COSEL

参考資料

TEST DATA OF TUXS200F42

Regulated DC Power Supply
October 21, 2016

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COSEL CO.,LTD.

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CONTENTS

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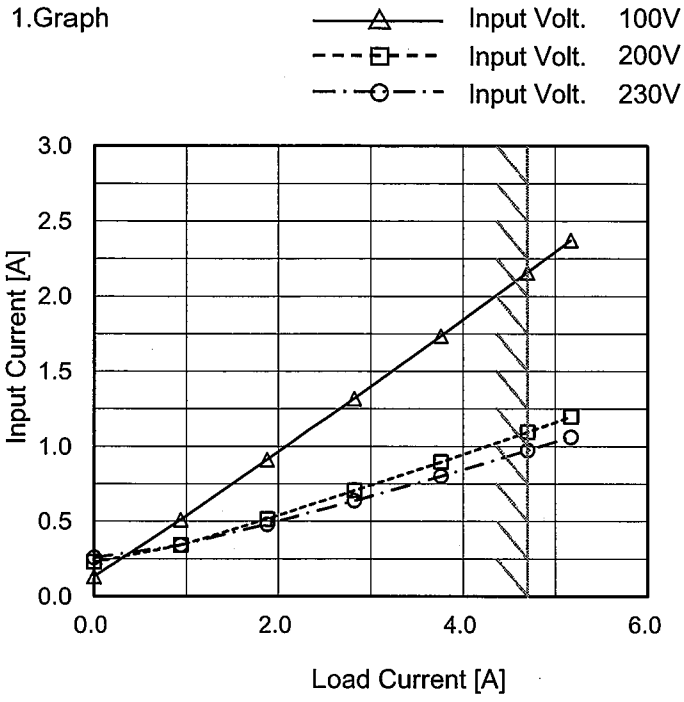
Model	TUXS200F42
Item	Input Current (by Load Current)
Object	———————

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 Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.00	0.131	0.228	0.258
0.94	0.511	0.342	0.343
1.88	0.911	0.515	0.481
2.82	1.319	0.706	0.637
3.76	1.735	0.895	0.802
4.70	2.158	1.096	0.974
5.17	2.373	1.198	1.063
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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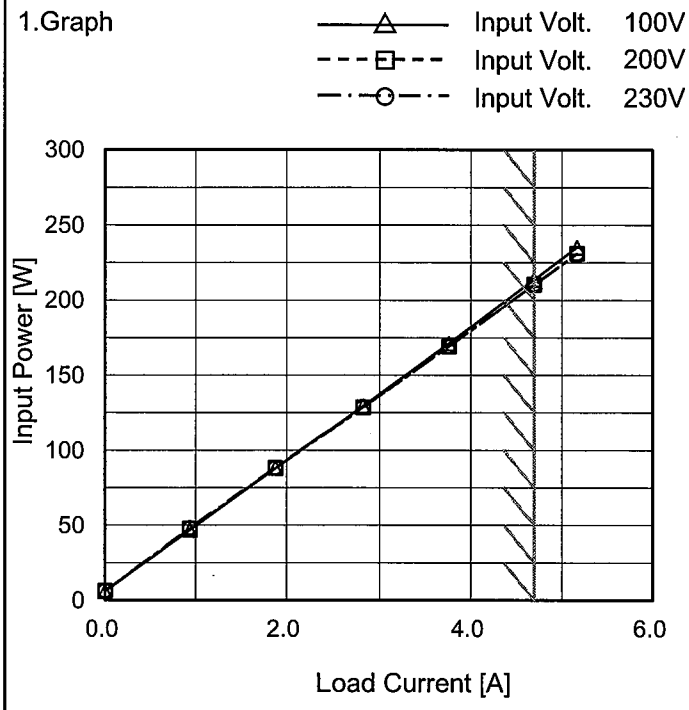
Model	TUXS200F42
Item	Input Power (by Load Current)
Object	———————

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]
0.00	5.9	6.2	6.2
0.94	46.8	47.6	48.2
1.88	88.1	88.0	88.4
2.82	129.4	128.5	128.7
3.76	171.2	169.2	169.2
4.70	213.7	210.4	210.4
5.17	235.2	231.1	231.0
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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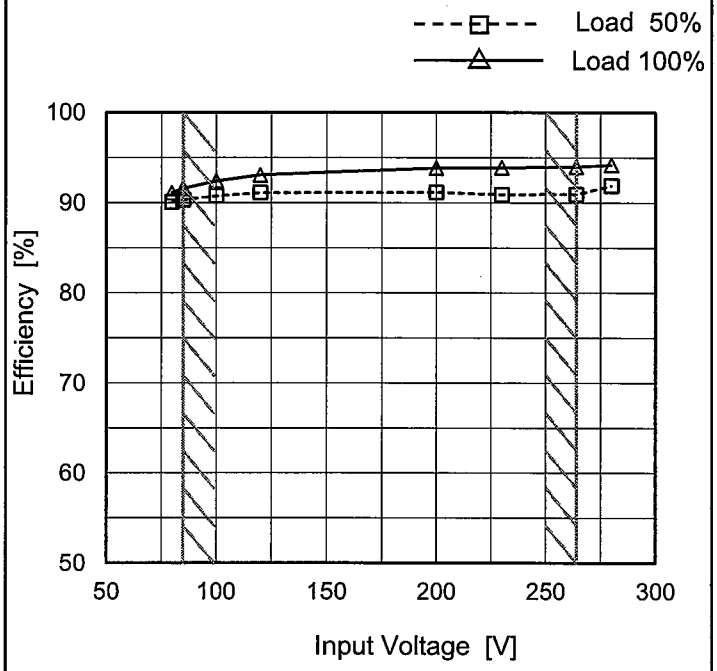
Model	TUXS200F42
Item	Efficiency (by Input Voltage)
Object	———————————

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	90.1	91.1
85	90.3	91.6
100	90.7	92.4
120	91.1	93.1
200	91.2	93.9
230	90.9	93.9
264	90.9	94.0
280	91.9	94.2
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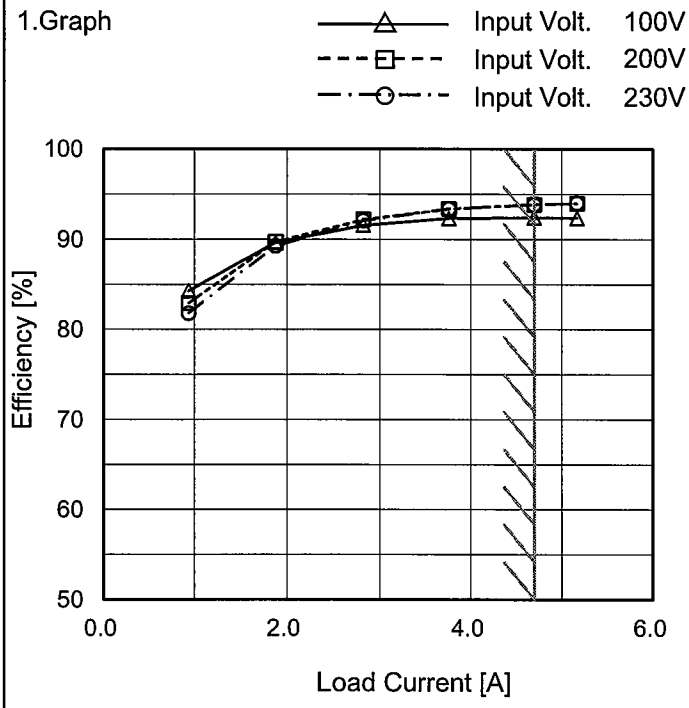
Model	TUXS200F42
Item	Efficiency (by Load Current)
Object	———————

