COSEL

参考資料

TEST DATA OF SNTUNS100F12

Regulated DC Power Supply
July 23, 2013

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COSEL CO.,LTD.

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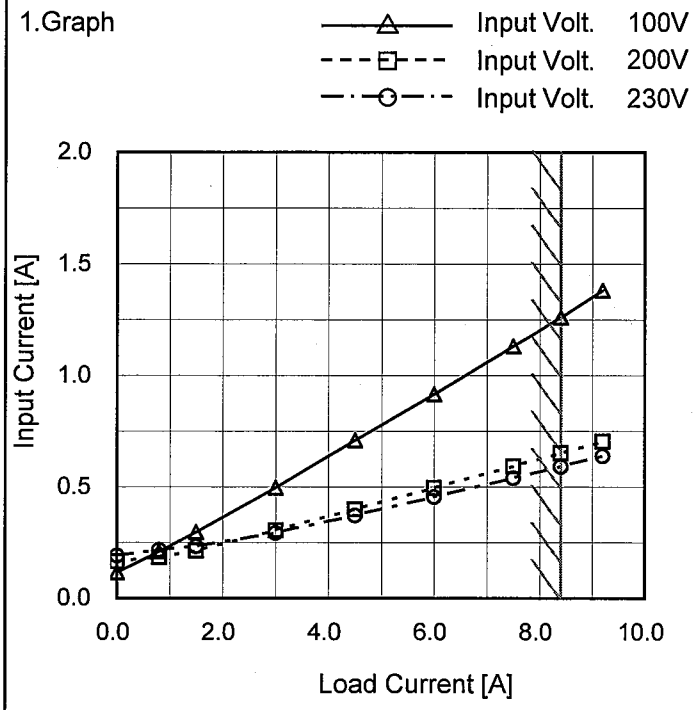

Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	0.117	0.166	0.192
0.8	0.210	0.184	0.217
1.5	0.298	0.212	0.233
3.0	0.498	0.305	0.293
4.5	0.710	0.400	0.372
6.0	0.917	0.496	0.455
7.5	1.132	0.593	0.541
8.4	1.262	0.652	0.593
9.2	1.382	0.705	0.640
--	-	-	-
--	-	-	-

BC-10702

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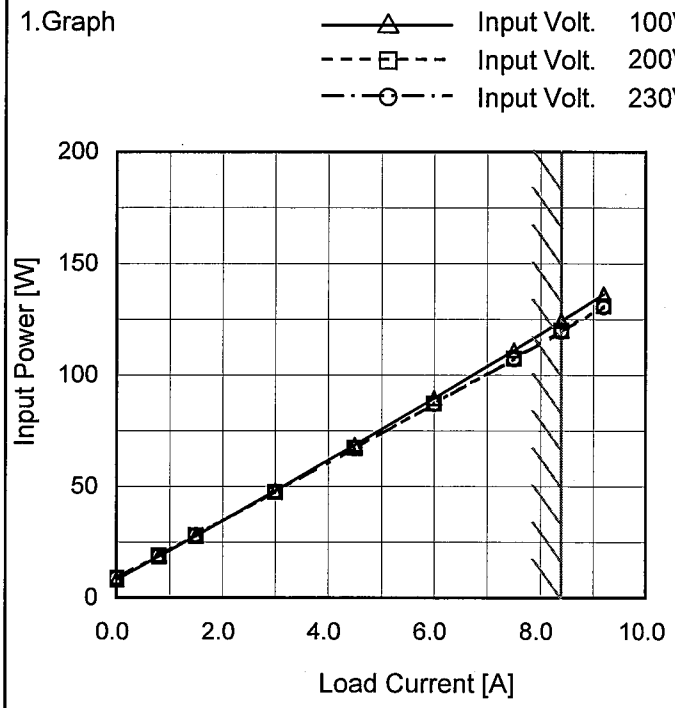
Model	SNTUNS100F12
Item	Input Power (by Load Current)
Object	————————

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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	8.2	8.9	8.9
0.8	18.6	19.0	19.0
1.5	27.9	28.0	28.2
3.0	48.1	47.4	47.5
4.5	68.7	67.3	67.1
6.0	89.7	87.2	87.0
7.5	111.2	107.5	107.2
8.4	124.4	119.9	119.5
9.2	136.4	131.1	130.6
--	-	-	-
--	-	-	-

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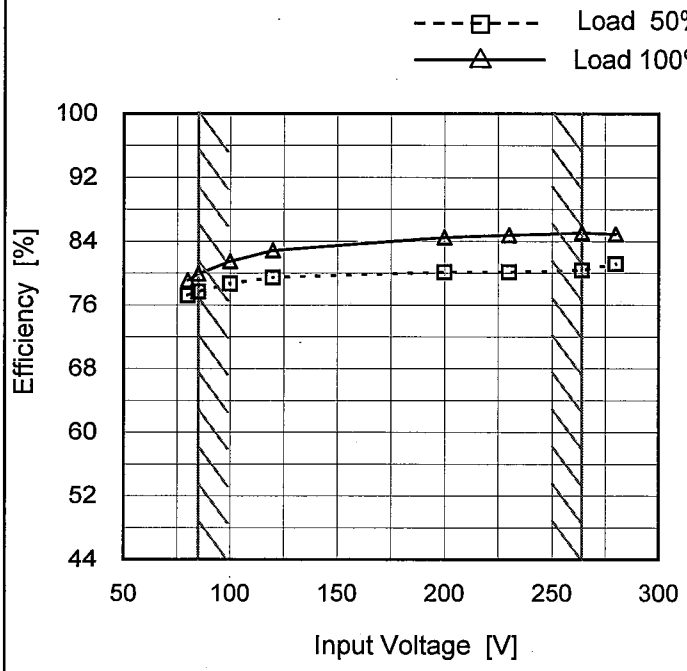
Model	SNTUNS100F12
Item	Efficiency (by Input Voltage)
Object	———————————

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%
80	77.2	79.1
85	77.7	79.9
100	78.7	81.5
120	79.4	82.9
200	80.1	84.5
230	80.1	84.8
264	80.4	85.1
280	81.2	84.9
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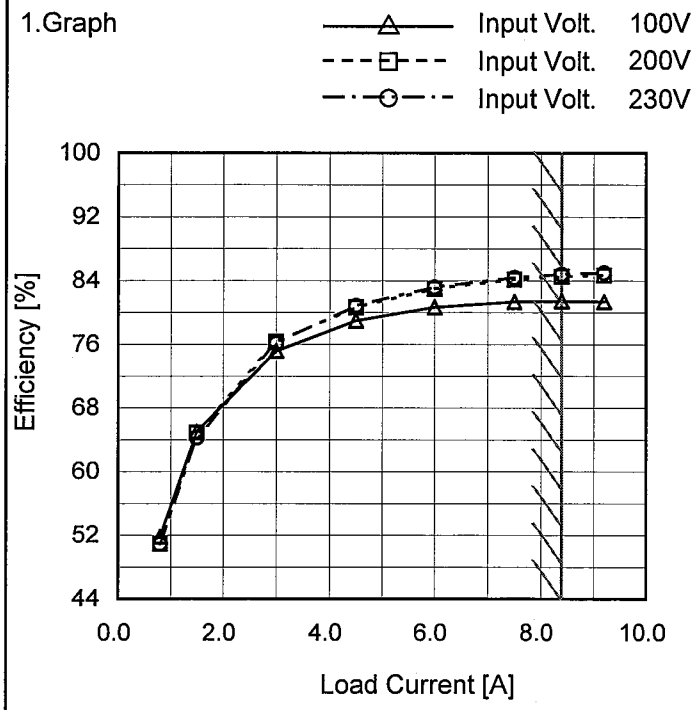
Model	SNTUNS100F12
Item	Efficiency (by Load Current)
Object	————————

