

# TEST DATA OF MGFS304812

Regulated DC Power Supply  
December 25, 2010

Approved by : Kazunari Asano  
Kazunari Asano Design Manager

Prepared by : Masashi Ueda  
Masashi Ueda 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)



<b>COSEL</b>																																																																																		
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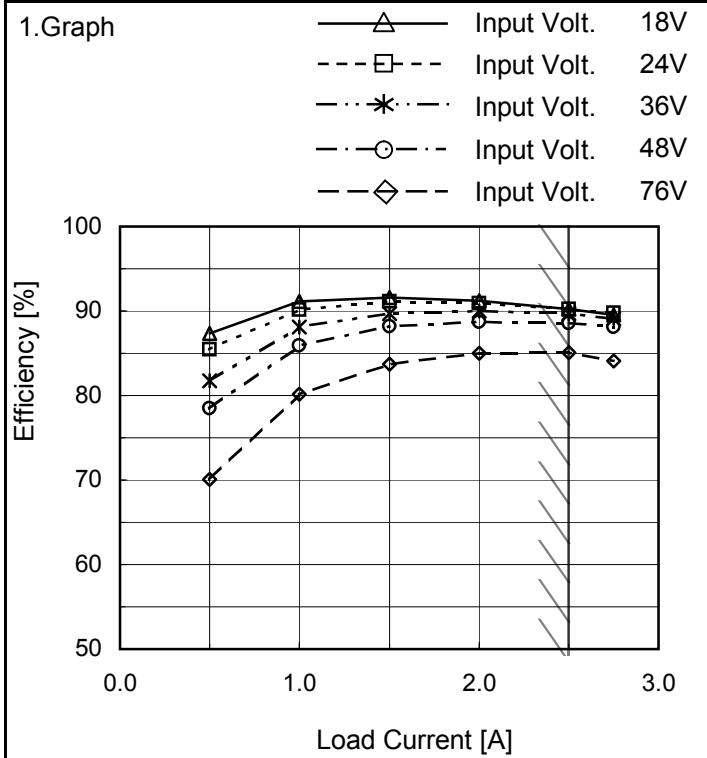


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Object	_____

Temperature 25°C  
Testing Circuitry Figure A



2.Values

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0.00	-	-	-	-	-
0.50	87.3	85.5	81.8	78.5	70.1
1.00	91.1	90.2	88.1	85.9	80.2
1.50	91.6	91.1	89.7	88.2	83.7
2.00	91.2	90.9	90.0	88.7	85.0
2.50	90.2	90.2	89.7	88.5	85.1
2.75	89.5	89.8	89.1	88.1	84.1
--	-	-	-	-	-
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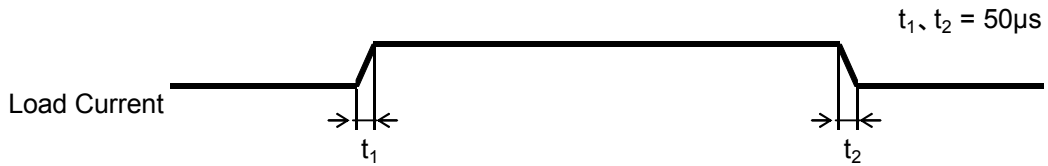


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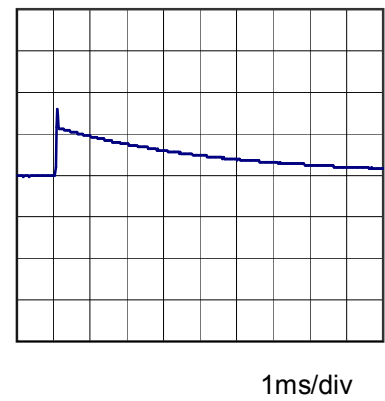
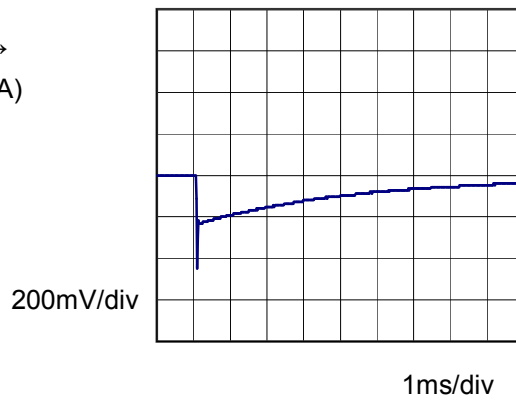


