For Reference

COSEL

TEST DATA OF UMA30F-15

Regulated DC Power Supply
September 4, 2023

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CONTENTS

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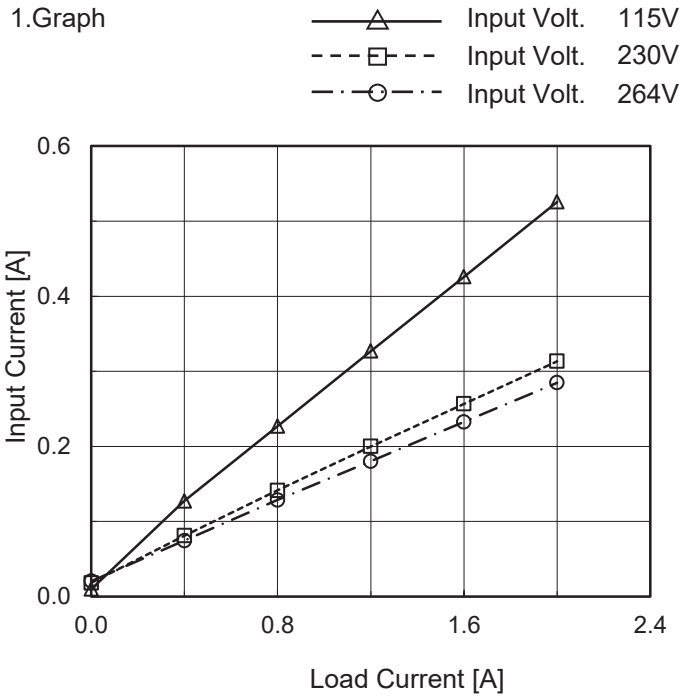
Model	UMA30F-15
Item	Input Current (by Load Current)
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]
0.0	0.010	0.018	0.021
0.4	0.127	0.081	0.074
0.8	0.227	0.141	0.129
1.2	0.327	0.200	0.180
1.6	0.426	0.257	0.233
2.0	0.526	0.313	0.285
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BC-11934

