

TEST DATA OF SNDHS250B03

Regulated DC Power Supply
June 30, 2011

Approved by : Takahiro Yoneda
Takahiro Yoneda Design Manager

Prepared by : Tadashi Arai
Tadashi Arai Design Engineer

COSEL CO.,LTD.

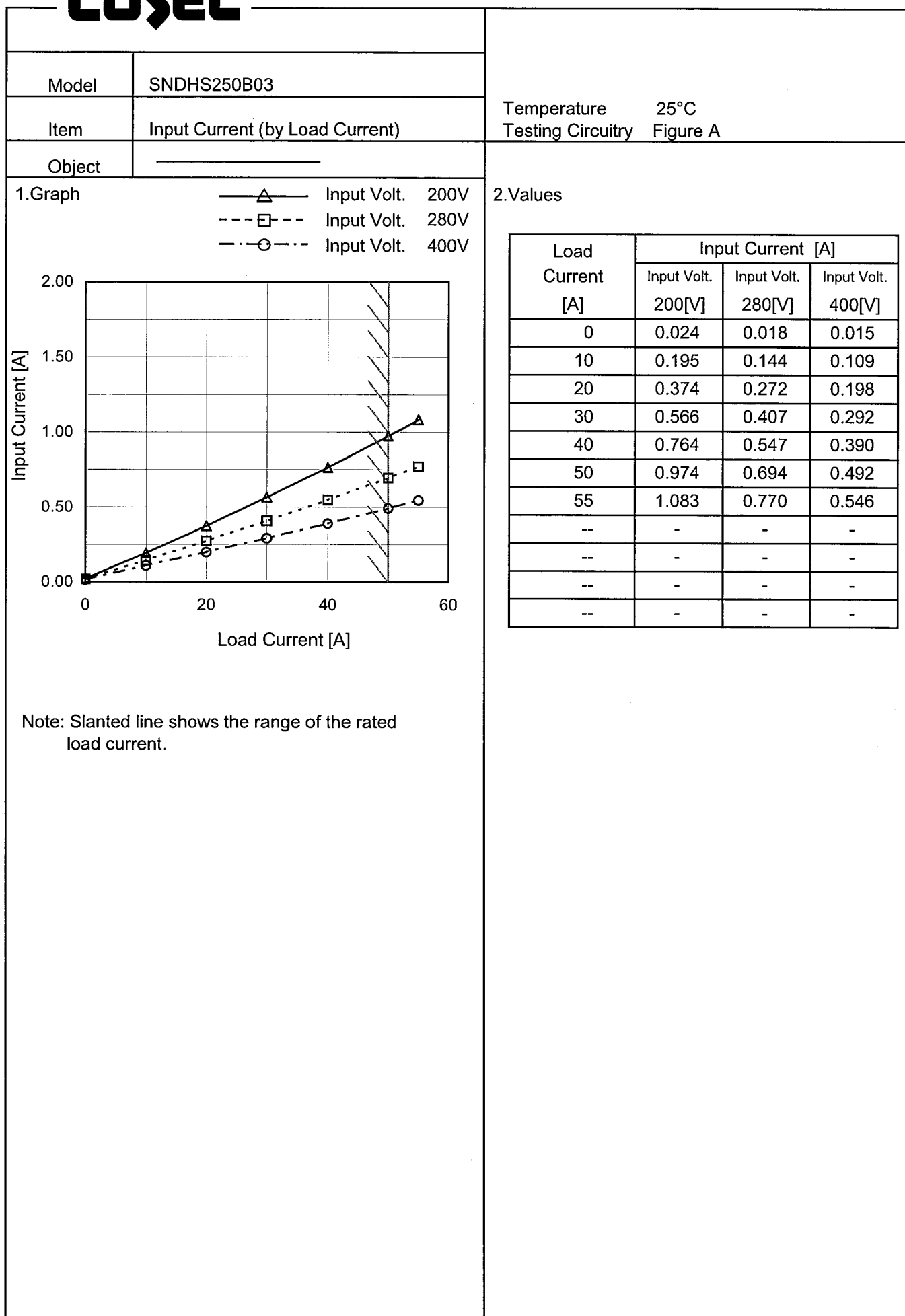
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Model		SNDHS250B03		Temperature		25°C																																																																																
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Model SNDHS250B03

