

TEST DATA OF MGFS34812

Regulated DC Power Supply
January 11, 2017

Approved by : Takayuki Fukuda
Takayuki Fukuda Design Manager

Prepared by : Takaaki Sekiguchi
Takaaki Sekiguchi Design Engineer

COSEL CO.,LTD.

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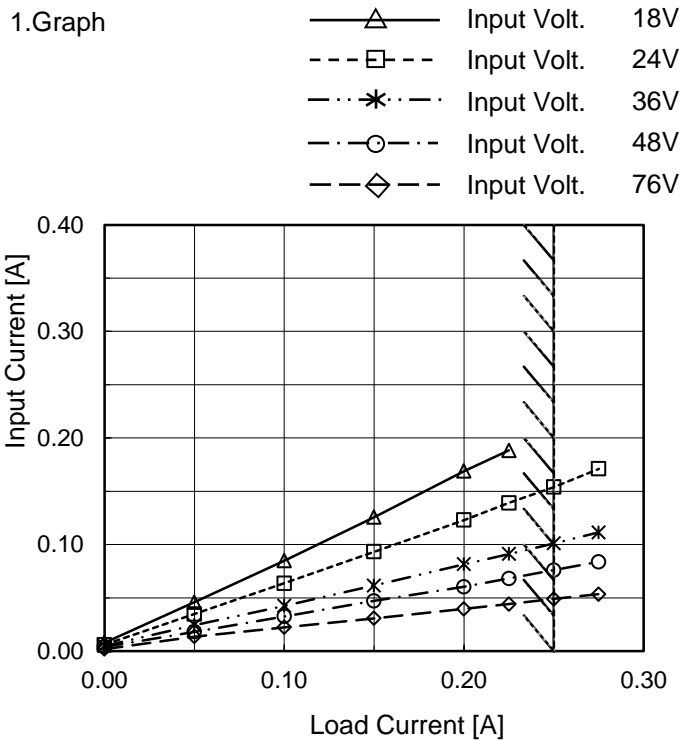


<p>Model MGFS34812</p>		<p>Temperature 25°C Testing Circuitry Figure A</p>																																																																															
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Model	MGFS34812
Item	Input Current (by Load Current)
Object	_____

Temperature 25°C
Testing Circuitry Figure A



2. Values

Load Current [A]	Input Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.000	0.008	0.006	0.005	0.004	0.002
0.050	0.046	0.035	0.024	0.018	0.014
0.100	0.085	0.064	0.043	0.033	0.022
0.150	0.126	0.093	0.062	0.047	0.031
0.200	0.169	0.123	0.082	0.060	0.040
0.225	0.188	0.139	0.091	0.068	0.044
0.250	- ※	0.154	0.101	0.076	0.049
0.275	- ※	0.171	0.111	0.084	0.053
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※ 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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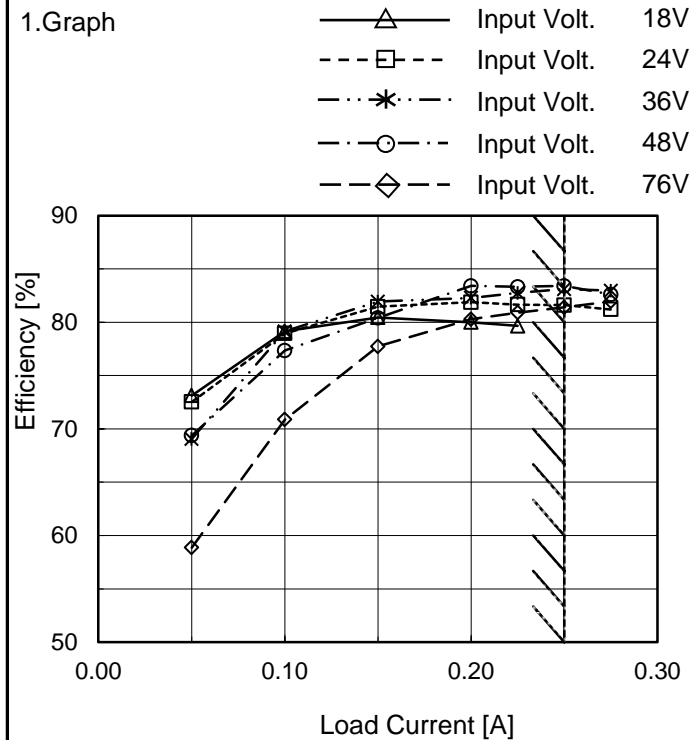