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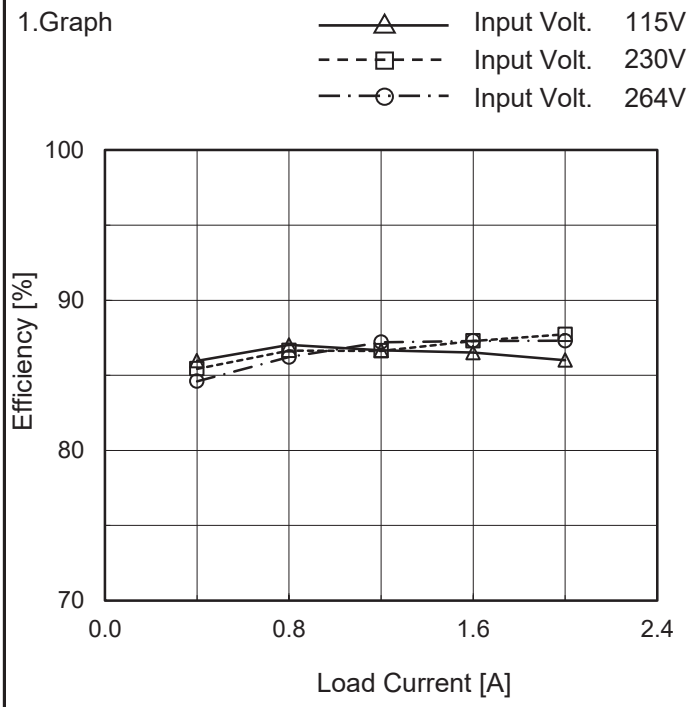
Model	UMA30F-15
Item	Efficiency (by Load Current)
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]
0.0	-	-	-
0.4	86.0	85.4	84.6
0.8	87.0	86.7	86.2
1.2	86.7	86.6	87.2
1.6	86.5	87.3	87.3
2.0	86.0	87.7	87.3
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--	-	-	-
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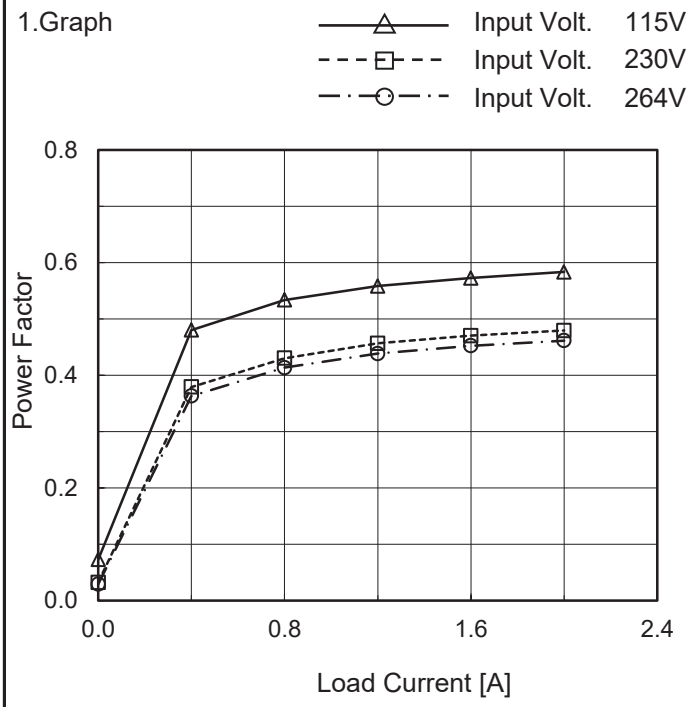
Model	UMA30F-15
Item	Power Factor (by Load Current)
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Current [A]	Power Factor Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]
0.0	0.073	0.032	0.029
0.4	0.480	0.379	0.363
0.8	0.534	0.430	0.414
1.2	0.558	0.457	0.438
1.6	0.573	0.471	0.452
2.0	0.584	0.479	0.462
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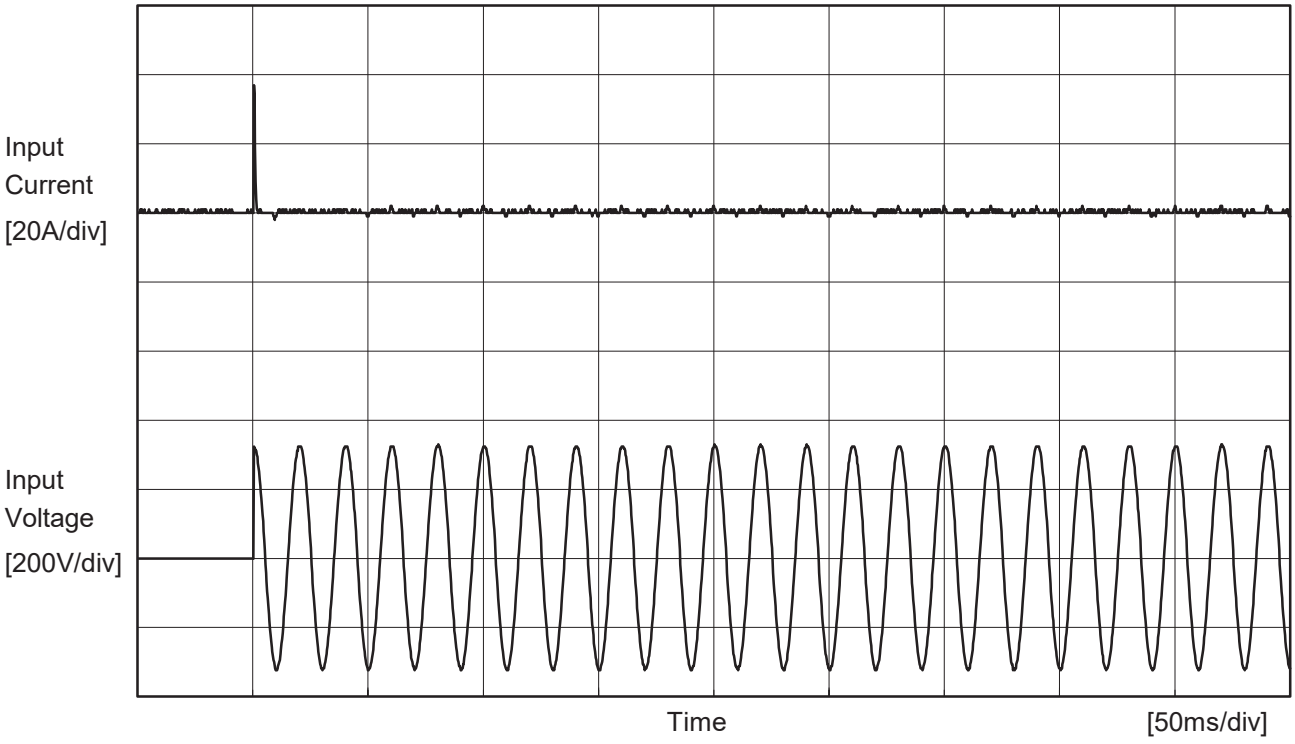
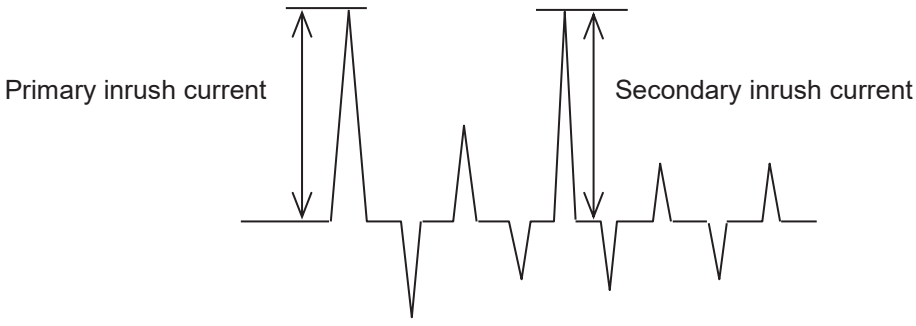
Model	UMA30F-15
Item	Inrush Current
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A



