COSEL

TEST DATA OF WBA350B-12

Regulated DC Power Supply
July 6, 2021

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COSEL CO.,LTD.

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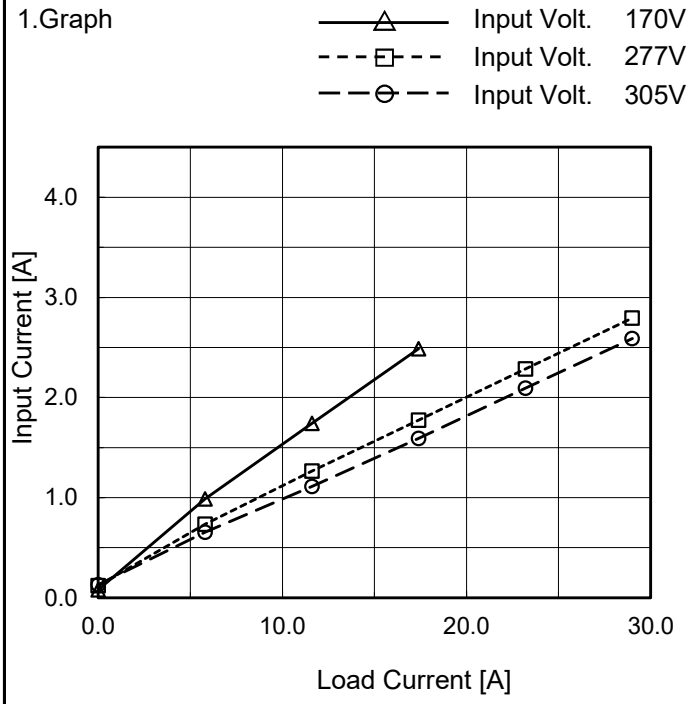
Model	WBA350B-12
Item	Input Current (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 170[V]	Input Volt. 277[V]	Input Volt. 305[V]
0.0	0.079	0.122	0.129
5.8	0.988	0.736	0.654
11.6	1.743	1.265	1.112
17.4	2.486	1.774	1.591
23.2	-	2.286	2.092
29.0	-	2.795	2.590
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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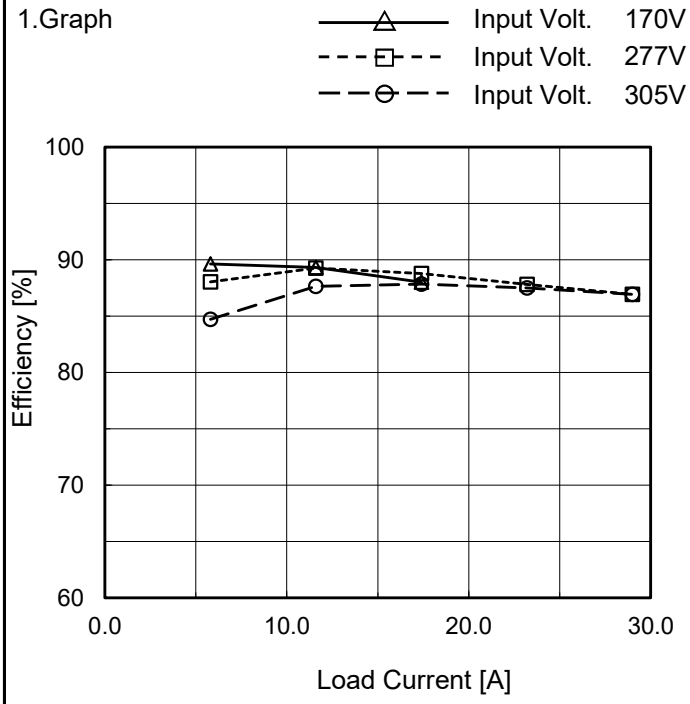
Model	WBA350B-12
Item	Efficiency (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 170[V]	Input Volt. 277[V]	Input Volt. 305[V]
0.0	-	-	-
5.8	89.6	88.1	84.7