Model	MGFS304812	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+12V2.5A		

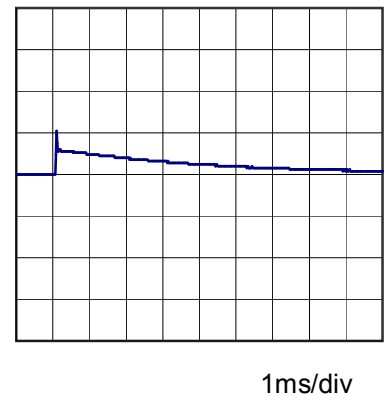
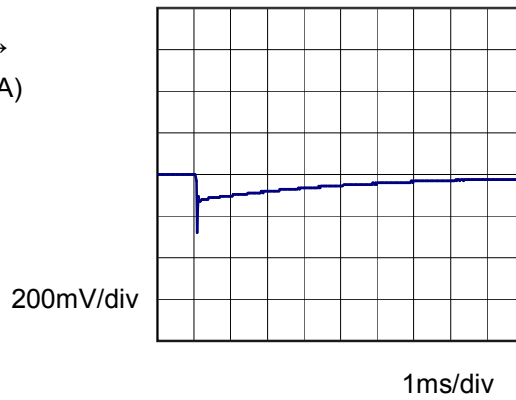
Input Volt. 48 V  
 Cycle 1000 ms



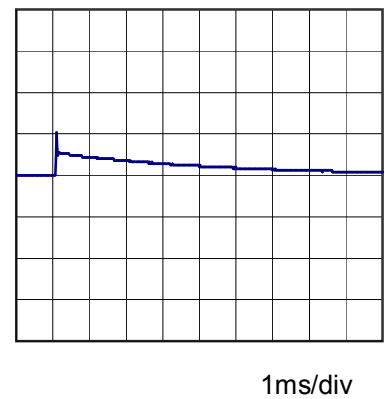
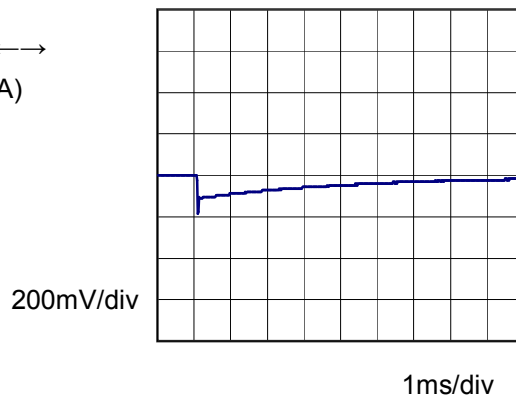
Min. Load (0A) ←→  
 Load 100% (2.5A)



Min. Load (0A) ←→  
 Load 50% (1.25A)



Load 50% (1.25A) ←→  
 Load 100% (2.5A)





<p>Model MGFS304812</p> <p>Item Ripple Voltage (by Load Current)</p> <p>Object +12V2.5A</p>		<p>Temperature 25°C</p> <p>Testing Circuitry Figure B</p>																																						
<p>1.Graph</p> <div style="text-align: right;"> <p>—△— Input Volt. 18V</p> <p>- - ○ - - Input Volt. 76V</p> </div> <p>Ripple Voltage [mV]</p> <p>Load Current [A]</p>		<p>2.Values</p> <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. 76 [V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>16</td><td>24</td></tr> <tr><td>0.50</td><td>15</td><td>24</td></tr> <tr><td>1.00</td><td>15</td><td>24</td></tr> <tr><td>1.50</td><td>15</td><td>24</td></tr> <tr><td>2.00</td><td>15</td><td>24</td></tr> <tr><td>2.50</td><td>15</td><td>24</td></tr> <tr><td>2.75</td><td>15</td><td>24</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 Voltage [mV]		Input Volt. 18 [V]	Input Volt. 76 [V]	0.00	16	24	0.50	15	24	1.00	15	24	1.50	15	24	2.00	15	24	2.50	15	24	2.75	15	24	--	-	-	--	-	-	--	-	-	--	-	-
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<p>Ripple Voltage is shown as p-p in the figure below.                  Note: Slanted line shows the range of the rated load current.</p>																																								
<p>Ripple [mVp-p]</p> <p>Fig.Complex Ripple Wave Form</p>																																								



