

# TEST DATA OF CHS200483R3

Regulated DC Power Supply  
September 29, 2011

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Prepared by : Masanobu Shima  
Masanobu Shima Design Engineer

**COSEL CO.,LTD.**

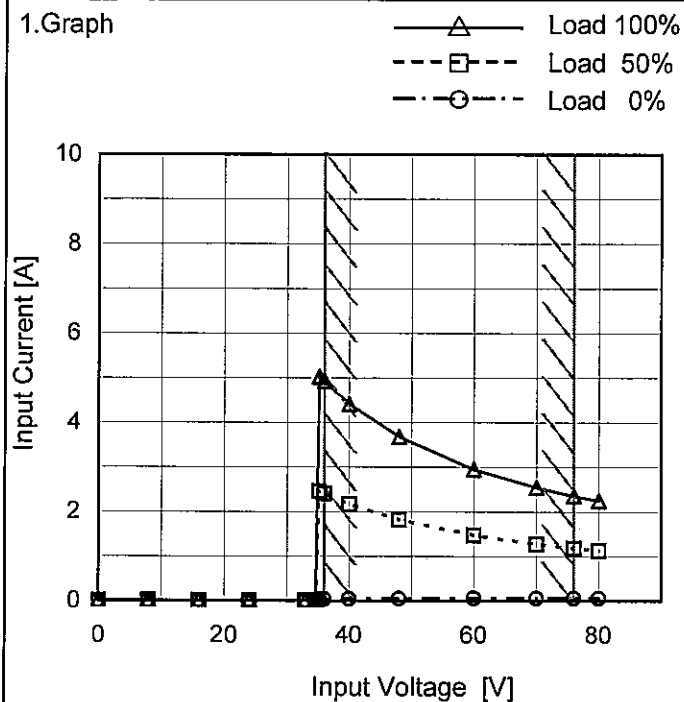
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Model	CHS200483R3
Item	Input Current (by Input Voltage)
Object	_____

Temperature 25°C  
Testing Circuitry Figure A



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

2. Values

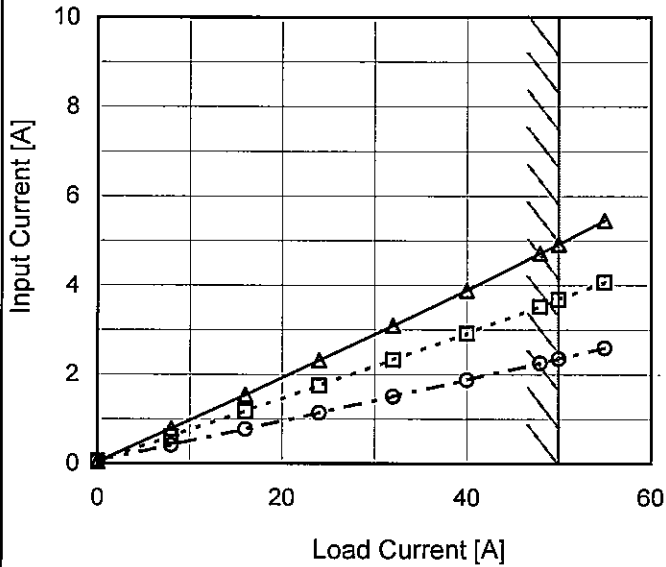
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
8.0	0.004	0.004	0.004
16.0	0.005	0.005	0.005
24.0	0.006	0.006	0.006
33.0	0.006	0.006	0.006
34.6	0.006	0.006	0.006
35.2	0.037	2.458	5.020
36.0	0.037	2.404	4.920
40.0	0.041	2.169	4.408
48.0	0.047	1.820	3.678
60.0	0.054	1.472	2.946
70.0	0.058	1.275	2.542
76.0	0.059	1.181	2.349
80.0	0.060	1.126	2.239
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	CHS200483R3
Item	Input Current (by Load Current)
Object	_____

Temperature 25°C  
Testing Circuitry Figure A

1. Graph

- △— Input Volt. 36V
- - -□- - - Input Volt. 48V
- · - ○ - · - - Input Volt. 76V



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

2. Values

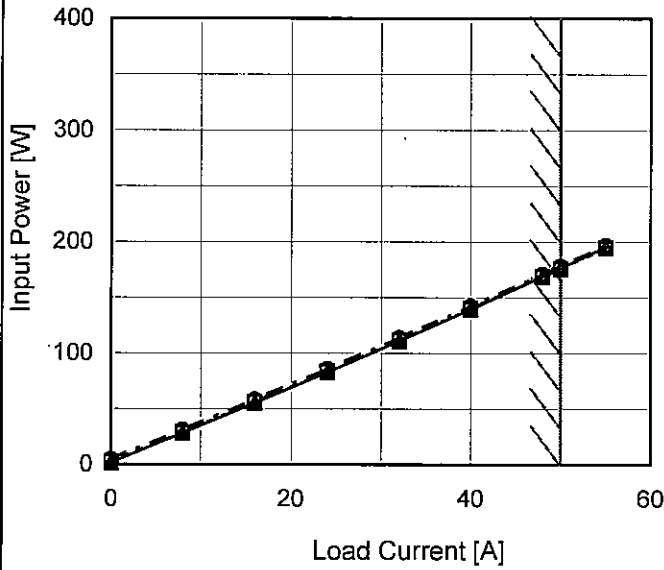
Load Current [A]	Input Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.037	0.047	0.059
8	0.782	0.603	0.410
16	1.540	1.171	0.768
24	2.310	1.748	1.134
32	3.088	2.328	1.503
40	3.888	2.920	1.876
48	4.710	3.522	2.256
50	4.920	3.676	2.349
55	5.450	4.068	2.595
--	-	-	-
--	-	-	-

