

TEST DATA OF MGFW34815

Regulated DC Power Supply
January 10, 2017

Approved by : Takayuki Fukuda Design Manager

Prepared by : Takaaki Sekiguchi Design Engineer

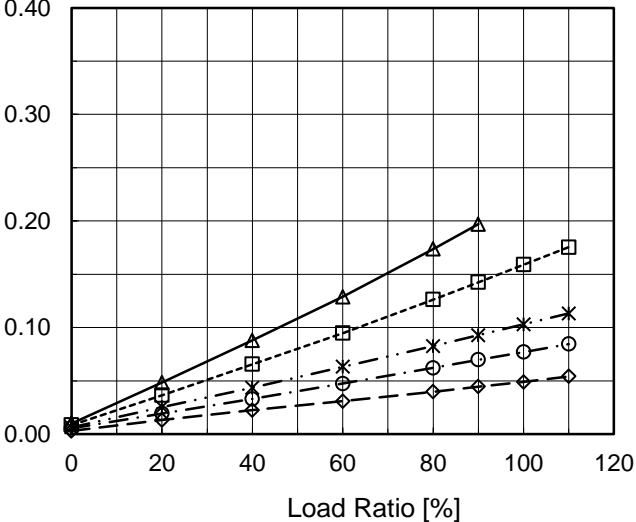
COSEL CO.,LTD.

