参考資料

COSEL

TEST DATA OF PBA1500T-48

Regulated DC Power Supply
Mar. 27. 2007

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COSEL CO.,LTD.

参考資料

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CONTENTS

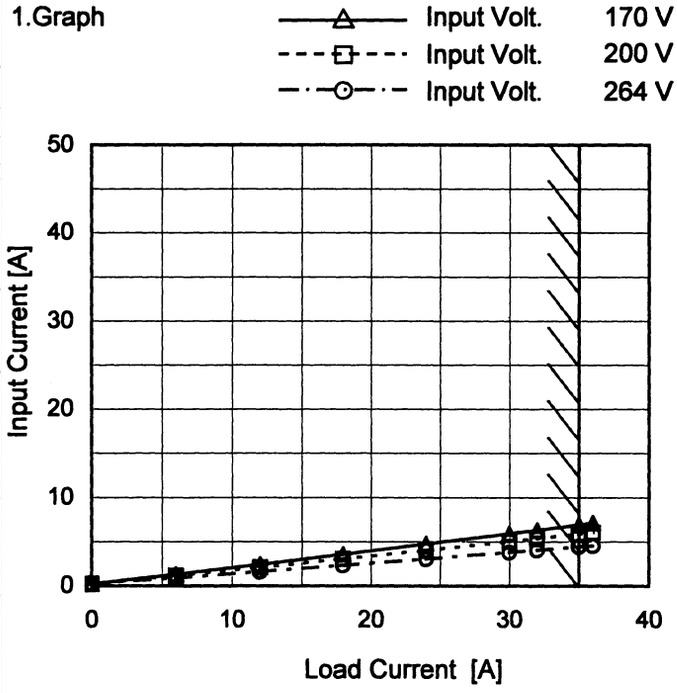
1.Input Current (by Load Current) · 1
2.Input Power (by Load Current) · 2
3.Efficiency (by Input Voltage) · 3
4.Efficiency (by Load Current) · 4
5.Power Factor (by Input Voltage) · 5
6.Power Factor (by Load Current) · 6
7.Inrush Current · 7
8.Leakage Current · 8
9.Line Regulation · 9
10.Load Regulation · 10
11.Dynamic Load Response · 11
12.Ripple Voltage (by Load Current) · 12
13.Ripple-Noise · 13
14.Ripple Voltage (by Ambient Temperature) · · · · · · · · · · · · · · · · · · · 14
15.Ambient Temperature Drift · 15
16.Output Voltage Accuracy · 16
17.Time Lapse Drift · 17
18.Rise and Fall Time · 18
19.Hold-Up Time · 19
20.Instantaneous Interruption Compensation · · · · · · · · · · · · · · · · · · · 20
21.Minimum Input Voltage for Regulated Output Voltage · · · · · · · · · · · · 21
22.Overcurrent Protection · 22
23.Overvoltage Protection · 23
24.Figure of Testing Circuitry · 24
(Final Page 24)

COSEL

Model	PBA1500T-48
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	0.213	0.232	0.284
6.0	1.283	1.101	0.878
12.0	2.413	2.051	1.574
18.0	3.559	3.022	2.294
24.0	4.736	4.005	3.027
30.0	5.899	4.988	3.767
32.0	6.302	5.327	4.020
35.0	6.909	5.839	4.400
36.0	7.106	5.998	4.525
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BC-10080

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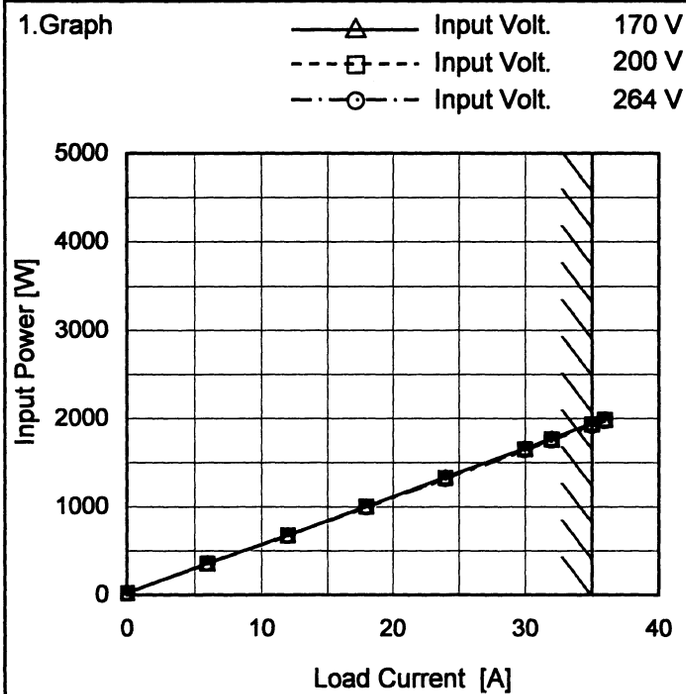
Model	PBA1500T-48
Item	Input Power (by Load Current)
Object	――――――

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
6.0	355	354	352
12.0	677	673	669
18.0	1000	996	990
24.0	1331	1323	1313
30.0	1659	1648	1637
32.0	1772	1760	1748
35.0	1943	1929	1913
36.0	1988	1984	1969
--	--	--	--
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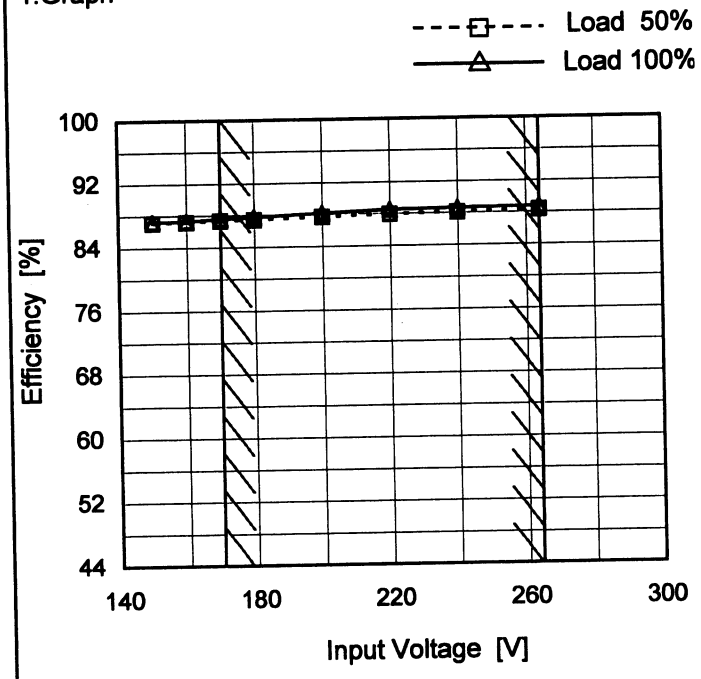
BC-10080

