

TEST DATA OF SUS61215 SUCS61215

Regulated DC Power Supply
Feb 18, 2005

Approved by : Tetsuo Sugimori
Tetsuo Sugimori Design Manager

Prepared by : Yoshikazu Mizuno
Yoshikazu Mizuno Design Engineer

COSEL CO.,LTD.



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Item	Input Current (by Input Voltage)	Temperature Testing Circuitry	25°C Figure A																																																																							
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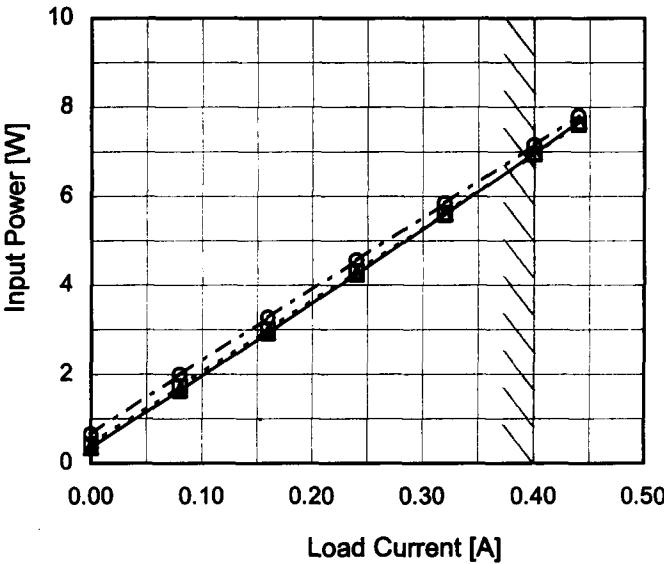
Note: Slanted line shows the range of the rated input voltage.

