

TEST DATA OF SUTS31215

Regulated DC Power Supply

Approved by : Kazunari Asano Kazunari Asano Design Manager

Prepared by : Sho Saito Sho Saito Design Engineer

COSEL CO.,LTD.

CONTENTS

1. Input Current (by Input Voltage)	1
2. Input Current (by Load Current)	2
3. Input Power (by Load Current)	3
4. Efficiency (by Input Voltage)	4
5. Efficiency (by Load Current)	5
6. Line Regulation	6
7. Load Regulation	7
8. Dynamic Load Response	8
9. Ripple Voltage (by Load Current)	9
10. Ripple-Noise	10
11. Ripple Voltage (by Ambient Temperature)	11
12. Ambient Temperature Drift	12
13. Output Voltage Accuracy	13
14. Time Lapse Drift	14
15. Rise and Fall Time	15
16. Minimum Input Voltage for Regulated Output Voltage	16
17. Overcurrent Protection	17
18. Figure of Testing Circuitry	18

(Final Page 18)

Model	SUTS31215	Temperature Testing Circuitry 25°C Figure A																																																																																	
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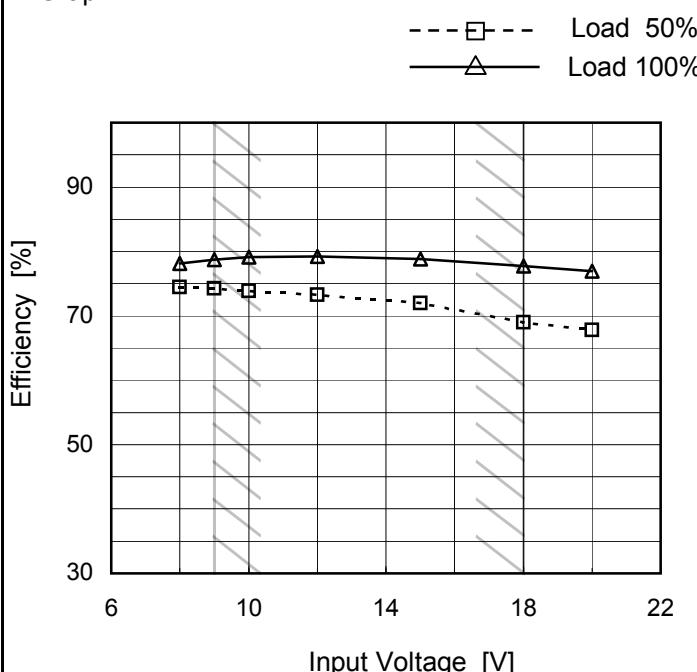
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Note: Slanted line shows the range of the rated load current.

Model	SUTS31215	Temperature	25°C
Item	Efficiency (by Input Voltage)	Testing Circuitry	Figure A
Object	—		

