

# TEST DATA OF MGS301215

Regulated DC Power Supply  
December 4, 2010

Approved by : Kazunari Asano  
Kazunari Asano

Design Manager

Prepared by : Sho Saito  
Sho Saito

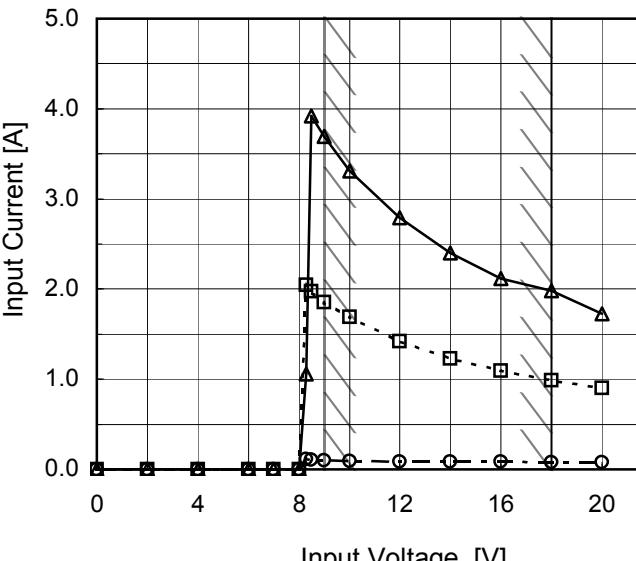
Design Engineer

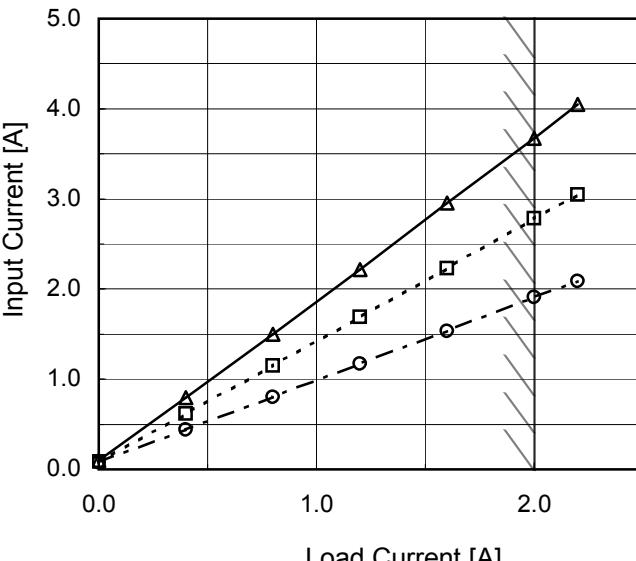
**COSEL CO.,LTD.**

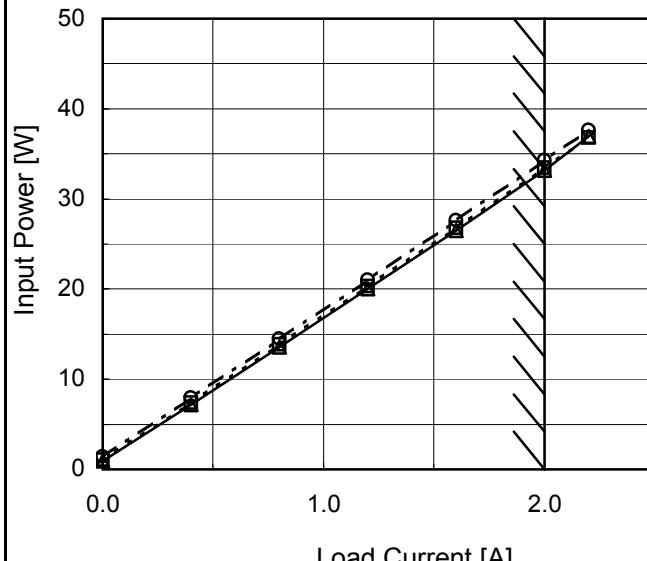
## CONTENTS

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. Overvoltage Protection . . . . .	18
19. Figure of Testing Circuitry . . . . .	19

(Final Page 19)

