参考資料

COSEL

TEST DATA OF SCHA/SCDA 10000T-48

Regulated DC Power Supply
May 28, 2009

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COSEL CO.,LTD.

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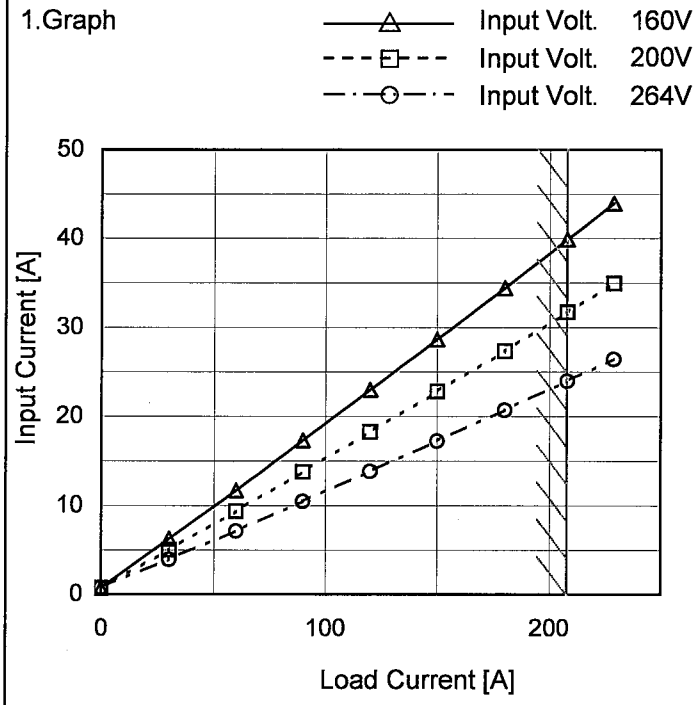
Model	SCHA/SCDA 10000T-48
Item	Input Current (by Load Current)
Object	————————

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. 160[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.0	0.682	0.675	0.764
30.0	6.266	5.001	3.918
60.0	11.685	9.333	7.125
90.0	17.307	13.766	10.450
120.0	22.942	18.252	13.835
150.0	28.635	22.784	17.256
180.0	34.362	27.316	20.706
208.0	39.880	31.674	23.964
228.8	43.930	34.910	26.393
--	-	-	-
--	-	-	-

BC-10340

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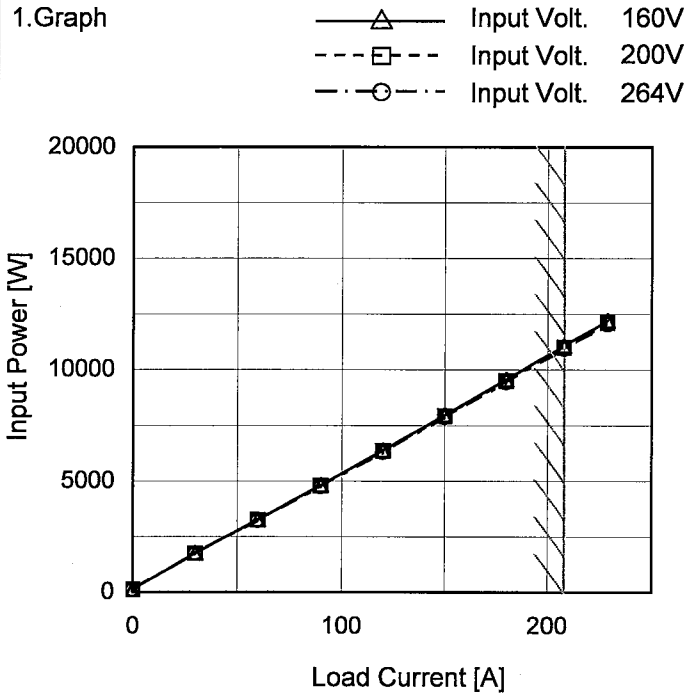
Model	SCHA/SCDA 10000T-48
Item	Input Power (by Load Current)
Object	————————

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. 160[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.0	113	115	104
30.0	1754	1741	1733
60.0	3265	3247	3231
90.0	4812	4784	4757
120.0	6382	6345	6300
150.0	7956	7910	7869
180.0	9553	9495	9444
208.0	11067	10992	10933
228.8	12195	12100	12037
--	-	-	-
--	-	-	-

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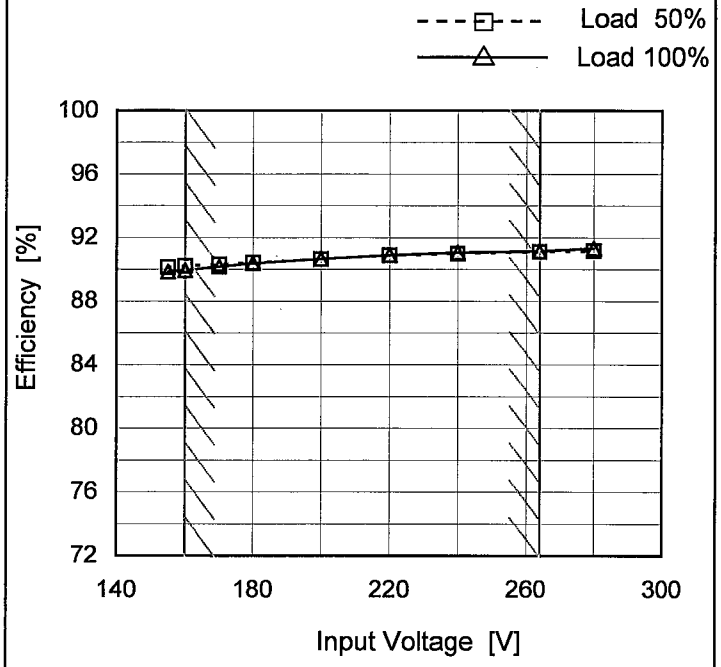
Model	SCHA/SCDA 10000T-48
Item	Efficiency (by Input Voltage)
Object	———————————

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%
155	90.1	89.8
160	90.2	89.9
170	90.3	90.2
180	90.4	90.4
200	90.6	90.6
220	90.9	90.9
240	91.0	91.0
264	91.1	91.1
280	91.2	91.3