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<p>The graph plots Efficiency [%] on the y-axis (40 to 100) against Input Voltage [V] on the x-axis (6 to 22). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show a slight decrease in efficiency as input voltage increases. A slanted line on the graph indicates the rated input voltage range.</p> <table border="1"> <thead> <tr> <th>Input Voltage [V]</th> <th>Efficiency Load 50% [%]</th> <th>Efficiency Load 100% [%]</th> </tr> </thead> <tbody> <tr><td>8</td><td>84.4</td><td>86.3</td></tr> <tr><td>9</td><td>84.4</td><td>86.8</td></tr> <tr><td>10</td><td>84.1</td><td>87.2</td></tr> <tr><td>12</td><td>82.9</td><td>87.1</td></tr> <tr><td>15</td><td>80.4</td><td>86.2</td></tr> <tr><td>18</td><td>77.3</td><td>84.6</td></tr> <tr><td>20</td><td>74.7</td><td>83.3</td></tr> </tbody> </table>		Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	8	84.4	86.3	9	84.4	86.8	10	84.1	87.2	12	82.9	87.1	15	80.4	86.2	18	77.3	84.6	20	74.7	83.3									
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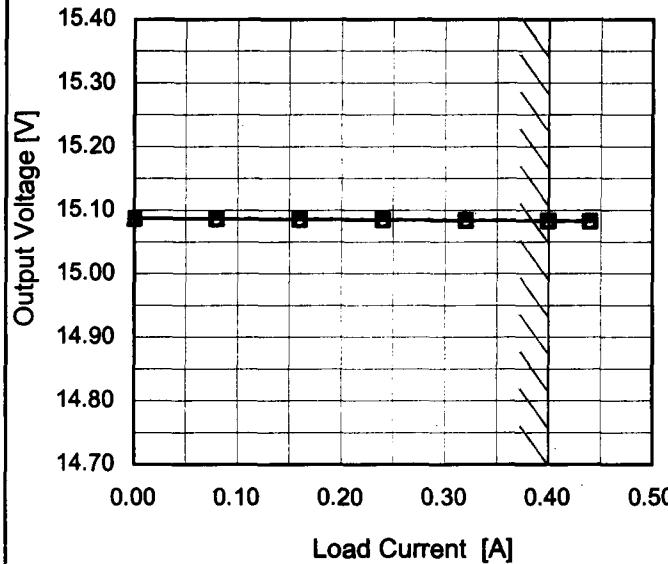
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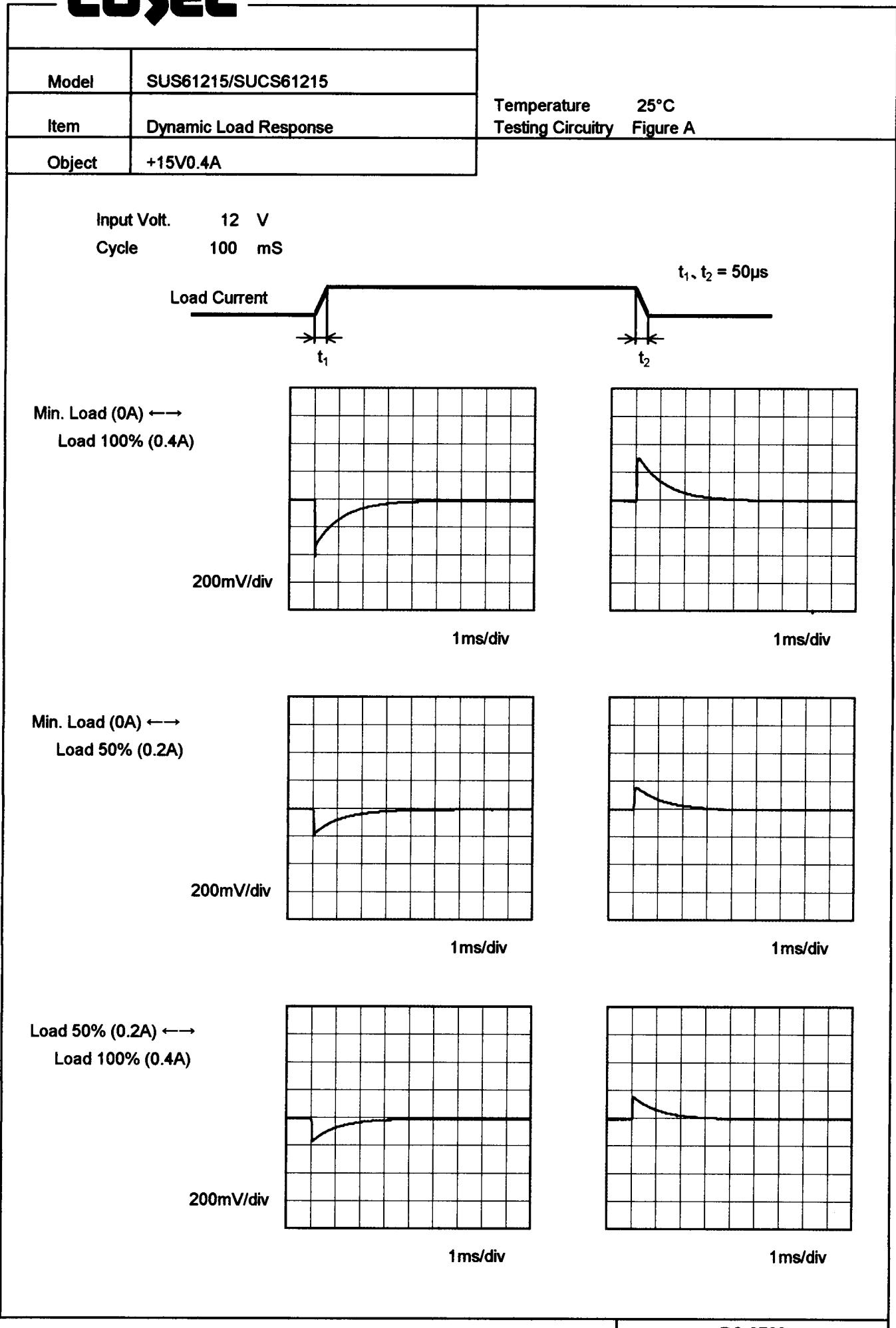
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Model	SUS61215/SUCS61215	Temperature	25°C																																																			
Item	Load Regulation	Testing Circuitry	Figure A																																																			
Object	+15V0.4A																																																					
1. Graph																																																						
<p style="text-align: center;"> Input Volt. 9V Input Volt. 12V Input Volt. 18V </p> 																																																						
2. Values																																																						
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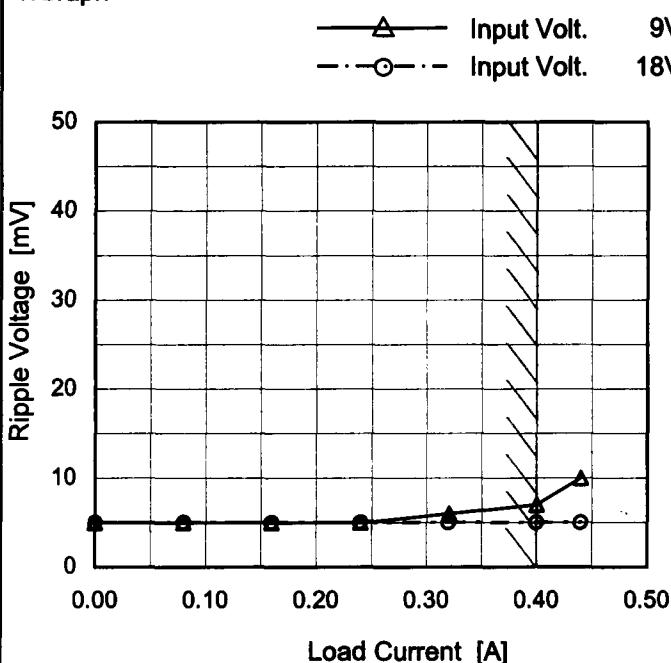
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Model	SUS61215/SUCS61215
Item	Ripple Voltage (by Load Current)
Object	+15V0.4A

