For Reference

TEST DATA OF UMA60F-7R5

Regulated DC Power Supply
September 4, 2023

Approved by : Takashi Kajii
Design Manager

Prepared by : Akihisa Mukai
Design Engineer

COSEL CO.,LTD.

COSEL

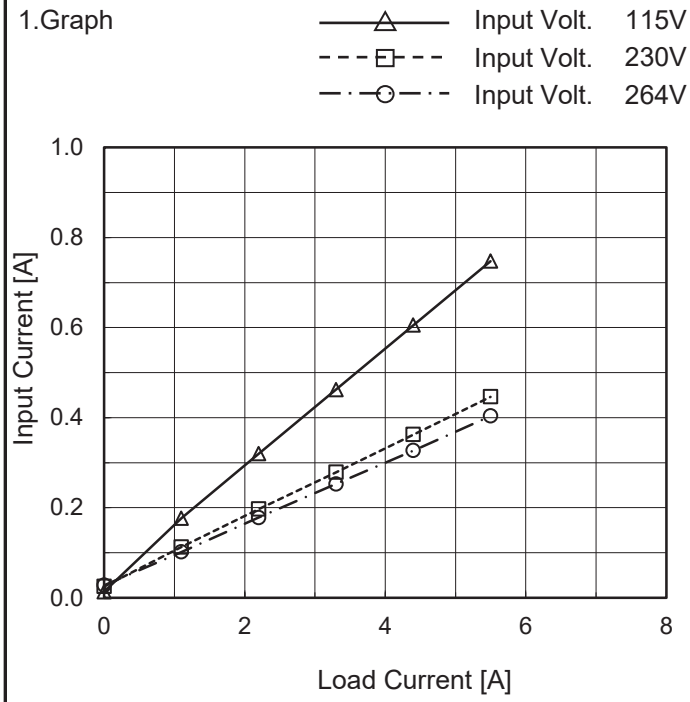
CONTENTS

COSEL

Model	UMA60F-7R5
Item	Input Current (by Load Current)
Object	+7.5V5.5A

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	0.013	0.025	0.028
1.1	0.177	0.113	0.102
2.2	0.320	0.197	0.178
3.3	0.462	0.279	0.253
4.4	0.605	0.363	0.327
5.5	0.748	0.446	0.404
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

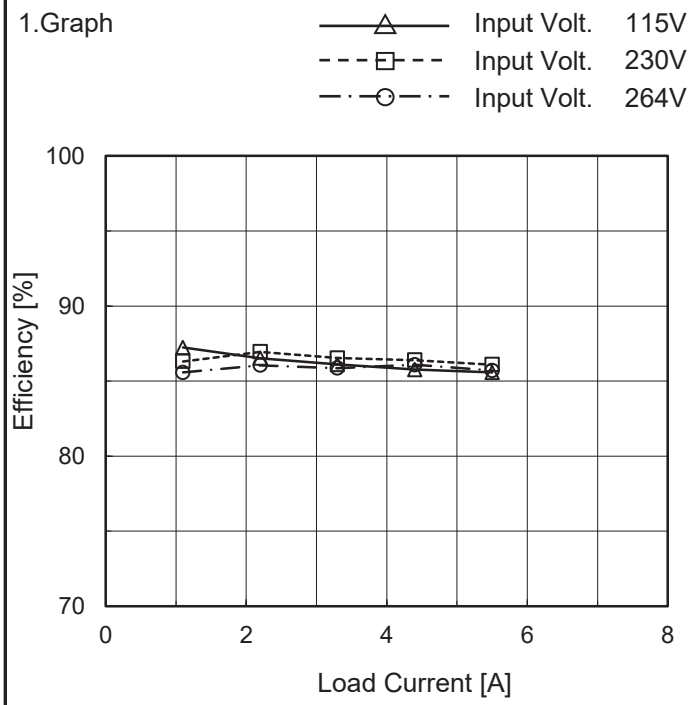
BC-11936

COSEL

Model	UMA60F-7R5
Item	Efficiency (by Load Current)
Object	+7.5V5.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