1. Graph



2. Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
8	74.4	78.1
9	74.2	78.7
10	73.8	79.2
12	73.2	79.3
15	71.9	78.8
18	68.9	77.7
20	67.7	76.9
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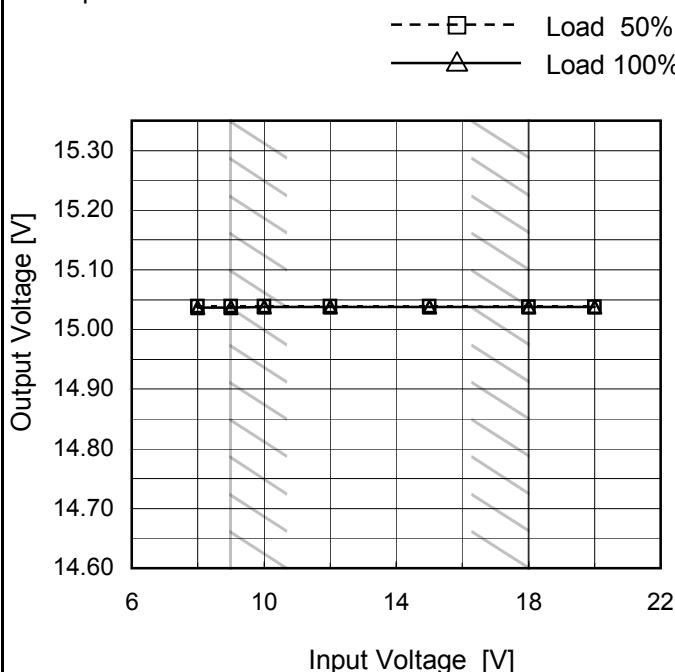
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1.Graph	<p>Graph showing Efficiency (%) vs Load Current (A) for SUTS31215 at 25°C. The graph shows three curves for Input Voltages 9V, 12V, and 18V. The efficiency increases with both load current and input voltage. A slanted line indicates the rated load current range.</p> <table border="1"> <thead> <tr> <th>Load Current [A]</th> <th>Input Volt. 9V [%]</th> <th>Input Volt. 12V [%]</th> <th>Input Volt. 18V [%]</th> </tr> </thead> <tbody> <tr><td>0.04</td><td>60.2</td><td>57.7</td><td>51.7</td></tr> <tr><td>0.08</td><td>71.5</td><td>69.9</td><td>65.3</td></tr> <tr><td>0.12</td><td>75.8</td><td>75.1</td><td>71.9</td></tr> <tr><td>0.16</td><td>77.7</td><td>77.9</td><td>75.4</td></tr> <tr><td>0.20</td><td>78.8</td><td>79.2</td><td>77.7</td></tr> <tr><td>0.22</td><td>79.0</td><td>79.8</td><td>78.6</td></tr> </tbody> </table>				Load Current [A]	Input Volt. 9V [%]	Input Volt. 12V [%]	Input Volt. 18V [%]	0.04	60.2	57.7	51.7	0.08	71.5	69.9	65.3	0.12	75.8	75.1	71.9	0.16	77.7	77.9	75.4	0.20	78.8	79.2	77.7	0.22	79.0	79.8	78.6																							
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Model	SUTS31215
Item	Line Regulation
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