Temperature 25°C
Testing Circuitry Figure B

1. Graph



2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	5	5
0.08	5	5
0.16	5	5
0.24	5	5
0.32	6	5
0.40	7	5
0.44	10	5
--	-	-
--	-	-
--	-	-
--	-	-

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]

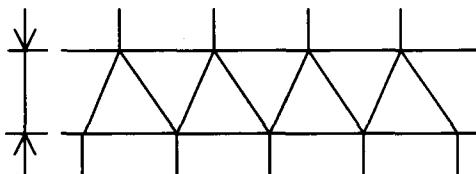


Fig.Complex Ripple Wave Form

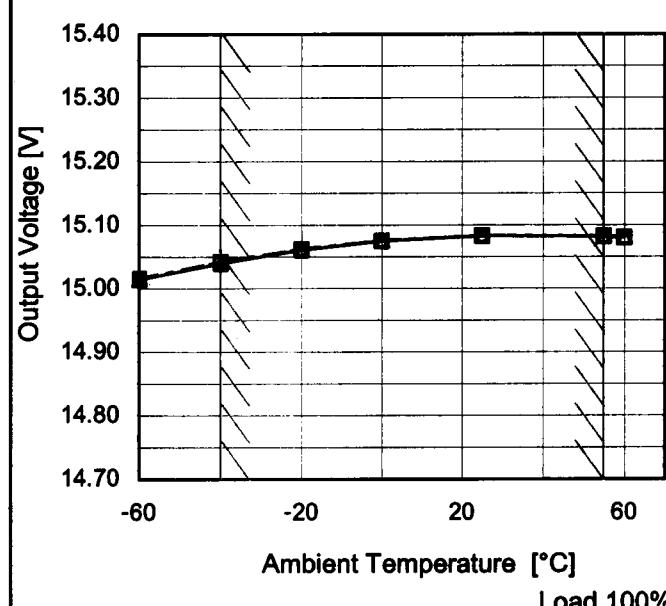
COSEL

Model	SUS61215/SUCS61215		Temperature 25°C Testing Circuitry Figure B																																						
Item	Ripple-Noise																																								
Object	+15V0.4A																																								
1. Graph																																									
<p>Graph showing Ripple-Noise [mV] vs Load Current [A]. The graph shows two curves: one for Input Volt. 9V (solid line with triangle markers) and one for Input Volt. 18V (dashed line with circle markers). The x-axis is Load Current [A] from 0.00 to 0.50. The y-axis is Ripple-Noise [mV] from 0 to 50. Both curves show an increase in noise with load current. A slanted line on the graph indicates the range of the rated load current.</p>																																									
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Load Current [A]	Ripple-Noise [mV]																																								
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COSEL

<p>Model SUS61215/SUCS61215</p> <p>Item Ripple Voltage (by Ambient Temp.)</p> <p>Object +15V0.4A</p>	Testing Circuitry Figure B																																						
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Ambient Temperature [°C]	Ripple Voltage [mV]																																						
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		<p>Measured by 100 MHz Oscilloscope.</p> <p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																					

COSEL

Model	SUS61215/SUCS61215	Testing Circuitry Figure A																																																					
Item	Ambient Temperature Drift																																																						
Object	+15V0.4A																																																						
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Note:	Slanted line shows the range of the rated ambient temperature.																																																						



Model	SUS61215/SUCS61215	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+15V0.4A	

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 - 55°C

Input Voltage : 9 - 18V

Load Current : 0 - 0.4A

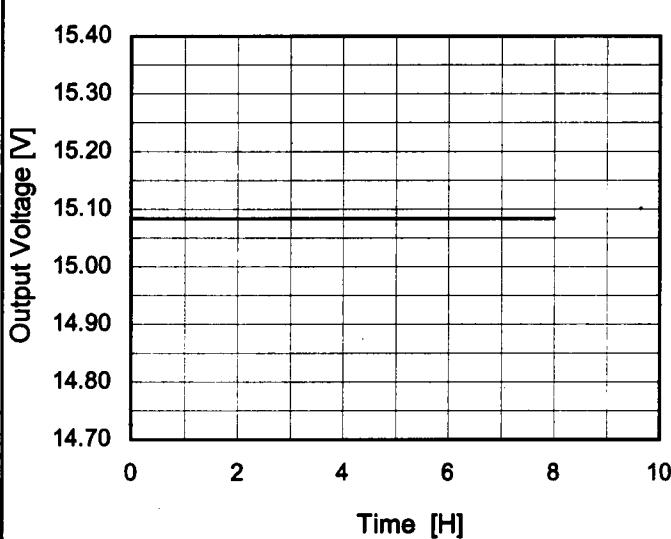
* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