COSEL

Model	PBA1500T-48
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	87.1	87.2
160	87.1	87.3
170	87.3	87.5
180	87.4	87.7
200	87.6	88.2
220	87.9	88.5
240	88.0	88.6
264	88.3	88.7
--	--	--

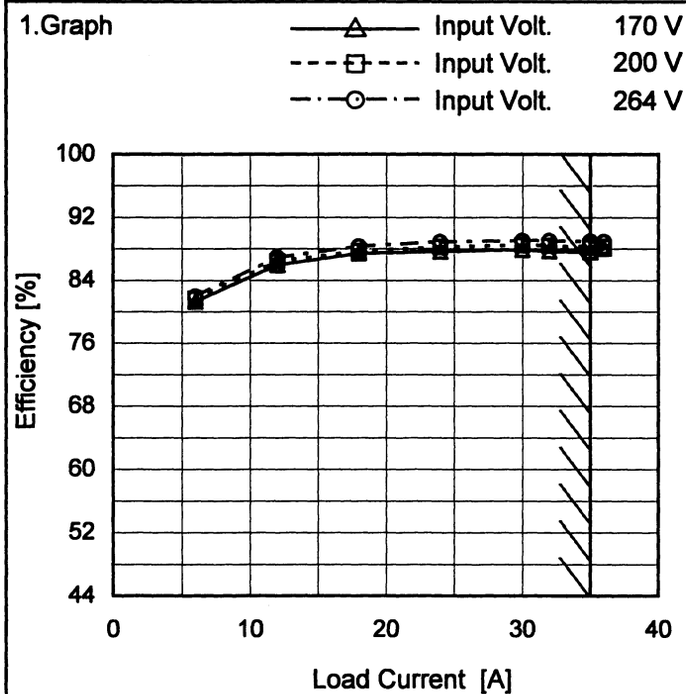
BC-10080

COSEL

Model	PBA1500T-48
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	--	--	--
6.0	81.3	81.6	81.9
12.0	85.9	86.4	86.9
18.0	87.4	87.7	88.3
24.0	87.6	88.2	88.9
30.0	87.9	88.5	89.0
32.0	87.7	88.4	89.0
35.0	87.6	88.2	89.0
36.0	88.1	88.2	88.9
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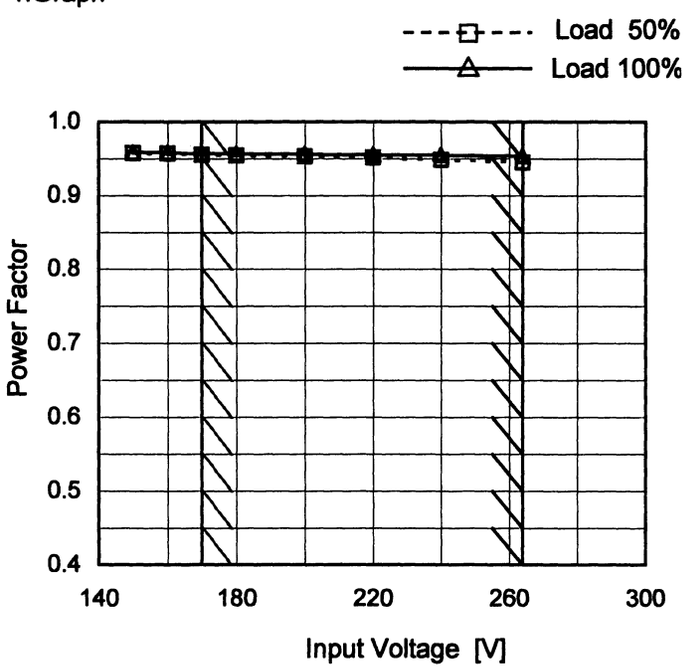
BC-10080

COSEL

Model	PBA1500T-48
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	0.957	0.958
170	0.955	0.957
180	0.954	0.957
200	0.953	0.956
220	0.951	0.956
240	0.948	0.955
264	0.945	0.954
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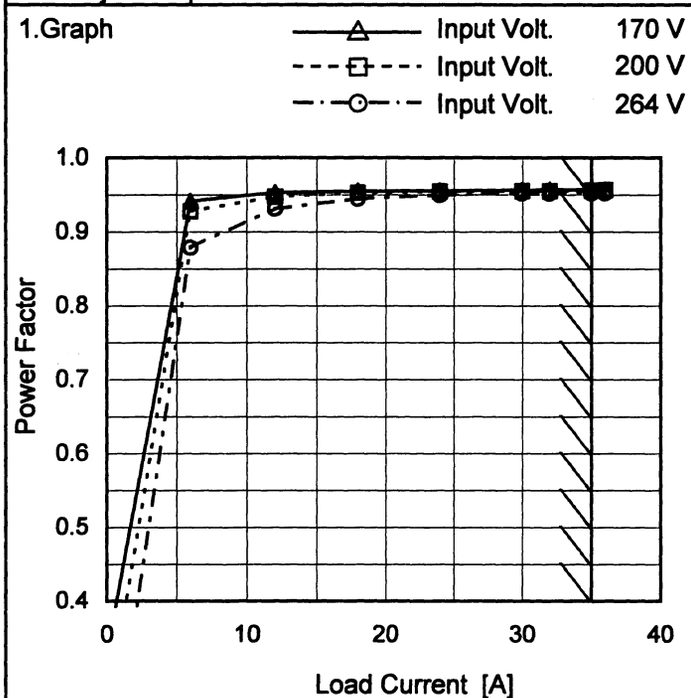
COSEL

Model	PBA1500T-48
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	0.330	0.241	0.124
6.0	0.941	0.928	0.879
12.0	0.953	0.948	0.931
18.0	0.955	0.953	0.944
24.0	0.956	0.954	0.949
30.0	0.957	0.955	0.952
32.0	0.957	0.955	0.952
35.0	0.957	0.956	0.952
36.0	0.957	0.956	0.952
–	–	–	–
–	–	–	–