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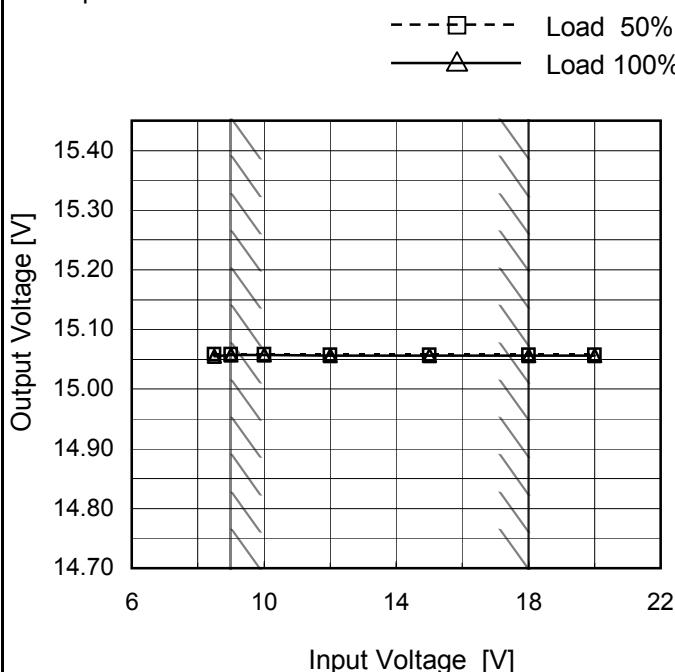
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<p>The graph plots Efficiency [%] on the y-axis (50 to 100) against Input Voltage [V] on the x-axis (6 to 22). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show a general downward trend as input voltage increases. A vertical dashed line at approximately 10V 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>8.5</td><td>89.9</td><td>90.7</td></tr> <tr><td>9.0</td><td>89.8</td><td>90.7</td></tr> <tr><td>10.0</td><td>89.4</td><td>90.6</td></tr> <tr><td>12.0</td><td>88.3</td><td>90.0</td></tr> <tr><td>15.0</td><td>86.7</td><td>88.9</td></tr> <tr><td>18.0</td><td>84.8</td><td>87.7</td></tr> <tr><td>20.0</td><td>83.4</td><td>86.8</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>		Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	8.5	89.9	90.7	9.0	89.8	90.7	10.0	89.4	90.6	12.0	88.3	90.0	15.0	86.7	88.9	18.0	84.8	87.7	20.0	83.4	86.8	--	-	-	--	-	-
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Item	Line Regulation
Object	+15V2A