Model	CHS200483R3
Item	Input Power (by Load Current)
Object	_____

Temperature 25°C  
Testing Circuitry Figure A

1. Graph

- △— Input Volt. 36V
- Input Volt. 48V
- Input Volt. 76V



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

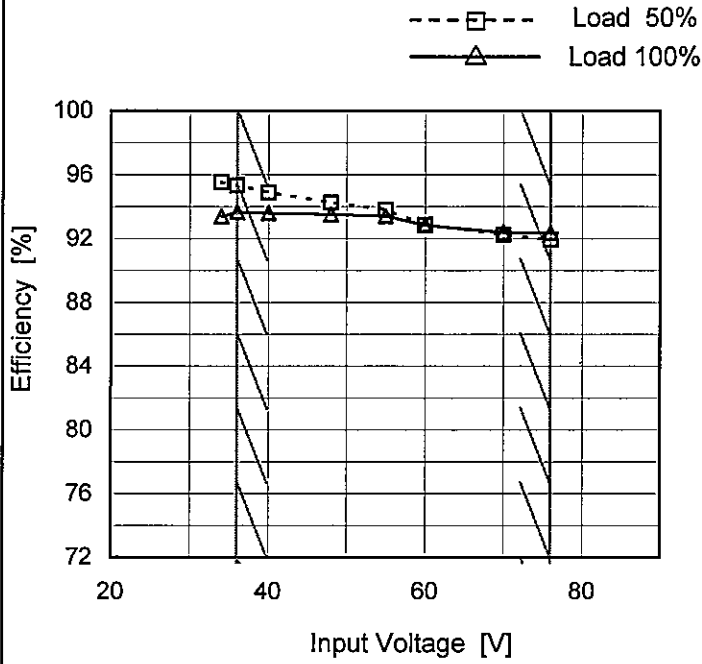
2. Values

Load Current [A]	Input Power [W]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	1.3	2.3	4.5
8	28.0	28.9	31.1
16	55.2	56.1	58.3
24	82.9	83.6	86.0
32	110.8	111.5	113.9
40	139.4	139.8	142.2
48	169.0	168.7	171.0
50	176.4	176.0	178.2
55	195.4	194.6	196.8
--	-	-	-
--	-	-	-

Model	CHS200483R3
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.

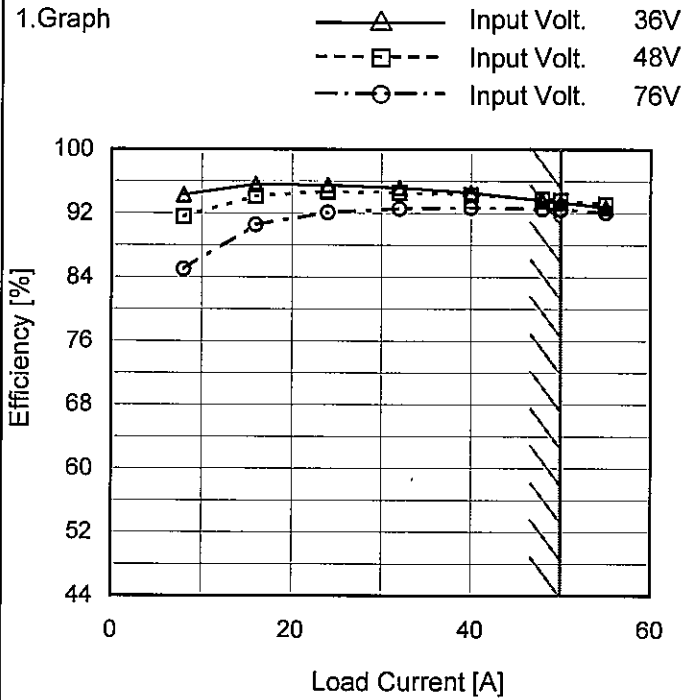
2. Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
34	95.6	93.3
36	95.5	93.4
40	95.3	93.7
48	94.9	93.6
55	94.2	93.5
60	93.8	93.4
70	92.9	92.8
76	92.2	92.4
80	91.9	92.4