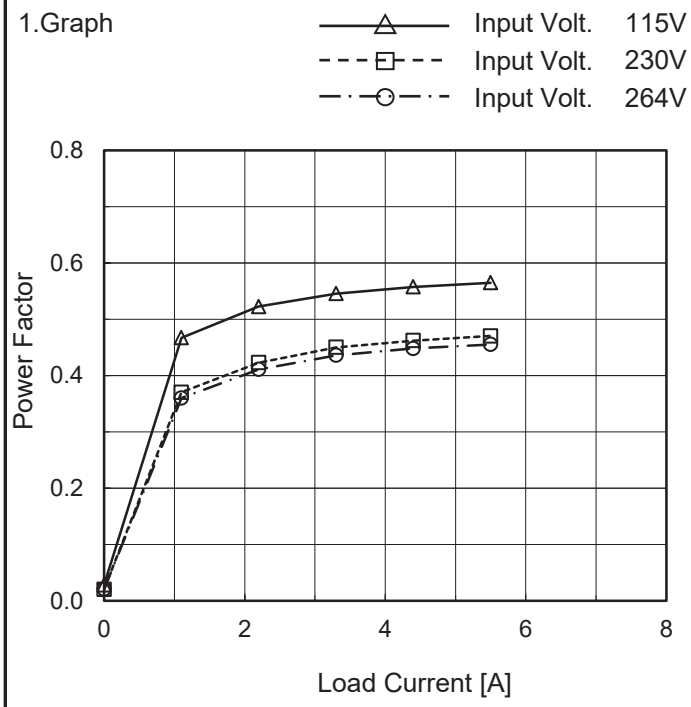
Load Current [A]	Efficiency [%]		
	Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]
0.0	-	-	-
1.1	87.2	86.3	85.6
2.2	86.5	87.0	86.1
3.3	86.1	86.5	85.9
4.4	85.8	86.4	86.1
5.5	85.6	86.1	85.7
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	UMA60F-7R5
Item	Power Factor (by Load Current)
Object	+7.5V5.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

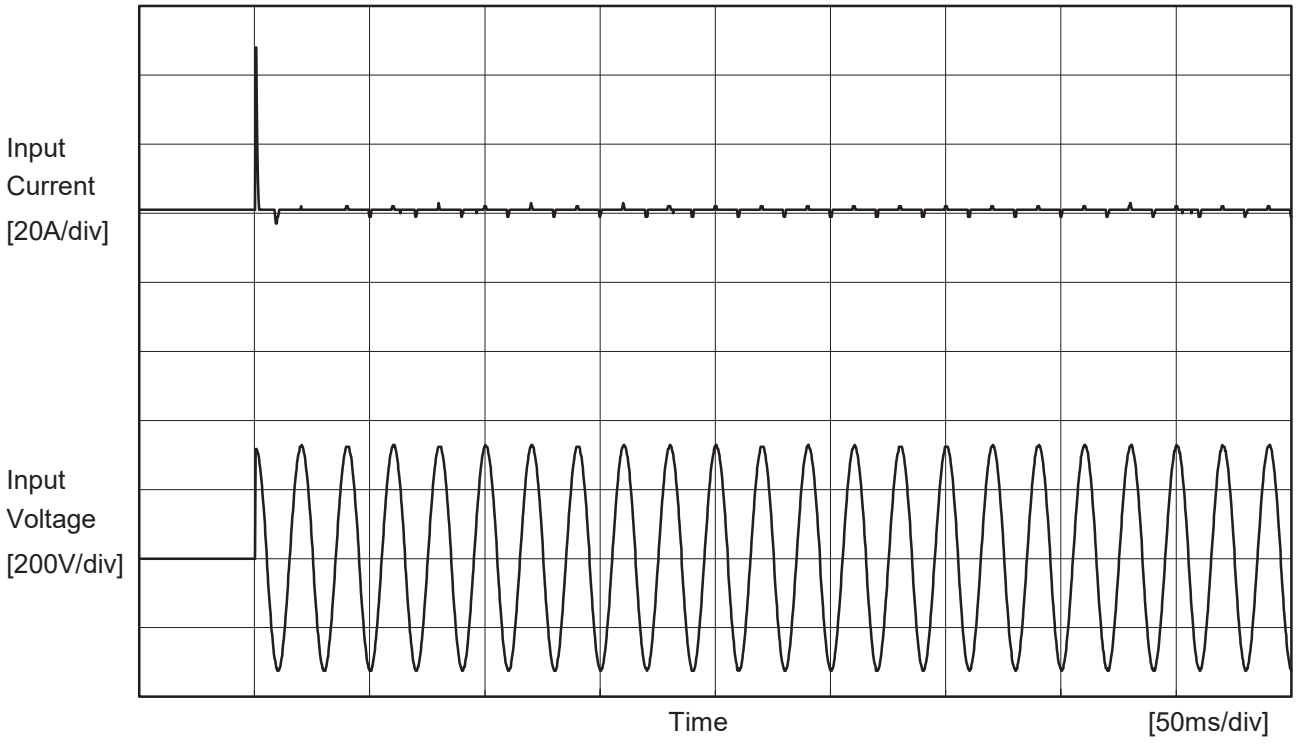
Load Current [A]	Power Factor Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]
0.0	0.028	0.020	0.020
1.1	0.467	0.370	0.360
2.2	0.523	0.423	0.411
3.3	0.546	0.450	0.436
4.4	0.558	0.462	0.448
5.5	0.565	0.470	0.455
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC-11936