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Model		MGFW34815		Temperature		25°C																																																																																
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Model		MGFW34815		Temperature 25°C																																																																														
Item		Efficiency (by Load Ratio)		Testing Circuitry Figure A																																																																														
Object																																																																																		
1.Graph		<div><div><div>—△—</div>Input Volt. 18V</div><div><div>---□---</div>Input Volt. 24V</div><div><div>-·-*·-</div>Input Volt. 36V</div><div><div>-·-○-</div>Input Volt. 48V</div><div><div>--◇--</div>Input Volt. 76V</div></div> <p>Efficiency [%]</p> <p>Load Ratio [%]</p>		2.Values																																																																														
				<table><tr><th rowspan="2">Load Ratio [%]</th><th colspan="5">Efficiency [%]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>0</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>20</td><td>68.1</td><td>67.3</td><td>65.4</td><td>64.0</td><td>58.6</td></tr><tr><td>40</td><td>75.4</td><td>76.3</td><td>75.8</td><td>75.3</td><td>70.1</td></tr><tr><td>60</td><td>77.6</td><td>79.1</td><td>78.8</td><td>79.1</td><td>76.4</td></tr><tr><td>80</td><td>77.3</td><td>79.5</td><td>80.3</td><td>80.4</td><td>79.5</td></tr><tr><td>90</td><td>76.6</td><td>79.2</td><td>80.5</td><td>80.6</td><td>79.9</td></tr><tr><td>100</td><td>- ※</td><td>79.0</td><td>81.2</td><td>81.1</td><td>80.2</td></tr><tr><td>110</td><td>- ※</td><td>78.7</td><td>81.2</td><td>81.5</td><td>80.4</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr></table>		Load Ratio [%]	Efficiency [%]					Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	0	-	-	-	-	-	20	68.1	67.3	65.4	64.0	58.6	40	75.4	76.3	75.8	75.3	70.1	60	77.6	79.1	78.8	79.1	76.4	80	77.3	79.5	80.3	80.4	79.5	90	76.6	79.2	80.5	80.6	79.9	100	- ※	79.0	81.2	81.1	80.2	110	- ※	78.7	81.2	81.5	80.4	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
