

# TEST DATA OF MGS151215

Regulated DC Power Supply  
September 11, 2010

Approved by : Kazunari Asano  
Kazunari Asano Design Manager

Prepared by : Mizukami Shintaro  
Mizukami Shintaro Design Engineer

**COSEL CO.,LTD.**

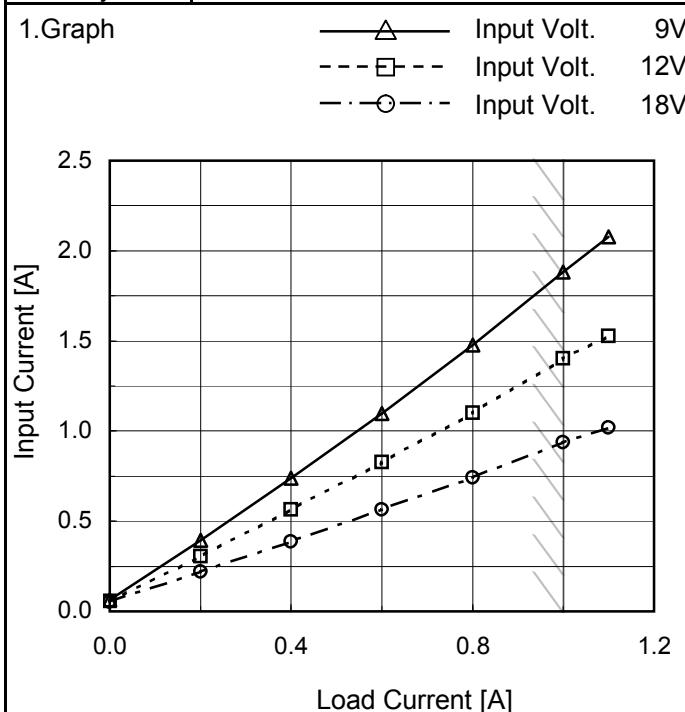
## CONTENTS

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	MGS151215																																																																																		
Item	Input Current (by Input Voltage)	Temperature Testing Circuitry	25°C Figure A																																																																																
Object	_____																																																																																		
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Object	_____

