

# TEST DATA OF CHS120483R3

Regulated DC Power Supply  
May 10, 2016

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Junichi Hatagishi Design Manager

Prepared by : Tomomi Akai  
Tomomi Akai Design Engineer

**COSEL CO.,LTD.**

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Model		CHS120483R3		Temperature		25°C																																																																																
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<div><div>Input Power [W]</div><div>Load Current [A]</div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Input Power [W]</th></tr><tr><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>0</td><td>1.3</td><td>2.0</td><td>3.5</td></tr><tr><td>5</td><td>18.5</td><td>19.1</td><td>20.5</td></tr><tr><td>10</td><td>35.5</td><td>36.2</td><td>38.0</td></tr><tr><td>15</td><td>53.0</td><td>54.0</td><td>55.2</td></tr><tr><td>20</td><td>70.8</td><td>71.6</td><td>72.9</td></tr><tr><td>25</td><td>88.8</td><td>89.4</td><td>90.9</td></tr><tr><td>30</td><td>107.5</td><td>107.7</td><td>109.2</td></tr><tr><td>33</td><td>119.0</td><td>118.8</td><td>120.1</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>		Load Current [A]	Input Power [W]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	0	1.3	2.0	3.5	5	18.5	19.1	20.5	10	35.5	36.2	38.0	15	53.0	54.0	55.2	20	70.8	71.6	72.9	25	88.8	89.4	90.9	30	107.5	107.7	109.2	33	119.0	118.8	120.1	--	-	-	-	--	-	-	-	--	-	-	-
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<div>1.Graph</div> <div><div><div><div><div></div><div></div></div><div></div></div><div><div><div></div><div></div></div><div></div></div><div><div><div></div><div></div></div><div></div></div></div><div><div>Efficiency [%]</div><div>100</div><div>90</div><div>80</div><div>70</div></div><div><div>20</div><div>40</div><div>60</div><div>80</div></div><div><div>Input Voltage [V]</div></div></div> <div><div>Note: Slanted line shows the range of the rated input voltage.</div></div>		<div>2.Values</div> <table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Efficiency [%]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>35.5</td><td>94.0</td><td>92.7</td></tr><tr><td>36.0</td><td>94.0</td><td>92.8</td></tr><tr><td>40.0</td><td>93.6</td><td>92.8</td></tr><tr><td>48.0</td><td>92.9</td><td>92.6</td></tr><tr><td>55.0</td><td>92.2</td><td>92.4</td></tr><tr><td>60.0</td><td>91.8</td><td>92.1</td></tr><tr><td>70.0</td><td>90.5</td><td>91.5</td></tr><tr><td>76.0</td><td>90.0</td><td>91.5</td></tr><tr><td>80.0</td><td>89.3</td><td>91.1</td></tr></table>	Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	35.5	94.0	92.7	36.0	94.0	92.8	40.0	93.6	92.8	48.0	92.9	92.6	55.0	92.2	92.4	60.0	91.8	92.1	70.0	90.5	91.5	76.0	90.0	91.5	80.0	89.3	91.1
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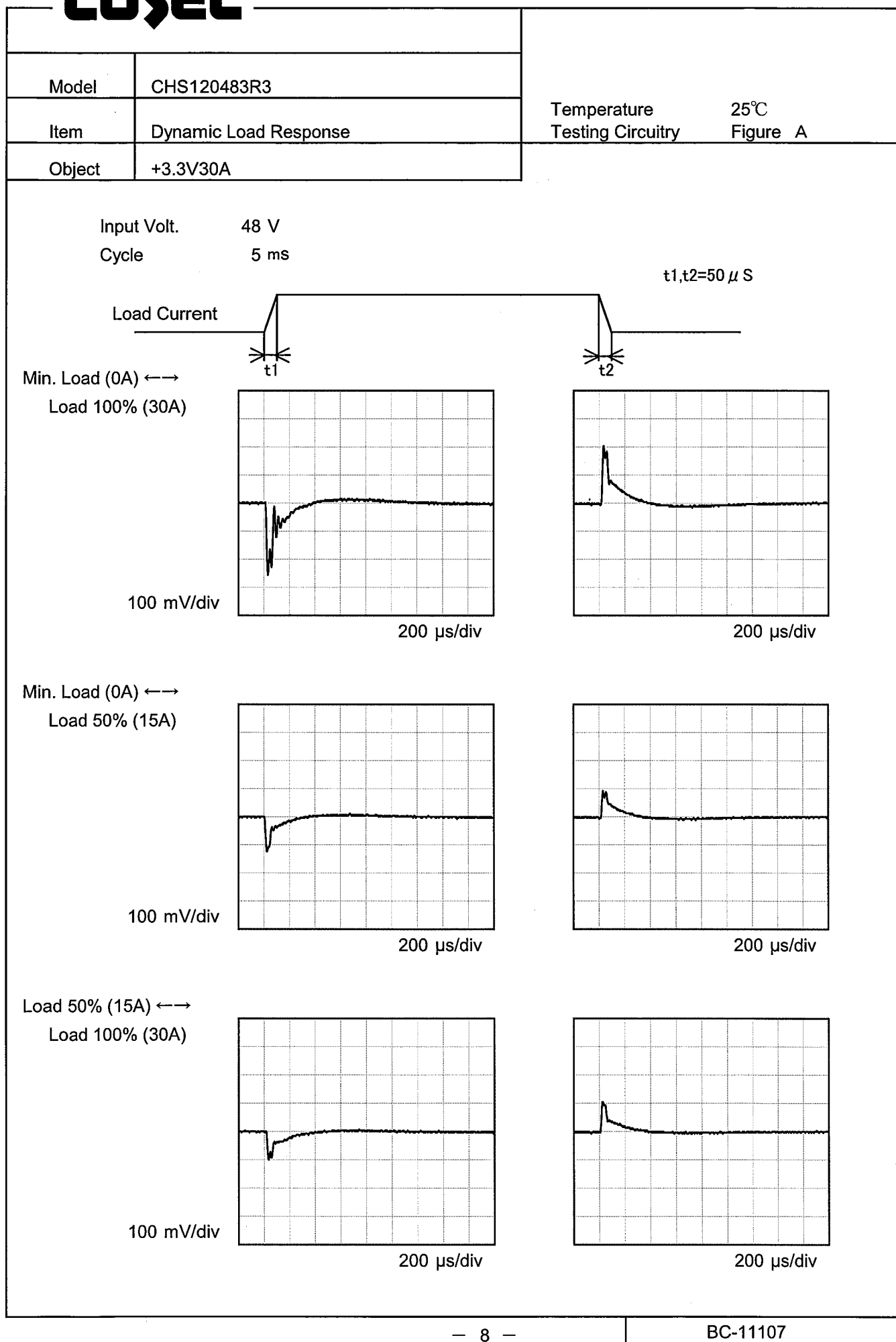
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Note: Slanted line shows the range of the rated input voltage.																																			



