

TEST DATA OF CHS3004810

Regulated DC Power Supply

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COSEL CO.,LTD.



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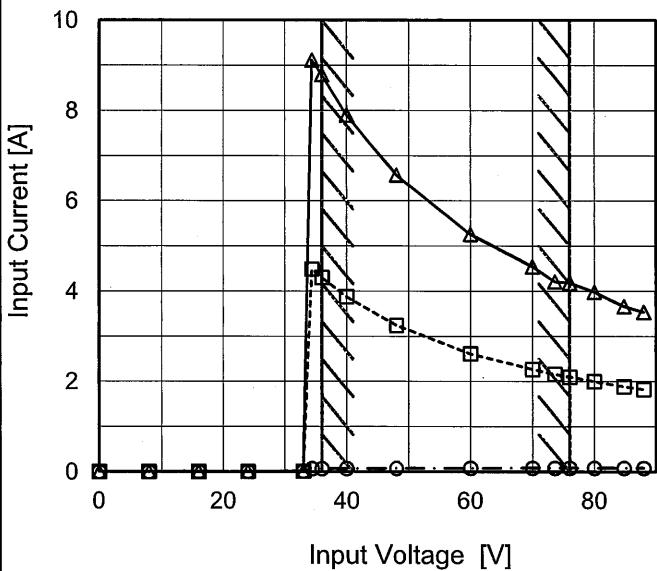
Model CHS3004810

Item Input Current (by Input Voltage)

Object _____

1. Graph

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



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

 Temperature 25°C
 Testing Circuitry Figure A

2. Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
8.0	0.000	0.000	0.000
16.0	0.000	0.006	0.000
24.0	0.006	0.006	0.006
33.0	0.013	0.013	0.013
34.4	0.069	4.489	9.120
36.0	0.070	4.307	8.796
40.0	0.071	3.880	7.900
48.0	0.076	3.244	6.576
60.0	0.080	2.614	5.261
70.0	0.081	2.269	4.543
73.6	0.081	2.162	4.215
76.0	0.081	2.099	4.185
80.0	0.081	2.004	3.984
84.8	0.081	1.890	3.668
88.0	0.081	1.827	3.539
--	-	-	-
--	-	-	-

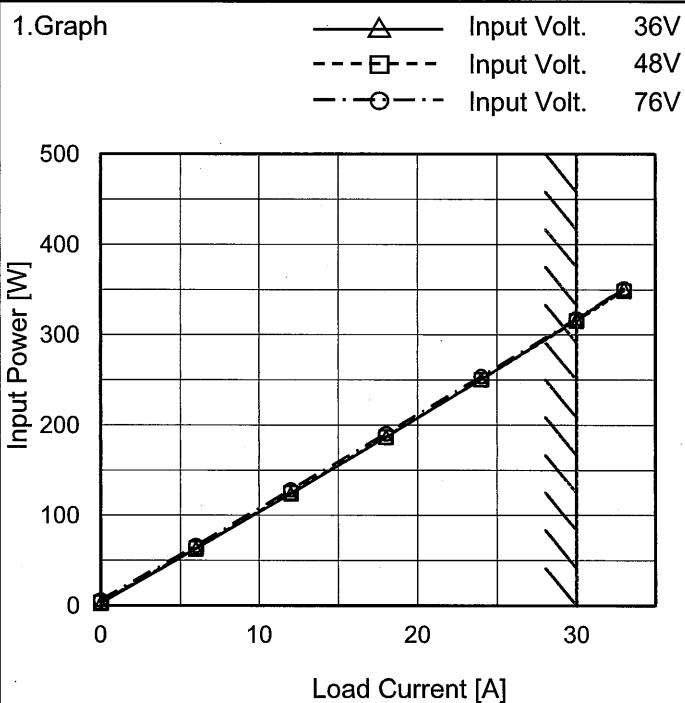
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Model	CHS3004810	Temperature Testing Circuitry	25°C Figure A																																																			
Item	Input Current (by Load Current)																																																					
Object	—																																																					
1.Graph	<p style="text-align: center;"> △ Input Volt. 36V □ Input Volt. 48V ○ Input Volt. 76V </p>	2.Values																																																				
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Note: Slanted line shows the range of the rated load current.

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Model	CHS3004810
Item	Input Power (by Load Current)
Object	_____