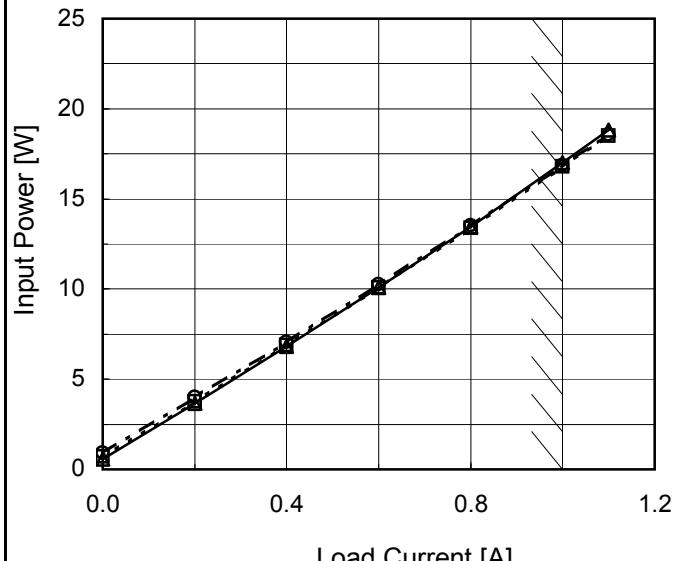


Temperature 25°C  
Testing Circuitry Figure A

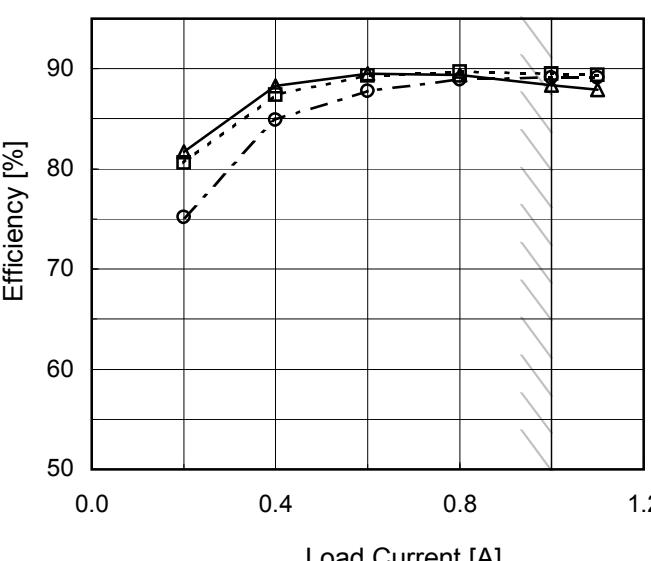
## 2. Values

Load Current [A]	Input Current [A]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
0.0	0.063	0.058	0.052
0.2	0.395	0.307	0.218
0.4	0.739	0.563	0.389
0.6	1.099	0.827	0.564
0.8	1.476	1.101	0.743
1.0	1.881	1.401	0.937
1.1	2.078	1.527	1.020
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--	-	-	-
--	-	-	-

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

Model	MGS151215																																																					
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1.Graph	<p>—△— Input Volt. 9V        - - -□- - Input Volt. 12V        - - ○- - Input Volt. 18V</p>  <p>The graph plots Input Power [W] on the Y-axis (0 to 25) against Load Current [A] on the X-axis (0.0 to 1.2). Three curves are shown for input voltages of 9V, 12V, and 18V. The 9V curve starts at (0,0) and ends at approximately (1.1, 19). The 12V curve starts at (0,0) and ends at approximately (1.1, 17). The 18V curve starts at (0,0) and ends at approximately (1.1, 16). A slanted line is drawn through the data points, representing the rated load current range.</p>																																																					
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<p>The graph plots Efficiency [%] on the y-axis (50 to 90) 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>10.0</td><td>89.2</td><td>88.0</td></tr> <tr><td>12.0</td><td>89.3</td><td>88.3</td></tr> <tr><td>14.0</td><td>89.1</td><td>89.3</td></tr> <tr><td>16.0</td><td>87.8</td><td>89.4</td></tr> <tr><td>18.0</td><td>86.5</td><td>89.2</td></tr> <tr><td>20.0</td><td>86.0</td><td>88.9</td></tr> </tbody> </table>			Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	10.0	89.2	88.0	12.0	89.3	88.3	14.0	89.1	89.3	16.0	87.8	89.4	18.0	86.5	89.2	20.0	86.0	88.9											
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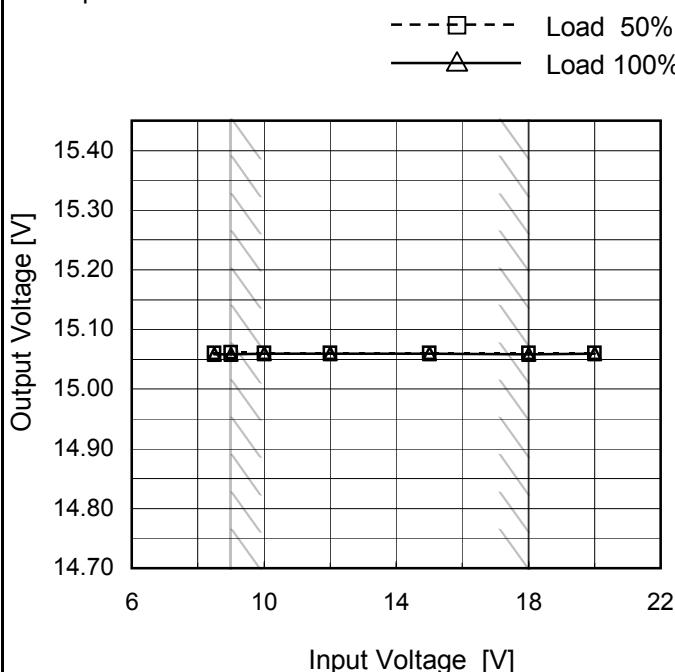
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Note: Slanted line shows the range of the rated load current.