Item Input Power (by Load Current)

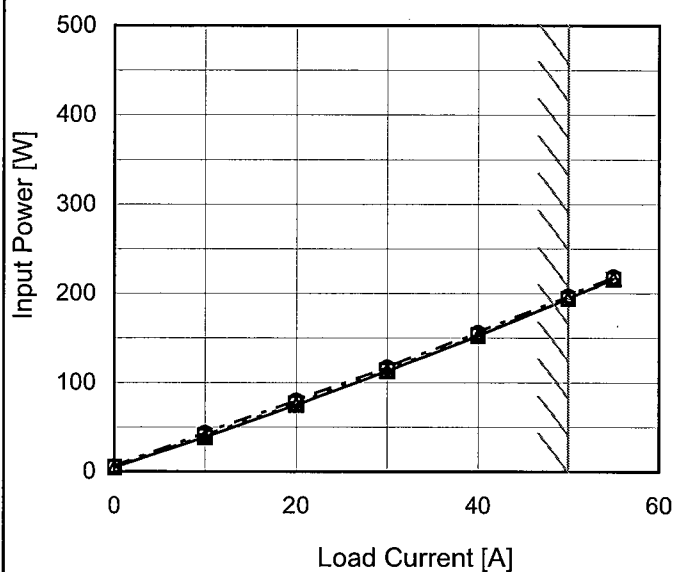
Object

Temperature 25°C

Testing Circuitry Figure A

1. Graph

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



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

2. Values

Load Current [A]	Input Power [W]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0	4.7	5.1	5.8
10	38.9	40.2	43.4
20	74.9	76.4	79.6
30	113.2	114.0	117.0
40	152.8	153.5	156.1
50	194.6	194.4	197.2
55	216.7	215.9	218.9
--	-	-	-
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--	-	-	-

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Model		SNDHS250B03	
Item		Efficiency (by Load Current)	
Object			
1.Graph		2.Values	

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Model	SNDHS250B03	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Response	
Object	+3.3V50A	

Input Volt. 280 V
Cycle 1000 ms

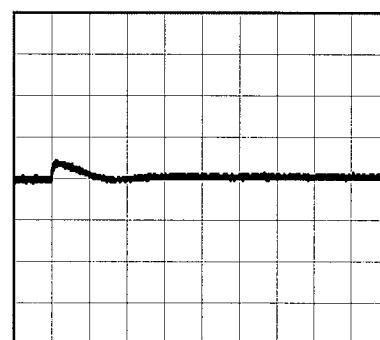
Load Current 50A/50 μ s

Min. Load (0A) \longleftrightarrow
Load 100% (50A)

0.5 V/div



1ms/div



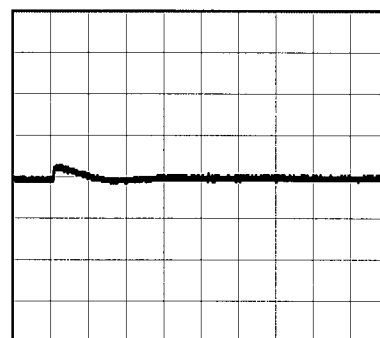
1ms/div

Min. Load (0A) \longleftrightarrow
Load 50% (25A)

0.5 V/div



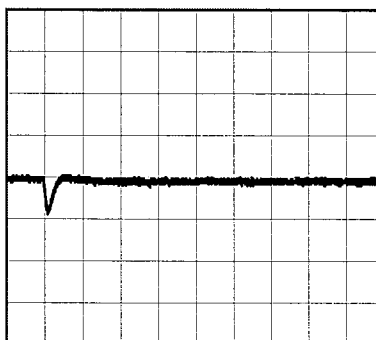
1ms/div



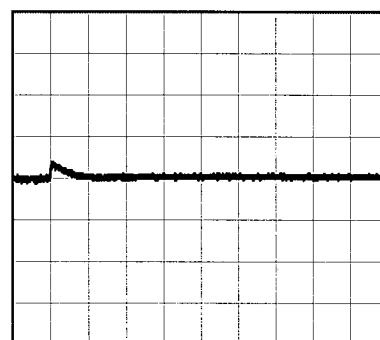
1ms/div

Load 10% (5A) \longleftrightarrow
Load 100% (50A)