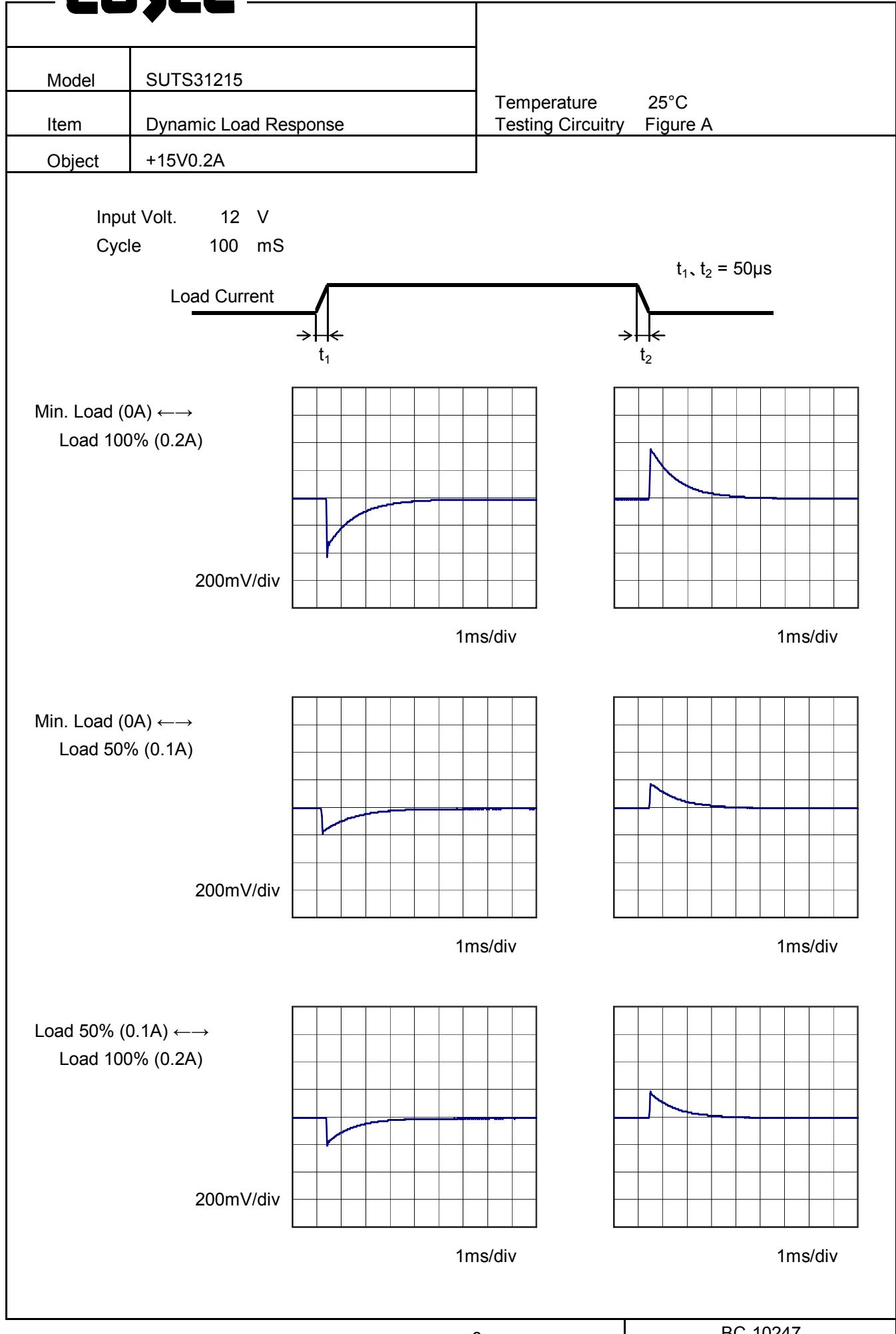
2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8	15.039	15.037
9	15.039	15.037
10	15.039	15.037
12	15.039	15.037
15	15.038	15.037
18	15.038	15.037
20	15.038	15.038
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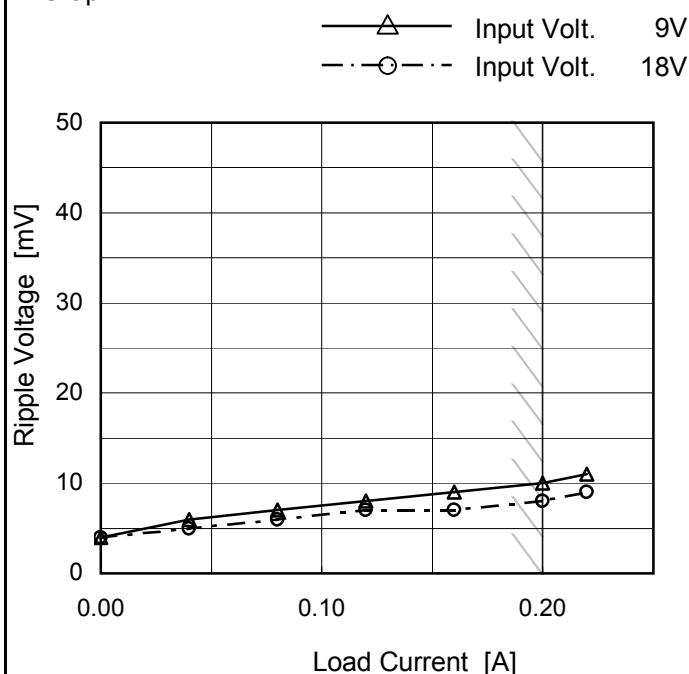
COSEL



Model	SUTS31215
Item	Ripple Voltage (by Load Current)
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.00	4	4
0.04	6	5
0.08	7	6
0.12	8	7
0.16	9	7
0.20	10	8
0.22	11	9
--	-	-
--	-	-
--	-	-
--	-	-

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]

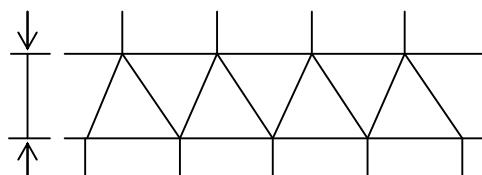
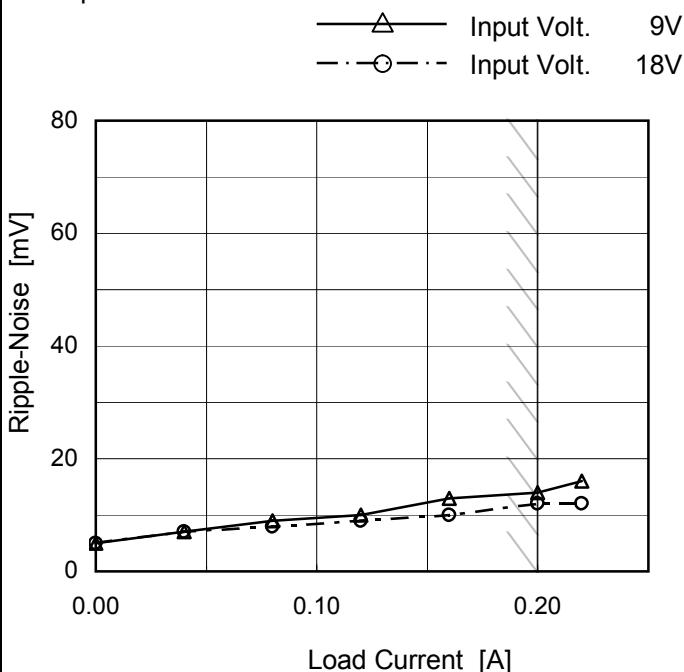


