

# TEST DATA OF MGFW34812

Regulated DC Power Supply  
January 10, 2017

Approved by : Takayuki Fukuda Design Manager

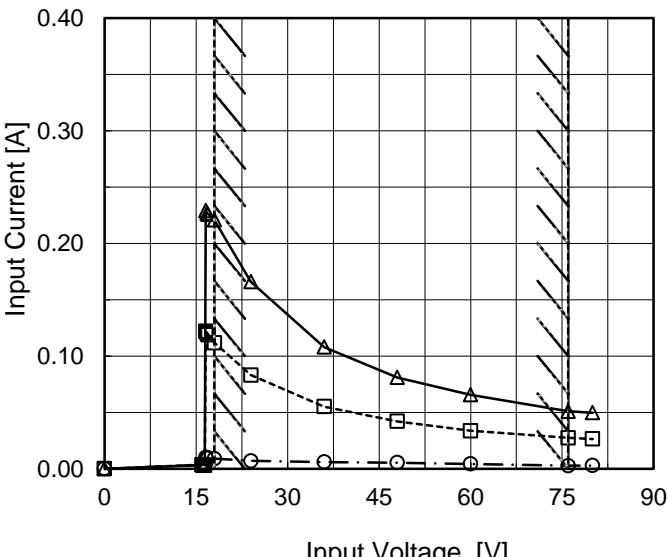
Prepared by : Takaaki Sekiguchi Design Engineer

**COSEL CO.,LTD.**

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Model		MGFW34812		Temperature 25°C																																																																																
Item		Input Current (by Input Voltage)		Testing Circuitry Figure A																																																																																
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1.Graph		<div><div><div>—△—</div><div>Load 100%</div></div><div><div>---□---</div><div>Load 50%</div></div><div><div>-○-</div><div>Load 0%</div></div></div>  <p>Note: Slanted line shows the range of the rated input voltage.</p>		2.Values																																																																																
		<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="3">Input Current [A]</th></tr><tr><th>Load 0%</th><th>Load 50%</th><th>Load 100%</th></tr><tr><td>0.0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>16.0</td><td>0.003</td><td>0.004</td><td>0.003</td></tr><tr><td>16.2</td><td>0.003</td><td>0.003</td><td>0.004</td></tr><tr><td>16.4</td><td>0.003</td><td>0.003</td><td>0.003</td></tr><tr><td>16.6</td><td>0.010</td><td>0.122</td><td>0.229</td></tr><tr><td>16.8</td><td>0.010</td><td>0.121</td><td>0.227</td></tr><tr><td>17.0</td><td>0.010</td><td>0.119</td><td>0.226</td></tr><tr><td>18.0</td><td>0.009</td><td>0.112</td><td>0.221</td></tr><tr><td>24.0</td><td>0.007</td><td>0.083</td><td>0.166</td></tr><tr><td>36.0</td><td>0.006</td><td>0.055</td><td>0.108</td></tr><tr><td>48.0</td><td>0.005</td><td>0.042</td><td>0.081</td></tr><tr><td>60.0</td><td>0.004</td><td>0.034</td><td>0.066</td></tr><tr><td>76.0</td><td>0.003</td><td>0.027</td><td>0.051</td></tr><tr><td>80.0</td><td>0.003</td><td>0.026</td><td>0.050</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><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>				Input Voltage [V]	Input Current [A]			Load 0%	Load 50%	Load 100%	0.0	0.000	0.000	0.000	16.0	0.003	0.004	0.003	16.2	0.003	0.003	0.004	16.4	0.003	0.003	0.003	16.6	0.010	0.122	0.229	16.8	0.010	0.121	0.227	17.0	0.010	0.119	0.226	18.0	0.009	0.112	0.221	24.0	0.007	0.083	0.166	36.0	0.006	0.055	0.108	48.0	0.005	0.042	0.081	60.0	0.004	0.034	0.066	76.0	0.003	0.027	0.051	80.0	0.003	0.026	0.050	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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# COSEL

Model		MGFW34812	
Item		Line Regulation	
Object		+12V0.13A	
1.Graph		2.Values	

Output Voltage [V]	Input Voltage [V]	Output Voltage [V]	
		Load 50%	Load 100%
	17	12.244	- ※
18	12.241	- ※	
24	12.229	12.091	
30	12.222	12.096	
36	12.217	12.098	
48	12.211	12.102	
60	12.208	12.104	
76	12.206	12.105	
80	12.206	12.106	

-12V: Rated Load Current

Object		-12V0.13A	
1.Graph		2.Values	

Output Voltage [V]	Input Voltage [V]	Output Voltage [V]	
		Load 50%	Load 100%
	17	-12.299	- ※
18	-12.294	- ※	
24	-12.271	-12.144	
30	-12.257	-12.141	
36	-12.248	-12.137	
48	-12.235	-12.132	
60	-12.228	-12.129	
76	-12.222	-12.126	
80	-12.221	-12.126	