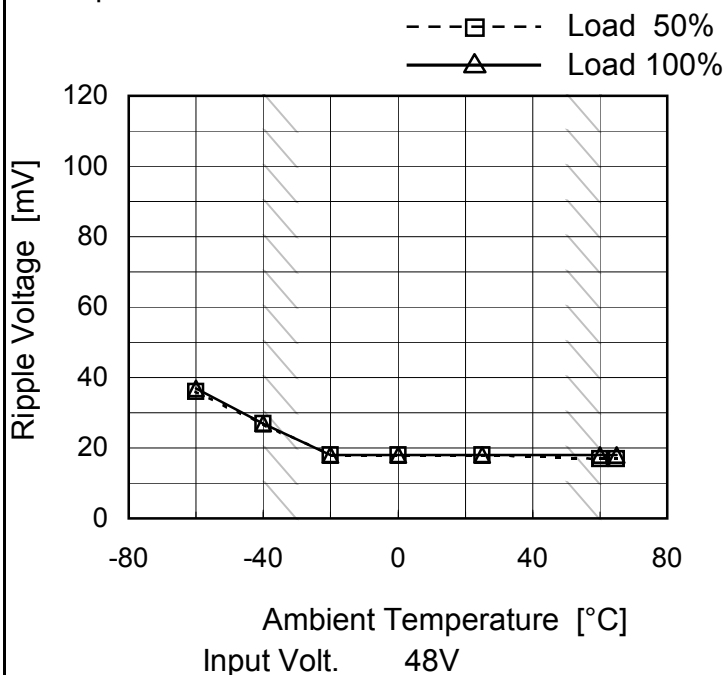
<b>COSEL</b>																																								
Model	MGFS304812																																							
Item	Ripple-Noise	Temperature 25°C Testing Circuitry Figure B																																						
Object	+12V2.5A																																							
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<p>Fig.Complex Ripple Noise Wave Form</p>																																								



Model	MGFS304812
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V2.5A

Testing Circuitry Figure B

1.Graph



2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	36	37
-40	27	27
-20	18	18
0	18	18
25	18	18
60	17	18
65	17	18
--	-	-
--	-	-
--	-	-
--	-	-

Measured by 100 MHz Oscilloscope.  
 Note: Slanted line shows the range of the rated ambient temperature.

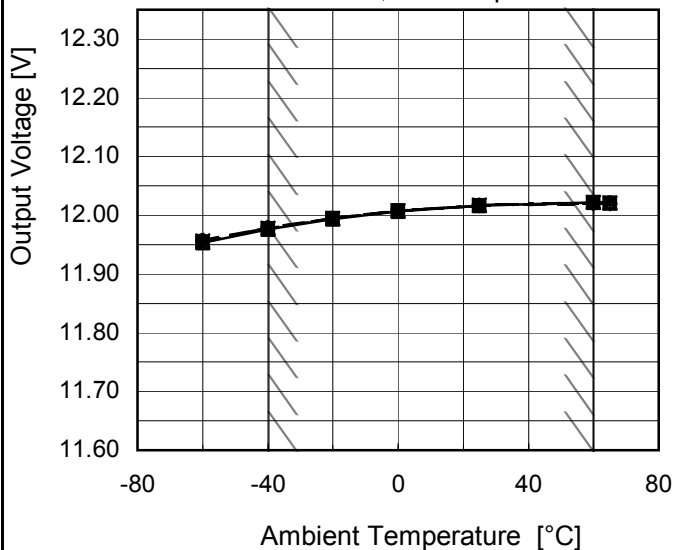


Model	MGFS304812
Item	Ambient Temperature Drift
Object	+12V2.5A

Testing Circuitry Figure A

1.Graph

- △— Input Volt. 18V
- Input Volt. 24V
- \*--- Input Volt. 36V
- Input Volt. 48V
- ◇--- Input Volt. 76V



Load 100%

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

2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-60	11.954	11.954	11.956	11.956	11.957
-40	11.977	11.977	11.978	11.978	11.979
-20	11.994	11.994	11.995	11.995	11.995
0	12.007	12.007	12.007	12.008	12.007
25	12.017	12.017	12.017	12.017	12.016
60	12.022	12.021	12.021	12.021	12.020
65	12.021	12.021	12.021	12.021	12.020
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-



<b>COSEL</b>		
Model	MGFS304812	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V2.5A	

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 - 76V

Load Current : 0 - 2.5A

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

\* 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	36	0	12.025	±25	±0.2
Minimum Voltage	-40	76	0	11.976		