Input Voltage	230 V
Frequency	50 Hz
Load	100 %
Primary inrush current	37.0 A
Secondary inrush current	2.0 A



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Model	UMA30F-15	
Item	Leakage Current	Temperature 25°C Testing Circuitry Figure C
Object	+15V2A	

1.Results

[mA]

Standards	Testing Circuitry	Measuring Method	Input Volt.			Note
			115 [V]	230 [V]	264 [V]	
IEC60601-1	Figure C-1	Both phases	0.05	0.11	0.12	Operation
		One of phases	0.10	0.21	0.24	Stand by
IEC62368-1	Figure C-2	Both phases	0.05	0.11	0.13	Operation
		One of phases	0.10	0.21	0.25	Stand by
	Figure C-3	Both phases	0.05	0.11	0.12	Operation
		One of phases	0.10	0.21	0.25	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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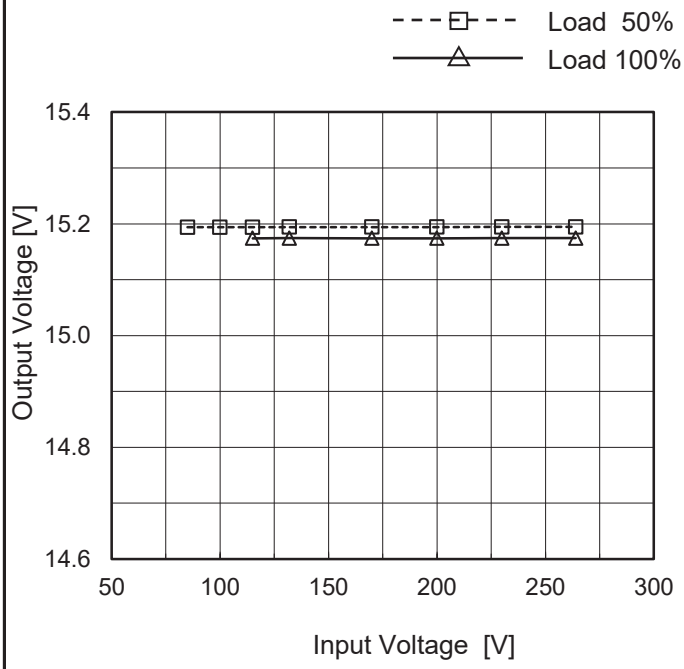
Model	UMA30F-15
Item	Line Regulation
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	15.194	-
100	15.194	-
115	15.194	15.174
132	15.194	15.174
170	15.194	15.174
200	15.194	15.174
230	15.194	15.174
264	15.194	15.174
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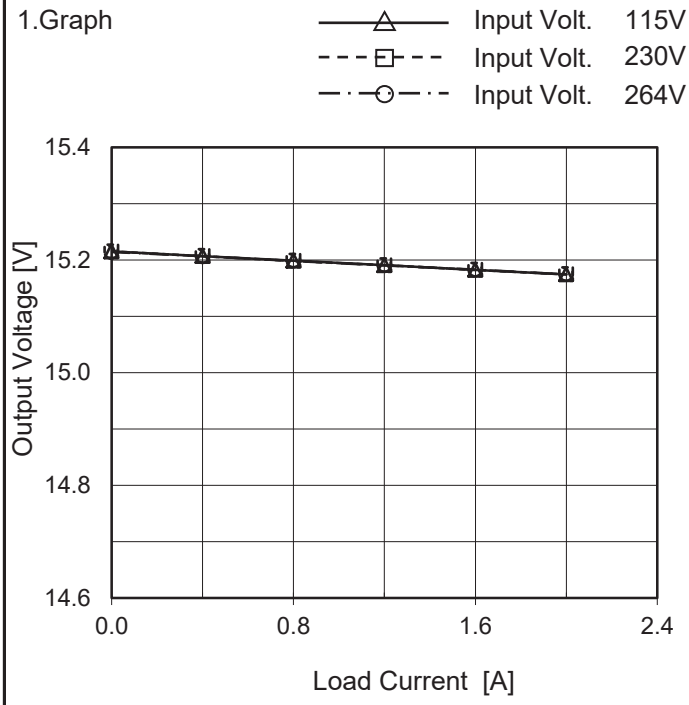
Model	UMA30F-15
Item	Load Regulation
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]
0.0	15.216	15.215	15.214
0.4	15.207	15.207	15.207
0.8	15.199	15.199	15.199
1.2	15.191	15.191	15.191
1.6	15.183	15.183	15.183
2.0	15.175	15.175	15.175
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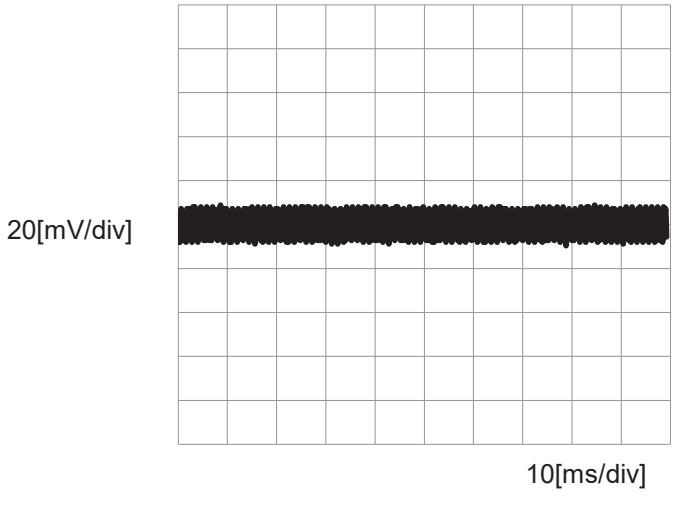
Item	Ripple-Noise
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure B

