



TEST DATA OF MGS10483R3

Regulated DC Power Supply
August 9, 2016

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Design Manager

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Ryosuke Nakao

Design Engineer

COSEL CO.,LTD.



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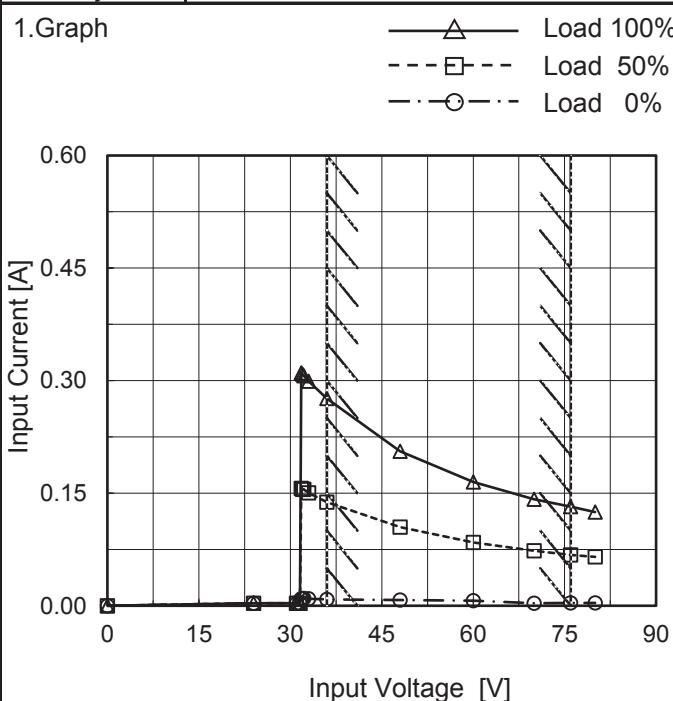
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Model	MGS10483R3
Item	Input Current (by Input Voltage)
Object	_____

1.Graph



Note: Slanted line shows the range of the rated input voltage.

 Temperature 25°C
 Testing Circuitry Figure A

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
24.0	0.003	0.003	0.003
31.0	0.003	0.003	0.003
31.6	0.003	0.003	0.003
31.8	0.010	0.157	0.310
32.0	0.010	0.155	0.309
32.2	0.010	0.155	0.307
33.0	0.009	0.151	0.299
36.0	0.009	0.138	0.276
48.0	0.008	0.105	0.206
60.0	0.007	0.085	0.165
70.0	0.003	0.073	0.142
76.0	0.004	0.068	0.132
80.0	0.004	0.065	0.125
--	-	-	-
--	-	-	-
--	-	-	-
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Model	MGS10483R3																																																					
Item	Input Current (by Load Current)																																																					
Object	_____																																																					
1.Graph	—△— Input Volt. 36V - - -□--- Input Volt. 48V - - -○--- Input Volt. 76V																																																					
	<p>The graph shows three curves representing different input voltages. The 36V curve (triangles) has the steepest slope, followed by 48V (squares), and 76V (circles) has the lowest slope. All curves start at (0,0) and end at a point where the input current is approximately 0.35A. A vertical dashed line is drawn at a load current of about 2.5A, and a slanted dashed line extends from the origin through the 36V curve's data points, defining a triangular region representing the rated load current range.</p>																																																					
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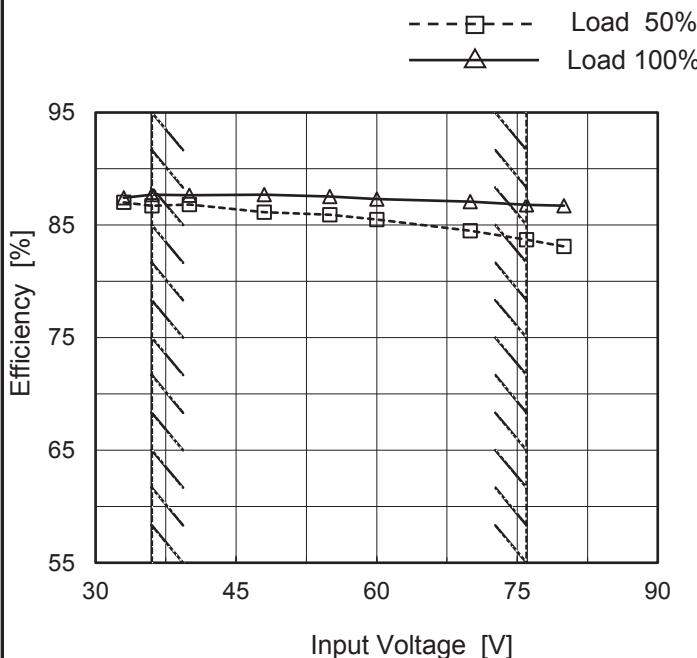
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Model	MGS10483R3
Item	Efficiency (by Input Voltage)
Object	_____

1.Graph



Note: Slanted line shows the range of the rated input voltage.

