

# TEST DATA OF MGFS10483R3

Regulated DC Power Supply  
December 28, 2016

Approved by : Takayuki Fukuda Design Manager

Prepared by : Takaaki Sekiguchi Design Engineer

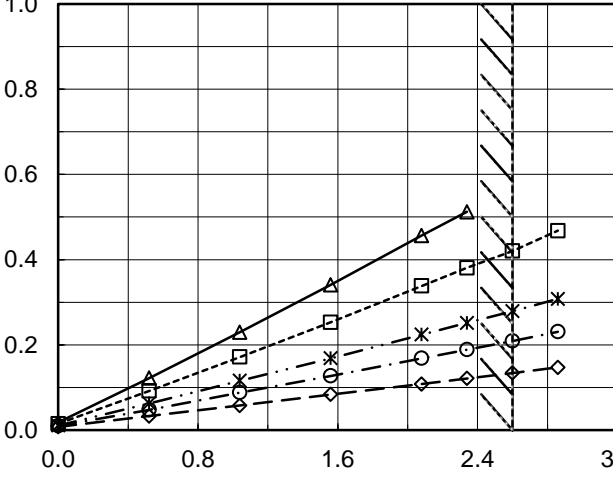
**COSEL CO.,LTD.**

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1.Graph				2.Values	
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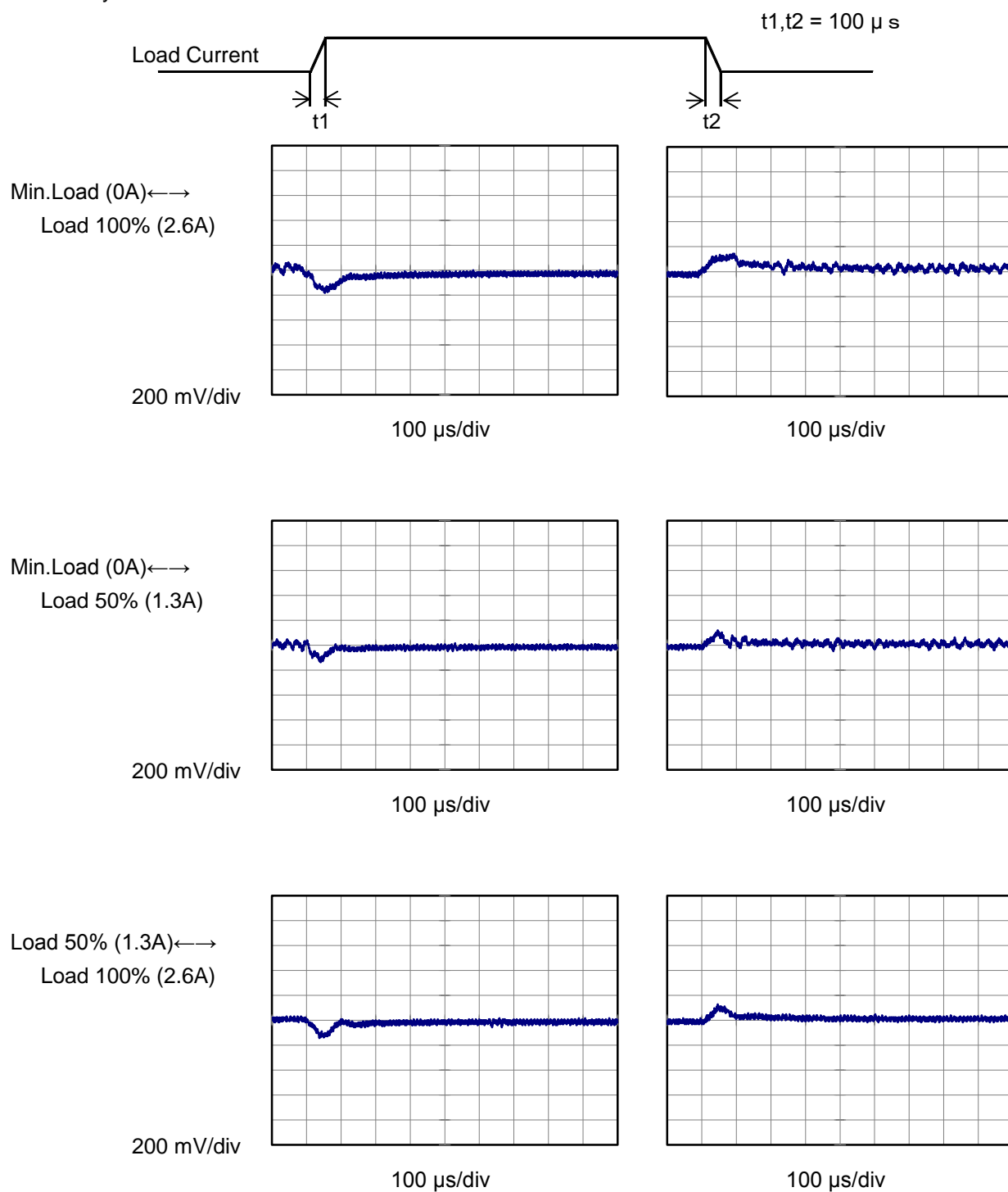