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Model		CHS120483R3	
Item		Ripple Voltage (by Load Current)	
Object		+3.3V30A	
1.Graph		2.Values	

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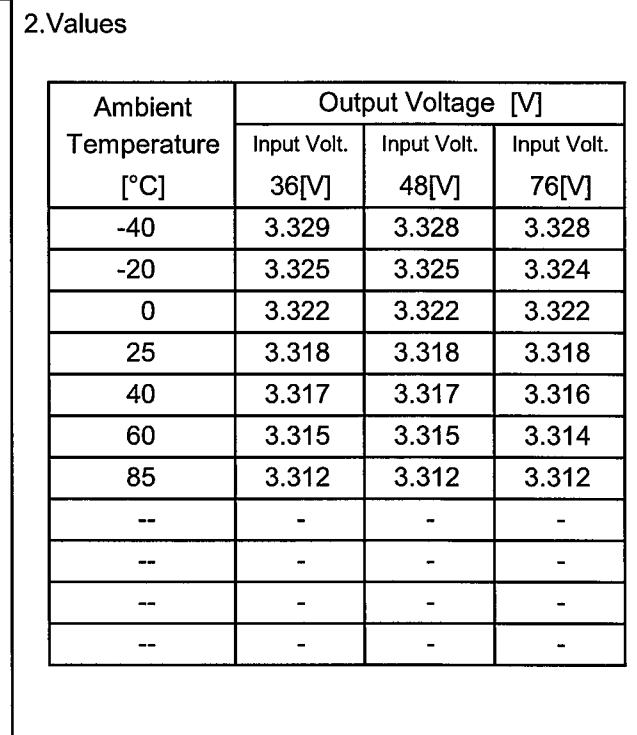
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Model	CHS120483R3																																								
Item	Ripple-Noise	Temperature	25°C																																						
Object	+3.3V30A	Testing Circuitry	Figure B																																						
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<div><div><div>—△—</div><div>Input Volt.</div><div>36V</div></div><div><div>- - -○- - -</div><div>Input Volt.</div><div>76V</div></div></div> <p>Ripple-Noise [mV]</p> <p>Load Current [A]</p> <p>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.</p>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 36 [V]</th><th>Input Volt. 76 [V]</th></tr><tr><td>0</td><td>10</td><td>15</td></tr><tr><td>6</td><td>15</td><td>15</td></tr><tr><td>12</td><td>15</td><td>20</td></tr><tr><td>18</td><td>15</td><td>20</td></tr><tr><td>24</td><td>20</td><td>25</td></tr><tr><td>30</td><td>20</td><td>25</td></tr><tr><td>33</td><td>20</td><td>25</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></table>		Load Current [A]	Ripple-Noise [mV]		Input Volt. 36 [V]	Input Volt. 76 [V]	0	10	15	6	15	15	12	15	20	18	15	20	24	20	25	30	20	25	33	20	25	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																								
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<p>Ripple Noise[mVp-p]</p> <p>Fig.Complex Ripple Noise Wave Form</p>																																									