Temperature 25°C
Testing Circuitry Figure A

2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
33	87.0	87.4
36	86.7	87.7
40	86.8	87.7
48	86.1	87.7
55	85.9	87.5
60	85.5	87.3
70	84.5	87.1
76	83.7	86.8
80	83.1	86.7

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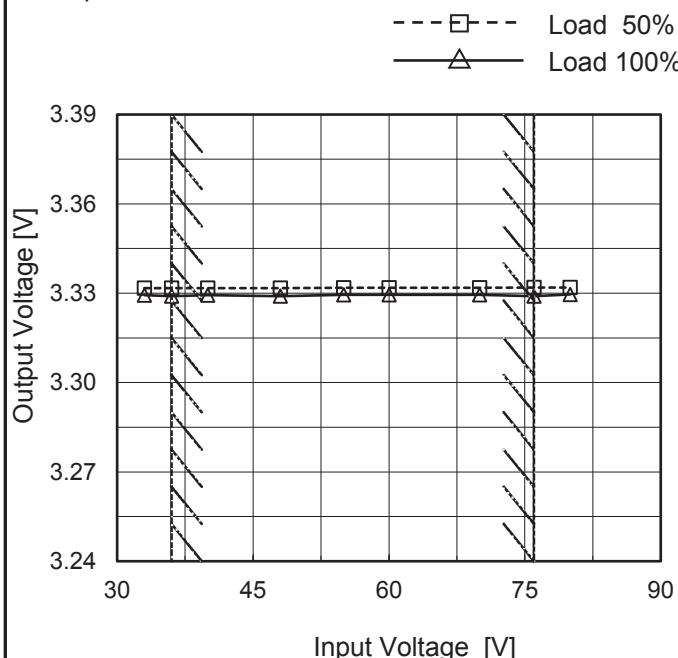
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Note:	Slanted line shows the range of the rated load current.																																																					

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Model	MGS10483R3
Item	Line Regulation
Object	+3.3V2.6A

 Temperature 25°C
 Testing Circuitry Figure A

1.Graph



2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
33	3.332	3.329
36	3.332	3.329
40	3.332	3.329
48	3.332	3.329
55	3.332	3.330
60	3.332	3.330
70	3.332	3.330
76	3.332	3.329
80	3.332	3.330

Note: Slanted line shows the range of the rated input voltage.

COSEL

Model	MGS10483R3	Temperature	25°C																																																			
Item	Load Regulation	Testing Circuitry	Figure A																																																			
Object	+3.3V2.6A																																																					
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<p>Output Voltage [V]</p> <p>Load Current [A]</p> <p>Input Volt.</p> <ul style="list-style-type: none"> 36V 48V 76V 		<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Output Voltage [V]</th> </tr> <tr> <th>36[V]</th> <th>48[V]</th> <th>76[V]</th> </tr> </thead> <tbody> <tr> <td>0.00</td> <td>3.336</td> <td>3.336</td> <td>3.336</td> </tr> <tr> <td>0.52</td> <td>3.334</td> <td>3.334</td> <td>3.334</td> </tr> <tr> <td>1.04</td> <td>3.333</td> <td>3.333</td> <td>3.333</td> </tr> <tr> <td>1.56</td> <td>3.332</td> <td>3.332</td> <td>3.332</td> </tr> <tr> <td>2.08</td> <td>3.330</td> <td>3.330</td> <td>3.330</td> </tr> <tr> <td>2.60</td> <td>3.329</td> <td>3.329</td> <td>3.329</td> </tr> <tr> <td>2.86</td> <td>3.328</td> <td>3.328</td> <td>3.328</td> </tr> <tr> <td>--</td> <td>-</td> <td>-</td> <td>-</td> </tr> </tbody> </table>		Load Current [A]	Output Voltage [V]			36[V]	48[V]	76[V]	0.00	3.336	3.336	3.336	0.52	3.334	3.334	3.334	1.04	3.333	3.333	3.333	1.56	3.332	3.332	3.332	2.08	3.330	3.330	3.330	2.60	3.329	3.329	3.329	2.86	3.328	3.328	3.328	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Output Voltage [V]																																																					
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0.00	3.336	3.336	3.336																																																			
0.52	3.334	3.334	3.334																																																			
1.04	3.333	3.333	3.333																																																			
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Note: Slanted line shows the range of the rated load current.