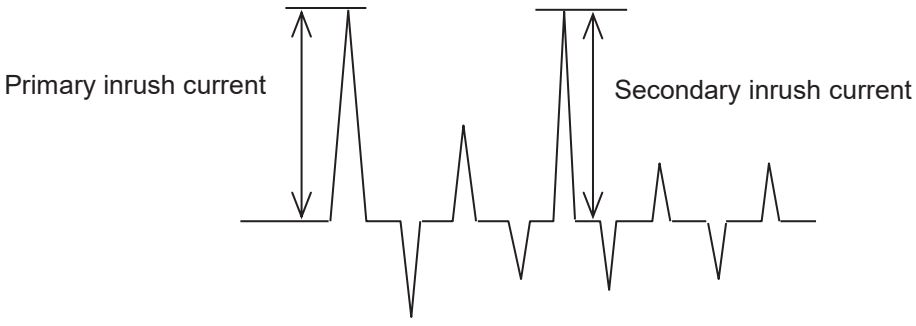
COSEL

Model	UMA60F-7R5
Item	Inrush Current
Object	+7.5V5.5A

Temperature 25°C
Testing Circuitry Figure A



Input Voltage	230 V
Frequency	50 Hz
Load	100 %
Primary inrush current	47.5 A
Secondary inrush current	2.5 A



BC-11936

COSEL

Model	UMA60F-7R5
Item	Leakage Current
Object	+7.5V5.5A

Temperature 25°C
Testing Circuitry Figure C

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	0.13	Operation
		One of phases	0.10	0.21	0.25	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	0.13	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

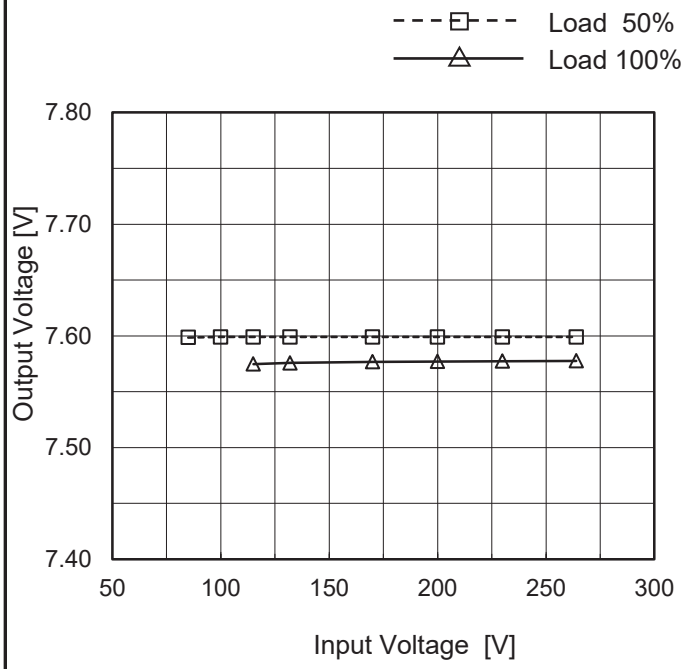
Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

COSEL

Model	UMA60F-7R5
Item	Line Regulation
Object	+7.5V5.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

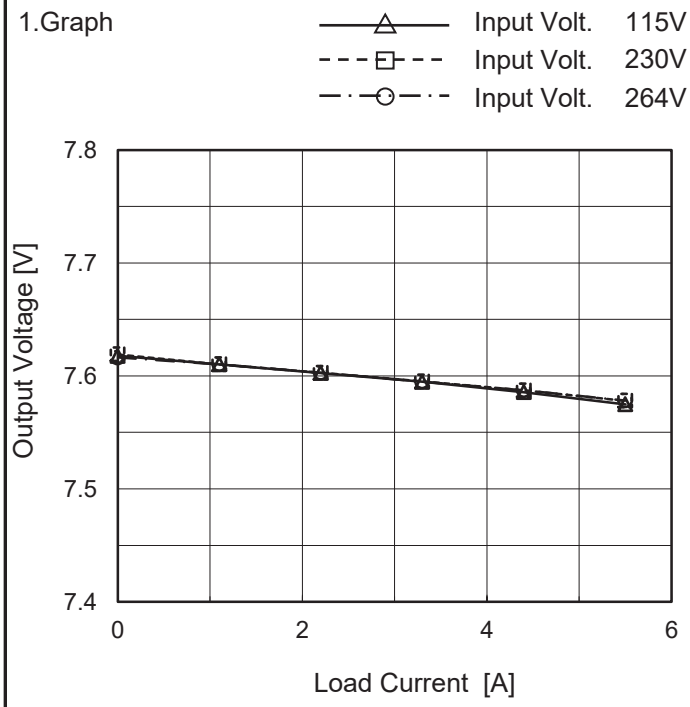
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
85	7.599	-
100	7.599	-
115	7.599	7.575
132	7.599	7.576
170	7.599	7.577
200	7.599	7.577
230	7.599	7.577
264	7.599	7.578
--	-	-

COSEL

Model	UMA60F-7R5
Item	Load Regulation
Object	+7.5V5.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

