

TEST DATA OF MGS152415

Regulated DC Power Supply
September 14, 2010

Approved by : Kazunari Asano
Kazunari Asano Design Manager

Prepared by : Junki Nakayama
Junki Nakayama Design Engineer

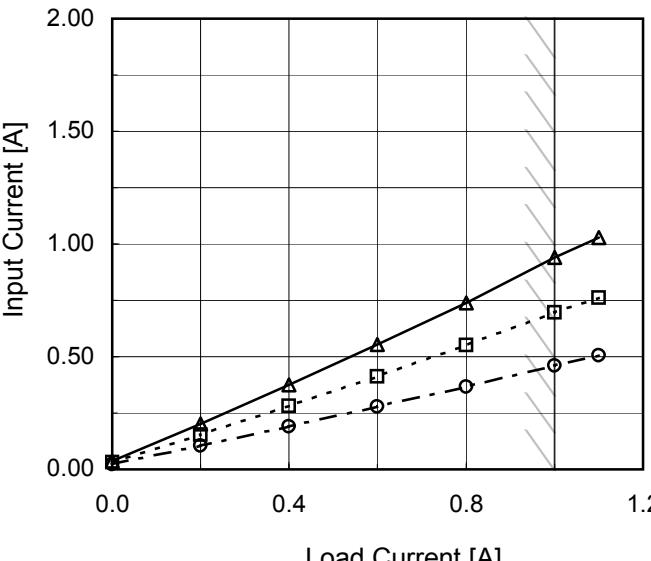
COSEL CO.,LTD.

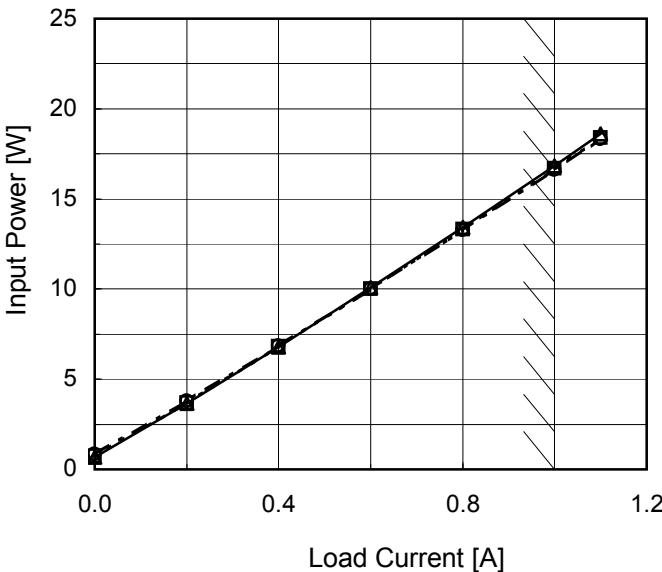
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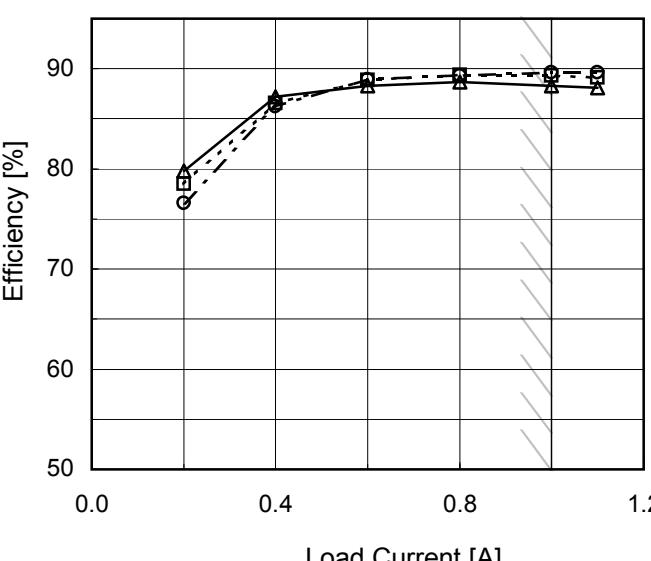
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Model	MGS152415	Temperature Testing Circuitry 25°C Figure A																																																																																		
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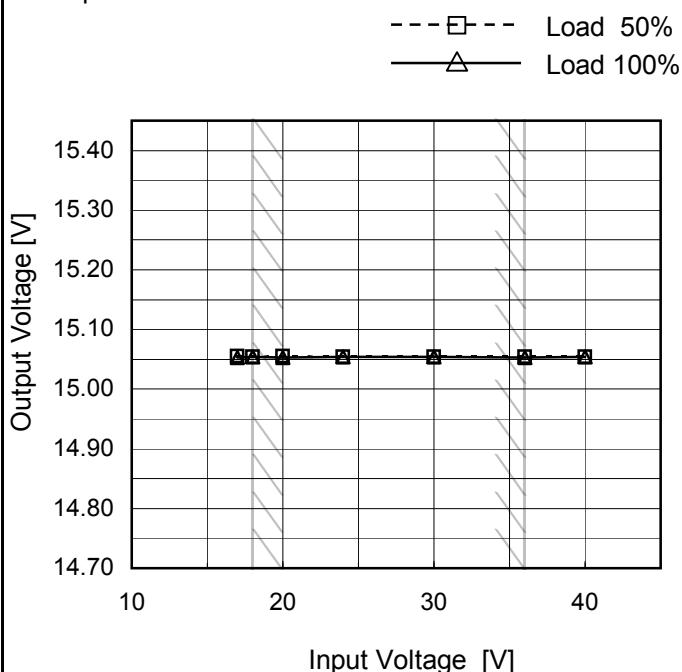
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Note: Slanted line shows the range of the rated load current.