Temperature 25°C  
Testing Circuitry Figure A

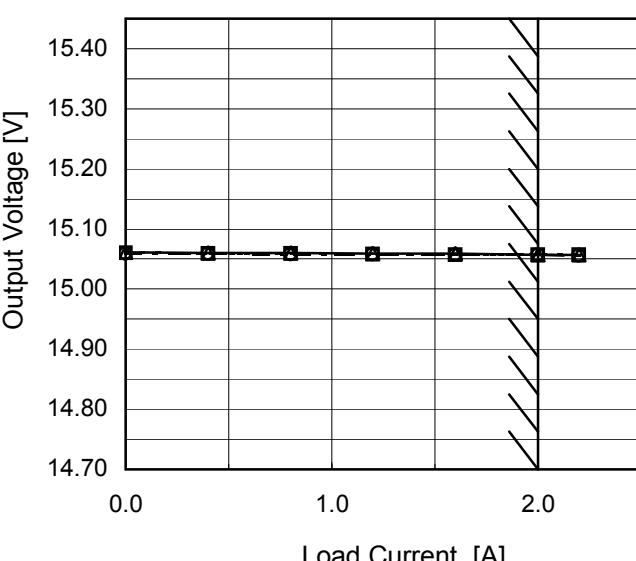
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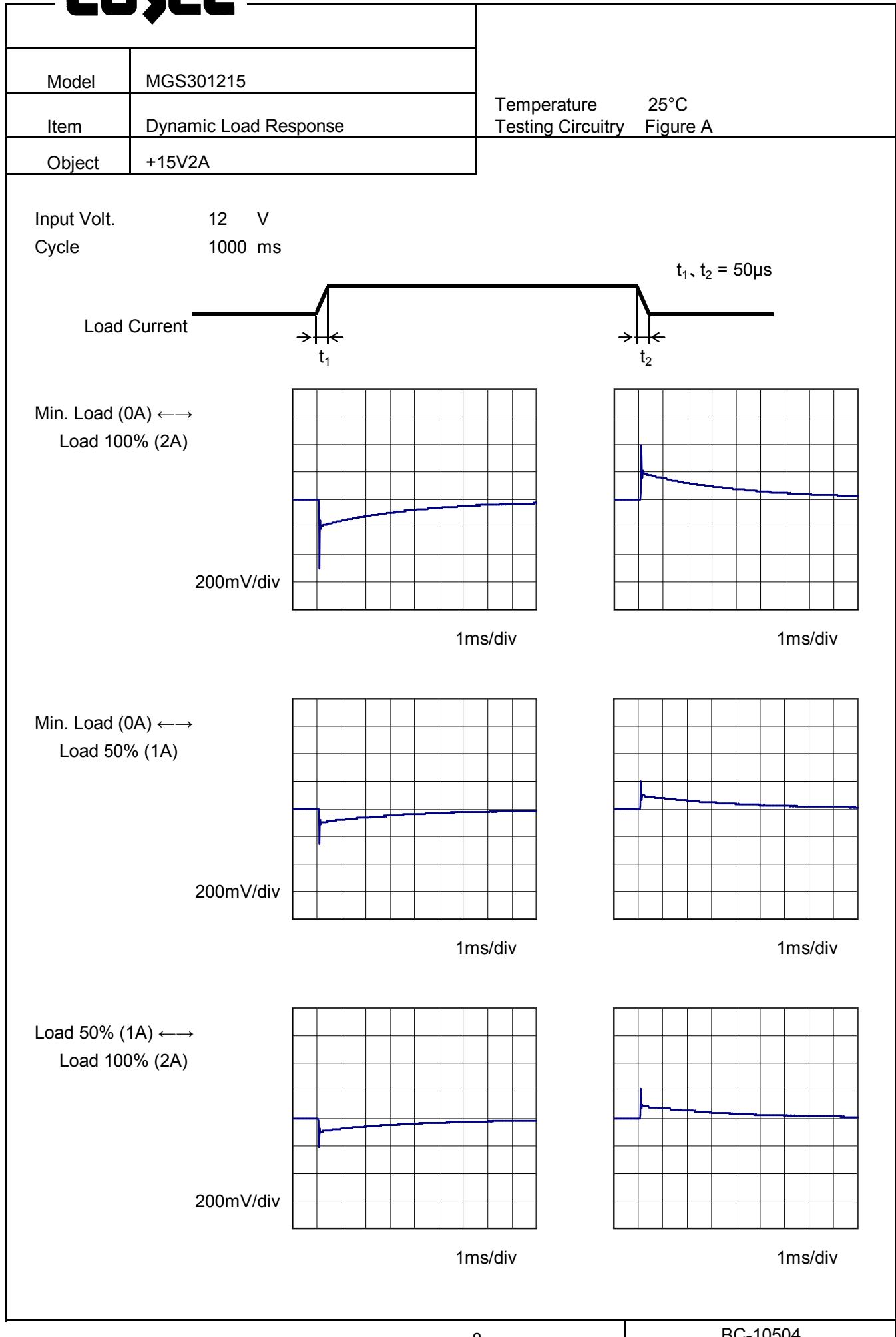


## 2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
8.5	15.058	15.055
9.0	15.058	15.057
10.0	15.058	15.057
12.0	15.058	15.057
15.0	15.057	15.056
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Note: Slanted line shows the range of the rated load current.																																																					



**COSSEL**

Model	MGS301215	Temperature Testing Circuitry 25°C Figure B																																						
Item	Ripple Voltage (by Load Current)																																							
Object	+15V2A																																							
1.Graph		2.Values																																						
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Fig.Complex Ripple Wave Form																																								

