

TEST DATA OF SNDHS250B07

Regulated DC Power Supply
June 30, 2011

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COSEL CO.,LTD.

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Model	SNDHS250B07	Temperature Testing Circuitry	25°C Figure A																																																																															
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<p>The graph shows a linear relationship between Input Power [W] on the Y-axis (0 to 500) and Load Current [A] on the X-axis (0 to 40). Three curves are plotted for different input voltages: 200V (solid line with open triangle markers), 280V (dashed line with open square markers), and 400V (dash-dot line with open circle markers). All curves start at (0,0) and follow a similar upward trend. A slanted line is drawn across the graph, starting from approximately (10, 50) and ending at (35, 350), indicating the range of the rated load current.</p>		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Power [W]</th> </tr> <tr> <th>Input Volt. 200[V]</th> <th>Input Volt. 280[V]</th> <th>Input Volt. 400[V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>4.5</td><td>5.8</td><td>8.3</td></tr> <tr><td>6.5</td><td>57.0</td><td>58.4</td><td>61.3</td></tr> <tr><td>13.0</td><td>111.0</td><td>112.7</td><td>116.2</td></tr> <tr><td>20.0</td><td>166.7</td><td>168.0</td><td>172.0</td></tr> <tr><td>26.5</td><td>224.4</td><td>224.9</td><td>229.7</td></tr> <tr><td>33.0</td><td>284.6</td><td>283.9</td><td>288.5</td></tr> <tr><td>36.3</td><td>316.3</td><td>314.4</td><td>319.0</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>		Load Current [A]	Input Power [W]			Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]	0.0	4.5	5.8	8.3	6.5	57.0	58.4	61.3	13.0	111.0	112.7	116.2	20.0	166.7	168.0	172.0	26.5	224.4	224.9	229.7	33.0	284.6	283.9	288.5	36.3	316.3	314.4	319.0	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Note: Slanted line shows the range of the rated load current.

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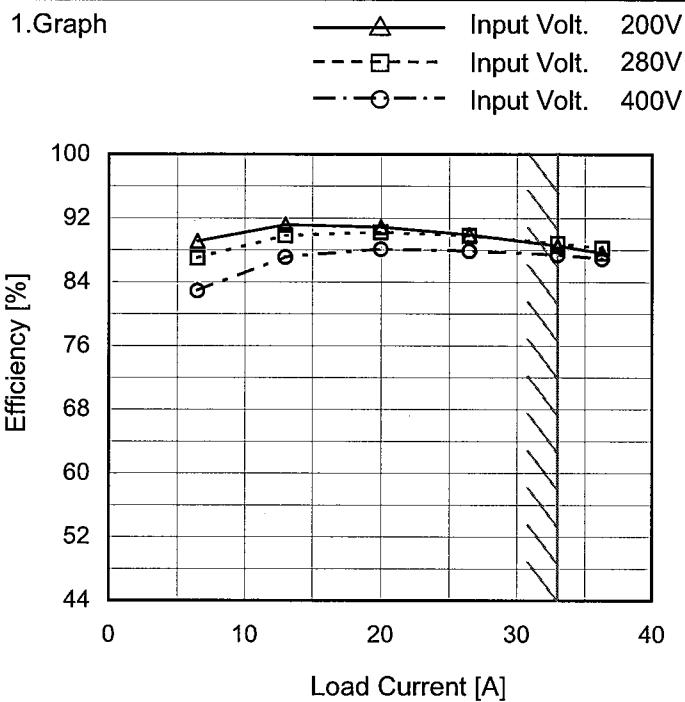
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<p>The graph plots Efficiency [%] on the y-axis (44 to 100) against Input Voltage [V] on the x-axis (100 to 500). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show a general downward trend as input voltage increases. A vertical slanted line marks the rated input voltage range from approximately 195V to 420V.</p>		2.Values																																
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Model SNDHS250B07

Item Efficiency (by Load Current)

Object _____

Temperature 25°C
Testing Circuitry Figure A

2. Values

Load Current [A]	Efficiency [%]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.0	-	-	-
6.5	89.1	87.0	82.9
13.0	91.2	89.8	87.1
20.0	90.9	90.2	88.1
26.5	90.0	89.8	87.9
33.0	88.6	88.8	87.4
36.3	87.7	88.2	86.9
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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