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Model		CHS120483R3	Testing Circuitry    Figure B
Item		Ripple Voltage (by Ambient Temp.)	
Object		+3.3V30A	
1.Graph			2.Values
<div><div><div><div><div></div><div></div></div><div></div><div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>Load 50%</div><div>Load 100%</div></div> <div><p>Input Volt.    48   V</p></div>			
<p>Measured by 100 MHz Oscilloscope.</p> <p>Note: Slanted line shows the range of the rated ambient temperature.</p>			
<div><div><div><div></div><div></div></div><div></div><div></div></div><div></div><div></div></div> <div>Ripple [mVp-p]</div> <div></div> <div>Fig.Complex Ripple Wave Form</div>			

Testing Circuitry	Figure A





		Testing Circuitry Figure A
Model	CHS120483R3	
Item	Output Voltage Accuracy	
Object	+3.3V30A	

### 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 - 85°C

Input Voltage : 36 - 76V

Load Current : 0 - 30A

\* 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

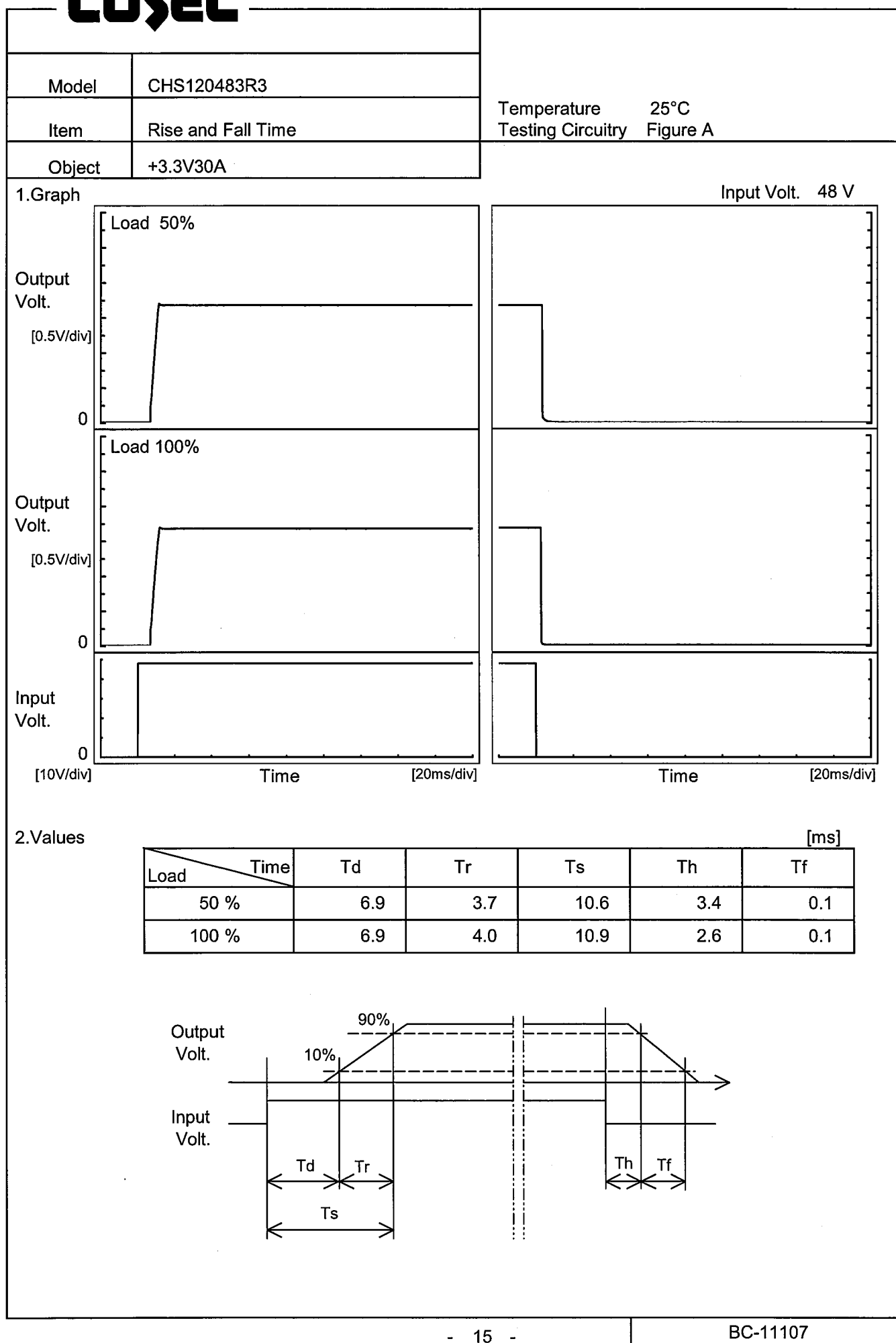
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	-40	36	30	3.329	±9	±0.3
Minimum Voltage	85	36	0	3.312		