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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	-	-	-
0.8	51.9	50.9	50.9
1.5	65.0	64.9	64.3
3.0	75.2	76.3	76.1
4.5	79.0	80.6	80.9
6.0	80.7	83.0	83.2
7.5	81.4	84.2	84.4
8.4	81.5	84.5	84.8
9.2	81.4	84.7	85.0
--	-	-	-
--	-	-	-

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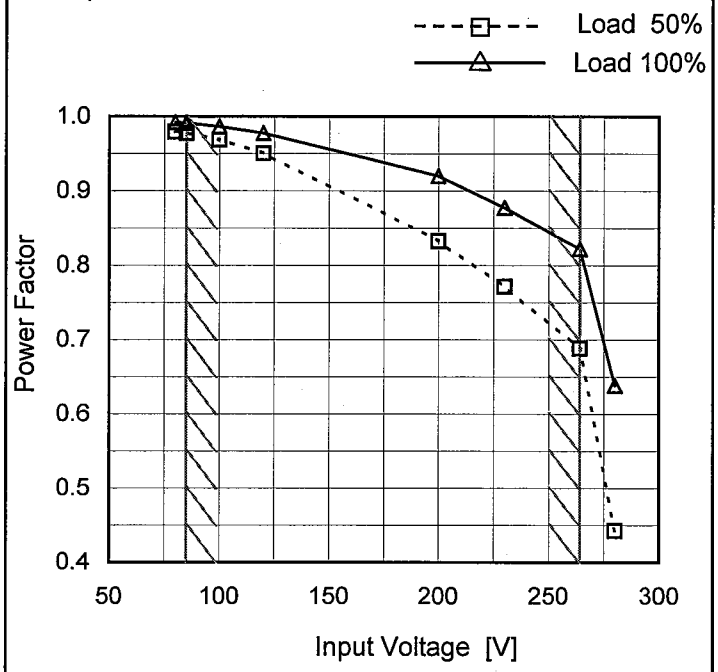
Model	SNTUNS100F12
Item	Power Factor (by Input Voltage)
Object	———————————

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%
80	0.979	0.992
85	0.978	0.991
100	0.969	0.986
120	0.950	0.978
200	0.833	0.920
230	0.772	0.877
264	0.689	0.823
280	0.443	0.638
--	-	-

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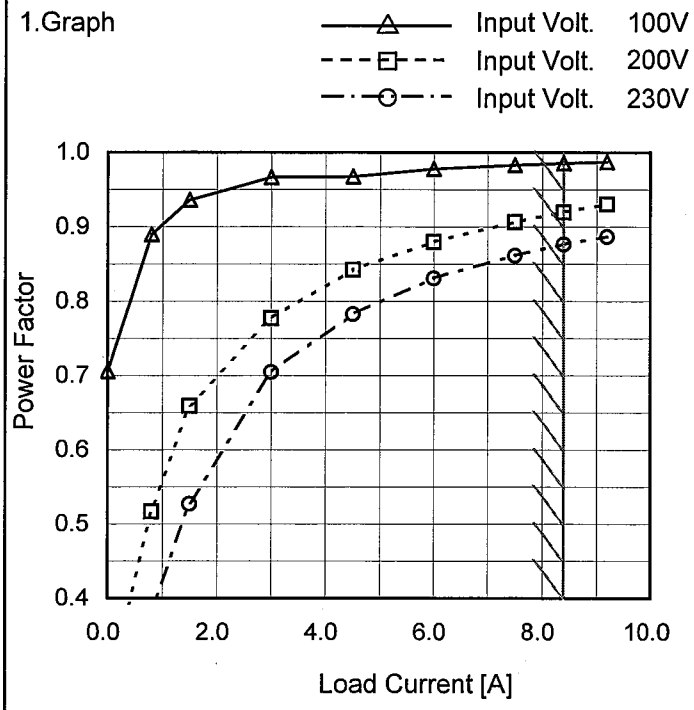
Model	SNTUNS100F12
Item	Power Factor (by Load Current)
Object	———————

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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	0.705	0.269	0.201
0.8	0.890	0.517	0.381
1.5	0.936	0.659	0.527
3.0	0.967	0.777	0.705
4.5	0.968	0.842	0.783
6.0	0.978	0.880	0.831
7.5	0.983	0.906	0.862
8.4	0.986	0.920	0.877
9.2	0.988	0.930	0.887
--	-	-	-
--	-	-	-

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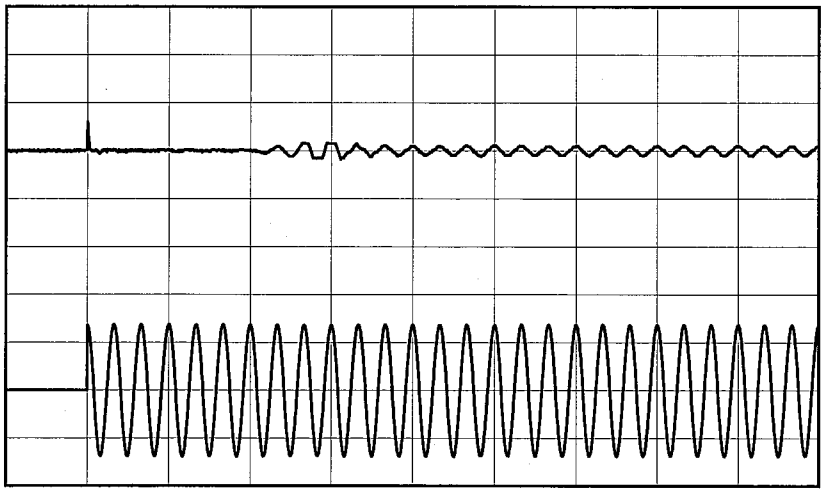
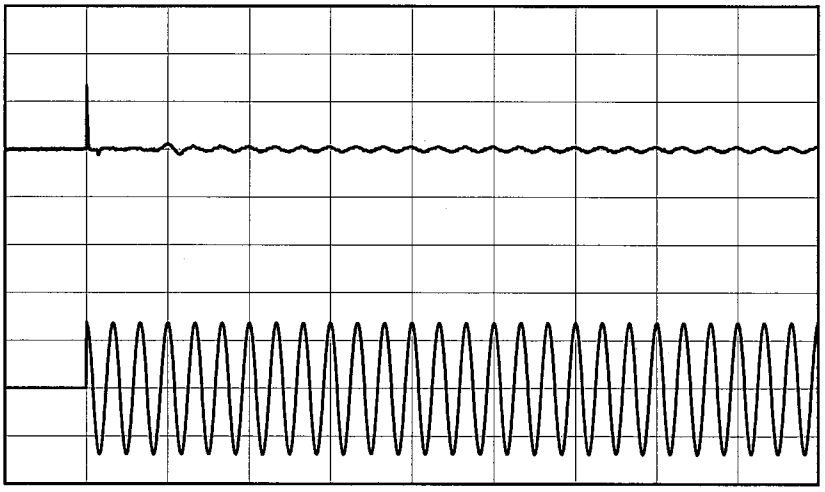
Model	SNTUNS100F12
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