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]
0.00	-	-	-
0.94	84.3	82.9	81.8
1.88	89.6	89.7	89.3
2.82	91.6	92.2	92.1
3.76	92.3	93.4	93.4
4.70	92.4	93.9	93.9
5.17	92.4	94.0	94.0
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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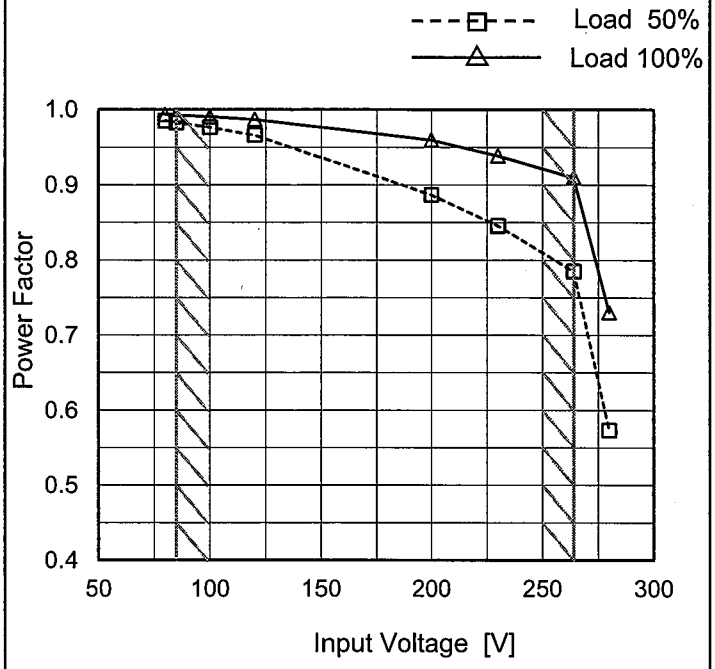
Model	TUXS200F42
Item	Power Factor (by Input Voltage)
Object	————————

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	0.986	0.994
85	0.983	0.993
100	0.977	0.991
120	0.966	0.987
200	0.887	0.960
230	0.846	0.939
264	0.785	0.910
280	0.573	0.730
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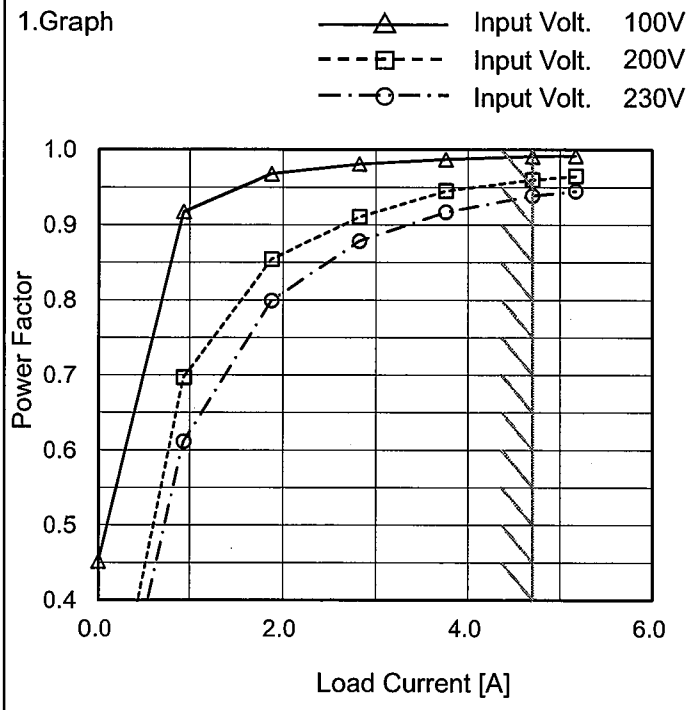
Model	TUXS200F42
Item	Power Factor (by Load Current)
Object	————————

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]
0.00	0.452	0.136	0.105
0.94	0.918	0.697	0.612
1.88	0.968	0.854	0.799
2.82	0.981	0.911	0.878
3.76	0.987	0.945	0.917
4.70	0.991	0.960	0.939
5.17	0.992	0.965	0.945
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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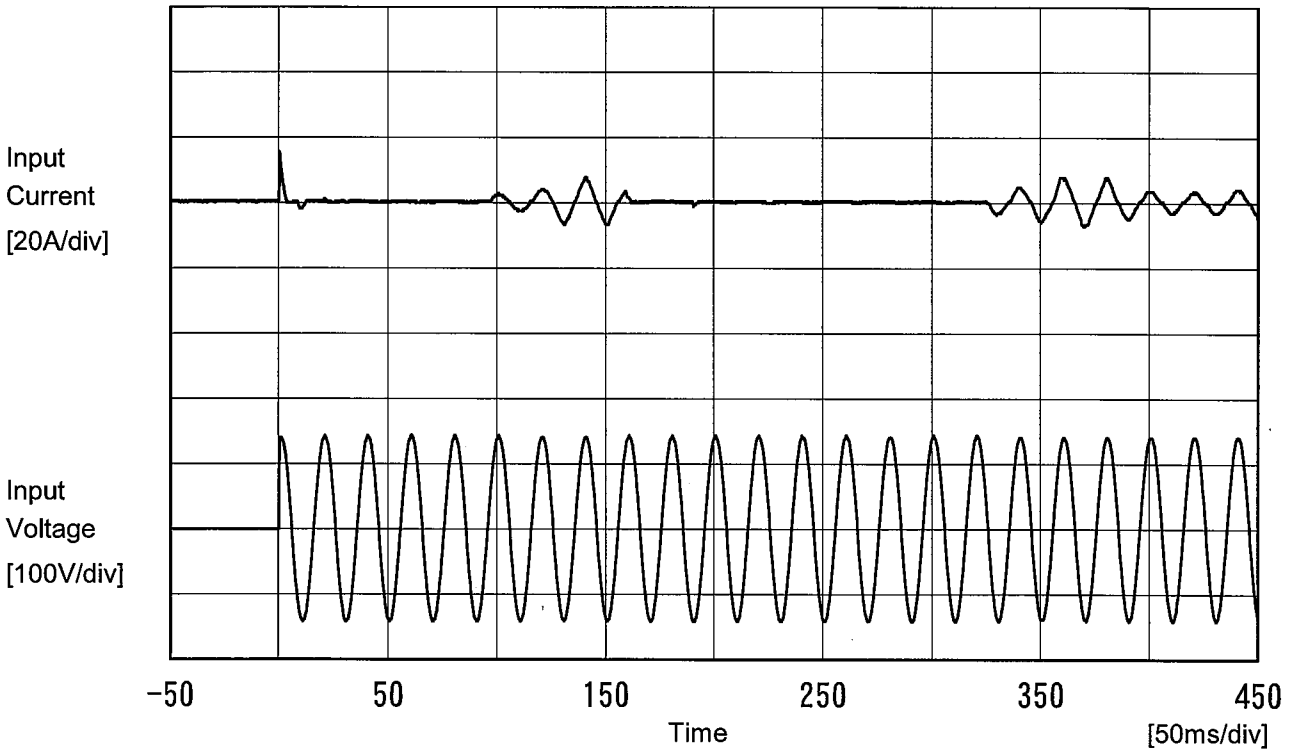
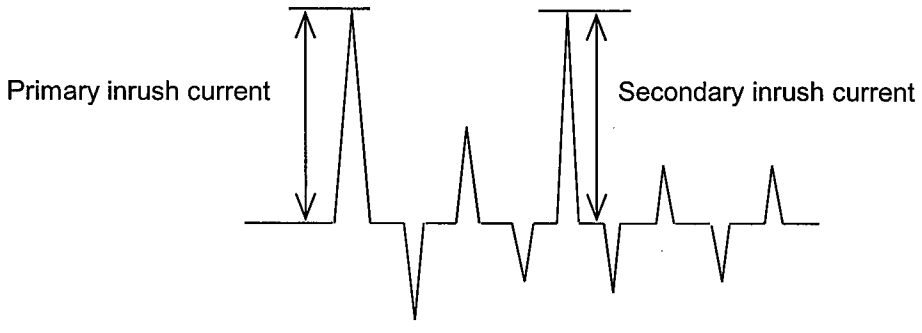
Model	TUXS200F42
Item	Inrush Current
Object	———————