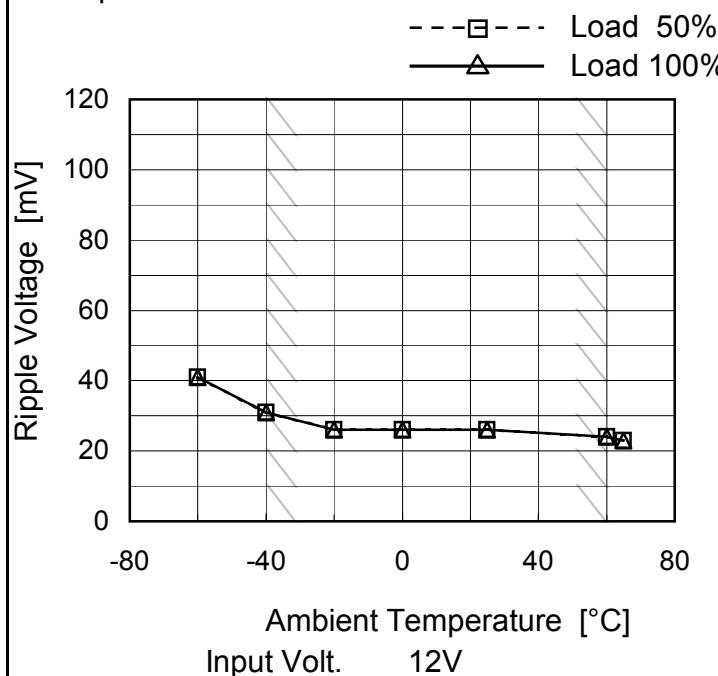
**COSEL**

Model	MGS301215	Temperature Testing Circuitry 25°C Figure B																																						
Item	Ripple-Noise																																							
Object	+15V2A																																							
1.Graph	<p>Input Volt. 9V Input Volt. 18V</p> <p>Ripple Voltage [mV]</p> <p>Load Current [A]</p>	2.Values																																						
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0.0	30	40																																						
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<p>Fig.Complex Ripple Noise Wave Form</p>																																								

# COSEL

Model	MGS301215
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V2A

## 1. Graph



Testing Circuitry Figure B

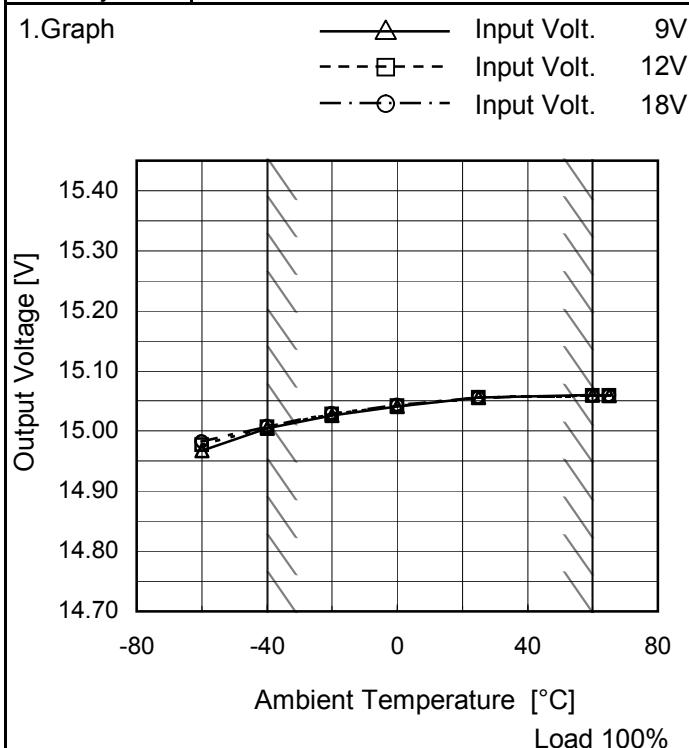
## 2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	41	41
-40	31	31
-20	26	26
0	26	26
25	26	26
60	24	24
65	23	23
--	-	-
--	-	-
--	-	-
--	-	-

Measured by 100 MHz Oscilloscope.

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

Model	MGS301215
Item	Ambient Temperature Drift
Object	+15V2A



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	14.967	14.977	14.982
-40	15.004	15.007	15.008
-20	15.026	15.028	15.029
0	15.041	15.042	15.043
25	15.056	15.056	15.056
60	15.060	15.060	15.059
65	15.059	15.059	15.059
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	MGS301215	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+15V2A	