Fig.Complex Ripple Wave Form

Model	SUTS31215
Item	Ripple-Noise
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

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. 9 [V]	Input Volt. 18 [V]
0.00	5	5
0.04	7	7
0.08	9	8
0.12	10	9
0.16	13	10
0.20	14	12
0.22	16	12
--	-	-
--	-	-
--	-	-
--	-	-

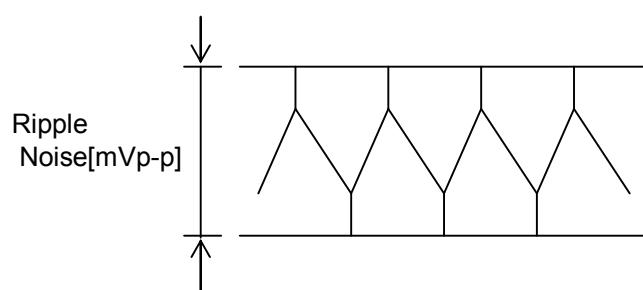
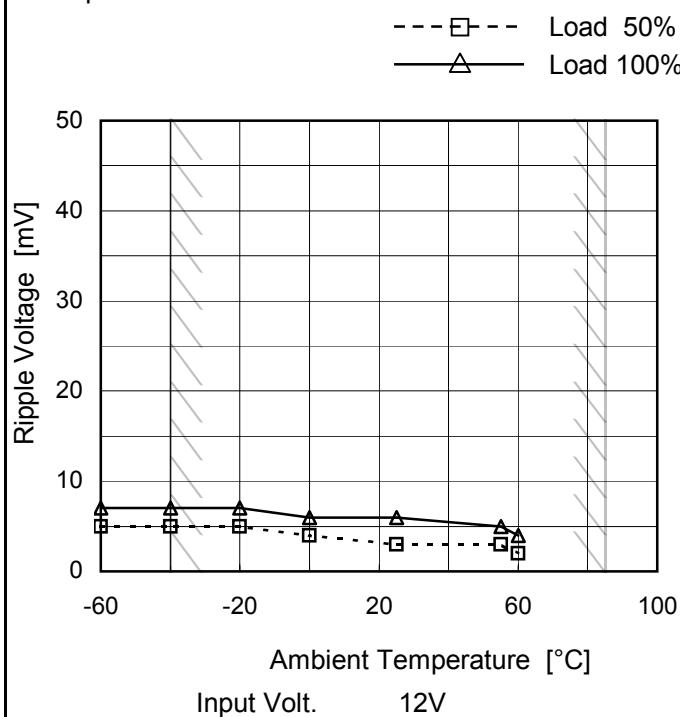


Fig.Complex Ripple Noise Wave Form

Model	SUTS31215
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V0.2A

1. Graph



Measured by 100 MHz Oscilloscope.

