

# TEST DATA OF DHS100A12

Regulated DC Power Supply  
April 5, 2010

Approved by : Tatsuya Mano  
Tatsuya Mano Design Manager

Prepared by : Tetsuro Hirata  
Tetsuro Hirata Design Engineer

**COSEL CO.,LTD.**



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Model	DHS100A12	Temperature	25°C																																																																															
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<p>The graph plots Efficiency [%] on the y-axis (40 to 96) against Input Voltage [V] on the x-axis (50 to 170). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show efficiency starting around 88% at 60V and remaining relatively flat until approximately 110V, after which they begin to decline. A slanted line on the graph indicates the rated input voltage range.</p>																																		
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1.Graph	<p>Graph showing Efficiency [%] vs Load Current [A]. The Y-axis ranges from 40 to 96 in increments of 8. The X-axis ranges from 0 to 10 in increments of 2. Three curves are plotted: Input Volt. 60V (solid line with triangle markers), Input Volt. 110V (dashed line with square markers), and Input Volt. 160V (dash-dot line with circle markers). A slanted line indicates the rated load current range.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Input Volt. 60[V]</th> <th>Input Volt. 110[V]</th> <th>Input Volt. 160[V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>1.50</td><td>80.3</td><td>79.0</td><td>73.2</td></tr> <tr><td>3.00</td><td>86.5</td><td>85.7</td><td>81.9</td></tr> <tr><td>4.50</td><td>88.2</td><td>87.7</td><td>85.1</td></tr> <tr><td>6.00</td><td>88.6</td><td>88.2</td><td>86.3</td></tr> <tr><td>7.50</td><td>88.3</td><td>88.3</td><td>86.7</td></tr> <tr><td>8.40</td><td>88.0</td><td>88.2</td><td>86.9</td></tr> <tr><td>9.24</td><td>87.5</td><td>88.0</td><td>86.9</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 Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]	0.00	-	-	-	1.50	80.3	79.0	73.2	3.00	86.5	85.7	81.9	4.50	88.2	87.7	85.1	6.00	88.6	88.2	86.3	7.50	88.3	88.3	86.7	8.40	88.0	88.2	86.9	9.24	87.5	88.0	86.9	--	-	-	-	--	-	-	-	--	-	-	-			
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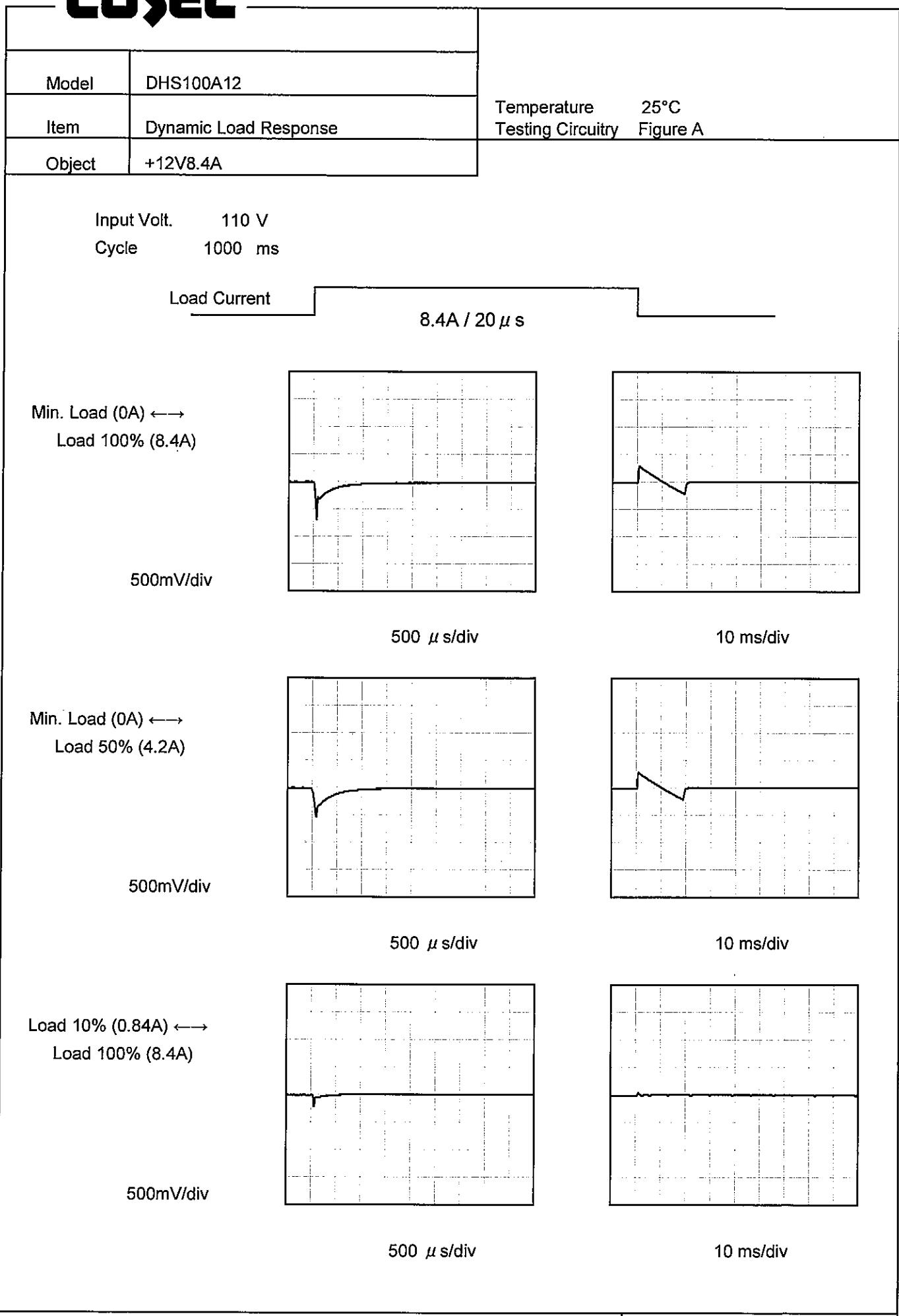
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**COSEL**