Temperature 25°C
Testing Circuitry Figure A



Input Voltage	100 V
Frequency	50 Hz
Load	100 %
Primary inrush current	15.3 A
Secondary inrush current	7.5 A



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Model	TUXS200F42	
Item	Leakage Current	Temperature 25°C Testing Circuitry Figure B
Object	———————————	

1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	240 [V]	
DEN-AN	Both phases	0.17	0.34	0.41	Operation
	One of phases	0.27	0.54	0.65	Stand by
IEC60950-1	Both phases	0.14	0.29	0.36	Operation
	One of phases	0.28	0.56	0.68	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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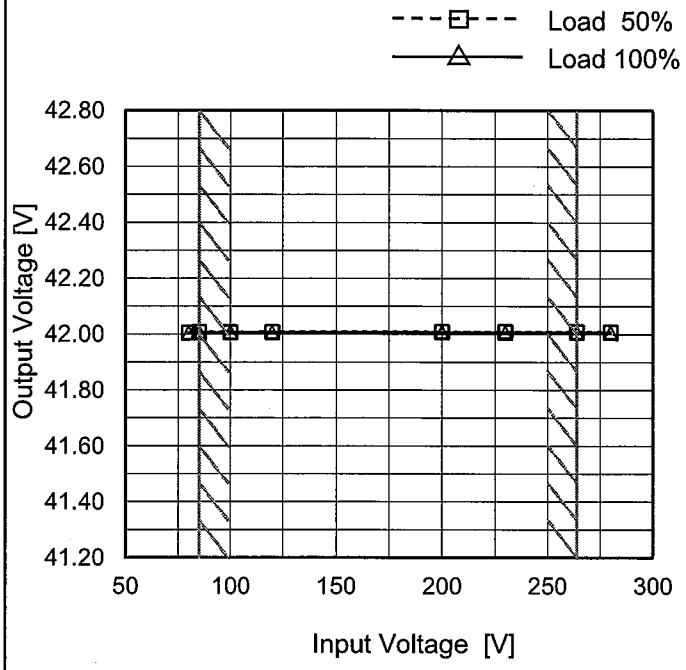
Model	TUXS200F42
Item	Line Regulation
Object	+42V4.7A

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	42.006	42.005
85	42.008	42.006
100	42.007	42.007
120	42.008	42.006
200	42.009	42.007
230	42.009	42.006
264	42.009	42.007
280	42.008	42.006
--	-	-

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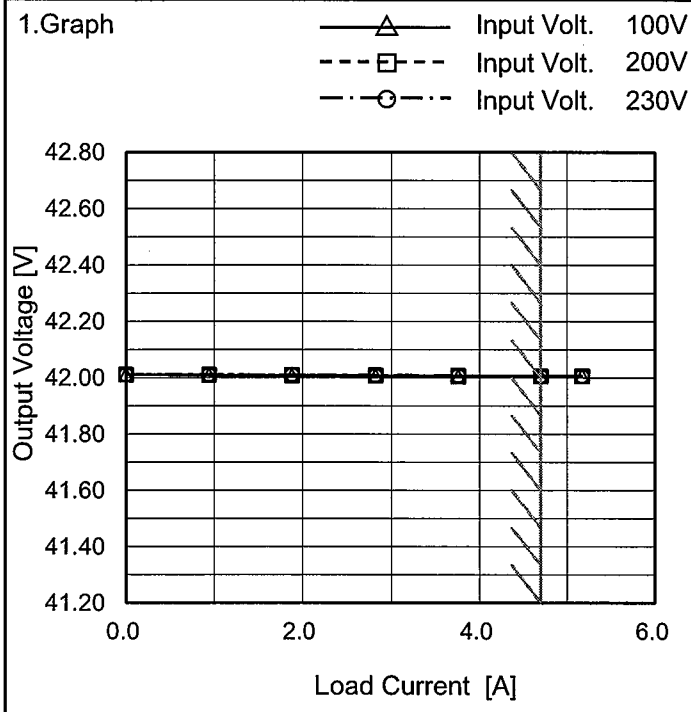
Model	TUXS200F42
Item	Load Regulation
Object	+42V4.7A

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]
0.00	42.011	42.011	42.011
0.94	42.010	42.011	42.011
1.88	42.008	42.010	42.011
2.82	42.007	42.008	42.009
3.76	42.005	42.007	42.008
4.70	42.007	42.007	42.006
5.17	42.007	42.007	42.007
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	TUXS200F42		
Item	Dynamic Load Response	Temperature	25℃
		Testing Circuitry	Figure A
Object	+42V4.7A		

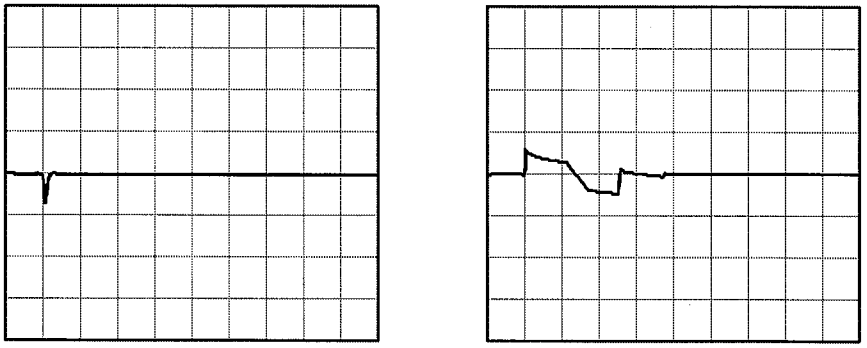
Input Volt. 100 V
Cycle 1000 ms

t1,t2=10 μ S

Load Current

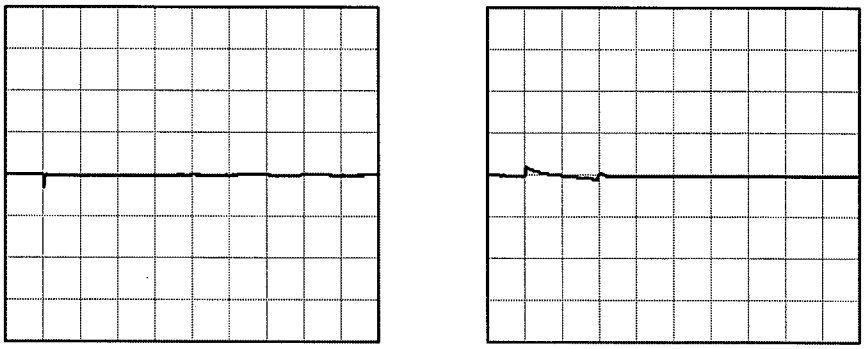
t1 t2

Min. Load (0A) ⟷
Load 100% (4.7A)



