

# TEST DATA OF MGFS10483R3

Regulated DC Power Supply  
December 28, 2016

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Takayuki Fukuda Design Manager

Prepared by : Takaaki Sekiguchi  
Takaaki Sekiguchi Design Engineer

**COSEL CO.,LTD.**

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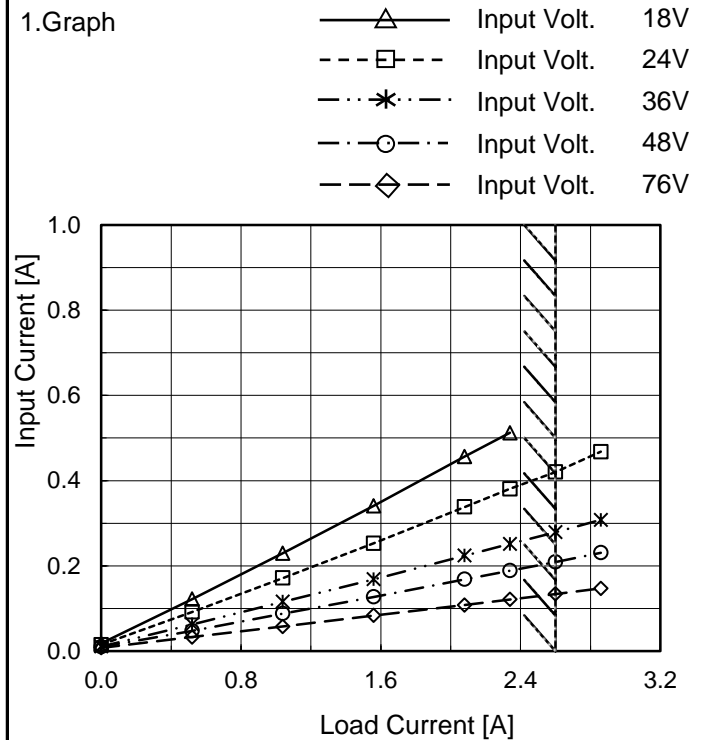


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Model	MGFS10483R3
Item	Input Current (by Load Current)
Object	_____

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]
0.00	0.018	0.015	0.011	0.010	0.008
0.52	0.122	0.092	0.063	0.048	0.033
1.04	0.230	0.172	0.116	0.088	0.058
1.56	0.341	0.253	0.169	0.127	0.084
2.08	0.457	0.338	0.224	0.168	0.108
2.34	0.512	0.381	0.252	0.189	0.121
2.60	- ※	0.420	0.279	0.209	0.134
2.86	- ※	0.468	0.308	0.231	0.147
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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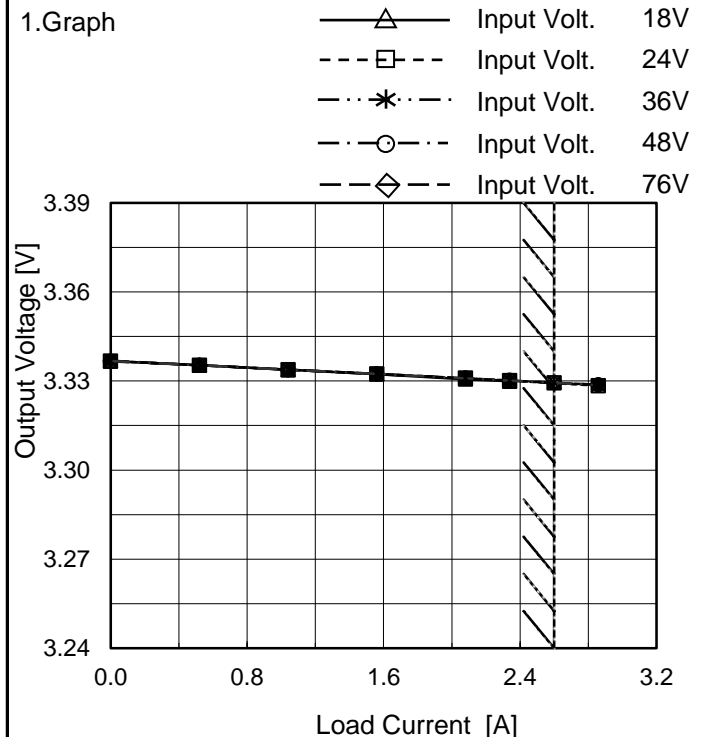
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Temperature 25°C  
Testing Circuitry Figure A