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Model	MGS10483R3	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+3.3V2.6A		

Input Volt. 48 V
 Cycle 100 ms



Min.Load (0A)↔
 Load 100% (2.6A)

200 mV/div

100 μs /div100 μs /div

Min.Load (0A)↔
 Load 50% (1.3A)

200 mV/div

100 μs /div100 μs /div

Load 50% (1.3A)↔
 Load 100% (2.6A)

200 mV/div

100 μs /div100 μs /div

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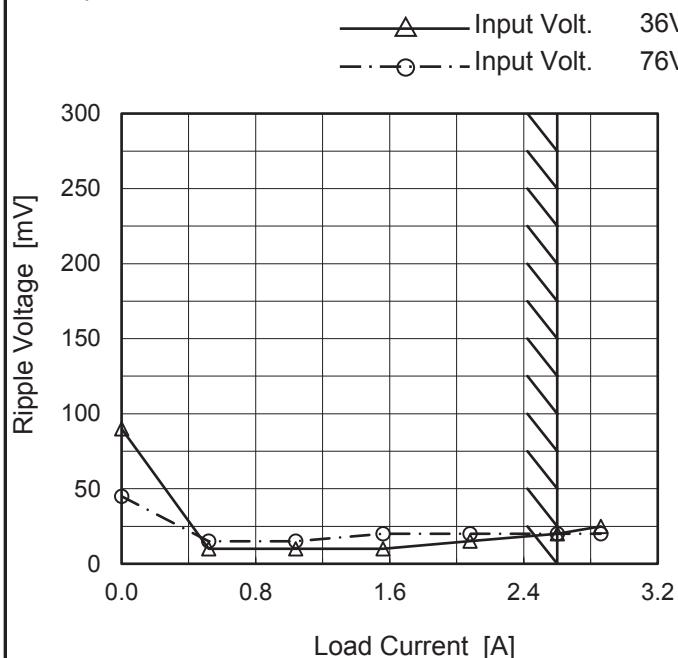
Model	MGS10483R3																																						
Item	Ripple Voltage (by Load Current)	Temperature 25°C Testing Circuitry Figure B																																					
Object	+3.3V2.6A																																						
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Load Current [A]	Ripple Voltage [mV]																																						
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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>																																							

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Model	MGS10483R3
Item	Ripple-Noise
Object	+3.3V2.6A

 Temperature 25°C
 Testing Circuitry Figure B

1.Graph



2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	90	45
0.52	10	15
1.04	10	15
1.56	10	20
2.08	15	20
2.60	20	20
2.86	25	20
--	-	-
--	-	-
--	-	-
--	-	-

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]

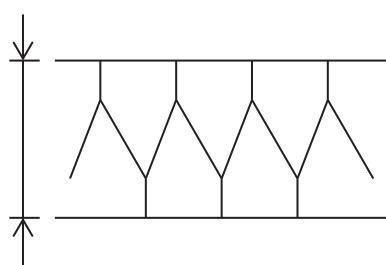
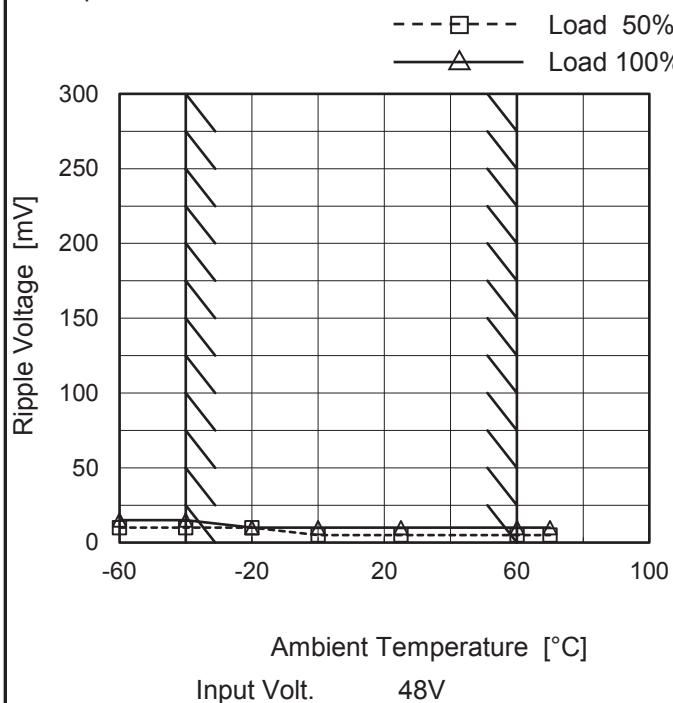