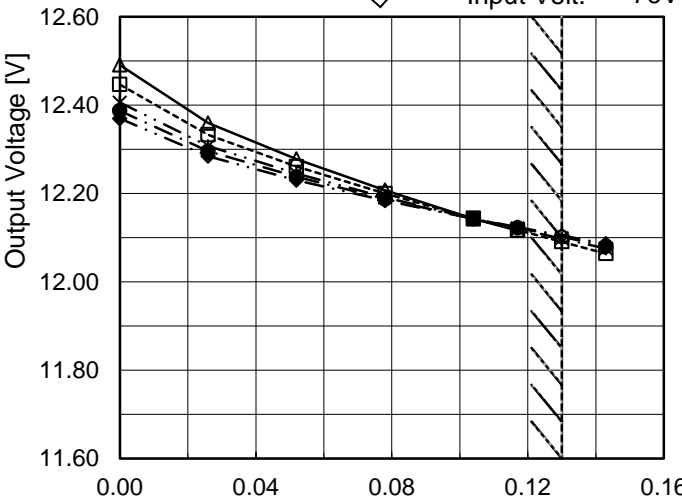
+12V: Rated Load Current

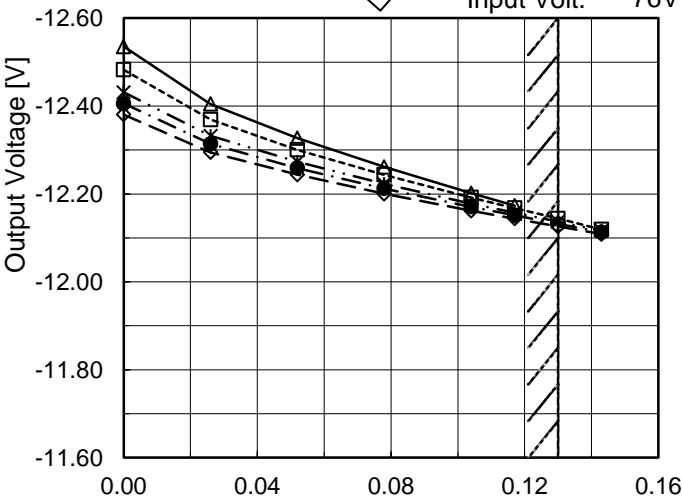
※ Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

- 6 -

BC-11008



Model		MGFW34812		Temperature 25°C																																																																														
Item		Load Regulation		Testing Circuitry Figure A																																																																														
Object		+12V0.13A		2.Values																																																																														
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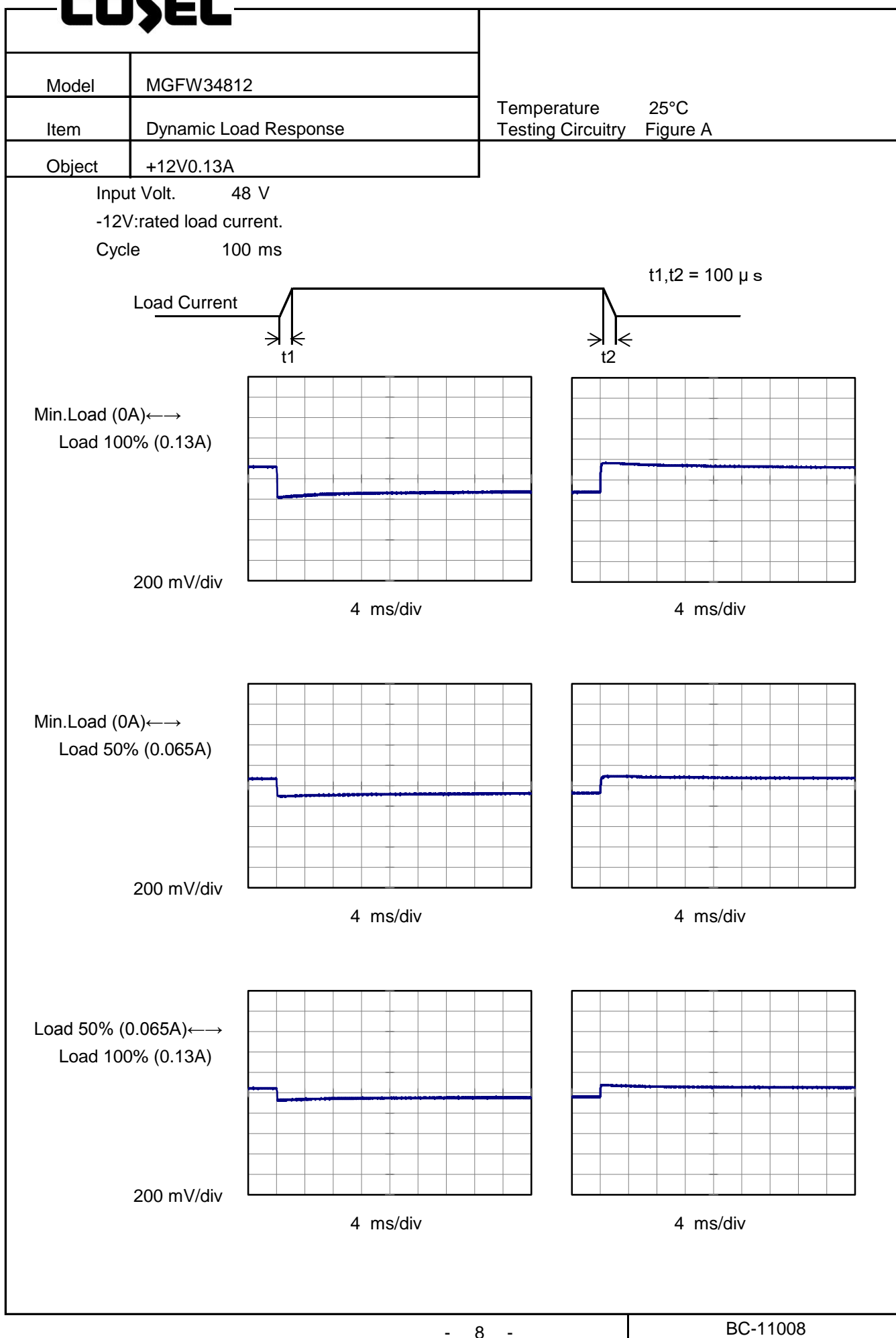
Note: Slanted line shows the range of the rated load current.

※ Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.

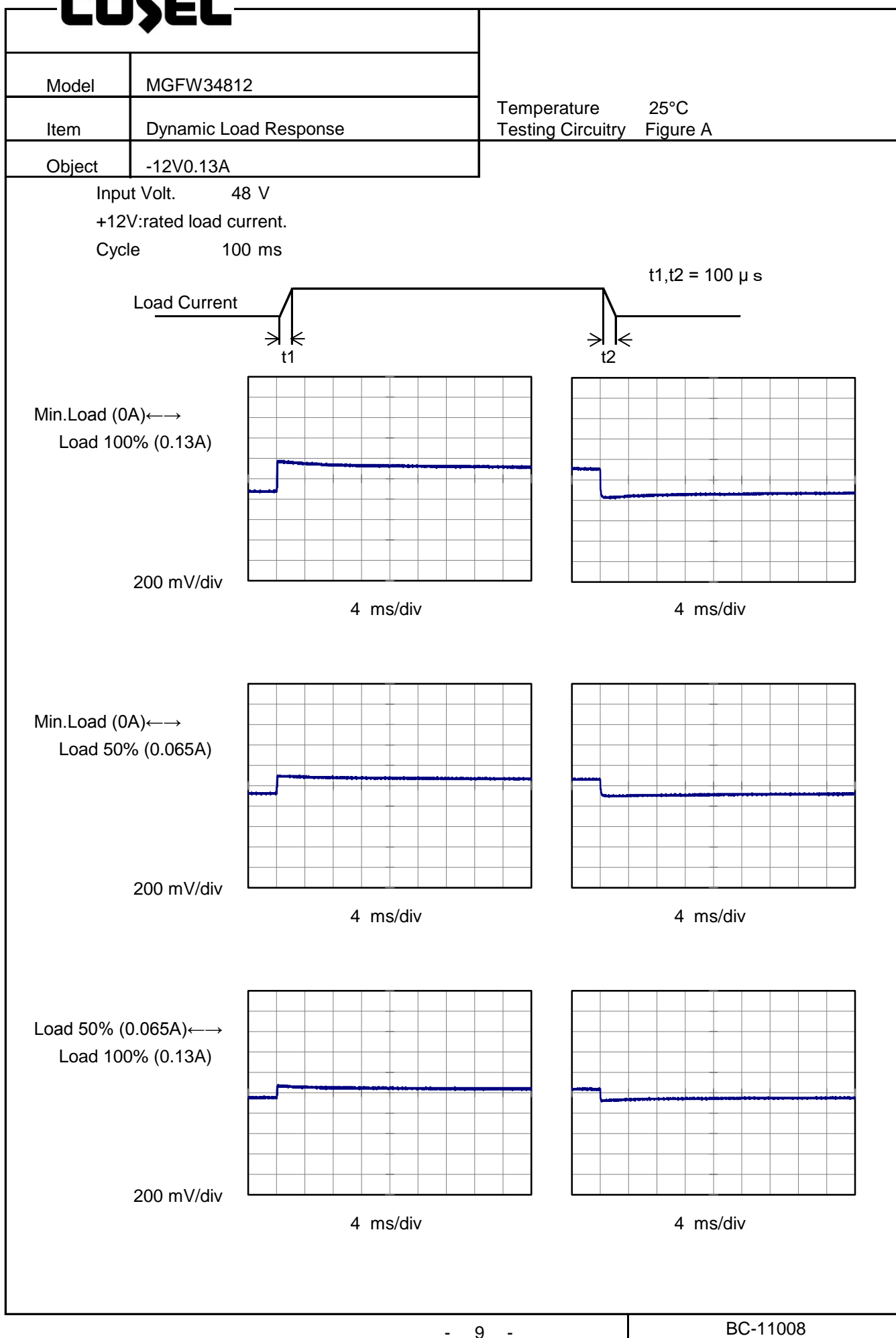
- 7 -

BC-11008

# COSEL



**COSEL**



Model		MGFW34812																																							
Item		Ripple Voltage (by Load Current)																																							
Object		+12V0.13A																																							
1.Graph		2.Values																																							
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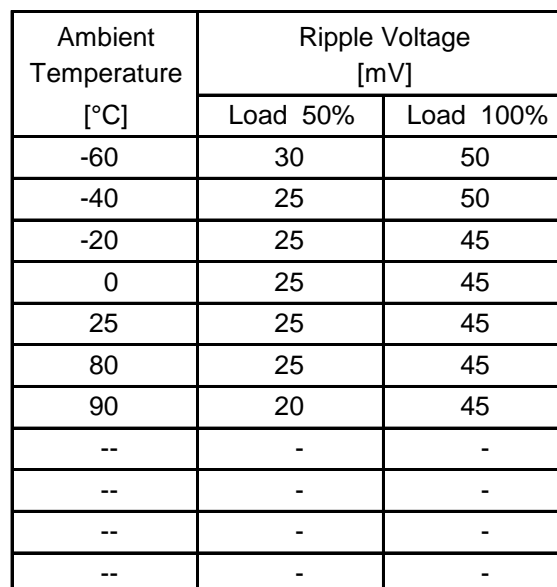
Model		MGFW34812		Temperature 25°C																																							
Item		Ripple Voltage (by Load Current)		Testing Circuitry Figure B																																							
Object		-12V0.13A																																									
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Model		MGFW34812																																							
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Model		MGFW34812		Temperature		25°C																																							
Item		Ripple-Noise		Testing Circuitry		Figure B																																							
Object		-12V0.13A																																											
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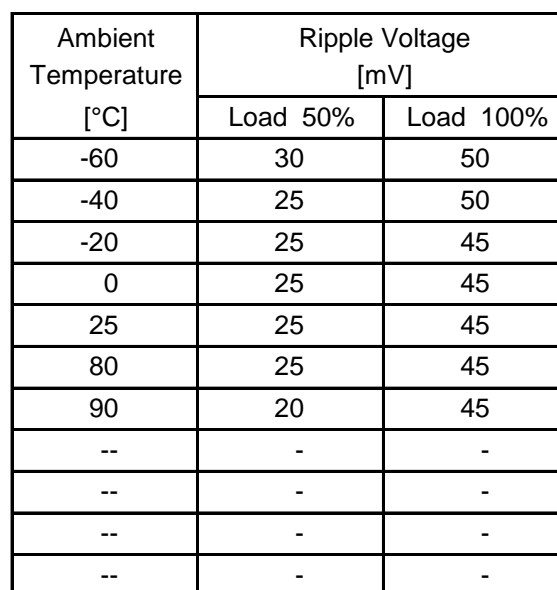
Testing Circuitry Figure B

## 2.Values



Object	-12V0.13A
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## 2.Values



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



# COSEL

Model		MGFW34812		Testing Circuitry    Figure A																																																																												
Item		Ambient Temperature Drift																																																																														
Object		+12V0.13A																																																																														