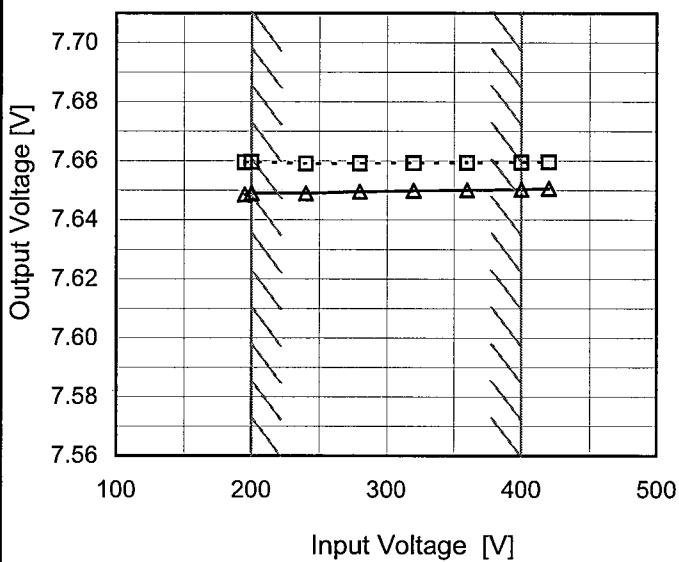
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Model	SNDHS250B07
Item	Line Regulation
Object	+7.5V33A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

--- □ --- Load 50%
 —△— Load 100%



2. Values

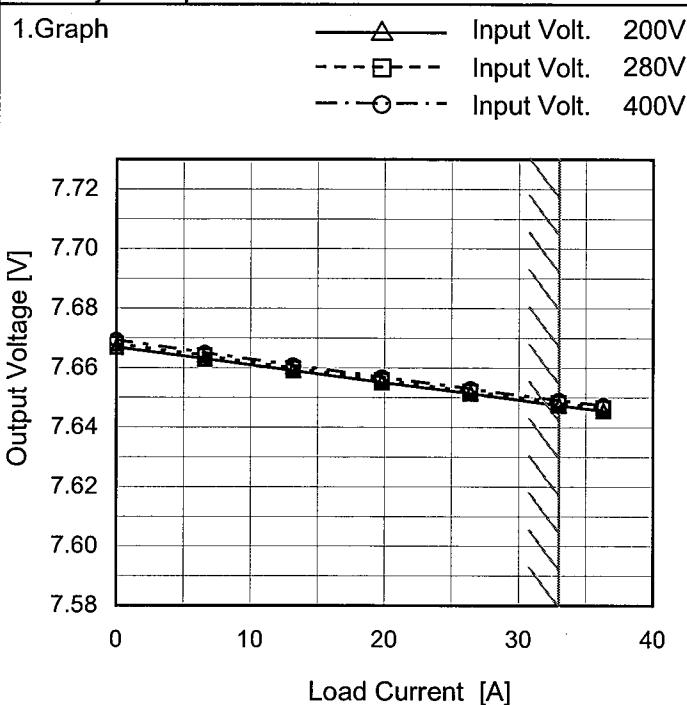
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
195	7.660	7.649
200	7.660	7.649
240	7.659	7.649
280	7.659	7.650
320	7.659	7.650
360	7.659	7.650
400	7.660	7.650
420	7.660	7.651
--	-	-

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

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Model	SNDHS250B07
Item	Load Regulation
Object	+7.5V33A