Fig.Complex Ripple Noise Wave Form

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Model	MGS10483R3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V2.6A

1. Graph



Testing Circuitry Figure B

2. Values

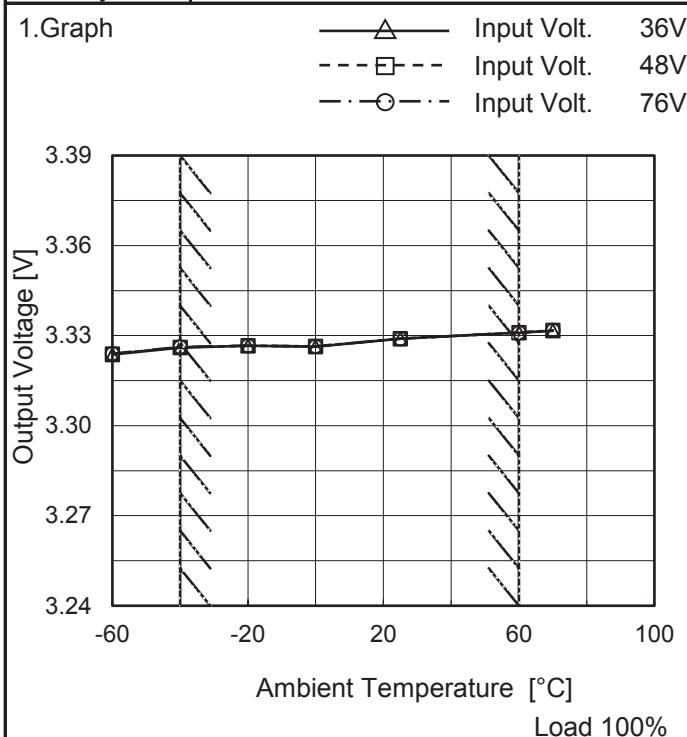
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	10	15
-40	10	15
-20	10	10
0	5	10
25	5	10
60	5	10
70	5	10
--	-	-
--	-	-
--	-	-
--	-	-

Measured by 100 MHz Oscilloscope.

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

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Model	MGS10483R3
Item	Ambient Temperature Drift
Object	+3.3V2.6A



Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-60	3.324	3.324	3.324
-40	3.326	3.326	3.326
-20	3.327	3.327	3.327
0	3.326	3.326	3.326
25	3.329	3.329	3.329
60	3.331	3.331	3.331
70	3.332	3.332	3.332
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	MGS10483R3	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 - 60°C

Input Voltage : 36 - 76V

Load Current : 0 - 2.6A

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

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

2. Values

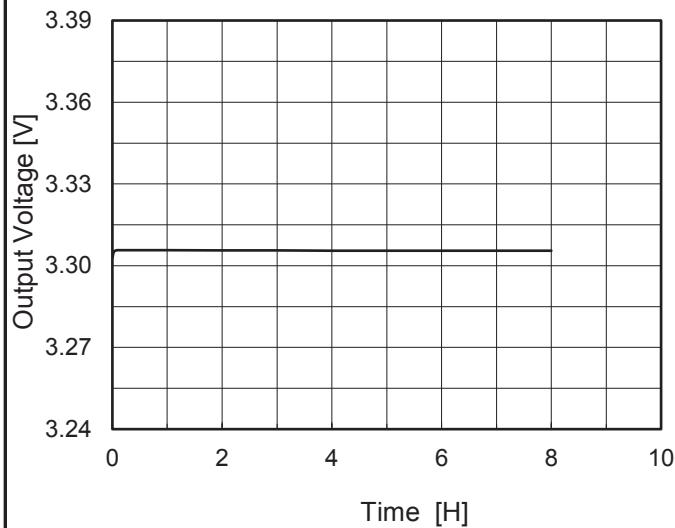
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	60	76	0	3.339	±7	±0.2
Minimum Voltage	-40	36	2.6	3.326		