Model	MGS152415
Item	Line Regulation
Object	+15V1A

Temperature 25°C
Testing Circuitry Figure A

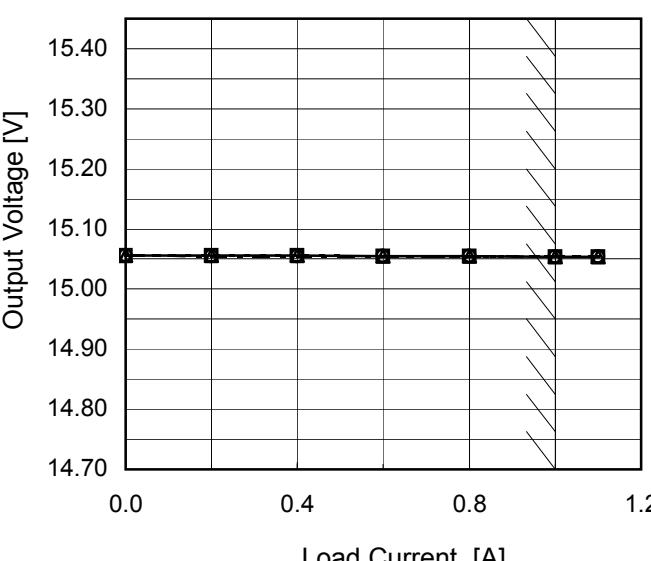
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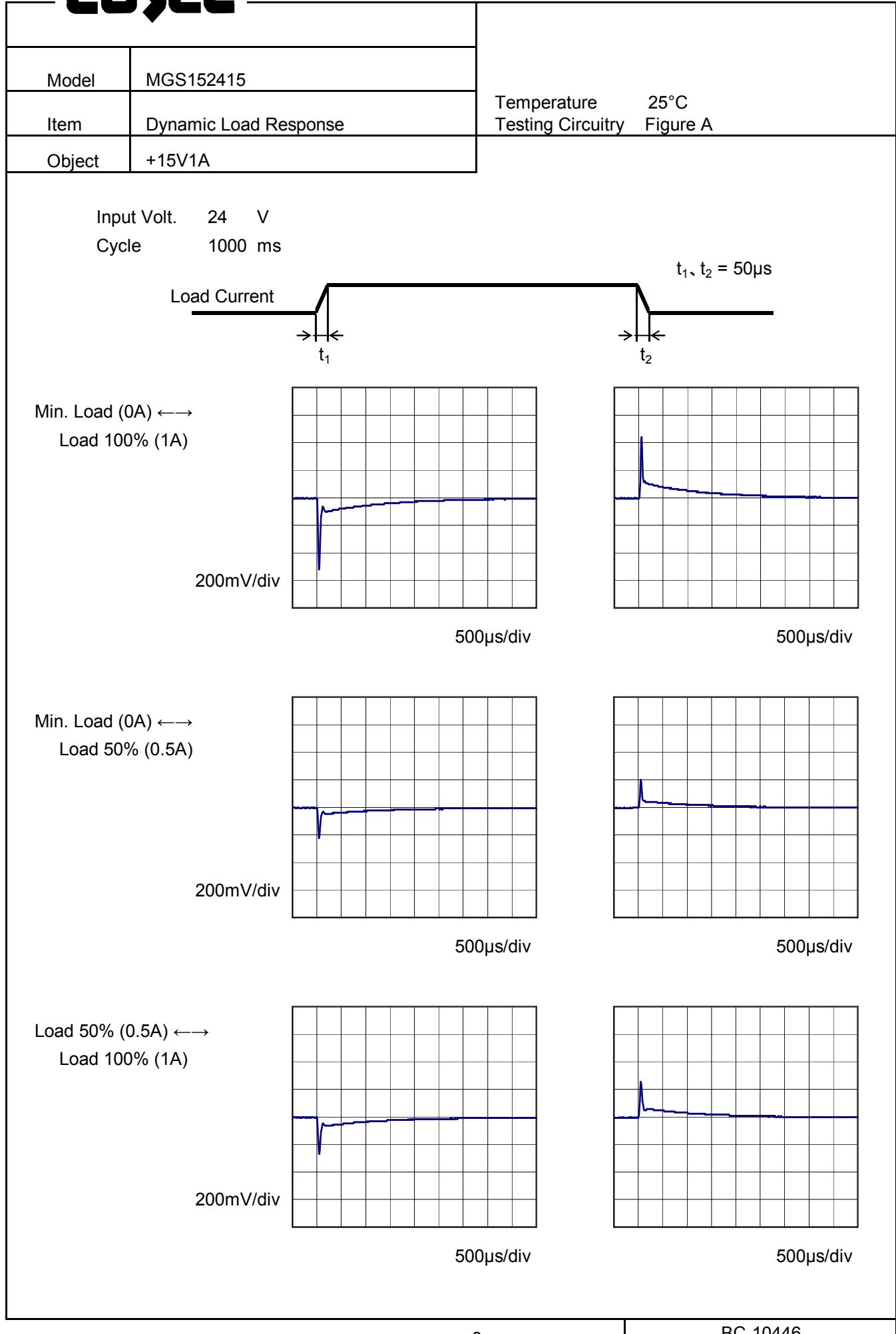
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	15.055	15.053
18	15.055	15.054
20	15.055	15.054
24	15.055	15.054
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36	15.054	15.054
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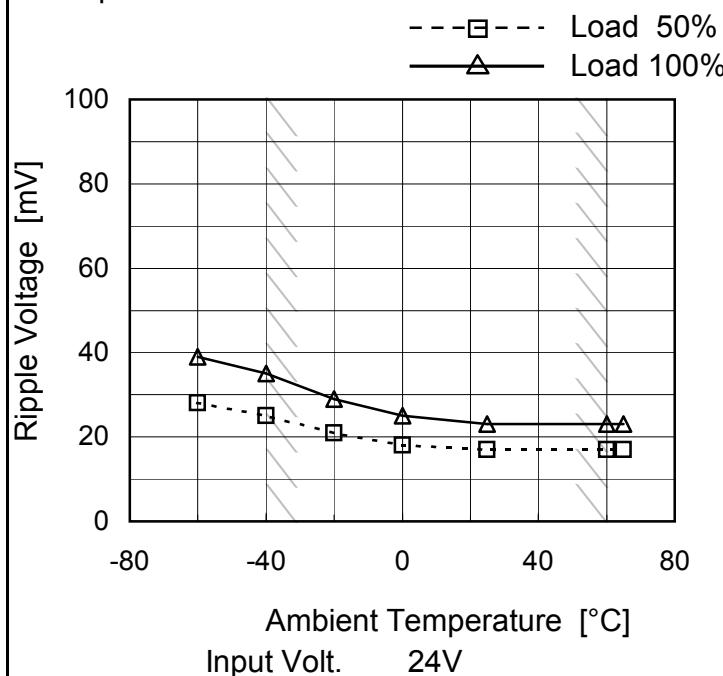
Model	MGS152415																																							
Item	Ripple Voltage (by Load Current)	Temperature 25°C Testing Circuitry Figure B																																						
Object	+15V1A																																							
1.Graph																																								
<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The Y-axis ranges from 0 to 100 mV, and the X-axis ranges from 0.0 to 1.2 A. Two curves are plotted: Input Volt. 18V (solid line with triangle markers) and Input Volt. 36V (dashed line with circle markers). Both curves show a slight increase in ripple voltage as load current increases. A vertical slanted line at approximately 0.9 A indicates the rated load current range.</p>																																								
2.Values																																								
<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="2">Ripple Voltage [mV]</th> </tr> <tr> <th>Input Volt. 18 [V]</th> <th>Input Volt. 36 [V]</th> </tr> </thead> <tbody> <tr> <td>0.0</td> <td>8</td> <td>10</td> </tr> <tr> <td>0.2</td> <td>8</td> <td>10</td> </tr> <tr> <td>0.4</td> <td>8</td> <td>10</td> </tr> <tr> <td>0.6</td> <td>9</td> <td>12</td> </tr> <tr> <td>0.8</td> <td>10</td> <td>12</td> </tr> <tr> <td>1.0</td> <td>12</td> <td>12</td> </tr> <tr> <td>1.1</td> <td>12</td> <td>13</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> </tr> </tbody> </table>			Load Current [A]	Ripple Voltage [mV]		Input Volt. 18 [V]	Input Volt. 36 [V]	0.0	8	10	0.2	8	10	0.4	8	10	0.6	9	12	0.8	10	12	1.0	12	12	1.1	12	13	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																							
	Input Volt. 18 [V]	Input Volt. 36 [V]																																						
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<p>Ripple [mVp-p]</p> <p>Fig.Complex Ripple Wave Form</p>																																								