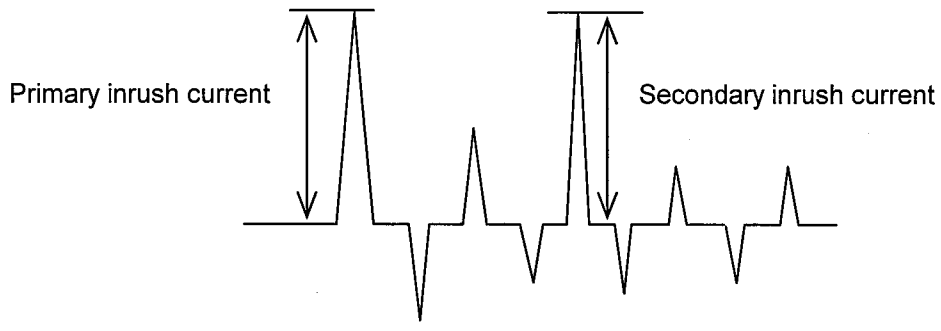
Input Voltage 100 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
11.9 A
Secondary inrush current :
3.7 A



Input Voltage 200 V
Frequency 60 Hz
Load 100 %

Primary inrush current :
26.8 A
Secondary inrush current :
2.3 A



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Model	SNTUNS100F12	
Item	Leakage Current	Temperature 25°C Testing Circuitry Figure B
Object	————————	

1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	240 [V]	
IEC60950-1	Both phases	0.18	0.38	0.48	Operation
	One of phases	0.32	0.74	0.92	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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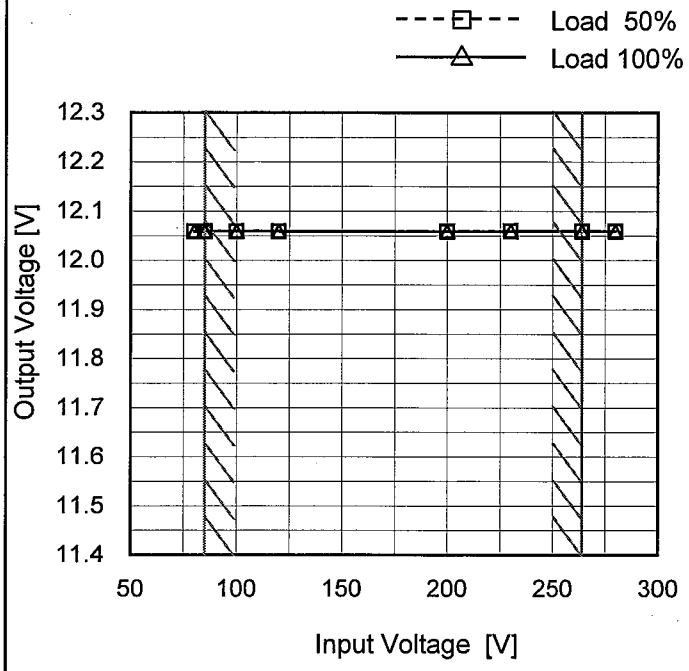
Model	SNTUNS100F12
Item	Line Regulation
Object	+12V8.4A

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%
80	12.059	12.059
85	12.059	12.059
100	12.059	12.059
120	12.059	12.059
200	12.059	12.059
230	12.059	12.059
264	12.060	12.060
280	12.060	12.060
--	-	-

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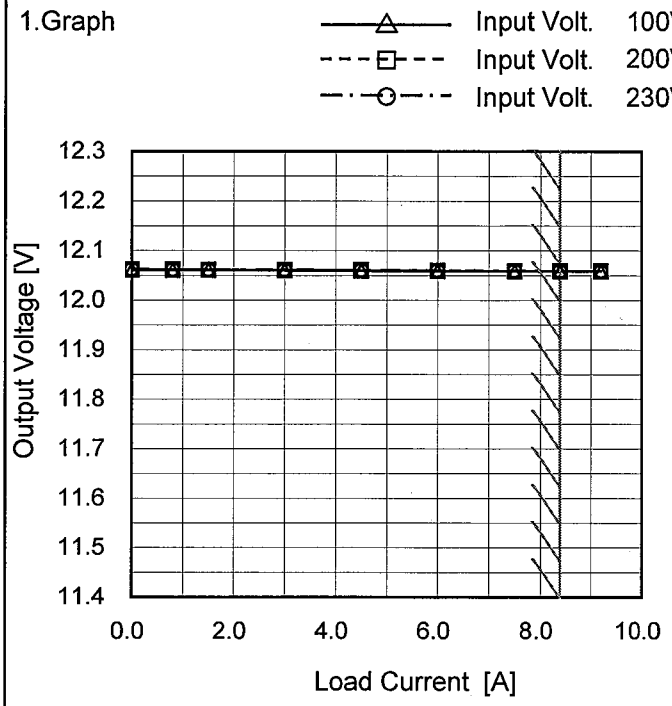
Model	SNTUNS100F12
Item	Load Regulation
Object	+12V8.4A

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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	12.062	12.062	12.063
0.8	12.061	12.062	12.062
1.5	12.061	12.062	12.062
3.0	12.061	12.061	12.061
4.5	12.060	12.061	12.061
6.0	12.059	12.060	12.060
7.5	12.059	12.059	12.060
8.4	12.059	12.059	12.059
9.2	12.059	12.059	12.059
--	-	-	-
---	-	-	-

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Model	SNTUNS100F12
Item	Dynamic Load Response
Object	+12V8.4A

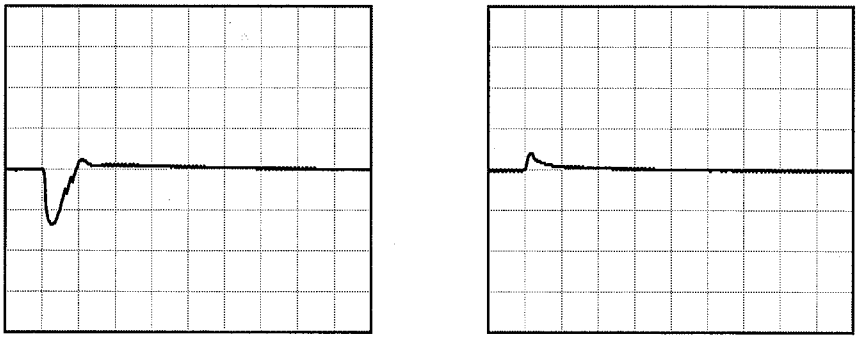
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 100 V
Cycle 1000 ms