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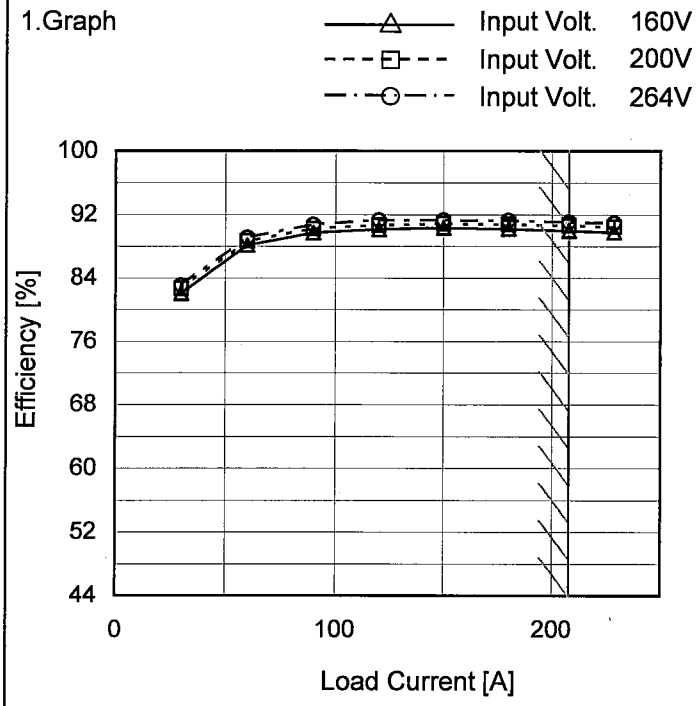
Model	SCHA/SCDA 10000T-48
Item	Efficiency (by Load Current)
Object	————————

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. 160[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.0	-	-	-
30.0	82.1	82.7	83.1
60.0	88.1	88.6	89.1
90.0	89.7	90.2	90.7
120.0	90.1	90.7	91.3
150.0	90.3	90.9	91.3
180.0	90.2	90.8	91.3
208.0	90.0	90.6	91.1
228.8	89.8	90.5	91.0
--	-	-	-
--	-	-	-

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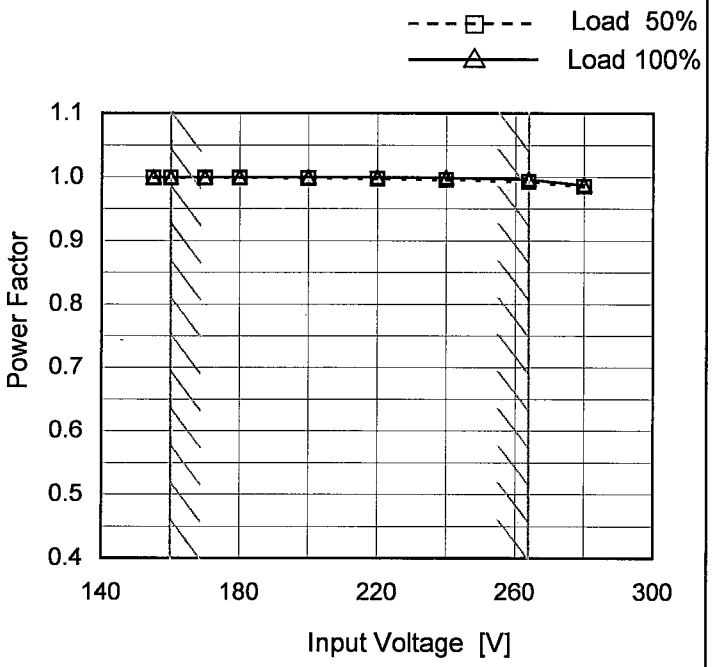
Model	SCHA/SCDA 10000T-48
Item	Power Factor (by Input Voltage)
Object	————————

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%
155	0.998	0.999
160	0.998	0.999
170	0.998	0.999
180	0.998	0.999
200	0.998	0.999
220	0.997	0.999
240	0.996	0.999
264	0.992	0.996
280	0.985	0.987

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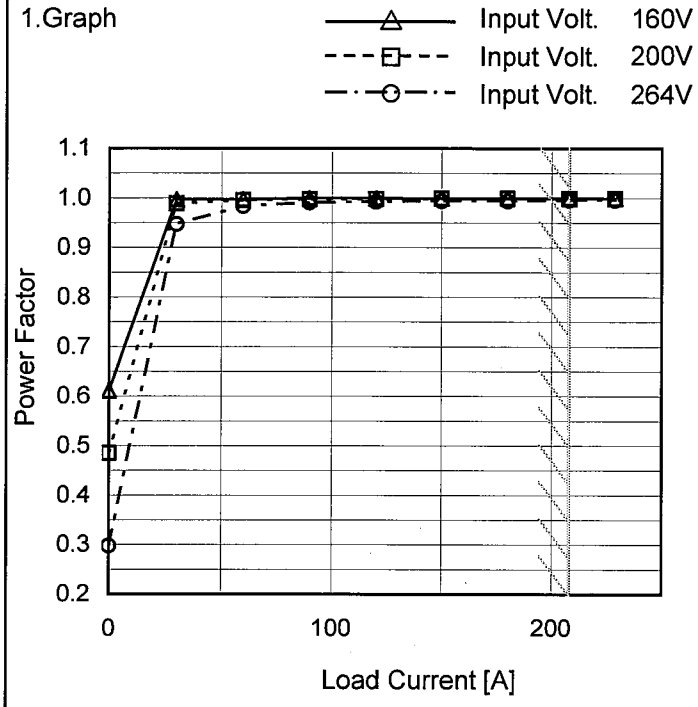
Model	SCHA/SCDA 10000T-48
Item	Power Factor (by Load Current)
Object	————————

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. 160[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.0	0.611	0.485	0.299
30.0	0.997	0.989	0.948
60.0	0.998	0.995	0.984
90.0	0.999	0.998	0.991
120.0	0.999	0.998	0.993
150.0	0.999	0.999	0.994
180.0	0.999	0.999	0.994
208.0	0.999	0.999	0.996
228.8	0.999	0.999	0.996
--	-	-	-
--	-	-	-