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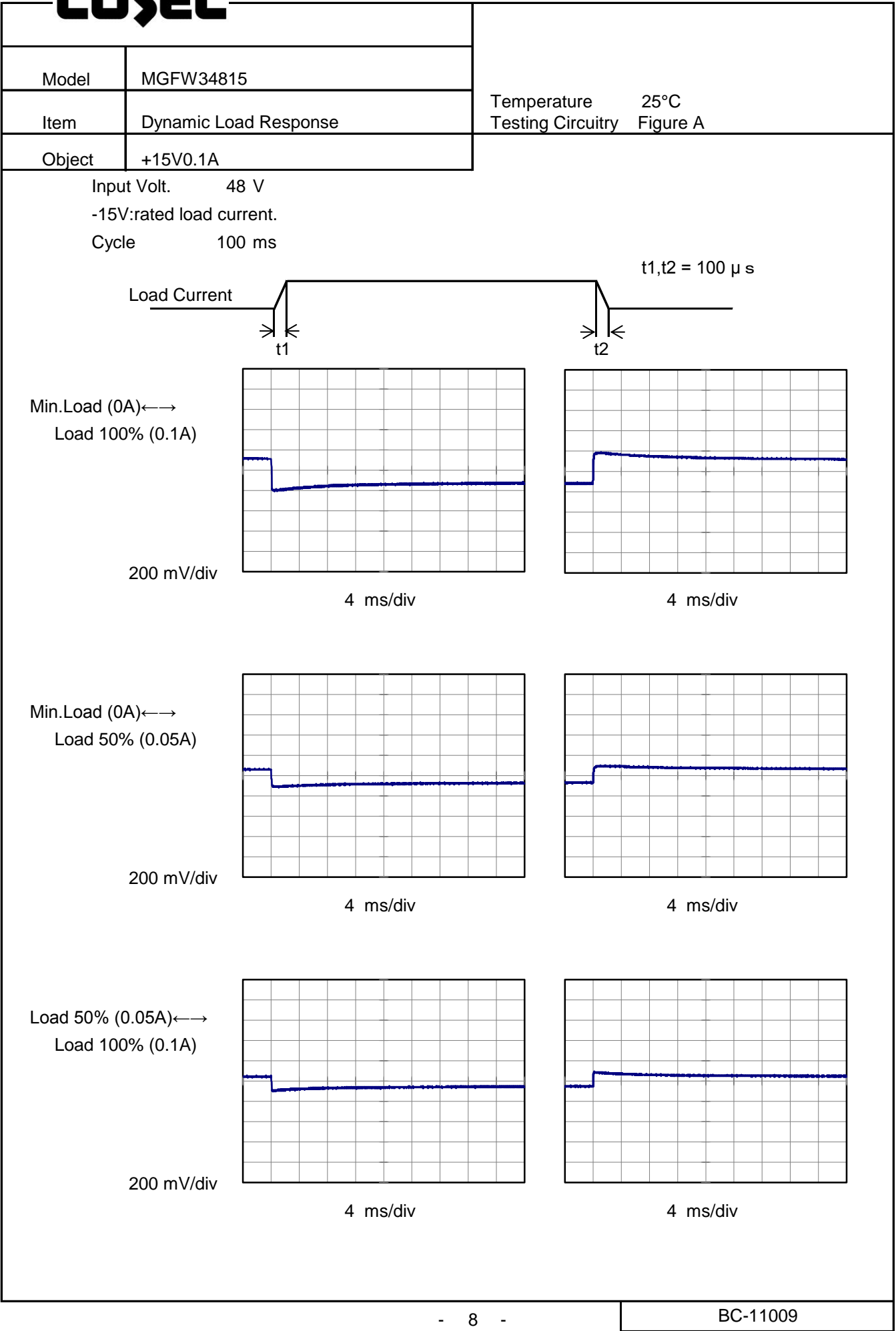
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Input Voltage [V]	Output Voltage [V]																																		
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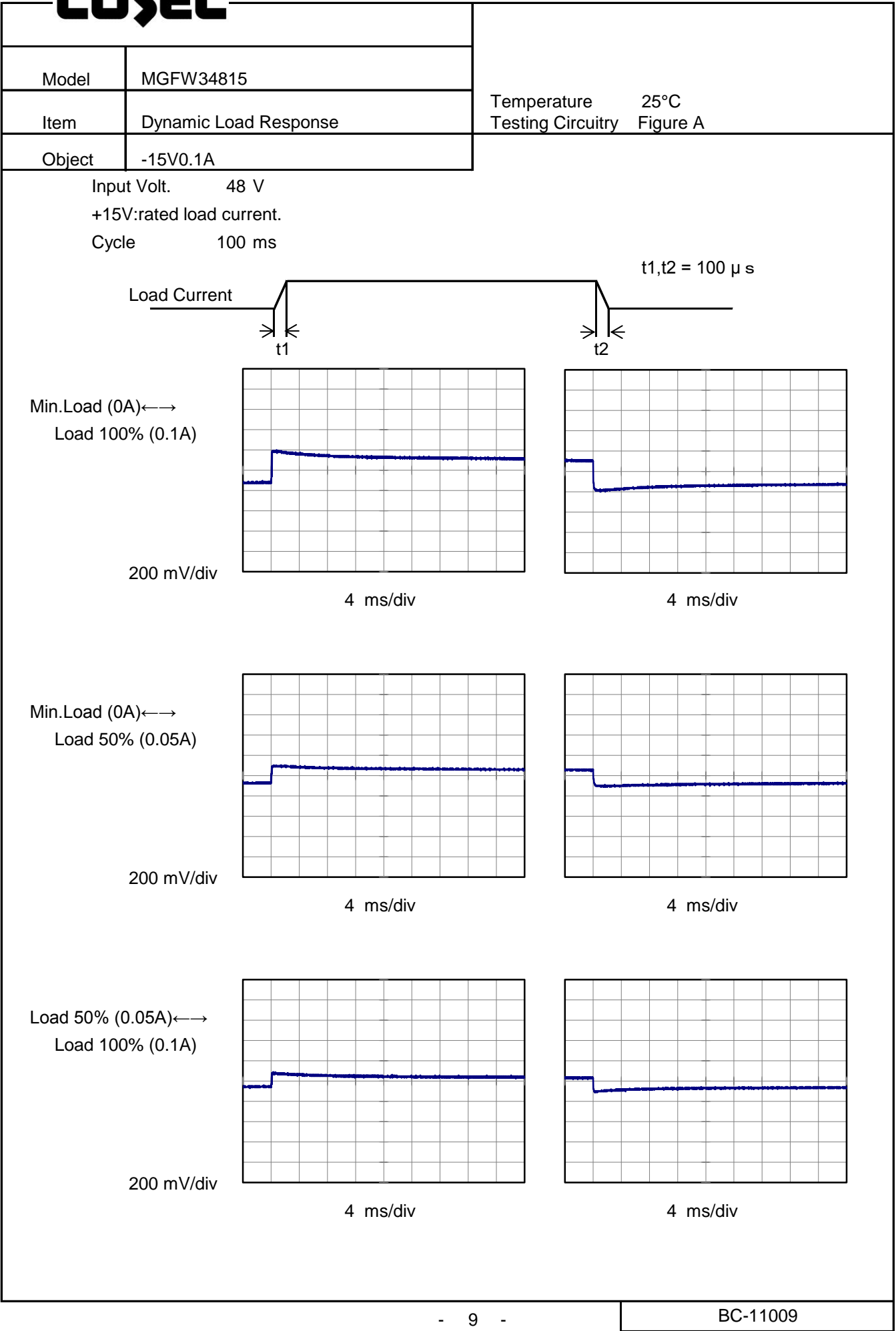
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Model		MGFW34815		Temperature 25°C																																																																												
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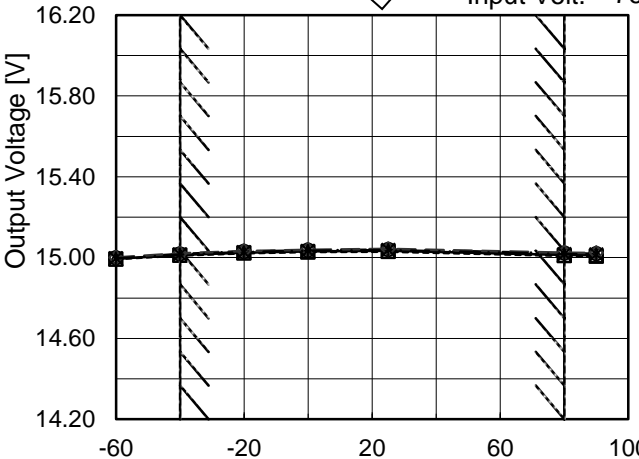
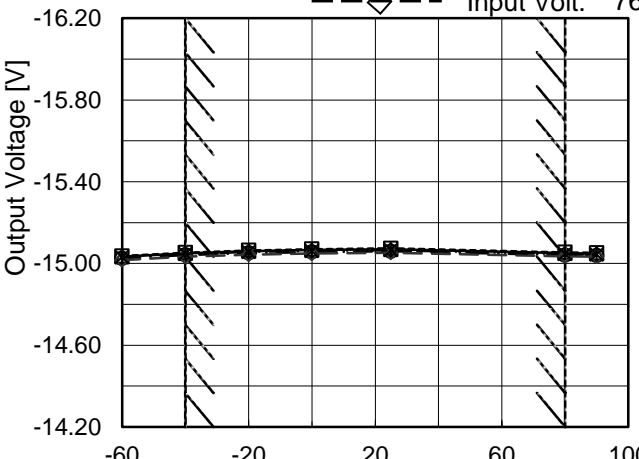
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<div><div><div>---</div><div>□</div><div>---</div></div><div>Load 50%</div><div>---</div><div>△</div><div>---</div></div> <div>Load 100%</div> <p>Ambient Temperature [°C]</p> <p>Input Volt. 48V</p> <p>Measured by 100 MHz Oscilloscope.</p> <p>Note: Slanted line shows the range of the rated ambient temperature.</p>		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>-60</td><td>30</td><td>50</td></tr><tr><td>-40</td><td>25</td><td>45</td></tr><tr><td>-20</td><td>25</td><td>45</td></tr><tr><td>0</td><td>25</td><td>45</td></tr><tr><td>25</td><td>25</td><td>45</td></tr><tr><td>80</td><td>20</td><td>40</td></tr><tr><td>90</td><td>20</td><td>40</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></table> <p>+15V: Rated Load Current</p>		Ambient Temperature [°C]	Ripple Voltage [mV]		Load 50%	Load 100%	-60	30	50	-40	25	45	-20	25	45	0	25	45	25	25	45	80	20	40	90	20	40	--	-	-	--	-	-	--	-	-	--	-	-
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BC-11009