11.6	89.3	89.3	87.7
17.4	88.0	88.8	87.9
23.2	-	87.8	87.5
29.0	-	86.9	86.9
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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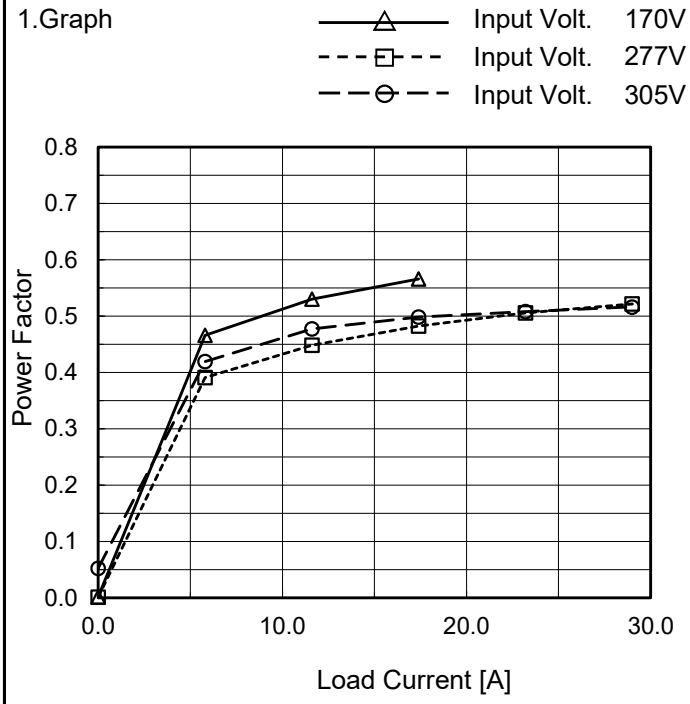
Model	WBA350B-12
Item	Power Factor (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Current [A]	Power Factor		
	Input Volt. 170[V]	Input Volt. 277[V]	Input Volt. 305[V]
0.0	0.001	0.001	0.052
5.8	0.466	0.391	0.419
11.6	0.530	0.449	0.477
17.4	0.566	0.483	0.498
23.2	-	0.506	0.508
29.0	-	0.522	0.516
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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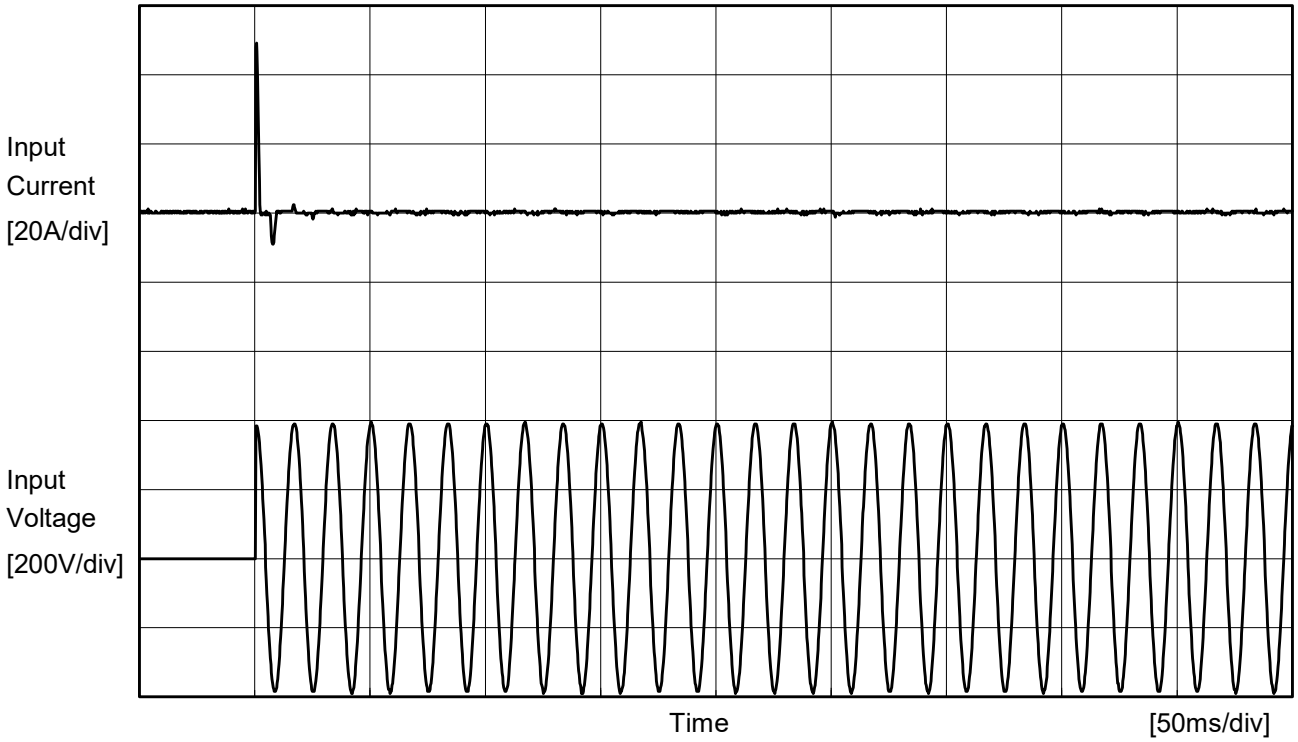
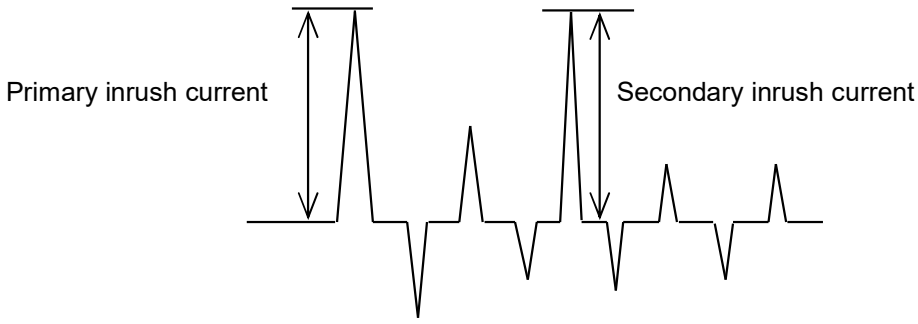
Model	WBA350B-12	
Item	Inrush Current	Temperature 25°C Testing Circuitry Figure A
Object	————————	