Model	MGS152415																																							
Item	Ripple-Noise	Temperature 25°C Testing Circuitry Figure B																																						
Object	+15V1A																																							
1.Graph																																								
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Load Current [A]	Ripple-Noise [mV]																																							
	Input Volt. 18 [V]	Input Volt. 36 [V]																																						
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Model	MGS152415
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V1A

Testing Circuitry Figure B

1. Graph



2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	28	39
-40	25	35
-20	21	29
0	18	25
25	17	23
60	17	23
65	17	23
--	-	-
--	-	-
--	-	-
--	-	-

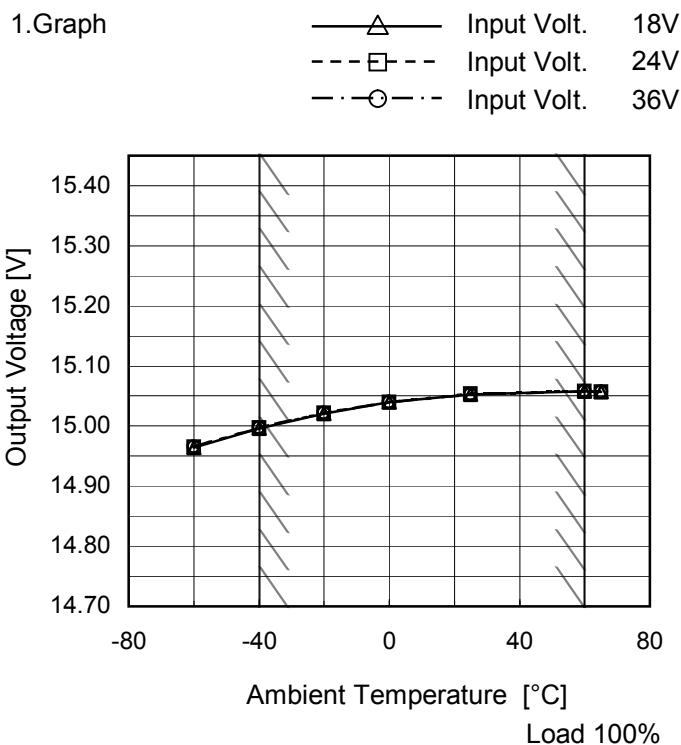
Measured by 100 MHz Oscilloscope.