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

Temperature 25°C
Testing Circuitry Figure A

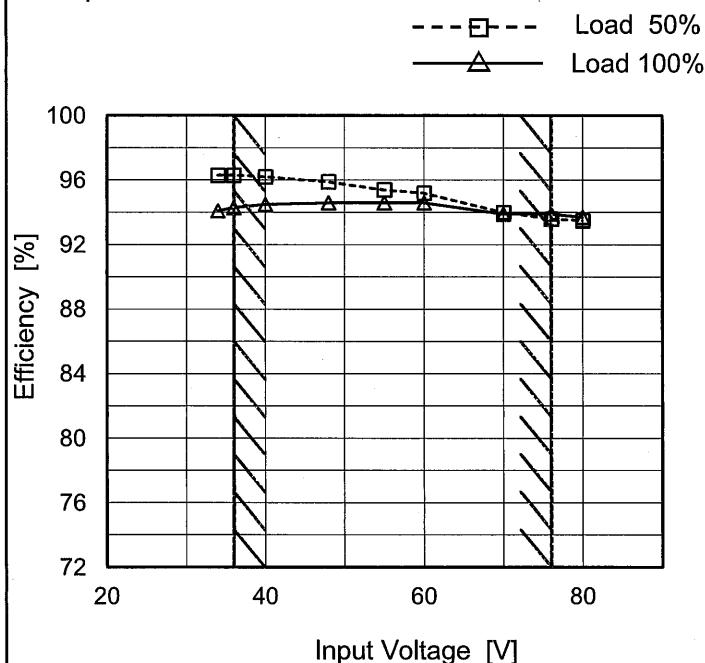
2. Values

Load Current [A]	Input Power [W]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	2.5	3.6	6.2
6	62.7	63.8	66.4
12	124.0	125.1	128.4
18	186.6	187.0	190.6
24	250.4	250.4	253.9
30	316.7	315.7	318.0
33	351.3	348.7	351.3
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	CHS3004810
Item	Efficiency (by Input Voltage)
Object	—

1. Graph



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

Temperature 25°C
Testing Circuitry Figure A

2. Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
34	96.3	94.1
36	96.3	94.3
40	96.2	94.5
48	95.9	94.6
55	95.4	94.6
60	95.2	94.6
70	94.0	93.9
76	93.6	93.9
80	93.5	93.7

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Model	CHS3004810																																																				
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Model CHS3004810

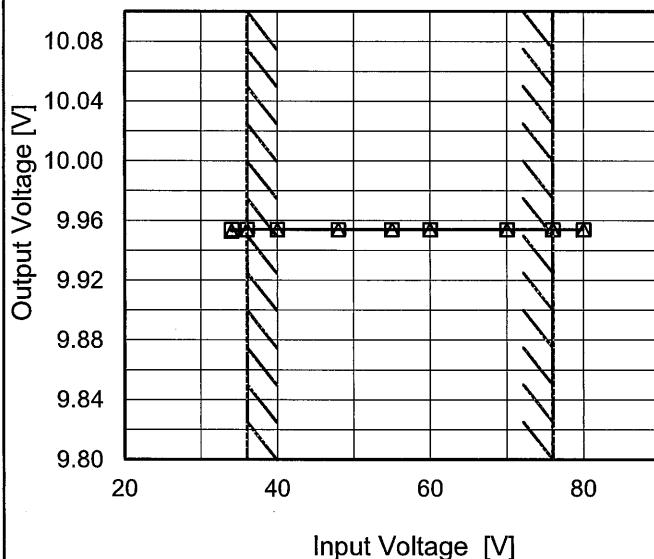
Item Line Regulation

Object +10V30A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

---□--- Load 50%
 —△— Load 100%

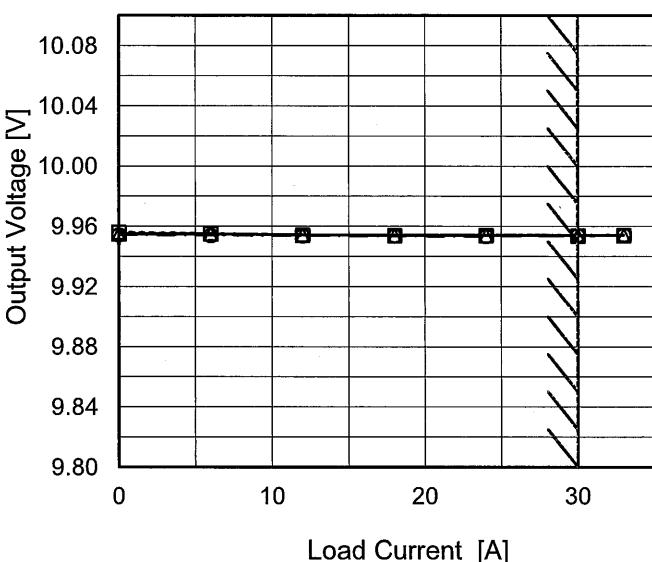


2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
34	9.954	9.953
36	9.954	9.954
40	9.954	9.954
48	9.954	9.954
55	9.954	9.954
60	9.954	9.954
70	9.954	9.954
76	9.954	9.954
80	9.954	9.954

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

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Model	CHS3004810
Item	Load Regulation
Object	+10V30A
1.Graph	<p style="text-align: center;"> Input Volt. 36V Input Volt. 48V Input Volt. 76V </p>  <p>Output Voltage [V]</p> <p>Load Current [A]</p>
Note:	Slanted line shows the range of the rated load current.