Model	MGS151215
Item	Line Regulation
Object	+15V1A

Temperature 25°C  
Testing Circuitry Figure A

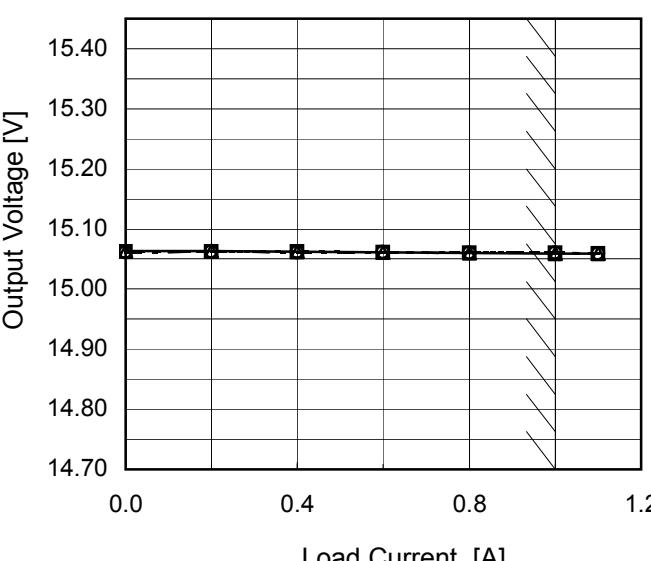
## 1.Graph

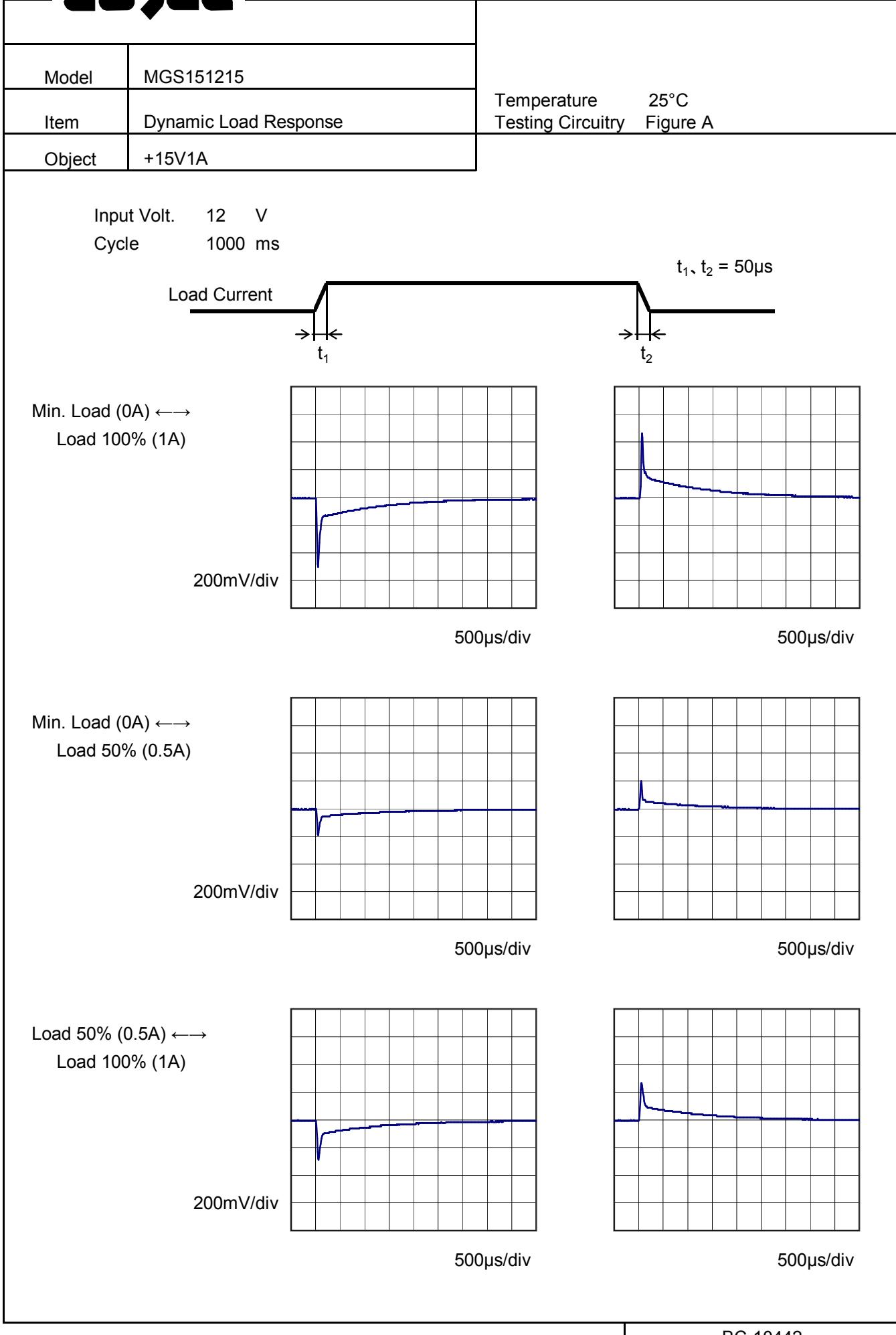


## 2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	15.061	15.059
9.0	15.061	15.058
10.0	15.061	15.059
12.0	15.061	15.060
15.0	15.061	15.059
18.0	15.061	15.059
20.0	15.060	15.059
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Note: Slanted line shows the range of the rated input voltage.