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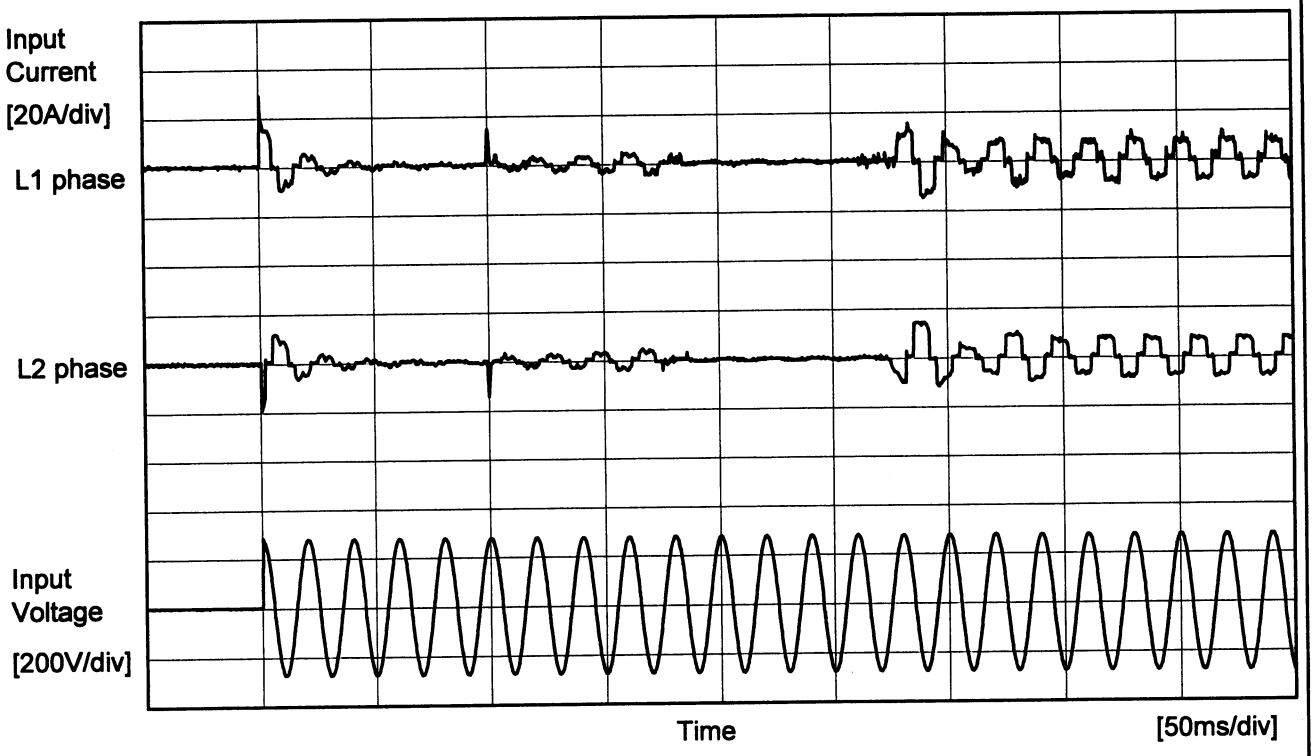
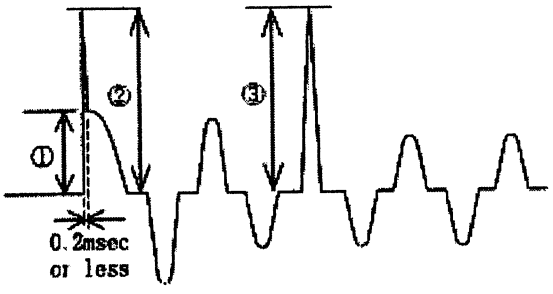
Model	PBA1500T-48	Input AC 3-phase Temperature 25°C Testing Circuitry Figure A
Item	Inrush Current	
Object	————————	



Input Voltage	200 V	
Frequency	60 Hz	
Load	100 %	
Inrush Current		
①	18.3 A	
②	29.2 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-48	Input	AC 3-phase
Item	Leakage Current	Temperature	25°C
		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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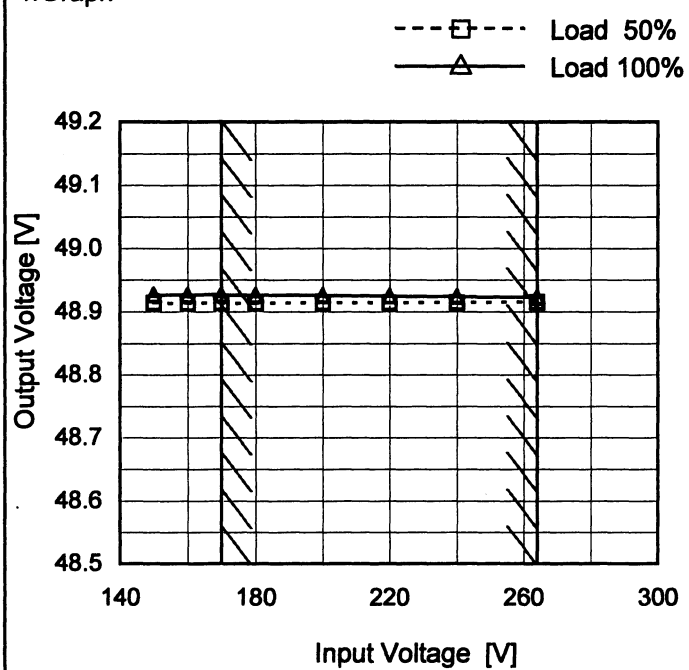
Model	PBA1500T-48
Item	Line Regulation
Object	+48V35A

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	48.914	48.927
160	48.913	48.926
170	48.913	48.927
180	48.913	48.926
200	48.914	48.926
220	48.914	48.925
240	48.914	48.924
264	48.915	48.923
--	--	--

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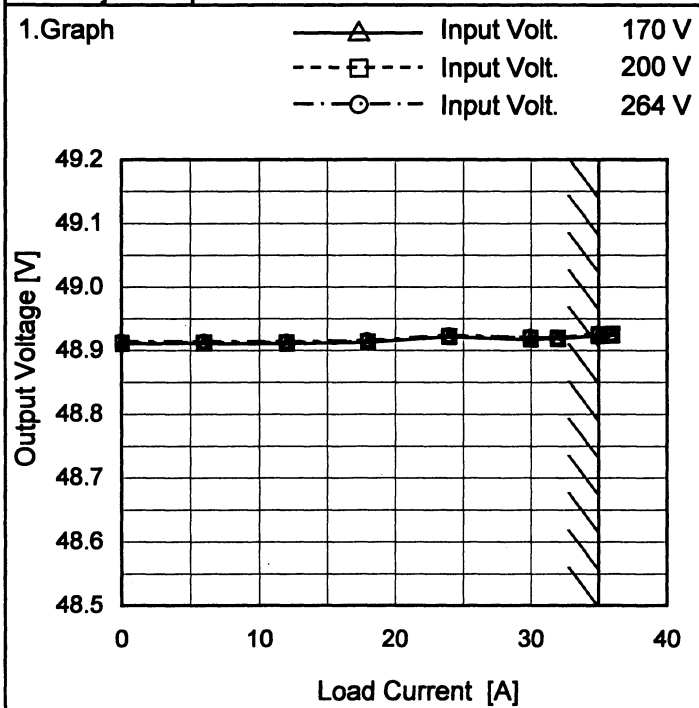
COSEL

Model	PBA1500T-48
Item	Load Regulation
Object	+48V35A

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

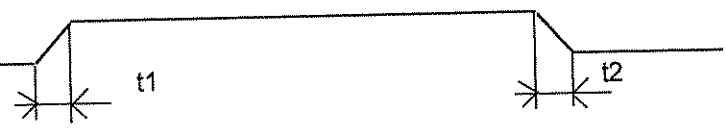
Load Current [A]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0	48.910	48.911	48.913
6.0	48.911	48.912	48.914
12.0	48.910	48.912	48.913
18.0	48.913	48.913	48.916
24.0	48.922	48.922	48.923
30.0	48.918	48.919	48.921
32.0	48.918	48.919	48.919
35.0	48.923	48.925	48.926
36.0	48.923	48.925	48.926
--	--	--	--
--	--	--	--