COSEL

Model	MGS10483R3
Item	Time Lapse Drift
Object	+3.3V2.6A

 Temperature 25°C
 Testing Circuitry Figure A

1.Graph


 Input Volt. 48V
 Load 100%

2.Values

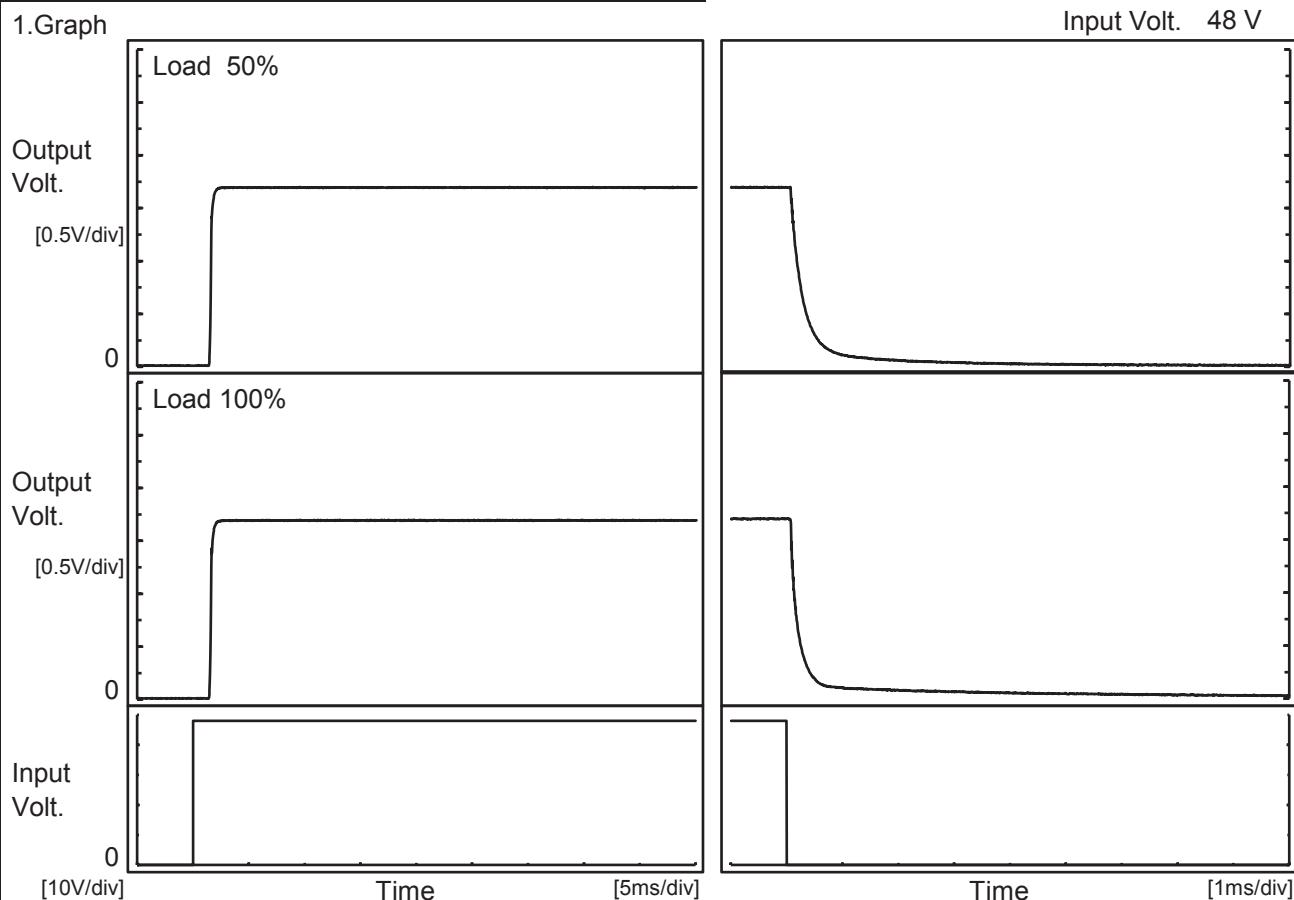
Time since start [H]	Output Voltage [V]
0.0	3.303
0.5	3.306
1.0	3.306
2.0	3.306
3.0	3.306
4.0	3.306
5.0	3.306
6.0	3.306
7.0	3.306
8.0	3.306