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Model	MGFS34812
Item	Efficiency (by Load Current)
Object	_____

Temperature 25°C
Testing Circuitry Figure A



Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Efficiency [%]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.000	-	-	-	-	-
0.050	73.1	72.5	69.1	69.4	58.9
0.100	79.1	78.9	79.1	77.3	70.9
0.150	80.4	81.5	81.9	80.4	77.7
0.200	80.0	81.9	82.3	83.4	80.3
0.225	79.7	81.7	82.7	83.3	80.9
0.250	- ※	81.6	83.1	83.4	81.4
0.275	- ※	81.2	83.0	82.6	82.0
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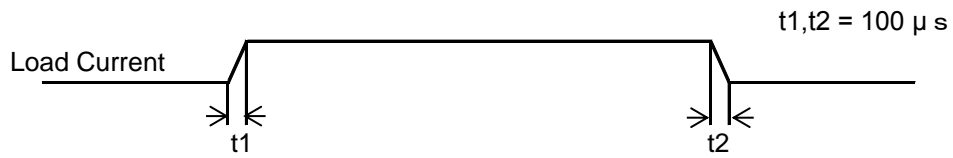


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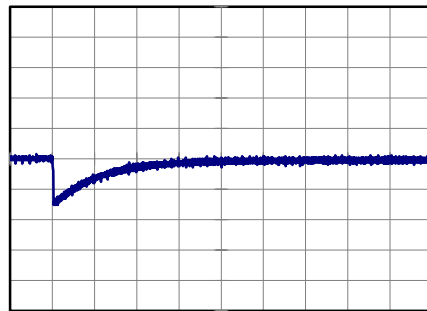
Model		MGFS34812	Temperature 25°C Testing Circuitry Figure A
Item		Dynamic Load Response	
Object		+12V0.25A	

Input Volt. 48 V
Cycle 100 ms

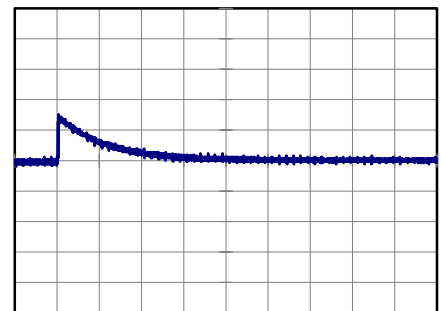


Min. Load (0A) ←→
Load 100% (0.25A)

100 mV/div



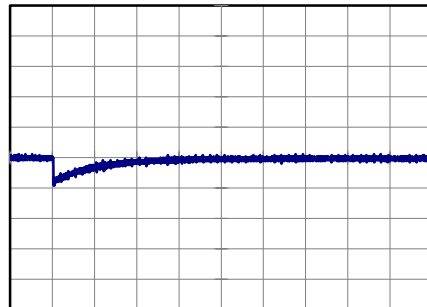
4 ms/div



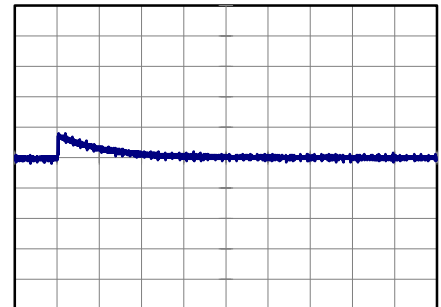
4 ms/div

Min. Load (0A) ←→
Load 50% (0.125A)

100 mV/div



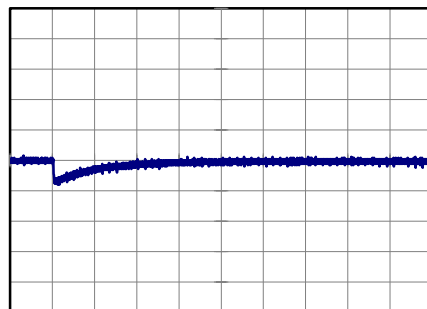
4 ms/div



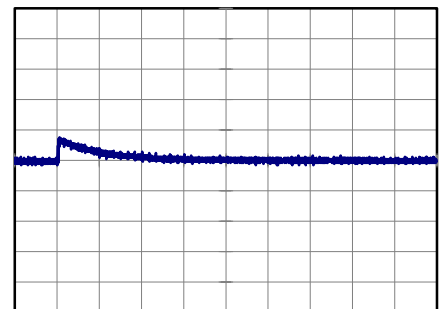
4 ms/div

Load 50% (0.125A) ←→
Load 100% (0.25A)