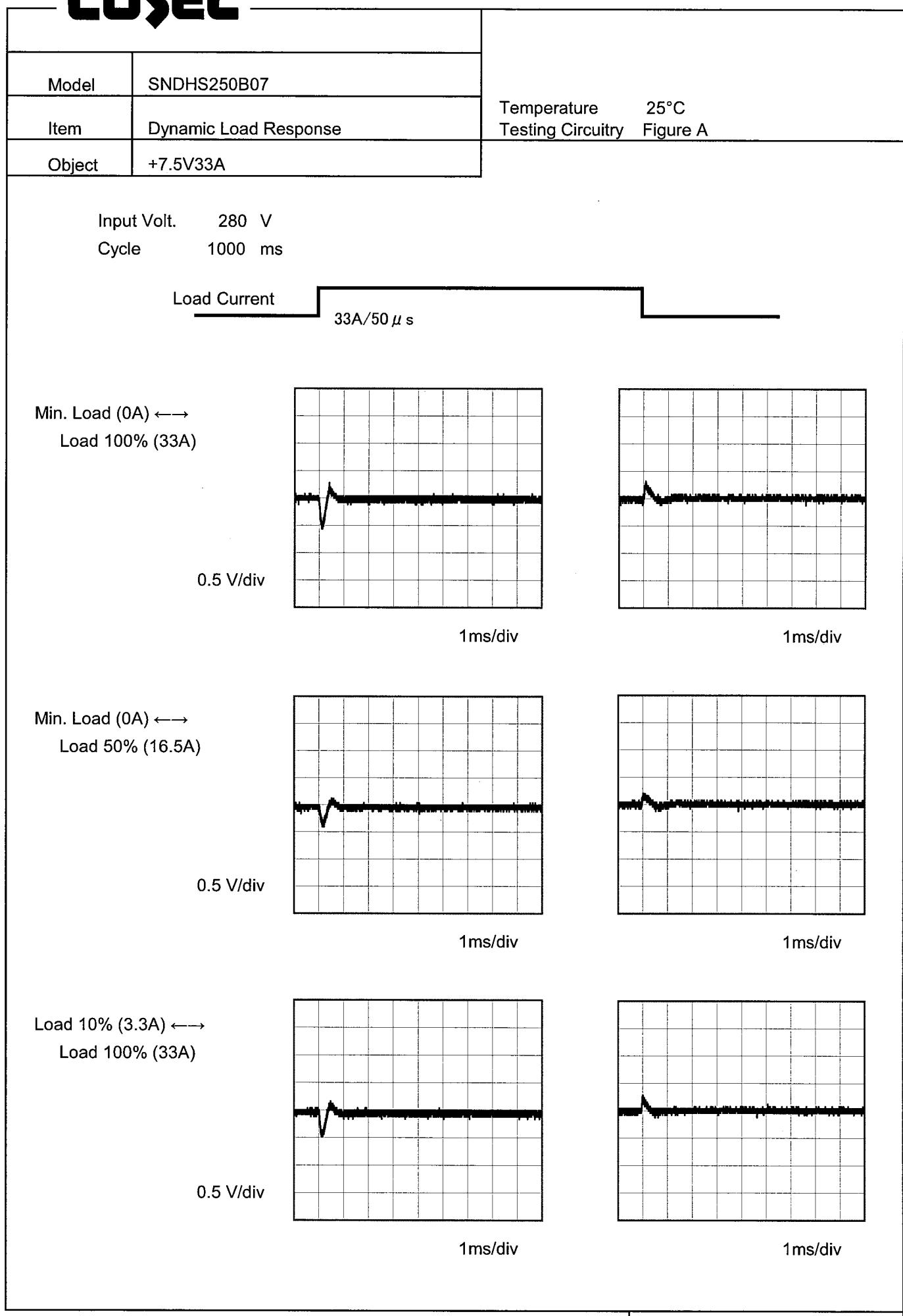
Temperature 25°C
 Testing Circuitry Figure A



2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.0	7.667	7.668	7.669
6.6	7.663	7.664	7.665
13.2	7.659	7.660	7.661
19.8	7.655	7.656	7.657
26.4	7.651	7.652	7.653
33.0	7.648	7.648	7.649
36.3	7.646	7.647	7.647
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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

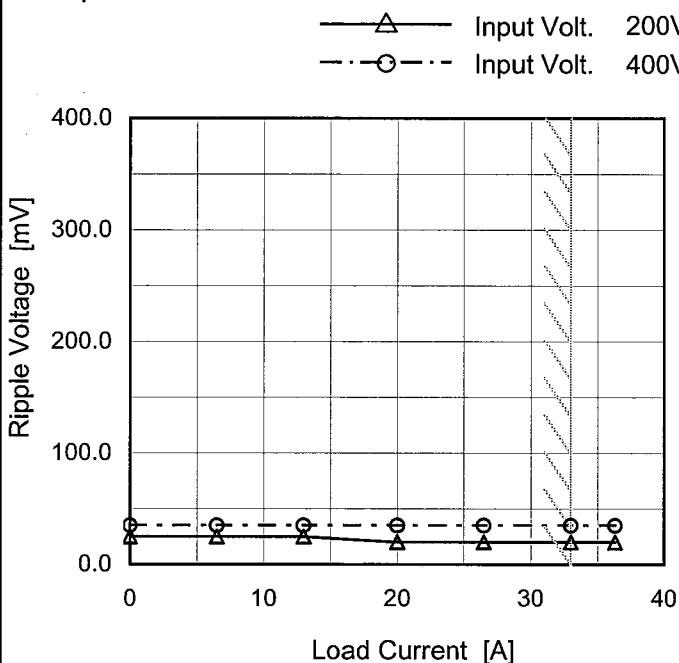
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Model	SNDHS250B07
Item	Ripple Voltage (by Load Current)
Object	+7.5V33A

Temperature 25°C
 Testing Circuitry Figure B

1. Graph



2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0.0	25	35
6.5	25	35
13.0	25	35
20.0	20	35
26.5	20	35
33.0	20	35
36.3	20	35
--	-	-
--	-	-
--	-	-
--	-	-

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.