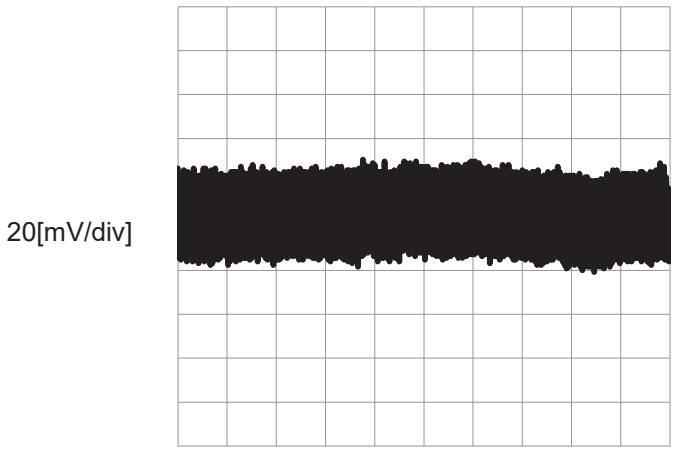
Load Current [A]	Output Voltage [V] Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]
0.0	7.618	7.619	7.616
1.1	7.610	7.610	7.610
2.2	7.603	7.603	7.603
3.3	7.595	7.595	7.595
4.4	7.586	7.587	7.587
5.5	7.575	7.578	7.578
--	--	--	--
--	--	--	--
--	--	--	--
--	--	--	--
--	--	--	--

Item	Ripple-Noise
Object	+7.5V5.5A

Temperature 25°C
Testing Circuitry Figure B

1.Graph

Input Voltage 230V
Load 100%



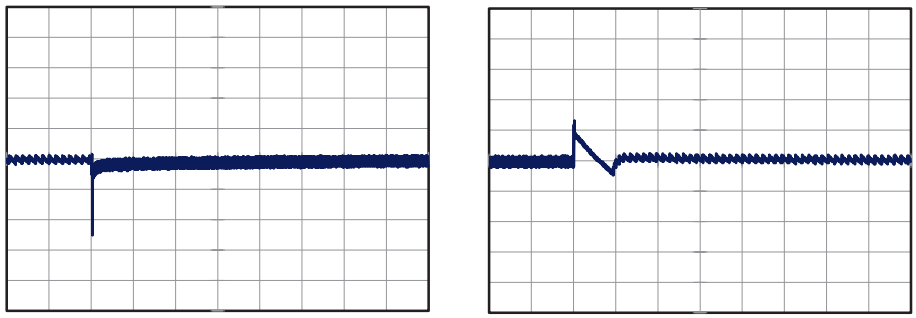
BC-11936

COSEL

Model	UMA60F-7R5	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+7.5V5.5A	

Input Volt. 230 V
Cycle 1000 ms

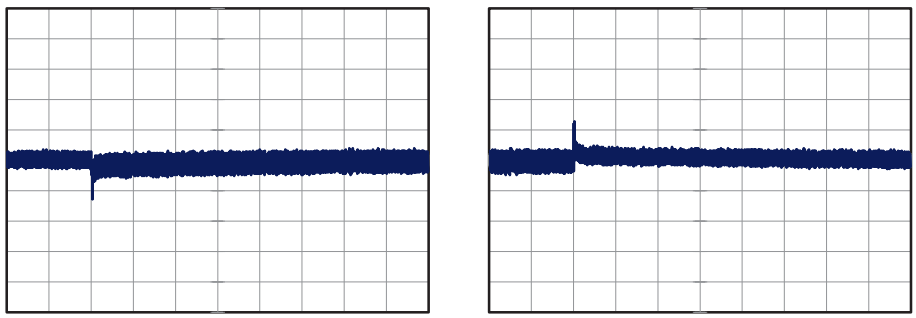
Min.Load (0A)←→
Load 100% (5.5A)



200 mV/div

40 ms/div 40 ms/div

Load 50% (2.75A)←→
Load 100% (5.5A)