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<div> <div>—△— Input Volt. 18V</div> <div>- - - □ - - Input Volt. 24V</div> <div>- · · * · · Input Volt. 36V</div> <div>- · · ○ · · Input Volt. 48V</div> <div>--◇-- Input Volt. 76V</div> </div> <p>Note: Slanted line shows the range of the rated load current.</p>			2.Values																																																																															
			<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</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> </thead> <tbody> <tr><td>0.00</td><td>3.337</td><td>3.337</td><td>3.337</td><td>3.337</td><td>3.337</td></tr> <tr><td>0.52</td><td>3.335</td><td>3.335</td><td>3.335</td><td>3.335</td><td>3.335</td></tr> <tr><td>1.04</td><td>3.334</td><td>3.334</td><td>3.334</td><td>3.334</td><td>3.334</td></tr> <tr><td>1.56</td><td>3.332</td><td>3.332</td><td>3.332</td><td>3.332</td><td>3.332</td></tr> <tr><td>2.08</td><td>3.331</td><td>3.331</td><td>3.331</td><td>3.331</td><td>3.331</td></tr> <tr><td>2.34</td><td>3.330</td><td>3.330</td><td>3.330</td><td>3.330</td><td>3.330</td></tr> <tr><td>2.60</td><td>- ※</td><td>3.329</td><td>3.329</td><td>3.329</td><td>3.329</td></tr> <tr><td>2.86</td><td>- ※</td><td>3.328</td><td>3.329</td><td>3.329</td><td>3.329</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]	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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			※ 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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**COSEL**