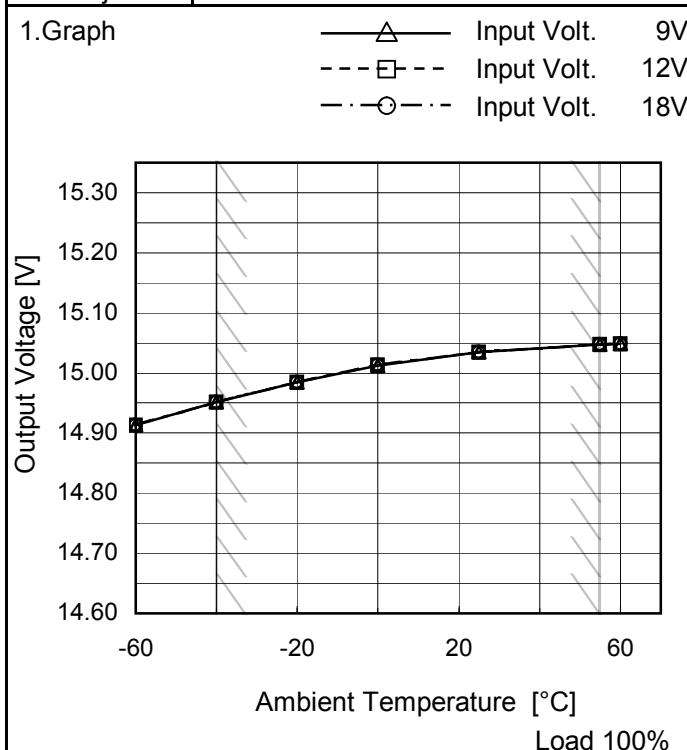
Note: Slanted line shows the range of the rated ambient temperature.

Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	5	7
-40	5	7
-20	5	7
0	4	6
25	3	6
55	3	5
60	2	4
--	-	-
--	-	-
--	-	-
--	-	-

Model	SUTS31215
Item	Ambient Temperature Drift
Object	+15V0.2A



Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
-60	14.914	14.913	14.913
-40	14.952	14.952	14.952
-20	14.984	14.985	14.984
0	15.013	15.013	15.014
25	15.034	15.035	15.035
55	15.047	15.047	15.047
60	15.048	15.048	15.048
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	SUTS31215	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+15V0.2A	

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 - 0.2A

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

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

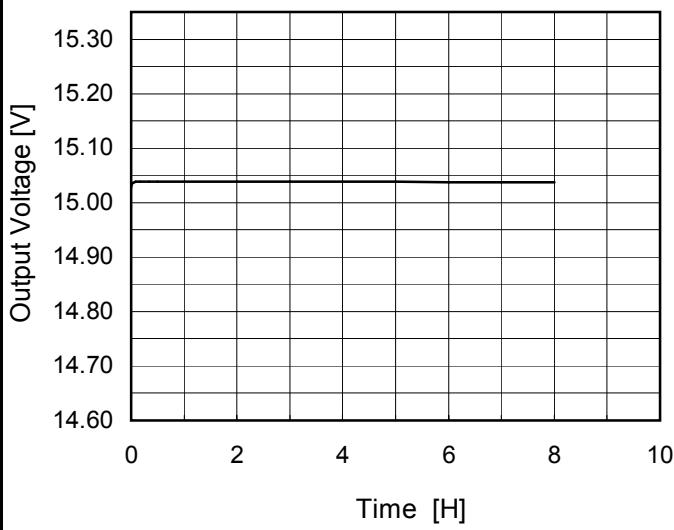
2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	9	0	15.051	±50	±0.3
Minimum Voltage	-40	12	0	14.951		