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<div><div>Output Voltage [V]</div><div></div><div>Ambient Temperature [°C]</div></div>		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="5">Output Voltage [V]</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>-60</td><td>12.029</td><td>12.028</td><td>12.031</td><td>12.033</td><td>12.036</td></tr><tr><td>-40</td><td>12.053</td><td>12.051</td><td>12.055</td><td>12.058</td><td>12.061</td></tr><tr><td>-20</td><td>12.071</td><td>12.068</td><td>12.074</td><td>12.077</td><td>12.080</td></tr><tr><td>0</td><td>12.083</td><td>12.080</td><td>12.086</td><td>12.089</td><td>12.093</td></tr><tr><td>25</td><td>12.095</td><td>12.091</td><td>12.098</td><td>12.102</td><td>12.105</td></tr><tr><td>80</td><td>12.093</td><td>12.089</td><td>12.097</td><td>12.101</td><td>12.105</td></tr><tr><td>90</td><td>12.093</td><td>12.088</td><td>12.097</td><td>12.101</td><td>12.105</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><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr></table>		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	12.029	12.028	12.031	12.033	12.036	-40	12.053	12.051	12.055	12.058	12.061	-20	12.071	12.068	12.074	12.077	12.080	0	12.083	12.080	12.086	12.089	12.093	25	12.095	12.091	12.098	12.102	12.105	80	12.093	12.089	12.097	12.101	12.105	90	12.093	12.088	12.097	12.101	12.105	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
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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%.																																																																												

- 15 -

BC-11008



Model		MGFW34812	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 - 0.13A (AVR 2) : 0 - 0.13A

\* 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		+12V0.13A				
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	80	24	0	12.463	±362	±3.0
Minimum Voltage	-40	24	0.13	11.740		

Object		-12V0.13A				
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	80	24	0	-12.496	±360	±3.0
Minimum Voltage	-40	24	0.13	-11.776		