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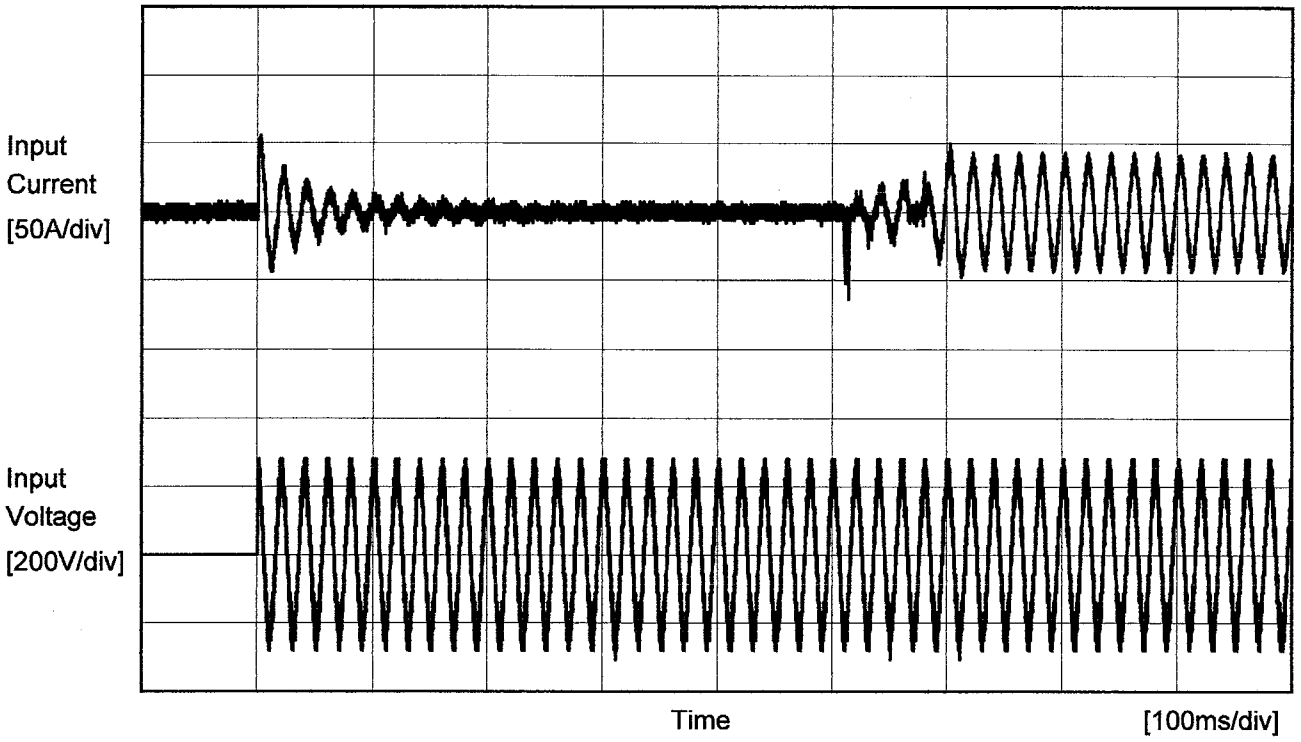
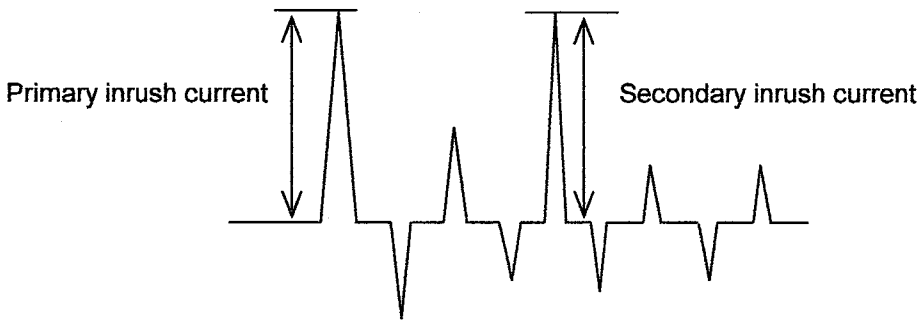
Model	SCHA/SCDA 10000T-48
Item	Inrush Current
Object	————————

Temperature 25°C
Testing Circuitry Figure A



Input Voltage	200 V
Frequency	50 Hz
Load	100 %
Primary inrush current	54.0 A
Secondary inrush current	66.0 A



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Model	SCHA/SCDA 10000T-48	
Item	Leakage Current	Temperature 25°C Testing Circuitry Figure B
Object	———————————	

1.Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A)DEN-AN	-	-	-
(B)IEC60950-1	-	-	-

Standards	Leakage Current [mA]		
	Input Volt. 200 [V]	Input Volt. 240 [V]	Input Volt. 264 [V]
(B)IEC60950-1	2.60	3.10	3.30

2.Condition

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

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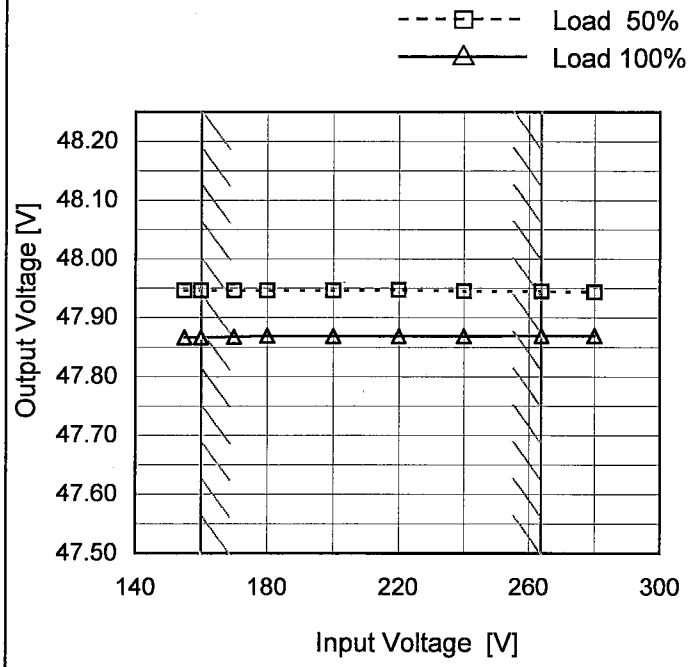
Model	SCHA/SCDA 10000T-48
Item	Line Regulation
Object	+48V208A

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%
155	47.946	47.866
160	47.946	47.866
170	47.946	47.867
180	47.946	47.869
200	47.946	47.868
220	47.947	47.868
240	47.945	47.868
264	47.945	47.869
280	47.943	47.869

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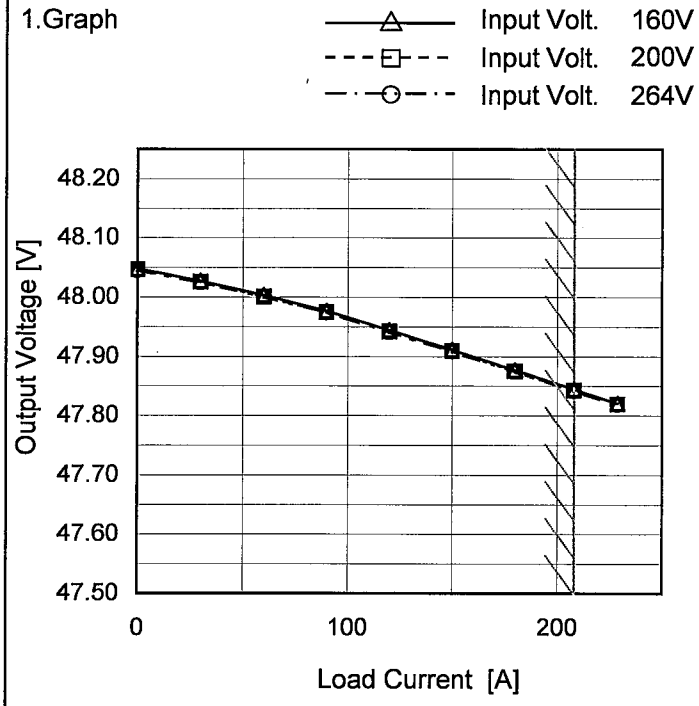
Model	SCHA/SCDA 10000T-48
Item	Load Regulation
Object	+48V208A

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. 160[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.0	48.048	48.046	48.045
30.0	48.028	48.025	48.024
60.0	48.003	48.001	48.000
90.0	47.977	47.975	47.974
120.0	47.944	47.942	47.941
150.0	47.912	47.909	47.908
180.0	47.877	47.875	47.874
208.0	47.845	47.843	47.842
228.8	47.821	47.819	47.818
--	-	-	-
--	-	-	-