Ripple [mVp-p]

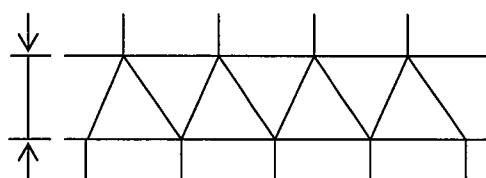


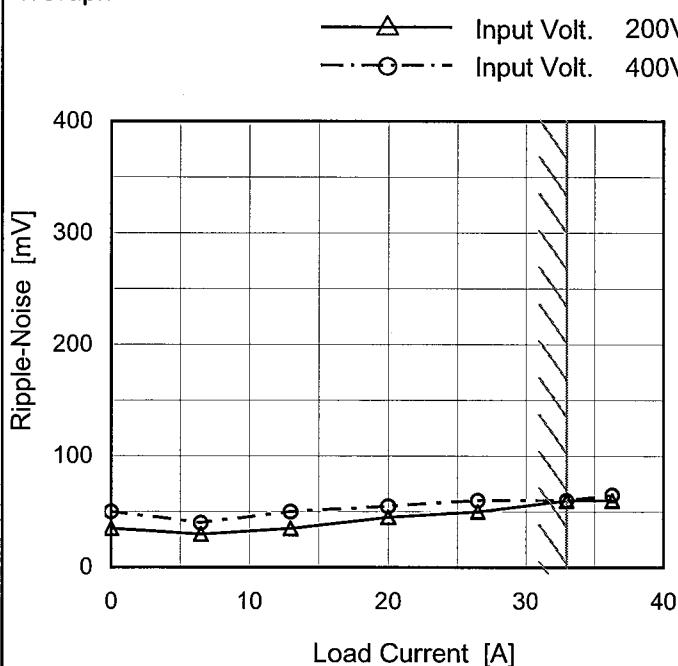
Fig. Complex Ripple Wave Form

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Model	SNDHS250B07
Item	Ripple-Noise
Object	+7.5V33A

Temperature 25°C
Testing Circuitry Figure B

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. 200 [V]	Input Volt. 400 [V]
0.0	35	50
6.5	30	40
13.0	35	50
20.0	45	55
26.5	50	60
33.0	60	60
36.3	60	65
--	-	-
--	-	-
--	-	-
--	-	-

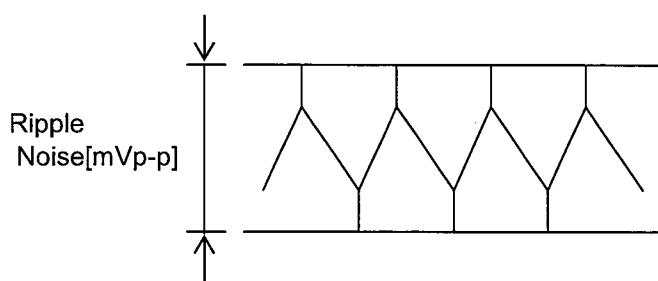
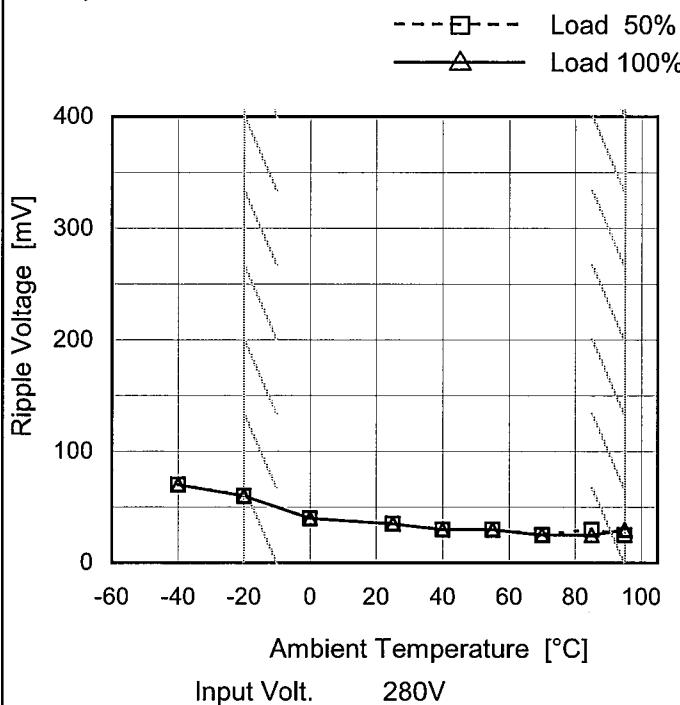


Fig.Complex Ripple Noise Wave Form



Model	SNDHS250B07
Item	Ripple Voltage (by Ambient Temp.)
Object	+7.5V16.5A

1. Graph



Testing Circuitry Figure B

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	70	70
-20	60	60
0	40	40
25	35	35
40	30	30
55	30	30
70	25	25
85	30	25
95	25	30
--	-	-
--	-	-

Measured by 100 MHz Oscilloscope.