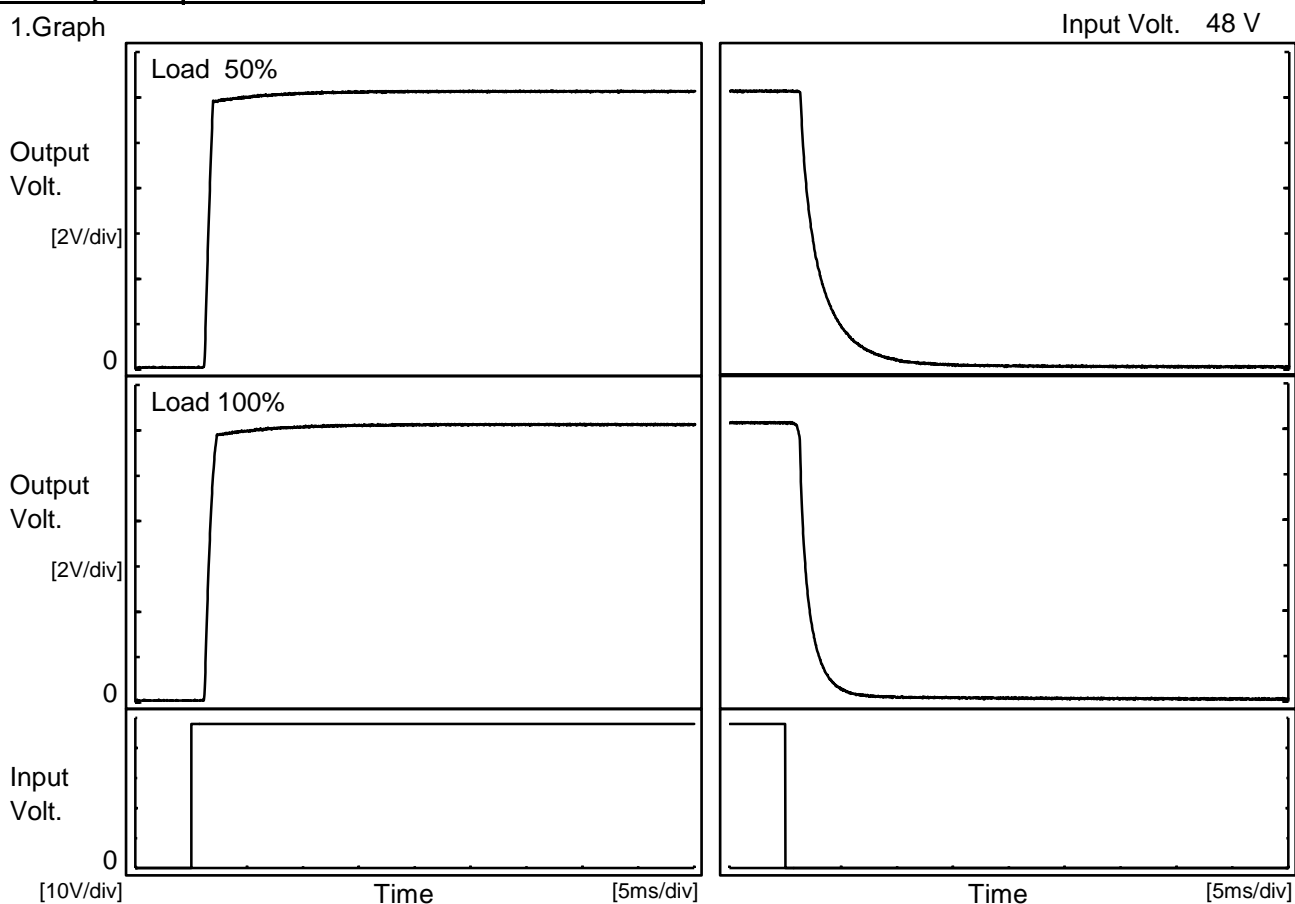


Model		MGFW34812	Temperature Testing Circuitry	25°C Figure A
Item		Time Lapse Drift		
Object		+12V0.13A		
1.Graph			2.Values	
<div><div><div>Output Voltage [V]</div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><di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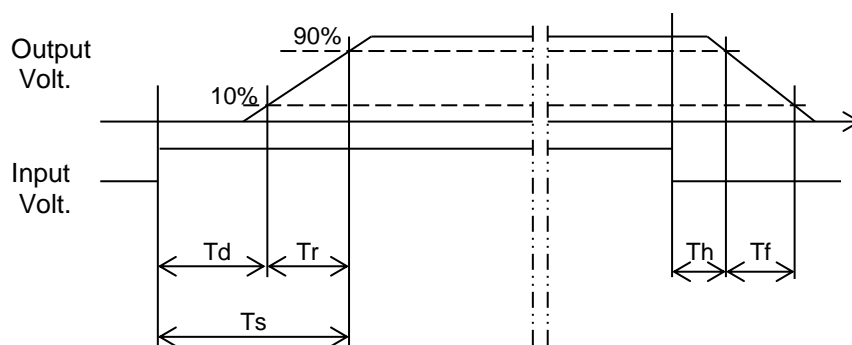
Model	MGFW34812	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+12V0.13A		