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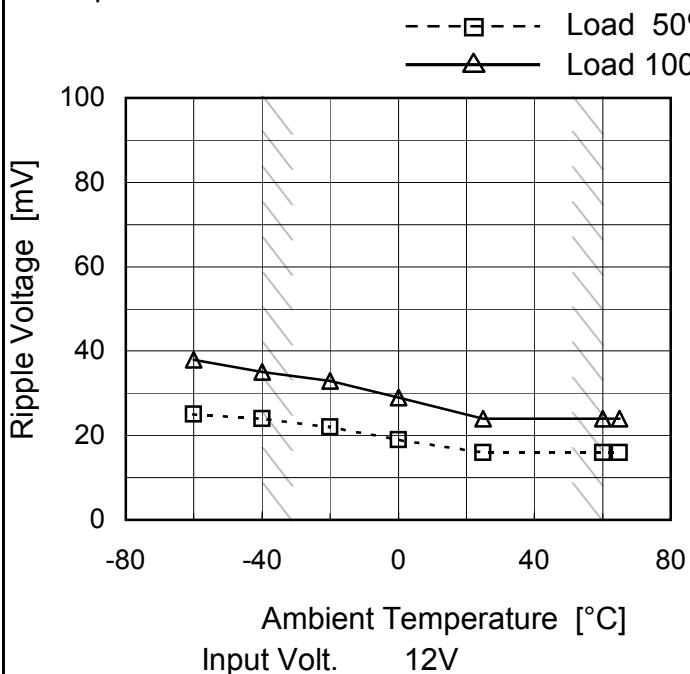
**COSSEL**

Model	MGS151215																																							
Item	Ripple Voltage (by Load Current)	Temperature      25°C Testing Circuitry      Figure B																																						
Object	+15V1A																																							
1.Graph																																								
<p>Input Volt. 9V</p> <p>Input Volt. 18V</p> <p>Ripple Voltage [mV]</p> <p>Load Current [A]</p>																																								
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Load Current [A]	Ripple Voltage [mV]																																							
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<p>Fig.Complex Ripple Wave Form</p>																																								

Model	MGS151215	Temperature	25°C																																						
Item	Ripple-Noise	Testing Circuitry	Figure B																																						
Object	+15V1A																																								
1.Graph		2.Values																																							
<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The graph compares two input voltages: 9V (solid line with triangle markers) and 18V (dashed line with circle markers). The x-axis represents Load Current [A] from 0.0 to 1.2. The y-axis represents Ripple Voltage [mV] from 0 to 100. Both curves show a slight increase in ripple voltage as load current increases, with the 18V curve generally higher than the 9V curve. A vertical dashed line is drawn at approximately 1.0 A to indicate the rated load current range.</p>		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="2">Ripple-Noise [mV]</th> </tr> <tr> <th>Input Volt. 9 [V]</th> <th>Input Volt. 18 [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>10</td><td>11</td></tr> <tr><td>0.2</td><td>10</td><td>12</td></tr> <tr><td>0.4</td><td>10</td><td>12</td></tr> <tr><td>0.6</td><td>12</td><td>13</td></tr> <tr><td>0.8</td><td>14</td><td>14</td></tr> <tr><td>1.0</td><td>16</td><td>14</td></tr> <tr><td>1.1</td><td>18</td><td>15</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> </tbody> </table>		Load Current [A]	Ripple-Noise [mV]		Input Volt. 9 [V]	Input Volt. 18 [V]	0.0	10	11	0.2	10	12	0.4	10	12	0.6	12	13	0.8	14	14	1.0	16	14	1.1	18	15	--	-	-	--	-	-	--	-	-	--	-	-
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- 10 -			BC-10442																																						

Model	MGS151215
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V1A

## 1. Graph



Measured by 100 MHz Oscilloscope.