Load Current

8.4 A/50us

Min. Load (0A) ⟷
Load 100% (8.4A)

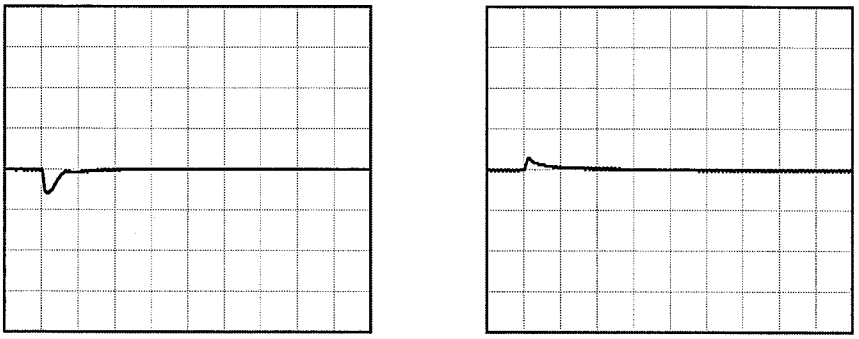


500 mV/div

200 µs/div

200 µs/div

Min. Load (0A) ⟷
Load 50% (4.2A)

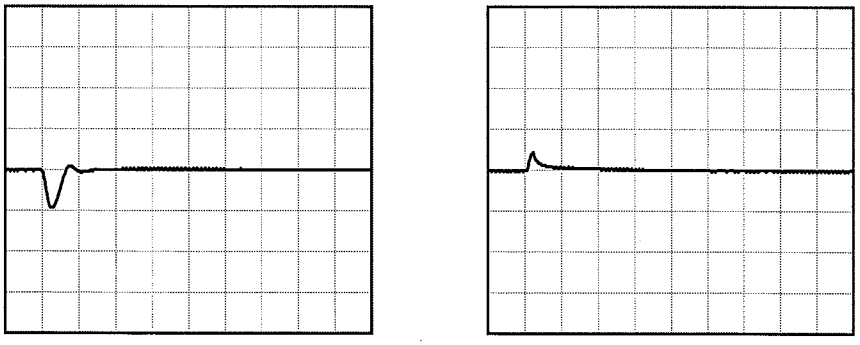


500 mV/div

200 µs/div

200 µs/div

Load 10% (0.84A) ⟷
Load 100% (8.4A)



500 mV/div

200 µs/div

200 µs/div

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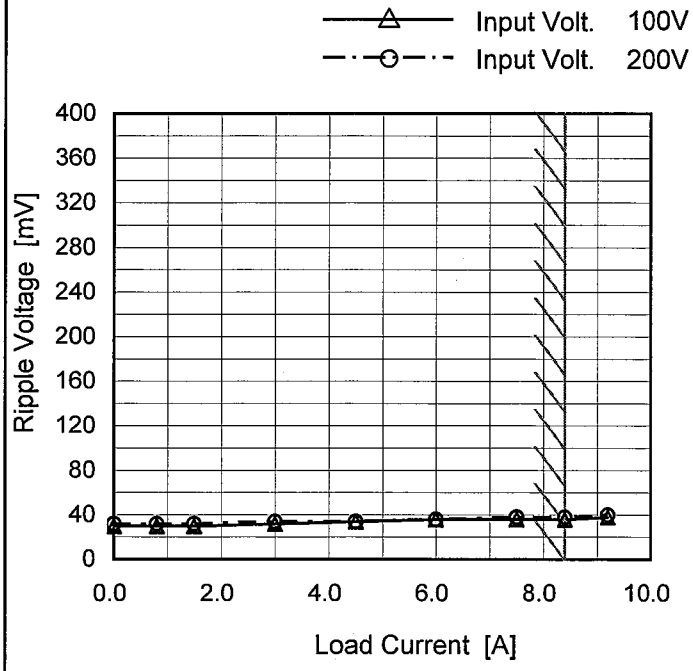
Model	SNTUNS100F12
Item	Ripple Voltage (by Load Current)
Object	+12V8.4A

Temperature 25°C
Testing Circuitry Figure C

1.Graph



Measured by 100 MHz 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

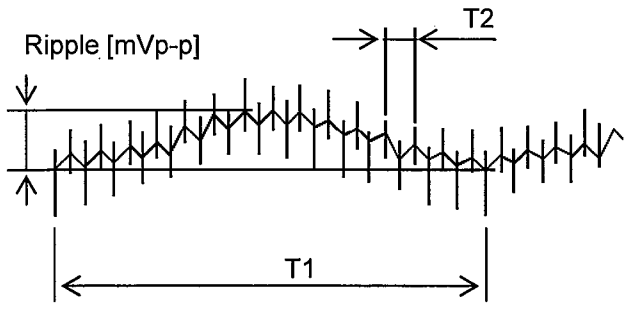


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
0.0	30	32
0.8	30	32
1.5	30	32
3.0	32	34
4.5	34	34
6.0	36	36
7.5	36	38
8.4	36	38
9.2	38	40
--	-	-
--	-	-

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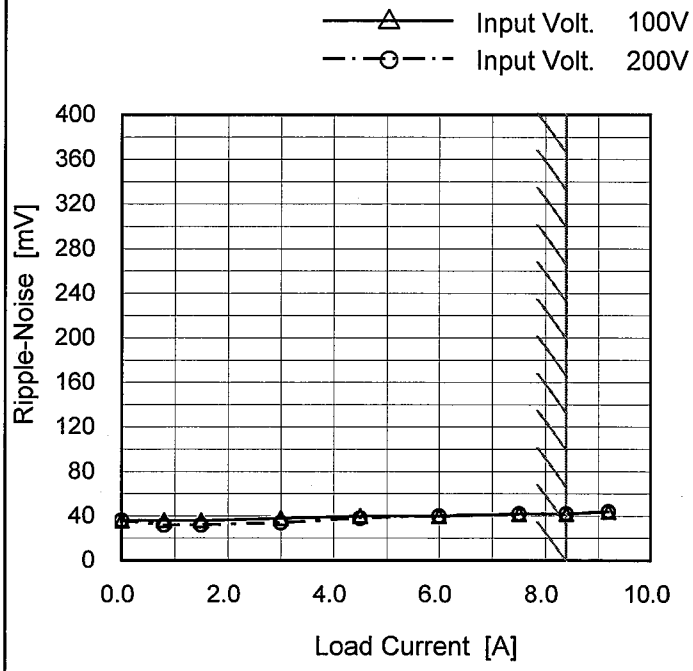
Model	SNTUNS100F12
Item	Ripple-Noise
Object	+12V8.4A