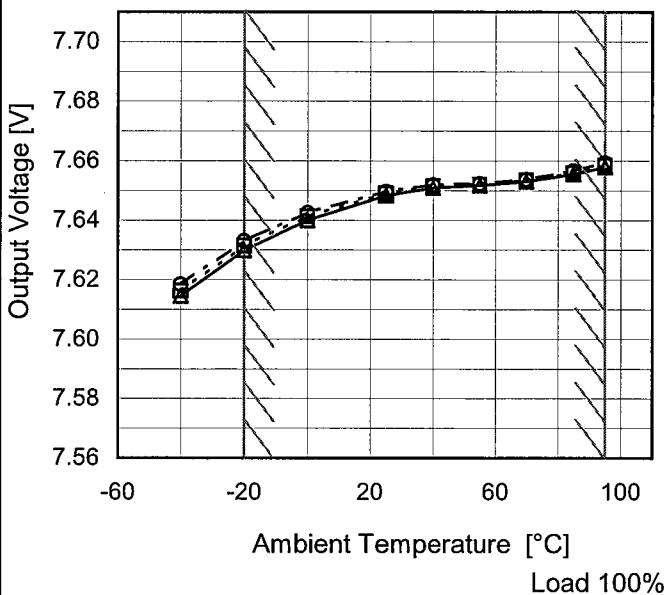
Note: Slanted line shows the range of the rated ambient temperature.



Model	SNDHS250B07
Item	Ambient Temperature Drift
Object	+7.5V33A

1. Graph

—△— Input Volt. 200V
 - - □ - - Input Volt. 280V
 - - ○ - - Input Volt. 400V



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

Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-40	7.615	7.616	7.619
-20	7.630	7.631	7.633
0	7.640	7.641	7.643
25	7.648	7.649	7.650
40	7.651	7.652	7.652
55	7.652	7.652	7.652
70	7.653	7.653	7.654
85	7.656	7.656	7.657
95	7.658	7.659	7.659
--	-	-	-
--	-	-	-



Model	SNDHS250B07	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+7.5V33A	

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 : 200 - 400V

Load Current : 0 - 33A

* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

$$\text{* Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	95	200	0	7.681	± 26	± 0.3
Minimum Voltage	-20	200	33	7.630		

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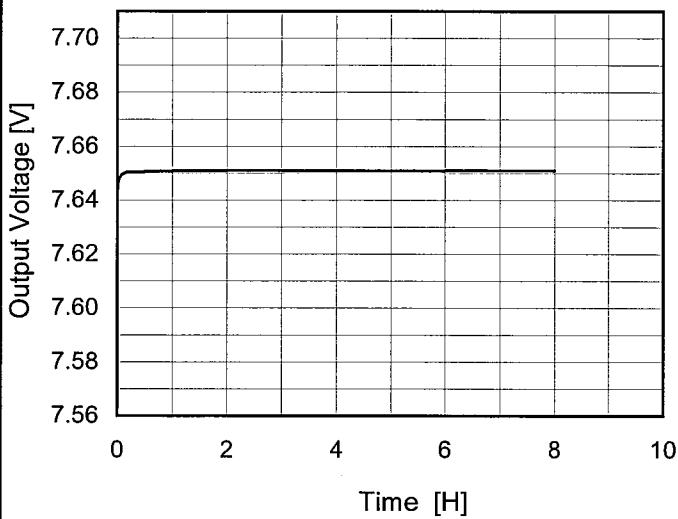
Model SNDHS250B07

Item Time Lapse Drift

Object +7.5V33A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

Input Volt. 280V
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	7.643
0.5	7.651
1.0	7.651
2.0	7.651
3.0	7.651
4.0	7.651
5.0	7.651
6.0	7.651
7.0	7.651
8.0	7.651