COSEL

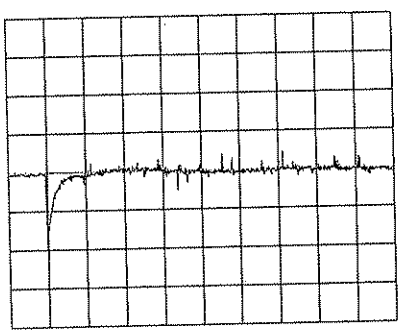
Model	PBA1500T-48	Input	AC 3-phase
Item	Dynamic Load Response	Temperature	25°C
Object	+48V35A	Testing Circuitry	Figure A

Input Volt. 200 V
Cycle 1000 ms

Load Current
t1=t2=100 μs

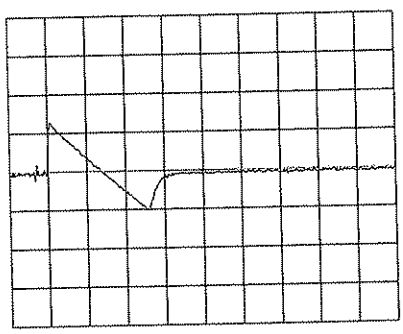


Min.Load (0A) ⟷
Load 100% (35A)



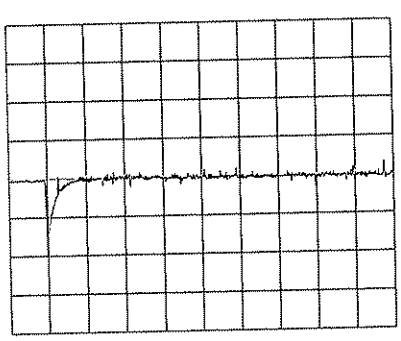
100mV/div

10ms/div



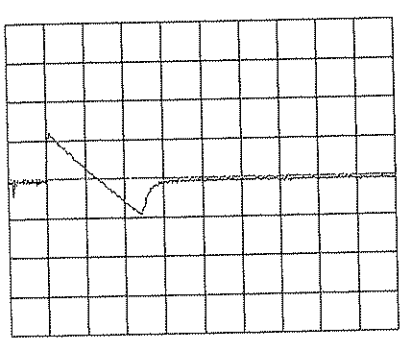
10ms/div

Min.Load (0A) ⟷
Load 50% (17.5A)



100mV/div

10ms/div



10ms/div

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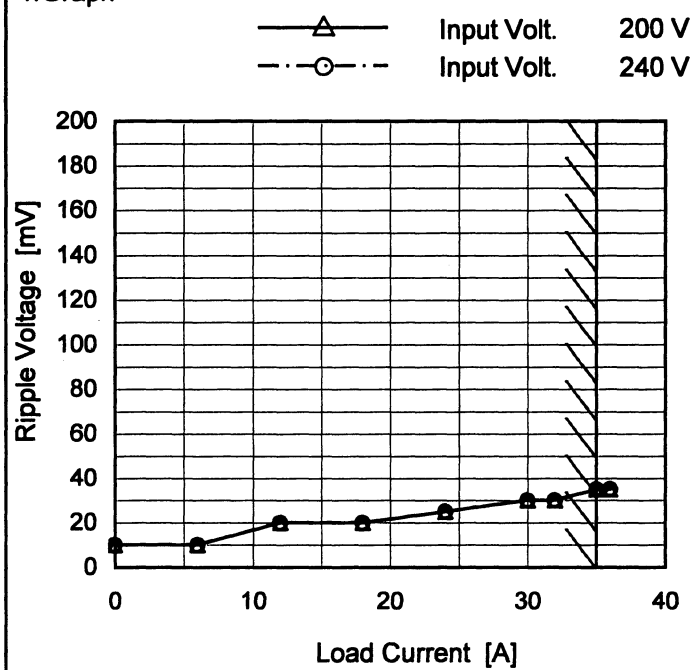
COSEL

Model	PBA1500T-48
Item	Ripple Voltage (by Load Current)
Object	+48V35A

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

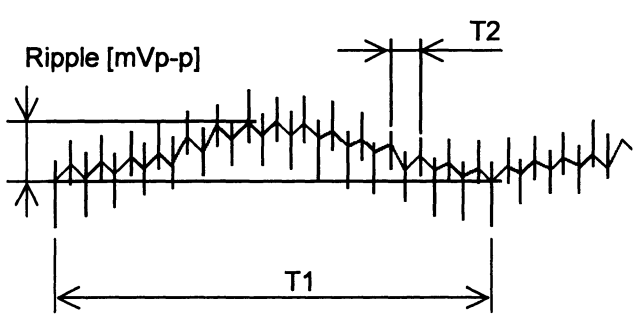


Fig. Complex Ripple Wave Form

2.Values

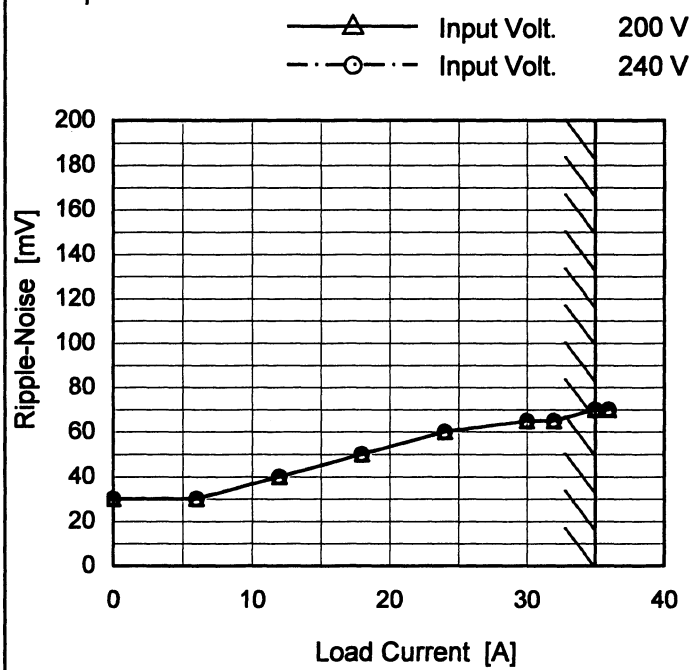
Load Current [A]	Ripple Output Voltage [mV]	
	Input Volt. 200[V]	Input Volt. 240[V]
0	10	10
6.0	10	10
12.0	20	20
18.0	20	20
24.0	25	25
30.0	30	30
32.0	30	30
35.0	35	35
36.0	35	35
--	--	--
--	--	--