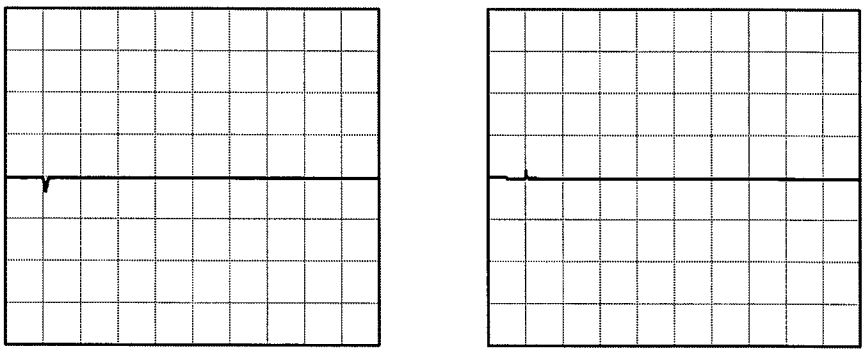
500 mV/div
1 ms/div
5 ms/div

Min. Load (0A) ⟷
Load 50% (2.35A)



500 mV/div
1 ms/div
5 ms/div

Load 50% (2.35A) ⟷
Load 100% (4.7A)



500 mV/div
1 ms/div
5 ms/div

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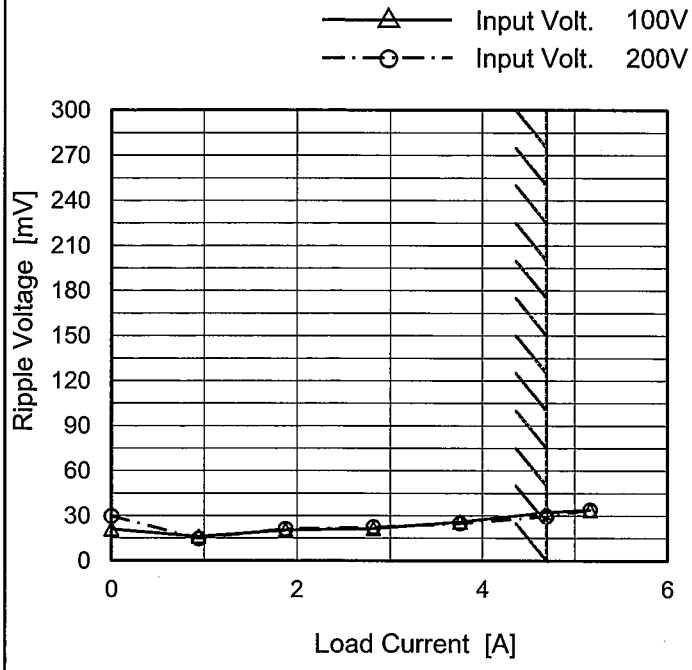
Model	TUXS200F42
Item	Ripple Voltage (by Load Current)
Object	+42V4.7A

Temperature 25°C
Testing Circuitry Figure A

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

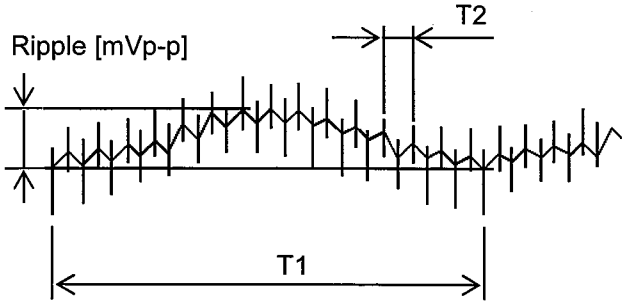


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV] Input Volt. 100 [V]	Ripple Voltage [mV] Input Volt. 200 [V]
0.00	21	30
0.94	16	15
1.88	20	21
2.82	21	22
3.76	26	25
4.70	32	30
5.17	34	34
--	-	-
--	-	-
--	-	-
--	-	-

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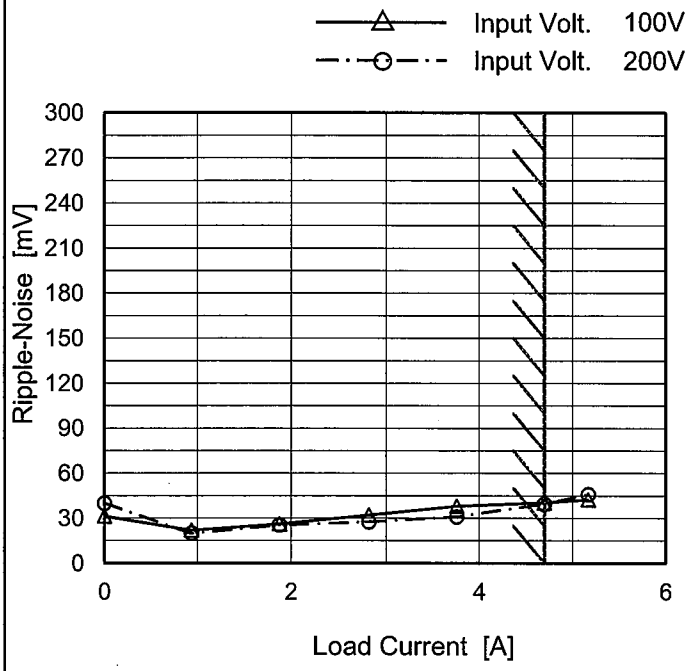
Model	TUXS200F42
Item	Ripple-Noise
Object	+42V4.7A

Temperature 25°C
Testing Circuitry Figure A

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]
0.00	31	40
0.94	22	20
1.88	26	25
2.82	32	28
3.76	38	31
4.70	40	40
5.17	42	46
--	-	-
--	-	-
--	-	-
--	-	-