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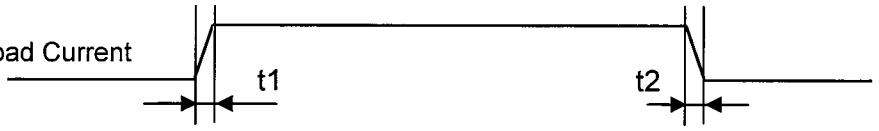
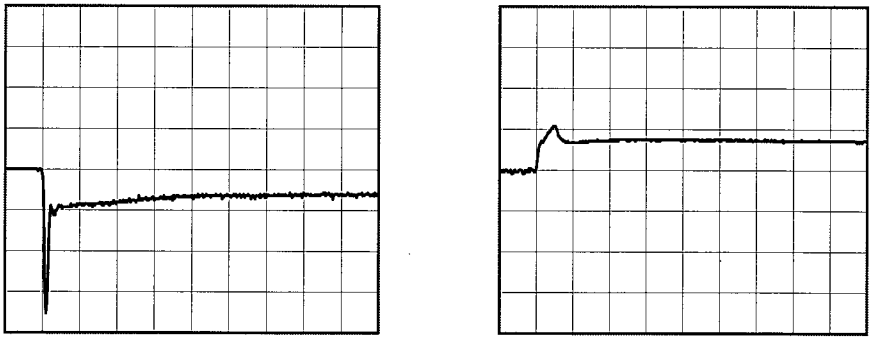
Model	SCHA/SCDA 10000T-48		
Item	Dynamic Load Response	Temperature Testing Circuitry	25°C Figure A
Object	+48V208A		

Input Volt. 200 V
Cycle 1000 ms

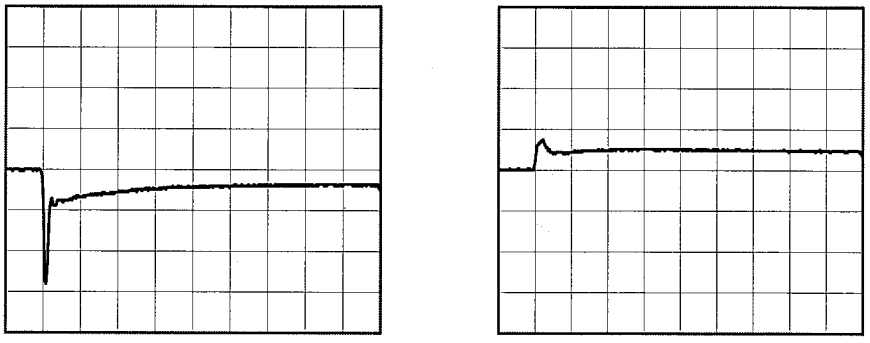
Response. t1=t2=100 μs. Typ



Min. Load (0A) ⟷
Load 100% (208A)



Min. Load (0A) ⟷
Load 50% (104A)



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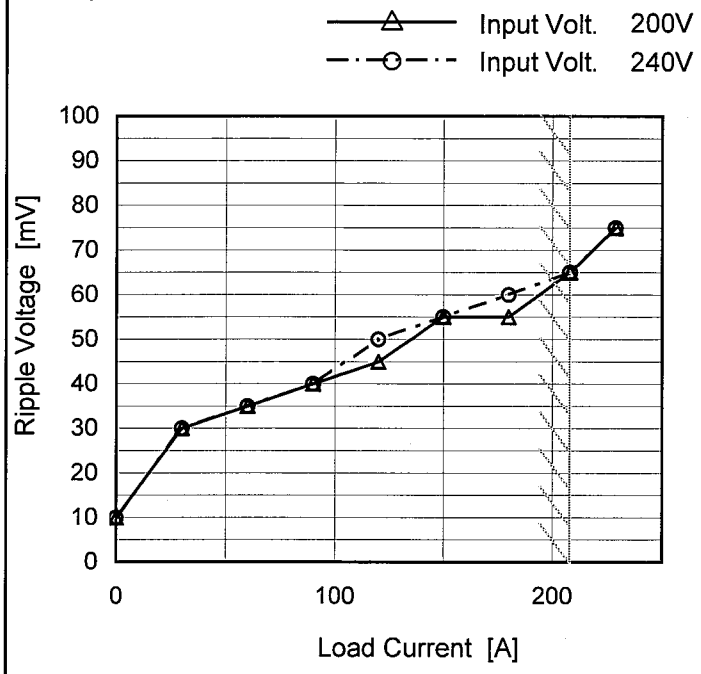
Model	SCHA/SCDA 10000T-48
Item	Ripple Voltage (by Load Current)
Object	+48V208A

Temperature 25°C
Testing Circuitry Figure C

1.Graph



Measured by 500 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

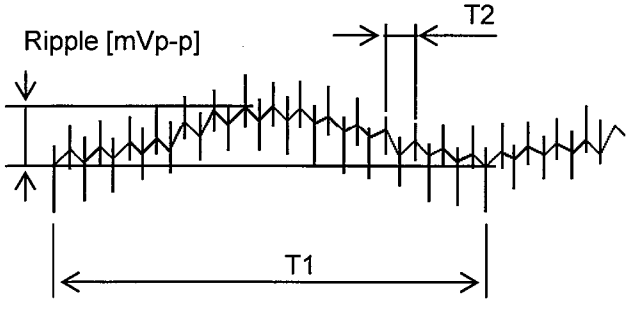


Fig. Complex Ripple Wave Form

2.Values

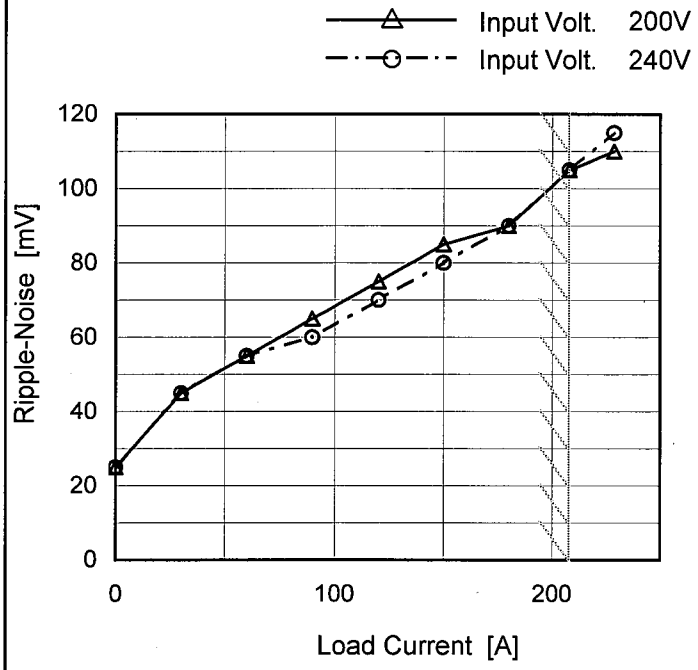
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 200 [V]	Input Volt. 240 [V]
0.0	10	10
30.0	30	30
60.0	35	35
90.0	40	40
120.0	45	50
150.0	55	55
180.0	55	60
208.0	65	65
228.8	75	75
--	-	-
--	-	-