COSEL

Model	MGS10483R3
Item	Rise and Fall Time
Object	+3.3V2.6A

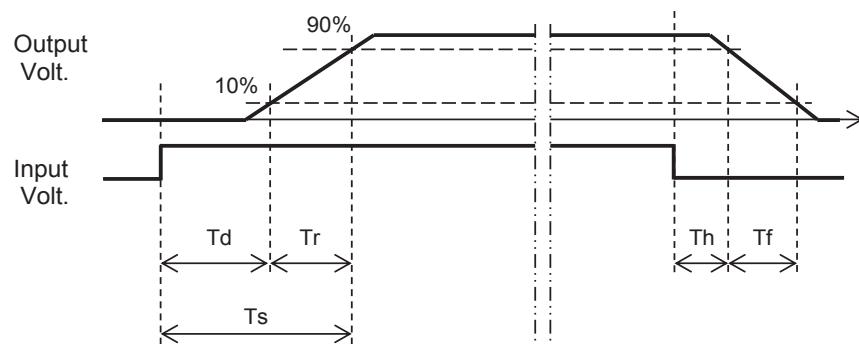
Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load	Time	Td	Tr	Ts	Th	Tf	[ms]
50 %		1.5	0.2	1.7	0.1	0.6	
100 %		1.5	0.2	1.7	0.1	0.4	

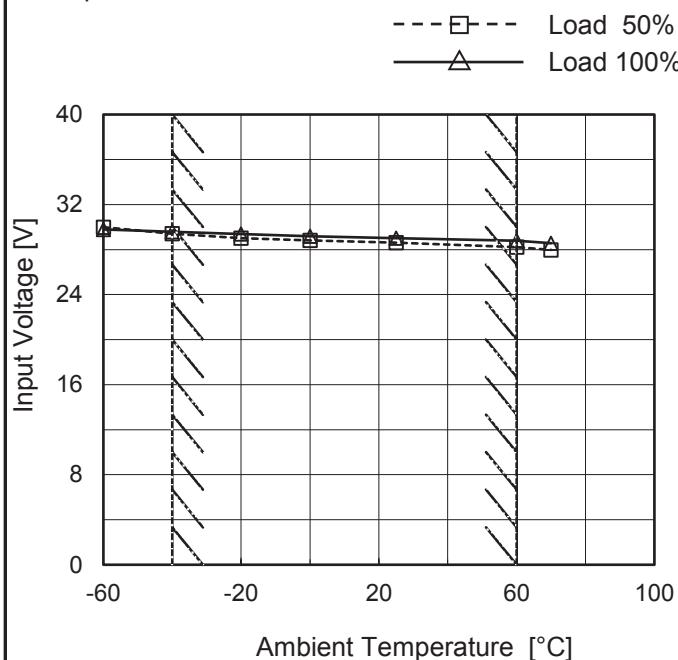


COSEL

Model	MGS10483R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V2.6A

Testing Circuitry Figure A

1.Graph



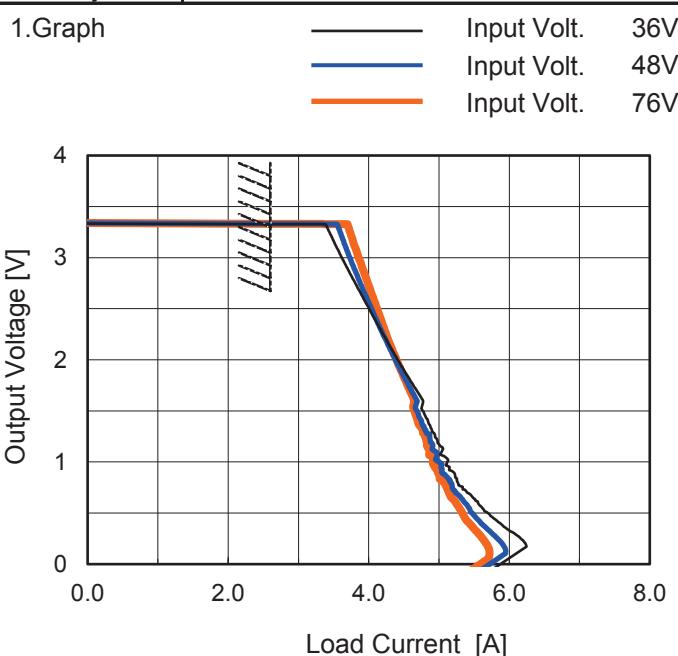
2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	30.0	29.8
-40	29.5	29.6
-20	29.1	29.4
0	28.9	29.2
25	28.7	29.0
60	28.3	28.8
70	28.0	28.6
--	-	-
--	-	-
--	-	-
--	-	-