2.Values

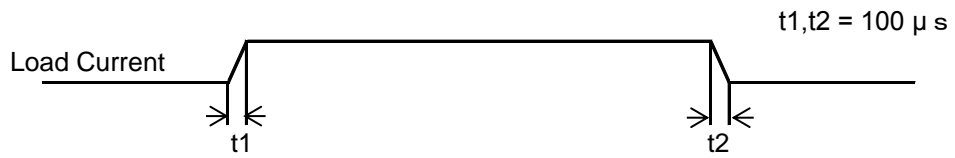
Load Current [A]	Output Voltage [V]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	3.337	3.337	3.337	3.337	3.337
0.52	3.335	3.335	3.335	3.335	3.335
1.04	3.334	3.334	3.334	3.334	3.334
1.56	3.332	3.332	3.332	3.332	3.332
2.08	3.331	3.331	3.331	3.331	3.331
2.34	3.330	3.330	3.330	3.330	3.330
2.60	- ※	3.329	3.329	3.329	3.329
2.86	- ※	3.328	3.329	3.329	3.329
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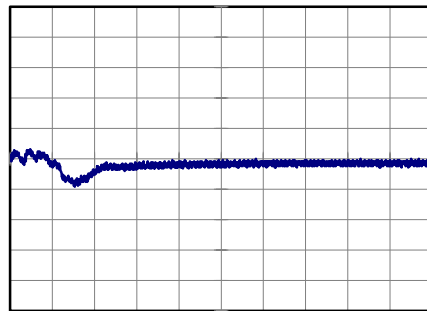
Model		MGFS10483R3	
Item		Dynamic Load Response	
Object		+3.3V2.6A	
		Temperature	25°C
		Testing Circuitry	Figure A

Input Volt. 48 V  
Cycle 100 ms

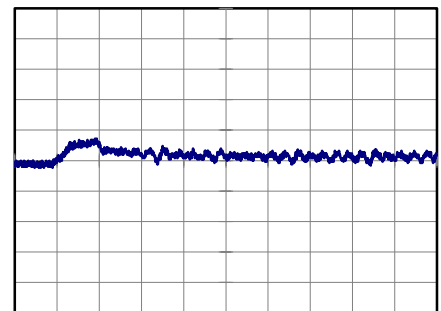


Min.Load (0A) ←→  
Load 100% (2.6A)

200 mV/div



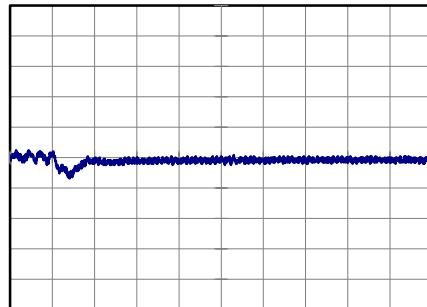
100  $\mu s$ /div



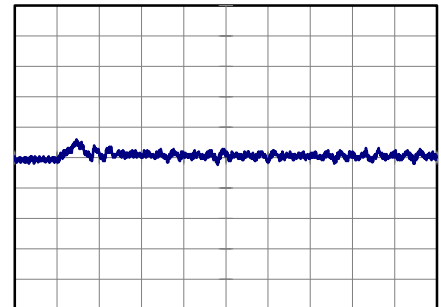
100  $\mu s$ /div

Min.Load (0A) ←→  
Load 50% (1.3A)

200 mV/div



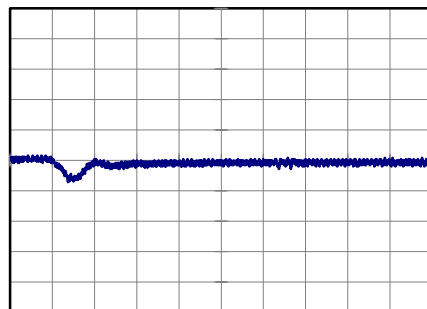
100  $\mu s$ /div



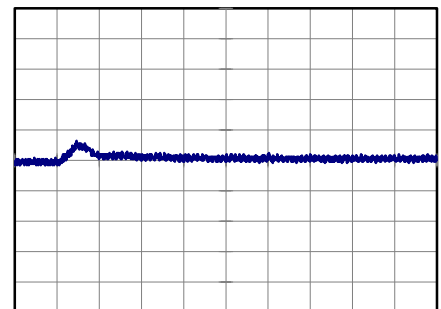
100  $\mu s$ /div

Load 50% (1.3A) ←→  
Load 100% (2.6A)