Input Voltage	277 V
Frequency	60 Hz
Load	100 %
Primary inrush current	49.2 A



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Model	WBA350B-12	
Item	Leakage Current	Temperature 25°C Testing Circuitry Figure C
Object	――――――――――――	

1.Results

[mA]

Standards	Testing Circuitry	Measuring Method	Input Volt.			Note
			170 [V]	277 [V]	305 [V]	
DEN-AN	Figure C-1	Both phases	0.18	0.30	0.32	Operation
		One of phases	0.34	0.57	0.62	Stand by
IEC62368-1	Figure C-2	Both phases	0.17	0.29	0.32	Operation
		One of phases	0.32	0.55	0.61	Stand by
	Figure C-3	Both phases	0.17	0.29	0.32	Operation
		One of phases	0.33	0.55	0.61	Stand by

The value for "One of phases" 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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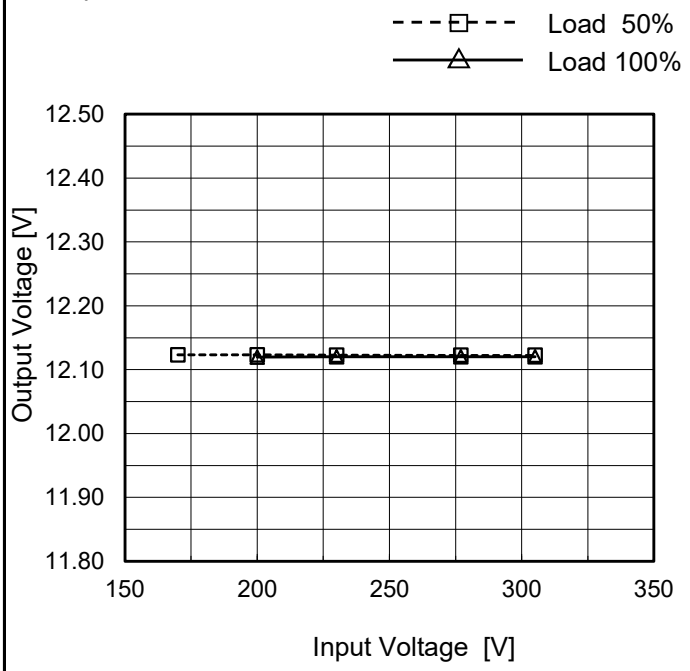
Model	WBA350B-12
Item	Line Regulation
Object	+12V29A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
170	12.123	-
200	12.123	12.120
230	12.123	12.120
277	12.123	12.120
305	12.123	12.120
--	-	-
--	-	-
--	-	-
--	-	-

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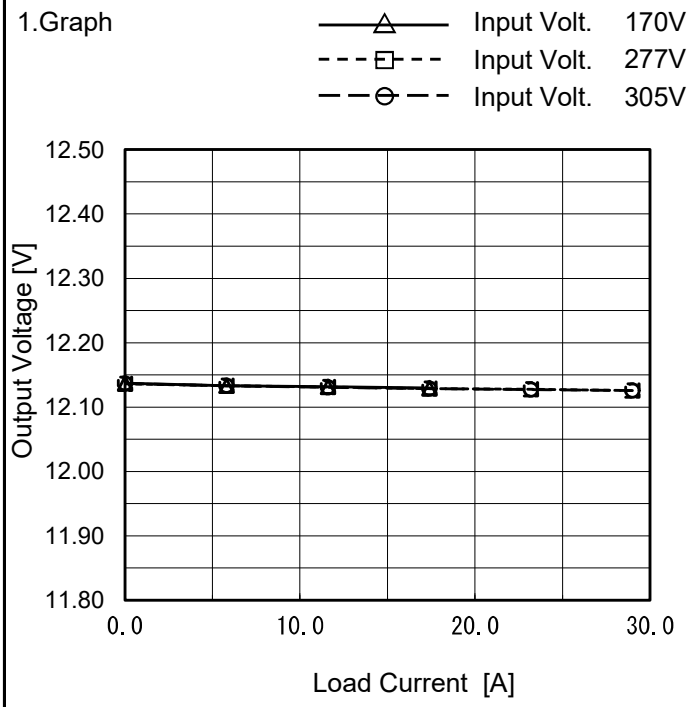
Model	WBA350B-12
Item	Load Regulation
Object	+12V29A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