Model	CHS200483R3
Item	Efficiency (by Load Current)
Object	_____

Temperature 25°C  
Testing Circuitry Figure A

1. Graph



2. Values

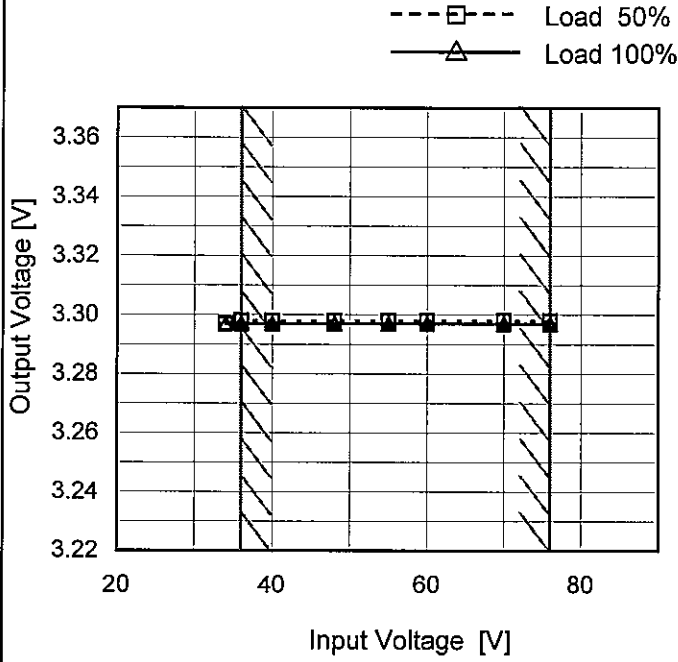
Load Current [A]	Efficiency [%]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	-	-	-
8	94.3	91.6	85.0
16	95.6	94.1	90.6
24	95.5	94.7	92.1
32	95.2	94.6	92.6
40	94.6	94.3	92.7
48	93.6	93.8	92.5
50	93.4	93.6	92.4
55	92.7	93.1	92.1
--	-	-	-
--	-	-	-

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

Model	CHS200483R3
Item	Line Regulation
Object	+3.3V50A

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%
34	3.297	3.297
36	3.297	3.297
40	3.298	3.297
48	3.298	3.297
55	3.298	3.297
60	3.298	3.297
70	3.298	3.297
76	3.298	3.297
80	3.298	3.297





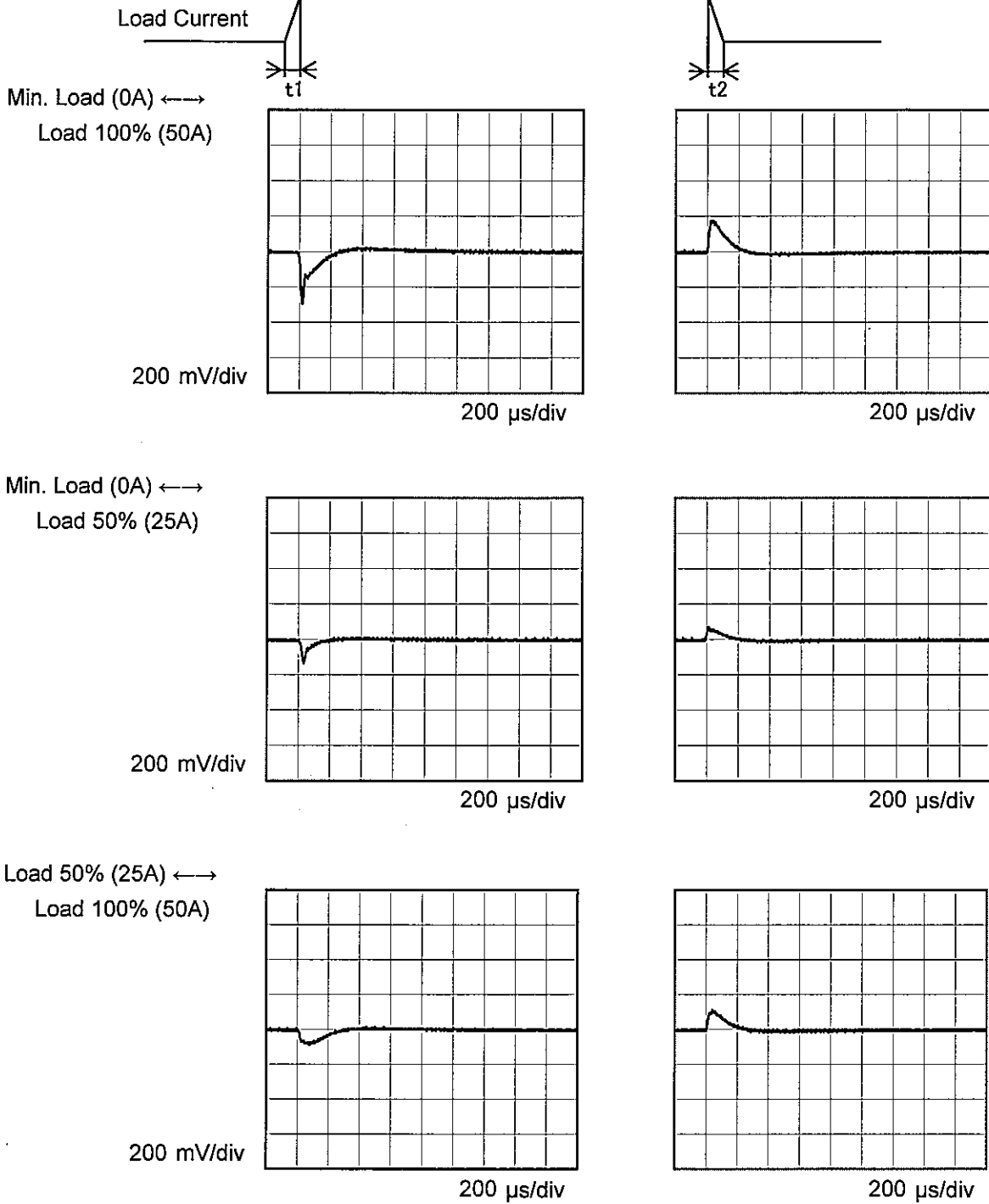
Model		CHS200483R3		Temperature 25°C																																																				
Item		Load Regulation		Testing Circuitry Figure A																																																				
Object		+3.3V50A																																																						
1. Graph			2. Values																																																					
<p>                 —△— Input Volt. 36V                  - - - □ - - - Input Volt. 48V                  - · - ○ - · - - Input Volt. 76V             </p> <p>                 Note: Slanted line shows the range of the rated load current.             </p>			<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Output Voltage [V]</th> </tr> <tr> <th>Input Volt. 36[V]</th> <th>Input Volt. 48[V]</th> <th>Input Volt. 76[V]</th> </tr> </thead> <tbody> <tr><td>0</td><td>3.297</td><td>3.298</td><td>3.298</td></tr> <tr><td>8</td><td>3.297</td><td>3.298</td><td>3.298</td></tr> <tr><td>16</td><td>3.297</td><td>3.298</td><td>3.298</td></tr> <tr><td>24</td><td>3.297</td><td>3.298</td><td>3.298</td></tr> <tr><td>32</td><td>3.297</td><td>3.298</td><td>3.298</td></tr> <tr><td>40</td><td>3.297</td><td>3.298</td><td>3.298</td></tr> <tr><td>48</td><td>3.297</td><td>3.297</td><td>3.297</td></tr> <tr><td>50</td><td>3.297</td><td>3.297</td><td>3.297</td></tr> <tr><td>55</td><td>3.296</td><td>3.297</td><td>3.297</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]	Output Voltage [V]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	0	3.297	3.298	3.298	8	3.297	3.298	3.298	16	3.297	3.298	3.298	24	3.297	3.298	3.298	32	3.297	3.298	3.298	40	3.297	3.298	3.298	48	3.297	3.297	3.297	50	3.297	3.297	3.297	55	3.296	3.297	3.297	--	-	-	-	--	-	-	-
Load Current [A]	Output Voltage [V]																																																							
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48	3.297	3.297	3.297																																																					
50	3.297	3.297	3.297																																																					
55	3.296	3.297	3.297																																																					
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Model	CHS200483R3
Item	Dynamic Load Response
Object	+3.3V50A