100 mV/div

40 ms/div 40 ms/div

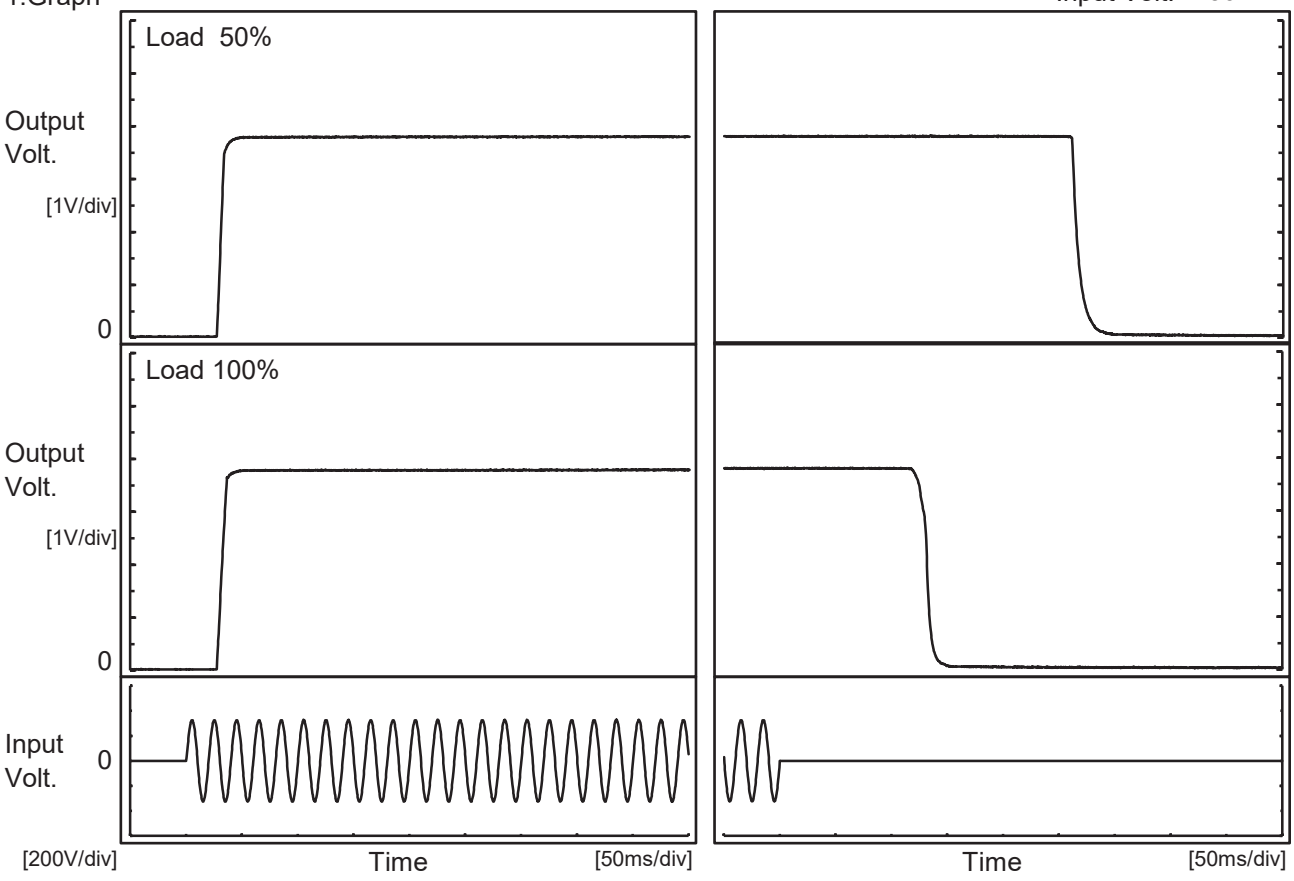
COSEL

Model	UMA60F-7R5
Item	Rise and Fall Time
Object	+7.5V5.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

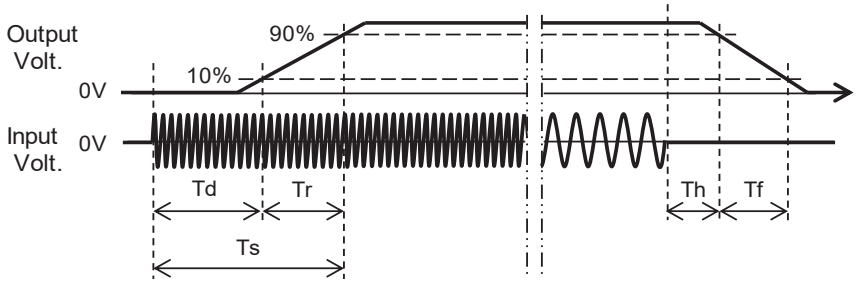
Input Volt. 230 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	28.3	5.8	34.1	262.0	14.3
100 %	28.3	7.8	36.1	125.5	12.0