# 1.Graph



# 2.Values

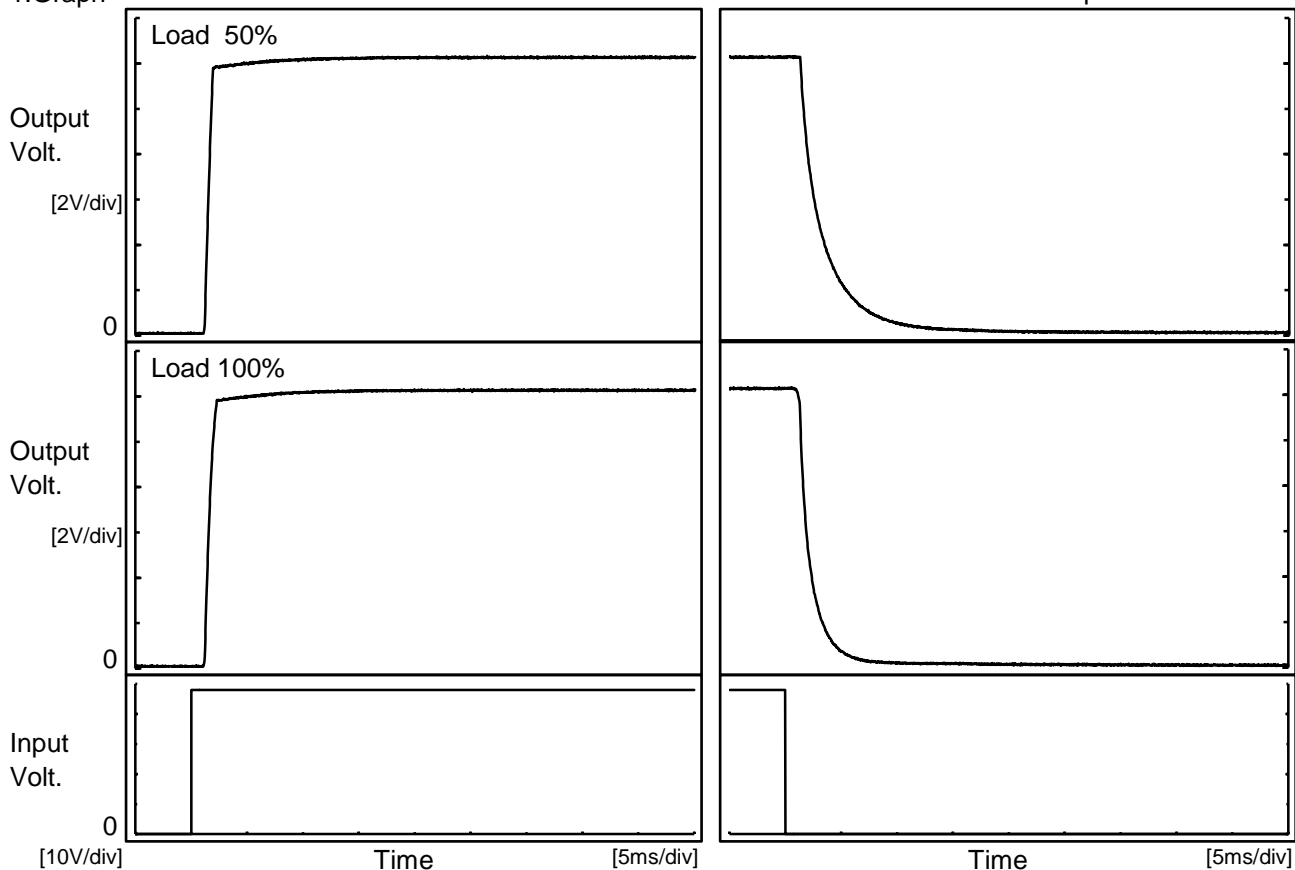
Load \ Time	T <sub>d</sub>	T <sub>r</sub>	T <sub>s</sub>	T <sub>h</sub>	T <sub>f</sub>
50 %	1.3	0.6	1.9	1.5	4.6
100 %	1.3	0.9	2.2	1.3	2.3





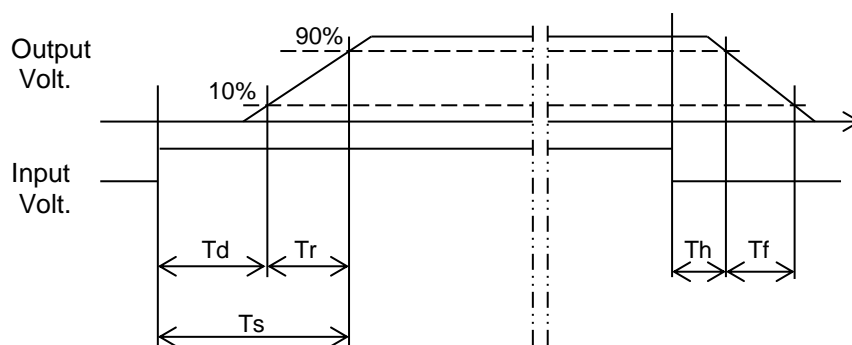
Model	MGFW34812	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	-12V0.13A		

# 1.Graph



# 2.Values

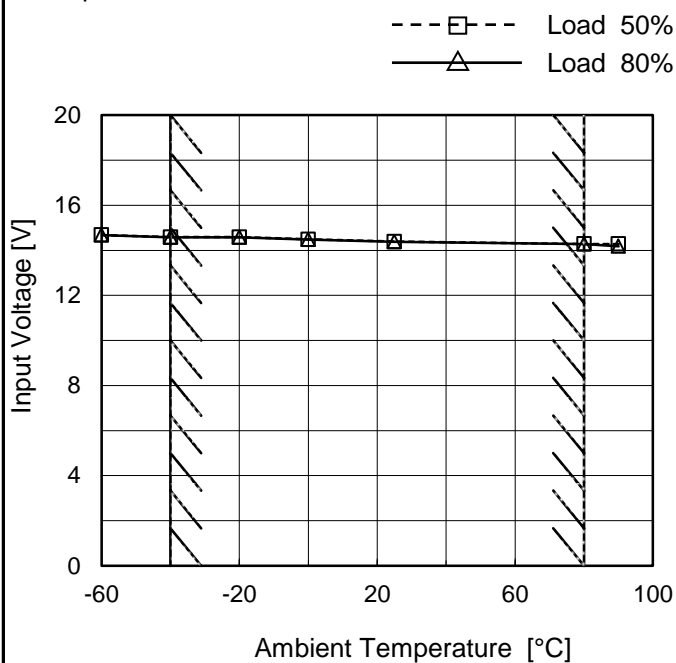
Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.3	0.6	1.9	1.5	5.4
100 %	1.3	0.9	2.2	1.3	2.7