Temperature 25°C
 Testing Circuitry Figure A

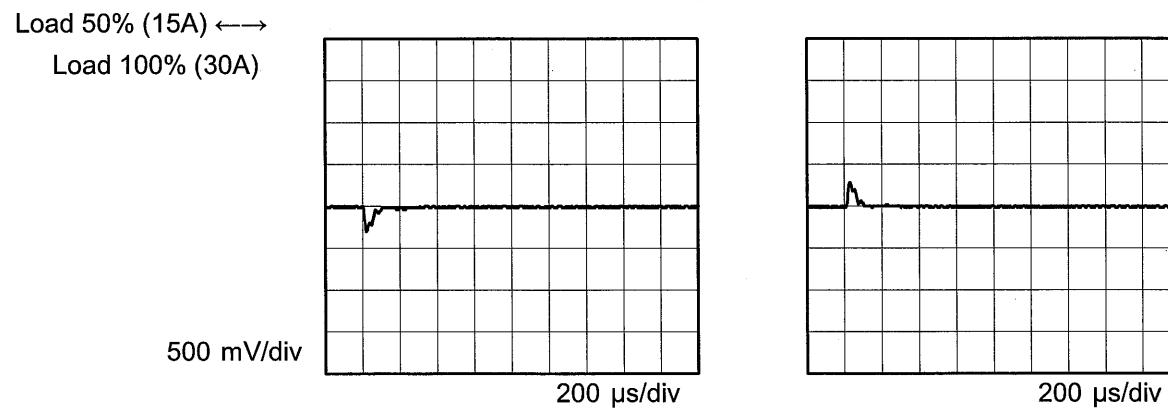
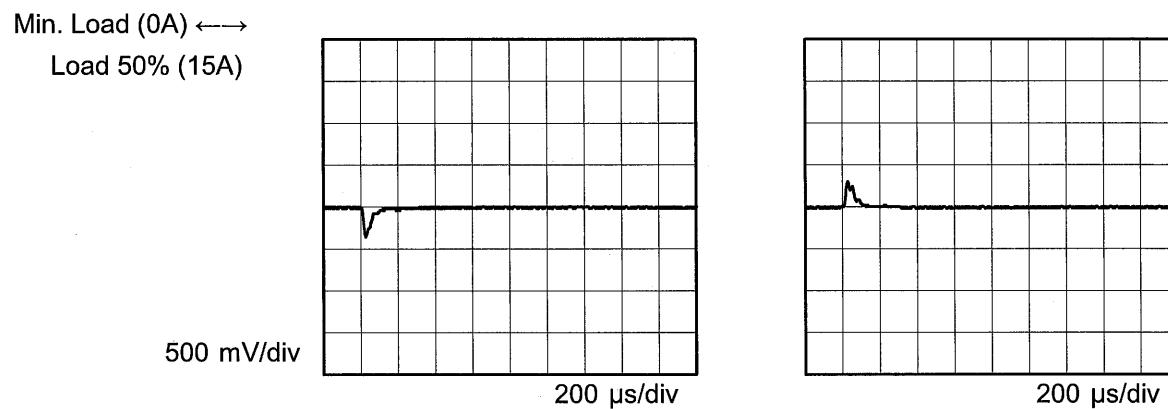
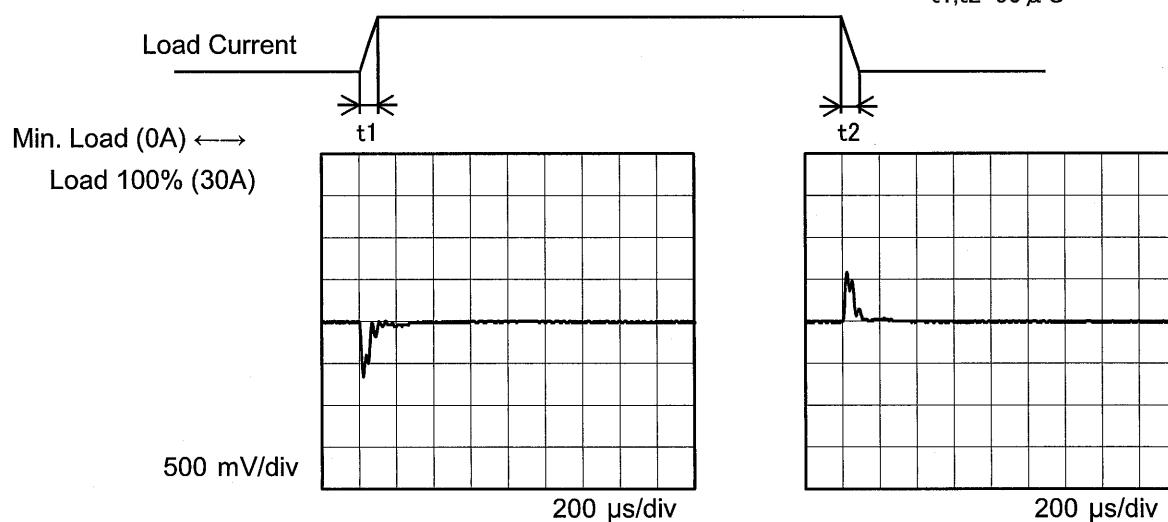
2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	9.955	9.956	9.954
6	9.955	9.955	9.954
12	9.954	9.954	9.954
18	9.954	9.954	9.954
24	9.954	9.954	9.954
30	9.954	9.954	9.954
33	9.954	9.954	9.954
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	CHS3004810	Temperature Testing Circuitry 25°C Figure A
Item	Dynamic Load Response	
Object	+10V30A	

