

TEST DATA OF MODULE A

(AME series)

Regulated DC Power Supply
August 30, 2019

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Yoshimichi Hirokawa Design Manager

Prepared by : Enkyo Kaku
Enkyo Kaku Design Engineer

COSEL CO.,LTD.

CONTENTS

1. Line Regulation 1

2. Load Regulation 2

3. Dynamic Load Response 3

4. Ripple Voltage (by Load Current) 4

5. Ripple Noise 5

6. Ripple Voltage (by Ambient Temperature) 6

7. Ambient Temperature Drift 7

8. Output Voltage Accuracy 8

9. Time Lapse Drift 9

10. Overcurrent Protection 10

11. Overvoltage Protection 11

12. Figure of Testing Circuitry 12

(Final Page 12)



COSEL																																		
Model	MODULE A																																	
Item	Line Regulation	Temperature 25°C Testing Circuitry Figure A																																
Object	+5V12A																																	
<p>1. Graph</p> <p style="text-align: right;"> ---□--- Load 50% —△— Load 100% </p>		<p>2. Value</p> <table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Output Voltage [V]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>85</td><td>5.080</td><td>5.082</td></tr> <tr><td>90</td><td>5.080</td><td>5.083</td></tr> <tr><td>100</td><td>5.080</td><td>5.083</td></tr> <tr><td>115</td><td>5.080</td><td>5.083</td></tr> <tr><td>150</td><td>5.080</td><td>5.083</td></tr> <tr><td>200</td><td>5.080</td><td>5.083</td></tr> <tr><td>230</td><td>5.080</td><td>5.083</td></tr> <tr><td>264</td><td>5.080</td><td>5.082</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>	Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	85	5.080	5.082	90	5.080	5.083	100	5.080	5.083	115	5.080	5.083	150	5.080	5.083	200	5.080	5.083	230	5.080	5.083	264	5.080	5.082	--	-	-
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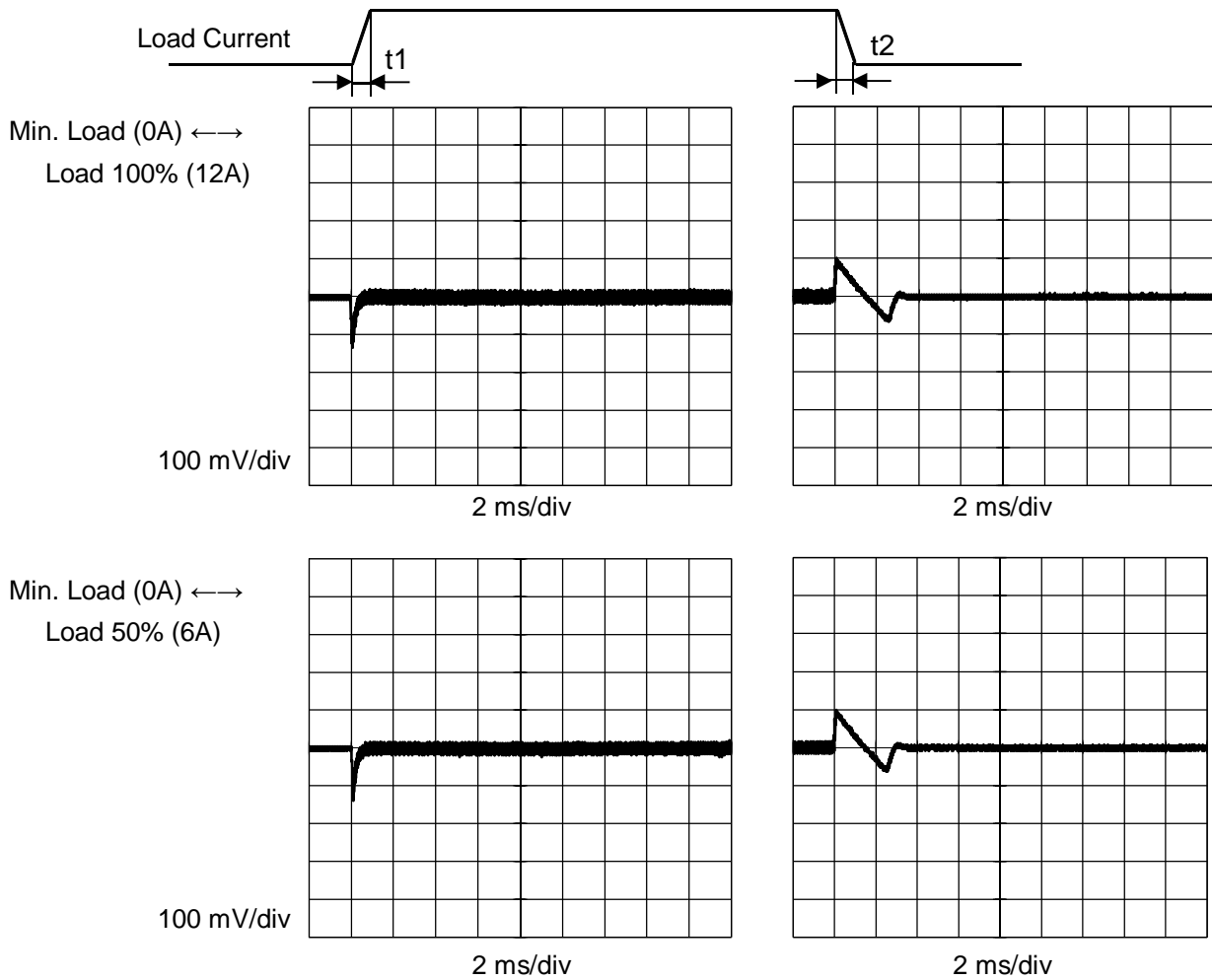