# COSEL

Model	CHS120483R3		
Item	Time Lapse Drift	Temperature	25°C
		Testing Circuitry	Figure A
Object	+3.3V30A		
1.Graph		2.Values	
<div><div><div>Output Voltage [V]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></di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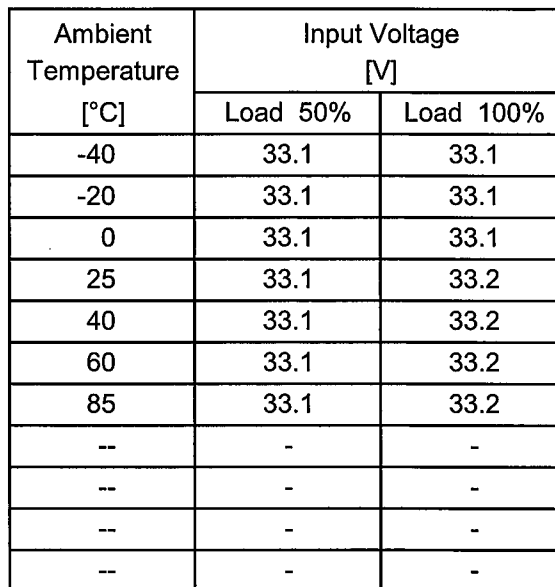