COSEL

Model	SCHA/SCDA 10000T-48
Item	Ripple-Noise
Object	+48V208A

Temperature 25°C
Testing Circuitry Figure C

1.Graph



Measured by 500 MHz Oscilloscope.
Ripple-Noise 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

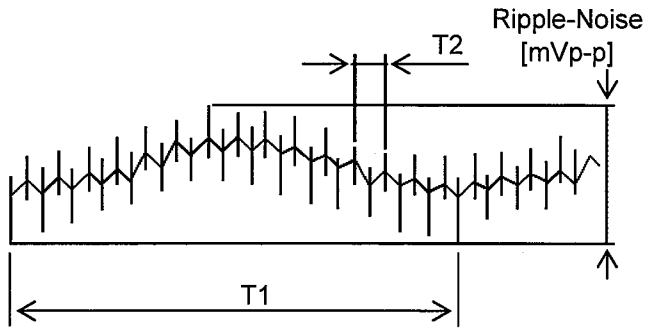


Fig. Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 200 [V]	Input Volt. 240 [V]
0.0	25	25
30.0	45	45
60.0	55	55
90.0	65	60
120.0	75	70
150.0	85	80
180.0	90	90
208.0	105	105
228.8	110	115
--	-	-
--	-	-

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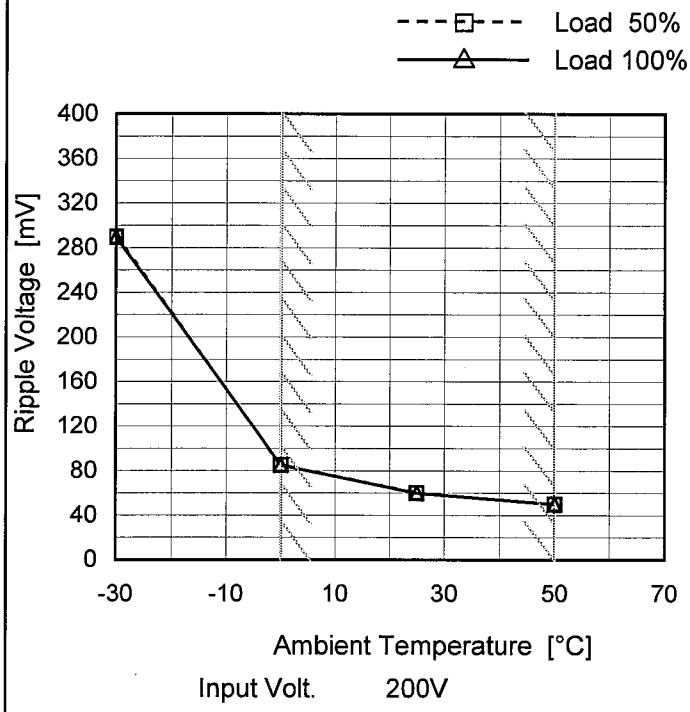
Model	SCHA/SCDA 10000T-48
Item	Ripple Voltage (by Ambient Temp.)
Object	+48V208A

Testing Circuitry Figure C

1.Graph



Input Volt. 200V

Measured by 500 MHz Oscilloscope.

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

2.Values

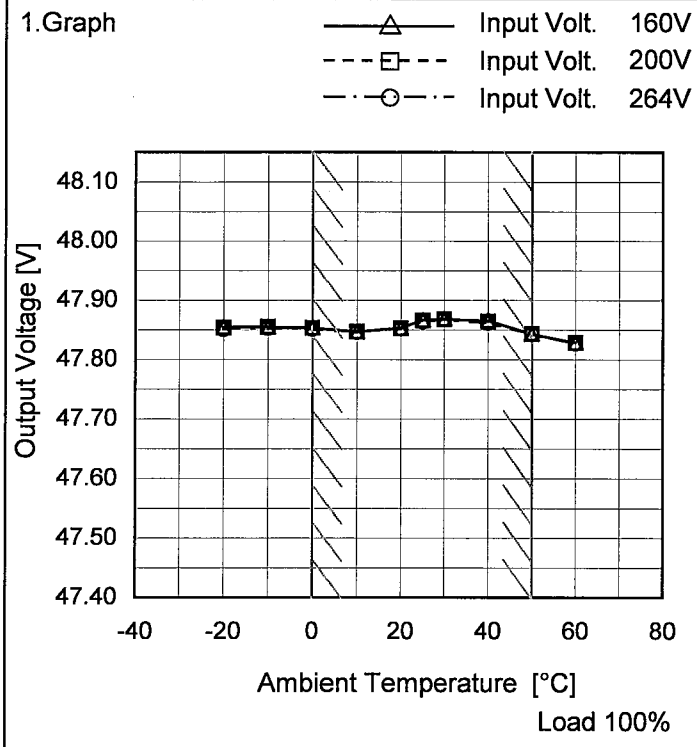
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-30	290	290
0	85	85
25	60	60
50	50	50
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SCHA/SCDA 10000T-48
Item	Ambient Temperature Drift
Object	+48V208A

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. 160[V]	Input Volt. 200[V]	Input Volt. 264[V]
-20	47.854	47.853	47.851
-10	47.854	47.855	47.852
0	47.853	47.853	47.851
10	47.847	47.846	47.845
20	47.853	47.852	47.851
25	47.866	47.865	47.863
30	47.868	47.868	47.867
40	47.866	47.864	47.861
50	47.843	47.843	47.843
60	47.828	47.828	47.827
---	-	-	-

COSEL

Model	SCHA/SCDA 10000T-48	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+48V208A	

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 : 0 - 50°C
Input Voltage : 160 - 264V
Load Current : 0 - 208A

* 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	25	160	0	48.048	±103	±0.2
Minimum Voltage	25	264	208	47.842		

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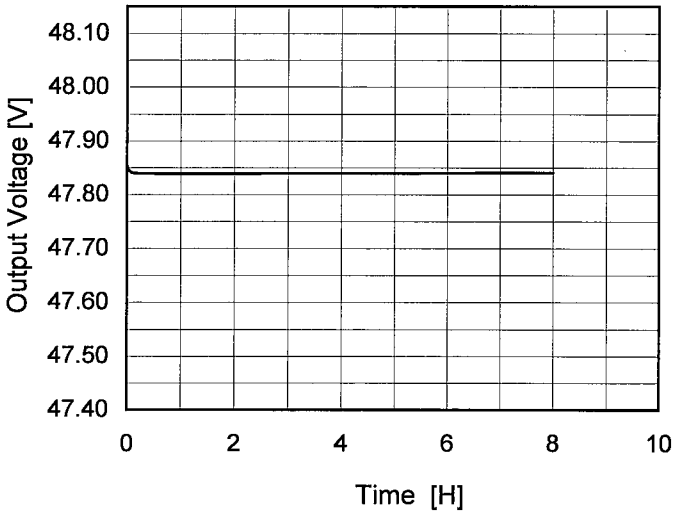
Model	SCHA/SCDA 10000T-48
Item	Time Lapse Drift
Object	+48V208A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 200V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	47.854
0.5	47.839
1.0	47.839
2.0	47.839
3.0	47.839
4.0	47.839
5.0	47.839
6.0	47.840
7.0	47.840
8.0	47.840