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

**COSEL**

Model	DHS100A12	Temperature	25°C																																		
Item	Ripple Voltage (by Load Current)	Testing Circuitry	Figure B																																		
Object	+12V8.4A																																				
1.Graph		2.Values																																			
<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The Y-axis ranges from 0 to 300 mV, and the X-axis ranges from 0 to 10 A. Two sets of data points are shown: Input Volt. 60V (triangles) and Input Volt. 160V (circles). A slanted line indicates the rated load current range.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Ripple Voltage [mV] (Input Volt. 60V)</th> <th>Ripple Voltage [mV] (Input Volt. 160V)</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>10</td><td>10</td></tr> <tr><td>1.50</td><td>30</td><td>45</td></tr> <tr><td>3.00</td><td>30</td><td>45</td></tr> <tr><td>4.50</td><td>30</td><td>50</td></tr> <tr><td>6.00</td><td>30</td><td>50</td></tr> <tr><td>7.50</td><td>30</td><td>50</td></tr> <tr><td>8.40</td><td>30</td><td>50</td></tr> <tr><td>9.24</td><td>30</td><td>50</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>		Load Current [A]	Ripple Voltage [mV] (Input Volt. 60V)	Ripple Voltage [mV] (Input Volt. 160V)	0.00	10	10	1.50	30	45	3.00	30	45	4.50	30	50	6.00	30	50	7.50	30	50	8.40	30	50	9.24	30	50	--	-	-	--	-	-	--	-	-
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COSEL

