COSEL

TEST DATA OF SNDHS100A05

Regulated DC Power Supply
April 9, 2012

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COSEL CO.,LTD.

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Model	SNDHS100A05
Item	Input Current (by Input Voltage)
Object	+5V20A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

———△——— Load 100%
---□--- Load 50%
—·—○—·· Load 0%

Input Current [A] vs Input Voltage [V]

Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
40	0.000	0.000	0.000
45	0.000	0.000	0.000
50	0.035	1.232	2.452
55	0.032	1.110	2.194
60	0.032	1.013	2.060
66	0.032	0.923	1.801
80	0.031	0.770	1.486
95	0.031	0.646	1.246
110	0.031	0.544	1.098
125	0.031	0.483	0.933
140	0.031	0.435	0.834
160	0.031	0.385	0.763
170	0.030	0.365	0.692
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	SNDHS100A05
Item	Input Current (by Load Current)
Object	+5V20A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

— △ — Input Volt. 60V
- - - ⊟ - - - Input Volt. 110V
— · —○— · · — Input Volt. 160V

Load Current [A]

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

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
0	0.032	0.031	0.031
4	0.438	0.227	0.164
8	0.819	0.438	0.313
12	1.216	0.652	0.460
16	1.630	0.871	0.609
20	2.060	1.098	0.763
22	2.290	1.216	0.841
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	SNDHS100A05
Item	Input Power (by Load Current)
Object	+5V20A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

——△—— Input Volt. 60V
---☐--- Input Volt. 110V
—·—○—·· Input Volt. 160V

Load Current [A]

2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
0	2.0	3.4	4.9
4	26.2	25.0	26.2
8	49.0	48.0	50.0
12	72.8	71.5	73.4
16	97.4	95.6	97.3
20	123.6	120.5	121.7
22	137.1	133.3	134.3
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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

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Model	SNDHS100A05

Item	Efficiency (by Input Voltage)

Object	+5V20A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

--- 🔲 --- Load 50%
——△—— Load 100%

Efficiency [%] vs Input Voltage [V]

Note: Slanted line shows the range of the rated
input voltage.

2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
56	83.6	81.4
60	83.6	81.7
66	83.6	82.0
80	82.7	82.0
95	82.8	82.2
110	85.2	83.7
125	84.3	83.4
140	83.6	83.3
160	82.6	83.0
170	81.9	82.8

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Model	SNDHS100A05
Item	Efficiency (by Load Current)
Object	+5V20A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

——△—— Input Volt.   60V
---❑--- Input Volt.   110V
—·—⊖—·— Input Volt.   160V

Efficiency [%] vs Load Current [A]

2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
0	-	-	-
4	78.0	81.9	78.0
8	83.1	84.8	81.5
12	83.7	85.2	83.0
16	83.2	84.7	83.3
20	81.7	83.8	83.0
22	81.0	83.3	82.6
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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

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Model	SNDHS100A05
Item	Line Regulation
Object	+5V20A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

--- ▫ --- Load 50%
—— △ —— Load 100%

Input Voltage [V]

Note: Slanted line shows the range of the rated
input voltage.

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
56	5.091	5.062
60	5.091	5.062
66	5.091	5.062
80	5.091	5.062
95	5.091	5.062
110	5.091	5.061
125	5.091	5.061
140	5.091	5.061
160	5.091	5.061
170	5.091	5.062

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Model	SNDHS100A05
Item	Load Regulation
Object	+5V20A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

——△—— Input Volt. 60V
- - -☐- - - Input Volt. 110V
—·—○—·— Input Volt. 160V

Output Voltage [V] vs Load Current [A]

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
0	5.122	5.123	5.123
4	5.109	5.109	5.110
8	5.097	5.097	5.097
12	5.085	5.085	5.086
16	5.074	5.074	5.074
20	5.062	5.062	5.062
22	5.056	5.056	5.056
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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

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Model	SNDHS100A05
Item	Dynamic Load Response
Object	+5V20A

Temperature   25°C
Testing Circuitry   Figure A

Input Volt.   280 V
Cycle   1000 ms

Load Current

20A/50 μ s

Min. Load (0A) ←→
Load 100% (20A)