1.Graph

Input Voltage 230V
Load 100%

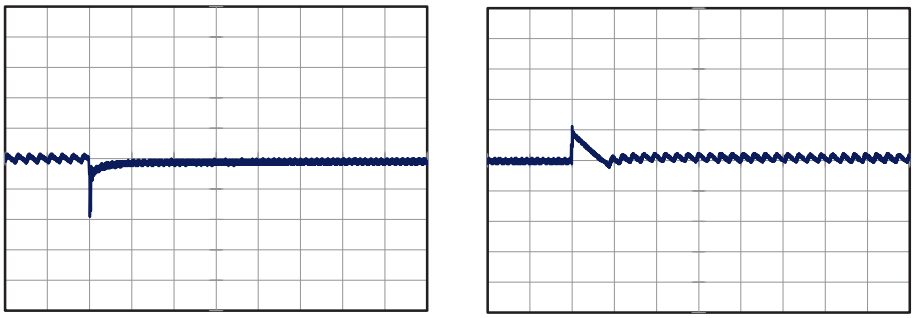


BC-11934

Model	UMA30F-15	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+15V2A	

Input Volt. 230 V
Cycle 1000 ms

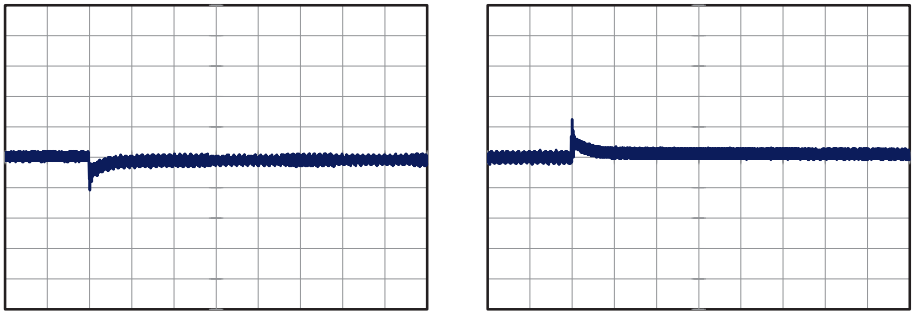
Min.Load (0A)←→
Load 100% (2A)



200 mV/div

10 ms/div 10 ms/div

Load 50% (1A)←→
Load 100% (2A)