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

Model MGS152415

Item Ambient Temperature Drift

Object +15V1A



Testing Circuitry Figure A

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	14.965	14.965	14.966
-40	14.997	14.997	14.997
-20	15.021	15.022	15.022
0	15.040	15.040	15.040
25	15.053	15.053	15.053
60	15.058	15.058	15.058
65	15.057	15.057	15.057
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	MGS152415	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 : 18 - 36V

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

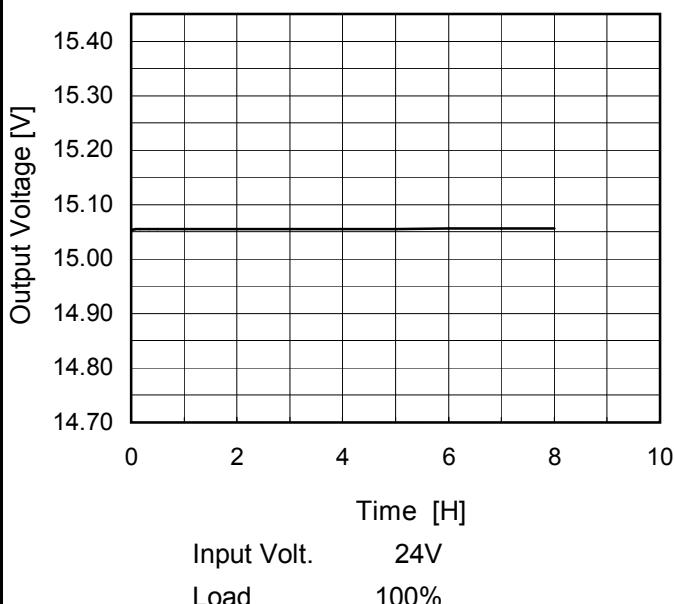
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	24	0	15.060	±32	±0.2
Minimum Voltage	-40	18	1	14.997		

COSEL

Model	MGS152415
Item	Time Lapse Drift
Object	+15V1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

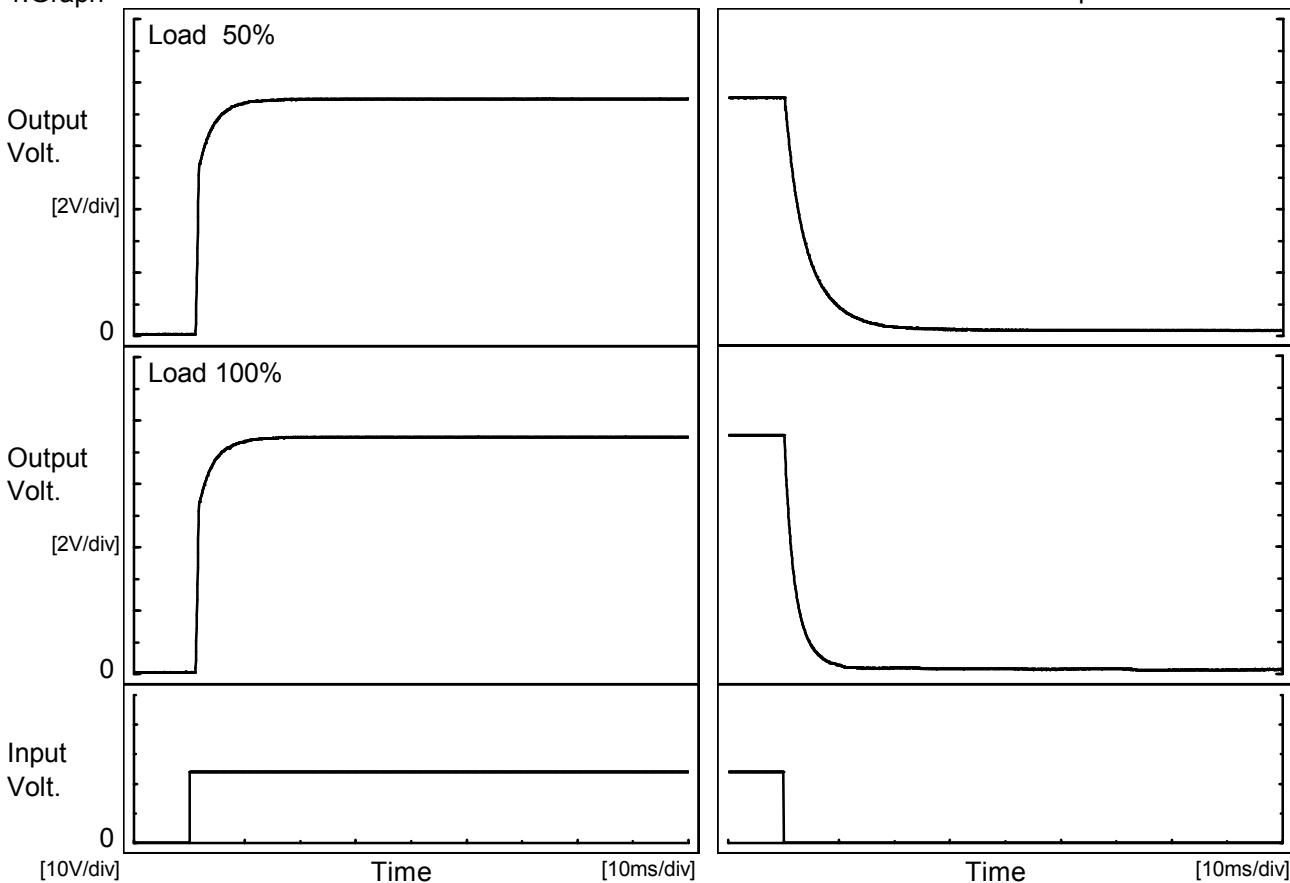
Time since start [H]	Output Voltage [V]
0.0	15.051
0.5	15.055
1.0	15.055
2.0	15.055
3.0	15.055
4.0	15.056
5.0	15.056
6.0	15.056
7.0	15.056
8.0	15.056