Model	MGFS10483R3	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+3.3V2.6A		

Input Volt. 48 V  
Cycle 100 ms

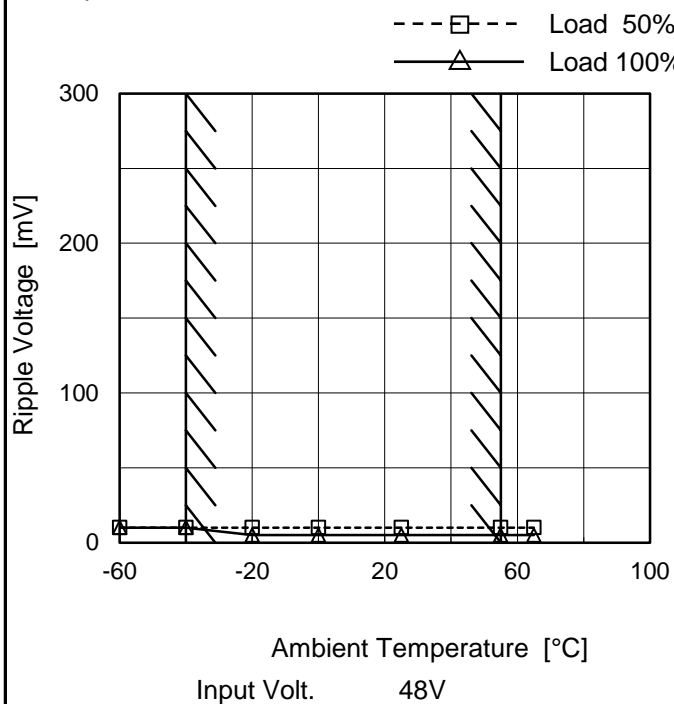


Model		MGFS10483R3		Temperature 25°C	
Item		Ripple Voltage (by Load Current)		Testing Circuitry Figure B	
Object		+3.3V2.6A			
1.Graph				2.Values	
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Model		MGFS10483R3																																							
Item		Ripple-Noise																																							
Object		+3.3V2.6A																																							
1.Graph		2.Values																																							
<div><div><div><div><div></div><div>—△—</div><div>Input Volt.</div><div>24V</div></div><div><div>- -○- -</div><div>Input Volt.</div><div>76V</div></div></div><div><p>Ripple Voltage [mV]</p><p>Load Current [A]</p></div></div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 24 [V]</th><th>Input Volt. 76 [V]</th></tr><tr><td>0.00</td><td>80</td><td>5</td></tr><tr><td>0.52</td><td>10</td><td>10</td></tr><tr><td>1.04</td><td>10</td><td>10</td></tr><tr><td>1.56</td><td>15</td><td>10</td></tr><tr><td>2.08</td><td>20</td><td>15</td></tr><tr><td>2.34</td><td>20</td><td>15</td></tr><tr><td>2.60</td><td>20</td><td>15</td></tr><tr><td>2.86</td><td>25</td><td>15</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>		Load Current [A]	Ripple-Noise [mV]		Input Volt. 24 [V]	Input Volt. 76 [V]	0.00	80	5	0.52	10	10	1.04	10	10	1.56	15	10	2.08	20	15	2.34	20	15	2.60	20	15	2.86	25	15	--	-	-	--	-	-	--	-	-
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<p>Measured by 100 MHz Oscilloscope.</p> <p>Ripple-Noise is shown as p-p in the figure below.</p> <p>Note: Slanted line shows the range of the rated load current.</p> <p>Ripple Noise[mVp-p]</p> <div></div> <p>Fig.Complex Ripple Noise Wave Form</p>																																									

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

## 1.Graph



Measured by 100 MHz Oscilloscope.

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

## Testing Circuitry Figure B

## 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
--	-	-
--	-	-
--	-	-
--	-	-

Model		MGFS10483R3																																																																														
Item		Ambient Temperature Drift																																																																														
Object		+3.3V2.6A																																																																														
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> <div><p>Output Voltage [V]</p><p>Ambient Temperature [°C]</p><p>Note: Slanted line shows the range of the rated ambient temperature.</p></div>																																																																														
2.Values		<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>3.334</td><td>3.334</td><td>3.334</td><td>3.334</td><td>3.334</td></tr><tr><td>-40</td><td>3.334</td><td>3.334</td><td>3.334</td><td>3.334</td><td>3.334</td></tr><tr><td>-20</td><td>3.332</td><td>3.332</td><td>3.332</td><td>3.332</td><td>3.332</td></tr><tr><td>0</td><td>3.330</td><td>3.330</td><td>3.330</td><td>3.330</td><td>3.330</td></tr><tr><td>25</td><td>3.329</td><td>3.329</td><td>3.329</td><td>3.329</td><td>3.329</td></tr><tr><td>55</td><td>3.328</td><td>3.328</td><td>3.328</td><td>3.328</td><td>3.328</td></tr><tr><td>65</td><td>3.327</td><td>3.327</td><td>3.327</td><td>3.327</td><td>3.327</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> <p>Note: In case of Input Volt. 18V, Load 80%. Other case Load 100%.</p>		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	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
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Model		MGFS10483R3	Testing Circuitry Figure A
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		