COSEL

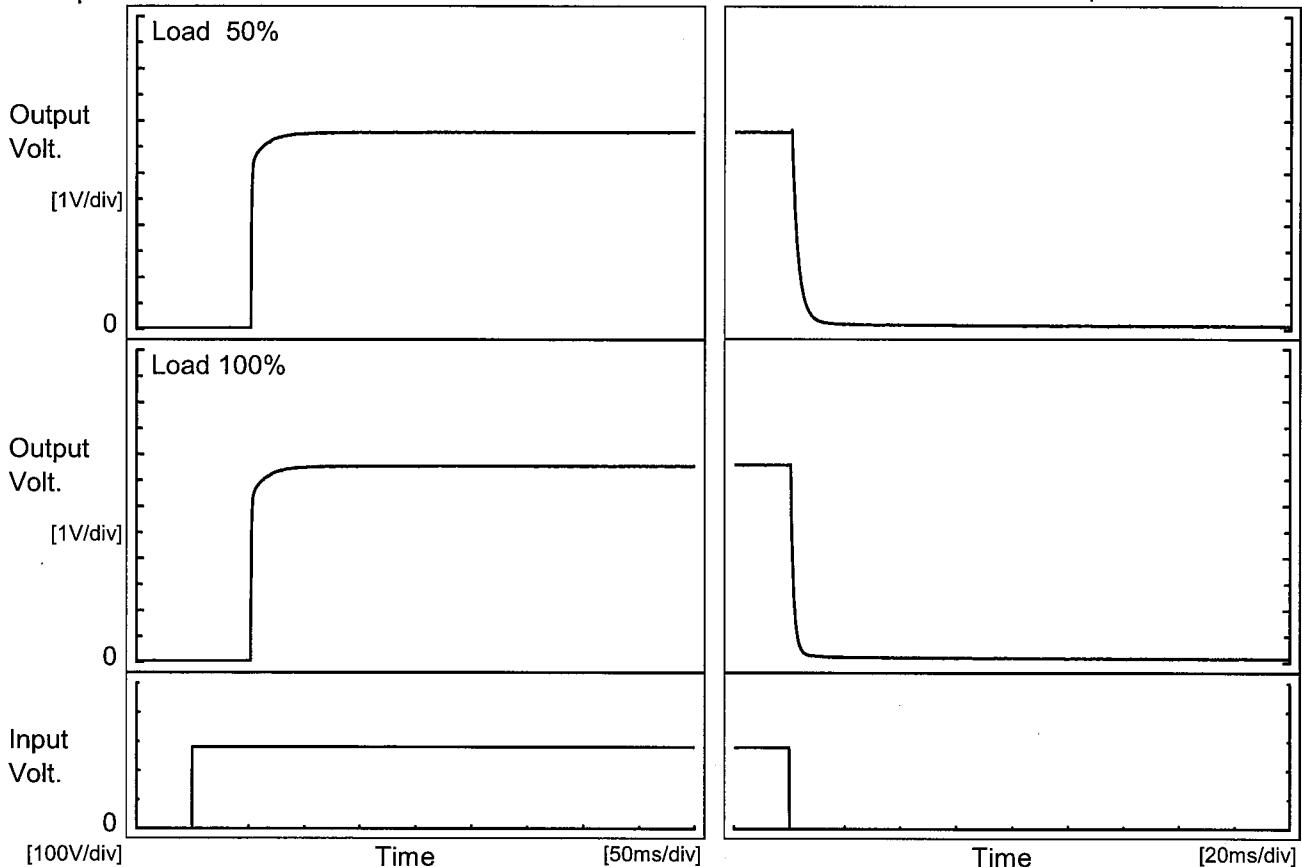
Model SNDHS250B07

Item Rise and Fall Time

Object +7.5V33A

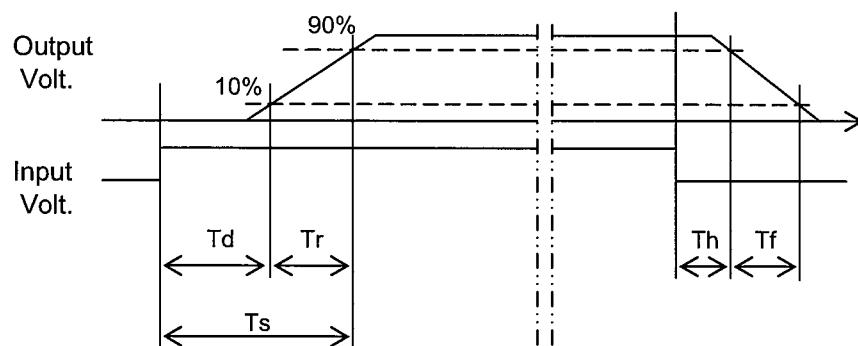
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