# COSEL



Testing Circuitry Figure A

## 2.Values



- 16 -

BC-11107

Model		CHS120483R3																																						
Item		Overvoltage Protection																																						
Object		+3.3V30A																																						
1.Graph																																								
<div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div>—△—</div><div>Input Volt. 48V</div></div><div><div>---□---</div><div>Input Volt. 76V</div></div></div><div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div>6.0</div><div>5.0</div><div>4.0</div><div>3.0</div><div>2.0</div><div>1.0</div><div>0.0</div></div><div><div>-60</div><div>-20</div><div>20</div><div>60</div><div>100</div></div><div><div>Operating Point [V]</div><div>Ambient Temperature [°C]</div><div>Load 100%</div></div></div></div> <div><div>Note: Slanted line shows the range of the rated ambient temperature.</div></div>																																								
2.Values																																								
<table><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><tr><td>-40</td><td>4.3</td><td>4.3</td></tr><tr><td>-20</td><td>4.3</td><td>4.3</td></tr><tr><td>0</td><td>4.3</td><td>4.3</td></tr><tr><td>25</td><td>4.3</td><td>4.3</td></tr><tr><td>40</td><td>4.3</td><td>4.3</td></tr><tr><td>60</td><td>4.2</td><td>4.3</td></tr><tr><td>85</td><td>4.2</td><td>4.3</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></table>			Ambient Temperature [°C]	Operating Point [V]		Input Volt. 48[V]	Input Volt. 76[V]	-40	4.3	4.3	-20	4.3	4.3	0	4.3	4.3	25	4.3	4.3	40	4.3	4.3	60	4.2	4.3	85	4.2	4.3	--	-	-	--	-	-	--	-	-	--	-	-
Ambient Temperature [°C]	Operating Point [V]																																							
	Input Volt. 48[V]	Input Volt. 76[V]																																						
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40	4.3	4.3																																						
60	4.2	4.3																																						
85	4.2	4.3																																						
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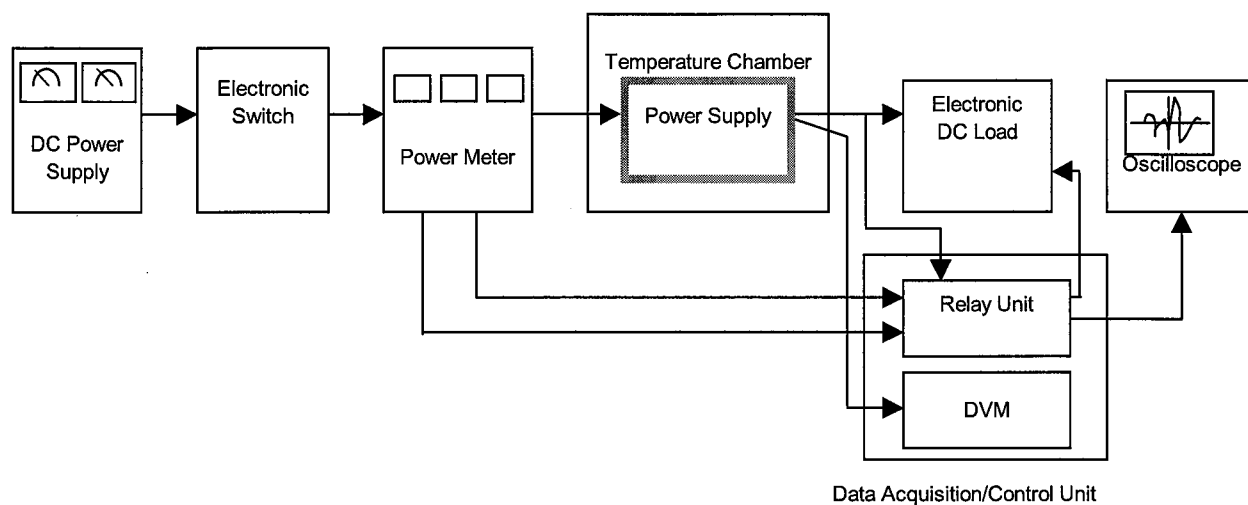


Figure A

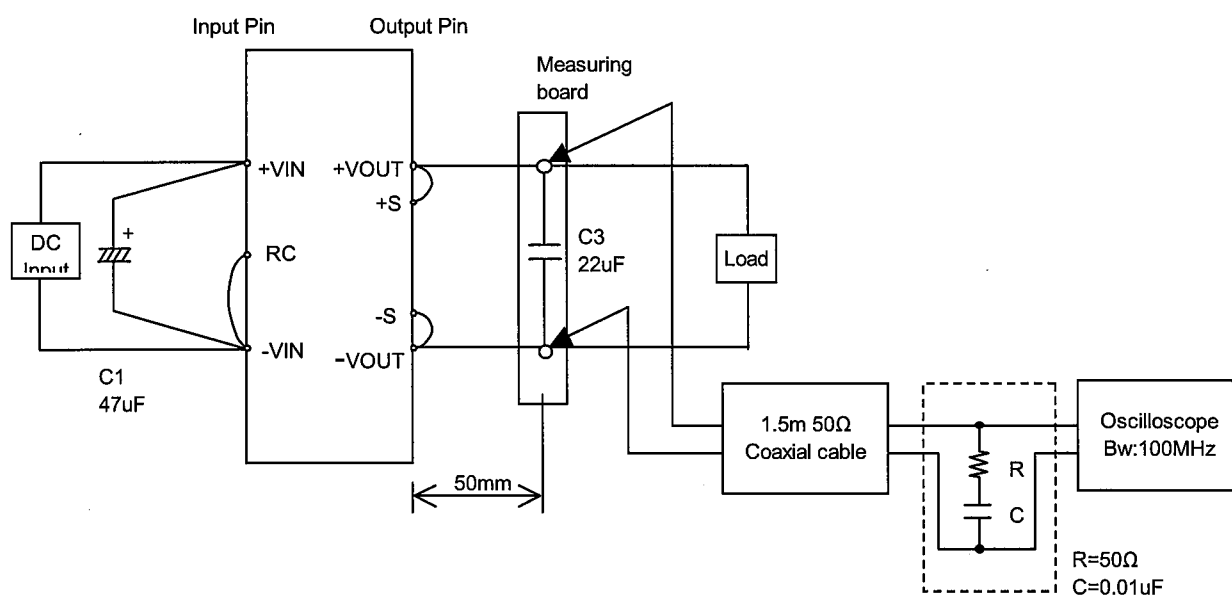


Figure B