<b>COSEL</b>																								
Model	MGFS304812																							
Item	Time Lapse Drift	Temperature 25°C Testing Circuitry Figure A																						
Object	+12V2.5A																							
<p>1.Graph</p> <p style="text-align: center;">Time [H]</p> <p>Input Volt. 48V Load 100%</p>		<p>2.Values</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>12.017</td></tr> <tr><td>0.5</td><td>12.026</td></tr> <tr><td>1.0</td><td>12.026</td></tr> <tr><td>2.0</td><td>12.026</td></tr> <tr><td>3.0</td><td>12.026</td></tr> <tr><td>4.0</td><td>12.026</td></tr> <tr><td>5.0</td><td>12.026</td></tr> <tr><td>6.0</td><td>12.026</td></tr> <tr><td>7.0</td><td>12.026</td></tr> <tr><td>8.0</td><td>12.026</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	12.017	0.5	12.026	1.0	12.026	2.0	12.026	3.0	12.026	4.0	12.026	5.0	12.026	6.0	12.026	7.0	12.026	8.0	12.026
Time since start [H]	Output Voltage [V]																							
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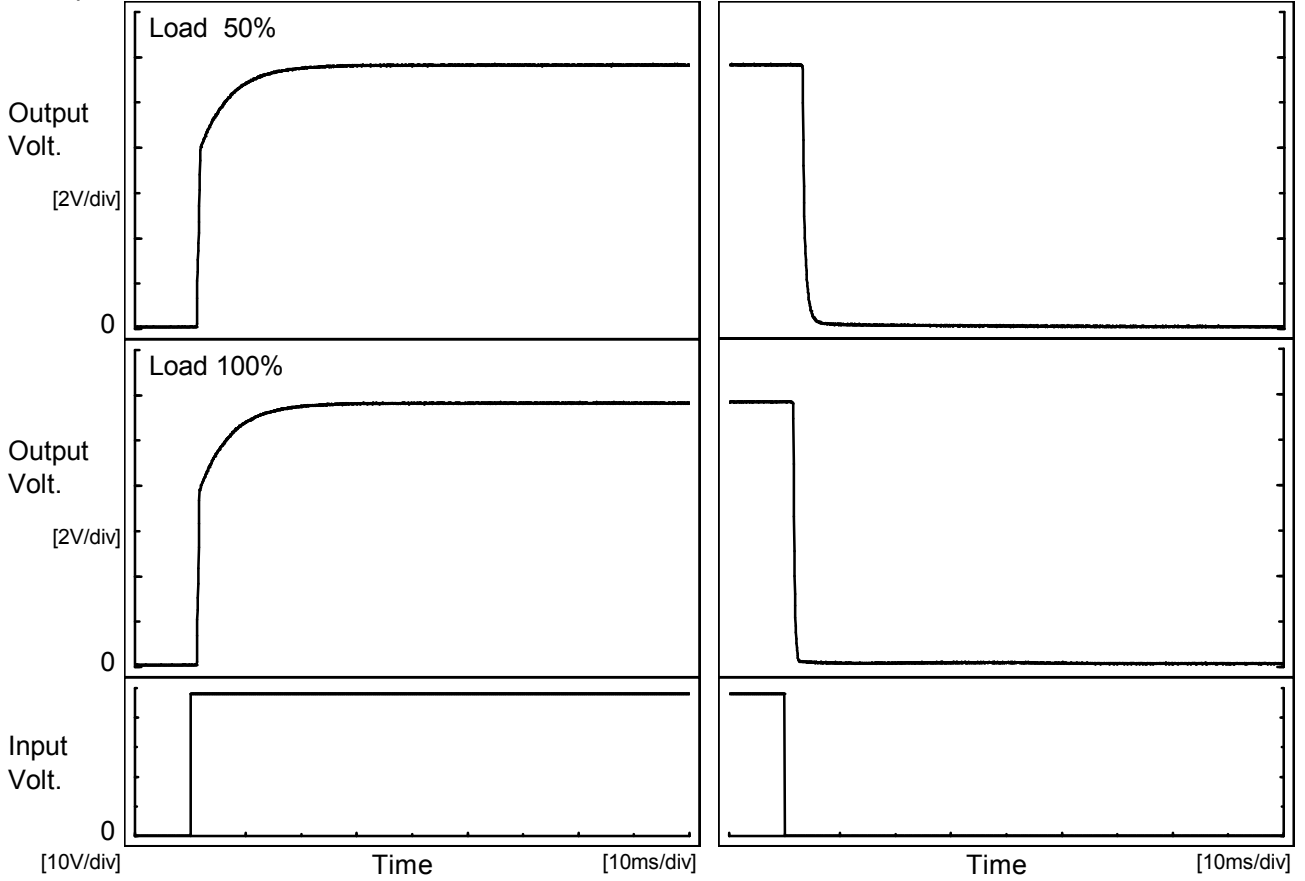