Model		MGFW34815																																																																														
Item		Ambient Temperature Drift																																																																														
Object		+15V0.1A																																																																														
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Note: Slanted line shows the range of the rated ambient temperature.		Note: In case of Input Volt. 18V, Load 80%. Other case Load 100%.																																																																														

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Model		MGFW34815	Testing Circuitry Figure A
Item		Output Voltage Accuracy	

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 - 80°C

Input Voltage : 24 - 76V

Load Current (AVR 1) : 0 - 0.1A (AVR 2) : 0 - 0.1A

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

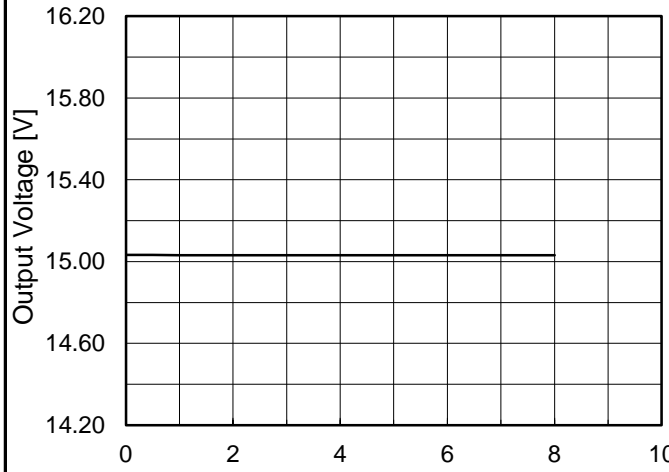
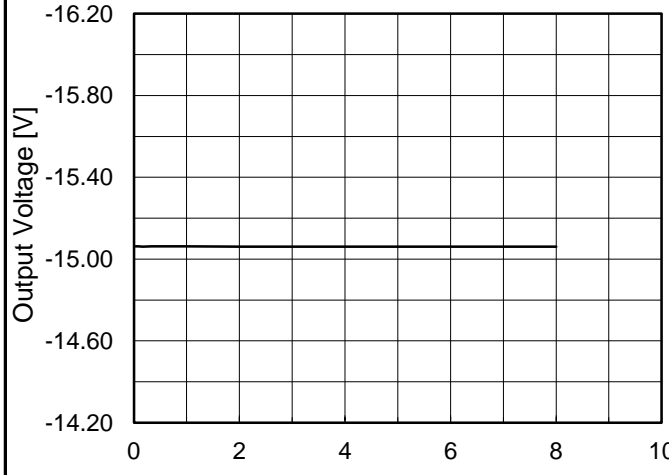
* Output Voltage Accuracy (Ratio) = $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

2. Values

Object		+15V0.1A				
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	80	24	0	15.377	±345	±2.3
Minimum Voltage	80	24	0.1	14.687		

Object		-15V0.1A				
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	80	24	0	-15.399	±345	±2.3
Minimum Voltage	80	24	0.1	-14.710		