Temperature 25°C  
Testing Circuitry Figure A

Input Volt. 48 V  
Cycle 5 ms

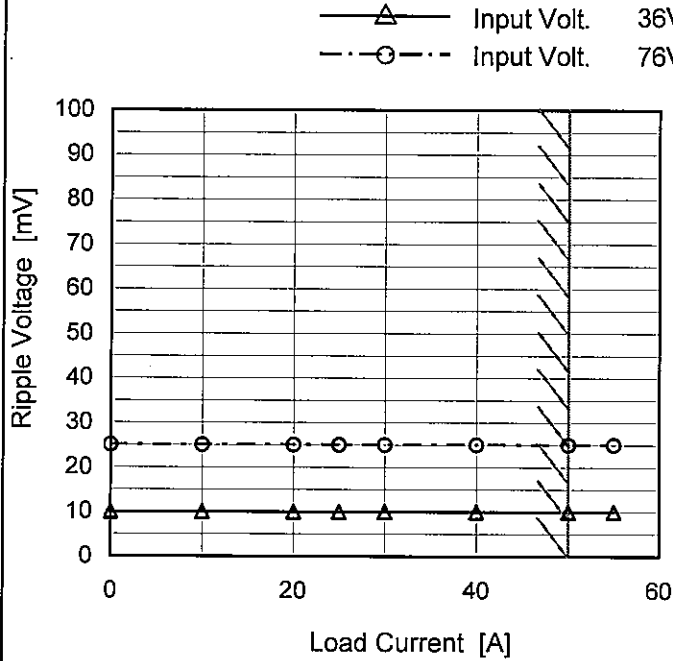
$t_1, t_2 = 50 \mu S$



Model	CHS200483R3
Item	Ripple Voltage (by Load Current)
Object	+3.3V50A

Temperature 25°C  
Testing Circuitry Figure B

1. Graph



2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36[V]	Input Volt. 76[V]
0	10	25
10	10	25
20	10	25
25	10	25
30	10	25
40	10	25
50	10	25
55	10	25
--	-	-
--	-	-
--	-	-

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]

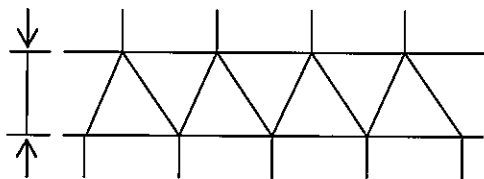
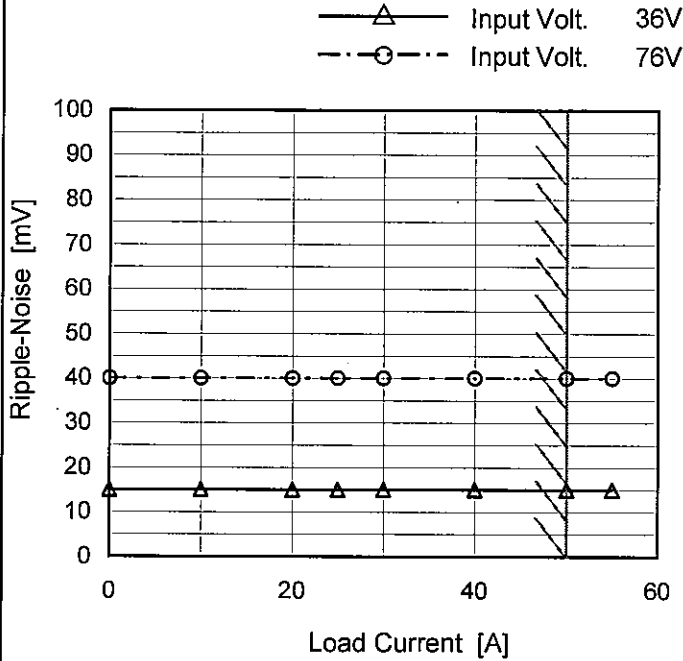


Fig. Complex Ripple Wave Form

Model	CHS200483R3
Item	Ripple-Noise
Object	+3.3V50A

Temperature 25°C  
Testing Circuitry Figure B

1. Graph



2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0	15	40
10	15	40
20	15	40
25	15	40
30	15	40
40	15	40
50	15	40
55	15	40
--	-	-
--	-	-
--	-	-

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.