200 mV/div



100  $\mu s$ /div



100  $\mu s$ /div



<p>Model MGFS10483R3</p> <p>Item Ripple Voltage (by Load Current)</p> <p>Object +3.3V2.6A</p>		<p>Temperature 25°C</p> <p>Testing Circuitry Figure B</p>																																						
<p>1.Graph</p> <div style="text-align: right;"> <p>—△— Input Volt. 24V</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. 24 [V]</th> <th>Input Volt. 76 [V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>80</td><td>5</td></tr> <tr><td>0.52</td><td>5</td><td>5</td></tr> <tr><td>1.04</td><td>5</td><td>5</td></tr> <tr><td>1.56</td><td>10</td><td>5</td></tr> <tr><td>2.08</td><td>10</td><td>10</td></tr> <tr><td>2.34</td><td>15</td><td>10</td></tr> <tr><td>2.60</td><td>20</td><td>10</td></tr> <tr><td>2.86</td><td>20</td><td>10</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]	0.00	80	5	0.52	5	5	1.04	5	5	1.56	10	5	2.08	10	10	2.34	15	10	2.60	20	10	2.86	20	10	--	-	-	--	-	-	--	-	-
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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>																																								



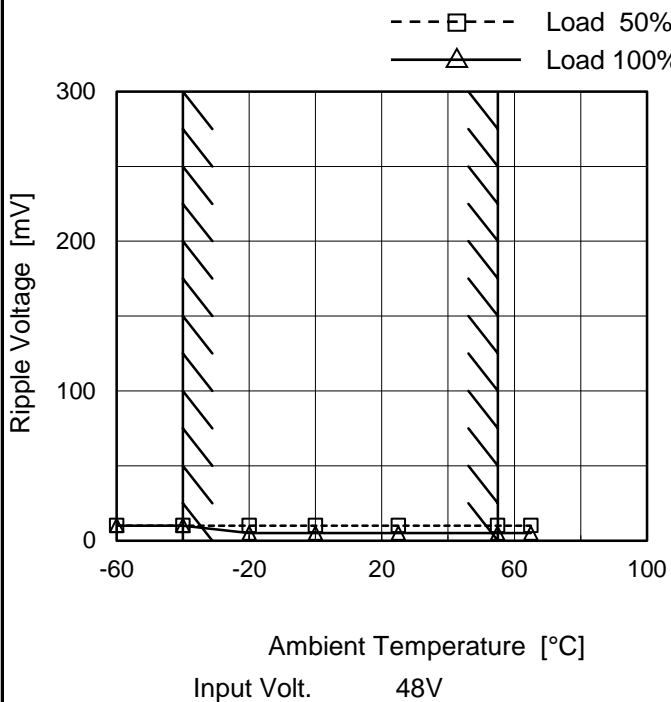
<p>Model MGFS10483R3</p>		<p>Temperature 25°C Testing Circuitry Figure B</p>																																						
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<p>Measured by 100 MHz Oscilloscope. Ripple-Noise is shown as p-p in the figure below. Note: Slanted line shows the range of the rated load current.</p> <p>Ripple Noise[mVp-p]</p> <p>Fig.Complex Ripple Noise Wave Form</p>																																								