0.2 V/div
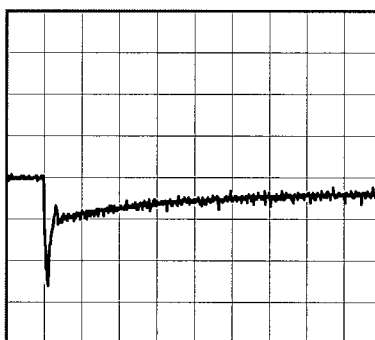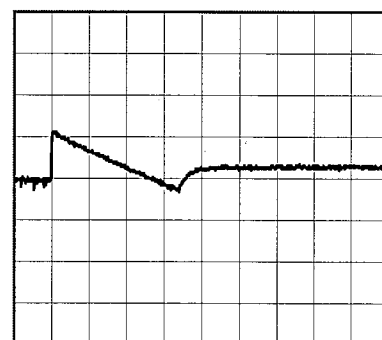
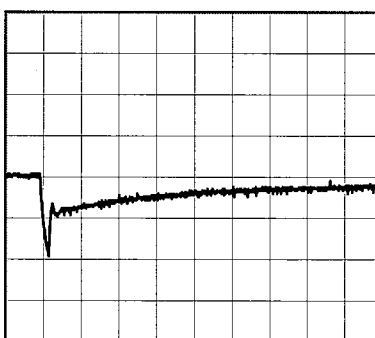1.0ms/div

20ms/div

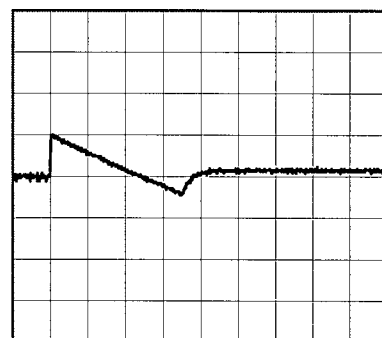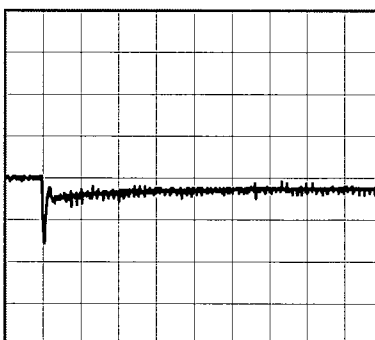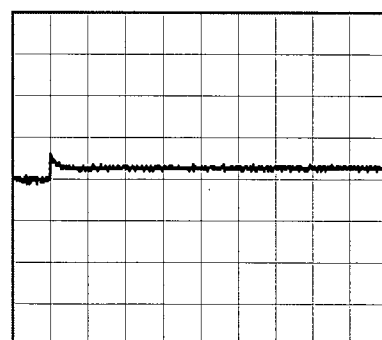Min. Load (0A) ←→
Load 50% (10A)

0.2 V/div

1.0ms/div

20ms/div

Load 10% (2A) ←→
Load 100% (20A)