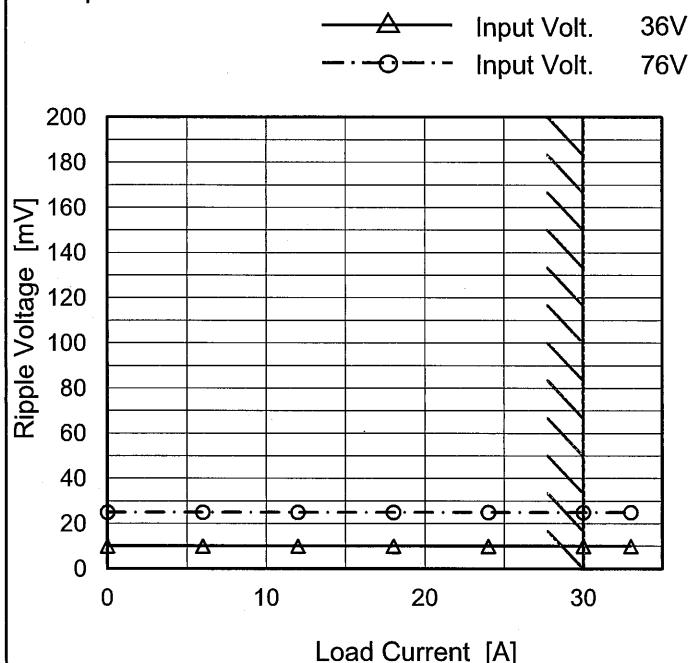
Input Volt. 48 V
Cycle 5 ms



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Model	CHS3004810
Item	Ripple Voltage (by Load Current)
Object	+10V30A

1. Graph



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.

 Temperature 25°C
 Testing Circuitry Figure B

2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0	10	25
6	10	25
12	10	25
18	10	25
24	10	25
30	10	25
33	10	25
--	-	-
--	-	-
--	-	-
--	-	-

Ripple [mVp-p]

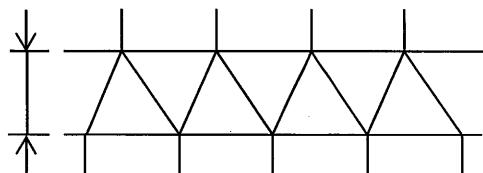


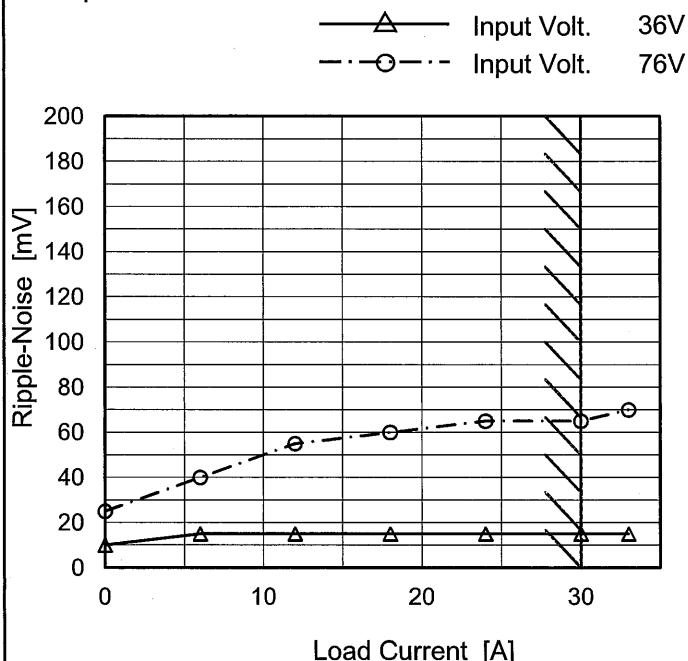
Fig.Complex Ripple Wave Form

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Model	CHS3004810
Item	Ripple-Noise
Object	+10V30A

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. 36 [V]	Input Volt. 76 [V]
0.0	10	25
6.0	15	40
12.0	15	55
18.0	15	60
24.0	15	65
30.0	15	65
33.0	15	70
--	-	-
--	-	-
--	-	-
--	-	-