COSEL

Model	PBA1500T-48
Item	Ripple-Noise
Object	+48V35A

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

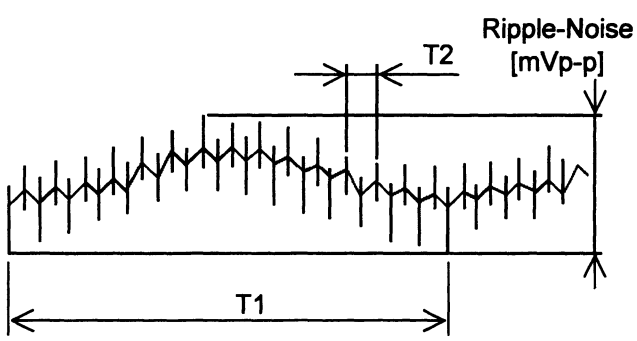


Fig. Complex Ripple Wave Form

2.Values

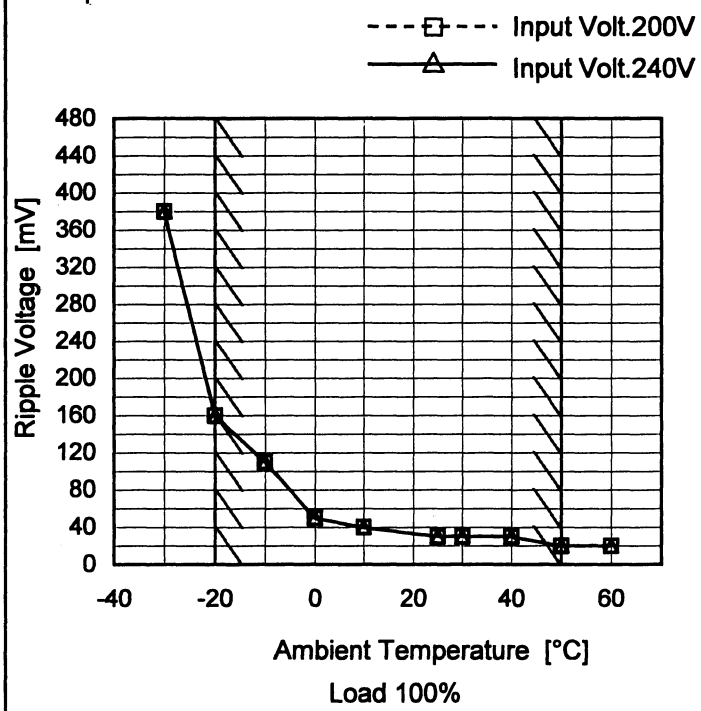
Load Current [A]	Ripple-Noise [mV] Input Volt. 200[V]	Ripple-Noise [mV] Input Volt. 240[V]
0	30	30
6.0	30	30
12.0	40	40
18.0	50	50
24.0	60	60
30.0	65	65
32.0	65	65
35.0	70	70
36.0	70	70
–	–	–
–	–	–

COSEL

Model	PBA1500T-48
Item	Ripple Voltage (by Ambient Temp.)
Object	+48V35A

Input AC 3-phase
Testing Circuitry Figure A

1.Graph



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	380	380
-20	160	160
-10	110	110
0	50	50
10	40	40
25	30	30
30	30	30
40	30	30
50	20	20
60	20	20
--	--	--

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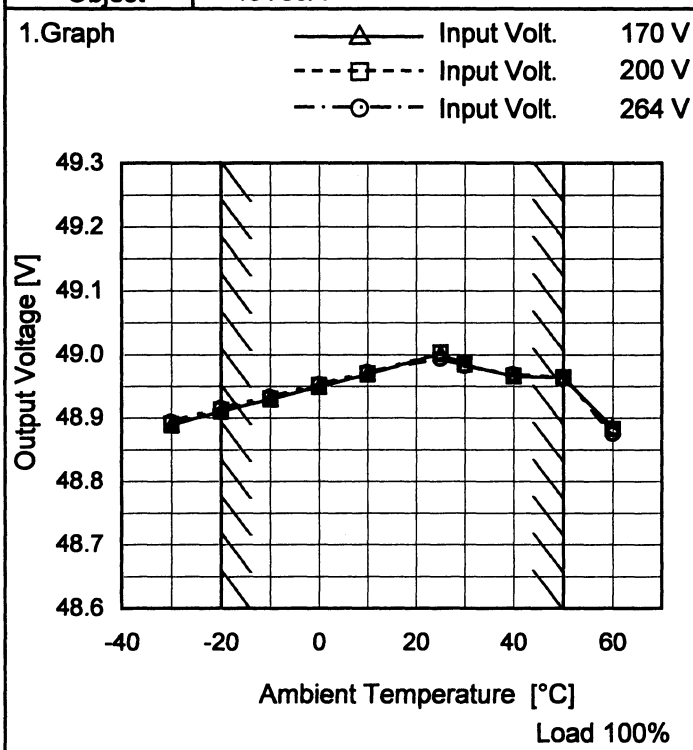
COSEL

Model	PBA1500T-48
Item	Ambient Temperature Drift
Object	+48V35A

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	48.888	48.891	48.894
-20	48.910	48.913	48.916
-10	48.930	48.931	48.934
0	48.949	48.951	48.953
10	48.969	48.970	48.972
25	49.001	49.003	48.993
30	48.984	48.984	48.982
40	48.966	48.967	48.969
50	48.964	48.964	48.964
60	48.886	48.883	48.875
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BC-10080

COSEL

Model	PBA1500T-48
Item	Output Voltage Accuracy
Object	+48V35A

Input AC 3-phase
Testing Circuitry Figure A

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 -- 35A

* 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

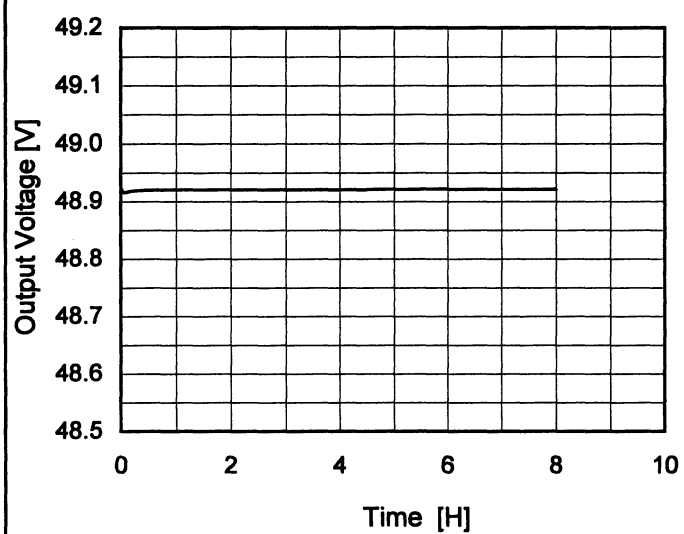
Item	Temperature [°C]	Input Voltage [V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	264	35	48.994	±44	±0.1
Minimum Voltage	50	170	0	48.907		

COSEL

Model	PBA1500T-48
Item	Time Lapse Drift
Object	+48V35A

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	48.920
0.5	48.920
1.0	48.920
2.0	48.920
3.0	48.921
4.0	48.921
5.0	48.921
6.0	48.922
7.0	48.921
8.0	48.921