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

## Testing Circuitry Figure B

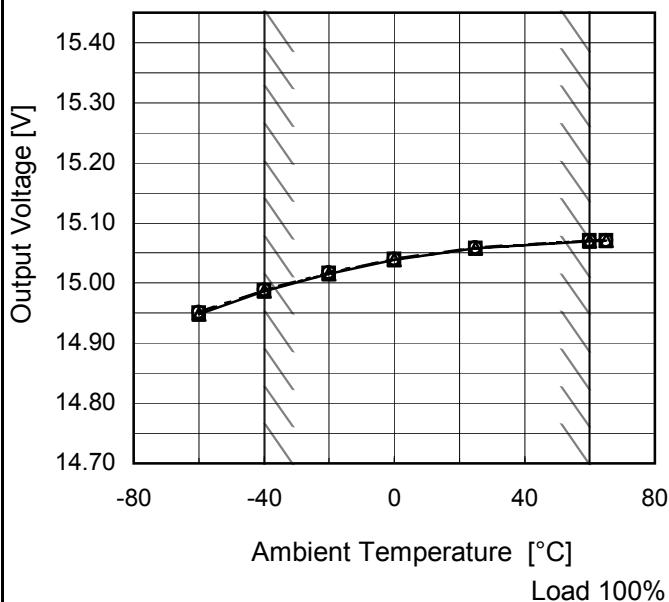
## 2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	25	38
-40	24	35
-20	22	33
0	19	29
25	16	24
60	16	24
65	16	24
--	-	-
--	-	-
--	-	-
--	-	-

Model	MGS151215
Item	Ambient Temperature Drift
Object	+15V1A

## 1. Graph

—△— Input Volt. 9V  
 - - - □ - - Input Volt. 12V  
 - - ○ - - Input Volt. 18V



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

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	14.948	14.950	14.952
-40	14.986	14.988	14.989
-20	15.016	15.017	15.017
0	15.039	15.040	15.040
25	15.058	15.058	15.059
60	15.070	15.071	15.071
65	15.070	15.071	15.071
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-



Model	MGS151215	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+15V1A	

### 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 - 60°C

Input Voltage : 9 - 18V

Load Current : 0 - 1A

\* 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

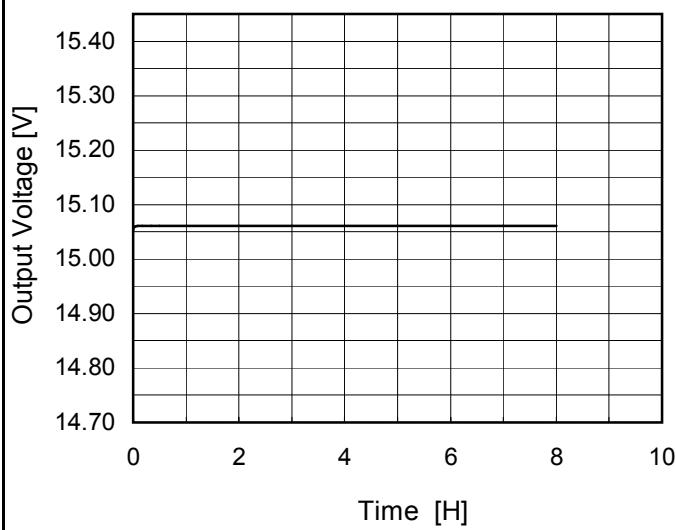
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	9	0	15.074	±44	±0.3
Minimum Voltage	-40	9	1	14.986		