Model		MGFS10483R3		Temperature 25°C Testing Circuitry Figure A																							
Item		Time Lapse Drift																									
Object		+3.3V2.6A																									
1.Graph				2.Values																							
<div><div><div><div>3.39</div><div>3.36</div><div>3.33</div><div>3.30</div><div>3.27</div><div>3.24</div></div><div><div><div>0</div><div>2</div><div>4</div><div>6</div><div>8</div><div>10</div></div><div><div>Output Voltage [V]</div><div>Time [H]</div></div></div><div><div>Input Volt. 48V</div><div>Load 100%</div></div></div></div>				<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><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></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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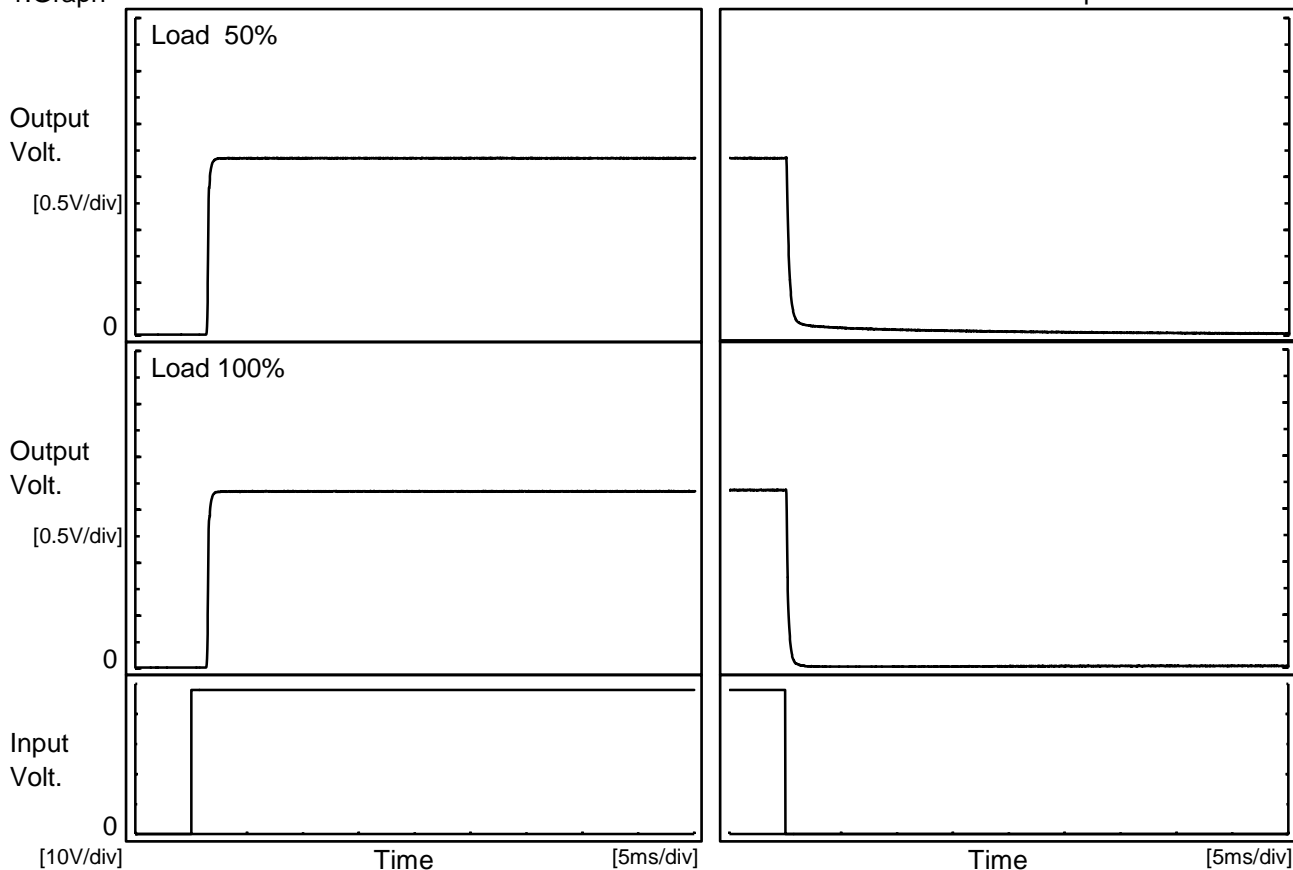