Model	DHS100A12	Temperature	25°C																																				
Item	Ripple-Noise	Testing Circuitry	Figure B																																				
Object	+12V8.4A																																						
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<p>Graph showing Ripple-Noise [mV] vs Load Current [A]. The graph shows two sets of data points: Input Volt. 60V (solid line with triangle markers) and Input Volt. 160V (dashed line with circle markers). The x-axis represents Load Current [A] from 0 to 10. The y-axis represents Ripple-Noise [mV] from 0 to 300. A slanted line indicates the range of the rated load current.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Ripple-Noise [mV] (60V)</th> <th>Ripple-Noise [mV] (160V)</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>10</td><td>10</td></tr> <tr><td>1.50</td><td>30</td><td>45</td></tr> <tr><td>3.00</td><td>30</td><td>45</td></tr> <tr><td>4.50</td><td>30</td><td>50</td></tr> <tr><td>6.00</td><td>30</td><td>50</td></tr> <tr><td>7.50</td><td>30</td><td>50</td></tr> <tr><td>8.40</td><td>30</td><td>50</td></tr> <tr><td>9.24</td><td>30</td><td>50</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>				Load Current [A]	Ripple-Noise [mV] (60V)	Ripple-Noise [mV] (160V)	0.00	10	10	1.50	30	45	3.00	30	45	4.50	30	50	6.00	30	50	7.50	30	50	8.40	30	50	9.24	30	50	--	-	-	--	-	-	--	-	-
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Model	DHS100A12	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+12V8.4A	

### 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 - 100°C

Input Voltage : 60 - 160V

Load Current : 0 - 8.4A

\* 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	85	60	0	12.152	$\pm 51$	$\pm 0.4$
Minimum Voltage	-40	60	8.4	12.050		

**COSEL**

Model	DHS100A12	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+12V8.4A																								
1.Graph			2.Values																						
<p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 110V 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>12.125</td></tr> <tr><td>0.5</td><td>12.125</td></tr> <tr><td>1.0</td><td>12.125</td></tr> <tr><td>2.0</td><td>12.125</td></tr> <tr><td>3.0</td><td>12.125</td></tr> <tr><td>4.0</td><td>12.125</td></tr> <tr><td>5.0</td><td>12.125</td></tr> <tr><td>6.0</td><td>12.125</td></tr> <tr><td>7.0</td><td>12.125</td></tr> <tr><td>8.0</td><td>12.125</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	12.125	0.5	12.125	1.0	12.125	2.0	12.125	3.0	12.125	4.0	12.125	5.0	12.125	6.0	12.125	7.0	12.125	8.0	12.125
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**COSEL**