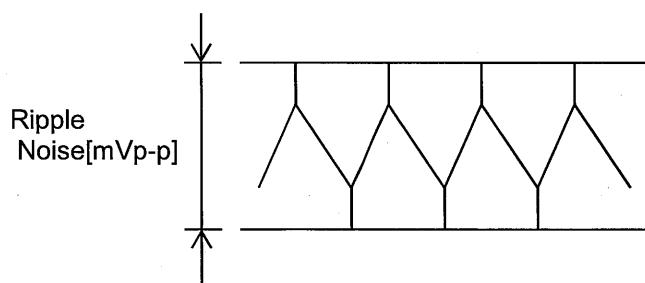
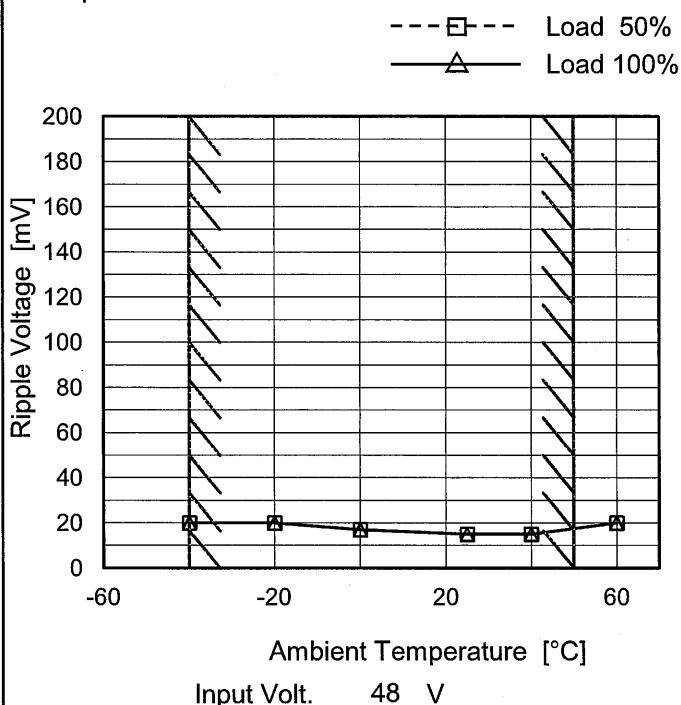


Fig.Complex Ripple Noise Wave Form

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Model	CHS3004810
Item	Ripple Voltage (by Ambient Temp.)
Object	+10V30A

1. Graph



Measured by 100 MHz Oscilloscope.

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

Testing Circuitry Figure B

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	20	20
-20	20	20
0	20	20
25	15	15
40	15	15
60	20	20
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

Ripple [mVp-p]

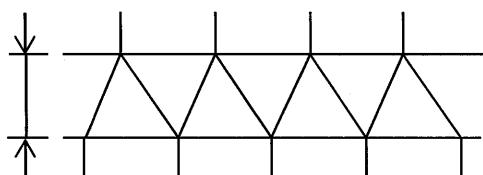
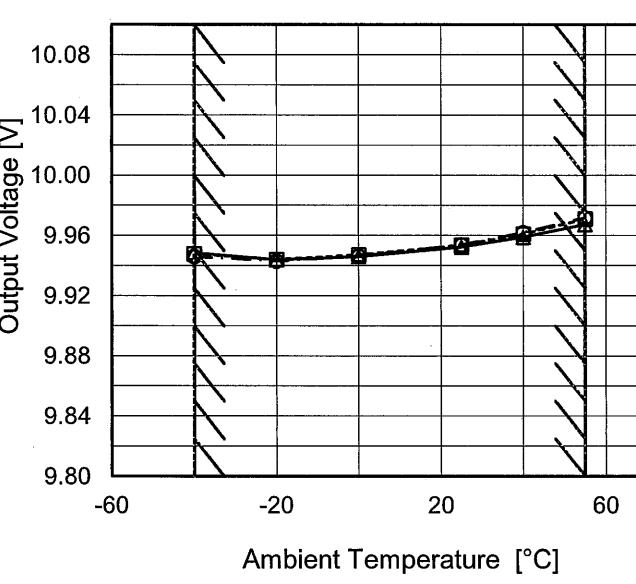


Fig.Complex Ripple Wave Form

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Model	CHS3004810
Item	Ambient Temperature Drift
Object	+10V30A
1.Graph	<p style="text-align: center;"> Input Volt. 36V Input Volt. 48V Input Volt. 76V </p>  <p style="text-align: center;">Output Voltage [V]</p> <p style="text-align: center;">Ambient Temperature [°C]</p> <p style="text-align: center;">Load 100%</p>

Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-40	9.949	9.948	9.946
-20	9.944	9.944	9.943
0	9.946	9.947	9.946
25	9.952	9.954	9.954
40	9.959	9.961	9.962
55	9.967	9.971	9.972
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	CHS3004810	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+10V30A	