0.5 V/div



1ms/div

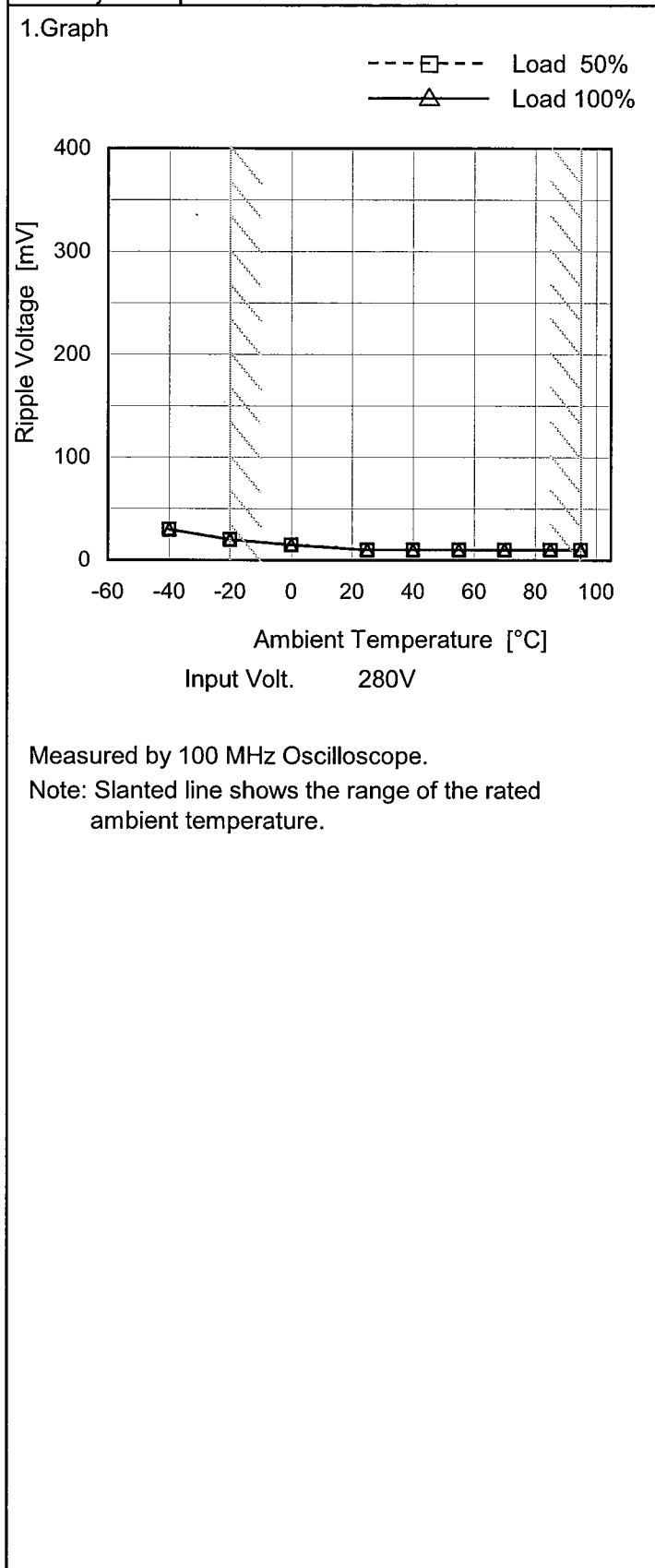


1ms/div

Model	SNDHS250B03																																								
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Model		SNDHS250B03	
Item		Ripple-Noise	
Object		+3.3V50A	
1.Graph		2.Values	