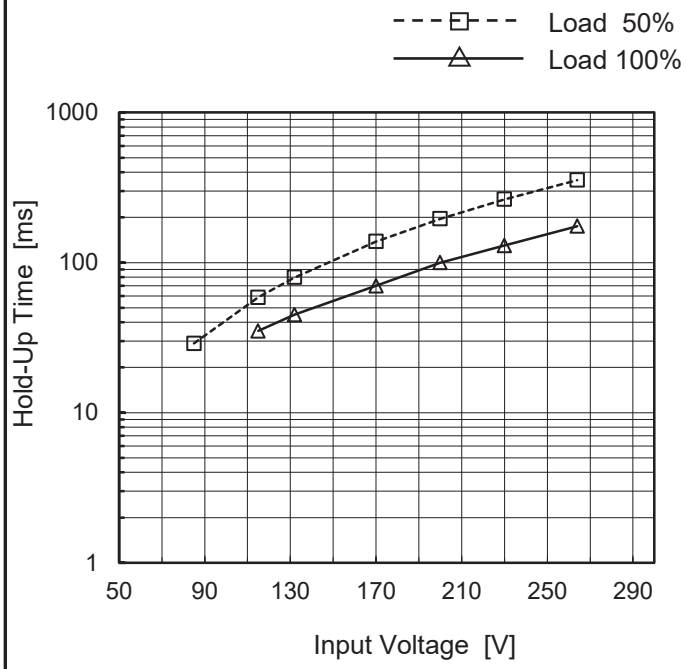


COSEL

Model	UMA60F-7R5
Item	Hold-Up Time
Object	+7.5V5.5A

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

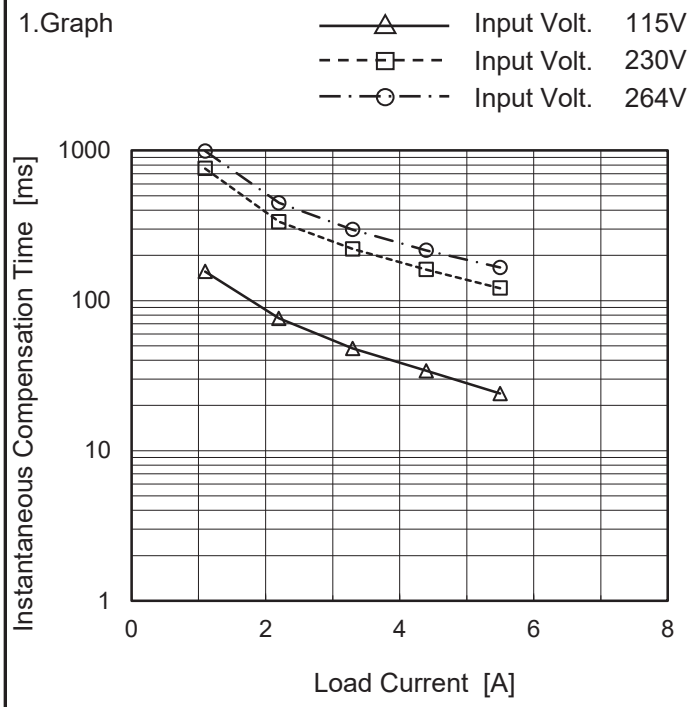
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
85	29	-
100	43	-
115	59	35
132	80	45
170	138	70
200	196	100
230	264	130
264	355	175
--	-	-

COSEL

Model	UMA60F-7R5
Item	Instantaneous Interruption Compensation
Object	+7.5V5.5A

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. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]
0.0	-	-	-
1.1	156	759	990
2.2	76	335	448
3.3	48	221	297
4.4	34	161	216
5.5	24	121	166
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

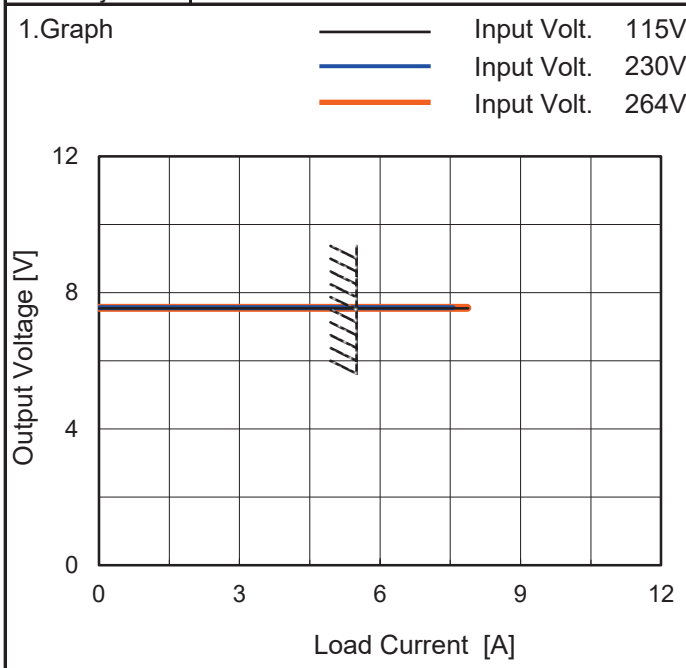
BC-11936

COSEL

Model	UMA60F-7R5
Item	Overcurrent Protection
Object	+7.5V5.5A

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]
7.5	7.88	7.56	7.87
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	UMA60F-7R5	
Item	Ambient Temperature Drift	Testing Circuitry Figure A
Object	+7.5V5.5A	

1.Values

Load 100%

Ambient Temperature[℃]	Output Voltage [V]		
	Input Volt. 115V	Input Volt. 230V	Input Volt. 264V
-20	7.563	7.568	7.568
25	7.575	7.578	7.578
40	7.574	7.577	7.577

Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A
Object	+7.5V5.5A	

1.Values

Ambient Temperature[℃]	Input Voltage [V]	
	Load 50%	Load 100%
-20	33	52
25	33	53
40	32	53

Item	Overvoltage Protection	Testing Circuitry Figure A
Object	+7.5V5.5A	

1.Values

Load 0%

Ambient Temperature[℃]	Operating Point [V]	
	Input Volt. 115V	Input Volt. 264V
-20	9.58	9.59
25	9.62	9.58
40	9.72	9.82