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

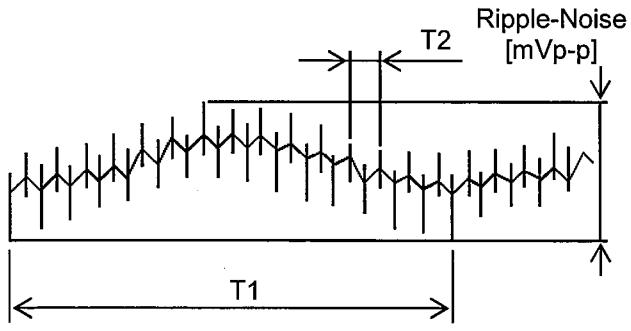


Fig. Complex Ripple Wave Form

BC - 11147

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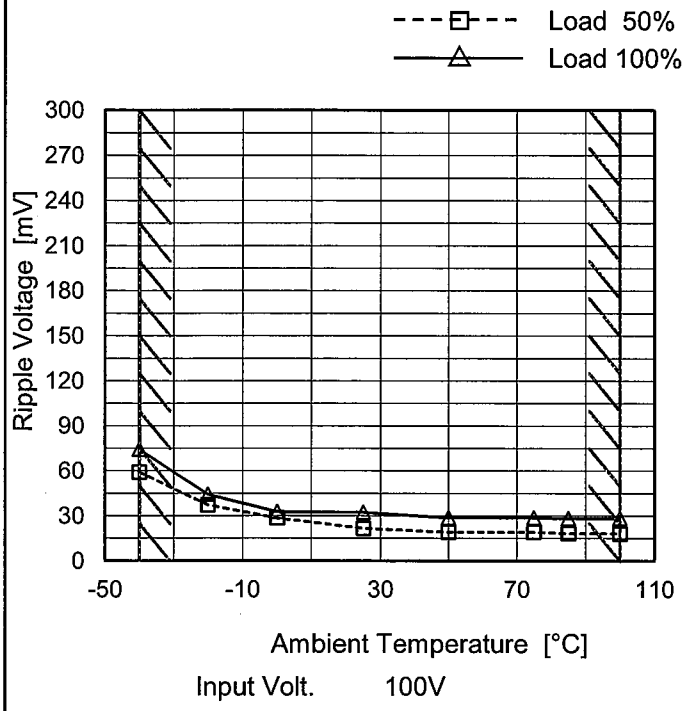
Model	TUXS200F42
Item	Ripple Voltage (by Ambient Temp.)
Object	+42V4.7A

Testing Circuitry Figure A

1.Graph



Input Volt. 100V

Measured by 100 MHz Oscilloscope.

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

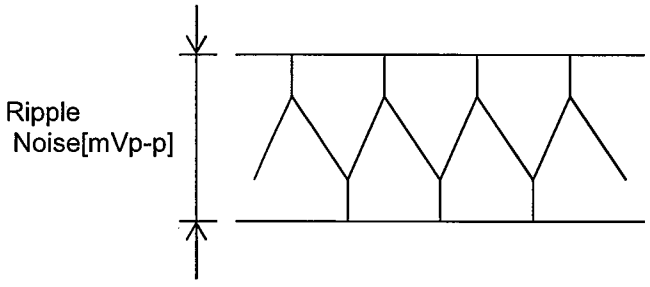


Fig.Complex Ripple Noise Wave Form

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	59	74
-20	37	44
0	29	33
25	22	32
50	19	29
75	19	29
85	18	28
100	18	28
--	-	-
--	-	-
--	-	-

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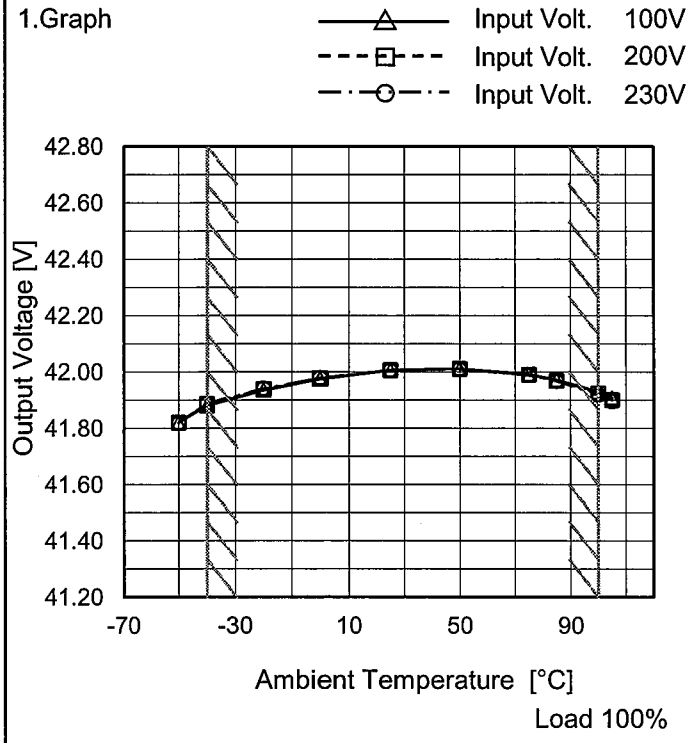
Model	TUXS200F42
Item	Ambient Temperature Drift
Object	+42V4.7A

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]
-50	41.821	41.820	41.819
-40	41.880	41.886	41.889
-20	41.935	41.939	41.941
0	41.975	41.978	41.979
25	42.007	42.007	42.006
50	42.012	42.011	42.011
75	41.992	41.990	41.989
85	41.972	41.969	41.968
100	41.931	41.924	41.920
105	41.908	41.901	41.896
--	-	-	-

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Model	TUXS200F42	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+42V4.7A	

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 : -40 - 85°C
Input Voltage : 100 - 230V
Load Current : 0 - 4.7A

* 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	50	100	4.7	42.012	±66	±0.2
Minimum Voltage	-40	100	4.7	41.880		

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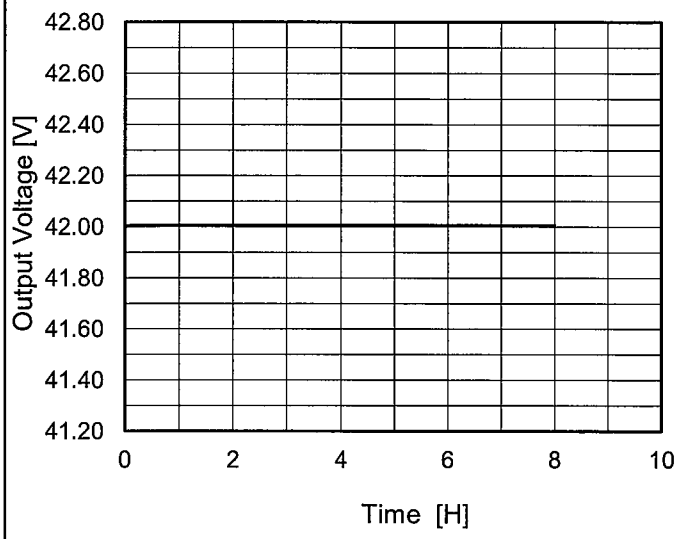
Model	TUXS200F42
Item	Time Lapse Drift
Object	+42V4.7A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 100V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	41.991
0.5	42.007
1.0	42.007
2.0	42.007
3.0	42.007
4.0	42.007
5.0	42.007
6.0	42.007
7.0	42.007
8.0	42.007