COSEL

Model	SUTS31215
Item	Time Lapse Drift
Object	+15V0.2A

1. Graph



Input Volt. 12V
Load 100%

Temperature 25°C
Testing Circuitry Figure A

2. Values

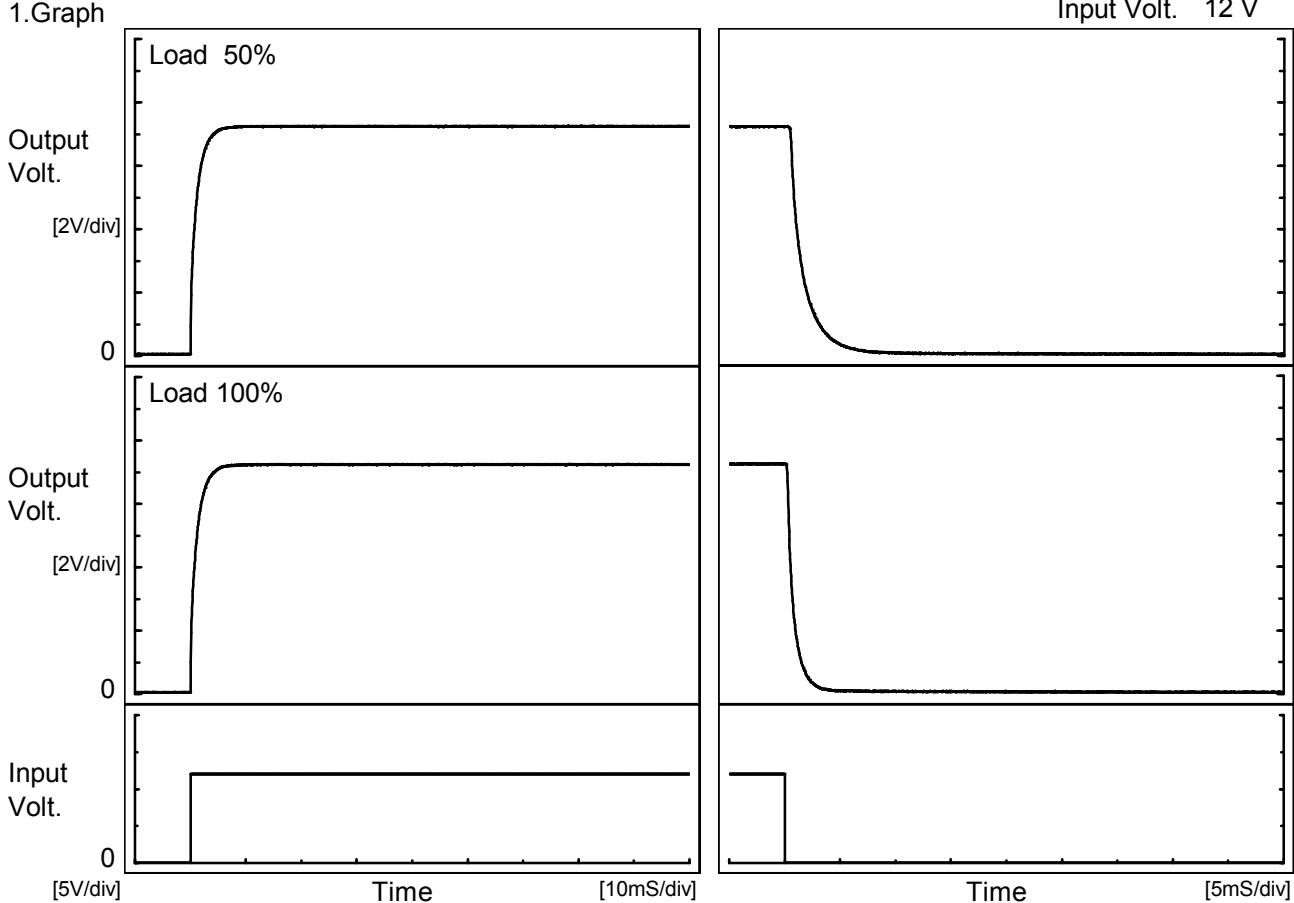
Time since start [H]	Output Voltage [V]
0.0	15.028
0.5	15.038
1.0	15.038
2.0	15.038
3.0	15.038
4.0	15.038
5.0	15.038
6.0	15.038
7.0	15.038
8.0	15.038

COSSEL

Model	SUTS31215
Item	Rise and Fall Time
Object	+15V0.2A

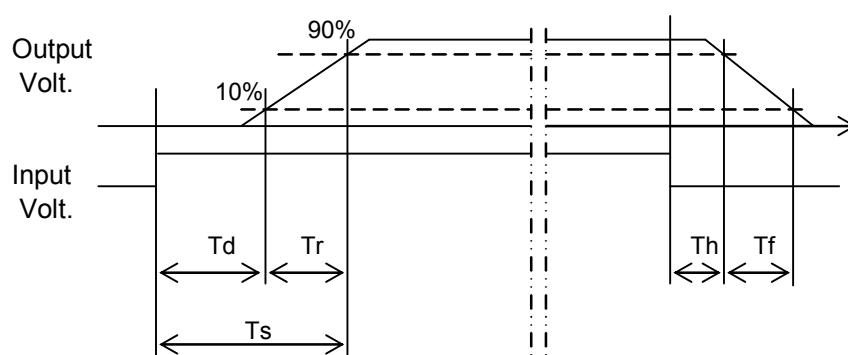
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