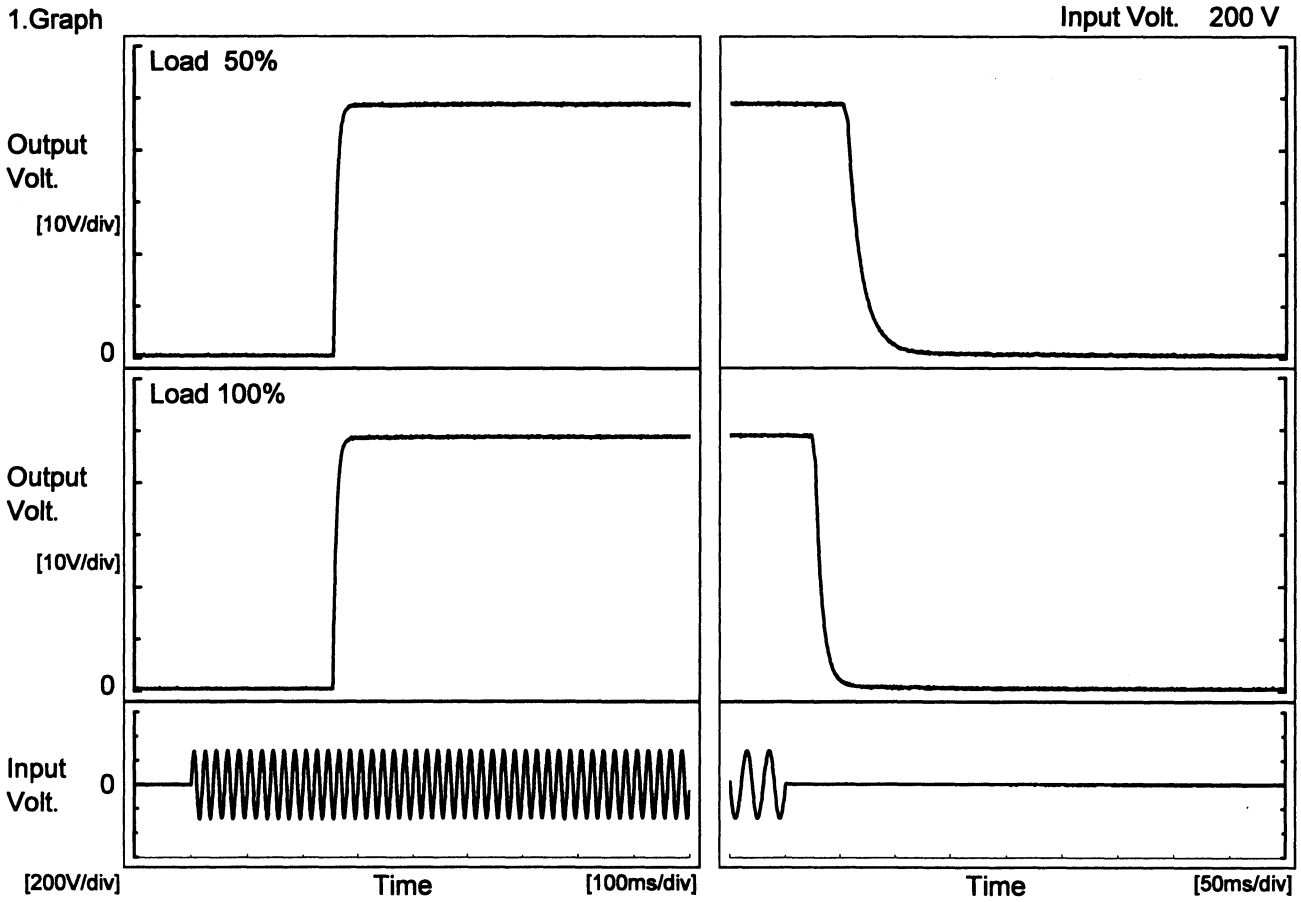
BC-10080

COSEL

Model	PBA1500T-48	Input AC 3-phase
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+48V35A	

1.Graph

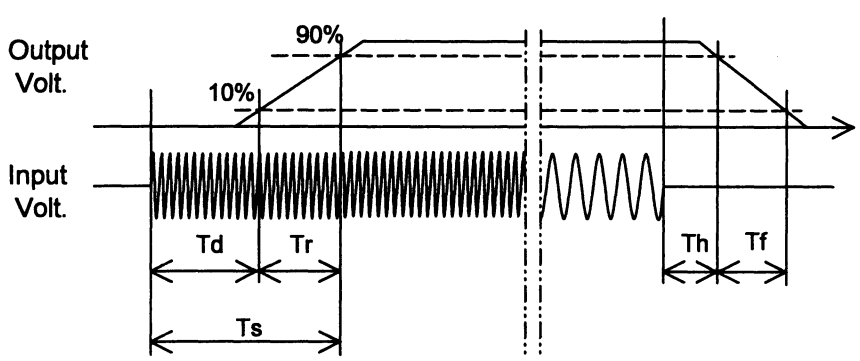
Input Volt. 200 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	255.5	13.0	268.5	56.3	30.0
100 %	254.5	13.0	267.5	27.3	15.0