**COSEL**

Model	MGS151215
Item	Time Lapse Drift
Object	+15V1A

Temperature 25°C  
Testing Circuitry Figure A

1.Graph



Input Volt. 12V  
Load 100%

2.Values

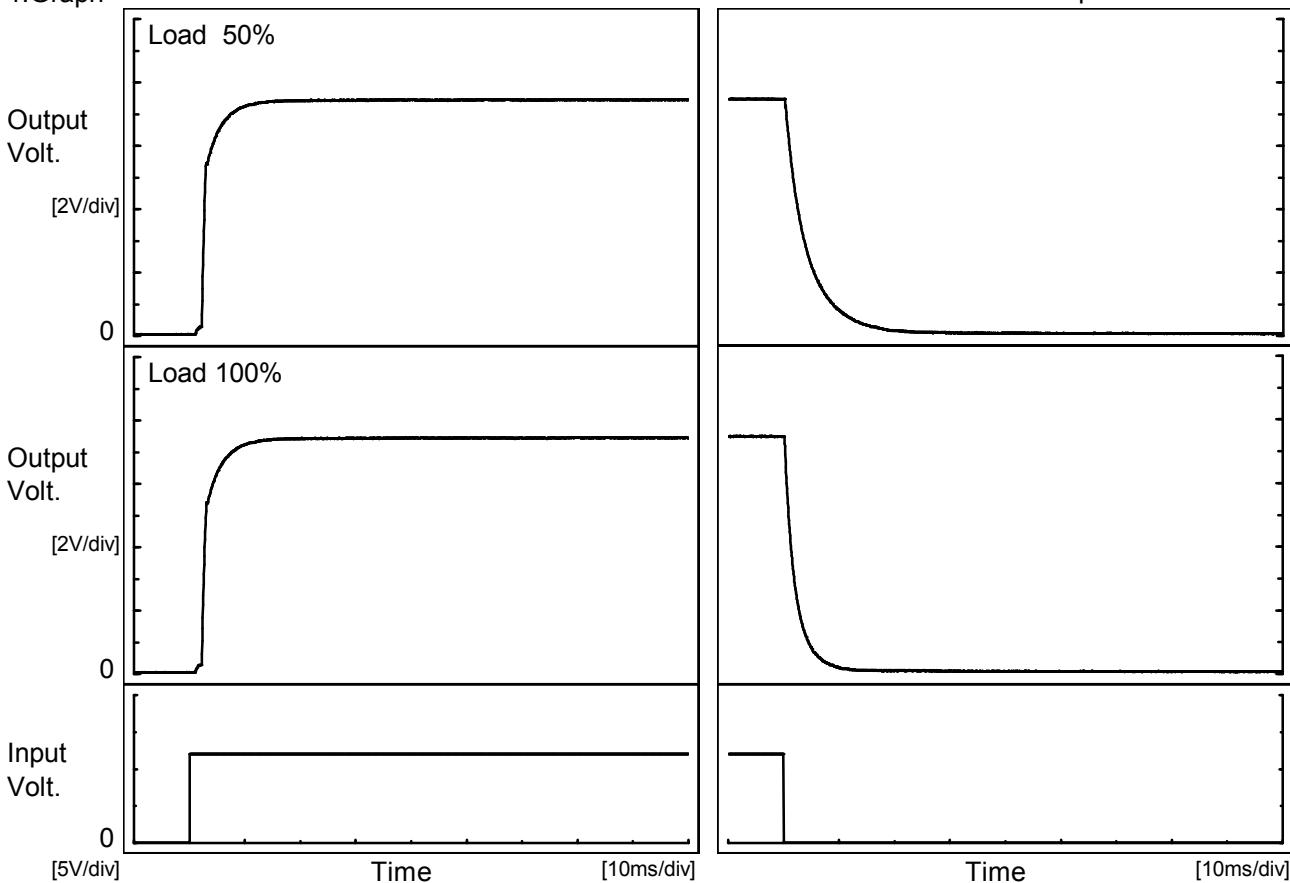
Time since start [H]	Output Voltage [V]
0.0	15.054
0.5	15.061
1.0	15.061
2.0	15.061
3.0	15.061
4.0	15.061
5.0	15.061
6.0	15.061
7.0	15.061
8.0	15.061

**COSEL**

Model	MGS151215
Item	Rise and Fall Time
Object	+15V1A

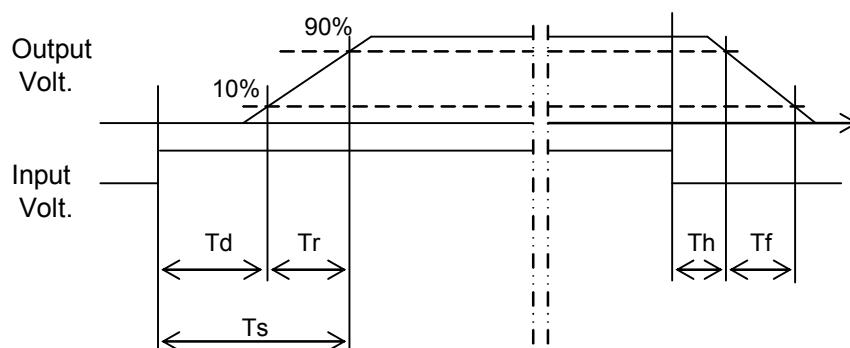
Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