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

COSEL

Model	MGS10483R3
Item	Overcurrent Protection
Object	+3.3V2.6A



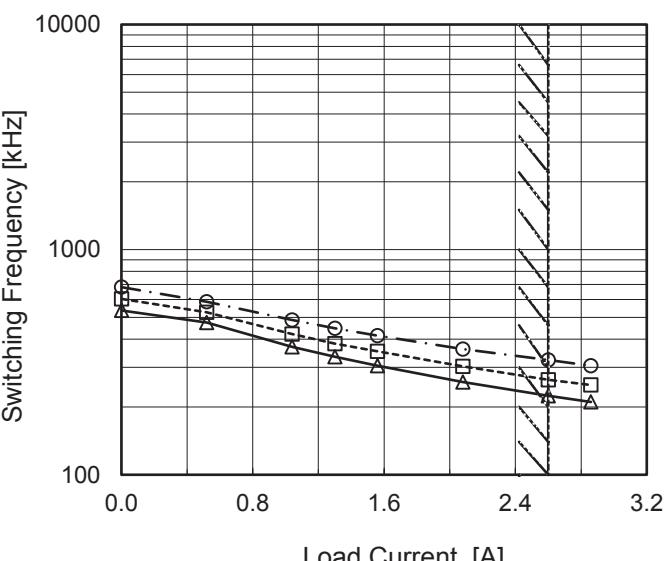
Note: Slanted line shows the range of the rated load current.

Temperature 25°C
Testing Circuitry Figure A

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
3.30	2.61	2.61	2.61
3.14	3.52	3.66	3.79
2.97	3.64	3.75	3.87
2.64	3.89	3.94	4.04
2.31	4.15	4.16	4.21
1.98	4.42	4.39	4.41
1.65	4.73	4.63	4.62
1.32	4.90	4.79	4.75
0.99	5.13	5.02	4.91
0.66	5.47	5.30	5.16
0.33	6.00	5.69	5.51
0.00	5.75	5.35	5.09

COSEL

Model	MGS10483R3																																																						
Item	Switching Frequency (by Load Current)	Temperature 25°C	Testing Circuitry Figure A																																																				
Object	+3.3V2.6A																																																						
1.Graph	<p style="text-align: center;"> Input Volt. 36V Input Volt. 48V Input Volt. 76V </p> 	<p>2.Values</p> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Frequency [kHz]</th> </tr> <tr> <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>537</td><td>604</td><td>681</td></tr> <tr><td>0.52</td><td>475</td><td>527</td><td>586</td></tr> <tr><td>1.04</td><td>370</td><td>422</td><td>487</td></tr> <tr><td>1.30</td><td>334</td><td>382</td><td>447</td></tr> <tr><td>1.56</td><td>305</td><td>353</td><td>414</td></tr> <tr><td>2.08</td><td>258</td><td>303</td><td>362</td></tr> <tr><td>2.60</td><td>225</td><td>264</td><td>323</td></tr> <tr><td>2.86</td><td>210</td><td>250</td><td>305</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> </tbody> </table>			Load Current [A]	Frequency [kHz]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	0.00	537	604	681	0.52	475	527	586	1.04	370	422	487	1.30	334	382	447	1.56	305	353	414	2.08	258	303	362	2.60	225	264	323	2.86	210	250	305	--	-	-	-	--	-	-	-	--	-	-	-
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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.