Model	MGFW34812
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.13A

### 1.Graph



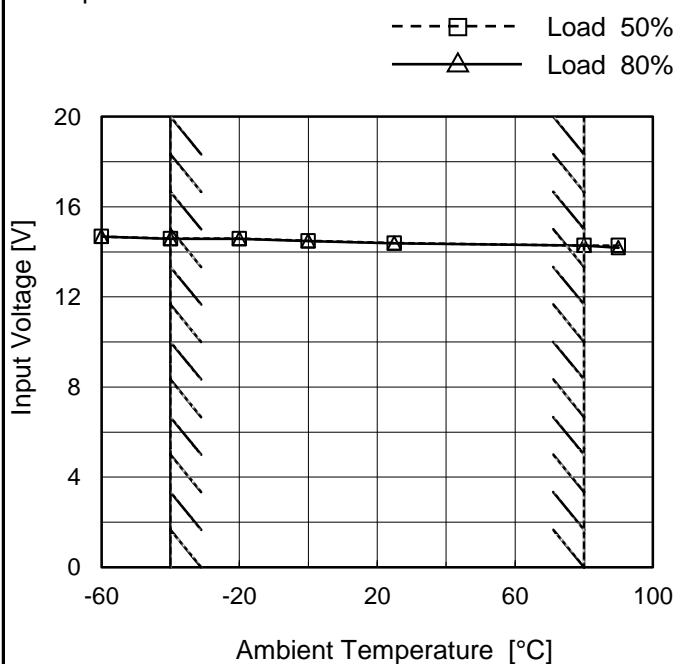
### Testing Circuitry Figure A

### 2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 80%
-60	14.7	14.7
-40	14.6	14.6
-20	14.6	14.6
0	14.5	14.5
25	14.4	14.4
80	14.3	14.3
90	14.3	14.2
--	-	-
--	-	-
--	-	-
--	-	-

Object	-12V0.13A
--------	-----------

### 1.Graph

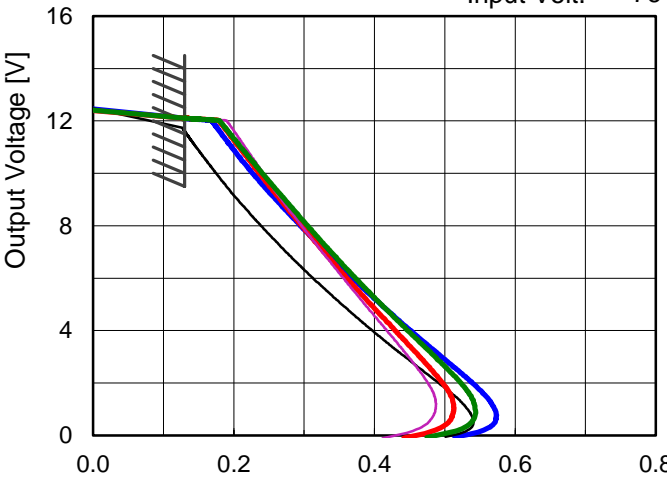
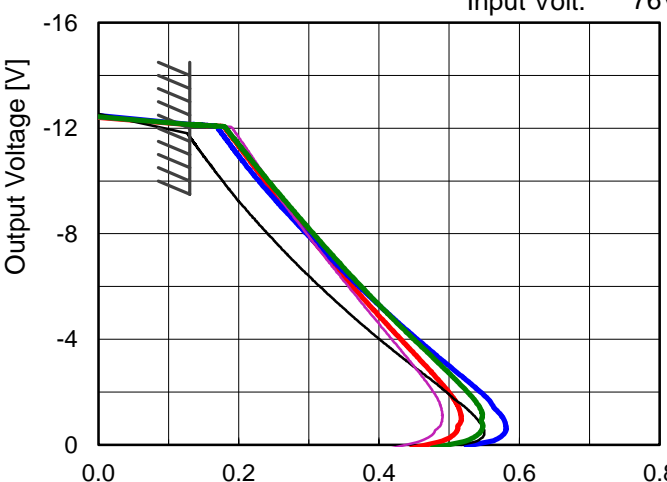


### 2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 80%
-60	14.7	14.7
-40	14.6	14.6
-20	14.6	14.6
0	14.5	14.5
25	14.4	14.4
80	14.3	14.3
90	14.3	14.2
--	-	-
--	-	-
--	-	-
--	-	-

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

# COSEL

Model		MGFW34812		Temperature 25°C	
Item		Overcurrent Protection		Testing Circuitry Figure A	
Object		+12V0.13A		2.Values	
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> 			
Object		-12V0.13A		2.Values	
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> 			
Note: Slanted line shows the range of the rated load current.				Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.	

Output Voltage [V]	Load Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
11.4	0.135	0.185	0.198	0.196	0.206
10.8	0.152	0.202	0.216	0.213	0.221
9.6	0.186	0.239	0.253	0.248	0.251
8.4	0.225	0.280	0.291	0.283	0.284
7.2	0.266	0.323	0.331	0.321	0.320
6.0	0.312	0.369	0.373	0.360	0.356
4.8	0.362	0.417	0.416	0.401	0.392
3.6	0.414	0.468	0.463	0.443	0.429
2.4	0.471	0.521	0.508	0.484	0.465
1.2	0.525	0.566	0.542	0.512	0.488
0.0	0.501	0.514	0.475	0.442	0.411
--	-	-	-	-	-

-12V: Rated Load Current

Output Voltage [V]	Load Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-11.4	0.138	0.187	0.199	0.198	0.207
-10.8	0.154	0.204	0.217	0.215	0.222
-9.6	0.188	0.241	0.254	0.249	0.252
-8.4	0.227	0.282	0.293	0.285	0.285
-7.2	0.269	0.326	0.333	0.323	0.320
-6.0	0.314	0.371	0.375	0.361	0.356
-4.8	0.365	0.420	0.418	0.402	0.393
-3.6	0.418	0.472	0.465	0.444	0.430
-2.4	0.477	0.526	0.511	0.486	0.467
-1.2	0.532	0.571	0.547	0.516	0.490
0.0	0.517	0.524	0.475	0.446	0.417
--	-	-	-	-	-

+12V: Rated Load Current

Maximum output current at minimum input Voltage is 80% of rated load current.