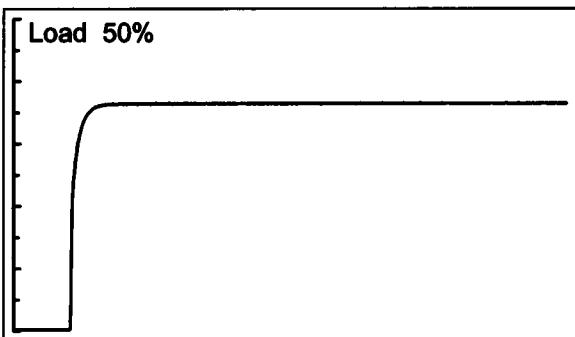
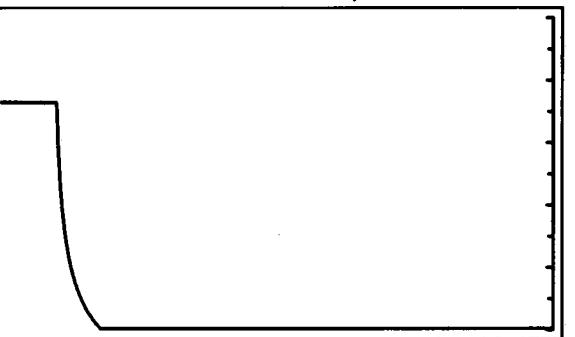
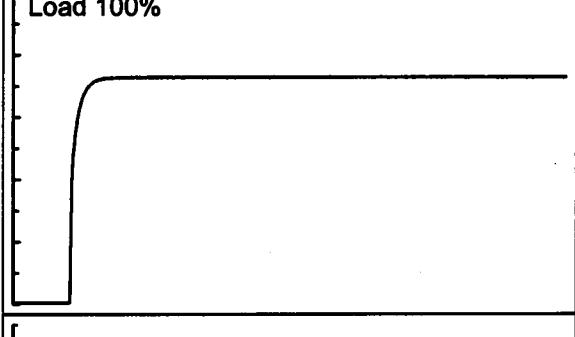
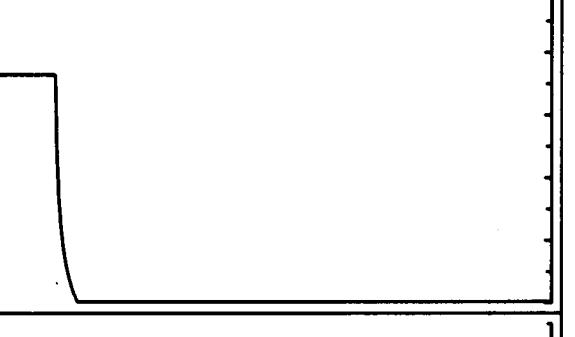
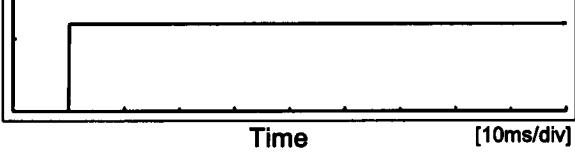
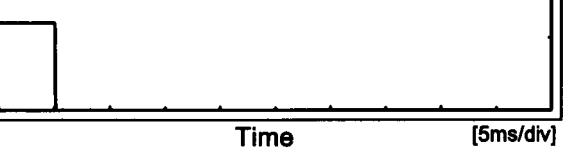
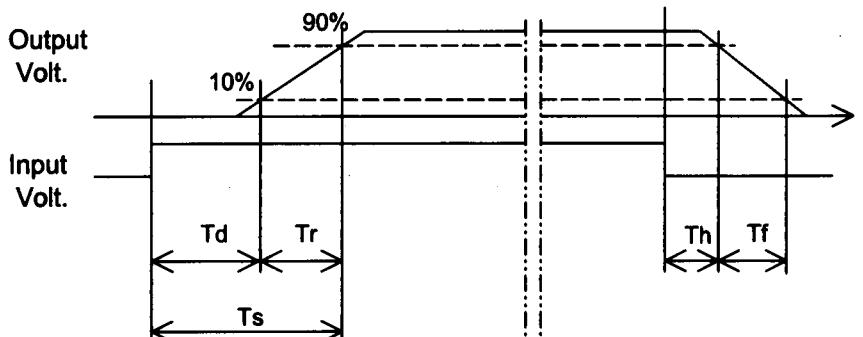
2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	18	0	15.087	± 24	± 0.2
Minimum Voltage	-40	9	0.4	15.040		

COSEL

Model	SUS61215/SUCS61215	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+15V0.4A																								
1.Graph			2.Values																						
 <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 12V 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>15.086</td></tr> <tr><td>0.5</td><td>15.084</td></tr> <tr><td>1.0</td><td>15.084</td></tr> <tr><td>2.0</td><td>15.084</td></tr> <tr><td>3.0</td><td>15.084</td></tr> <tr><td>4.0</td><td>15.084</td></tr> <tr><td>5.0</td><td>15.084</td></tr> <tr><td>6.0</td><td>15.084</td></tr> <tr><td>7.0</td><td>15.084</td></tr> <tr><td>8.0</td><td>15.084</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	15.086	0.5	15.084	1.0	15.084	2.0	15.084	3.0	15.084	4.0	15.084	5.0	15.084	6.0	15.084	7.0	15.084	8.0	15.084
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COSEL