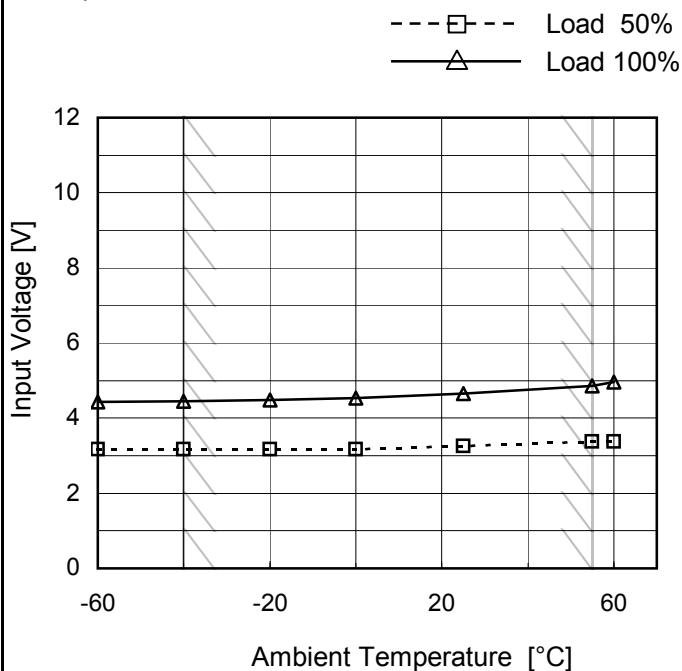
Load	Time	Td	Tr	Ts	Th	Tf
50 %		0.1	3.3	3.4	0.5	3.0
100 %		0.1	3.3	3.4	0.3	1.5



Model	SUTS31215
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V0.2A

Testing Circuitry Figure A

1. Graph



2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	3.2	4.5
-40	3.2	4.5
-20	3.2	4.5
0	3.2	4.6
25	3.3	4.7
55	3.4	4.9
60	3.4	5.0
--	-	-
--	-	-
--	-	-
--	-	-

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

Model	SUTS31215	Temperature Testing Circuitry 25°C Figure A																																																							
Item	Overcurrent Protection																																																								
Object	+15V0.2A																																																								
1.Graph		2.Values																																																							
<p>Note: Slanted line shows the range of the rated load current.</p>		<table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="3">Load Current [A]</th> </tr> <tr> <th>Input Volt. 9[V]</th> <th>Input Volt. 12[V]</th> <th>Input Volt. 18[V]</th> </tr> </thead> <tbody> <tr><td>15.0</td><td>0.20</td><td>0.20</td><td>0.20</td></tr> <tr><td>14.3</td><td>0.40</td><td>0.42</td><td>0.42</td></tr> <tr><td>13.5</td><td>0.41</td><td>0.42</td><td>0.43</td></tr> <tr><td>12.0</td><td>0.43</td><td>0.45</td><td>0.45</td></tr> <tr><td>10.5</td><td>0.46</td><td>0.47</td><td>0.46</td></tr> <tr><td>9.0</td><td>0.49</td><td>0.49</td><td>0.48</td></tr> <tr><td>7.5</td><td>0.53</td><td>0.51</td><td>0.49</td></tr> <tr><td>6.0</td><td>0.56</td><td>0.53</td><td>0.50</td></tr> <tr><td>4.5</td><td>0.58</td><td>0.54</td><td>0.49</td></tr> <tr><td>3.0</td><td>0.58</td><td>0.53</td><td>0.47</td></tr> <tr><td>1.5</td><td>0.54</td><td>0.47</td><td>0.43</td></tr> <tr><td>0.0</td><td>0.47</td><td>0.38</td><td>0.36</td></tr> </tbody> </table>	Output Voltage [V]	Load Current [A]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	15.0	0.20	0.20	0.20	14.3	0.40	0.42	0.42	13.5	0.41	0.42	0.43	12.0	0.43	0.45	0.45	10.5	0.46	0.47	0.46	9.0	0.49	0.49	0.48	7.5	0.53	0.51	0.49	6.0	0.56	0.53	0.50	4.5	0.58	0.54	0.49	3.0	0.58	0.53	0.47	1.5	0.54	0.47	0.43	0.0	0.47	0.38	0.36
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coSEL