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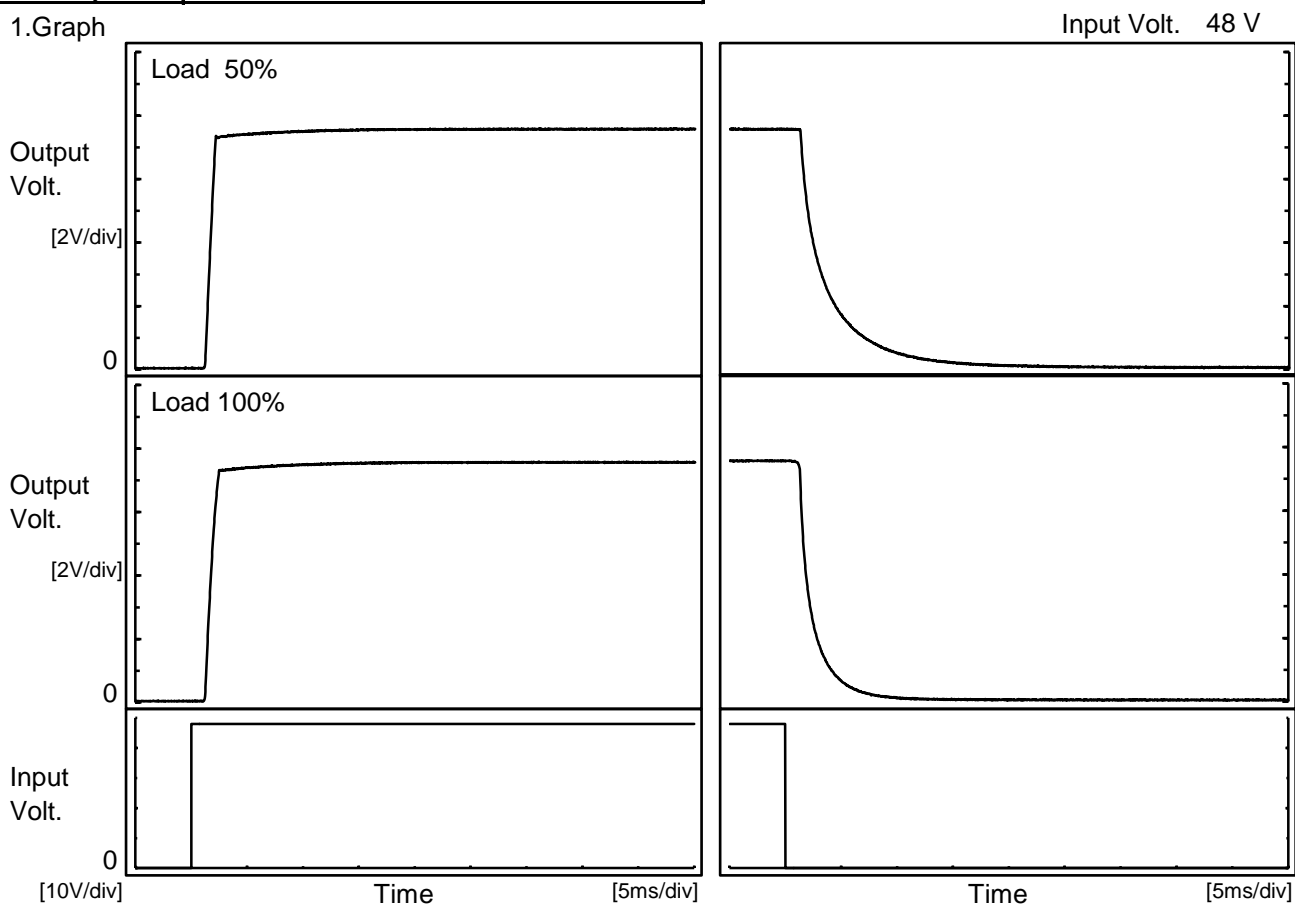
COSEL																									
Model	MGFW34815																								
Item	Time Lapse Drift	Temperature	25°C																						
Object	+15V0.1A	Testing Circuitry	Figure A																						
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 48V</p><p>Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>15.035</td></tr><tr><td>0.5</td><td>15.032</td></tr><tr><td>1.0</td><td>15.032</td></tr><tr><td>2.0</td><td>15.031</td></tr><tr><td>3.0</td><td>15.031</td></tr><tr><td>4.0</td><td>15.031</td></tr><tr><td>5.0</td><td>15.031</td></tr><tr><td>6.0</td><td>15.031</td></tr><tr><td>7.0</td><td>15.031</td></tr><tr><td>8.0</td><td>15.031</td></tr></table> <p>-15V: Rated Load Current</p>		Time since start [H]	Output Voltage [V]	0.0	15.035	0.5	15.032	1.0	15.032	2.0	15.031	3.0	15.031	4.0	15.031	5.0	15.031	6.0	15.031	7.0	15.031	8.0	15.031
Time since start [H]	Output Voltage [V]																								
0.0	15.035																								
0.5	15.032																								
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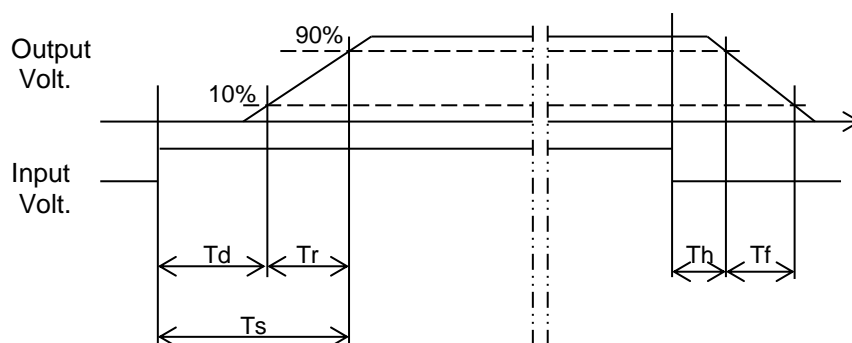
Model	MGFW34815	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+15V0.1A		