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 - 55°C

Input Voltage : 36 - 76V

Load Current : 0 - 30A

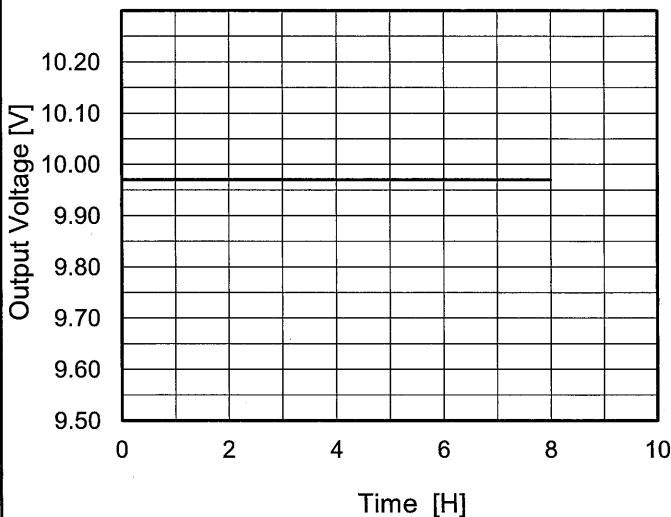
* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	76	30	9.972	± 15	± 0.2
Minimum Voltage	-20	76	30	9.943		

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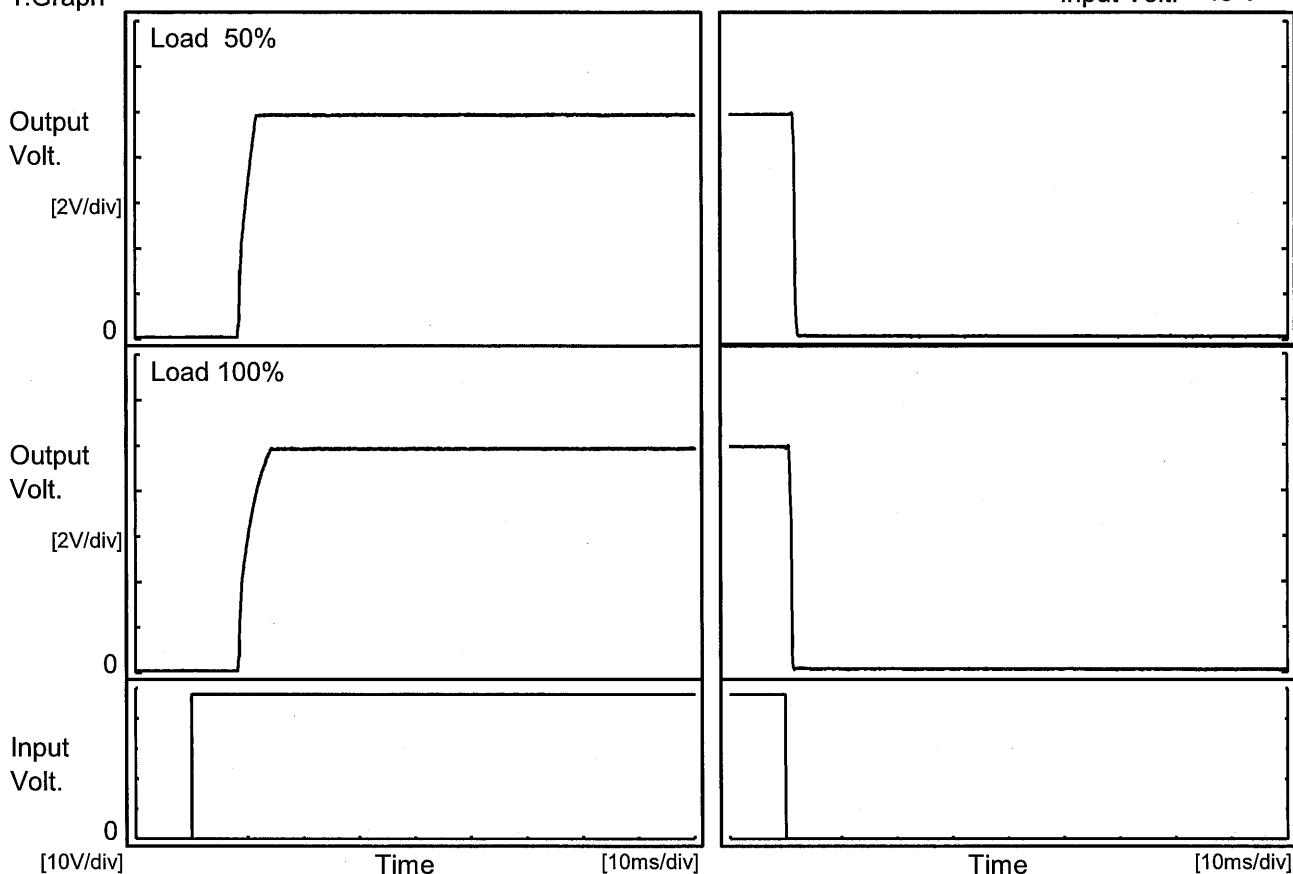
Model	CHS3004810	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+10V30A																								
1. Graph			2. Values																						
 <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 48V Load 100%</p>			<table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>9.965</td></tr> <tr><td>0.5</td><td>9.971</td></tr> <tr><td>1.0</td><td>9.970</td></tr> <tr><td>2.0</td><td>9.970</td></tr> <tr><td>3.0</td><td>9.970</td></tr> <tr><td>4.0</td><td>9.970</td></tr> <tr><td>5.0</td><td>9.970</td></tr> <tr><td>6.0</td><td>9.970</td></tr> <tr><td>7.0</td><td>9.970</td></tr> <tr><td>8.0</td><td>9.970</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	9.965	0.5	9.971	1.0	9.970	2.0	9.970	3.0	9.970	4.0	9.970	5.0	9.970	6.0	9.970	7.0	9.970	8.0	9.970
Time since start [H]	Output Voltage [V]																								
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7.0	9.970																								
8.0	9.970																								