COSEL

Model	MGS152415
Item	Rise and Fall Time
Object	+15V1A

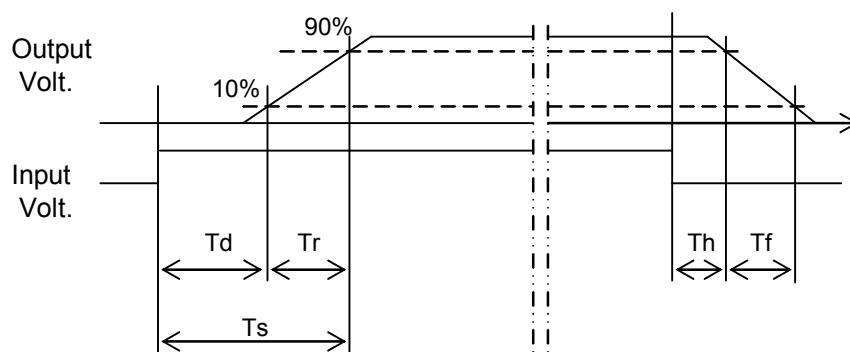
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

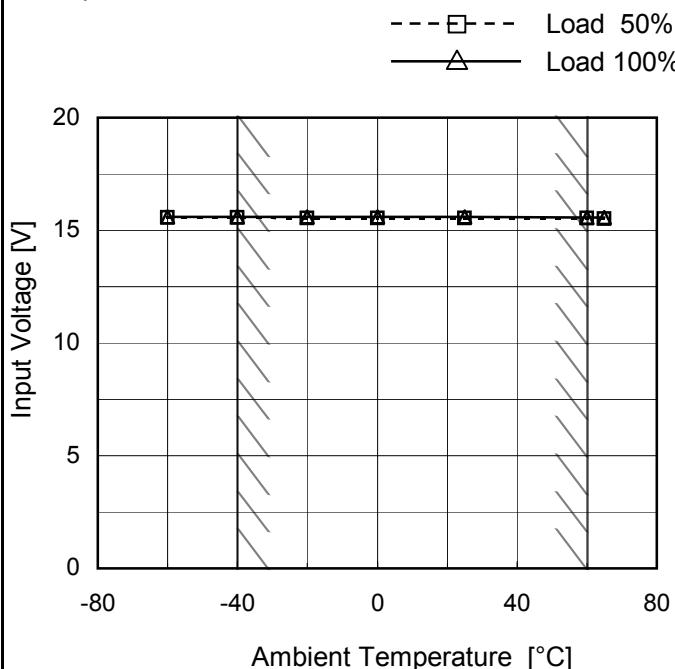
Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.3	3.7	5.0	0.5	10.4
100 %		1.3	3.6	4.9	0.3	5.0