1.Graph



2.Values

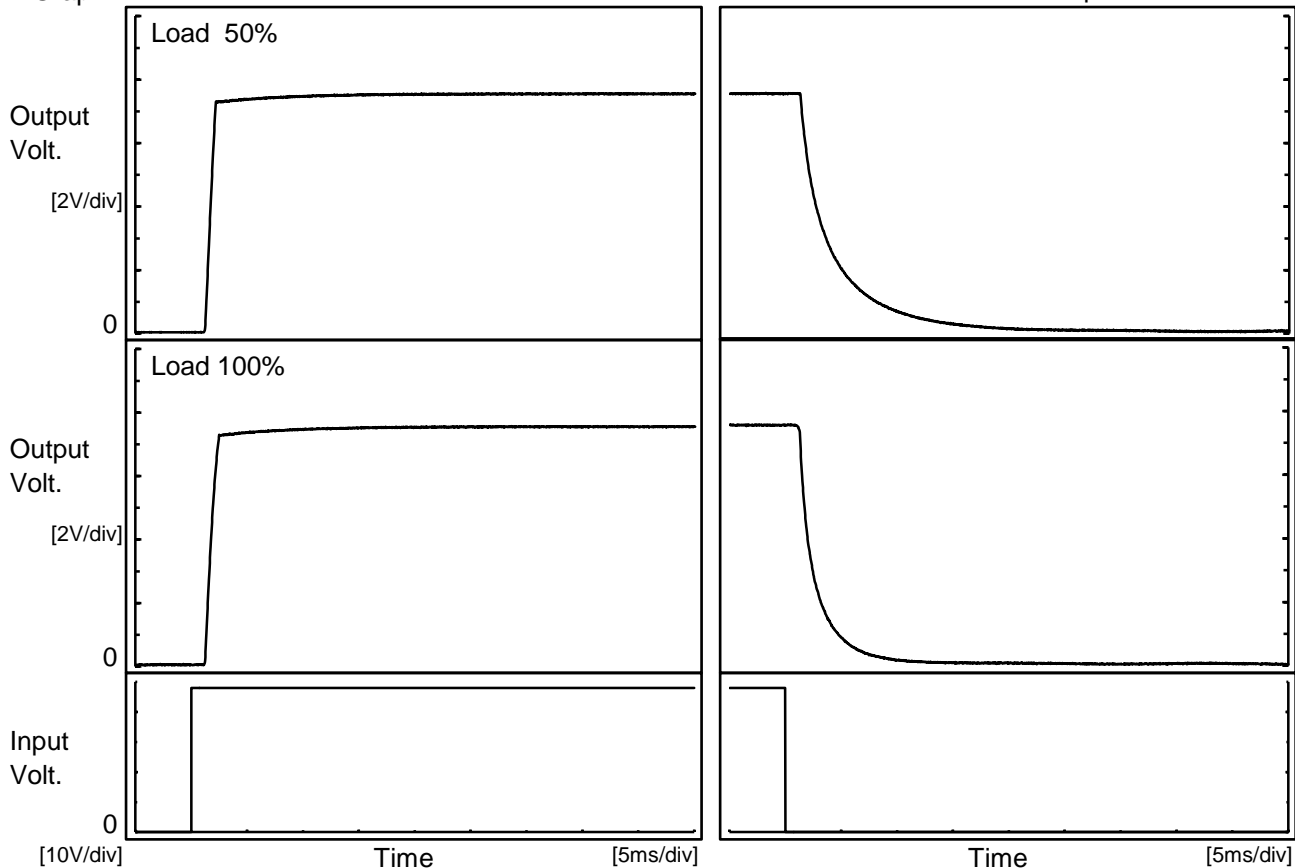
		[ms]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.3	0.8	2.1	1.5	6.6
100 %		1.3	1.0	2.3	1.4	3.2