### 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 - 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

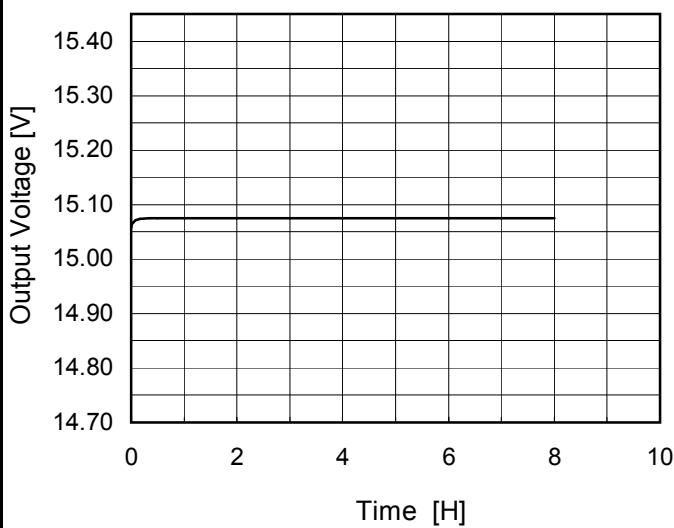
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	9	0	15.063	±30	±0.2
Minimum Voltage	-40	9	0	15.004		

**COSEL**

Model	MGS301215
Item	Time Lapse Drift
Object	+15V2A

Temperature 25°C  
Testing Circuitry Figure A

### 1. Graph



Input Volt. 12V  
Load 100%

### 2. Values

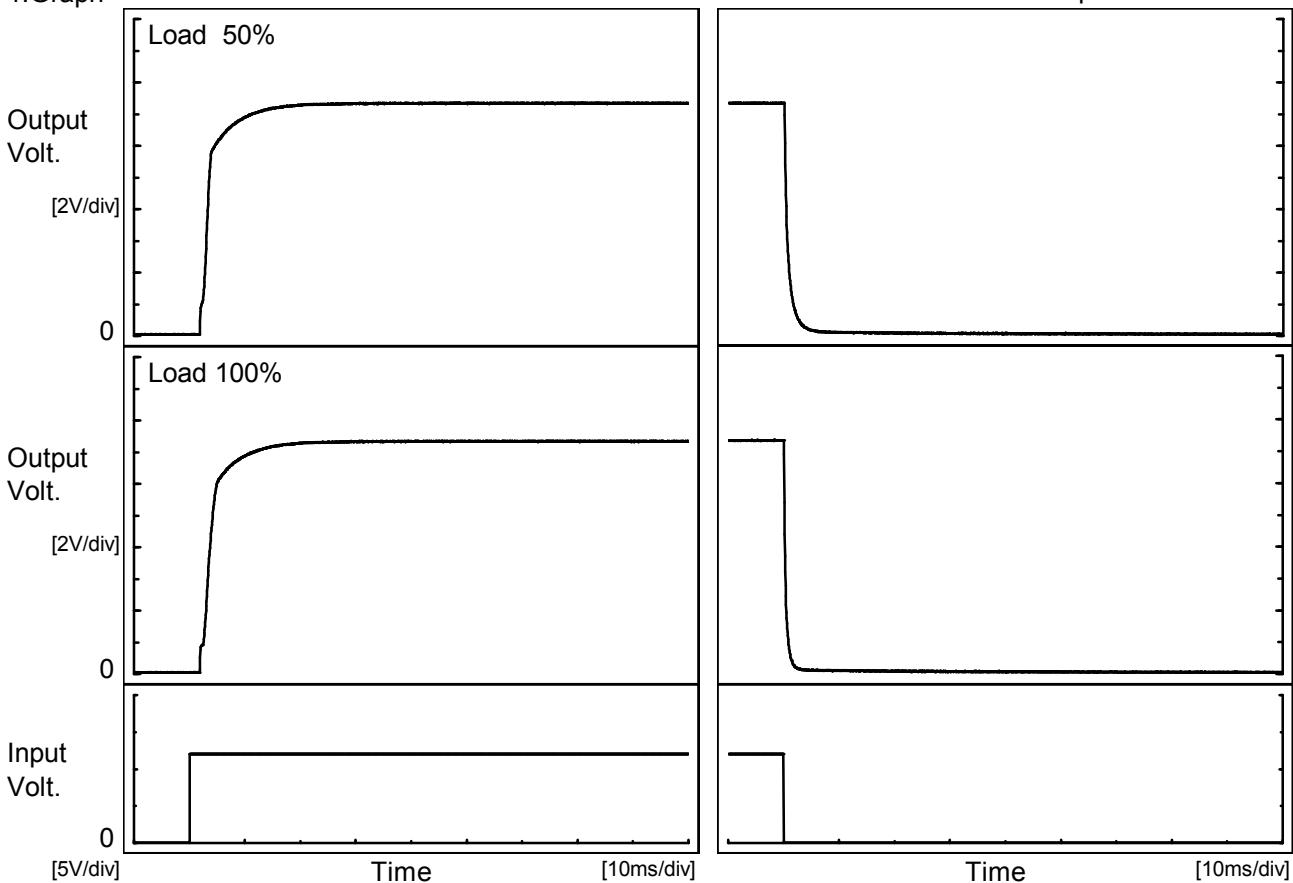
Time since start [H]	Output Voltage [V]
0.0	15.057
0.5	15.075
1.0	15.075
2.0	15.075
3.0	15.075
4.0	15.075
5.0	15.075
6.0	15.075
7.0	15.075
8.0	15.075