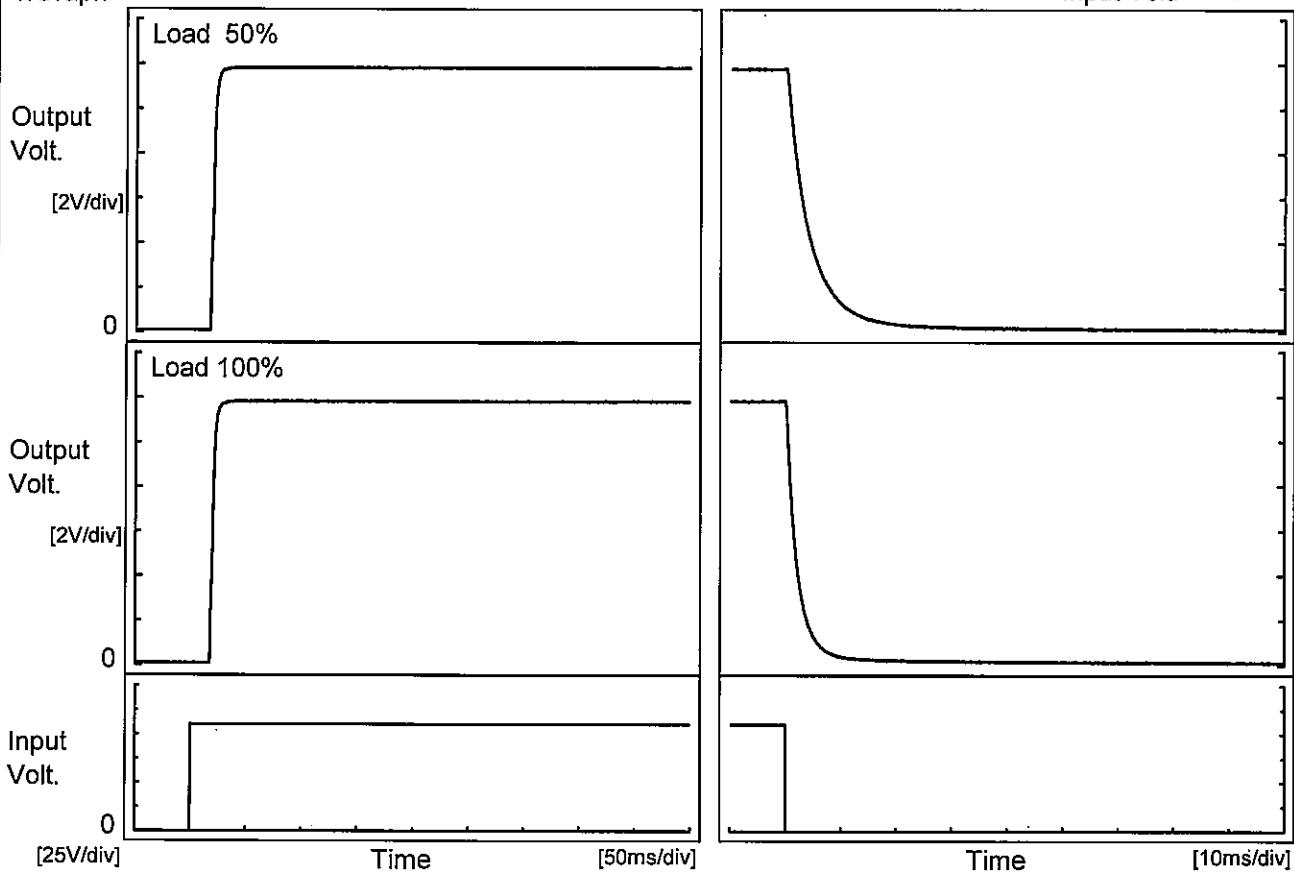
Model DHS100A12

Item Rise and Fall Time

Object +12V8.4A

Temperature 25°C  
Testing Circuitry Figure A

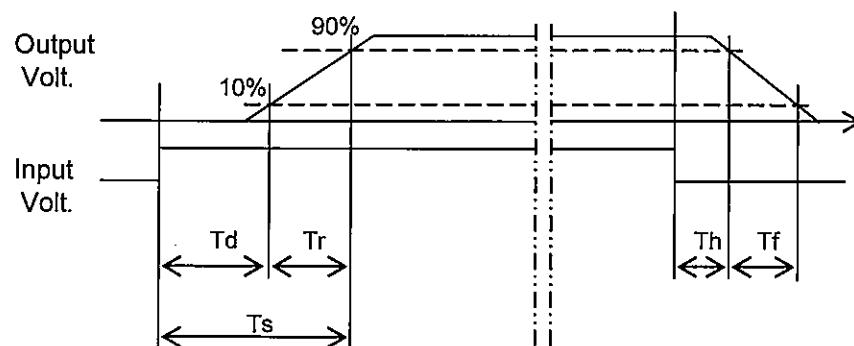
## 1. Graph



## 2. Values

[ms]