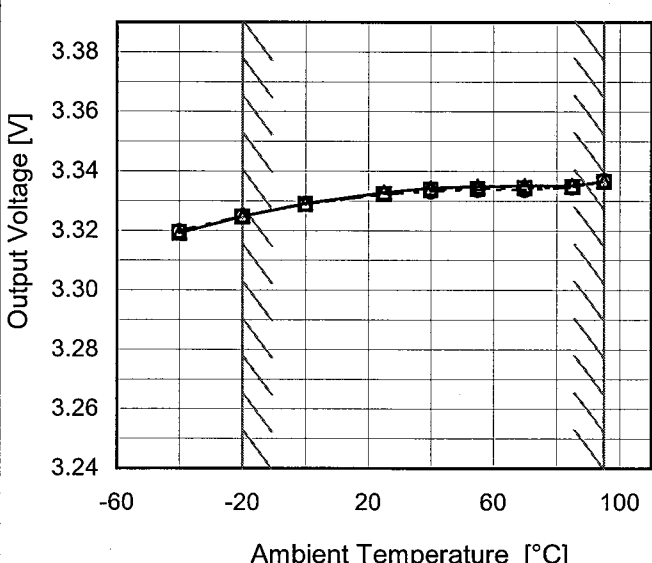
Testing Circuitry Figure B

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	30	30
-20	20	20
0	15	15
25	10	10
40	10	10
55	10	10
70	10	10
85	10	10
95	10	10
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Measured by 100 MHz Oscilloscope.

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

Model	SNDHS250B03																																																						
Item	Ambient Temperature Drift		Testing Circuitry Figure A																																																				
Object	+3.3V50A																																																						
1.Graph		2.Values																																																					
<div><div><div>—△—</div><div>Input Volt.</div><div>200V</div></div><div><div>---□---</div><div>Input Volt.</div><div>280V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>400V</div></div></div> <div><p>Output Voltage [V]</p><p>Ambient Temperature [°C]</p><p>Load 100%</p></div>		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 200[V]</th><th>Input Volt. 280[V]</th><th>Input Volt. 400[V]</th></tr><tr><td>-40</td><td>3.319</td><td>3.319</td><td>3.320</td></tr><tr><td>-20</td><td>3.325</td><td>3.325</td><td>3.325</td></tr><tr><td>0</td><td>3.329</td><td>3.329</td><td>3.329</td></tr><tr><td>25</td><td>3.333</td><td>3.332</td><td>3.332</td></tr><tr><td>40</td><td>3.334</td><td>3.334</td><td>3.333</td></tr><tr><td>55</td><td>3.335</td><td>3.334</td><td>3.334</td></tr><tr><td>70</td><td>3.335</td><td>3.334</td><td>3.334</td></tr><tr><td>85</td><td>3.335</td><td>3.335</td><td>3.335</td></tr><tr><td>95</td><td>3.337</td><td>3.337</td><td>3.337</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>			Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]	-40	3.319	3.319	3.320	-20	3.325	3.325	3.325	0	3.329	3.329	3.329	25	3.333	3.332	3.332	40	3.334	3.334	3.333	55	3.335	3.334	3.334	70	3.335	3.334	3.334	85	3.335	3.335	3.335	95	3.337	3.337	3.337	--	-	-	-	--	-	-	-
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Note: Slanted line shows the range of the rated ambient temperature.																																																							

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BC-10591



		Testing Circuitry Figure A
Model	SNDHS250B03	
Item	Output Voltage Accuracy	
Object	+3.3V50A	

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 - 50A

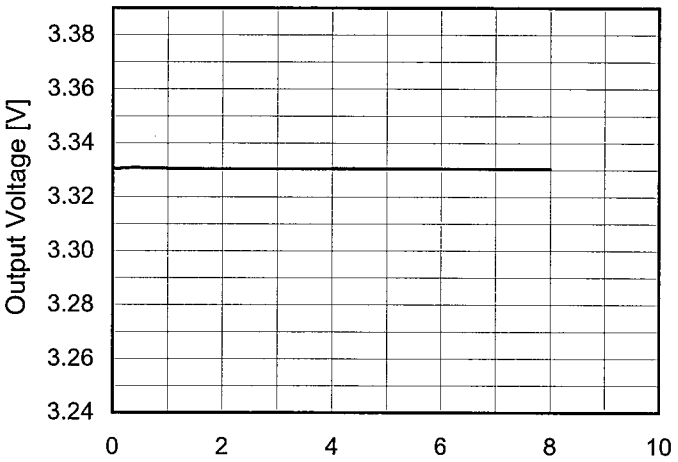
* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	95	400	0	3.372	±24	±0.7
Minimum Voltage	-20	280	50	3.325		