Model	MGFS10483R3	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+3.3V2.6A		

# 1.Graph

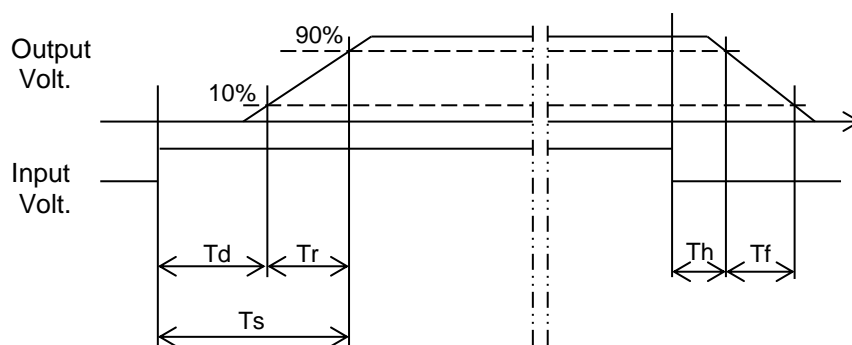
Input Volt. 48 V



# 2.Values

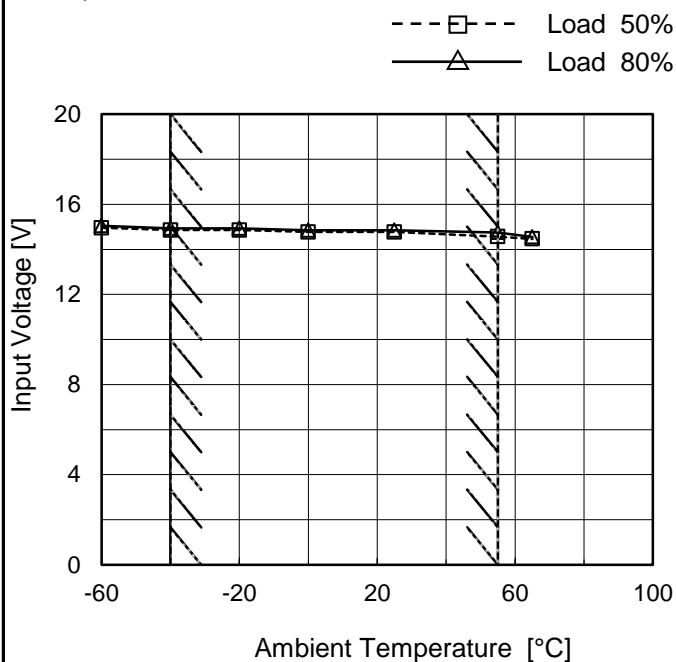
[ms]