Model	MGS152415
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V1A

Testing Circuitry Figure A

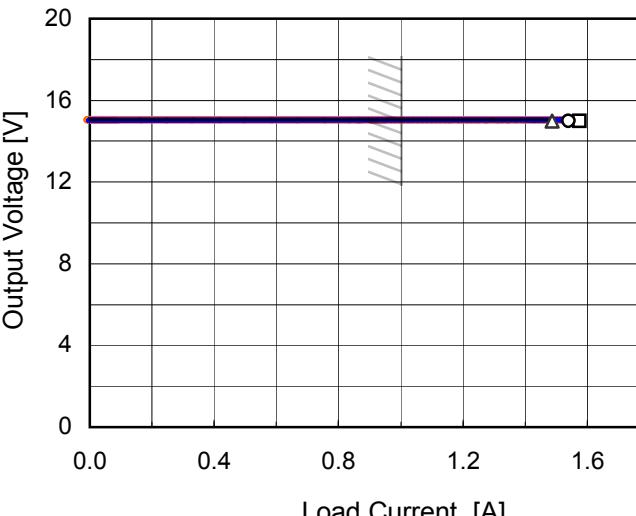
1.Graph



2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.6	15.6
-40	15.6	15.6
-20	15.6	15.6
0	15.6	15.6
25	15.6	15.6
60	15.6	15.6
65	15.6	15.6
--	-	-
--	-	-
--	-	-
--	-	-

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

Model	MGS152415	Temperature Testing Circuitry 25°C Figure A																																																							
Item	Overcurrent Protection																																																								
Object	+15V1A																																																								
1.Graph	<p>—△— Input Volt. 18V —□— Input Volt. 24V —○— Input Volt. 36V</p>  <p>Output Voltage [V]</p> <p>Load Current [A]</p>	2.Values																																																							
<p>Note: Slanted line shows the range of the rated load current.</p> <p>Intermittent operation occurs when overcurrent protection is activated.</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. 18[V]</th> <th>Input Volt. 24[V]</th> <th>Input Volt. 36[V]</th> </tr> </thead> <tbody> <tr><td>15.0</td><td>1.49</td><td>1.57</td><td>1.54</td></tr> <tr><td>14.3</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>13.5</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>12.0</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>10.5</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>9.0</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>7.5</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>6.0</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>4.5</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>3.0</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>1.5</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>0.0</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>	Output Voltage [V]	Load Current [A]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	15.0	1.49	1.57	1.54	14.3	-	-	-	13.5	-	-	-	12.0	-	-	-	10.5	-	-	-	9.0	-	-	-	7.5	-	-	-	6.0	-	-	-	4.5	-	-	-	3.0	-	-	-	1.5	-	-	-	0.0	-	-	-
Output Voltage [V]	Load Current [A]																																																								
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COSEL