Model	MGFS10483R3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V2.6A

Testing Circuitry Figure B

1.Graph



2.Values

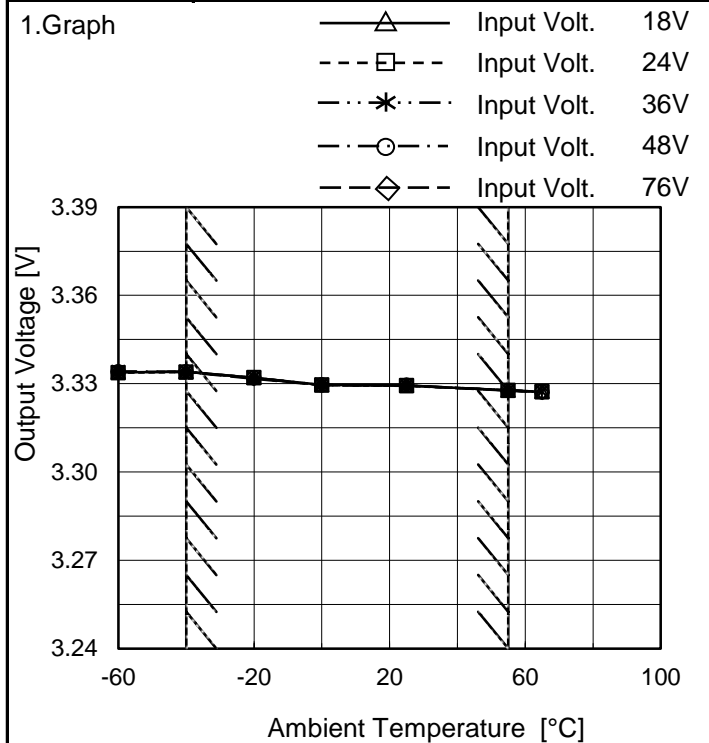
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	10	10
-40	10	10
-20	10	5
0	10	5
25	10	5
55	10	5
65	10	5
--	-	-
--	-	-
--	-	-
--	-	-

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



Model	MGFS10483R3
Item	Ambient Temperature Drift
Object	+3.3V2.6A

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	3.334	3.334	3.334	3.334	3.334
-40	3.334	3.334	3.334	3.334	3.334
-20	3.332	3.332	3.332	3.332	3.332
0	3.330	3.330	3.330	3.330	3.330
25	3.329	3.329	3.329	3.329	3.329
55	3.328	3.328	3.328	3.328	3.328
65	3.327	3.327	3.327	3.327	3.327
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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



<b>COSEL</b>		Testing Circuitry Figure A
Model	MGFS10483R3	
Item	Output Voltage Accuracy	
Object	+3.3V2.6A	

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 - 55°C

Input Voltage : 24 - 76V

Load Current : 0 - 2.6A

\* 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	-40	76	0	3.341	±7	±0.2
Minimum Voltage	55	76	2.6	3.328		



<b>COSEL</b>																								
Model	MGFS10483R3																							
Item	Time Lapse Drift	Temperature 25°C Testing Circuitry Figure A																						
Object	+3.3V2.6A																							
<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>3.329</td></tr> <tr><td>0.5</td><td>3.330</td></tr> <tr><td>1.0</td><td>3.329</td></tr> <tr><td>2.0</td><td>3.330</td></tr> <tr><td>3.0</td><td>3.330</td></tr> <tr><td>4.0</td><td>3.330</td></tr> <tr><td>5.0</td><td>3.330</td></tr> <tr><td>6.0</td><td>3.330</td></tr> <tr><td>7.0</td><td>3.330</td></tr> <tr><td>8.0</td><td>3.330</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	3.329	0.5	3.330	1.0	3.329	2.0	3.330	3.0	3.330	4.0	3.330	5.0	3.330	6.0	3.330	7.0	3.330	8.0	3.330
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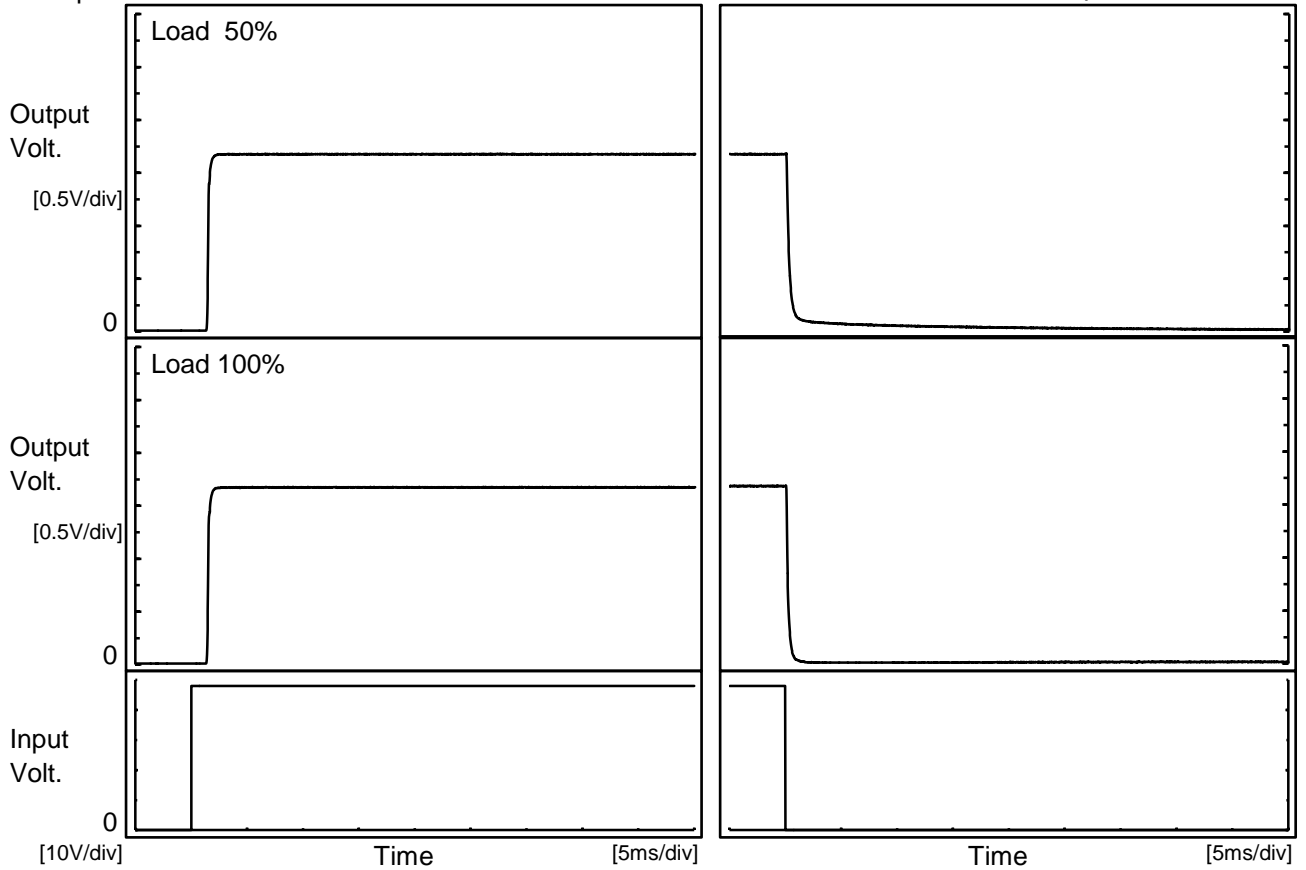