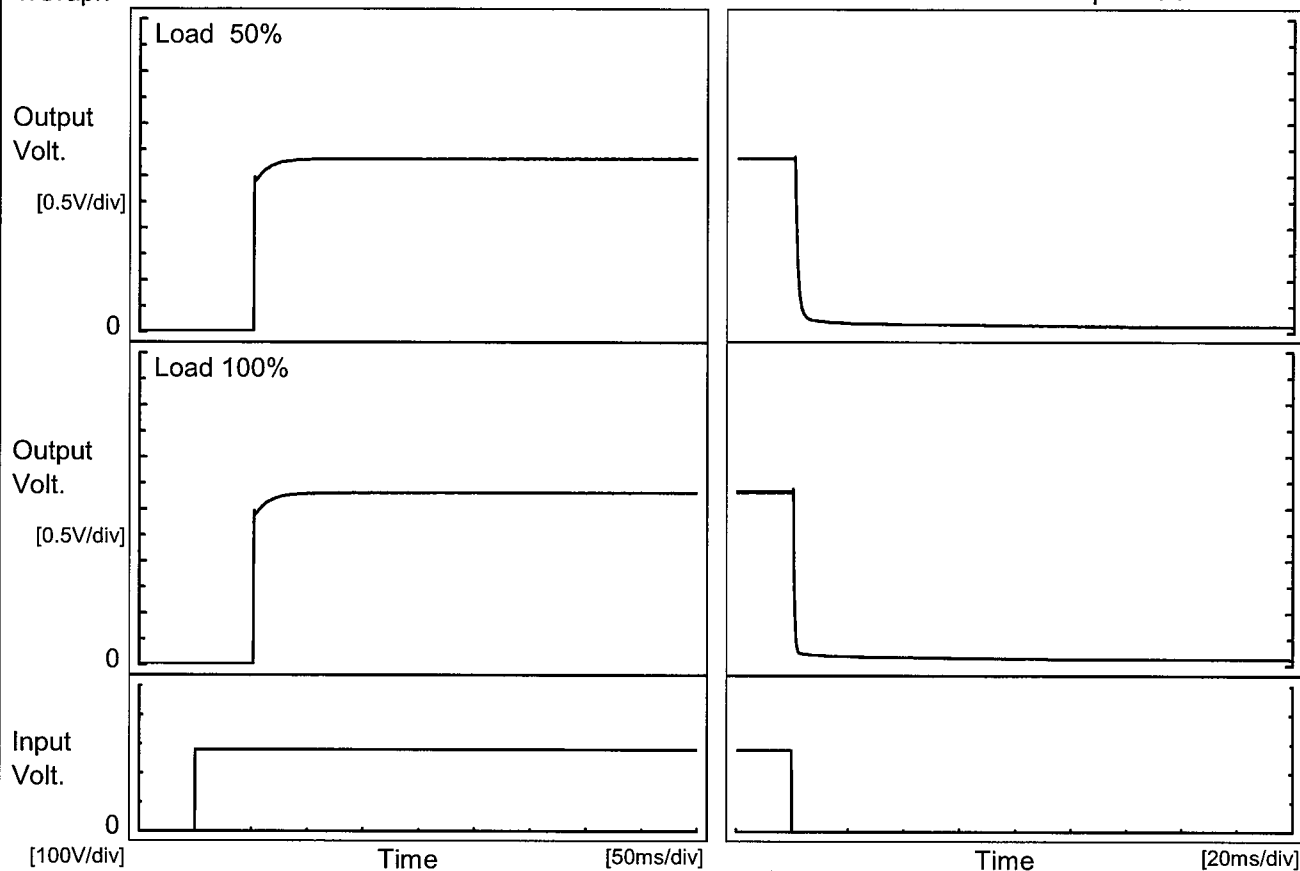
COSEL

Model	SNDHS250B03																								
Item	Time Lapse Drift	Temperature	25°C																						
Object	+3.3V50A	Testing Circuitry	Figure A																						
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 280V</p><p>Load 100%</p></div>		<table><thead><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr></thead><tbody><tr><td>0.0</td><td>3.331</td></tr><tr><td>0.5</td><td>3.331</td></tr><tr><td>1.0</td><td>3.331</td></tr><tr><td>2.0</td><td>3.331</td></tr><tr><td>3.0</td><td>3.331</td></tr><tr><td>4.0</td><td>3.331</td></tr><tr><td>5.0</td><td>3.331</td></tr><tr><td>6.0</td><td>3.331</td></tr><tr><td>7.0</td><td>3.330</td></tr><tr><td>8.0</td><td>3.330</td></tr></tbody></table>		Time since start [H]	Output Voltage [V]	0.0	3.331	0.5	3.331	1.0	3.331	2.0	3.331	3.0	3.331	4.0	3.331	5.0	3.331	6.0	3.331	7.0	3.330	8.0	3.330
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6.0	3.331																								
7.0	3.330																								
8.0	3.330																								