100 mV/div



4 ms/div



4 ms/div

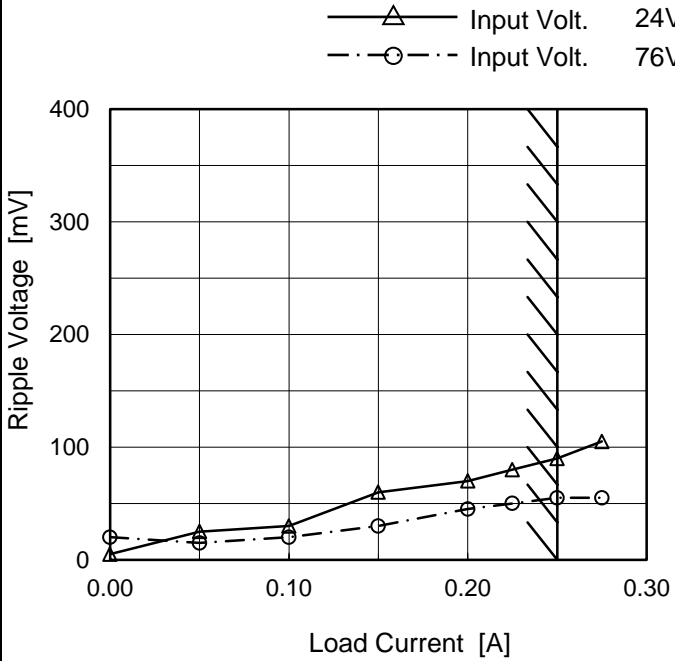


<p>Model MGFS34812</p>		<p>Temperature 25°C Testing Circuitry Figure B</p>																																						
Item	Ripple Voltage (by Load Current)																																							
Object	+12V0.25A																																							
<p>1.Graph</p> <div style="display: flex; align-items: center;"> <div style="margin-right: 20px;"> <p>—△— Input Volt. 24V</p> <p>- -○- - Input Volt. 76V</p> </div> </div>		<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. 24 [V]</th> <th>Input Volt. 76 [V]</th> </tr> </thead> <tbody> <tr><td>0.000</td><td>5</td><td>20</td></tr> <tr><td>0.050</td><td>25</td><td>15</td></tr> <tr><td>0.100</td><td>25</td><td>20</td></tr> <tr><td>0.150</td><td>55</td><td>25</td></tr> <tr><td>0.200</td><td>65</td><td>45</td></tr> <tr><td>0.225</td><td>75</td><td>50</td></tr> <tr><td>0.250</td><td>85</td><td>50</td></tr> <tr><td>0.275</td><td>95</td><td>50</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. 24 [V]	Input Volt. 76 [V]	0.000	5	20	0.050	25	15	0.100	25	20	0.150	55	25	0.200	65	45	0.225	75	50	0.250	85	50	0.275	95	50	--	-	-	--	-	-	--	-	-
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<p>Measured by 100 MHz Oscilloscope. 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>																																								



Model	MGFS34812	Temperature	25°C
Item	Ripple-Noise	Testing Circuitry	Figure B
Object	+12V0.25A		

1.Graph



2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 24 [V]	Input Volt. 76 [V]
0.000	5	20
0.050	25	15
0.100	30	20
0.150	60	30
0.200	70	45
0.225	80	50
0.250	90	55
0.275	105	55
--	-	-
--	-	-
--	-	-

Measured by 100 MHz Oscilloscope.
 Ripple-Noise is shown as p-p in the figure below.
 Note: Slanted line shows the range of the rated load current.