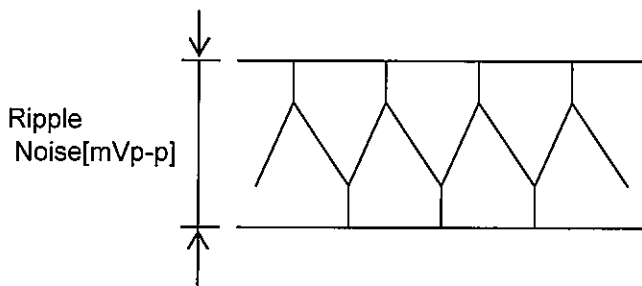
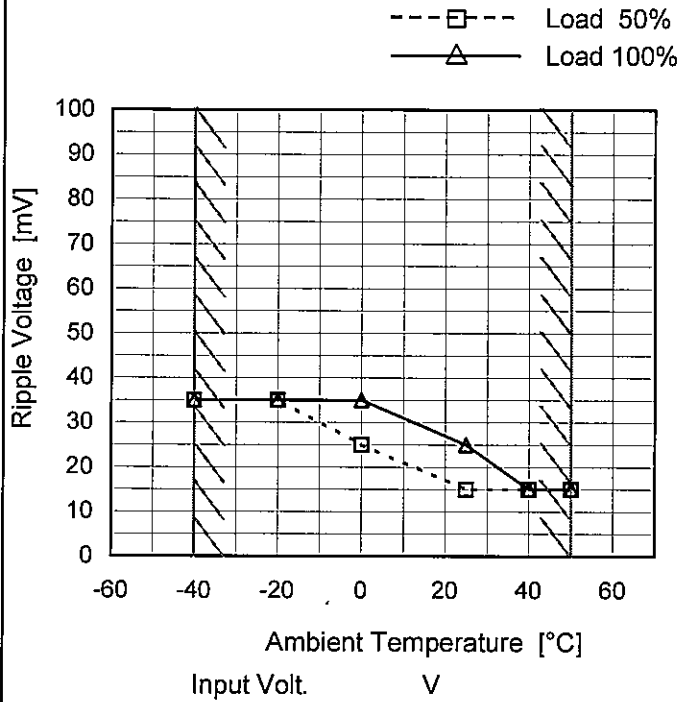


Fig. Complex Ripple Noise Wave Form

Model	CHS200483R3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V50A

Testing Circuitry Figure A

1. Graph



2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	35	35
-20	35	35
0	25	35
25	15	25
40	15	15
50	15	15
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

Measured by 100 MHz Oscilloscope.

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

Ripple [mVp-p]

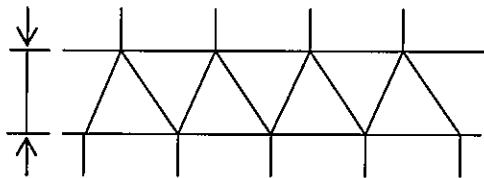


Fig. Complex Ripple Wave Form

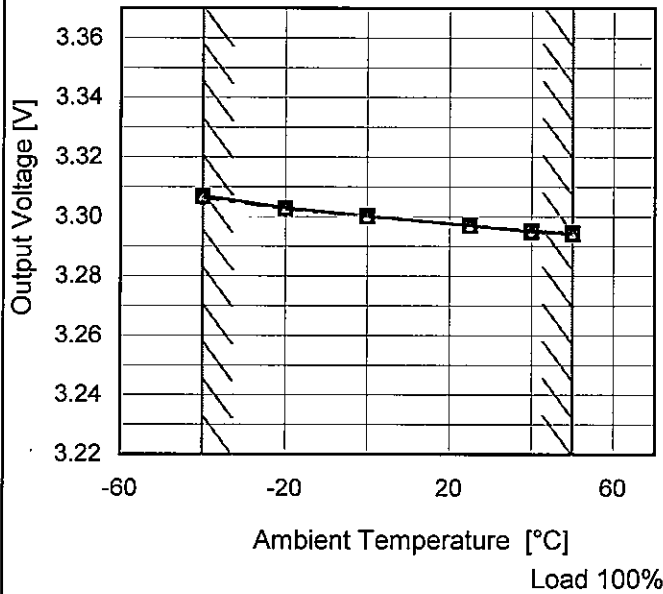


Model	CHS200483R3
Item	Ambient Temperature Drift
Object	+3.3V50A

Testing Circuitry Figure A

1. Graph

- △— Input Volt. 36V
- - -□- - - Input Volt. 48V
- - -○- - - Input Volt. 76V



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

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-40	3.307	3.307	3.306
-20	3.303	3.303	3.302
0	3.300	3.300	3.300
25	3.297	3.297	3.297
40	3.295	3.295	3.295
50	3.294	3.295	3.294
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