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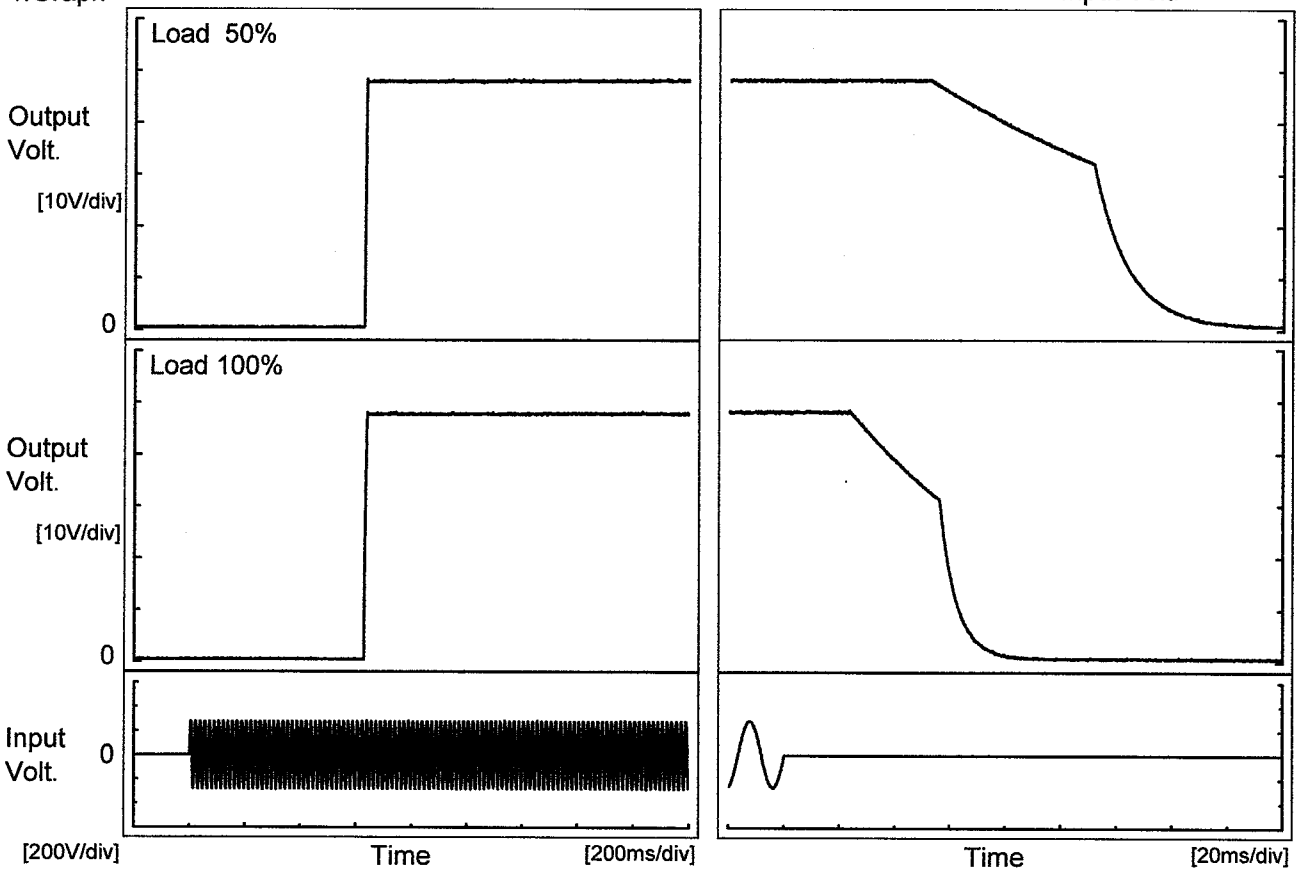
Model	SCHA/SCDA 10000T-48
Item	Rise and Fall Time
Object	+48V208A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

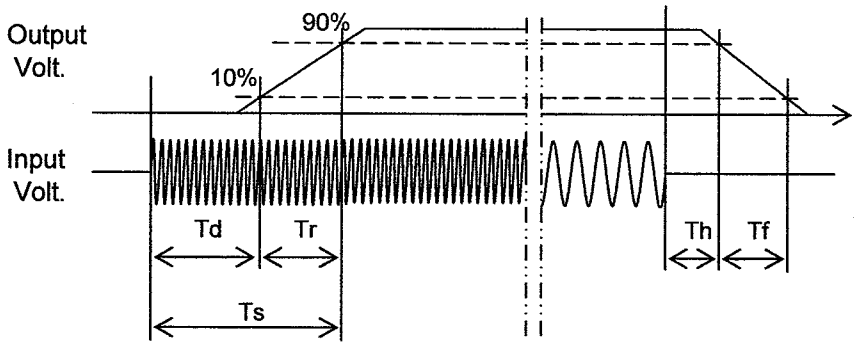
Input Volt. 200 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	628.0	5.0	633.0	67.6	68.1
100 %	628.0	8.0	636.0	31.3	36.7