100 mV/div

10 ms/div 10 ms/div

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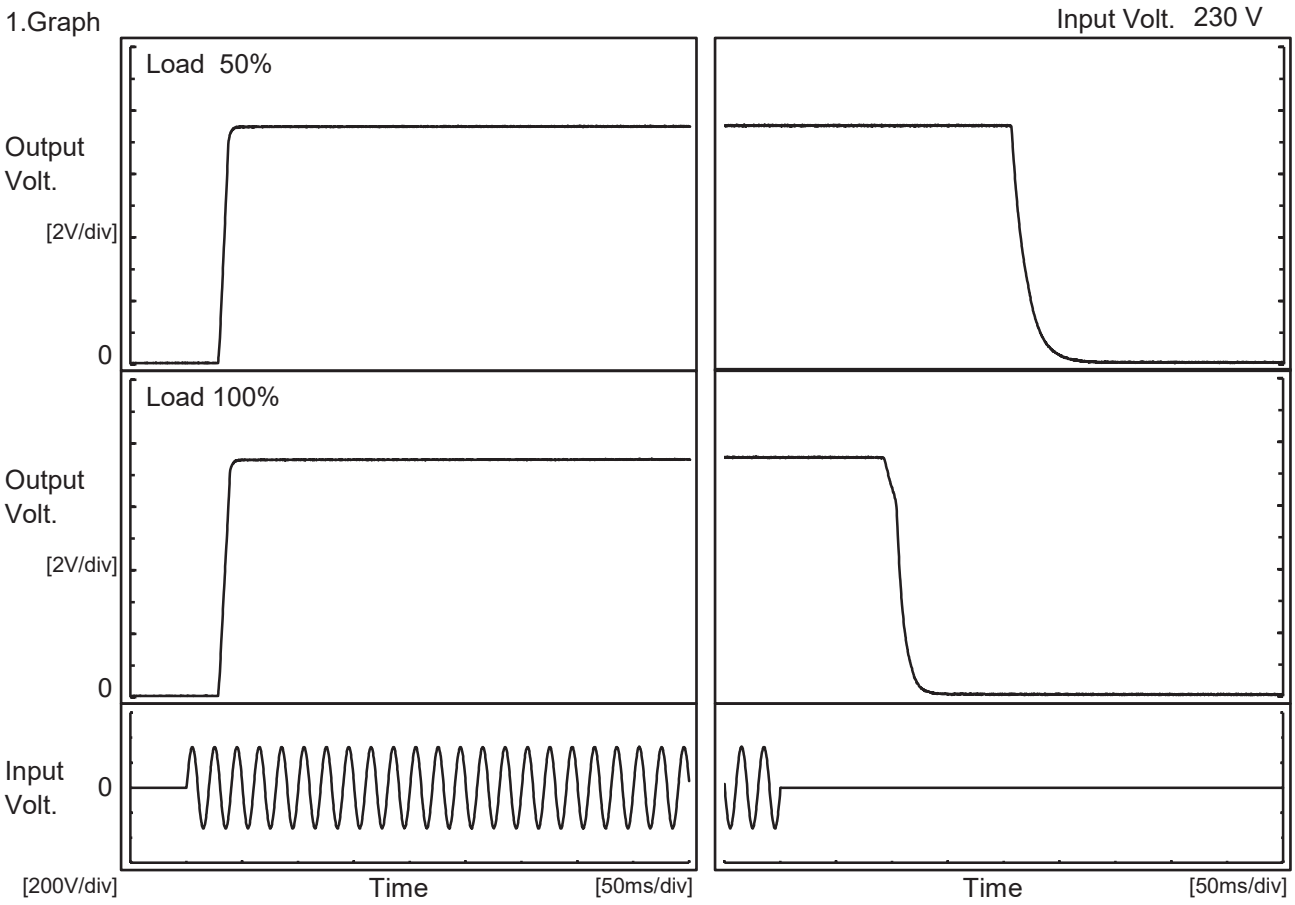
Model	UMA30F-15
Item	Rise and Fall Time
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

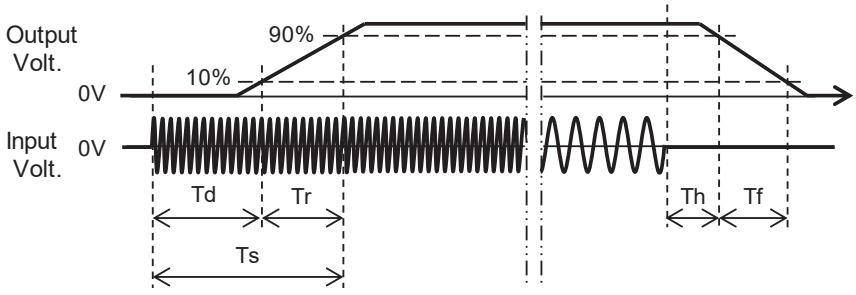
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	30.0	7.5	37.5	207.8	27.8
100 %	30.0	8.8	38.8	97.8	20.8



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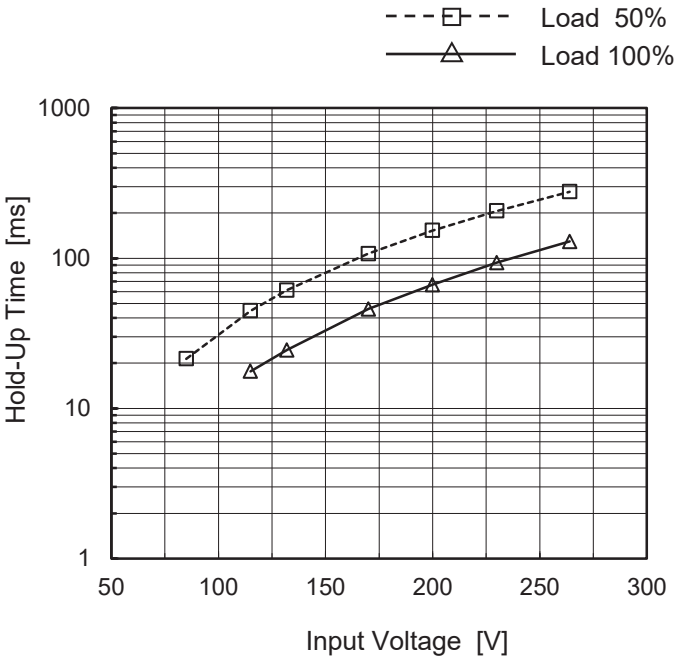
Model	UMA30F-15
Item	Hold-Up Time
Object	+15V2A