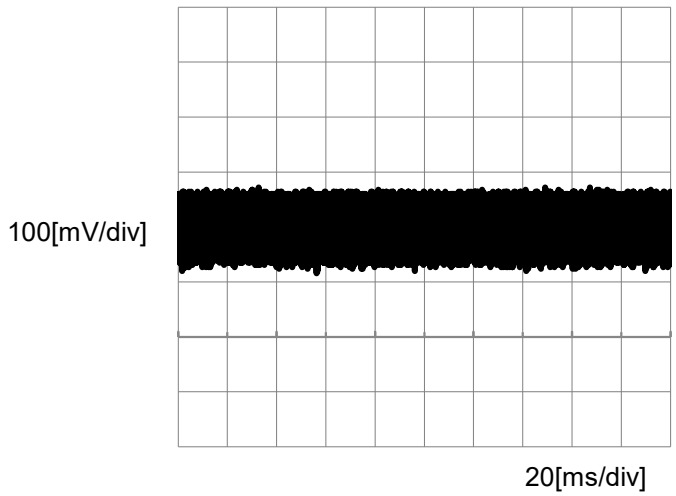
Load Current [A]	Output Voltage [V]		
	Input Volt. 170[V]	Input Volt. 277[V]	Input Volt. 305[V]
0.0	12.137	12.136	12.137
5.8	12.133	12.133	12.133
11.6	12.132	12.131	12.131
17.4	12.130	12.129	12.129
23.2	-	12.128	12.127
29.0	-	12.126	12.126
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Item	Ripple-Noise
Object	+12V29A

Temperature 25°C
Testing Circuitry Figure B

1.Graph

Input Voltage 277V
Load 100%



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Model	WBA350B-12		
Item	Dynamic Load Response	Temperature	25°C
		Testing Circuitry	Figure A
Object	+12V29A		

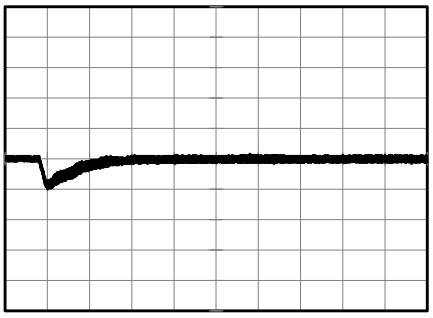
Input Volt. 277 V
Cycle 2000 ms

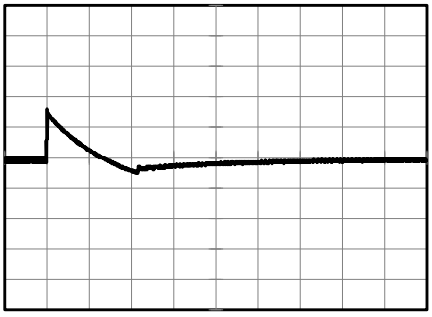
t1,t2 = 50 μ s

Load Current

t1 t2

Min.Load (0A)←→
Load 100% (29A)



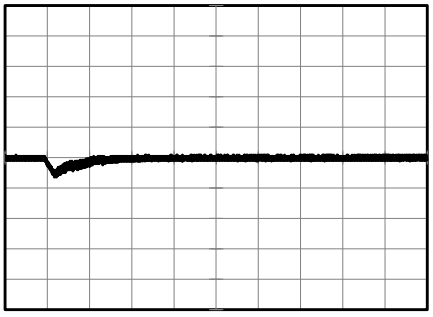


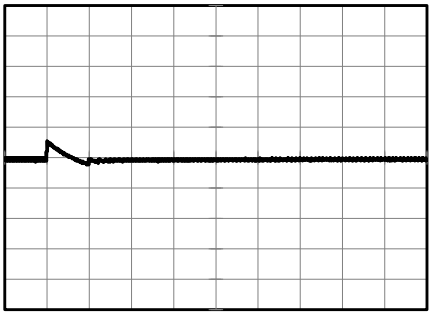
500 mV/div

400 us/div

100 ms/div

Min.Load (0A)←→
Load 50% (14.5A)