<p>Model MODULE A</p>		<p>Temperature 25°C Testing Circuitry Figure A</p>																																																			
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<p>1. Graph</p> <p> △ Input Volt. 100V □ Input Volt. 200V ○ Input Volt. 230V </p> <p style="text-align: center;">Load Current [A]</p>		<p>2. Value</p> <table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Output Voltage [V]</th> </tr> <tr> <th>Input Volt. 100[V]</th> <th>Input Volt. 200[V]</th> <th>Input Volt. 230[V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>5.088</td><td>5.087</td><td>5.087</td></tr> <tr><td>2.0</td><td>5.086</td><td>5.085</td><td>5.085</td></tr> <tr><td>4.0</td><td>5.085</td><td>5.084</td><td>5.084</td></tr> <tr><td>6.0</td><td>5.084</td><td>5.084</td><td>5.084</td></tr> <tr><td>8.0</td><td>5.084</td><td>5.083</td><td>5.083</td></tr> <tr><td>10.0</td><td>5.083</td><td>5.083</td><td>5.083</td></tr> <tr><td>12.0</td><td>5.083</td><td>5.083</td><td>5.083</td></tr> <tr><td>13.2</td><td>5.083</td><td>5.083</td><td>5.083</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>	Load Current [A]	Output Voltage [V]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.0	5.088	5.087	5.087	2.0	5.086	5.085	5.085	4.0	5.085	5.084	5.084	6.0	5.084	5.084	5.084	8.0	5.084	5.083	5.083	10.0	5.083	5.083	5.083	12.0	5.083	5.083	5.083	13.2	5.083	5.083	5.083	--	-	-	-	--	-	-	-	--	-	-	-
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Model		MODULE A	
Item		Temperature	25° C
Object		Testing Circuitry	Figure A
		+5V12A	

Input Volt. 100 V Response t1=t2=50us. Typ
 Cycle 1000 ms





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Model	MODULE A	Temperature	25°C																																						
Item	Ripple Noise	Testing Circuitry	Figure B																																						
Object	+5V12A																																								
<p>1. Graph</p> <div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>—△— Input Volt. 100 V</p> <p>-·-○-·- Input Volt. 230 V</p> </div> </div>		<p>2. Value</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. 100[V]</th> <th>Input Volt. 230[V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>30</td><td>30</td></tr> <tr><td>2.0</td><td>40</td><td>45</td></tr> <tr><td>4.0</td><td>55</td><td>55</td></tr> <tr><td>6.0</td><td>55</td><td>55</td></tr> <tr><td>8.0</td><td>55</td><td>55</td></tr> <tr><td>10.0</td><td>55</td><td>55</td></tr> <tr><td>12.0</td><td>55</td><td>55</td></tr> <tr><td>13.2</td><td>55</td><td>55</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. 100[V]	Input Volt. 230[V]	0.0	30	30	2.0	40	45	4.0	55	55	6.0	55	55	8.0	55	55	10.0	55	55	12.0	55	55	13.2	55	55	--	--	--	--	--	--	--	--	--
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<div style="display: flex; justify-content: space-around;"> <div style="text-align: center;"> <p>T1: Due to AC Input Line</p> <p>T2: Due to Switching</p> </div> <div style="text-align: center;"> <p>Ripple-Noise [mVp-p]</p> </div> </div>																																									
<p>Fig. Complex Ripple Wave Form</p>																																									