**COSEL**

Model	MGS301215
Item	Rise and Fall Time
Object	+15V2A

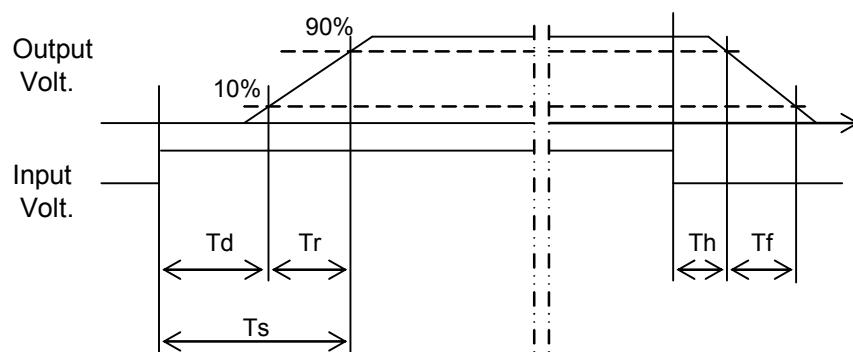
Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



## 2. Values

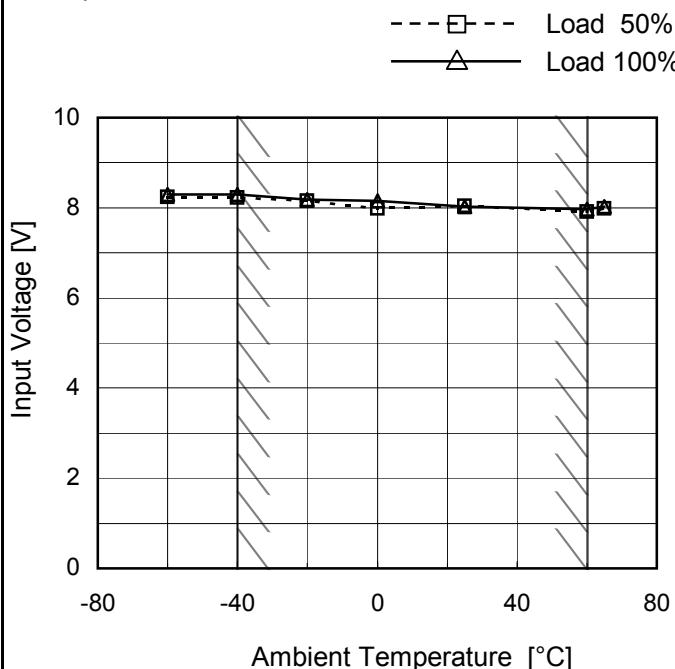
Load	Time	Td	Tr	Ts	Th	Tf
50 %		2.1	6.9	9.0	0.1	1.9
100 %		2.1	7.0	9.1	0.1	0.8