Model	MGFS10483R3	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+3.3V2.6A		

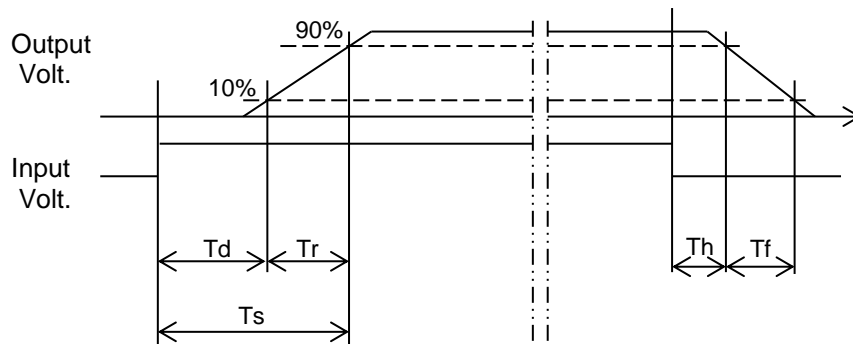
1. Graph

Input Volt. 48 V



2. Values

		[ms]				
Load \ Time	Td	Tr	Ts	Th	Tf	
50 %	1.5	0.2	1.7	0.1	0.7	
100 %	1.4	0.3	1.7	0.1	0.4	