		Testing Circuitry Figure A
Model	CHS200483R3	
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 : -40 - 50°C

Input Voltage : 36 - 76V

Load Current : 0 - 50A

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

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

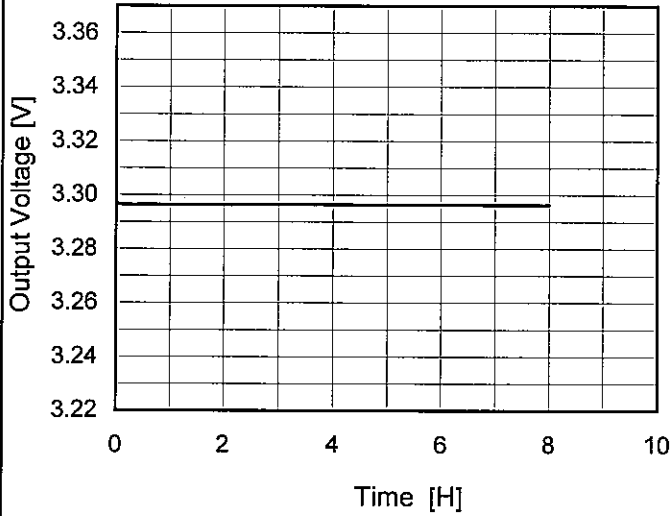
### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-40	76	0	3.309	±8	±0.2
Minimum Voltage	50	36	50	3.294		

Model	CHS200483R3
Item	Time Lapse Drift
Object	+3.3V50A

Temperature 25°C  
Testing Circuitry Figure A

1. Graph



Input Volt. 48V  
Load 100%

2. Values

Time since start [H]	Output Voltage [V]
0.0	3.297
0.5	3.296
1.0	3.296
2.0	3.296
3.0	3.296
4.0	3.296
5.0	3.296
6.0	3.296
7.0	3.296
8.0	3.296