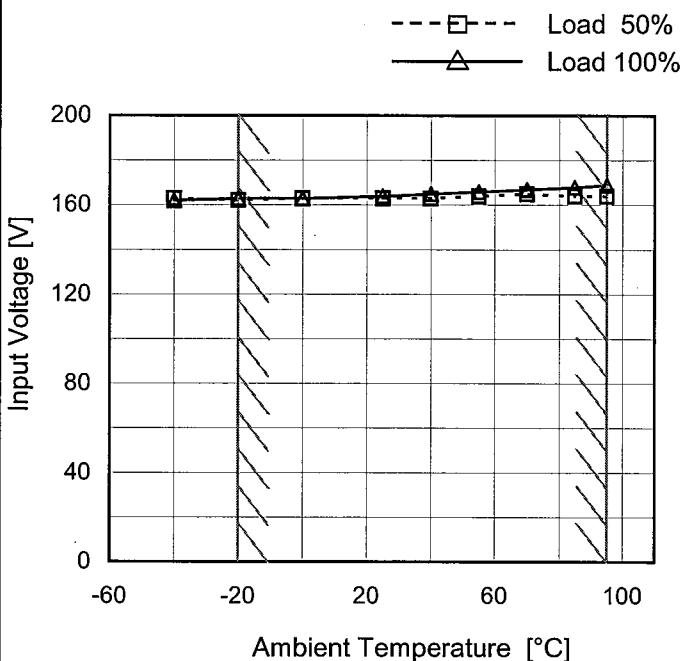
Load	Time	Td	Tr	Ts	Th	Tf	[ms]
50 %		52.3	6.0	58.3	0.7	5.6	
100 %		52.3	6.0	58.3	0.4	2.7	





Model	SNDHS250B07
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+7.5V33A

1. Graph



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

Testing Circuitry Figure A

2. Values

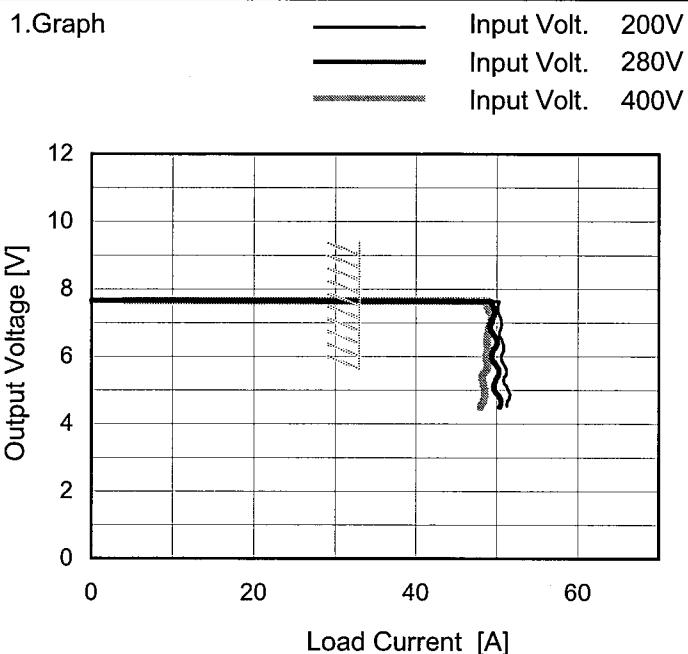
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	163	162
-20	162	163
0	163	163
25	163	164
40	163	165
55	164	166
70	165	167
85	164	168
95	164	169
--	-	-
--	-	-

COSEL

Model SNDHS250B07

Item Overcurrent Protection

Object +7.5V33A



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

Intermittent operation occurs when the output voltage is from 4.5V to 0V.

Temperature 25°C
Testing Circuitry Figure A

2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
7.13	50.54	49.48	49.40
6.75	50.44	49.27	49.03
6.00	50.61	49.38	48.74
5.25	50.87	49.91	48.32
4.50	51.28	50.39	48.00
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

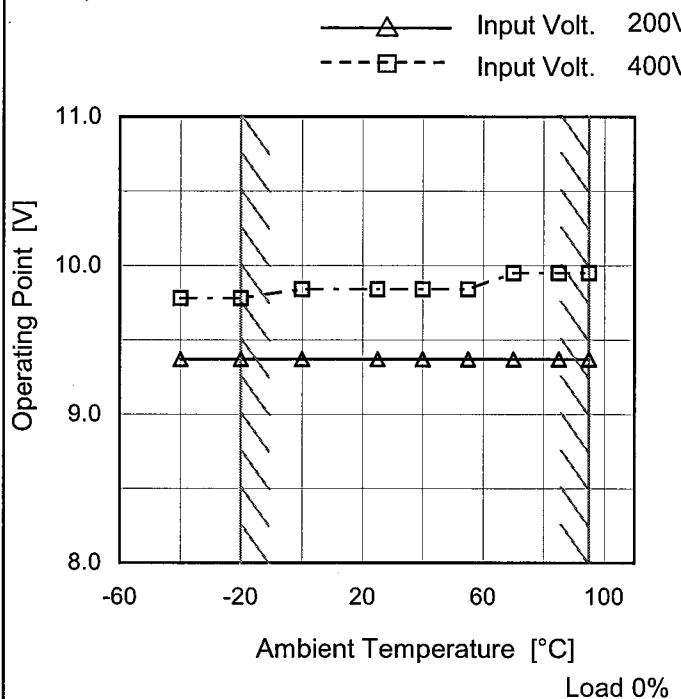
COSEL

Model SNDHS250B07

Item Overvoltage Protection

Object +7.5V33A

1. Graph



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

Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 200[V]	Input Volt. 400[V]
-40	9.37	9.78
-20	9.37	9.78
0	9.37	9.84
25	9.37	9.84
40	9.37	9.84
55	9.37	9.84
70	9.37	9.95
85	9.37	9.95
95	9.37	9.95
--	-	-
--	-	-