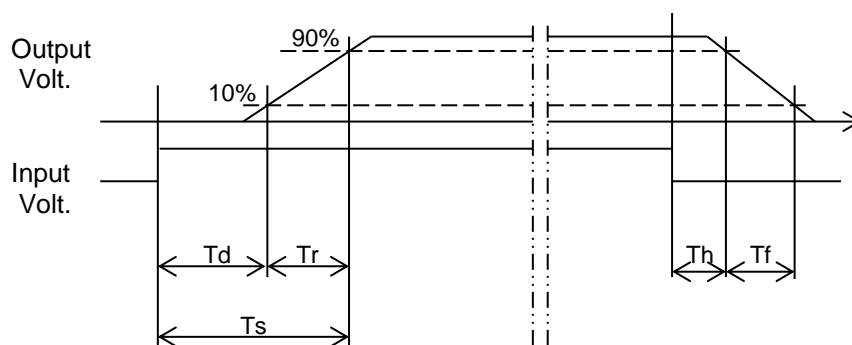
Model	MGFW34815	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	-15V0.1A		

1.Graph



2.Values

Load \ Time	T _d	T _r	T _s	T _h	T _f
50 %	1.3	0.8	2.1	1.5	7.9
100 %	1.3	1.0	2.3	1.4	4.0



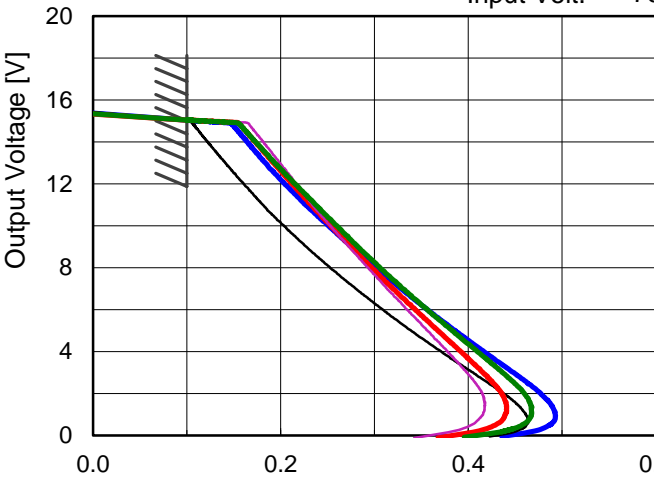
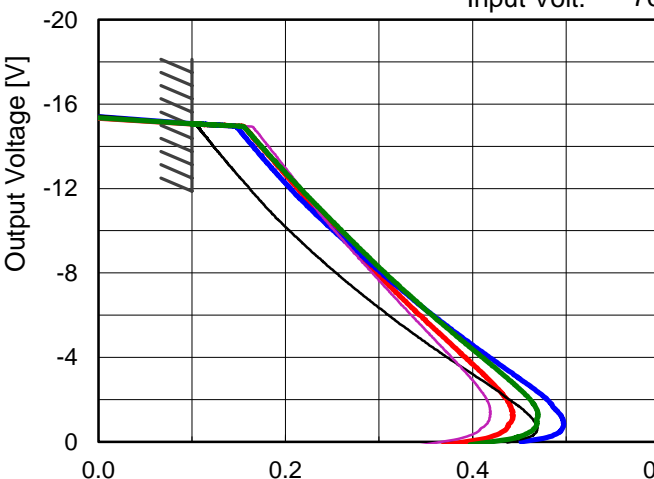


Model	MGFW34815	Testing Circuitry Figure A																																							
Item	Minimum Input Voltage for Regulated Output Voltage																																								
Object	+15V0.1A																																								
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Note: Slanted line shows the range of the rated ambient temperature.																																									

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Model		MGFW34815		Temperature 25°C																																																																																				
Item		Overcurrent Protection		Testing Circuitry Figure A																																																																																				
Object		+15V0.1A																																																																																						
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				Refer to instruction manuals for details of input derating.																																																																																				
Note: Slanted line shows the range of the rated load current.																																																																																								