## 2. Values

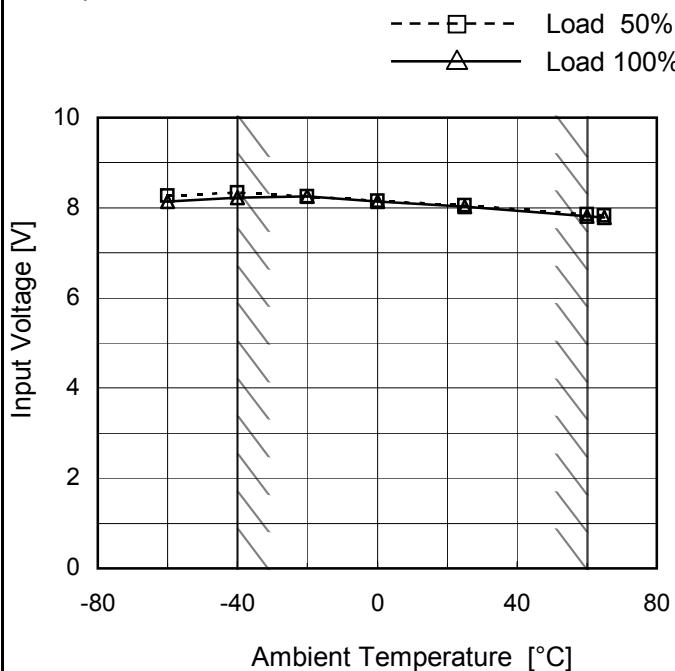
Load	Time	Td	Tr	Ts	Th	Tf
50 %		2.3	4.1	6.4	0.5	9.7
100 %		2.3	4.2	6.5	0.3	4.8



Model	MGS151215
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V1A

## Testing Circuitry Figure A

## 1.Graph

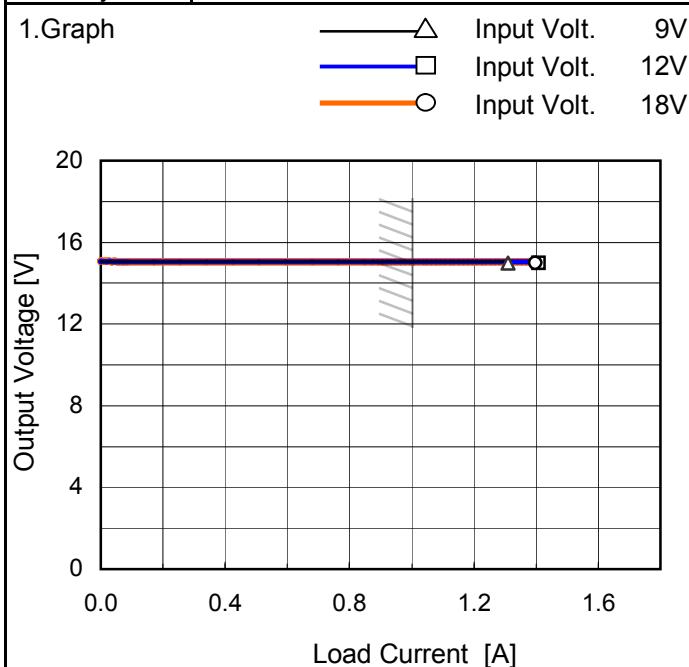


## 2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.3	8.2
-40	8.4	8.3
-20	8.3	8.3
0	8.2	8.2
25	8.1	8.1
60	7.9	7.9
65	7.9	7.8
--	-	-
--	-	-
--	-	-
--	-	-

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

Model	MGS151215
Item	Overcurrent Protection
Object	+15V1A



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

Intermittent operation occurs when overcurrent protection is activated.

Temperature 25°C  
Testing Circuitry Figure A

## 2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
15.0	1.31	1.41	1.40
14.3	-	-	-
13.5	-	-	-
12.0	-	-	-
10.5	-	-	-
9.0	-	-	-
7.5	-	-	-
6.0	-	-	-
4.5	-	-	-
3.0	-	-	-
1.5	-	-	-
0.0	-	-	-