0.2 V/div

1.0ms/div

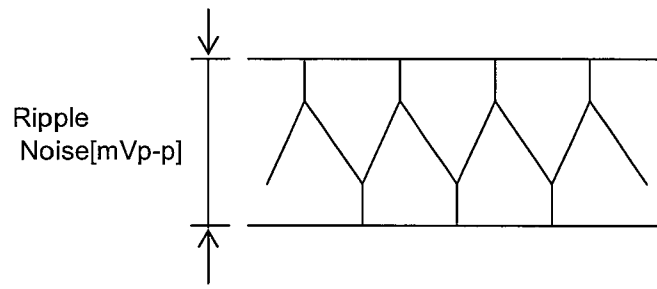20ms/div

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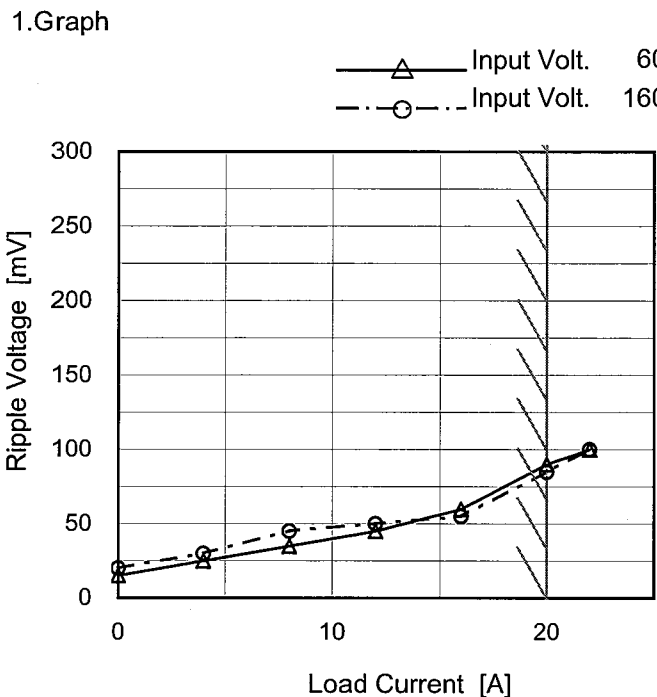
Model	SNDHS100A05
Item	Ripple Voltage (by Load Current)
Object	+5V20A

Temperature　　25°C
Testing Circuitry　Figure B

1.Graph

_____△_____ Input Volt.　　60V
— · —○— · — Input Volt.　　160V

Load Current　[A]

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.

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 60 [V]	Input Volt. 160 [V]
0	5	5
4	10	15
8	10	15
12	10	15
16	10	15
20	10	15
22	10	20
---	-	-
---	-	-
---	-	-
---	-	-

Ripple [mVp-p]

Fig.Complex Ripple Wave Form

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Model	SNDHS100A05
Item	Ripple-Noise
Object	+5V20A

Temperature   25°C
Testing Circuitry   Figure B

1.Graph

──△── Input Volt.   60V
─·─○─·─ Input Volt.   160V

Ripple Voltage [mV] vs Load Current [A]

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 60 [V]	Input Volt. 160 [V]
0	15	20
4	25	30
8	35	45
12	45	50
16	60	55
20	90	85
22	100	100
--	-	-
--	-	-
--	-	-
--	-	-

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.

Ripple
Noise[mVp-p]

Fig.Complex Ripple Noise Wave Form

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Model	SNDHS100A05
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V20A

Testing Circuitry   Figure B

1.Graph

--- ⊟ ---   Load 50%
—— △ ——   Load 100%

Ambient Temperature [°C]

Input Volt.   110V

Measured by 100 MHz Oscilloscope.
Note: Slanted line shows the range of the rated
      ambient temperature.

Ripple [mVp-p]

Fig.Complex Ripple Wave Form

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	40	45
-20	25	30
0	20	20
25	20	20
40	15	20
55	20	20
70	20	20
80	20	20
95	20	20
100	20	20
--	-	-

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Model	SNDHS100A05
Item	Ambient Temperature Drift
Object	+5V20A

Testing Circuitry   Figure A

1.Graph

—△— Input Volt.   60V
- - -◻- - - Input Volt.   110V
— · —○— · · Input Volt.   160V

Ambient Temperature [°C]
Load 100%

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

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
-40	5.075	5.075	5.074
-20	5.069	5.068	5.067
0	5.064	5.063	5.063
25	5.062	5.062	5.062
40	5.061	5.061	5.061
55	5.059	5.058	5.058
70	5.055	5.055	5.054
80	5.052	5.052	5.052
95	5.048	5.048	5.047
100	5.048	5.048	5.047
--	-	-	-

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Model	SNDHS100A05

Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V20A	

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 : 60 - 160V

Load Current : 0 - 20A

* 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	55	60	0	5.125	±39	±0.8
Minimum Voltage	95	160	20	5.047		

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Model	SNDHS100A05
Item	Time Lapse Drift
Object	+5V20A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

Input Volt.   110V
Load   100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	5.062
0.5	5.062
1.0	5.062
2.0	5.062
3.0	5.062
4.0	5.062
5.0	5.062
6.0	5.062
7.0	5.062
8.0	5.062

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Model	SNDHS100A05
Item	Rise and Fall Time
Object	+5V20A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

Input Volt. 110 V

Load 50%

Output Volt.

[1V/div]

0

Load 100%

Output Volt.

[1V/div]

0

Input Volt.

0

[25V/div]   Time   [50ms/div]   Time   [20ms/div]

2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	39.8	17.0	56.8	4.9	10.8
100 %	40.0	17.8	57.8	2.5	5.7

Output Volt.

90%

10%

Input Volt.