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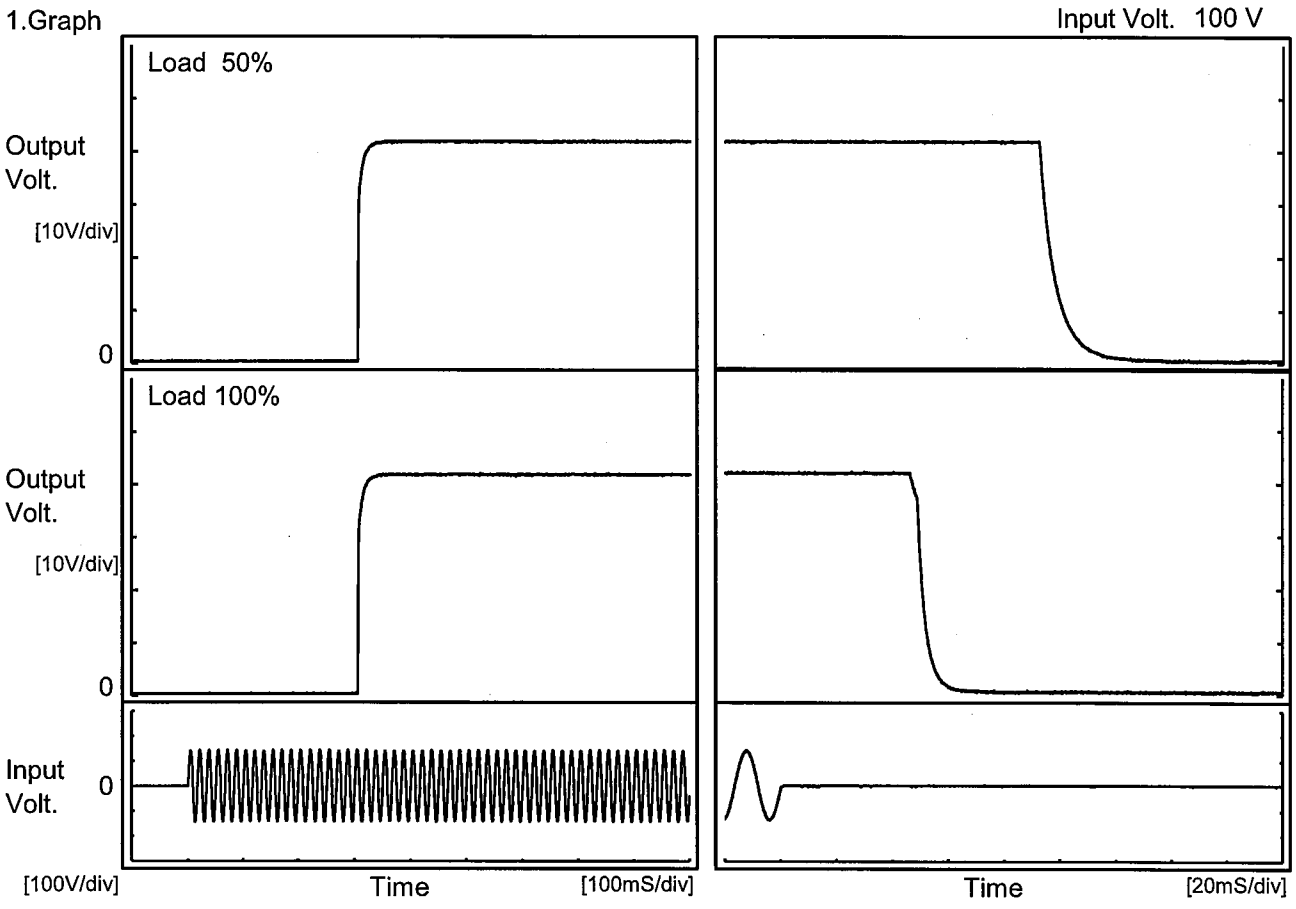
Model	TUXS200F42	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+42V4.7A	

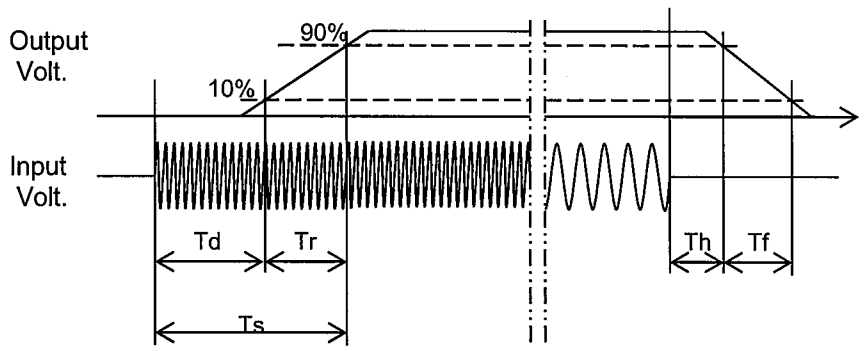
1.Graph



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	306.0	9.5	315.5	93.3	13.1
100 %	306.0	9.0	315.0	48.3	7.2



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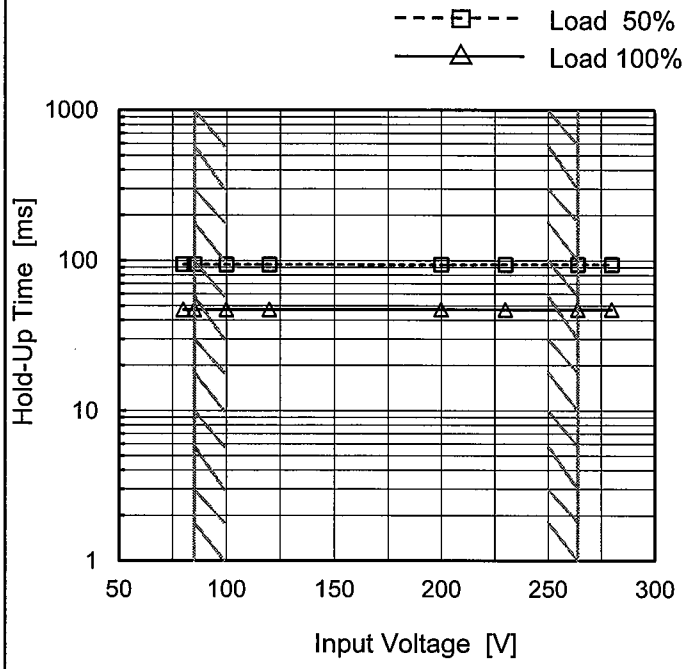
Model	TUXS200F42
Item	Hold-Up Time
Object	+42V4.7A

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	94	47
85	94	47
100	94	47
120	94	47
200	94	47
230	94	47
264	94	47
280	94	47
--	-	-

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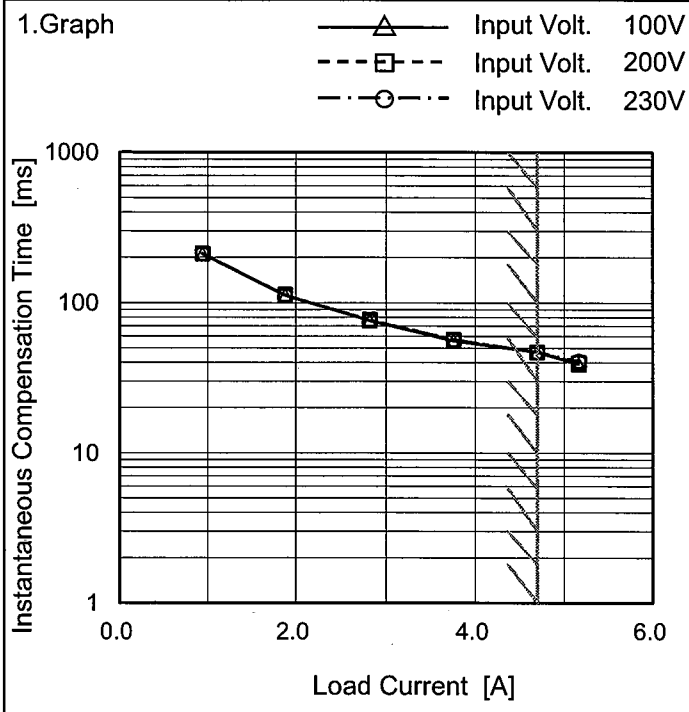
Model	TUXS200F42
Item	Instantaneous Interruption Compensation
Object	+42V4.7A