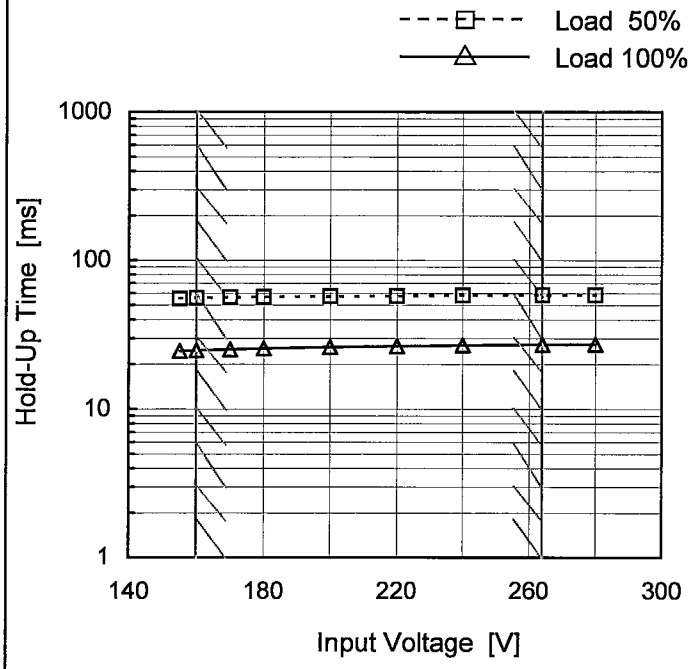


COSEL

Model	SCHA/SCDA 10000T-48
Item	Hold-Up Time
Object	+48V208A

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

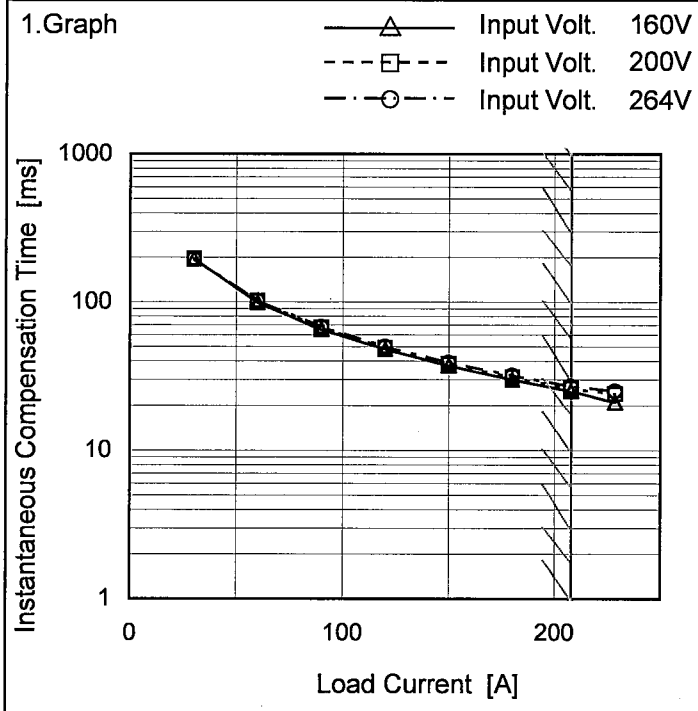
Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
155	55	25
160	56	25
170	56	25
180	56	26
200	57	26
220	57	27
240	58	27
264	58	27
280	58	27

COSEL

Model	SCHA/SCDA 10000T-48
Item	Instantaneous Interruption Compensation
Object	+48V208A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

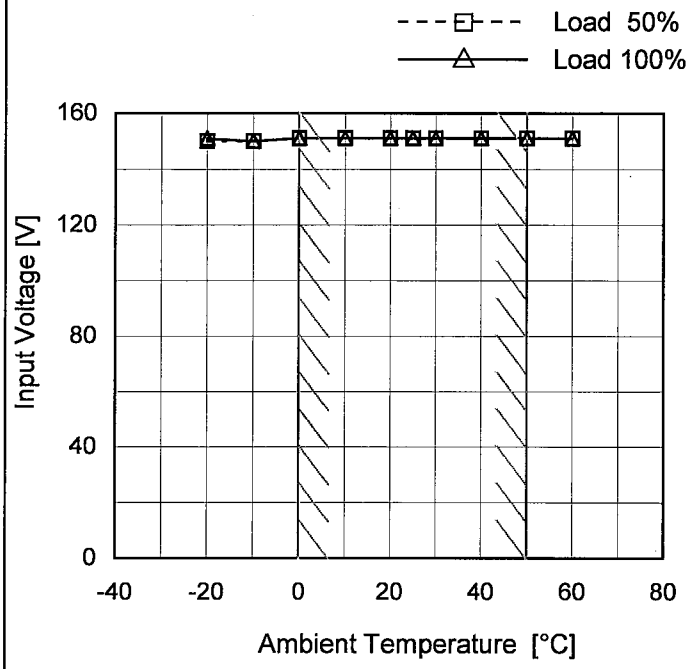
Load Current [A]	Time [ms]		
	Input Volt. 160[V]	Input Volt. 200[V]	Input Volt. 264[V]
0.0	-	-	-
30.0	195	196	196
60.0	99	101	102
90.0	65	67	68
120.0	48	49	50
150.0	37	38	39
180.0	30	31	32
208.0	25	26	27
228.8	21	24	25
--	-	-	-
--	-	-	-

COSEL

Model	SCHA/SCDA 10000T-48
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+48V208A

Testing Circuitry Figure A

1.Graph



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

2.Values

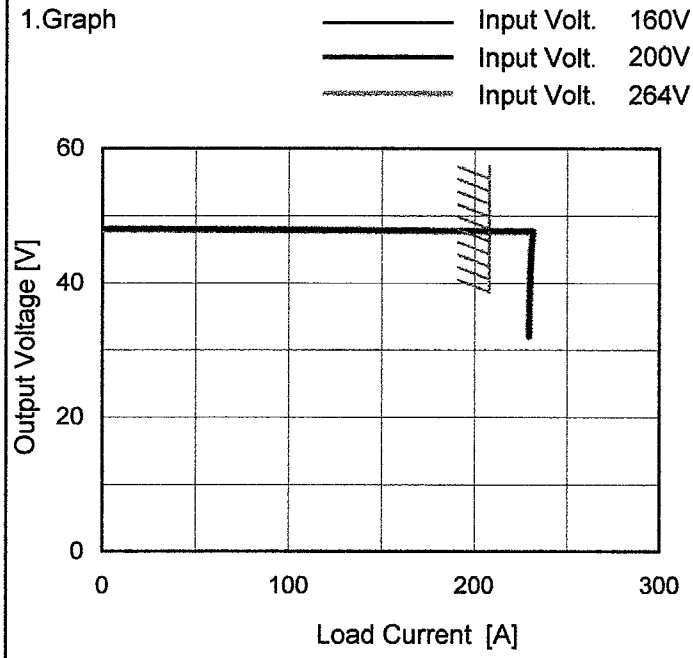
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	150	151
-10	150	150
0	151	151
10	151	151
20	151	151
25	151	151
30	151	151
40	151	151
50	151	151
60	151	151
--	-	-

COSEL

Model	SCHA/SCDA 10000T-48
Item	Overcurrent Protection
Object	+48V208A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

When the output voltage fell to less than 33.6V ,the unit shuts off the output by operating low voltage protection.

