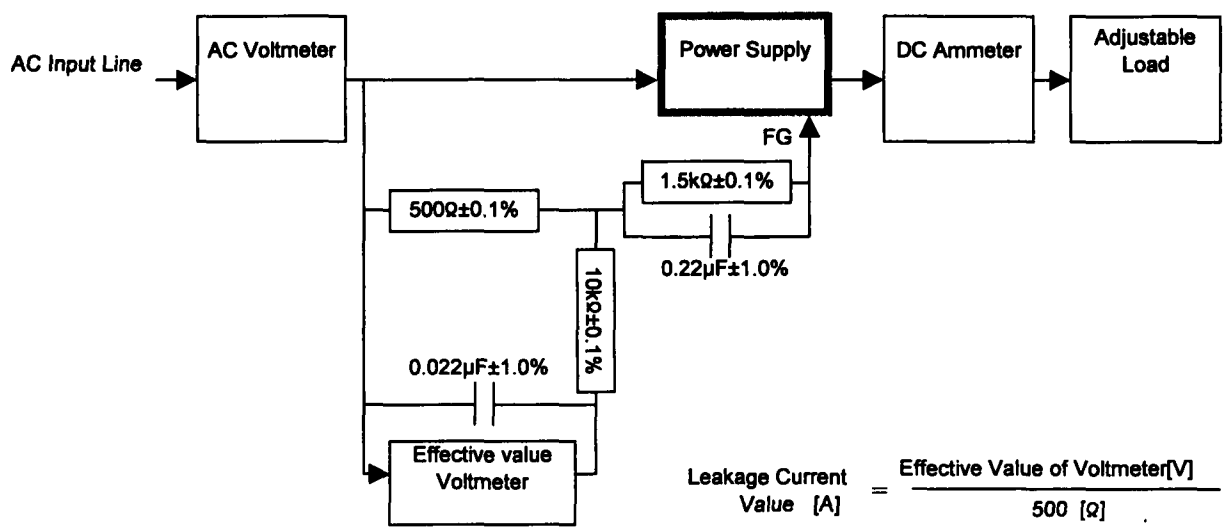


Figure B (IEC60950)