Model		MGFS304812	Temperature	25°C
Item		Rise and Fall Time	Testing Circuitry	Figure A
Object		+12V2.5A		

1. Graph

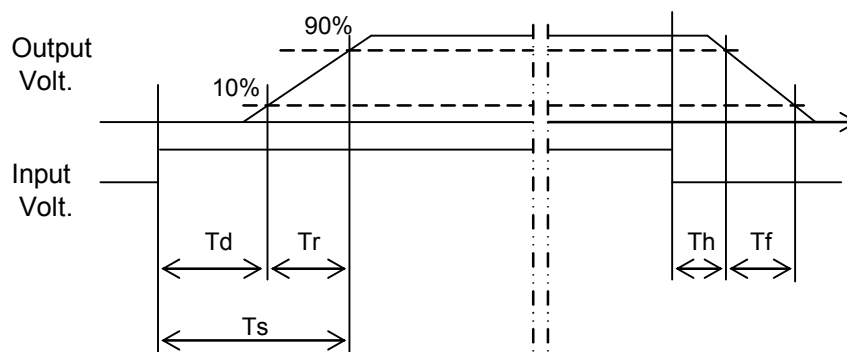
Input Volt. 48 V



2. Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.2	9.1	10.3	3.2	1.1
100 %	1.2	9.2	10.4	1.6	0.4





<b>COSEL</b>																																								
Model	MGFS304812																																							
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A																																						
Object	+12V2.5A																																							
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<p>Model MGFS304812</p>		<p>Temperature 25°C</p>																																																																																				
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7.2	-	-	-	-	-																																																																																	
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0.0	-	-	-	-	-																																																																																	
<p>Note: Slanted line shows the range of the rated load current.</p> <p>Intermittent operation occurs when overcurrent protection is activated.</p>																																																																																						



<b>COSEL</b>																																								
Model	MGFS304812																																							
Item	Overvoltage Protection	Testing Circuitry Figure A																																						
Object	+12V2.5A																																							
<p>1.Graph</p> <div style="text-align: right;"> <p>—△— Input Volt. 48V</p> <p>---□--- Input Volt. 76V</p> </div> <p style="text-align: center;">Ambient Temperature [°C]</p> <p style="text-align: right;">Load 0%</p>		<p>2.Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="2">Operating Point [V]</th> </tr> <tr> <th>Input Volt. 48[V]</th> <th>Input Volt. 76[V]</th> </tr> </thead> <tbody> <tr><td>-60</td><td>16.49</td><td>16.49</td></tr> <tr><td>-40</td><td>16.58</td><td>16.58</td></tr> <tr><td>-20</td><td>16.70</td><td>16.72</td></tr> <tr><td>0</td><td>16.86</td><td>16.88</td></tr> <tr><td>25</td><td>17.10</td><td>17.12</td></tr> <tr><td>60</td><td>17.42</td><td>17.43</td></tr> <tr><td>65</td><td>17.47</td><td>17.49</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>	Ambient Temperature [°C]	Operating Point [V]		Input Volt. 48[V]	Input Volt. 76[V]	-60	16.49	16.49	-40	16.58	16.58	-20	16.70	16.72	0	16.86	16.88	25	17.10	17.12	60	17.42	17.43	65	17.47	17.49	--	-	-	--	-	-	--	-	-	--	-	-
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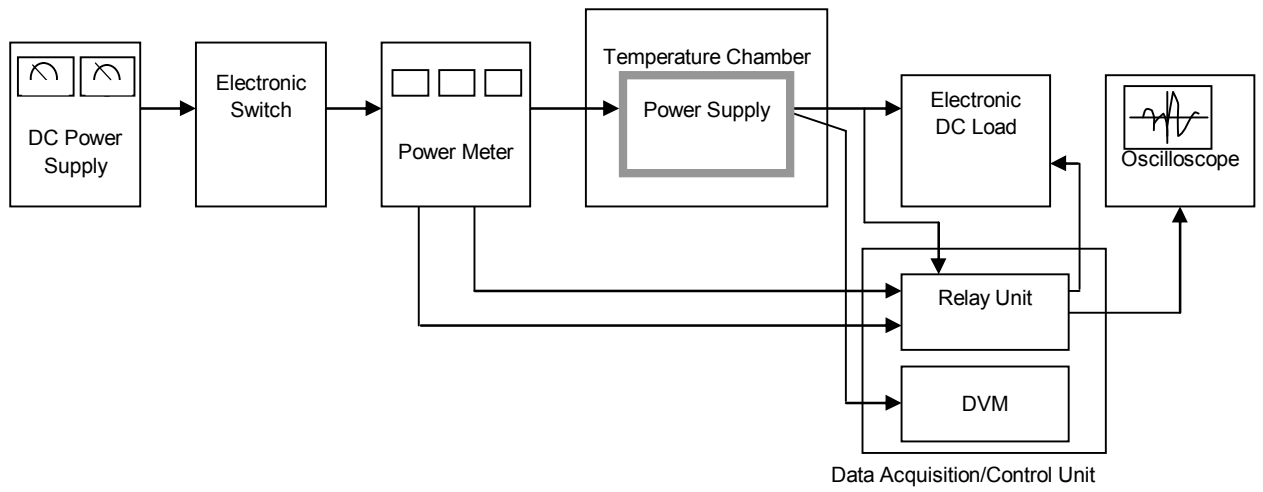