2.Values

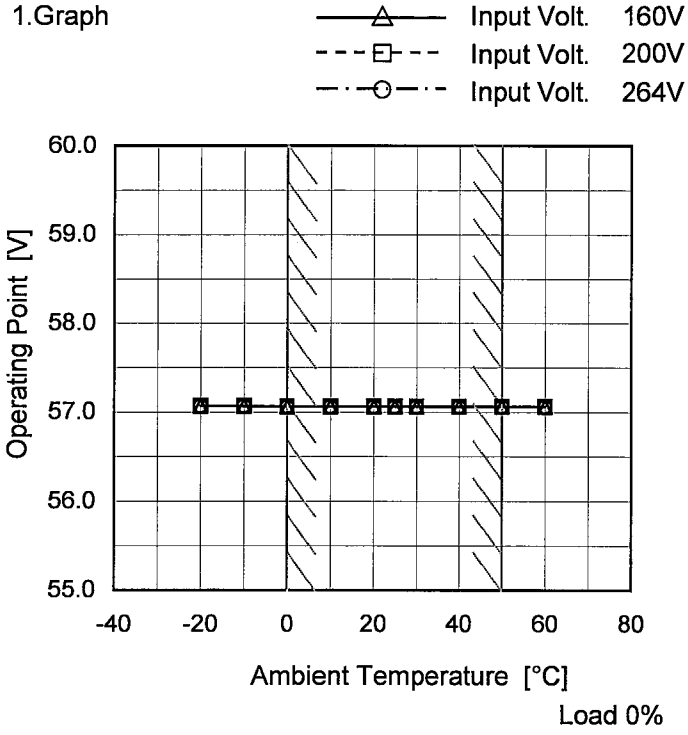
Output Voltage [V]	Load Current [A]		
	Input Volt. 160[V]	Input Volt. 200[V]	Input Volt. 264[V]
48.0	231.15	231.62	231.64
45.6	230.58	230.99	231.01
43.2	230.16	230.52	230.53
38.4	229.69	229.96	229.97
33.6	229.44	229.64	229.65
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SCHA/SCDA 10000T-48
Item	Overvoltage Protection
Object	+48V208A

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. 160[V]	Input Volt. 200[V]	Input Volt. 264[V]
-20	57.07	57.07	57.07
-10	57.07	57.07	57.07
0	57.06	57.06	57.06
10	57.06	57.06	57.06
20	57.06	57.06	57.06
25	57.06	57.06	57.06
30	57.06	57.06	57.06
40	57.06	57.06	57.06
50	57.06	57.06	57.06
60	57.06	57.06	57.06
--	-	-	-

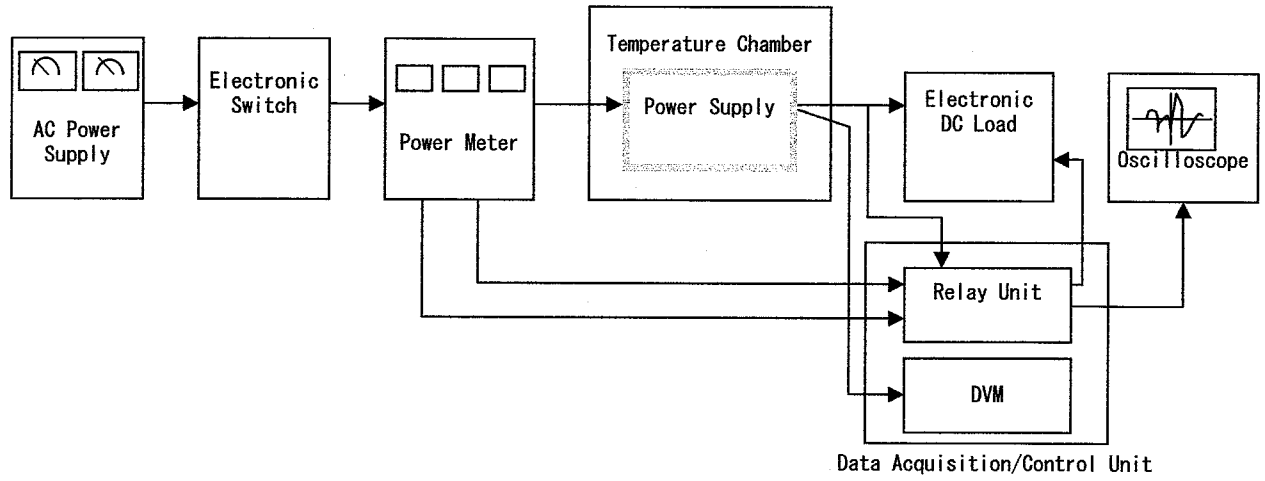


Figure A

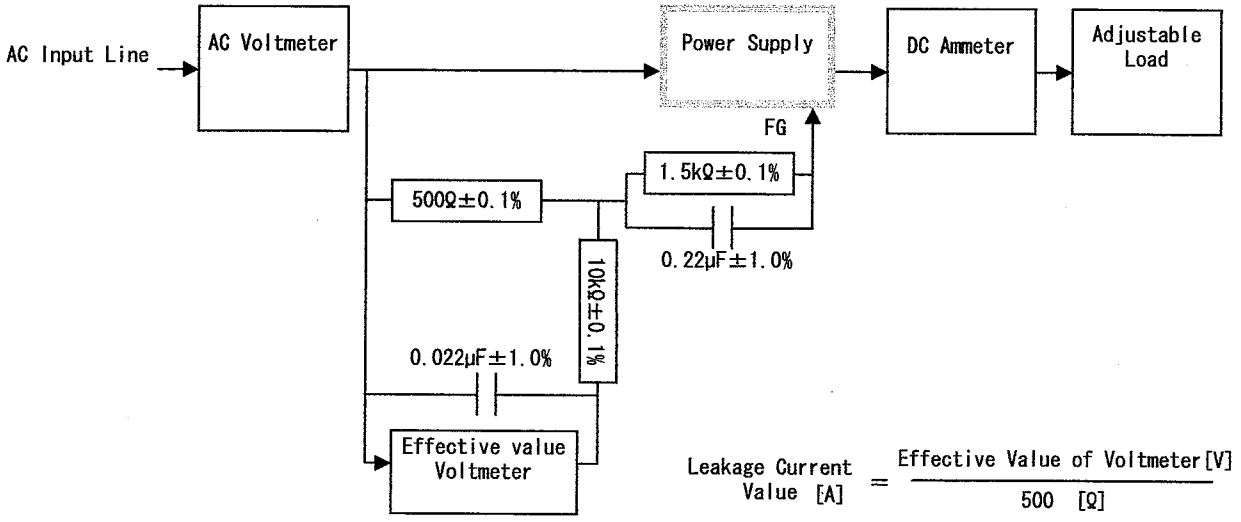


Figure B (IEC60950-1)

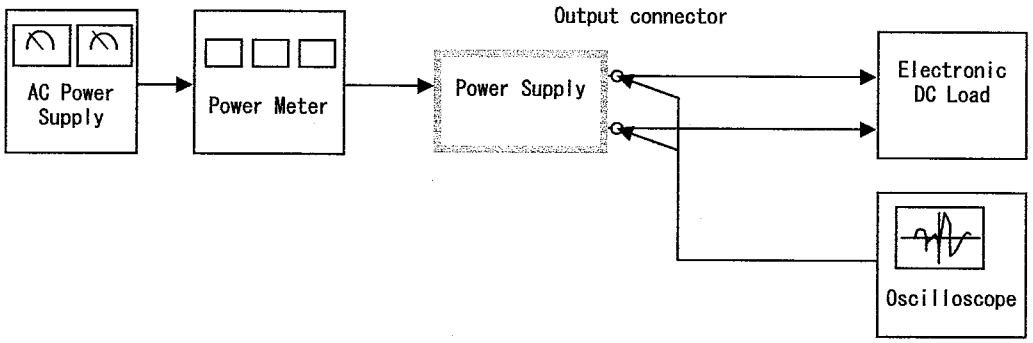


Figure C