500 mV/div

400 us/div

100 ms/div

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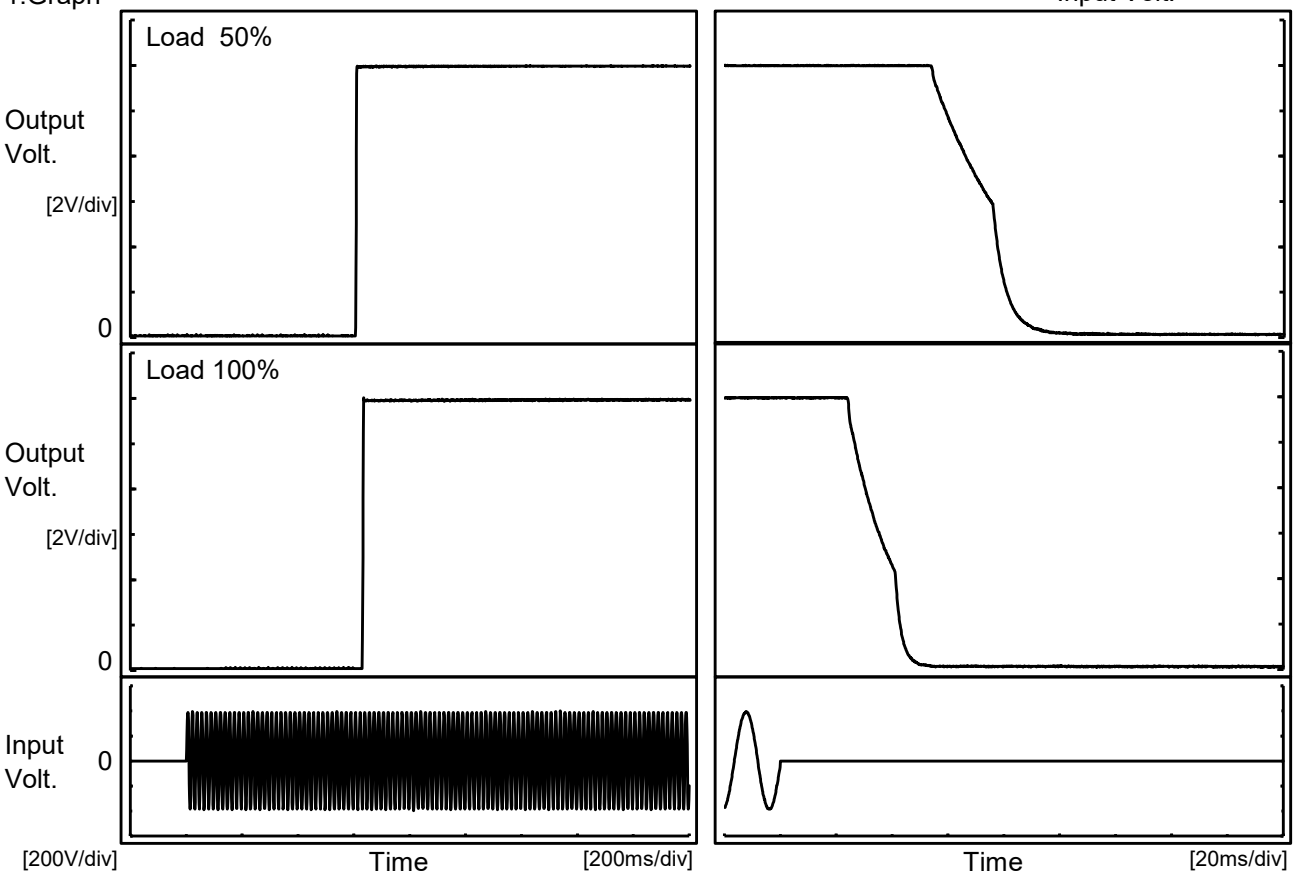
Model	WBA350B-12	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+12V29A	

1.Graph

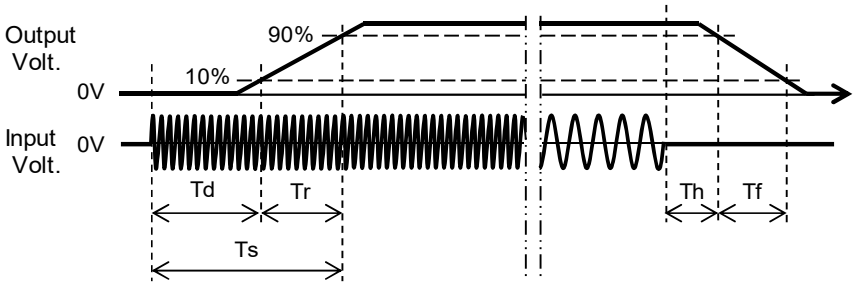
Input Volt. 277 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	606.0	3.0	609.0	56.2	27.0
100 %	629.0	5.0	634.0	24.9	19.0