Temperature 25°C
Testing Circuitry Figure C

1.Graph



Measured by 100 MHz 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. 100 [V]	Input Volt. 200 [V]
0.0	36	36
0.8	36	32
1.5	36	32
3.0	38	34
4.5	40	38
6.0	40	40
7.5	42	42
8.4	42	42
9.2	44	44
--	-	-
--	-	-

T1: Due to AC Input Line
T2: Due to Switching

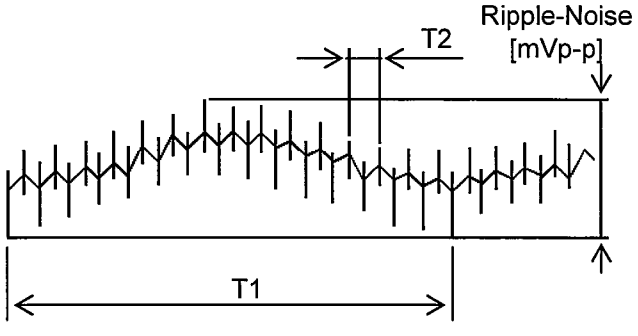


Fig. Complex Ripple Wave Form

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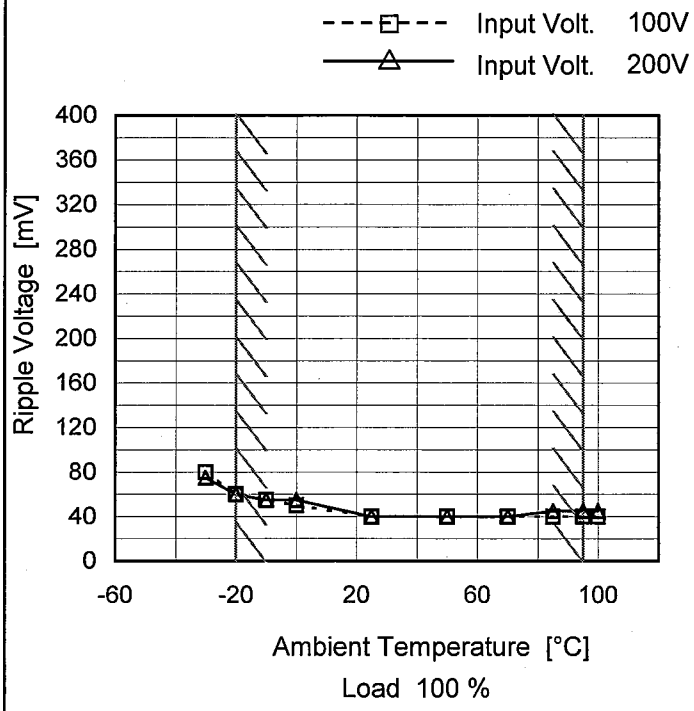
Model	SNTUNS100F12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V8.4A

Testing Circuitry Figure C

1.Graph



Load 100 %

Measured by 100 MHz Oscilloscope.

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

2.Values

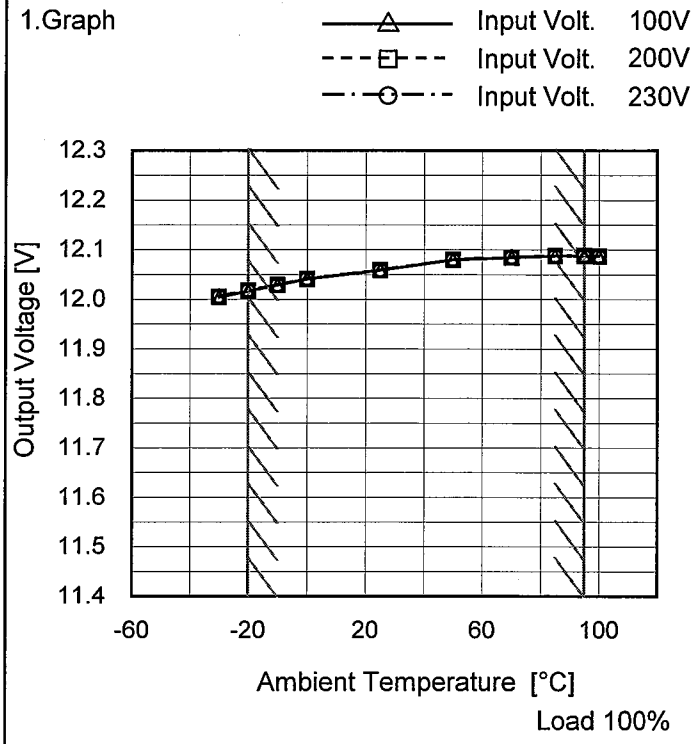
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 200 [V]
-30	80	75
-20	60	60
-10	55	55
0	50	55
25	40	40
50	40	40
70	40	40
85	40	45
95	40	45
100	40	45
--	-	-

COSEL

Model	SNTUNS100F12
Item	Ambient Temperature Drift
Object	+12V8.4A

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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
-30	12.005	12.005	12.006
-20	12.017	12.018	12.018
-10	12.029	12.029	12.029
0	12.042	12.042	12.042
25	12.059	12.059	12.059
50	12.080	12.080	12.080
70	12.085	12.085	12.085
85	12.088	12.088	12.088
95	12.088	12.088	12.088
100	12.088	12.087	12.087
--	-	-	-

COSEL

Model	SNTUNS100F12	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V8.4A	

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 - 95°C
Input Voltage : 85 - 264V
Load Current : 0 - 8.4A

* 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	95	200	0	12.090	±37	±0.3
Minimum Voltage	-20	85	8.4	12.017		

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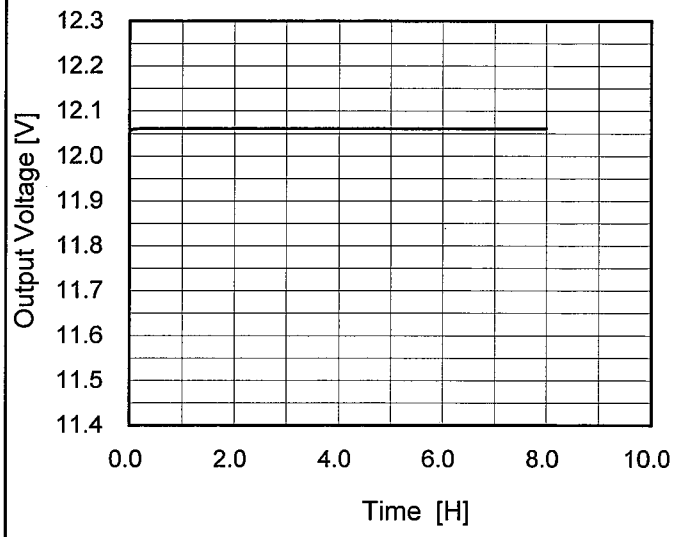
Model	SNTUNS100F12
Item	Time Lapse Drift
Object	+12V8.4A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

* The characteristic of AC200V is equal.