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%
85	21	-
100	32	-
115	45	18
132	61	25
170	107	46
200	153	67
230	207	94
264	278	129
--	-	-

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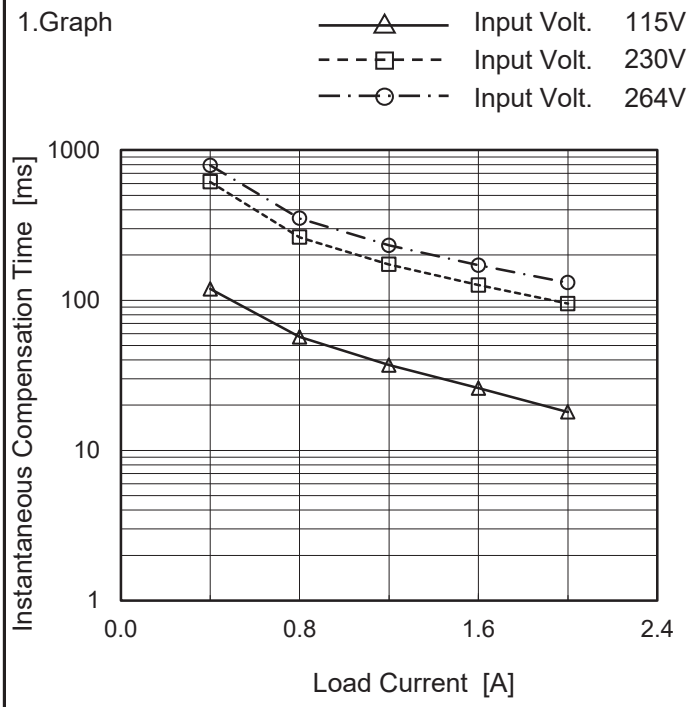
Model	UMA30F-15
Item	Instantaneous Interruption Compensation
Object	+15V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Current [A]	Time [ms]		
	Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]
0.0	-	-	-
0.4	119	614	791
0.8	57	263	351
1.2	37	173	232
1.6	26	126	171
2.0	18	95	131
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC-11934

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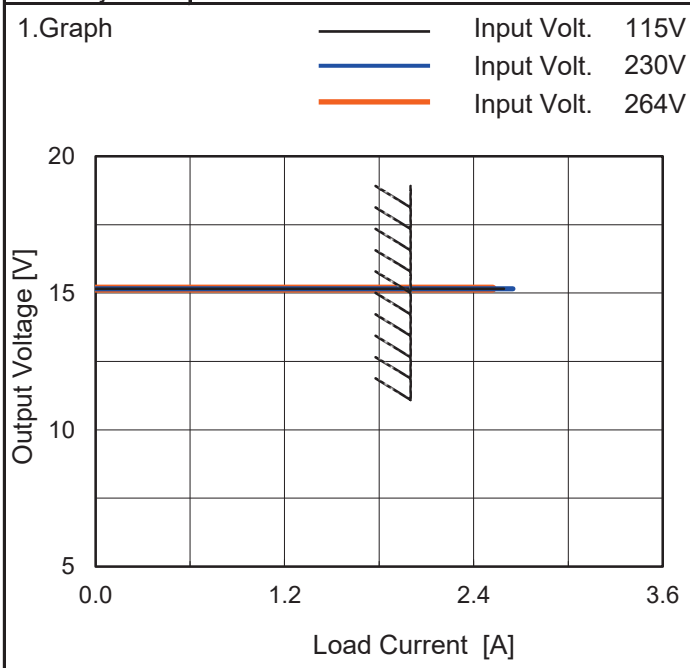
Model	UMA30F-15
Item	Overcurrent Protection
Object	+15V2A

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. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]
15	2.59	2.65	2.52
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	UMA30F-15	
Item	Ambient Temperature Drift	Testing Circuitry Figure A
Object	+15V2A	

1.Values

Load 100%

Ambient Temperature[℃]	Output Voltage [V]		
	Input Volt. 115V	Input Volt. 230V	Input Volt. 264V
-20	15.128	15.129	15.130
25	15.174	15.174	15.175
40	15.180	15.179	15.180

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	+15V2A	

1.Values

Ambient Temperature[℃]	Input Voltage [V]	
	Load 50%	Load 100%
-20	37	67
25	37	69
40	36	68

Item	Overvoltage Protection	Testing Circuitry Figure A
Object	+15V2A	

1.Values

Load 0%

Ambient Temperature[℃]	Operating Point [V]	
	Input Volt. 115V	Input Volt. 264V
-20	18.63	18.63
25	19.27	19.28
40	19.38	19.38