Model	MGS301215
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V2A

## Testing Circuitry Figure A

## 1.Graph

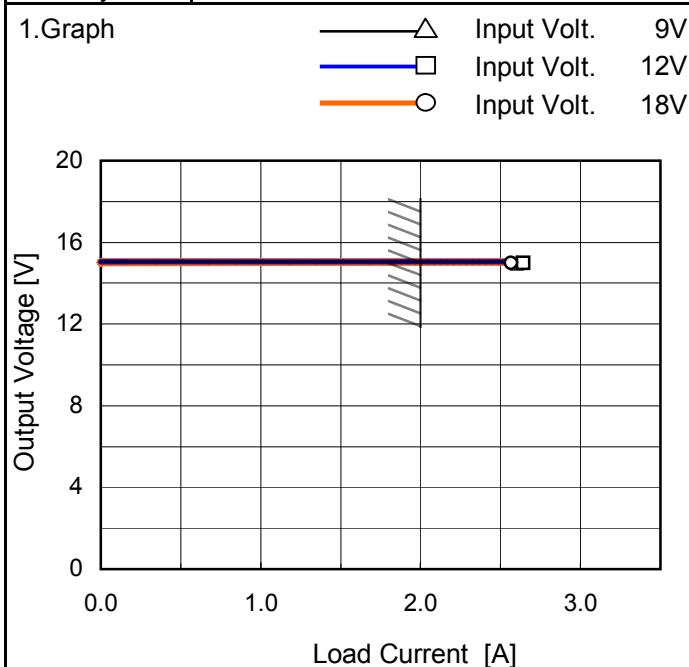


## 2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.3	8.3
-40	8.3	8.3
-20	8.2	8.2
0	8.0	8.2
25	8.1	8.1
60	8.0	8.0
65	8.0	8.1
--	-	-
--	-	-
--	-	-
--	-	-

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

Model	MGS301215
Item	Overcurrent Protection
Object	+15V2A



Intermittent operation occurs when overcurrent protection is activated.

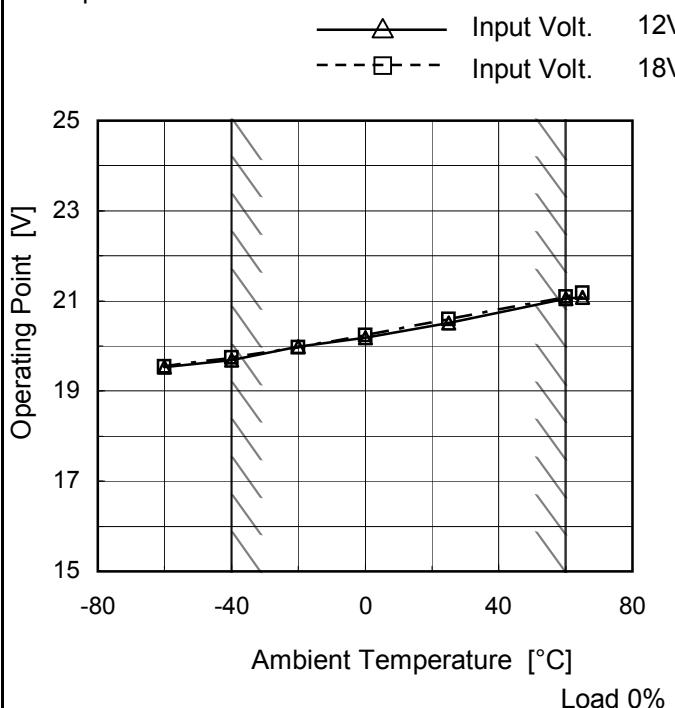
Temperature 25°C  
Testing Circuitry Figure A

## 2. Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
15.0	2.60	2.64	2.57
14.3	-	-	-
13.5	-	-	-
12.0	-	-	-
10.5	-	-	-
9.0	-	-	-
7.5	-	-	-
6.0	-	-	-
4.5	-	-	-
3.0	-	-	-
1.5	-	-	-
0.0	-	-	-

Model	MGS301215
Item	Oversupply Protection
Object	+15V2A

## 1. Graph



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

## Testing Circuitry Figure A

## 2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 12[V]	Input Volt. 18[V]
-60	19.54	19.55
-40	19.69	19.74
-20	19.99	19.97
0	20.18	20.24
25	20.51	20.60
60	21.05	21.10
65	21.08	21.17
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