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BC-11009

COSEL

Model		MGFW34815		Temperature 25°C	
Item		Switching frequency (by Load Current)		Testing Circuitry Figure A	
Object		+/-15V0.1A			
1.Graph		<div><div>—△—</div>Input Volt. 18V</div> <div><div>---□---</div>Input Volt. 24V</div> <div><div>-·-·*·-·-</div>Input Volt. 36V</div> <div><div>-·-·○-·-</div>Input Volt. 48V</div> <div><div>---◇---</div>Input Volt. 76V</div>			
<div><div>Switching Frequency 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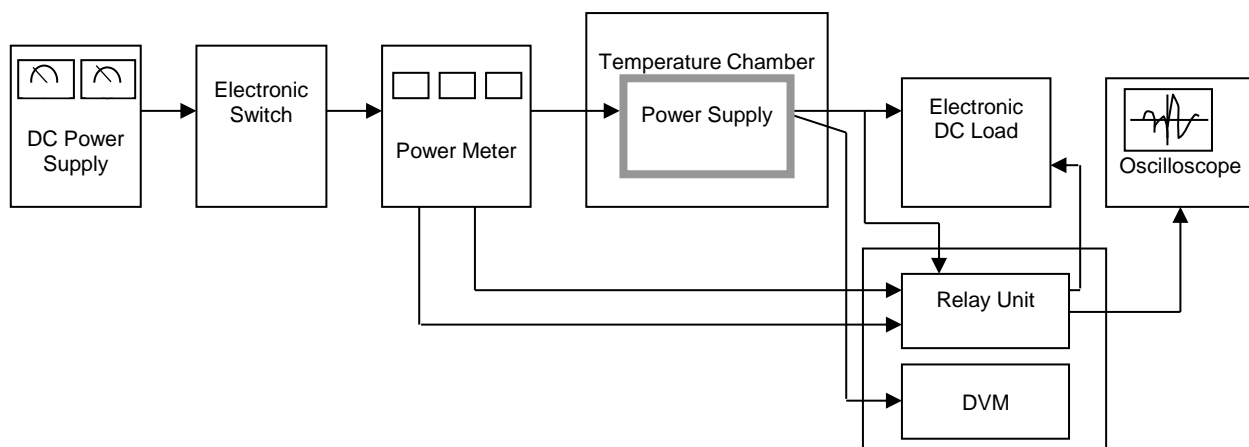


Figure A

Data Acquisition/Control Unit

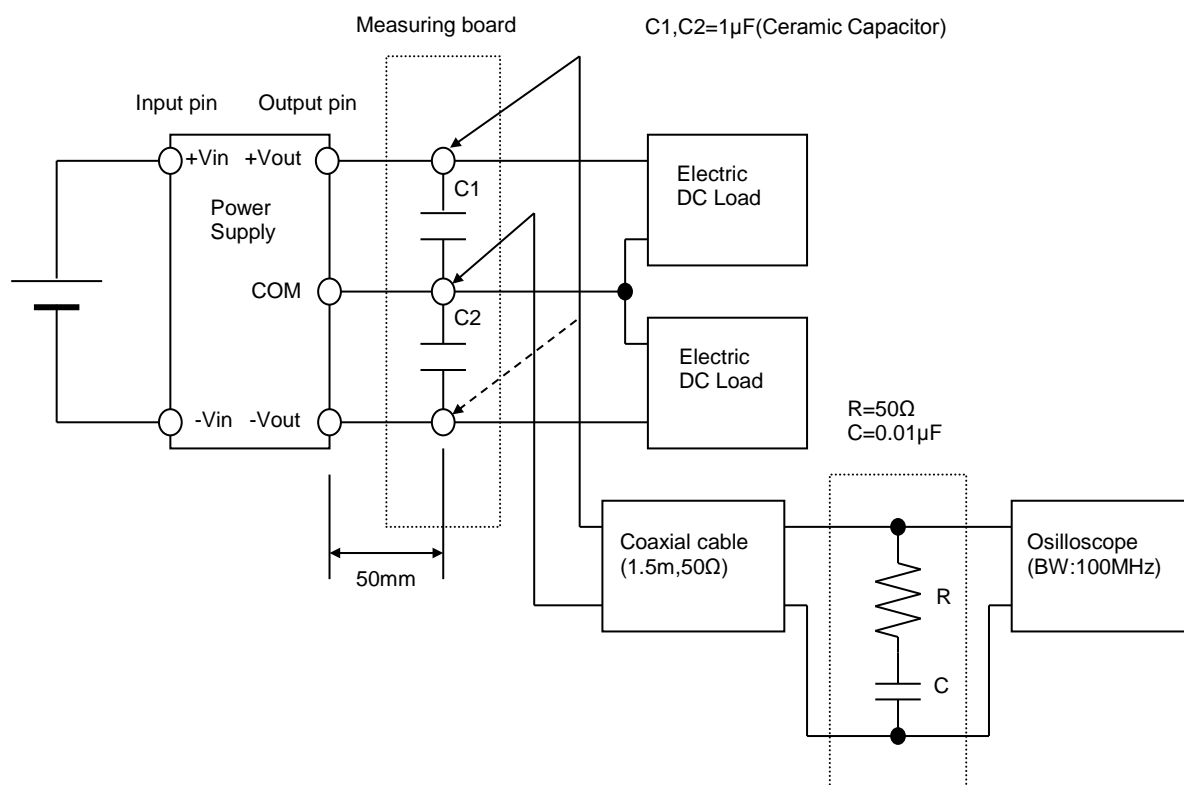


Figure B (Ripple and Ripple noise Characteristic)