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Model	CHS3004810
Item	Rise and Fall Time
Object	+10V30A

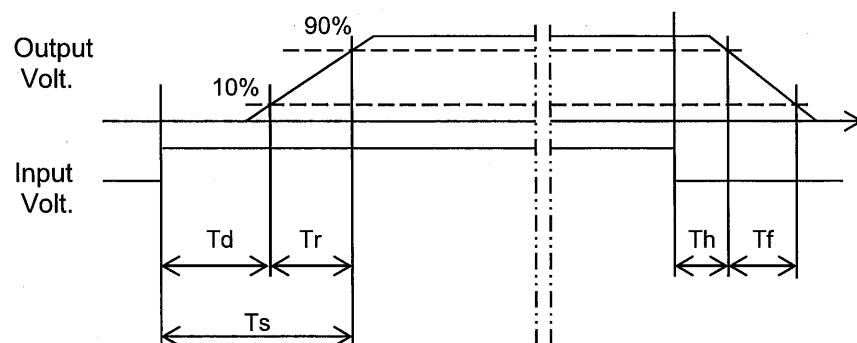
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

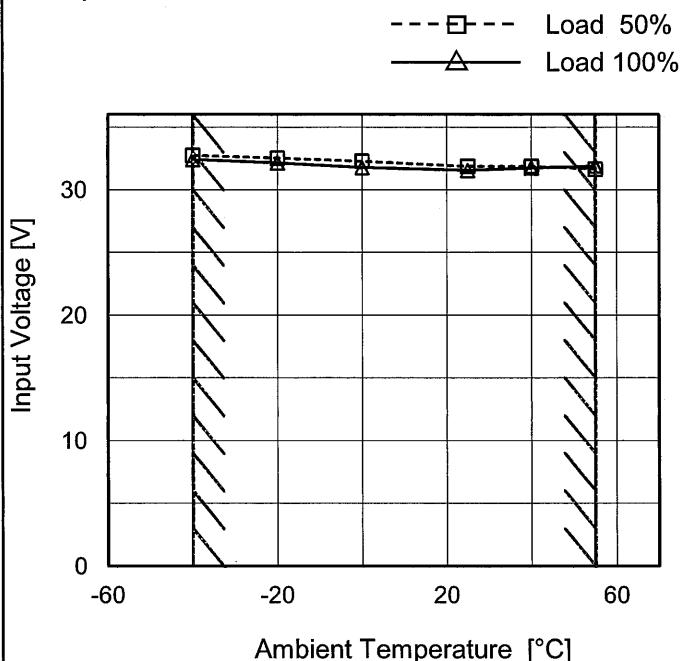
Load	Time	Td	Tr	Ts	Th	Tf	[ms]
50 %		8.6	2.7	11.3	1.5	0.5	
100 %		8.6	4.4	13.0	0.7	0.5	



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Model	CHS3004810
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+10V30A

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	32.8	32.5
-20	32.6	32.2
0	32.3	31.8
25	31.9	31.6
40	31.9	31.8
55	31.7	31.9
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

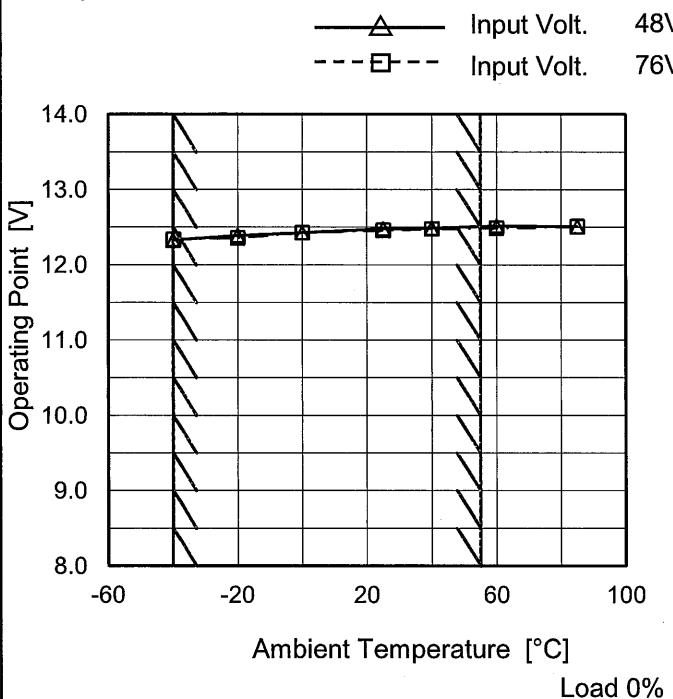
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Item	Overcurrent Protection		Figure A																																																										
Object	+10V30A																																																												
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COSEL