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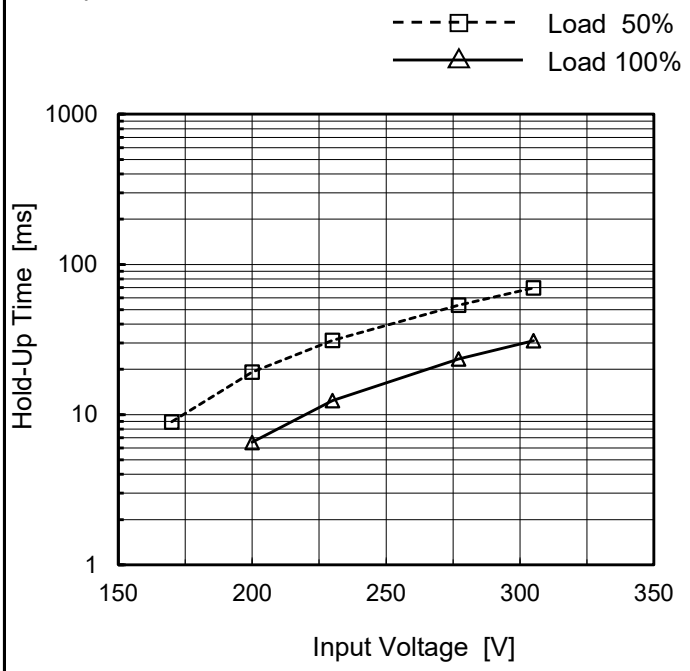
Model	WBA350B-12
Item	Hold-Up Time
Object	+12V29A

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.

2.Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
170	9	-
200	19	7
230	31	12
277	53	23
305	70	31
--	-	-
--	-	-
--	-	-
--	-	-

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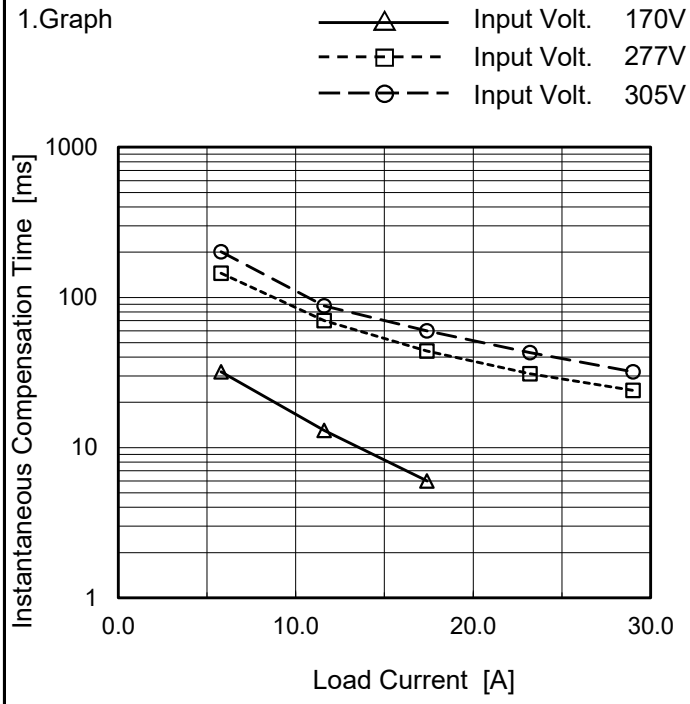
Model	WBA350B-12
Item	Instantaneous Interruption Compensation
Object	+12V29A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Current [A]	Time [ms]		
	Input Volt. 170[V]	Input Volt. 277[V]	Input Volt. 305[V]
0.0	-	-	-
5.8	32	145	201
11.6	13	70	88
17.4	6	44	60
23.2	-	31	43
29.0	-	24	32
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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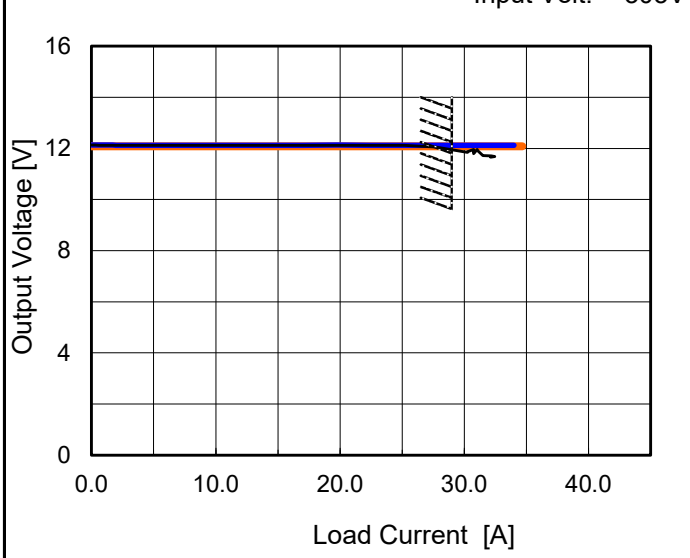
Model	WBA350B-12
Item	Overcurrent Protection
Object	+12V29A

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. 277[V]	Input Volt. 305[V]
12	32.11	33.46	34.66
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	WBA350B-12
Item	Ambient Temperature Drift
Object	+12V29A

Testing Circuitry Figure A

1.Values

Load 100%

Ambient Temperature[℃]	Output Voltage [V]		
	Input Volt. 170V	Input Volt. 277V	Input Volt. 305V
-20	11.957	12.076	12.079
25	12.016	12.121	12.124
50	11.973	12.130	12.129

Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V29A

Testing Circuitry Figure A

1.Values

Ambient Temperature[℃]	Input Voltage [V]	
	Load 50%	Load 100%
-20	133	157
25	133	157
50	132	158

Item	Overvoltage Protection
Object	+12V29A

Testing Circuitry Figure A

1.Values

Load 0%

Ambient Temperature[℃]	Operating Point [V]	
	Input Volt. 170V	Input Volt. 280V
-20	14.74	14.73
25	14.96	14.99
50	15.04	15.08

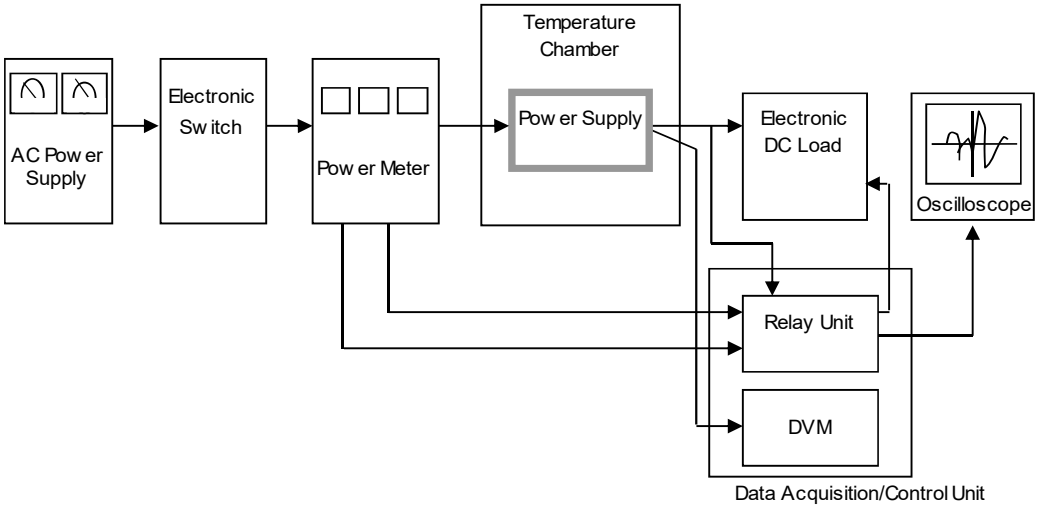

Figure A

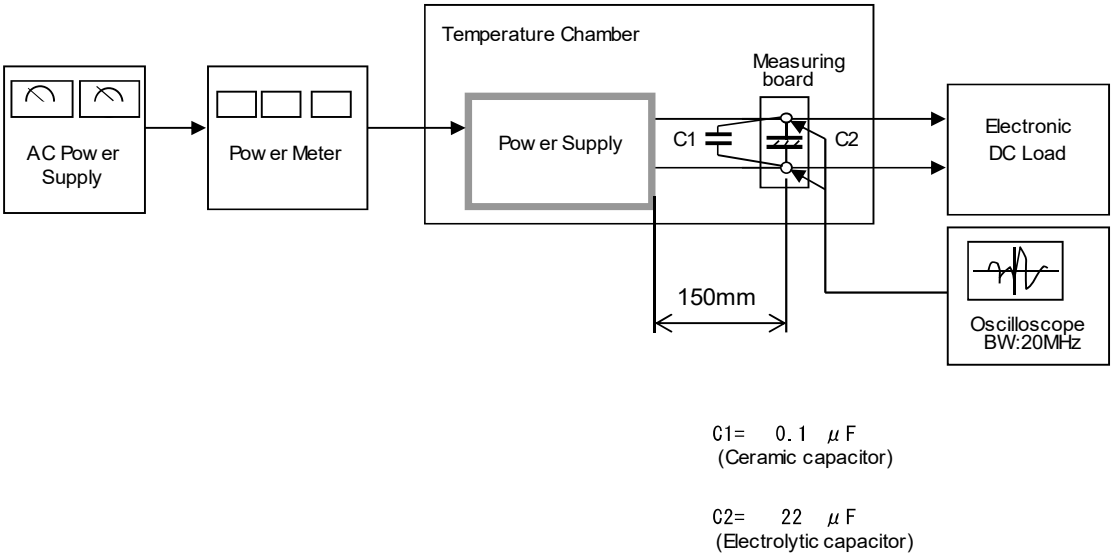

Figure B

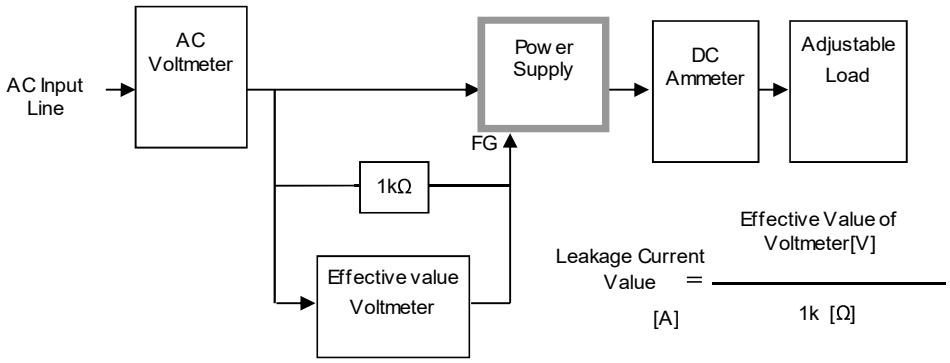

Figure C-1 (DEN-AN)