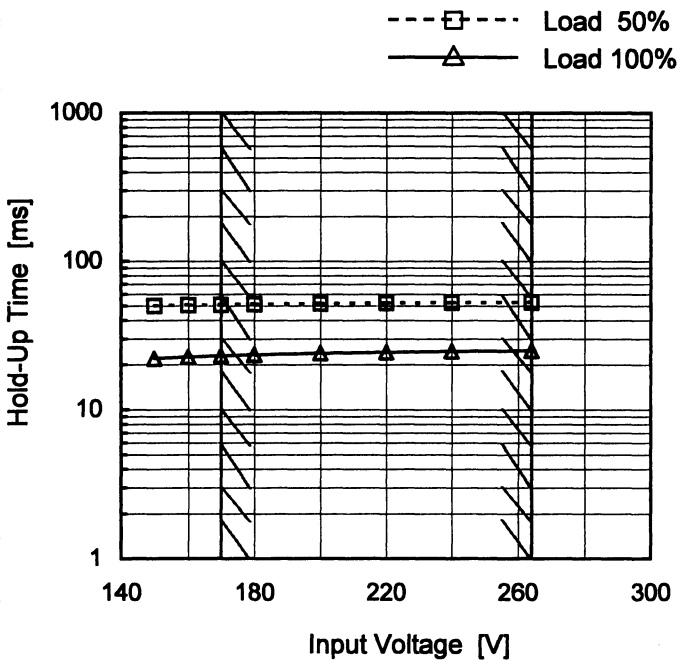


COSEL

Model	PBA1500T-48
Item	Hold-Up Time
Object	+48V35A

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

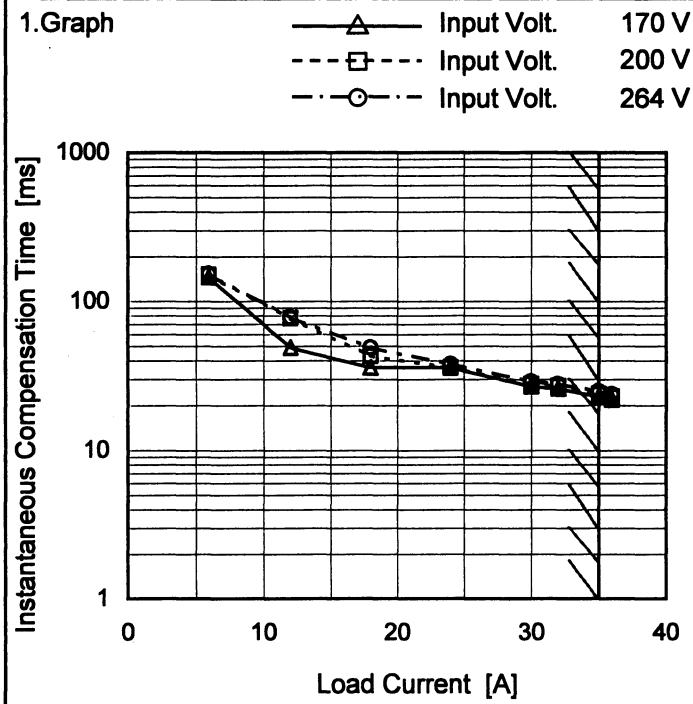
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
150	50	22
160	50	23
170	51	23
180	51	23
200	52	24
220	52	24
240	52	25
264	53	25
--	--	--

COSEL

Model	PBA1500T-48
Item	Instantaneous Interruption Compensation
Object	+48V35A

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

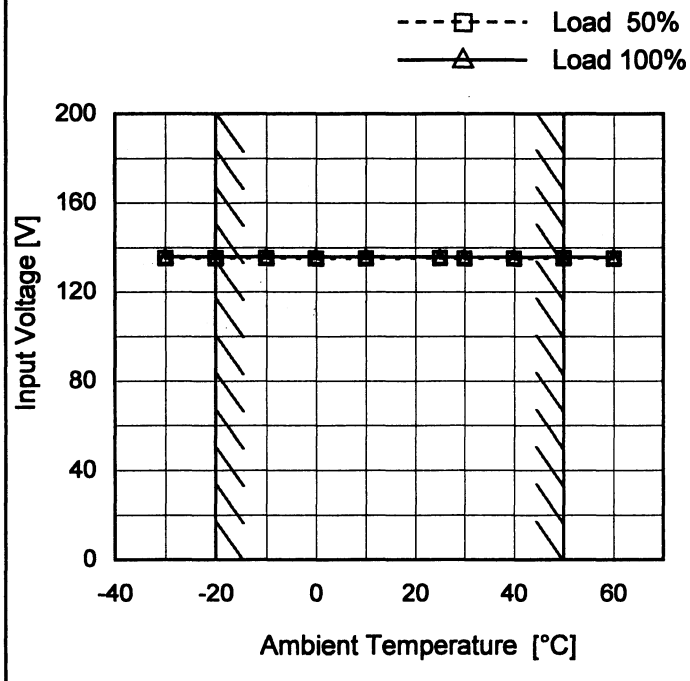
Load Current [A]	Time [ms] Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
0	--	--	--
6.0	146	152	154
12.0	49	77	78
18.0	36	43	49
24.0	36	36	38
30.0	27	28	29
32.0	26	27	28
35.0	23	24	25
36.0	22	23	24
--	--	--	--
--	--	--	--

COSEL

Model	PBA1500T-48
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+48V35A

Input AC 3-phase
Testing Circuitry Figure A

1.Graph



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

2.Values

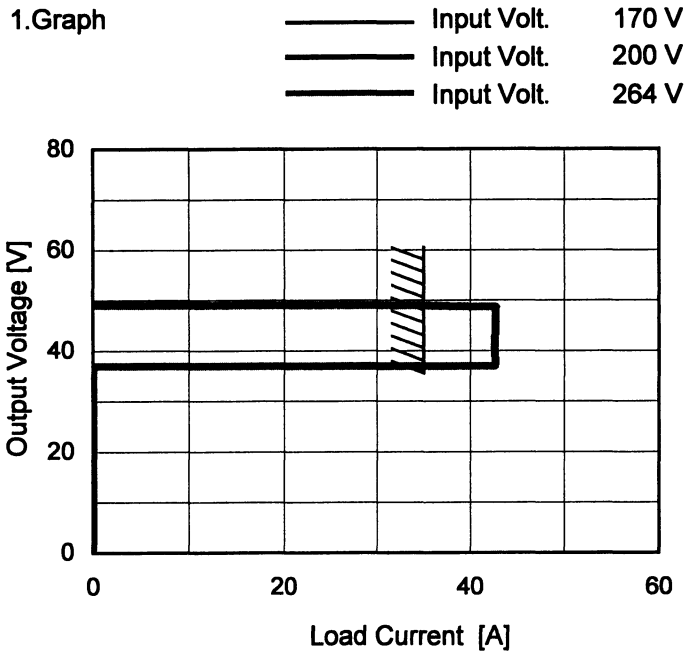
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	135	136
-20	135	136
-10	135	136
0	135	136
10	135	136
25	135	136
30	135	136
40	135	136
50	135	136
60	135	136
--	--	--

COSEL

Model	PBA1500T-48
Item	Overcurrent Protection
Object	+48V35A

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

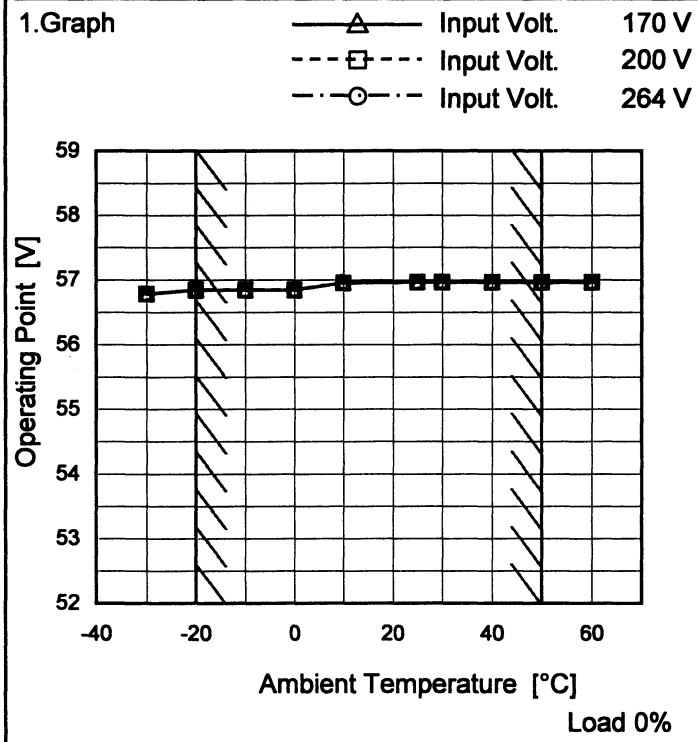
Output Voltage [V]	Load Current [A]		
	Input Volt. 170[V]	Input Volt. 200[V]	Input Volt. 264[V]
48.0	42.70	42.71	42.73
45.6	42.74	42.71	42.67
43.2	42.69	42.67	42.63
38.4	42.60	42.63	42.65
33.6	0.00	0.00	0.00
28.8	0.00	0.00	0.00
24.0	0.00	0.00	0.00
19.2	0.00	0.00	0.00
14.4	0.00	0.00	0.00
9.6	0.00	0.00	0.00
4.8	0.00	0.00	0.00
0.0	0.00	0.00	0.00