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.054
0.5	12.061
1.0	12.061
2.0	12.061
3.0	12.062
4.0	12.061
5.0	12.061
6.0	12.062
7.0	12.061
8.0	12.062

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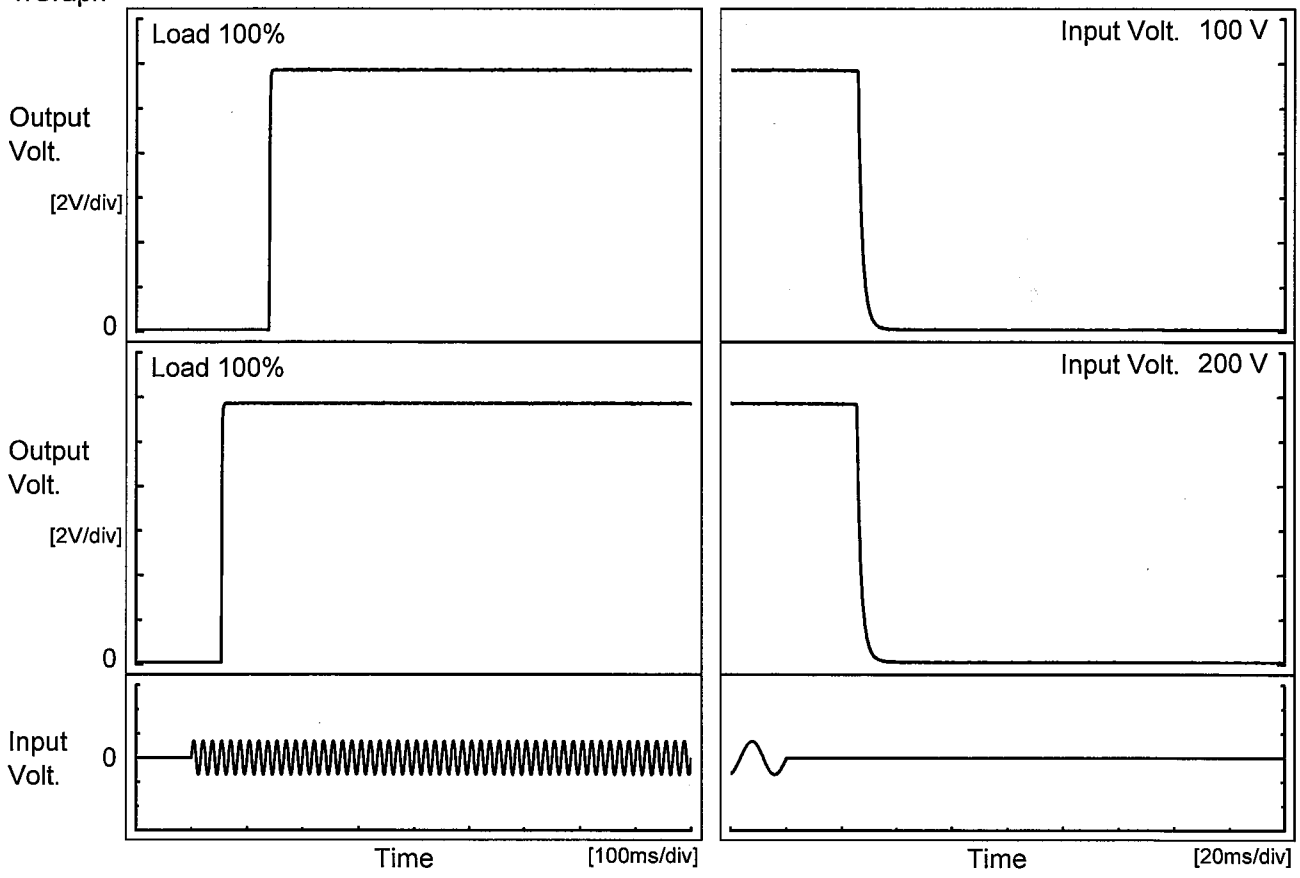
Model	SNTUNS100F12
Item	Rise and Fall Time
Object	+12V8.4A

Temperature 25°C
Testing Circuitry Figure A

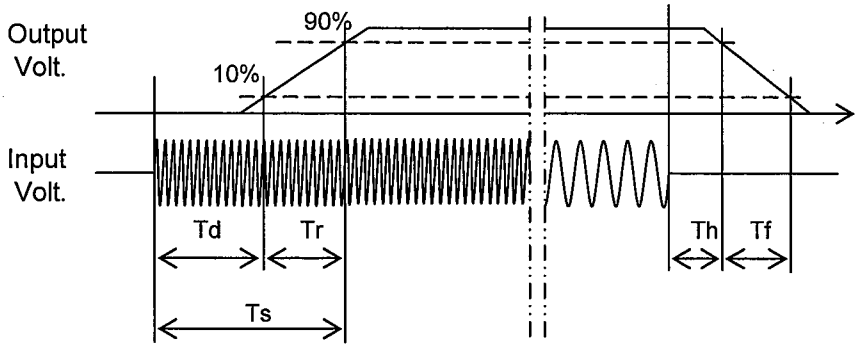
1.Graph



2.Values

[ms]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
100 V	139.5	2.0	141.5	25.9	3.4
200 V	54.0	2.0	56.0	25.7	3.4



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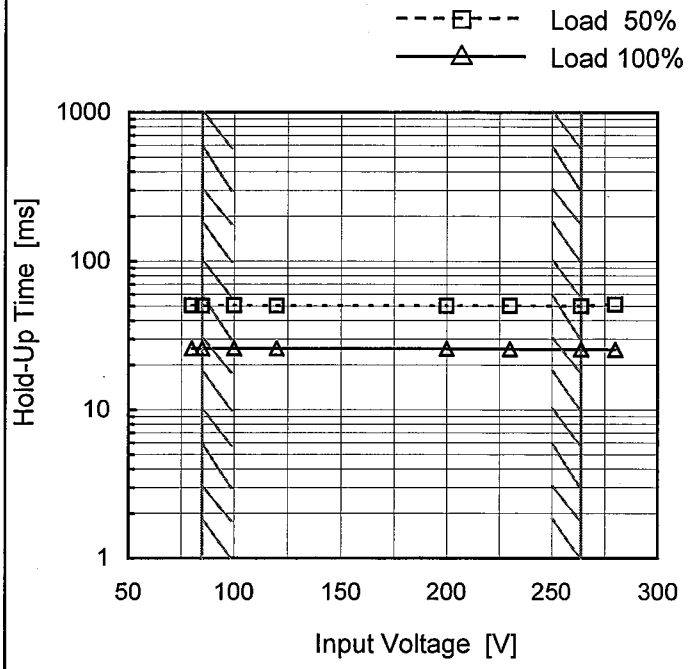
Model	SNTUNS100F12
Item	Hold-Up Time
Object	+12V8.4A