Ripple Noise[mVp-p]

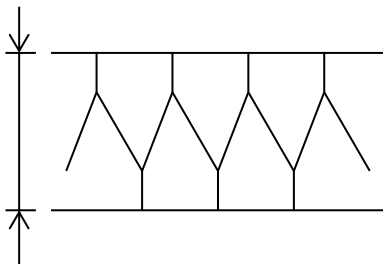


Fig.Complex Ripple Noise Wave Form

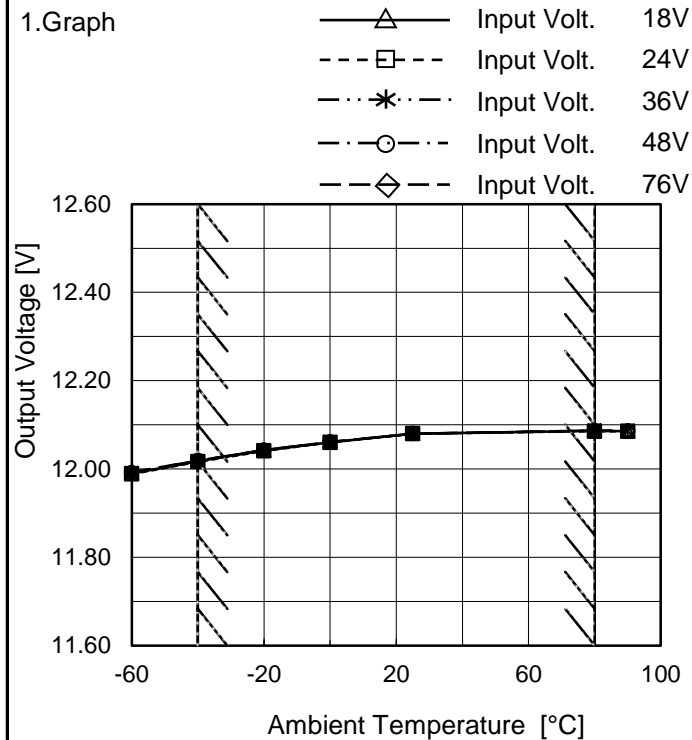


COSEL																																								
Model	MGFS34812																																							
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry Figure B																																						
Object	+12V0.25A																																							
<p>1.Graph</p> <p style="text-align: center;">Ambient Temperature [°C] Input Volt. 48V</p>		<p>2.Values</p> <table border="1"> <thead> <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> </thead> <tbody> <tr><td>-60</td><td>45</td><td>60</td></tr> <tr><td>-40</td><td>45</td><td>50</td></tr> <tr><td>-20</td><td>35</td><td>45</td></tr> <tr><td>0</td><td>35</td><td>40</td></tr> <tr><td>25</td><td>30</td><td>40</td></tr> <tr><td>80</td><td>25</td><td>45</td></tr> <tr><td>90</td><td>25</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> </tbody> </table>	Ambient Temperature [°C]	Ripple Voltage [mV]		Load 50%	Load 100%	-60	45	60	-40	45	50	-20	35	45	0	35	40	25	30	40	80	25	45	90	25	45	--	-	-	--	-	-	--	-	-	--	-	-
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<p>Measured by 100 MHz Oscilloscope. Note: Slanted line shows the range of the rated ambient temperature.</p>																																								



Model	MGFS34812
Item	Ambient Temperature Drift
Object	+12V0.25A

Testing Circuitry Figure A



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	11.990	11.989	11.991	11.992	11.993
-40	12.017	12.016	12.018	12.019	12.019
-20	12.042	12.041	12.043	12.043	12.043
0	12.061	12.060	12.061	12.061	12.061
25	12.080	12.080	12.080	12.080	12.080
80	12.086	12.086	12.087	12.087	12.087
90	12.086	12.085	12.086	12.086	12.086
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Note: In case of Input Volt. 18V, Load 80%.
Other case Load 100%.



COSEL		Testing Circuitry Figure A
Model	MGFS34812	
Item	Output Voltage Accuracy	
Object	+12V0.25A	

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 : 0 - 0.25A

* 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

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	80	76	0	12.097	±41	±0.3
Minimum Voltage	-40	24	0.25	12.016		