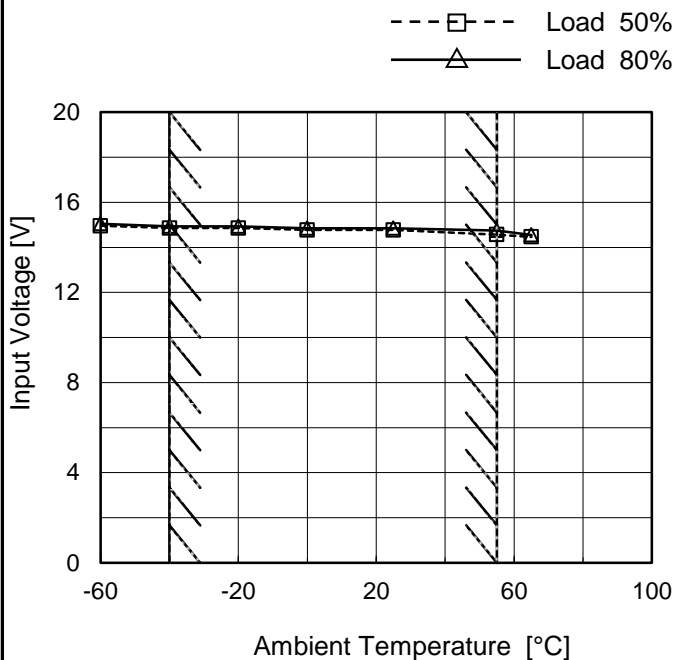




Model	MGFS10483R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V2.6A

Testing Circuitry Figure A

1.Graph



2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 80%
-60	15.0	15.1
-40	14.9	15.0
-20	14.9	15.0
0	14.8	14.9
25	14.8	14.9
55	14.6	14.8
65	14.5	14.6
--	-	-
--	-	-
--	-	-
--	-	-

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



<b>COSEL</b>																																																																																						
Model	MGFS10483R3	Temperature	25°C																																																																																			
Item	Overcurrent Protection	Testing Circuitry	Figure A																																																																																			
Object	+3.3V2.6A																																																																																					
1.Graph	<p> <span style="color: black;">—</span> Input Volt. 18V  <span style="color: blue;">—</span> Input Volt. 24V  <span style="color: green;">—</span> Input Volt. 36V  <span style="color: red;">—</span> Input Volt. 48V  <span style="color: magenta;">—</span> Input Volt. 76V         </p>	2.Values																																																																																				
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<p>Model MGFS10483R3</p>		<p>Temperature 25°C</p>																																																																														
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<p>1.Graph</p> <p>                     —△— Input Volt. 18V                      - - - □ - - - Input Volt. 24V                      - · · * · · - · - Input Volt. 36V                      - · · ○ · · - · - Input Volt. 48V                      - - - ◇ - - - Input Volt. 76V                 </p> <p>Switching Frequency [kHz]</p> <p>Load Current [A]</p>		<p>2.Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="5">Input Current [A]</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> </thead> <tbody> <tr><td>0.00</td><td>438</td><td>521</td><td>602</td><td>680</td><td>740</td></tr> <tr><td>0.52</td><td>361</td><td>450</td><td>553</td><td>613</td><td>690</td></tr> <tr><td>1.04</td><td>267</td><td>339</td><td>435</td><td>493</td><td>570</td></tr> <tr><td>1.56</td><td>210</td><td>272</td><td>361</td><td>417</td><td>493</td></tr> <tr><td>2.08</td><td>173</td><td>228</td><td>307</td><td>362</td><td>434</td></tr> <tr><td>2.34</td><td>160</td><td>212</td><td>287</td><td>340</td><td>410</td></tr> <tr><td>2.60</td><td>- ※</td><td>195</td><td>267</td><td>318</td><td>386</td></tr> <tr><td>2.86</td><td>- ※</td><td>182</td><td>252</td><td>299</td><td>366</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> </tbody> </table>		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]	0.00	438	521	602	680	740	0.52	361	450	553	613	690	1.04	267	339	435	493	570	1.56	210	272	361	417	493	2.08	173	228	307	362	434	2.34	160	212	287	340	410	2.60	- ※	195	267	318	386	2.86	- ※	182	252	299	366	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
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<p>Note: Slanted line shows the range of the rated load current.</p> <p>When load current is low, MG operates intermittently, so switching frequency would not become constant.</p>		<p>※ Maximum output current at minimum input Voltage is 80% of rated load current. Refer to instruction manuals for details of input derating.</p>																																																																														