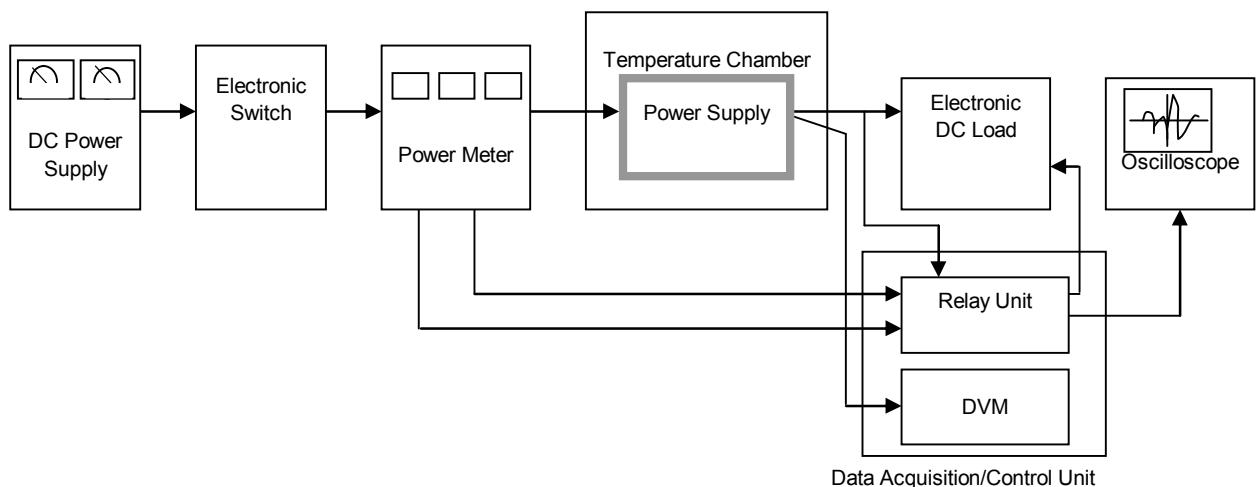


Figure A

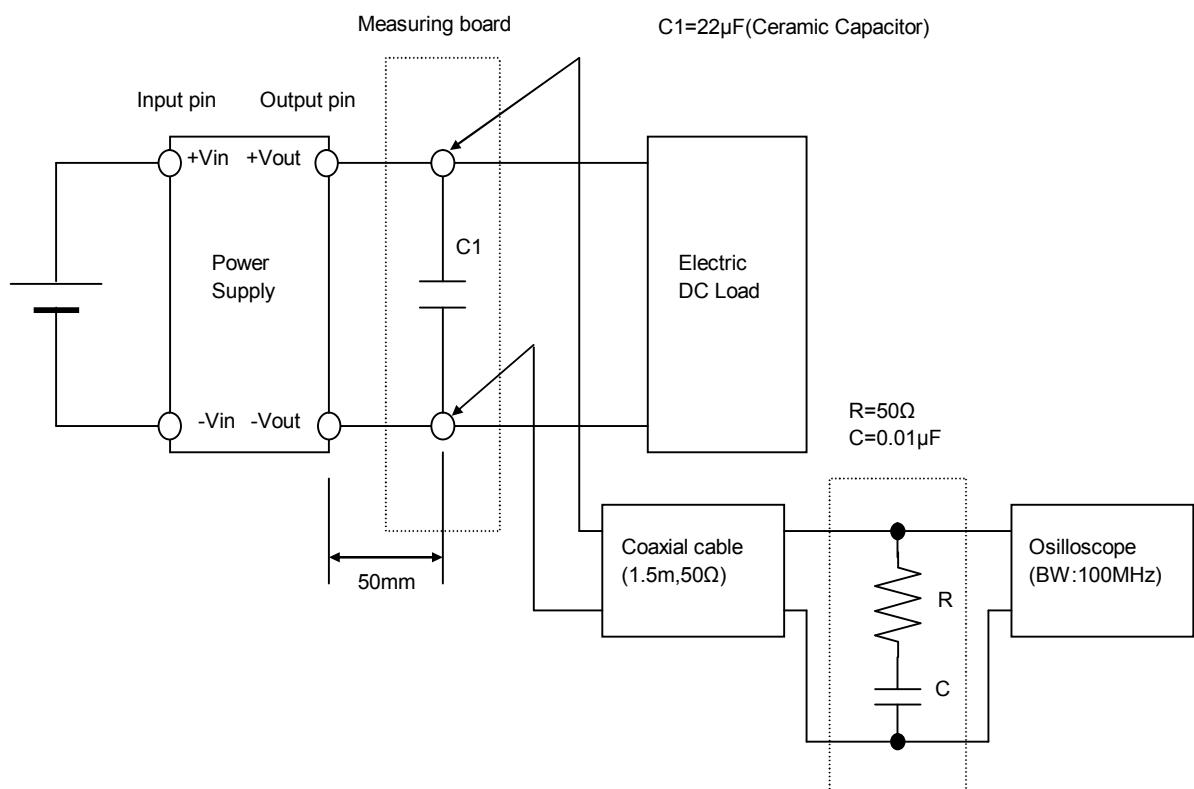


Figure B (Ripple and Ripple noise Characteristic)