Model	SNDHS250B03	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+3.3V50A		

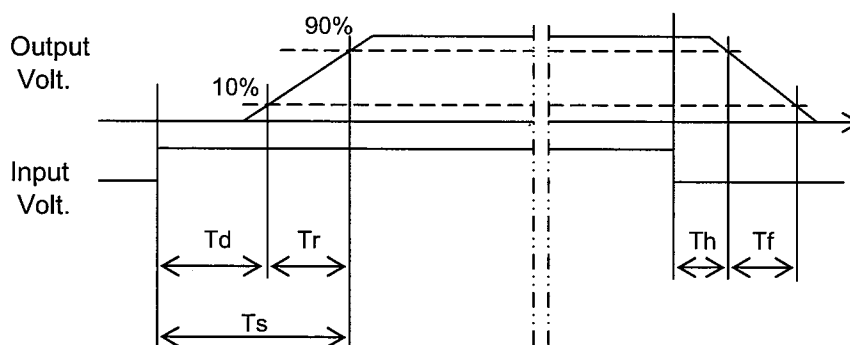
1. Graph

Input Volt. 280 V



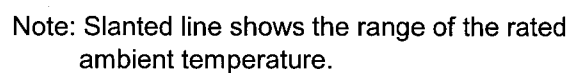
2. Values

Load	Time	Td	Tr	Ts	Th	Tf
50 %		52.0	4.8	56.8	0.8	3.3
100 %		52.0	5.5	57.5	0.5	1.2



Testing Circuitry Figure A

1.Graph



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COSEL

Model	SNDHS250B03																																																											
Item	Overcurrent Protection		Temperature 25°C																																																									
Object	+3.3V50A		Testing Circuitry Figure A																																																									
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<div><div><div></div><div></div><div></div></div><div><div>Input Volt. 200V</div><div>Input Volt. 280V</div><div>Input Volt. 400V</div></div><p>Note: Slanted line shows the range of the rated load current.</p><p>Intermittent operation occurs when the output voltage is from 2.31V to 0V.</p></div> <div><table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 200[V]</th><th>Input Volt. 280[V]</th><th>Input Volt. 400[V]</th></tr><tr><td>3.14</td><td>57.41</td><td>59.26</td><td>61.22</td></tr><tr><td>2.97</td><td>57.79</td><td>59.68</td><td>61.40</td></tr><tr><td>2.64</td><td>58.82</td><td>61.00</td><td>62.94</td></tr><tr><td>2.31</td><td>60.09</td><td>61.99</td><td>63.84</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><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><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table></div>		Output Voltage [V]	Load Current [A]			Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]	3.14	57.41	59.26	61.22	2.97	57.79	59.68	61.40	2.64	58.82	61.00	62.94	2.31	60.09	61.99	63.84	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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<div><div><div>—△— Input Volt. 200V</div><div>---□--- Input Volt. 400V</div></div><div>Operating Point [V]</div><div>Ambient Temperature [°C]</div><div>Load 0%</div></div> <div>Note: Slanted line shows the range of the rated ambient temperature.</div>		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Operating Point [V]</th></tr><tr><th>Input Volt. 200[V]</th><th>Input Volt. 400[V]</th></tr><tr><td>-40</td><td>4.84</td><td>4.84</td></tr><tr><td>-20</td><td>4.86</td><td>4.86</td></tr><tr><td>0</td><td>4.86</td><td>4.86</td></tr><tr><td>25</td><td>4.86</td><td>4.86</td></tr><tr><td>40</td><td>4.86</td><td>4.86</td></tr><tr><td>55</td><td>4.87</td><td>4.87</td></tr><tr><td>70</td><td>4.87</td><td>4.87</td></tr><tr><td>85</td><td>4.87</td><td>4.87</td></tr><tr><td>95</td><td>4.87</td><td>4.87</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Operating Point [V]		Input Volt. 200[V]	Input Volt. 400[V]	-40	4.84	4.84	-20	4.86	4.86	0	4.86	4.86	25	4.86	4.86	40	4.86	4.86	55	4.87	4.87	70	4.87	4.87	85	4.87	4.87	95	4.87	4.87	--	-	-	--	-	-
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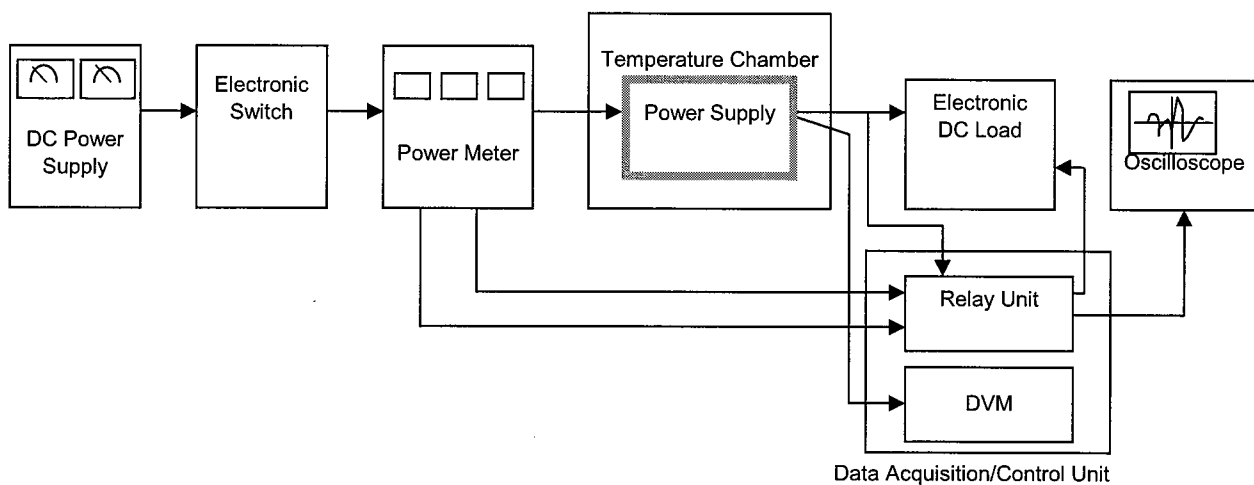