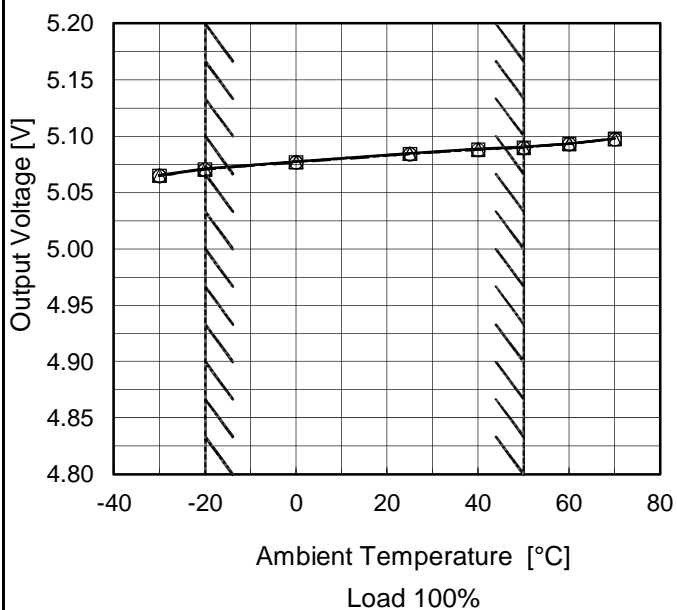
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Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry Figure B																																						
Object	+5V12A																																							
<p>1. Graph</p> <div style="text-align: right;"> <p>---□--- Input Volt. 100V</p> <p>—△— Input Volt. 230V</p> </div> <p style="text-align: center;">Ambient Temperature [°C] Load 100 %</p>		<p>2. Value</p> <table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="2">Ripple Voltage [mV]</th> </tr> <tr> <th>Input Volt. 100 [V]</th> <th>Input Volt. 230 [V]</th> </tr> </thead> <tbody> <tr><td>-30</td><td>65</td><td>65</td></tr> <tr><td>-20</td><td>60</td><td>60</td></tr> <tr><td>0</td><td>50</td><td>50</td></tr> <tr><td>25</td><td>45</td><td>45</td></tr> <tr><td>50</td><td>65</td><td>45</td></tr> <tr><td>70</td><td>65</td><td>45</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> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>	Ambient Temperature [°C]	Ripple Voltage [mV]		Input Volt. 100 [V]	Input Volt. 230 [V]	-30	65	65	-20	60	60	0	50	50	25	45	45	50	65	45	70	65	45	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-
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Model	MODULE A
Item	Ambient Temperature Drift
Object	+5V12A

Testing Circuitry Figure A

1. Graph
- △— Input Volt. 100V
 - - - □ - - - Input Volt. 200V
 - · - ○ - · - - Input Volt. 230V



Note:
Hatched line shows the range of the rated operating temperature.

2. Value

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
-30	5.065	5.065	5.065
-20	5.071	5.071	5.070
0	5.077	5.077	5.077
25	5.085	5.084	5.084
40	5.089	5.088	5.088
50	5.090	5.090	5.090
60	5.094	5.093	5.093
70	5.098	5.098	5.097
--	-	-	-
--	-	-	-
--	-	-	-



COSEL		
Model	MODULE A	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V12A	

1. Output Voltage Accuracy

This means the output voltage fluctuation of the time the ambient temperature, the input voltage and/or the load current are varied arbitrarily in the range below.