Refer to instruction manuals for details of input derating.

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BC-11008

# COSEL

Model		MGFW34812		Temperature 25°C	
Item		Switching frequency (by Load Current)		Testing Circuitry Figure A	
Object		+/-12V0.13A			
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>		2.Values	
<div><div>Switching Frequency [kHz]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></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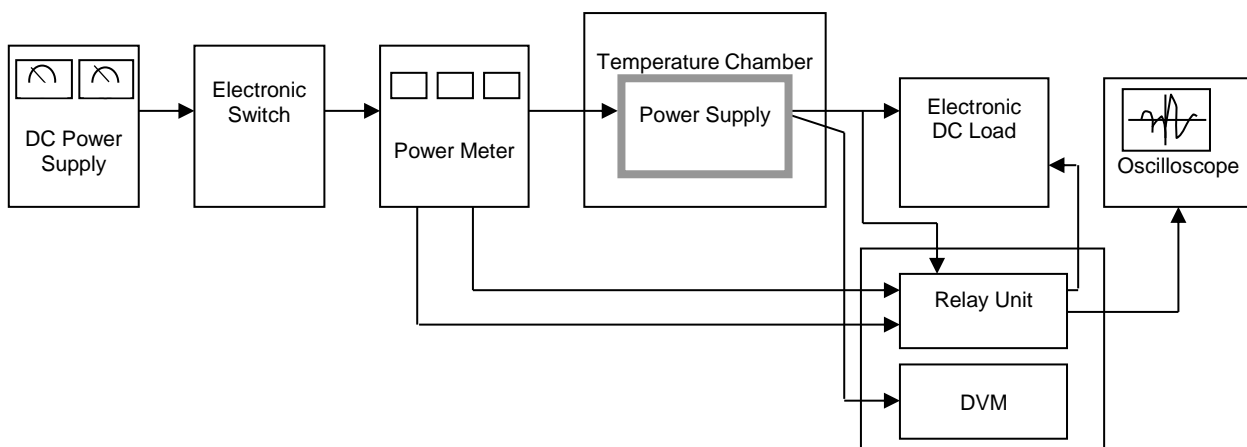


Figure A

Data Acquisition/Control Unit

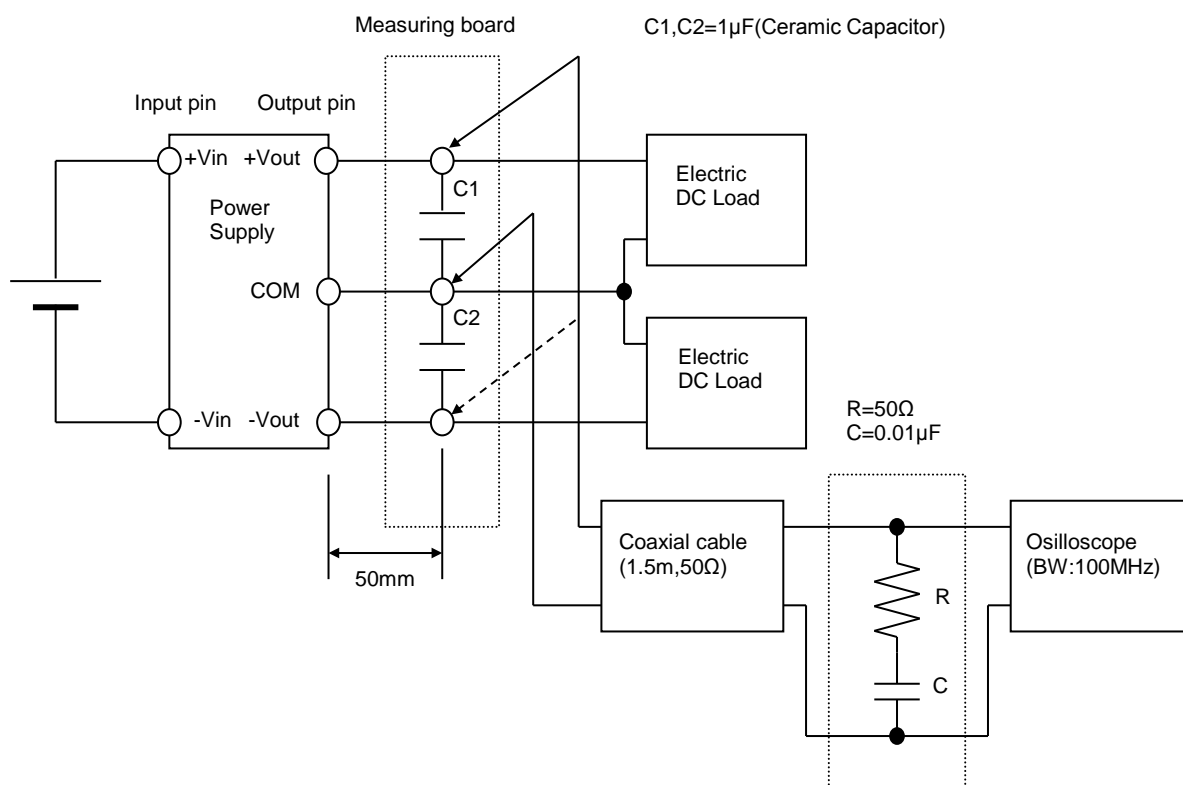


Figure B (Ripple and Ripple noise Characteristic)