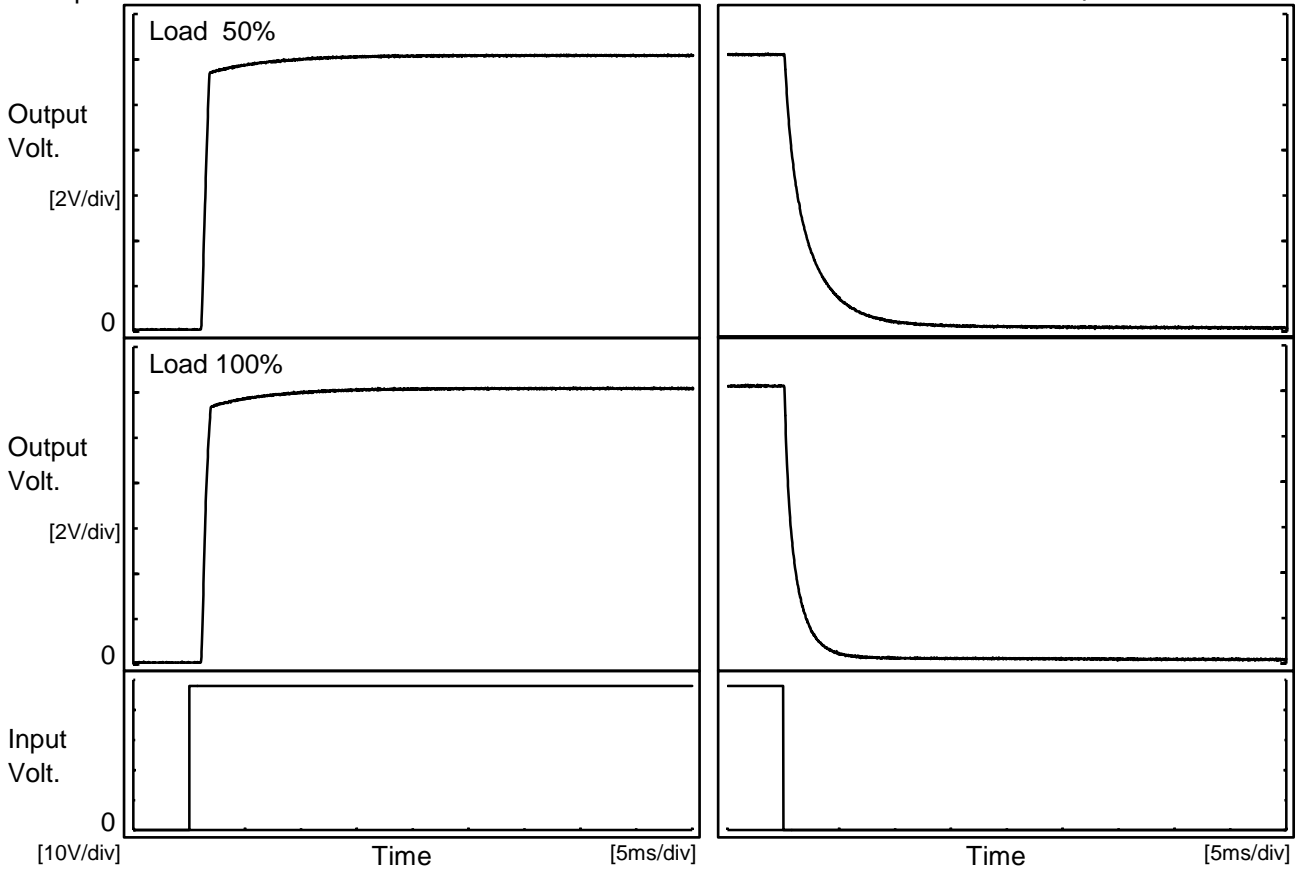
COSEL																									
Model	MGFS34812	Temperature	25°C																						
Item	Time Lapse Drift	Testing Circuitry	Figure A																						
Object	+12V0.25A																								
<p>1.Graph</p> <p style="text-align: center;">Time [H]</p> <p>Input Volt. 48V Load 100%</p>		<p>2.Values</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>12.073</td></tr> <tr><td>0.5</td><td>12.079</td></tr> <tr><td>1.0</td><td>12.079</td></tr> <tr><td>2.0</td><td>12.079</td></tr> <tr><td>3.0</td><td>12.079</td></tr> <tr><td>4.0</td><td>12.079</td></tr> <tr><td>5.0</td><td>12.079</td></tr> <tr><td>6.0</td><td>12.079</td></tr> <tr><td>7.0</td><td>12.079</td></tr> <tr><td>8.0</td><td>12.079</td></tr> </tbody> </table>		Time since start [H]	Output Voltage [V]	0.0	12.073	0.5	12.079	1.0	12.079	2.0	12.079	3.0	12.079	4.0	12.079	5.0	12.079	6.0	12.079	7.0	12.079	8.0	12.079
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Model	MGFS34812	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+12V0.25A		