Temperature : -20 - 50°C

Input Voltage : 85 - 264V

Load Current : 0 - 12A

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

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

2. Value

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	50	100	0	5.092	±11	±0.2
Minimum Voltage	-20	230	12	5.070		



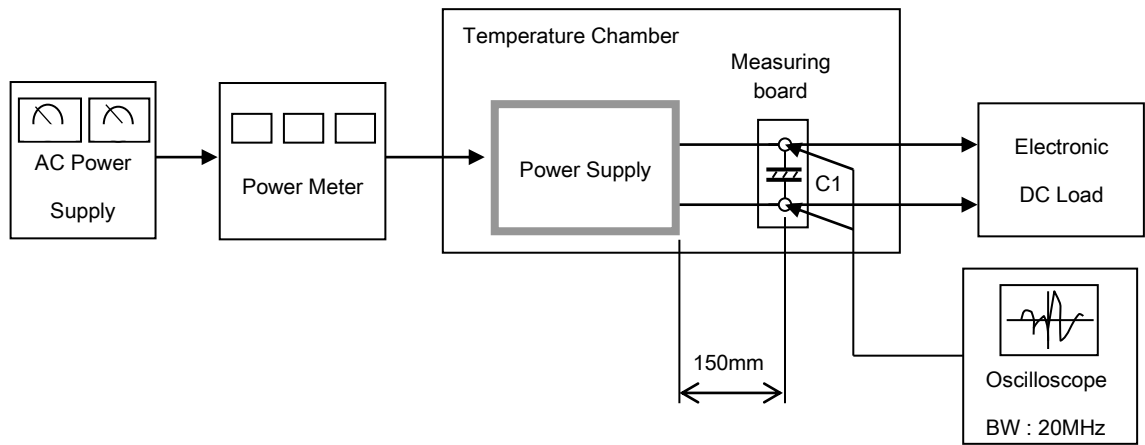
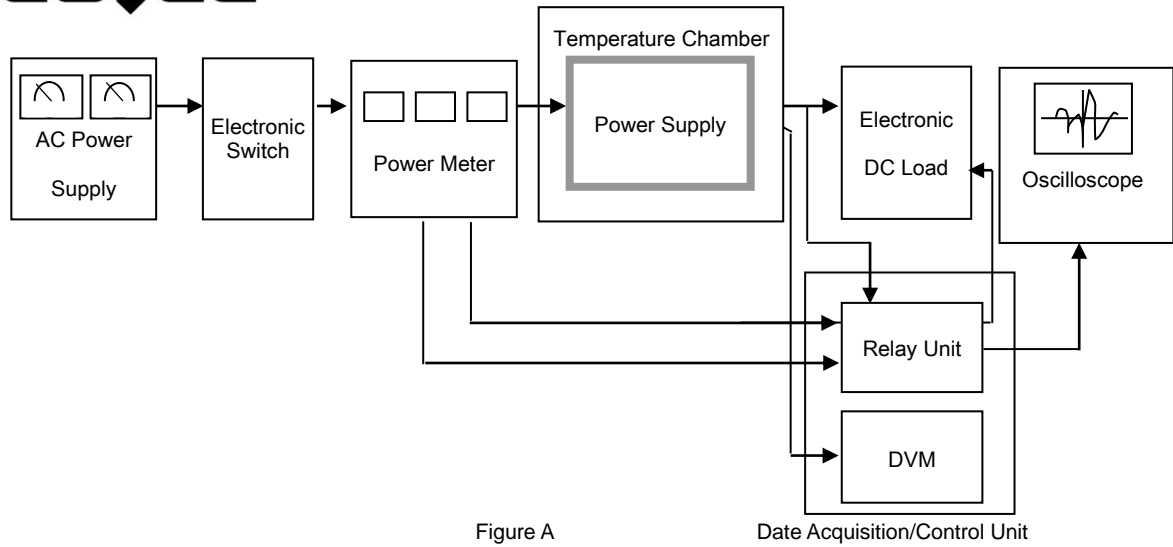
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Model	MODULE A																							
Item	Time Lapse Drift	Temperature 25°C Testing Circuitry Figure A																						
Object	+5V12A																							
<p>1. Graph</p> <p style="text-align: center;">Time [H]</p> <p>Input Voltage 100V Load 100%</p>		<p>2. Value</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>5.084</td></tr> <tr><td>0.5</td><td>5.108</td></tr> <tr><td>1.0</td><td>5.108</td></tr> <tr><td>2.0</td><td>5.107</td></tr> <tr><td>3.0</td><td>5.107</td></tr> <tr><td>4.0</td><td>5.107</td></tr> <tr><td>5.0</td><td>5.107</td></tr> <tr><td>6.0</td><td>5.107</td></tr> <tr><td>7.0</td><td>5.107</td></tr> <tr><td>8.0</td><td>5.107</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	5.084	0.5	5.108	1.0	5.108	2.0	5.107	3.0	5.107	4.0	5.107	5.0	5.107	6.0	5.107	7.0	5.107	8.0	5.107
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