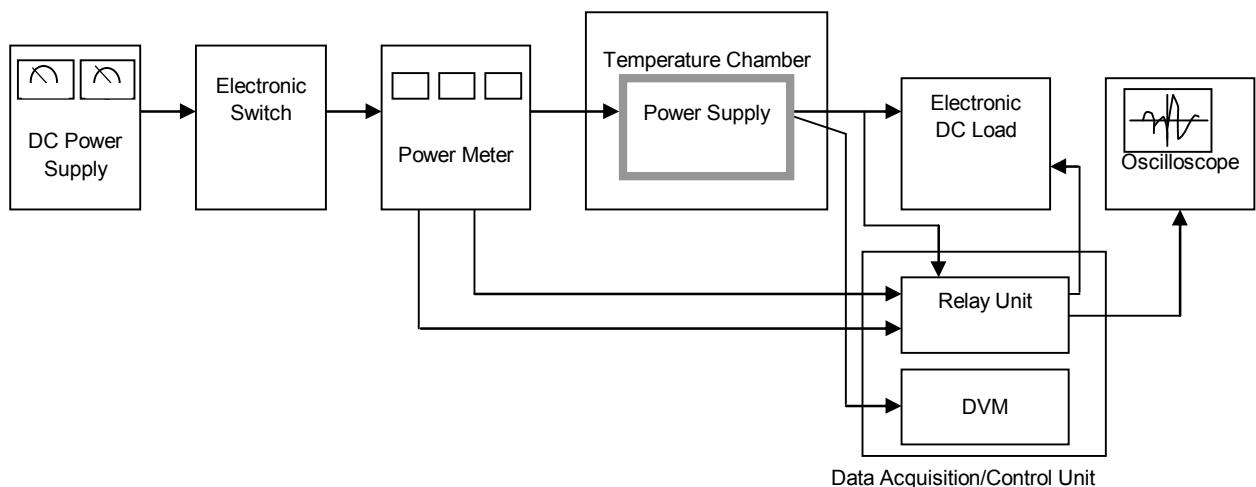


Figure A

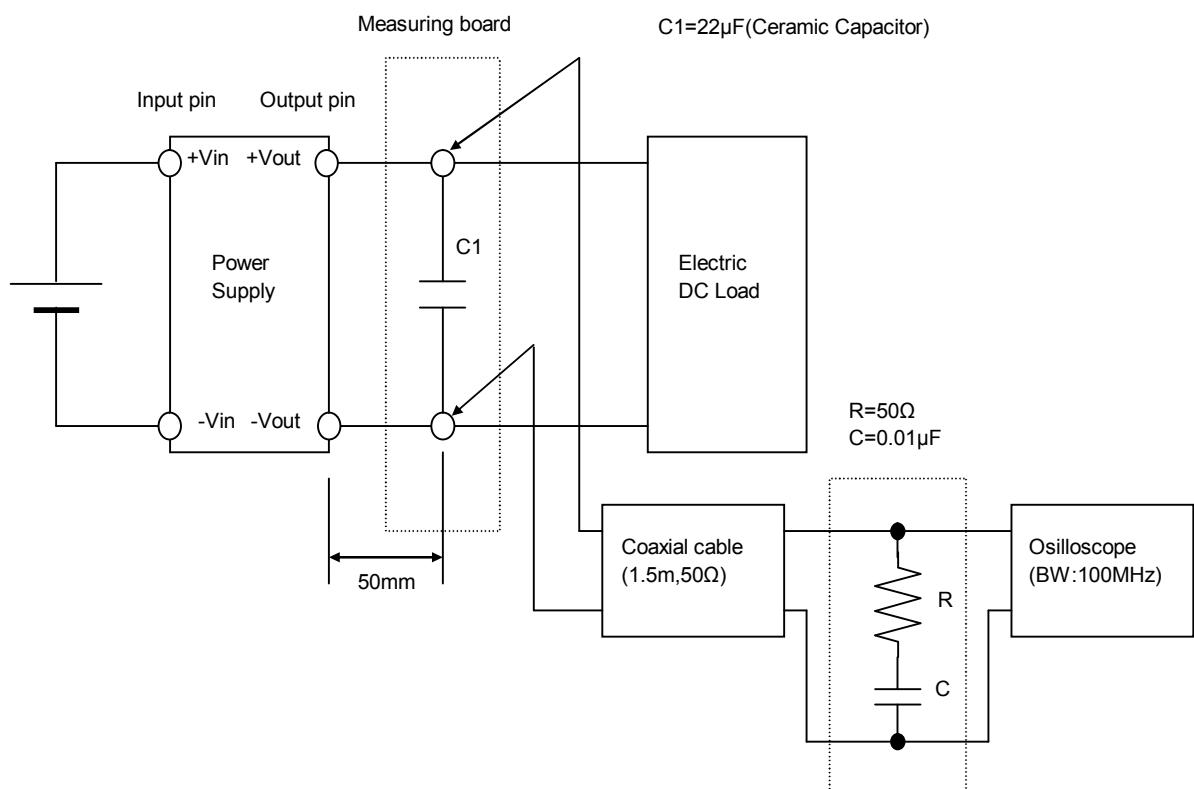


Figure B (Ripple and Ripple noise Characteristic)