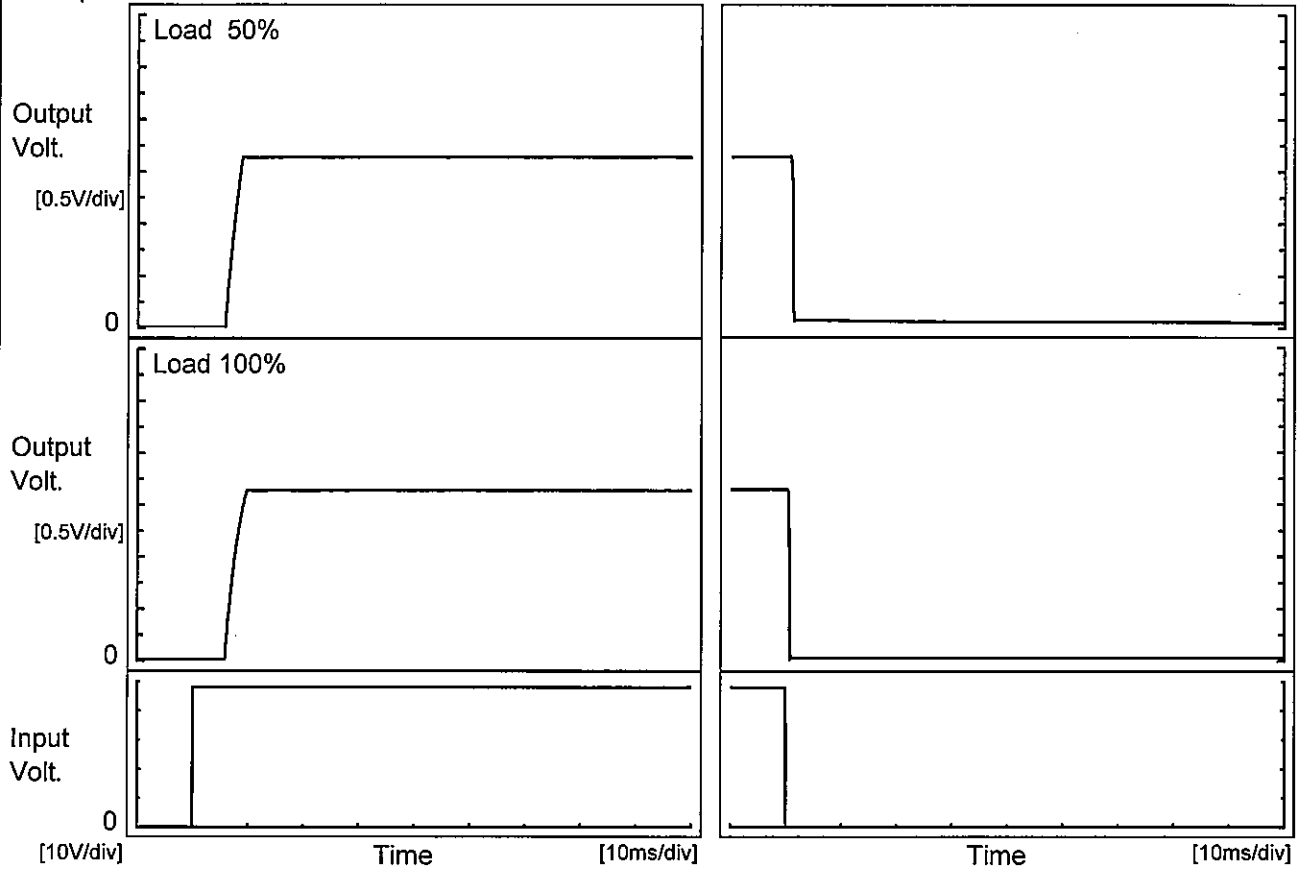




Model	CHS200483R3	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+3.3V50A		

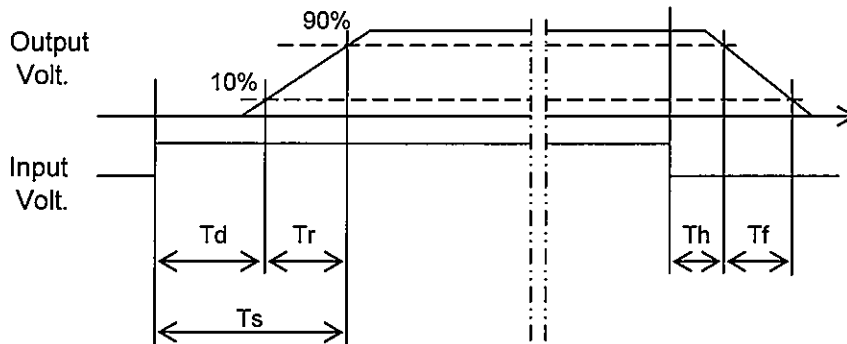
1. Graph

Input Volt. 48 V



2. Values

Load	Time	Td	Tr	Ts	Th	Tf
50 %		6.0	2.5	8.5	0.9	0.3
100 %		6.1	3.1	9.2	0.5	0.2

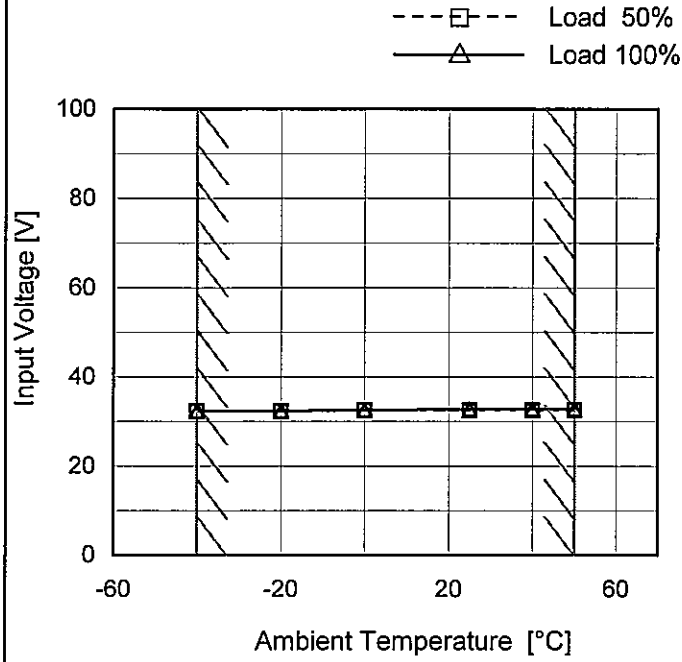




Model	CHS200483R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V50A

Testing Circuitry Figure A

1. Graph



2. Values

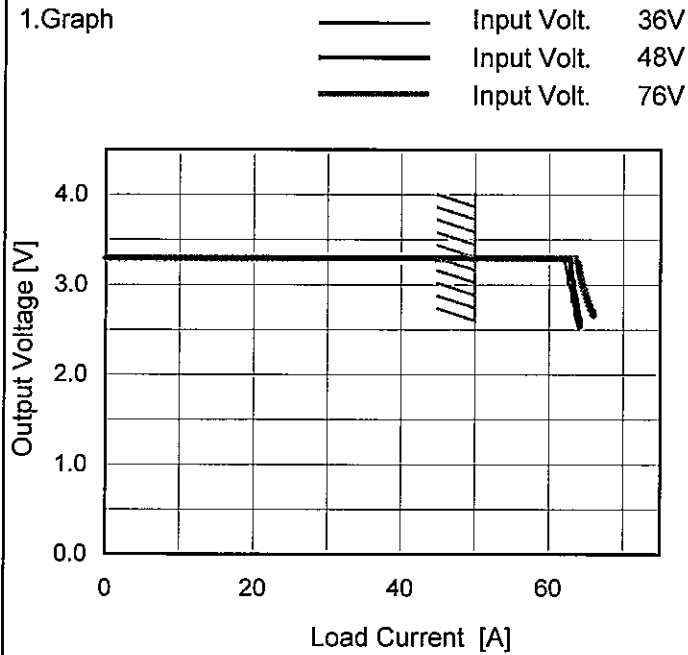
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	32.4	32.4
-20	32.4	32.4
0	32.6	32.6
25	32.5	32.8
40	32.5	32.8
50	32.6	32.8
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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

Model	CHS200483R3
Item	Overcurrent Protection
Object	+3.3V50A

Temperature 25°C  
Testing Circuitry Figure A

1. Graph



2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
3.14	62.23	62.95	64.03
2.97	62.79	63.31	64.29
2.64	63.46	64.05	65.93
2.31	63.95	64.24	66.86
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-