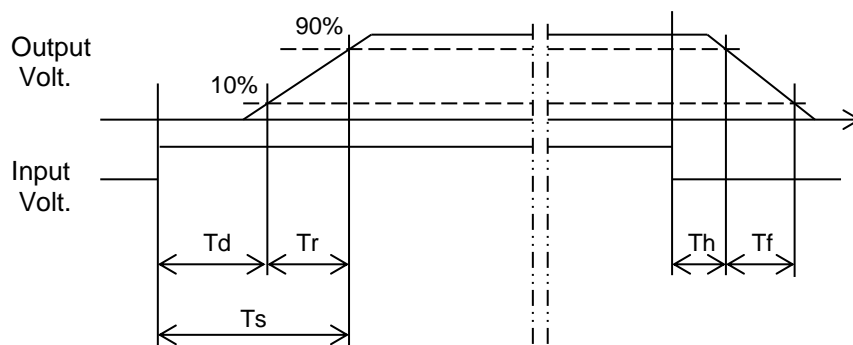
1. Graph

Input Volt. 48 V



2. Values

		[ms]				
Load \ Time	Td	Tr	Ts	Th	Tf	
50 %	1.2	0.6	1.8	0.3	5.2	
100 %	1.2	0.7	1.9	0.2	2.6	

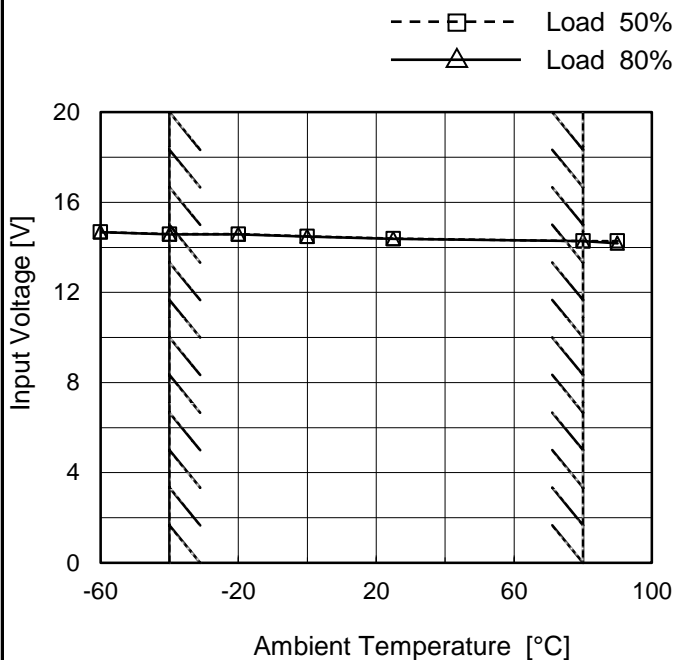




Model	MGFS34812
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.25A

Testing Circuitry Figure A

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.