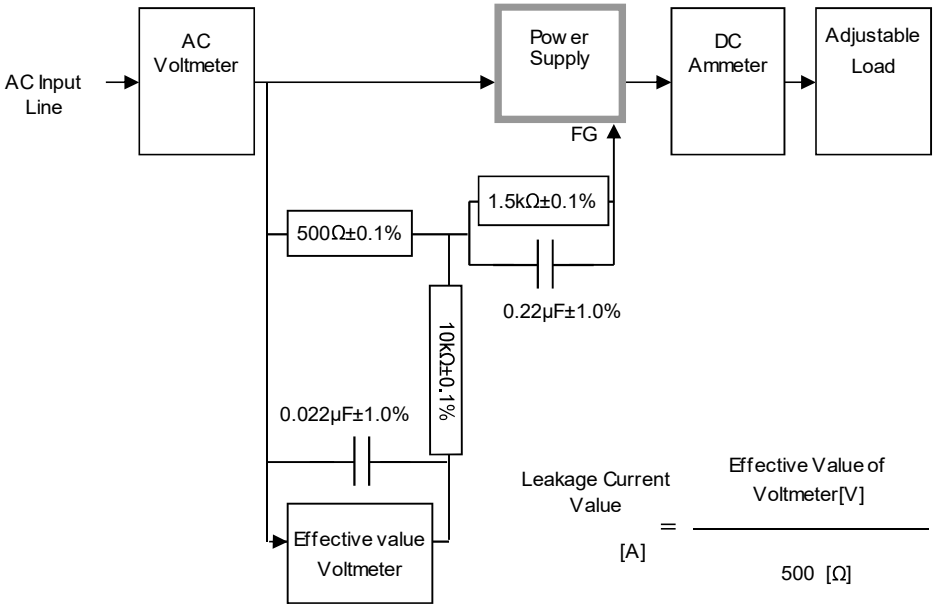

Figure C-2 (IEC62368-1 refer to IEC60990 Fig.4)

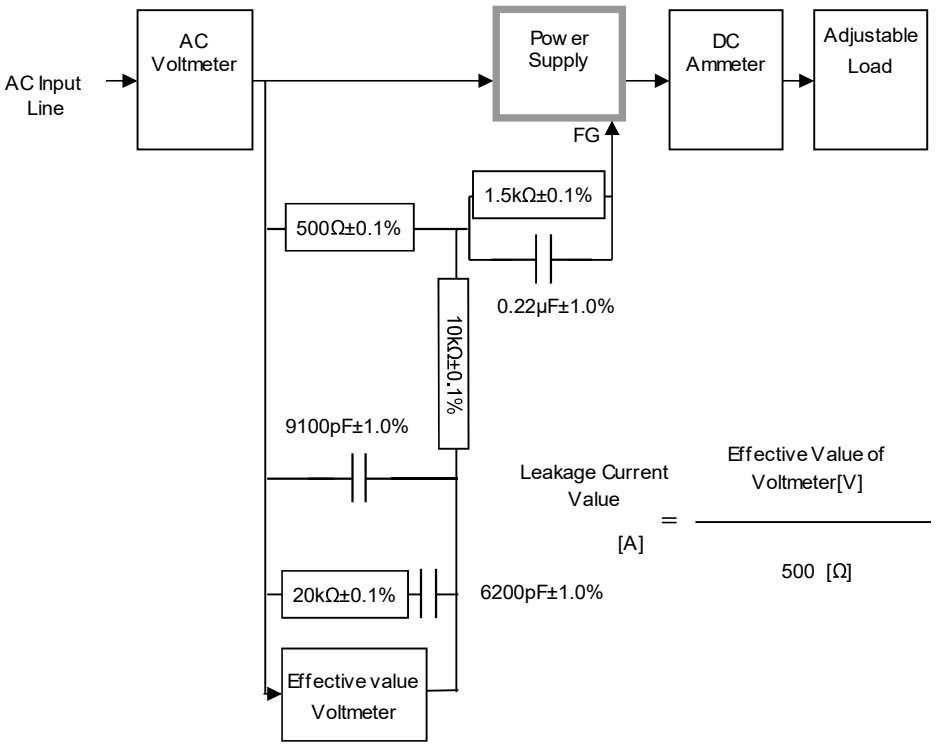

Figure C-3 (IEC62368-1 refer to IEC60990 Fig.5)