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

## 1.Graph



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

## Testing Circuitry Figure A

## 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
--	-	-
--	-	-
--	-	-
--	-	-

Model		MGFS10483R3		Temperature 25°C																																																																																				
Item		Overcurrent Protection		Testing Circuitry Figure A																																																																																				
Object		+3.3V2.6A																																																																																						
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> <div><div>Output Voltage [V]</div><div><div>4.0</div><div>3.0</div><div>2.0</div><div>1.0</div><div>0.0</div></div><div><div>0.0</div><div>2.0</div><div>4.0</div><div>6.0</div><div>8.0</div></div><div>Load Current [A]</div></div>		2.Values																																																																																				
		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="5">Load 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><tr><td>3.14</td><td>2.702</td><td>3.158</td><td>3.385</td><td>3.316</td><td>3.354</td></tr><tr><td>2.97</td><td>2.819</td><td>3.266</td><td>3.502</td><td>3.415</td><td>3.430</td></tr><tr><td>2.64</td><td>3.067</td><td>3.525</td><td>3.752</td><td>3.622</td><td>3.581</td></tr><tr><td>2.31</td><td>3.361</td><td>3.823</td><td>3.998</td><td>3.824</td><td>3.704</td></tr><tr><td>1.98</td><td>3.688</td><td>4.167</td><td>4.277</td><td>4.056</td><td>3.855</td></tr><tr><td>1.65</td><td>4.073</td><td>4.517</td><td>4.551</td><td>4.270</td><td>4.024</td></tr><tr><td>1.32</td><td>4.265</td><td>4.682</td><td>4.704</td><td>4.438</td><td>4.150</td></tr><tr><td>0.99</td><td>4.410</td><td>4.854</td><td>4.861</td><td>4.551</td><td>4.273</td></tr><tr><td>0.66</td><td>4.757</td><td>5.180</td><td>5.138</td><td>4.793</td><td>4.485</td></tr><tr><td>0.33</td><td>5.063</td><td>5.593</td><td>5.532</td><td>5.117</td><td>4.754</td></tr><tr><td>0.00</td><td>5.064</td><td>5.401</td><td>5.309</td><td>5.382</td><td>4.925</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr></table>		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]	3.14	2.702	3.158	3.385	3.316	3.354	2.97	2.819	3.266	3.502	3.415	3.430	2.64	3.067	3.525	3.752	3.622	3.581	2.31	3.361	3.823	3.998	3.824	3.704	1.98	3.688	4.167	4.277	4.056	3.855	1.65	4.073	4.517	4.551	4.270	4.024	1.32	4.265	4.682	4.704	4.438	4.150	0.99	4.410	4.854	4.861	4.551	4.273	0.66	4.757	5.180	5.138	4.793	4.485	0.33	5.063	5.593	5.532	5.117	4.754	0.00	5.064	5.401	5.309	5.382	4.925	--	-	-	-	-	-		
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Model		MGFS10483R3		Temperature 25°C																																																																														
Item		Switching frequency (by Load Current)		Testing Circuitry Figure A																																																																														
Object		+3.3V2.6A																																																																																
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Note: Slanted line shows the range of the rated load current.		When load current is low, MG operates intermittently, so switching frequency would not become constant.																																																																																
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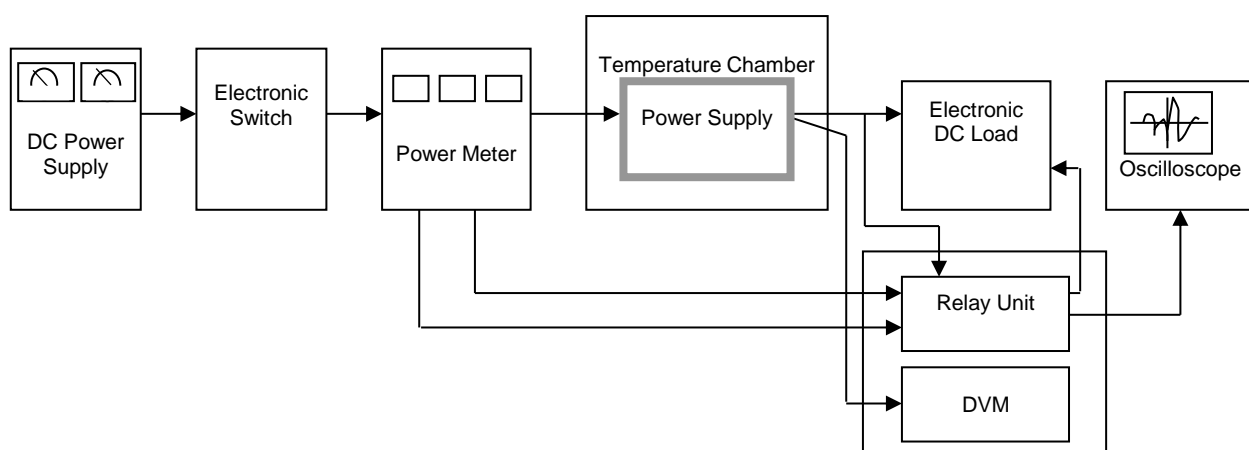