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]
0.00	-	-	-
0.94	212	212	212
1.88	112	113	112
2.82	76	77	76
3.76	56	57	57
4.70	47	47	47
5.17	39	40	41
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC - 11147

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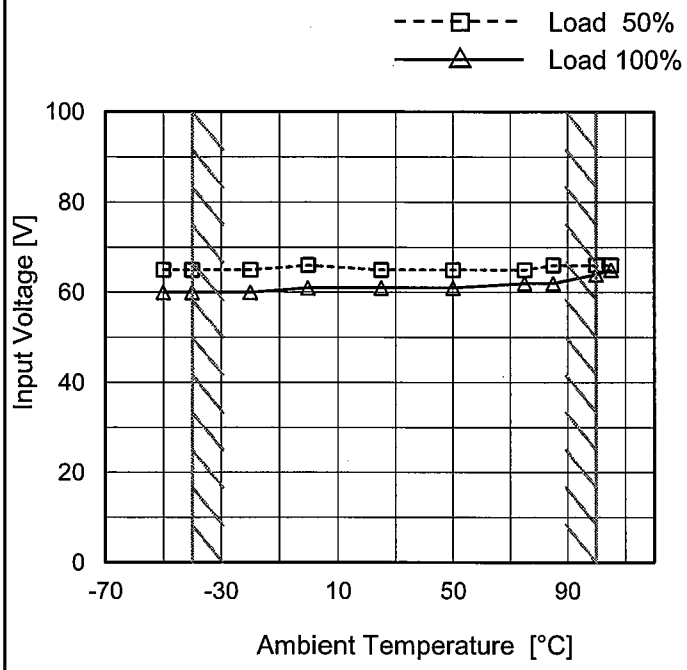
Model	TUXS200F42
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+42V4.7A

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%
-50	65	60
-40	65	60
-20	65	60
0	66	61
25	65	61
50	65	61
75	65	62
85	66	62
100	66	64
105	66	65
--	-	-

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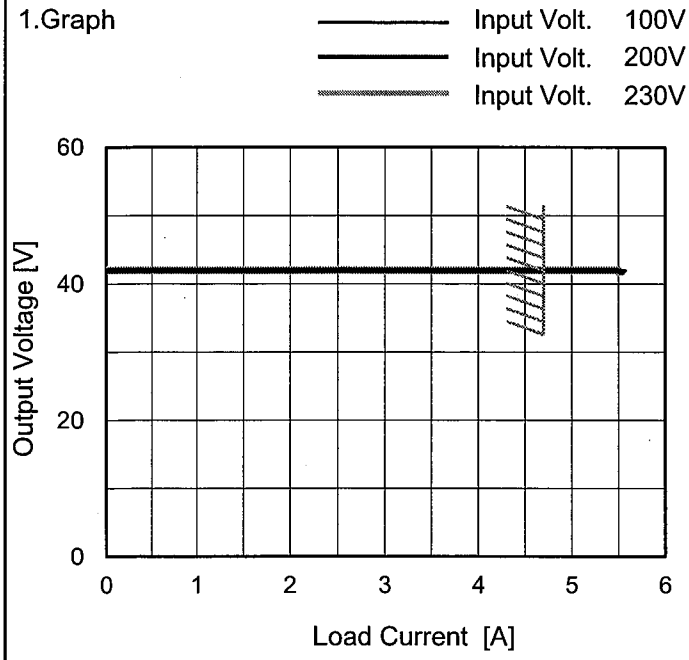
Model	TUXS200F42
Item	Overcurrent Protection
Object	+42V4.7A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

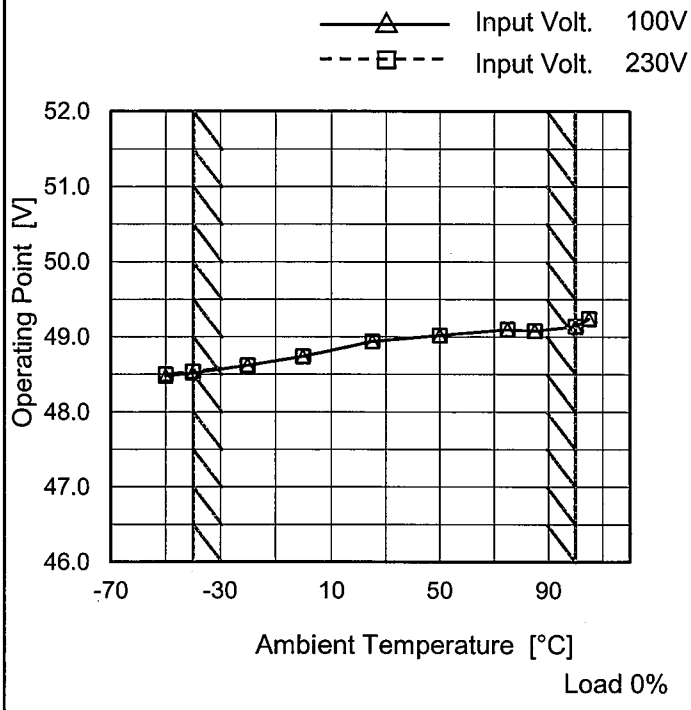
Output Voltage [V]	Load Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
42.0	5.58	5.47	5.47
39.9	0.00	0.00	0.00
37.8	0.00	0.00	0.00
33.6	0.00	0.00	0.00
29.4	0.00	0.00	0.00
25.2	0.00	0.00	0.00
21.0	0.00	0.00	0.00
16.8	0.00	0.00	0.00
12.6	0.00	0.00	0.00
8.4	0.00	0.00	0.00
4.2	0.00	0.00	0.00
0.0	0.00	0.00	0.00

COSEL

Model	TUXS200F42
Item	Overvoltage Protection
Object	+42V4.7A

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. 230[V]
-50	48.48	48.50
-40	48.52	48.54
-20	48.62	48.62
0	48.74	48.74
25	48.94	48.94
50	49.02	49.02
75	49.10	49.10
85	49.08	49.08
100	49.14	49.14
105	49.24	49.24
--	-	-