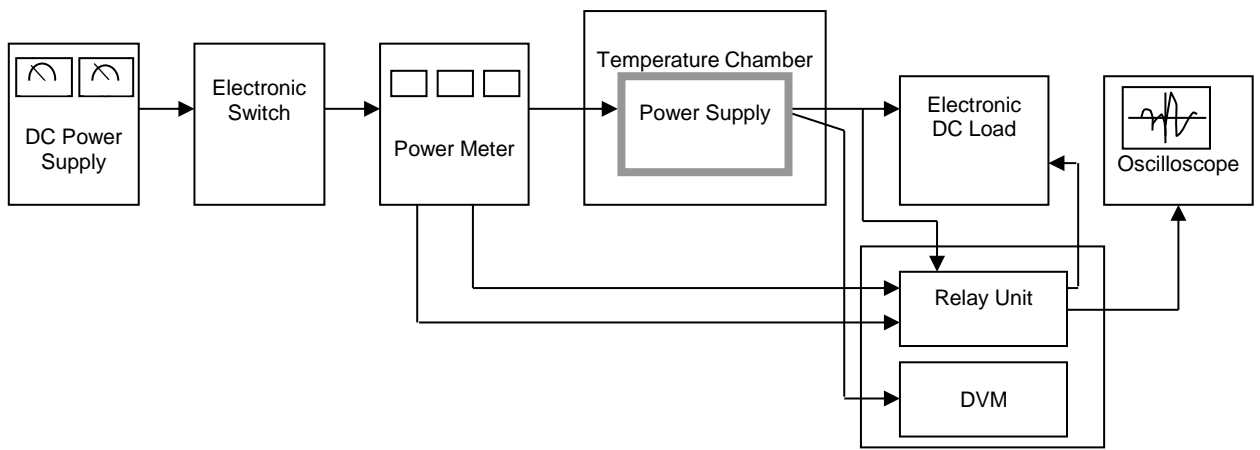


Figure A

Data Acquisition/Control Unit

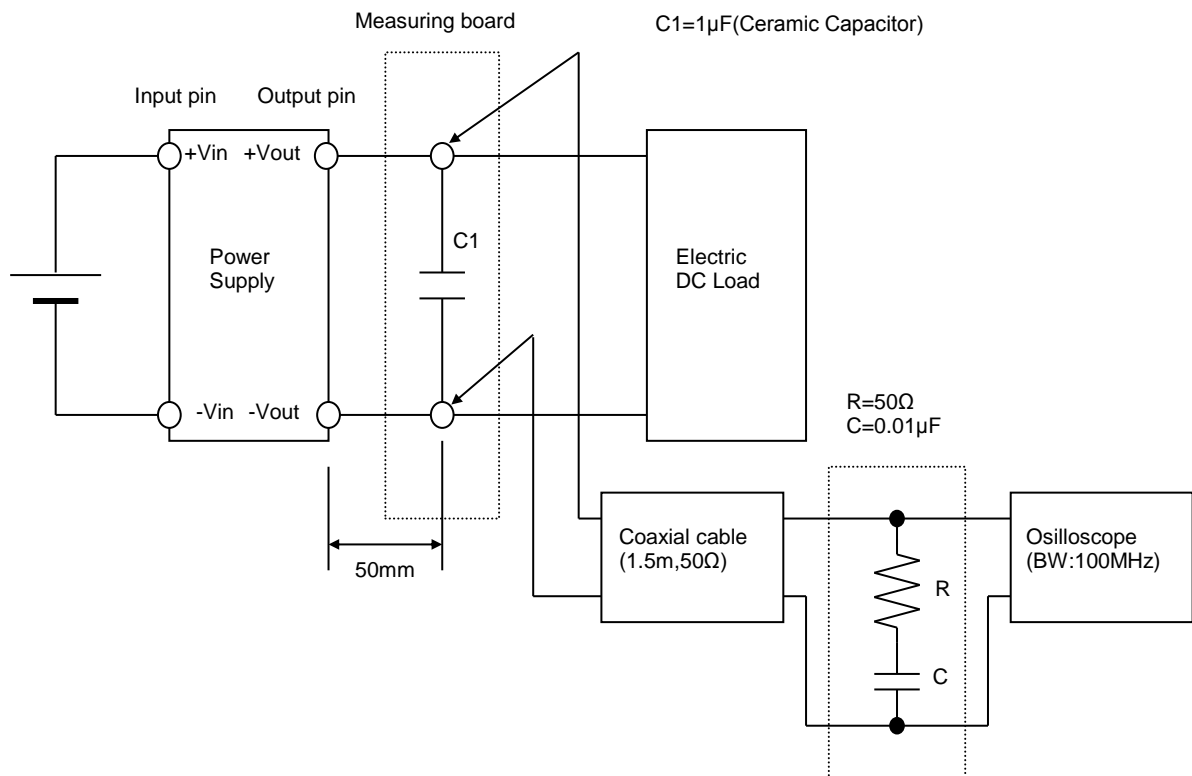


Figure B (Ripple and Ripple noise Characteristic)