Figure A

Data Acquisition/Control Unit

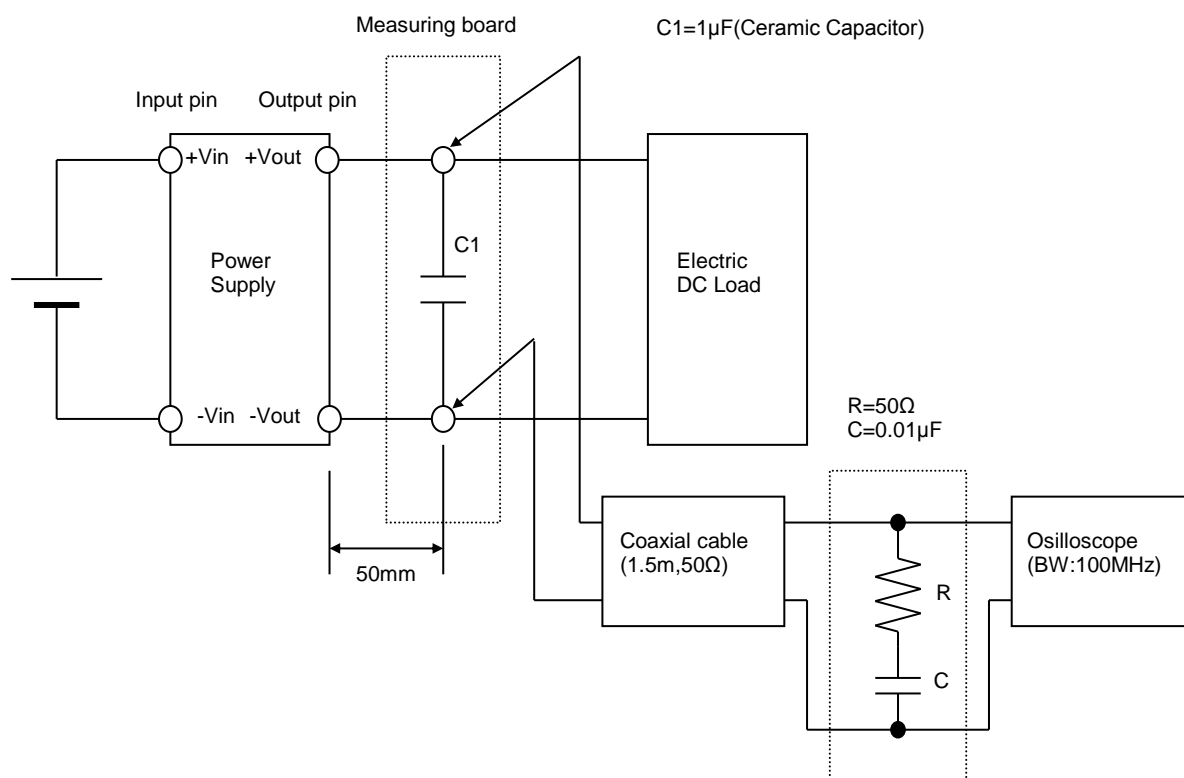


Figure B (Ripple and Ripple noise Characteristic)