Td   Tr   Th   Tf

Ts

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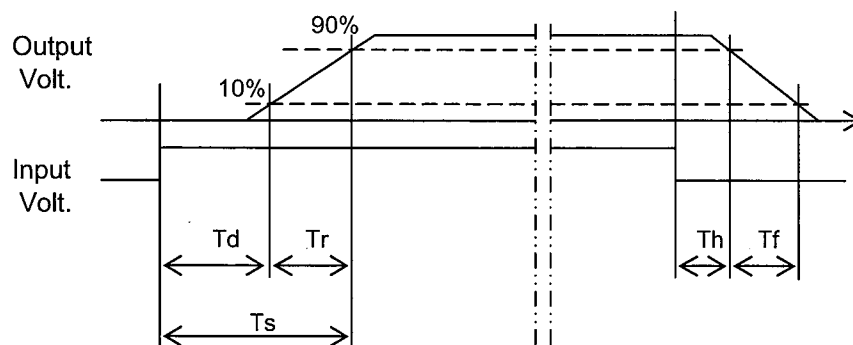
Model	SNDHS100A05
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V20A

Testing Circuitry   Figure A
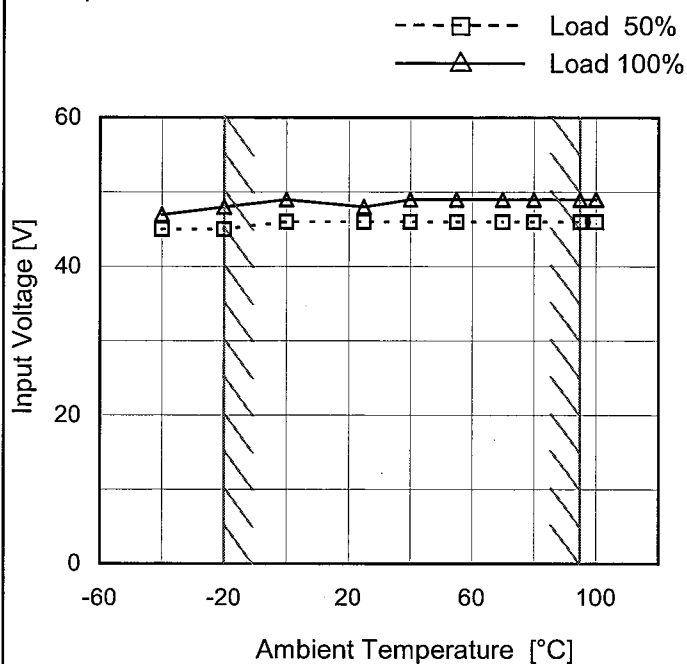
1.Graph

- - -☐- - -   Load 50%
——△——   Load 100%

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

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	45	47
-20	45	48
0	46	49
25	46	48
40	46	49
55	46	49
70	46	49
80	46	49
95	46	49
100	46	49
--	-	-

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Model	SNDHS100A05
Item	Overcurrent Protection
Object	+5V20A

Temperature   25°C
Testing Circuitry   Figure A

1.Graph

———— Input Volt.   60V
———— Input Volt.   110V
▓▓▓▓ Input Volt.   160V

Output Voltage [V] vs Load Current [A]

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

Intermittent operation occurs when overcurrent protection is activated.

Intermittent operation occurs when the output voltage is from 3.5V to 0V.

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
4.75	25.83	25.94	26.95
4.50	25.79	26.14	26.94
4.00	25.84	26.37	27.66
3.50	25.97	26.93	27.23
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	SNDHS100A05
Item	Overvoltage Protection
Object	+5V20A

Testing Circuitry   Figure A

1.Graph

——△—— Input Volt.   60V
---◻--- Input Volt.   160V

Ambient Temperature [°C]