COSEL

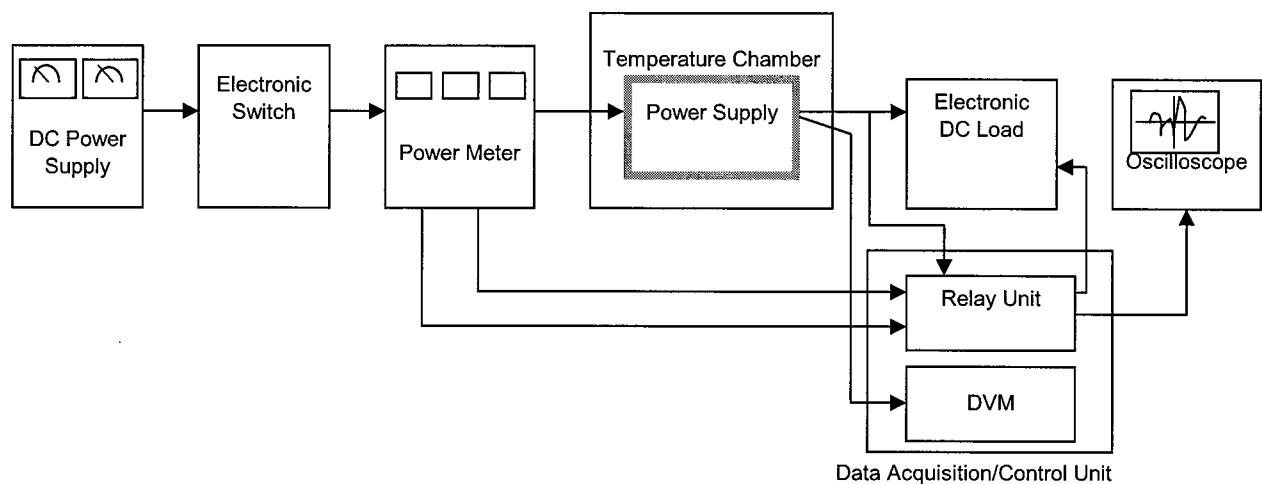


Figure A

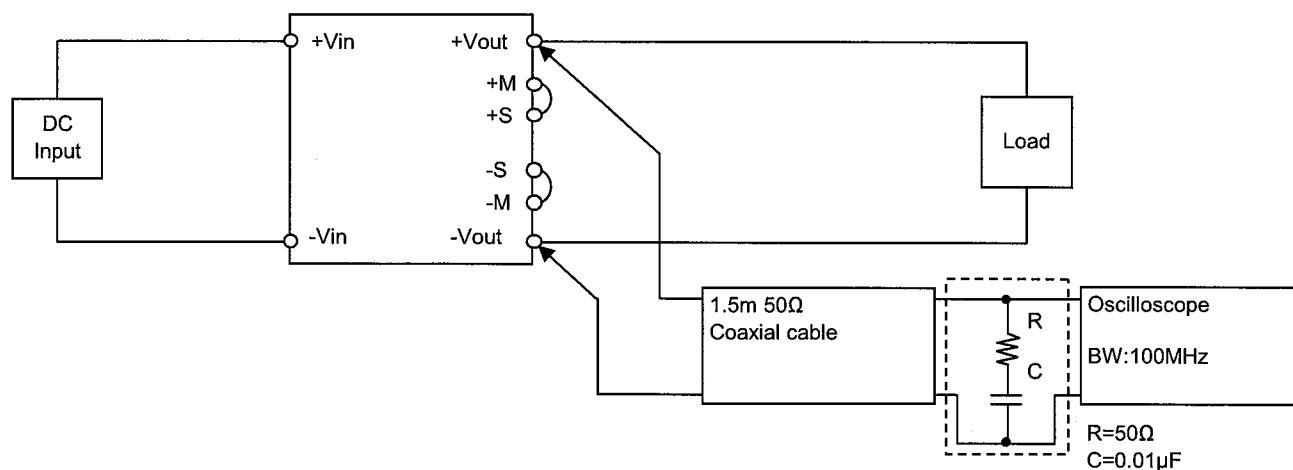


Figure B (Ripple and Ripple noise Characteristic)