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%
80	50	26
85	50	26
100	50	26
120	50	26
200	50	26
230	50	26
264	50	26
280	51	25
--	-	-

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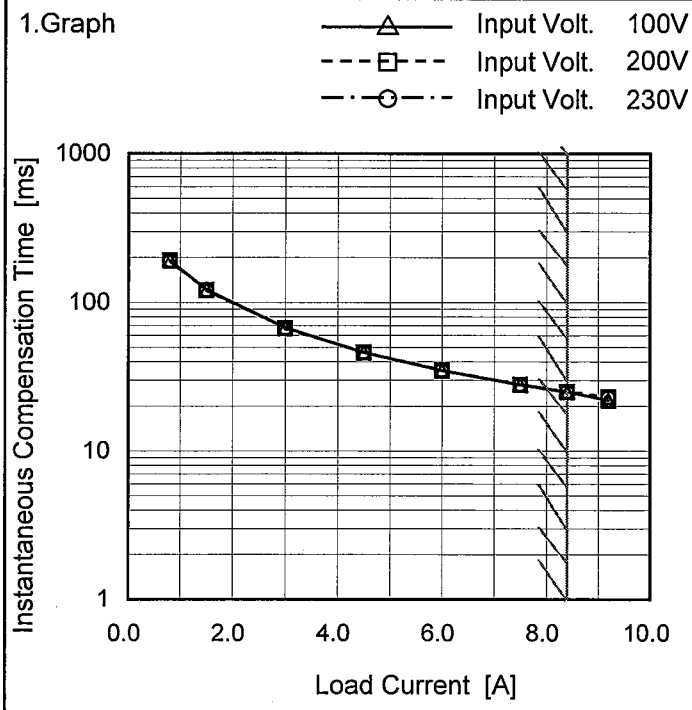
Model	SNTUNS100F12
Item	Instantaneous Interruption Compensation
Object	+12V8.4A

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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.0	-	-	-
0.8	192	192	191
1.5	122	121	121
3.0	68	67	67
4.5	46	46	46
6.0	35	35	35
7.5	28	28	28
8.4	25	25	25
9.2	22	23	23
--	-	-	-
--	-	-	-

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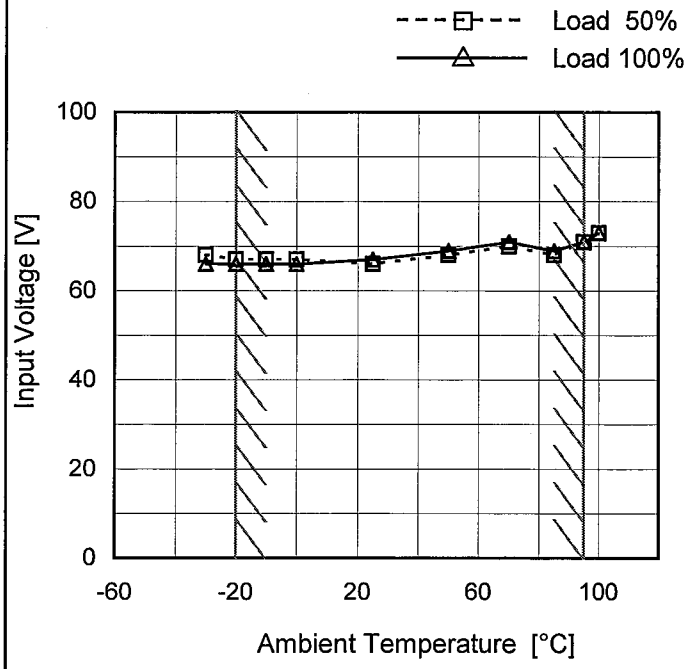
Model	SNTUNS100F12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V8.4A

Testing Circuitry Figure A

1.Graph



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

2.Values

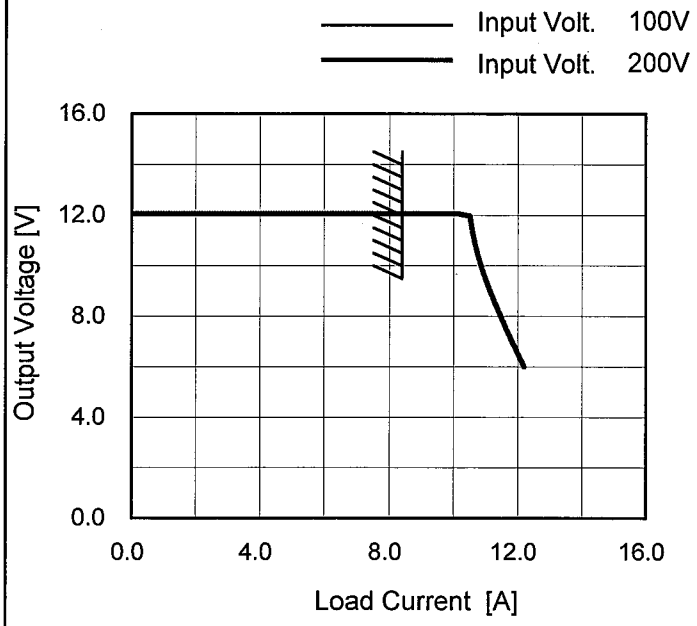
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-30	68	66
-20	67	66
-10	67	66
0	67	66
25	66	67
50	68	69
70	70	71
85	68	69
95	71	71
100	73	73
--	-	-

COSEL

Model	SNTUNS100F12
Item	Overcurrent Protection
Object	+12V8.4A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

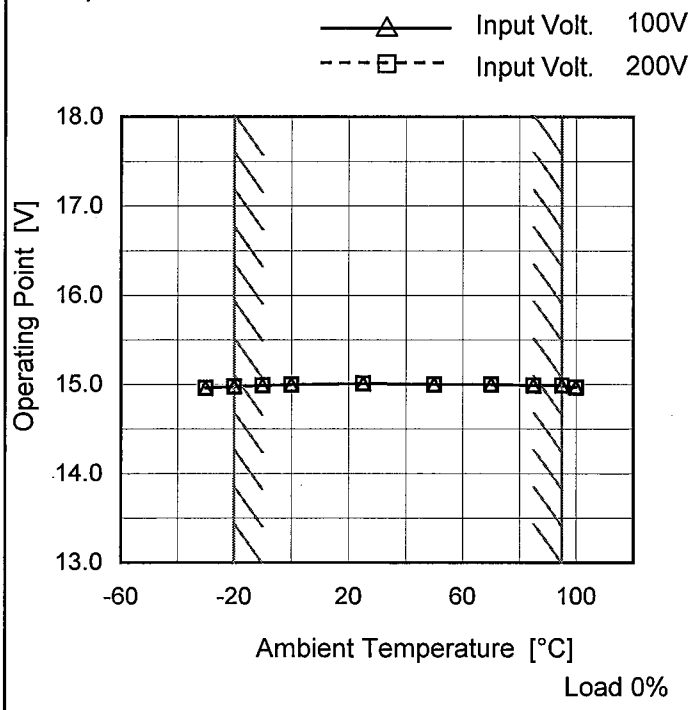
Output Voltage [V]	Load Current [A]	
	Input Volt. 100[V]	Input Volt. 200[V]
12.0	10.15	10.15
11.4	10.58	10.59
10.8	10.15	10.15
9.6	10.94	10.94
8.4	11.32	11.31
7.2	11.73	11.72
6.0	12.21	12.20
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SNTUNS100F12
Item	Overvoltage Protection
Object	+12V8.4A