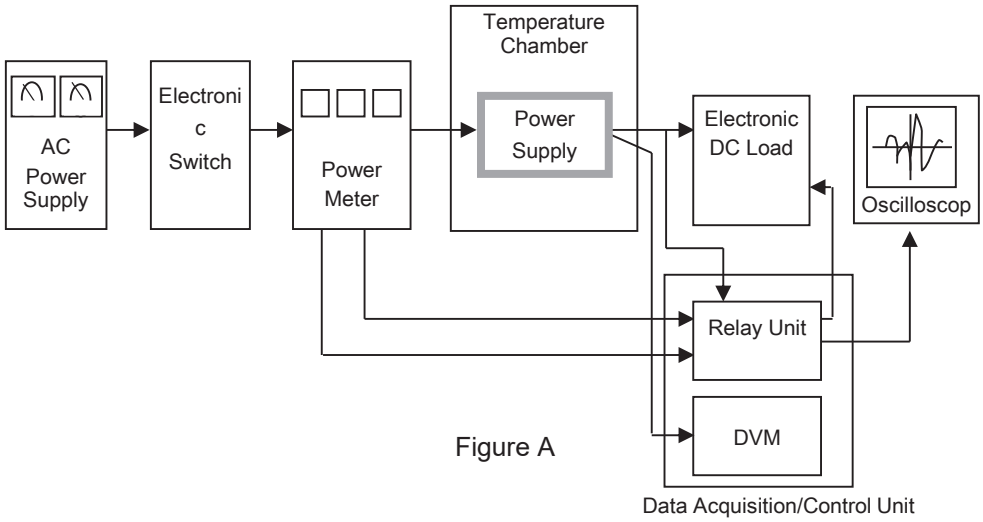
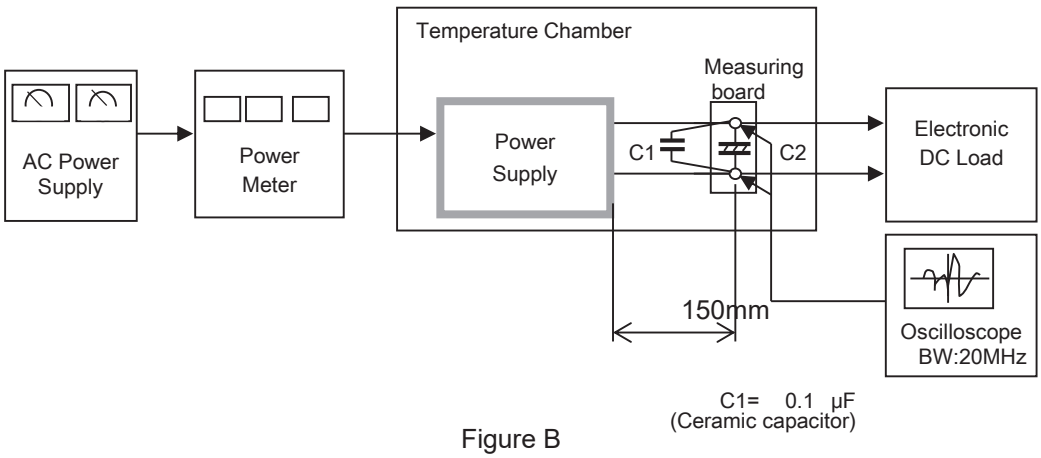


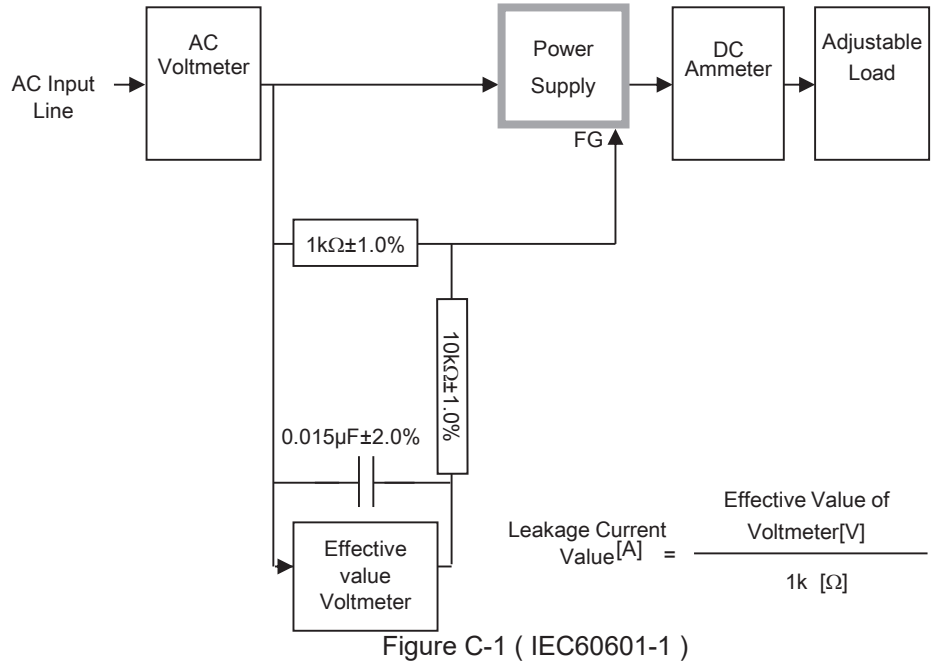
Figure A



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)