Model	SUS61215/SUCS61215	Temperature Testing Circuitry	25°C Figure A																					
Item	Rise and Fall Time																							
Object	+15V0.4A																							
1. Graph			Input Volt. 12 V																					
 <p>Load 50%</p> <p>Output Volt. [2V/div]</p> <p>0</p>																								
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 <p>Input Volt. [10V/div]</p> <p>0</p>																								
<p>Time [10ms/div]</p>			<p>Time [5ms/div]</p>																					
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Load	Time	Td	Tr	Ts	Th	Tf																		
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 <p>Output Volt.</p> <p>Input Volt.</p> <p>90%</p> <p>10%</p> <p>Td</p> <p>Tr</p> <p>Ts</p> <p>Th</p> <p>Tf</p>																								

COSEL

<p>Model</p> <p>Item</p> <p>Object</p>	SUS61215/SUCS61215	<p>Testing Circuitry Figure A</p>																																					
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	+15V0.4A																																						
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Note: Slanted line shows the range of the rated ambient temperature.

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Model	SUS61215/SUCS61215	Temperature Testing Circuitry Figure A	25°C																																																							
Item	Overcurrent Protection		Figure A																																																							
Object	+15V0.4A																																																									
1.Graph	<p style="text-align: right;">Input Volt. 9V Input Volt. 12V Input Volt. 18V</p> <p>Output Voltage [V]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p>	2.Values																																																								
			<table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="3">Load Current [A]</th> </tr> <tr> <th>9[V]</th> <th>12[V]</th> <th>18[V]</th> </tr> </thead> <tbody> <tr><td>15.0</td><td>0.40</td><td>0.40</td><td>0.40</td></tr> <tr><td>14.3</td><td>0.56</td><td>0.60</td><td>0.60</td></tr> <tr><td>13.5</td><td>0.58</td><td>0.61</td><td>0.61</td></tr> <tr><td>12.0</td><td>0.60</td><td>0.65</td><td>0.64</td></tr> <tr><td>10.5</td><td>0.64</td><td>0.68</td><td>0.67</td></tr> <tr><td>9.0</td><td>0.67</td><td>0.70</td><td>0.69</td></tr> <tr><td>7.5</td><td>0.70</td><td>0.73</td><td>0.70</td></tr> <tr><td>6.0</td><td>0.73</td><td>0.74</td><td>0.72</td></tr> <tr><td>4.5</td><td>0.75</td><td>0.75</td><td>0.72</td></tr> <tr><td>3.0</td><td>0.74</td><td>0.73</td><td>0.70</td></tr> <tr><td>1.5</td><td>0.70</td><td>0.67</td><td>0.66</td></tr> <tr><td>0.0</td><td>1.42</td><td>1.38</td><td>1.36</td></tr> </tbody> </table>	Output Voltage [V]	Load Current [A]			9[V]	12[V]	18[V]	15.0	0.40	0.40	0.40	14.3	0.56	0.60	0.60	13.5	0.58	0.61	0.61	12.0	0.60	0.65	0.64	10.5	0.64	0.68	0.67	9.0	0.67	0.70	0.69	7.5	0.70	0.73	0.70	6.0	0.73	0.74	0.72	4.5	0.75	0.75	0.72	3.0	0.74	0.73	0.70	1.5	0.70	0.67	0.66	0.0	1.42	1.38	1.36
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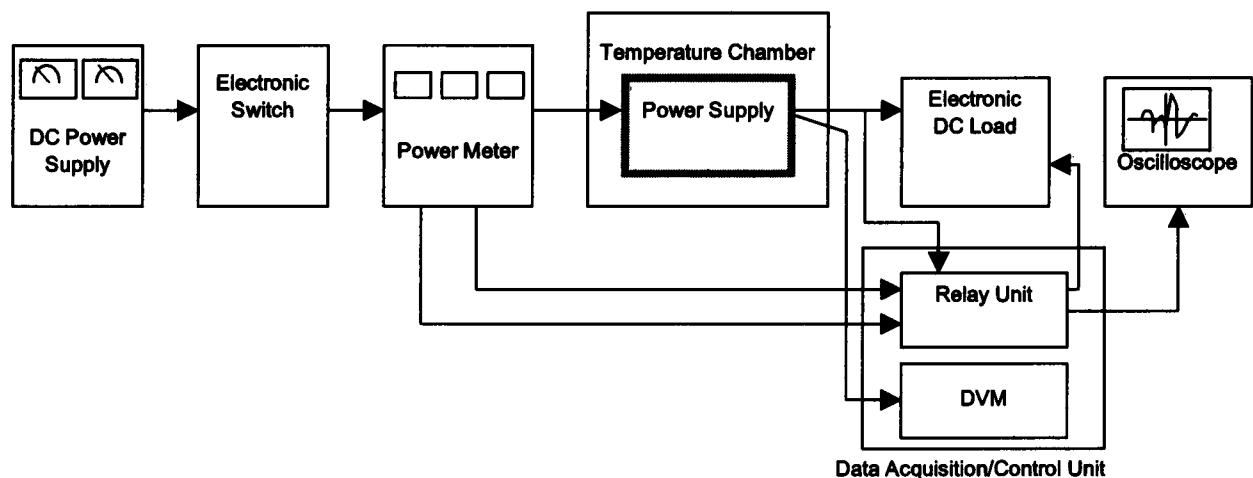