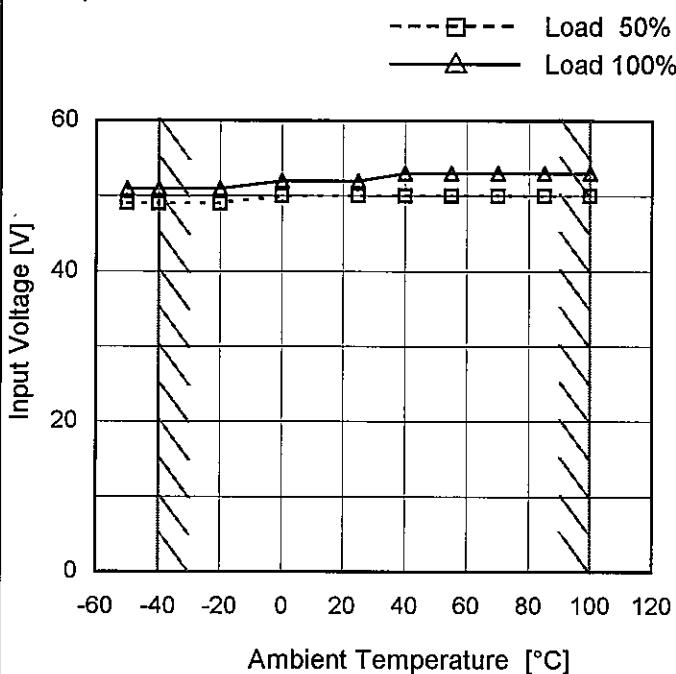
Load	Time	Td	Tr	Ts	Th	Tf
50 %		18.0	5.8	23.8	0.5	10.0
100 %		18.0	5.8	23.8	0.3	5.0



Model	DHS100A12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V8.4A

Testing Circuitry Figure A

## 1. Graph

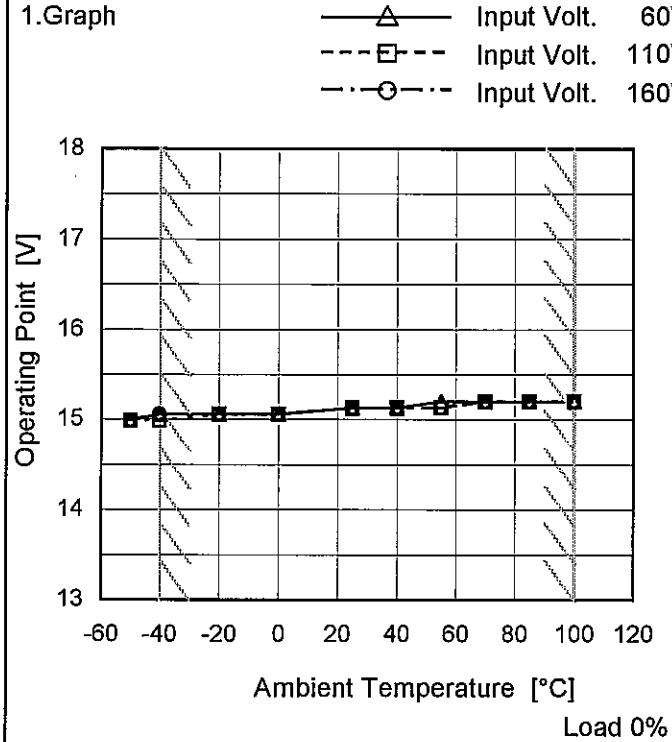


Note: Slanted line shows the range of the rated ambient temperature.