COSEL

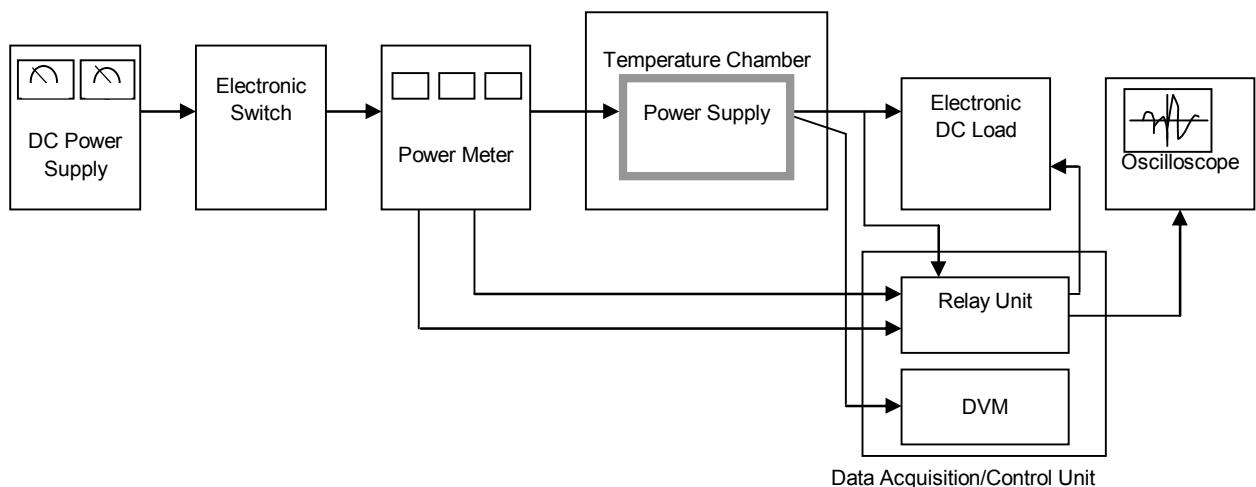


Figure A

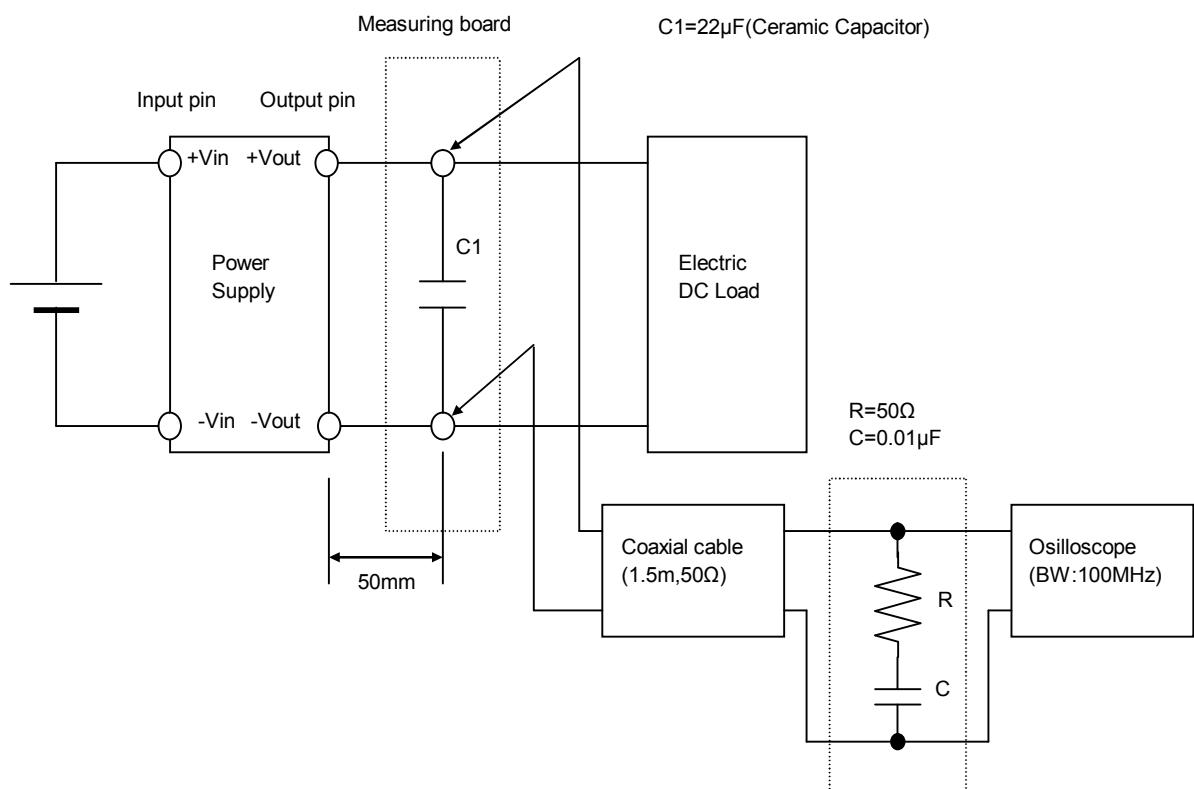


Figure B (Ripple and Ripple noise Characteristic)