Figure A

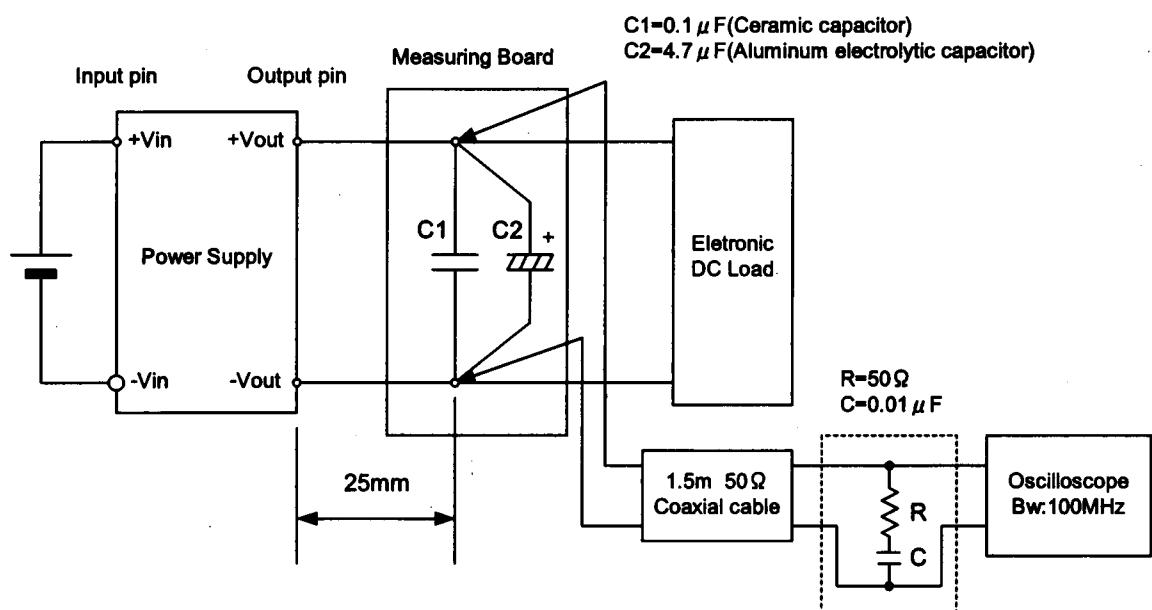


Figure B (Ripple and Ripple noise Characteristic)