<p>Model MGFS34812</p>		<p>Temperature 25°C</p>																																																																																				
<p>Item Overcurrent Protection</p>		<p>Testing Circuitry Figure A</p>																																																																																				
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Model		MGFS34812		Temperature 25°C																																																																														
Item		Switching frequency (by Load Current)		Testing Circuitry Figure A																																																																														
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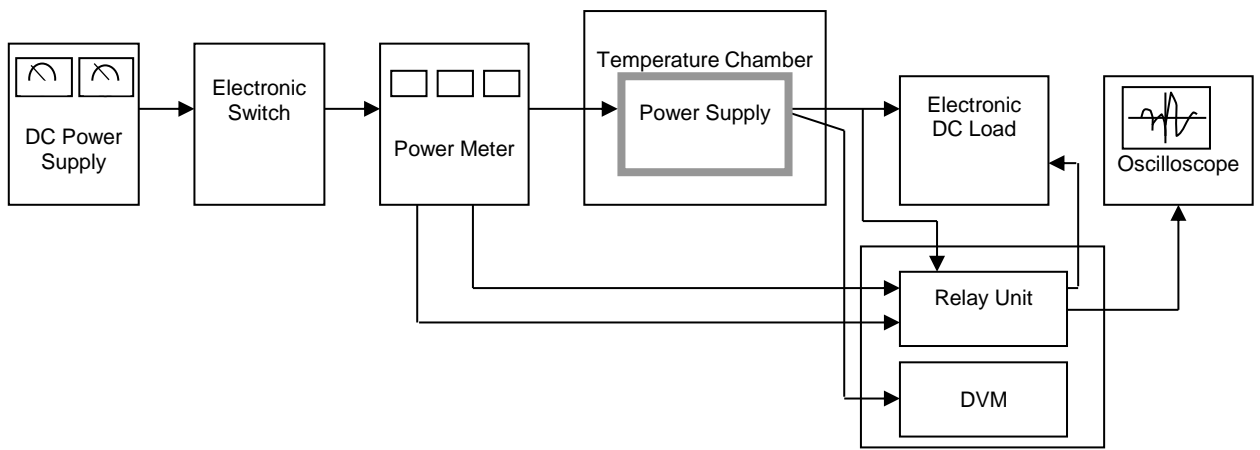


Figure A

Data Acquisition/Control Unit

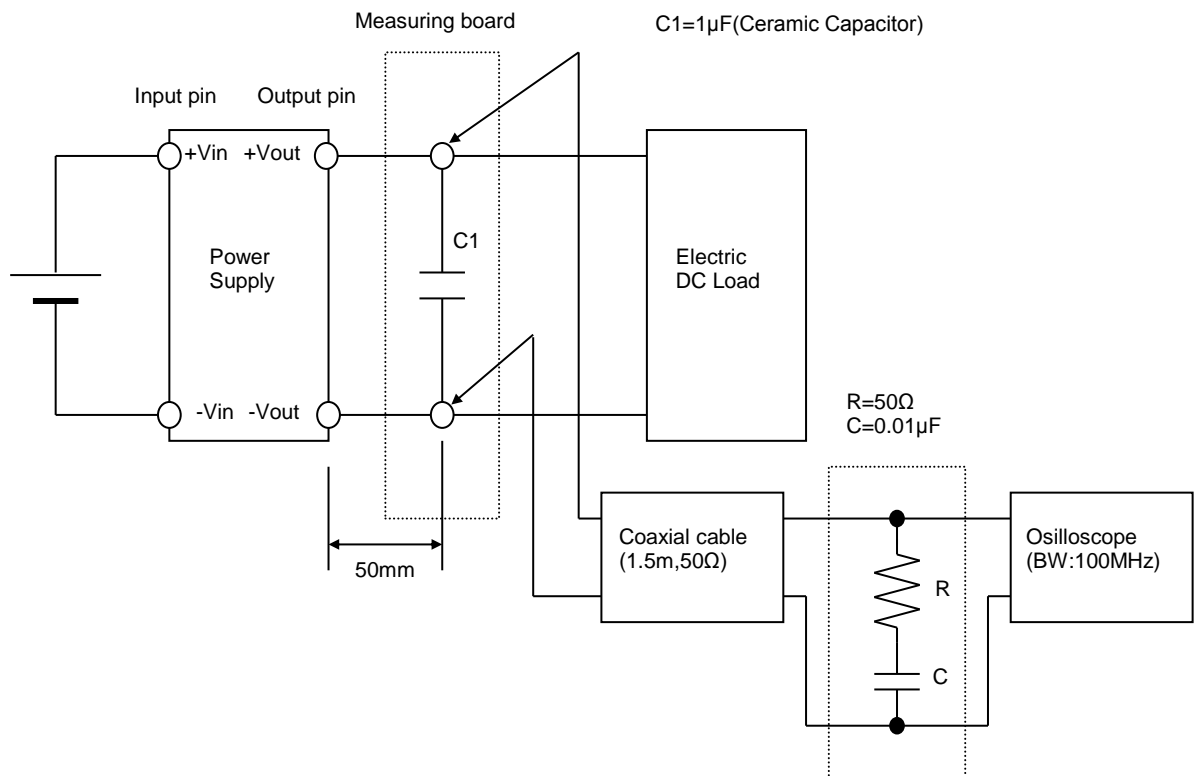


Figure B (Ripple and Ripple noise Characteristic)