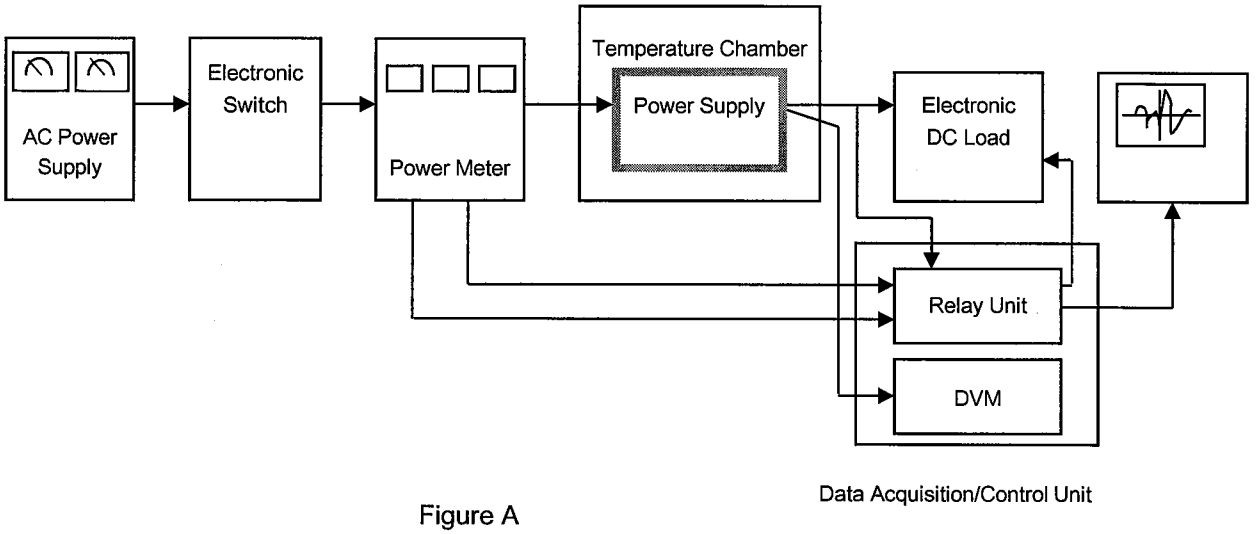


Figure A

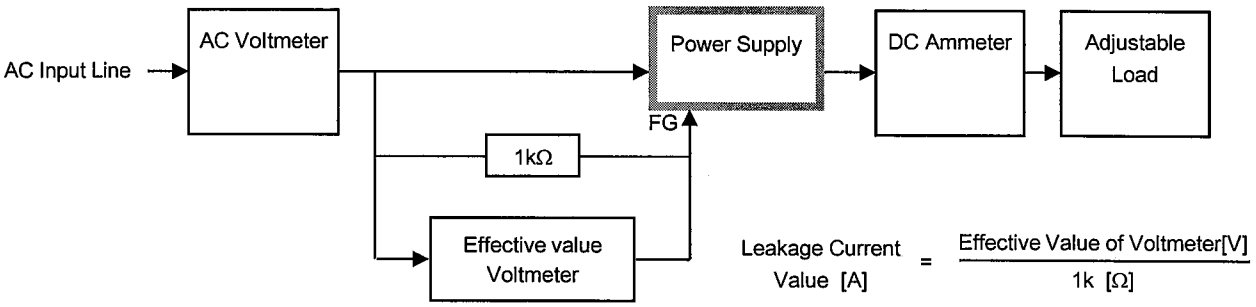


Figure B (DEN-AN)

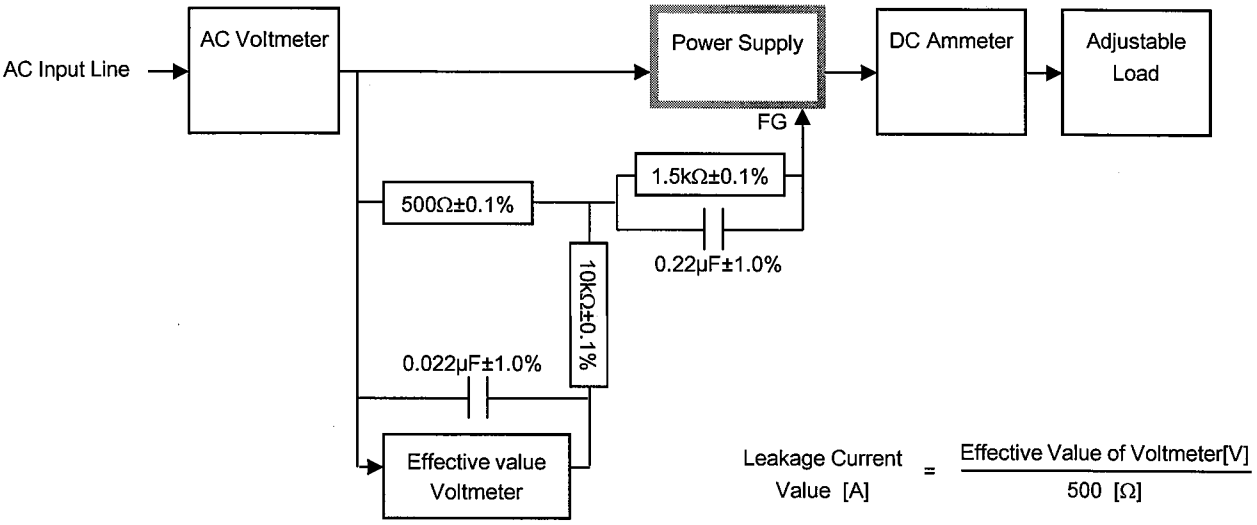
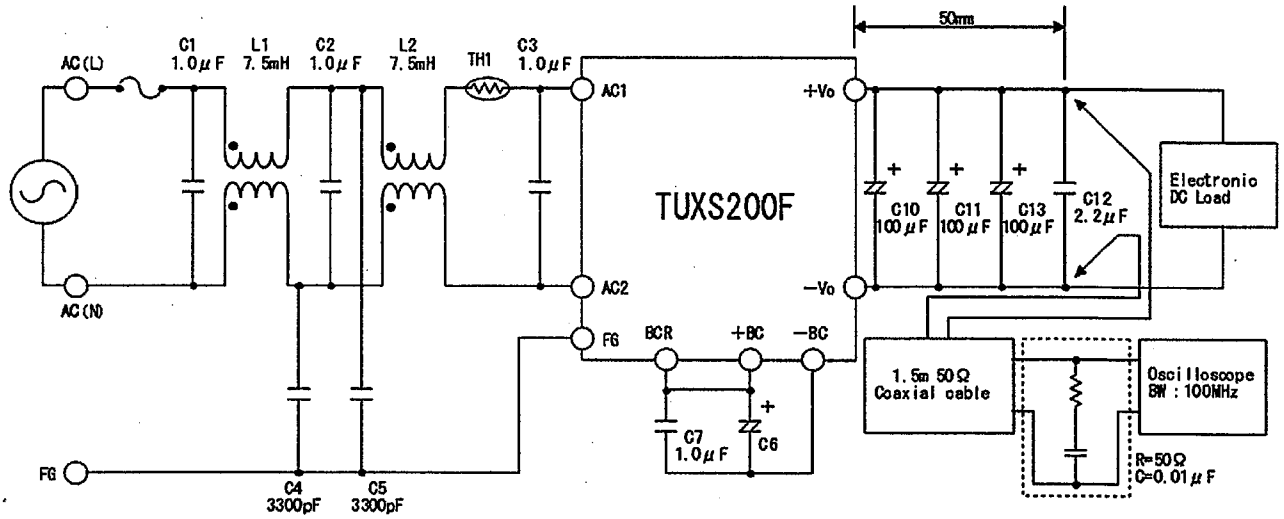


Figure B (IEC60950-1)



L1,L2	:	SCR22-060-1R0A075J(NEC TOKIN)
TH1	:	12D2-15LCS(SEMITEC)
C1,C2,C3	:	LE105-MX(OKAYA)
C4,C5	:	DE1E3KX332M(MURATA)
C6	:	EKXJ421ELL151MM50S(Nippon Chemi-Con)
C7	:	AFS450V105K(OKAYA)
C10,C11,C13	:	PCR1J101MCL1GS(NICHICON)
C12	:	GRM31CR72A225K(MURATA)

Figure C