## 2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-50	49	51
-40	49	51
-20	49	51
0	50	52
25	50	52
40	50	53
55	50	53
70	50	53
85	50	53
100	50	53
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Model	DHS100A12	Temperature 25°C Testing Circuitry Figure A																																																													
Item	Overcurrent Protection																																																														
Object	+12V8.4A																																																														
1.Graph	<p>Input Volt. 60V Input Volt. 110V Input Volt. 160V</p>																																																														
	<p>Output Voltage [V]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p>																																																														
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Model      DHS100A12 Item        Overvoltage Protection Object     +12V8.4A	Testing Circuitry    Figure A																																																				
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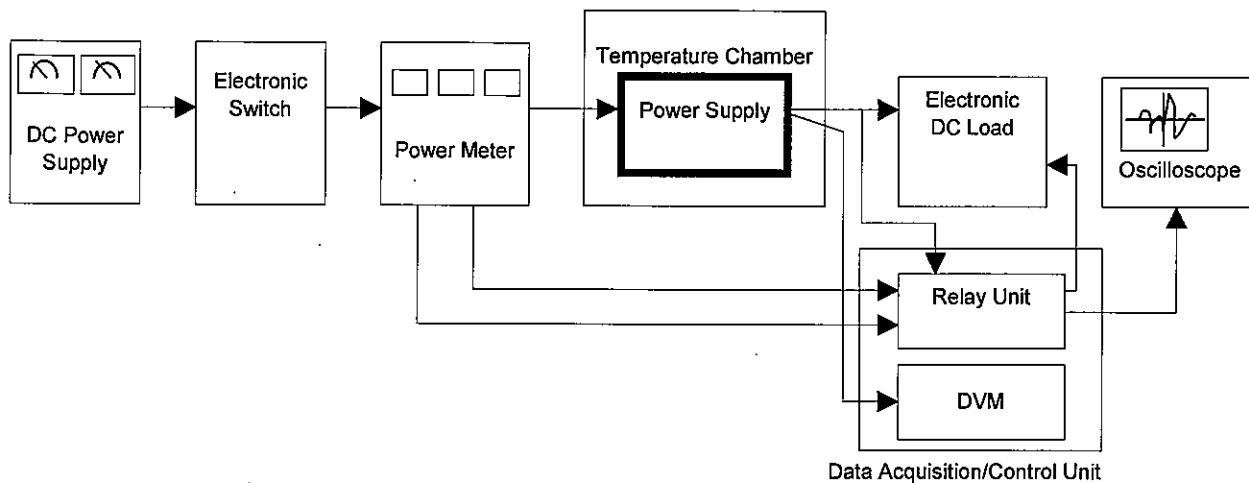
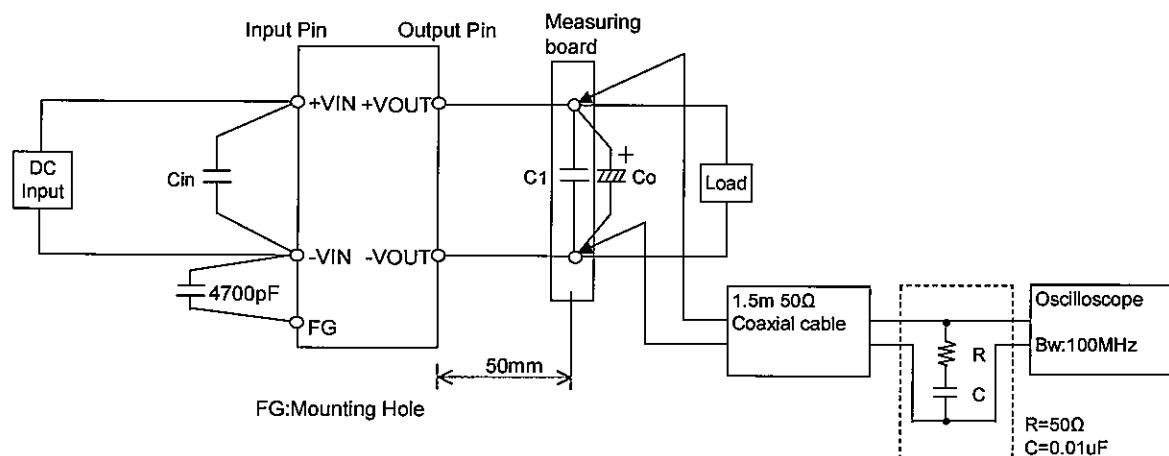


Figure A



C1 : DHS100A24 4.7 $\mu$ F  
 Others 10 $\mu$ F  
 Co : DHS100A05 2200 $\mu$ F  
 DHS100A12 470 $\mu$ F  
 DHS100A15 470 $\mu$ F  
 DHS100A24 220 $\mu$ F

Figure B