Load 0%

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

2.Values

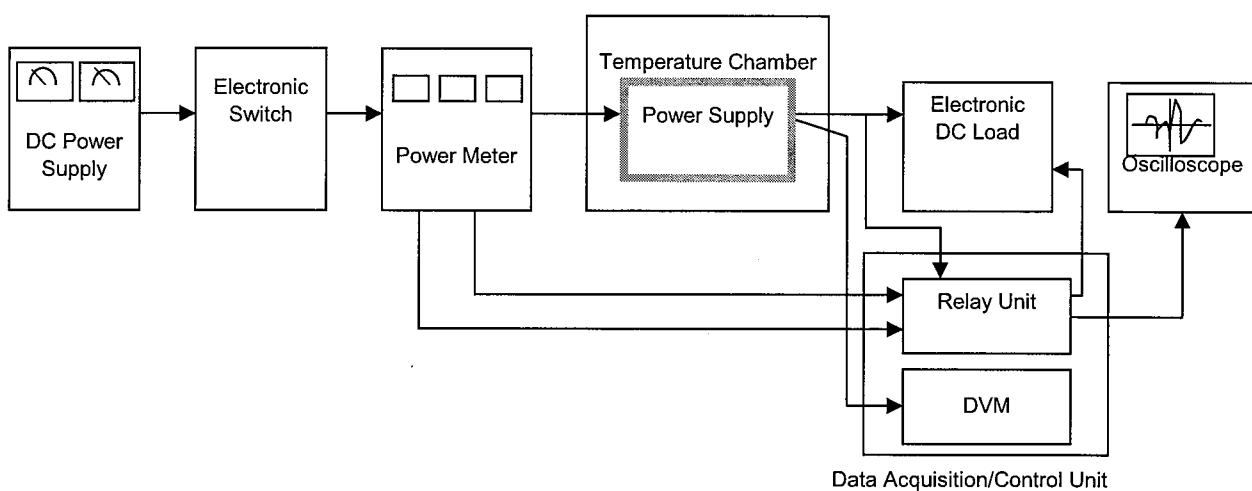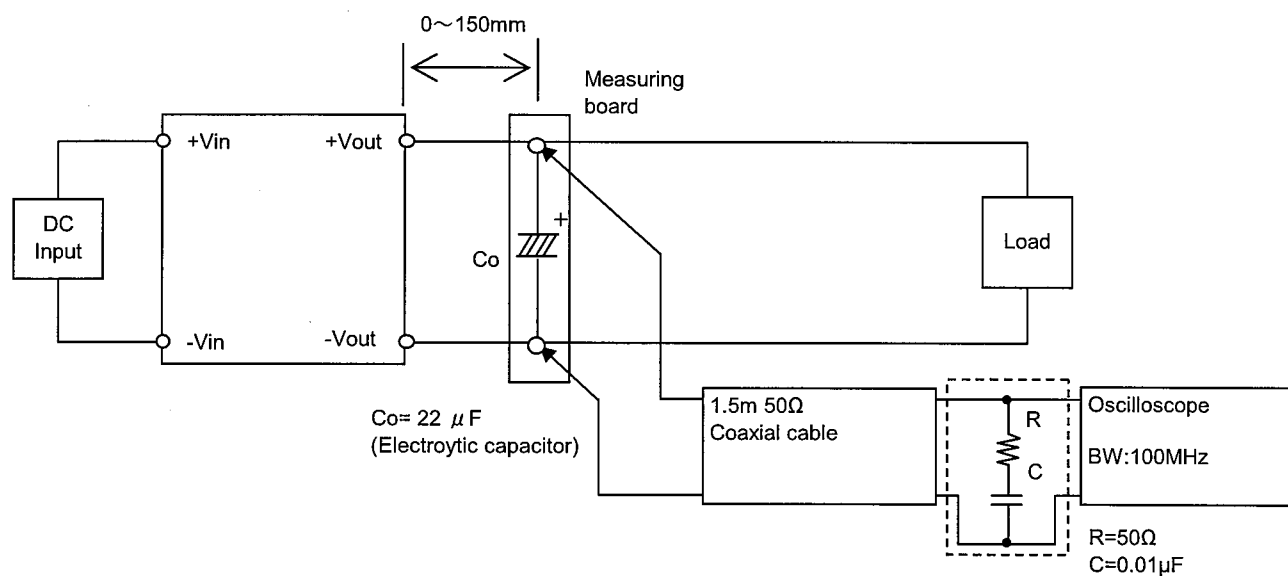| Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 60[V]	Input Volt. 160[V]
-40	6.97	6.97
-20	6.97	6.97
0	6.97	6.97
25	6.97	6.97
40	6.97	6.97
55	6.97	6.96
70	6.97	6.97
80	6.97	6.97
95	6.96	6.96
100	6.96	6.96
--	-	-

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Figure A

Figure B (Ripple and Ripple noise Characteristic)

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