Model	CHS3004810
Item	Overvoltage Protection
Object	+10V30A

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. 48[V]	Input Volt. 76[V]
-40	12.33	12.34
-20	12.39	12.36
0	12.43	12.43
25	12.48	12.46
40	12.49	12.48
60	12.52	12.49
85	12.51	12.51
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

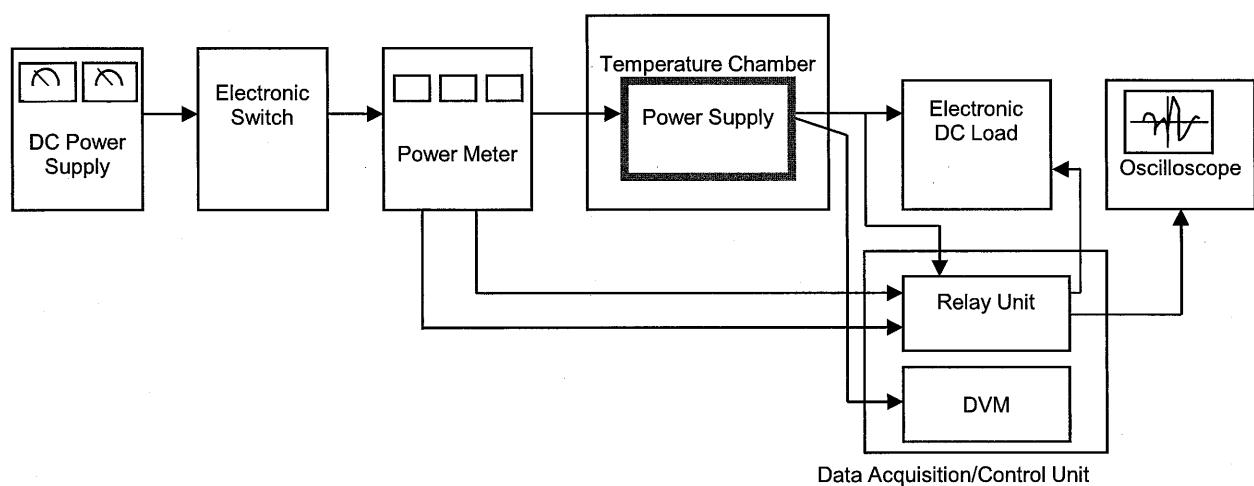


Figure A

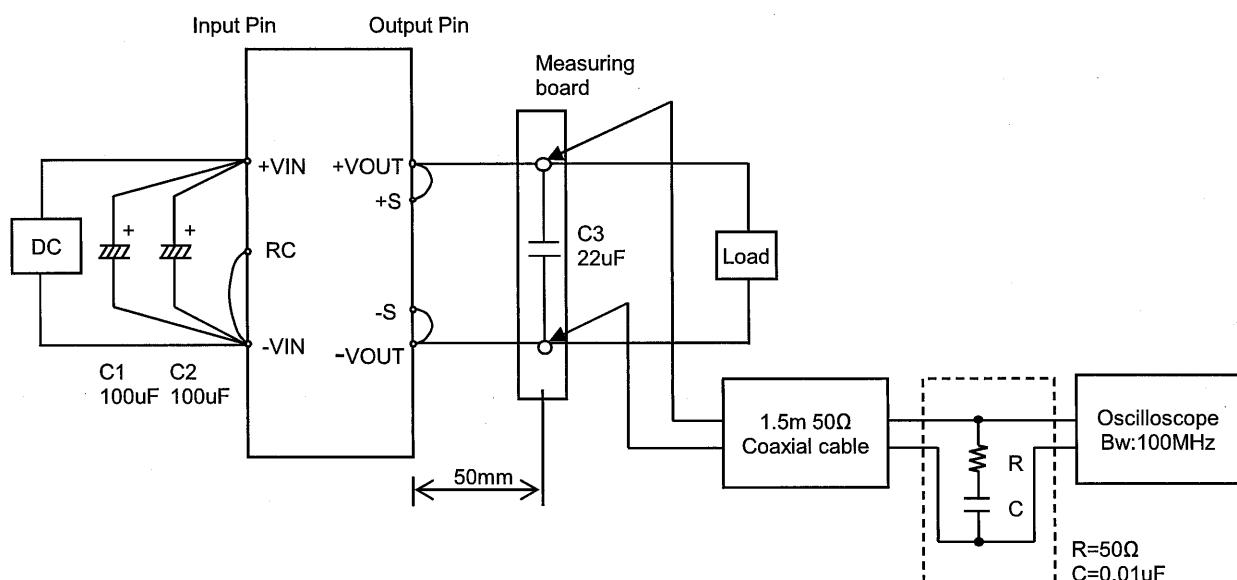


Figure B