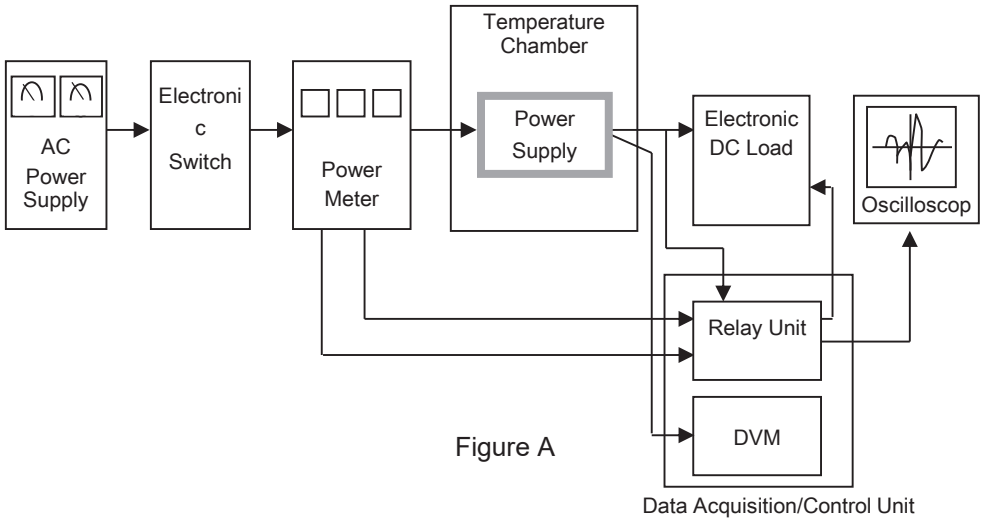
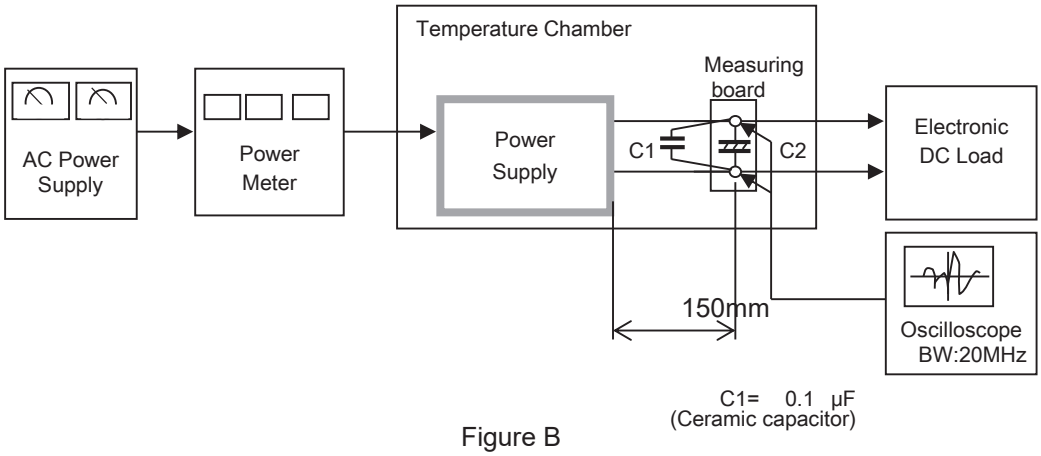


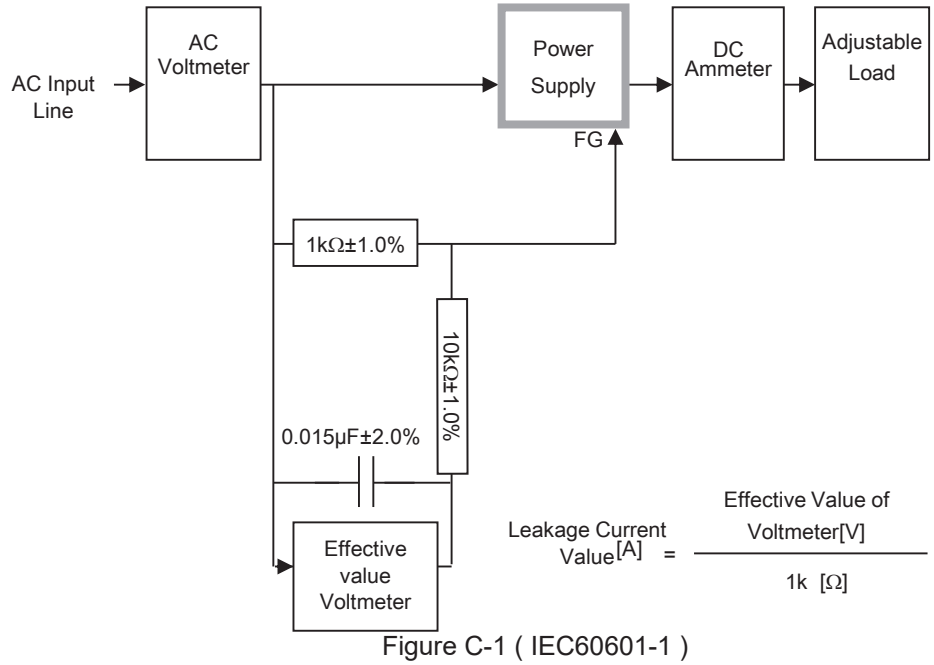
Figure A



C1= 0.1 μF
(Ceramic capacitor)