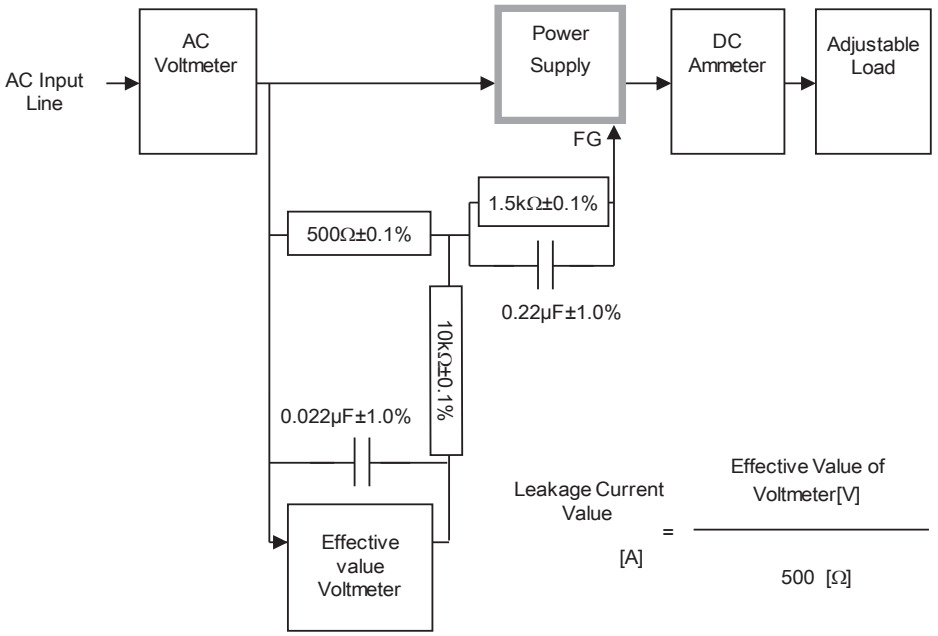


Figure C-2 (IEC62368-1 refer to IEC60990 Fig.4)

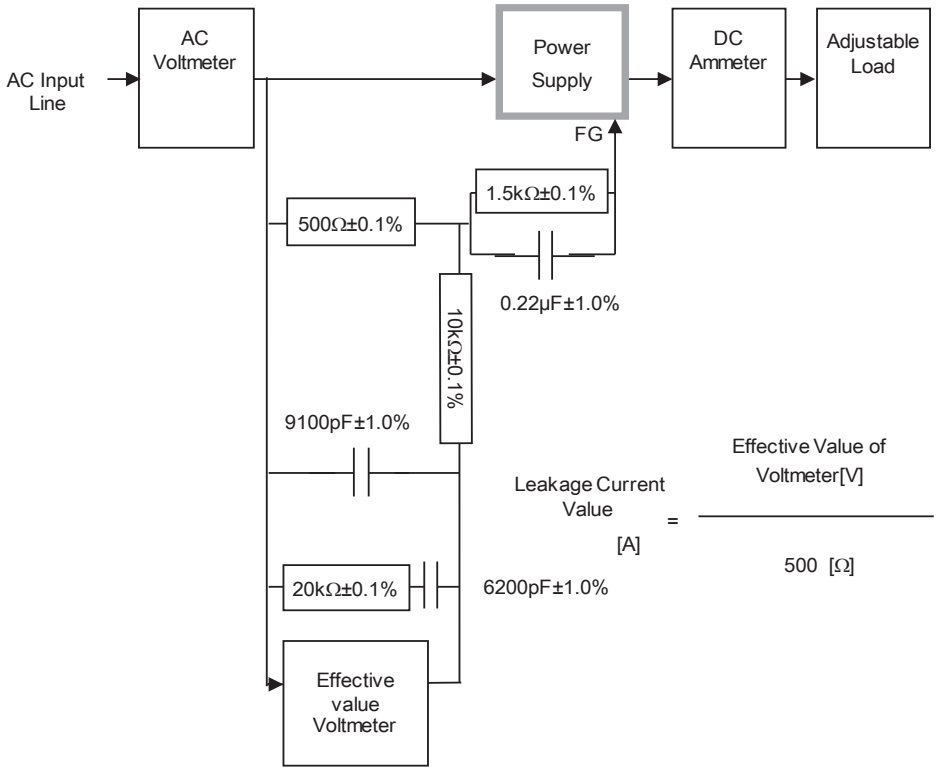


Figure C-3 (IEC62368-1 refer to IEC60990 Fig.5)