Figure A

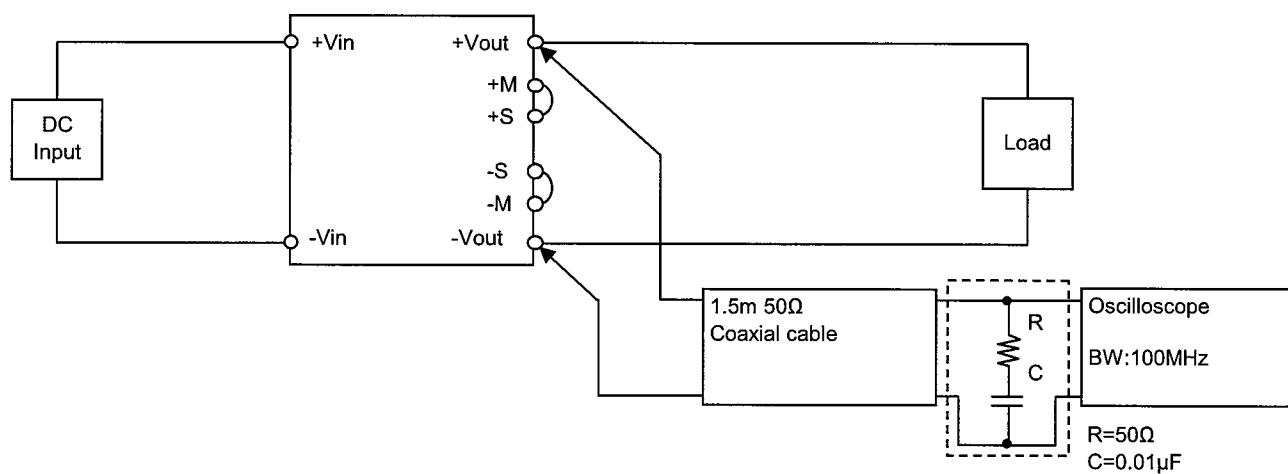


Figure B (Ripple and Ripple noise Characteristic)