Figure B

C2= 47 μF
(Electrolytic capacitor)



$$\text{Leakage Current Value}[A] = \frac{\text{Effective Value of Voltmeter}[V]}{1k\ [\Omega]}$$

Figure C-1 (IEC60601-1)

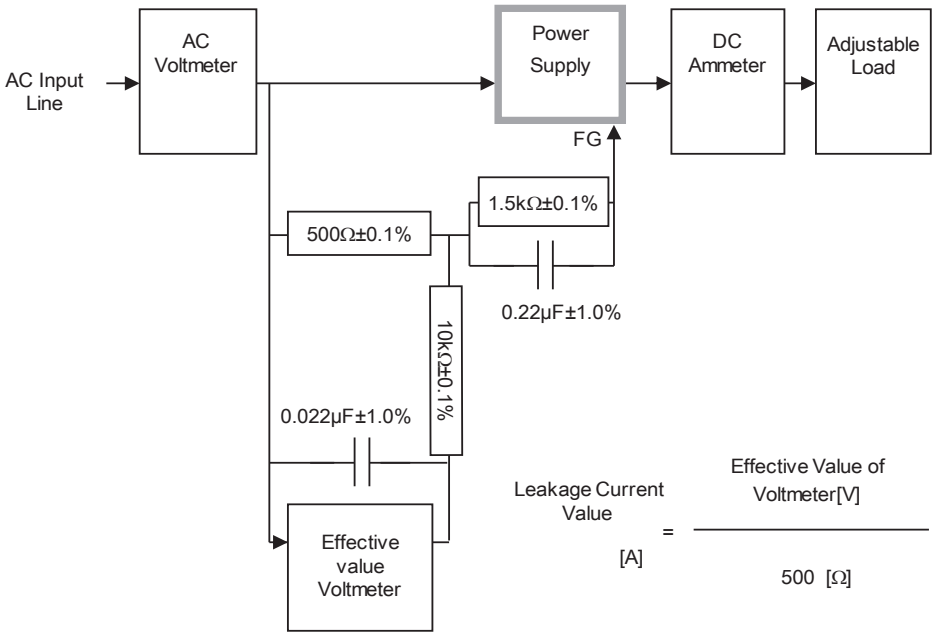


Figure C-2 (IEC62368-1 refer to IEC60990 Fig.4)

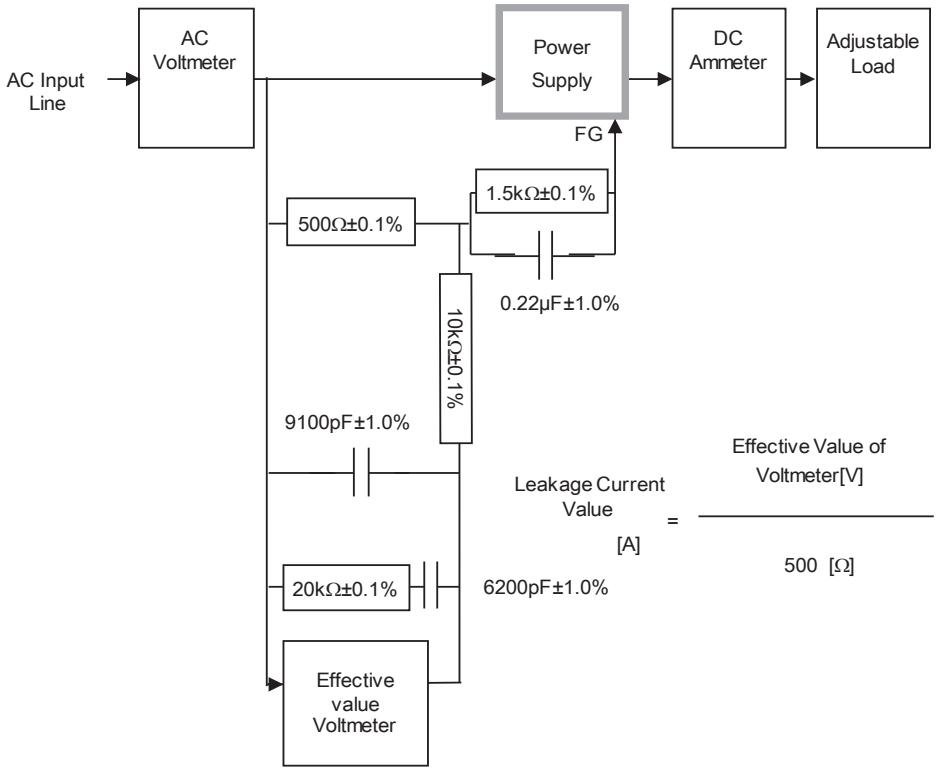


Figure C-3 (IEC62368-1 refer to IEC60990 Fig.5)