COSEL

Model	PBA1500T-48
Item	Overvoltage Protection
Object	+48V35A

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	56.78	56.78	56.78
-20	56.84	56.84	56.84
-10	56.84	56.84	56.84
0	56.84	56.84	56.84
10	56.95	56.95	56.96
25	56.96	56.96	56.96
30	56.96	56.96	56.96
40	56.96	56.96	56.96
50	56.96	56.96	56.95
60	56.96	56.96	56.96
--	--	--	--

COSEL

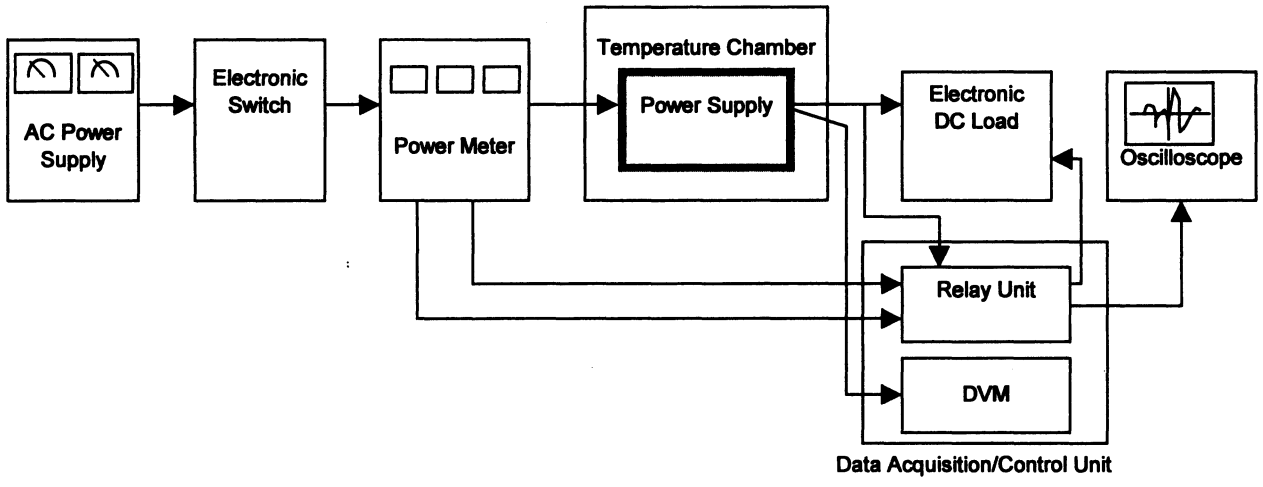


Figure A

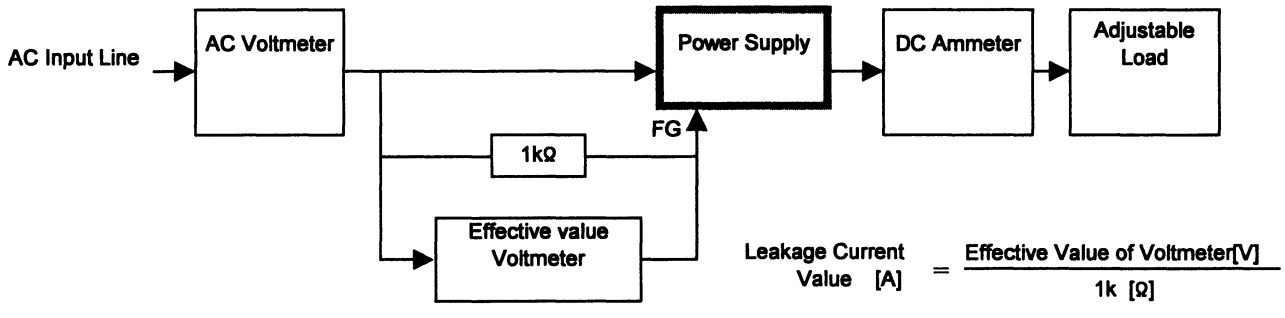


Figure B (DEN-AN)

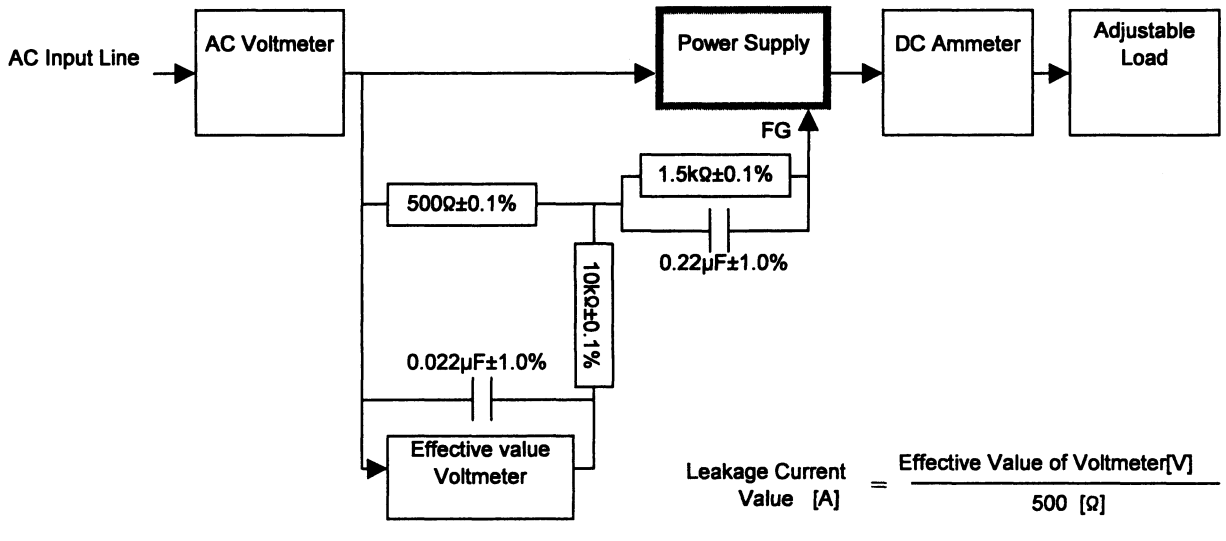


Figure B (IEC60950)