COSEL

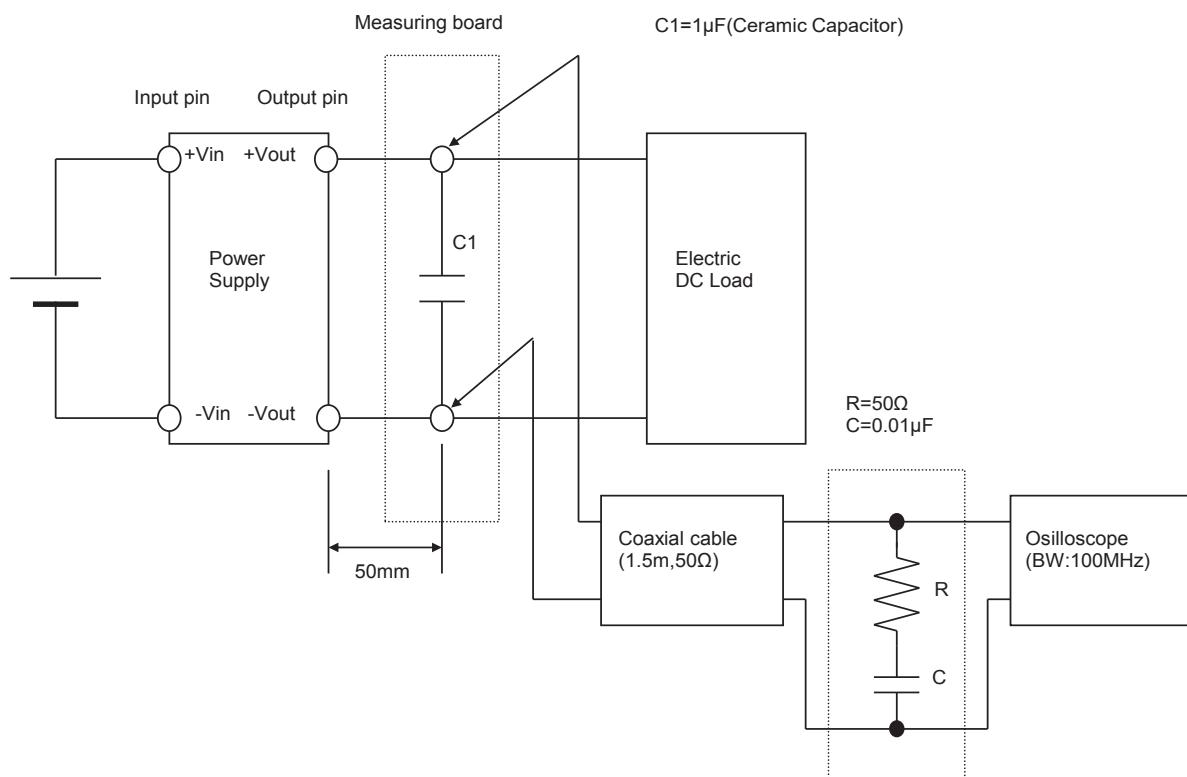
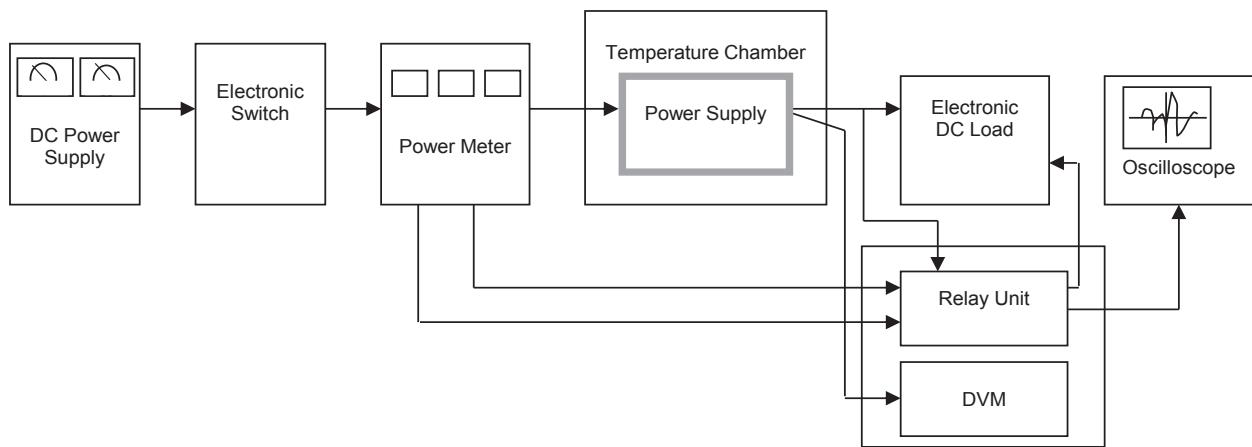


Figure B (Ripple and Ripple noise Characteristic)