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. 100[V]	Input Volt. 200[V]
-30	14.96	14.96
-20	14.98	14.98
-10	14.99	14.99
0	15.00	15.00
25	15.01	15.01
50	15.00	15.00
70	15.00	15.00
85	14.99	14.99
95	14.99	14.99
100	14.97	14.97
--	-	-

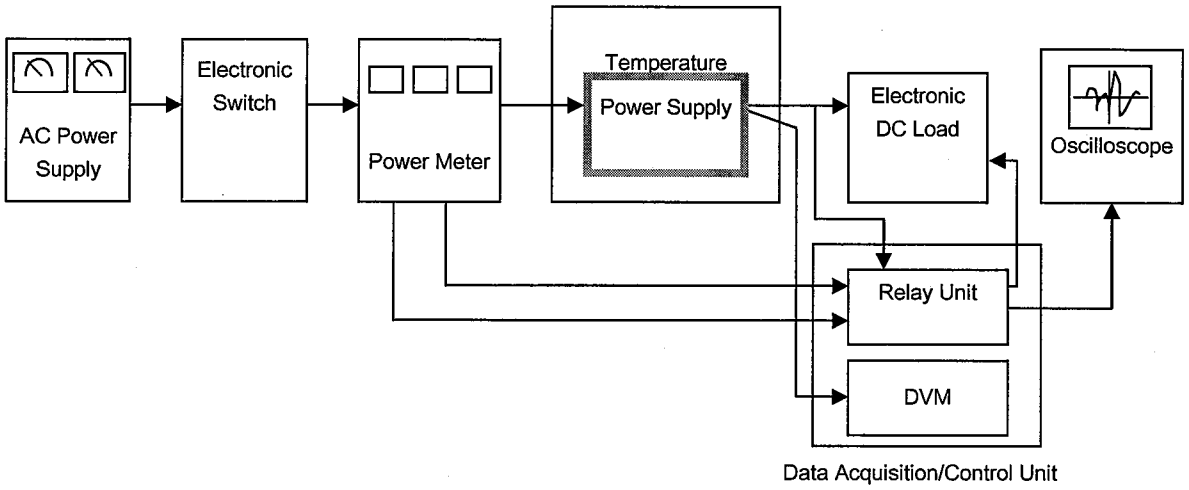


Figure A

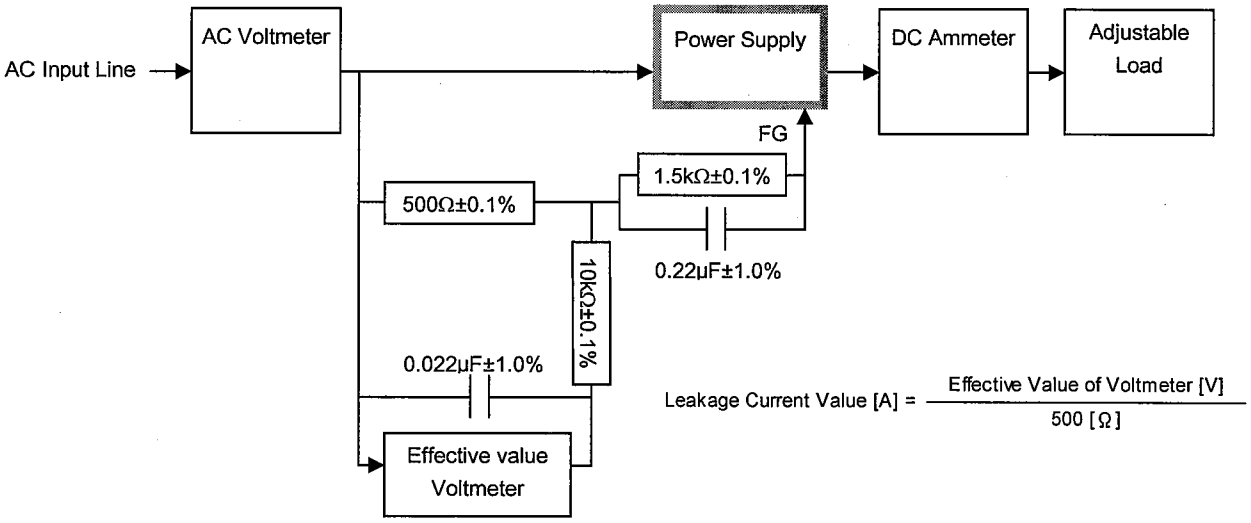


Figure B (IEC60950-1)

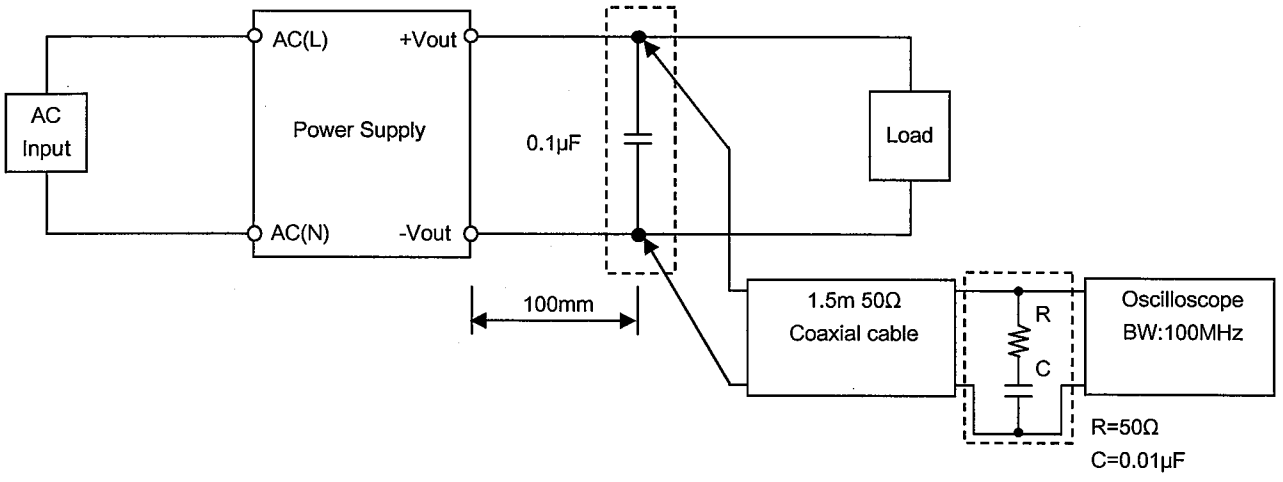


Figure C