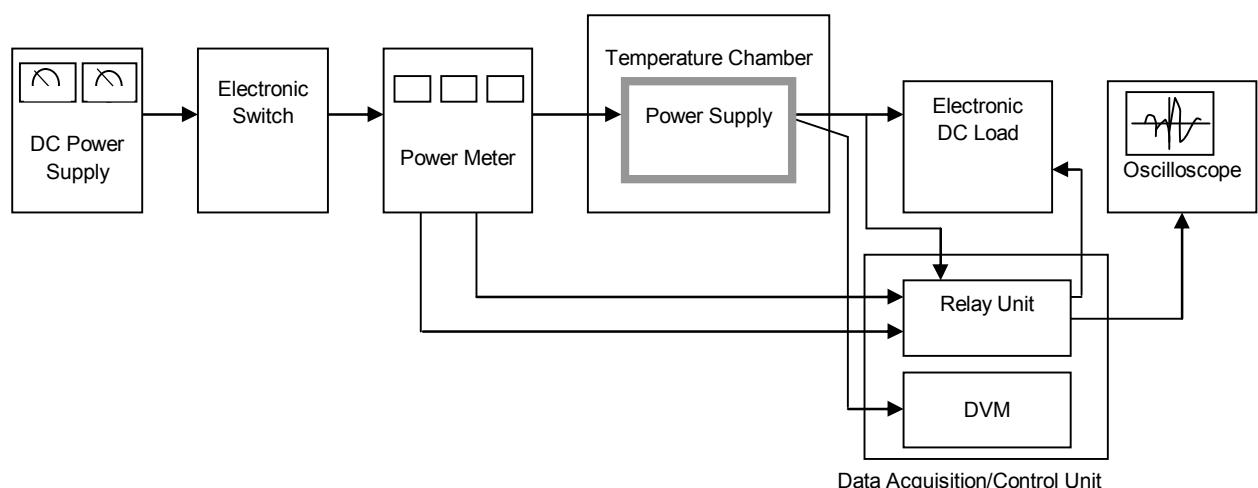


Figure A

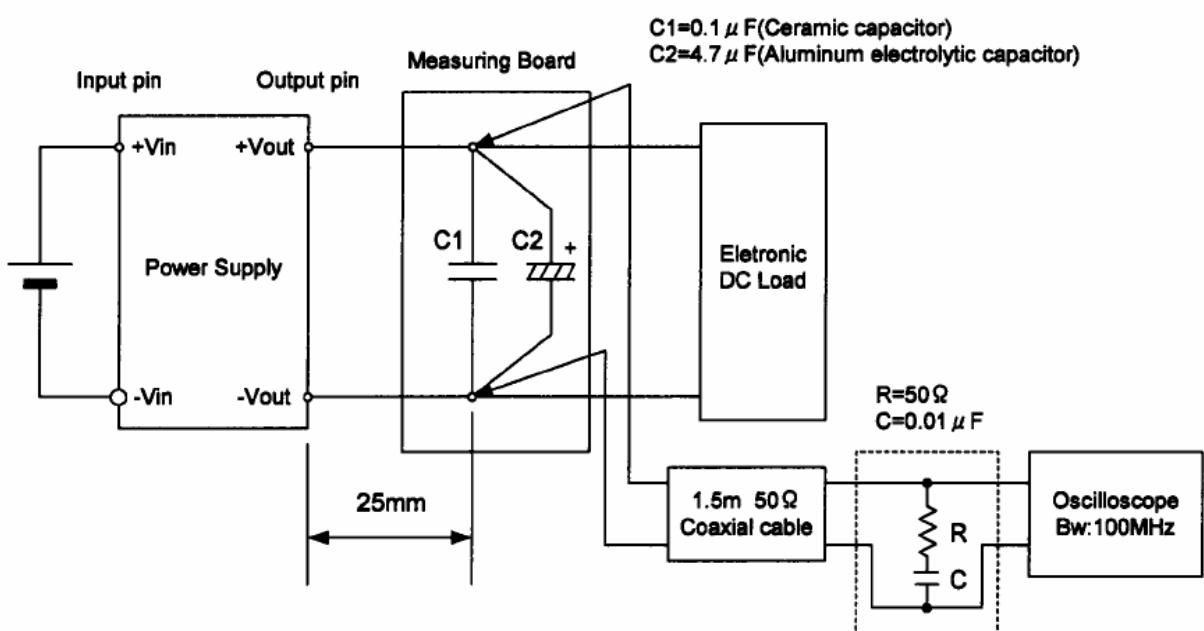


Figure B (Ripple and Ripple noise Characteristic)