Figure A

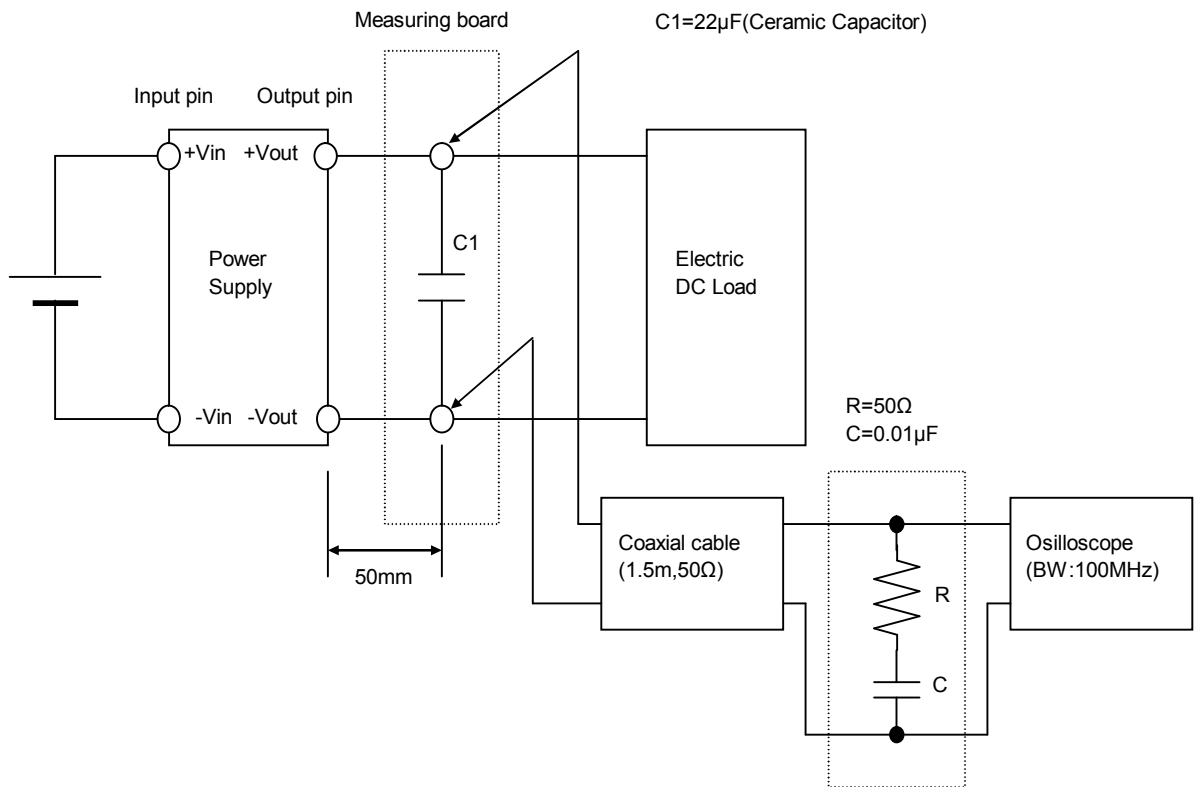


Figure B (Ripple and Ripple noise Characteristic)