Model		CHS200483R3																																							
Item		Overvoltage Protection																																							
Object		+3.3V50A																																							
1.Graph		Testing Circuitry Figure A																																							
<p>—△— Input Volt. 36V                  ---□--- Input Volt. 76V</p> <p>Operating Point [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 0%</p>		2.Values																																							
<p>Note: Slanted line shows the range of the rated ambient temperature.</p>		<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="2">Operating Point [V]</th> </tr> <tr> <th>Input Volt. 48[V]</th> <th>Input Volt. 76[V]</th> </tr> </thead> <tbody> <tr><td>-40</td><td>4.27</td><td>4.19</td></tr> <tr><td>-20</td><td>4.26</td><td>4.20</td></tr> <tr><td>0</td><td>4.27</td><td>4.21</td></tr> <tr><td>25</td><td>4.27</td><td>4.20</td></tr> <tr><td>40</td><td>4.26</td><td>4.19</td></tr> <tr><td>50</td><td>4.26</td><td>4.19</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>		Ambient Temperature [°C]	Operating Point [V]		Input Volt. 48[V]	Input Volt. 76[V]	-40	4.27	4.19	-20	4.26	4.20	0	4.27	4.21	25	4.27	4.20	40	4.26	4.19	50	4.26	4.19	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-
Ambient Temperature [°C]	Operating Point [V]																																								
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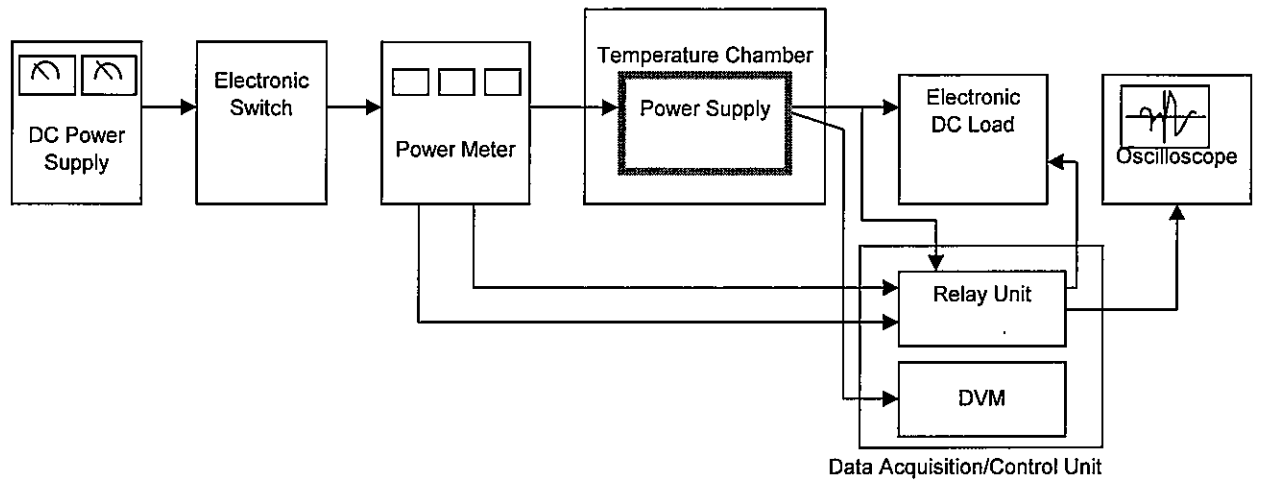


Figure A

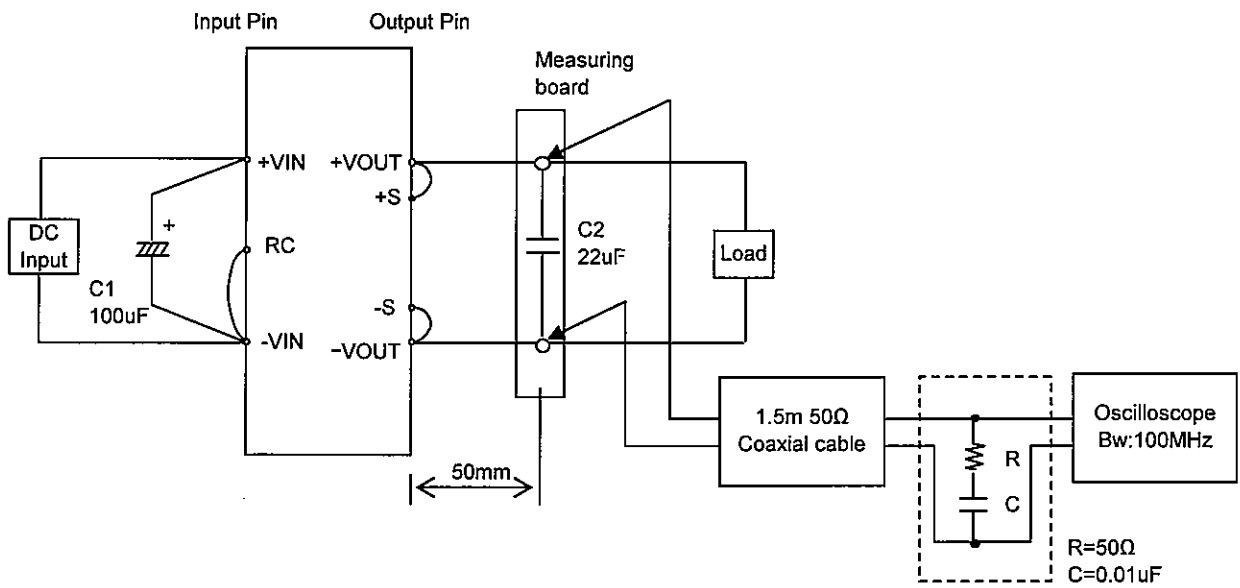


Figure B