

TEST DATA OF MGFW154805

Regulated DC Power Supply
September 9, 2010

Approved by : Kazunari Asano
Kazunari Asano

Design Manager

Prepared by : Yuichiro Ohashi
Yuichiro Ohashi

Design Engineer

COSEL CO.,LTD.

CONTENTS

1.Input Current (by Input Voltage) · · · · ·	1
2.Input Current (by Load Current) · · · · ·	2
3.Input Power (by Load Current) · · · · ·	3
4.Efficiency (by Input Voltage) · · · · ·	4
5.Efficiency (by Load Current) · · · · ·	5
6.Line Regulation · · · · ·	6
7.Load Regulation · · · · ·	7
8.Dynamic Load Response · · · · ·	8
9.Ripple Voltage (by Load Current) · · · · ·	10
10.Ripple-Noise · · · · ·	12
11.Ripple Voltage (by Ambient Temperature) · · · · ·	14
12.Ambient Temperature Drift · · · · ·	15
13.Output Voltage Accuracy · · · · ·	16
14.Time Lapse Drift · · · · ·	17
15.Rise and Fall Time · · · · ·	18
16.Minimum Input Voltage for Regulated Output Voltage · · · · ·	20
17.Overcurrent Protection · · · · ·	21
18.Figure of Testing Circuitry · · · · ·	22

(Final Page 22)

Model	MGFW154805																																																																																	
Item	Input Current (by Input Voltage)	Temperature Testing Circuitry	25°C Figure A																																																																															
Object	_____																																																																																	
1.Graph	<p>—△— Load 100%</p> <p>- - □ - - Load 50%</p> <p>- - ○ - - Load 0%</p> <table border="1"> <caption>Data points estimated from Graph</caption> <thead> <tr> <th>Input Voltage [V]</th> <th>Load 0% [A]</th> <th>Load 50% [A]</th> <th>Load 100% [A]</th> </tr> </thead> <tbody> <tr><td>18</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>20</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>25</td><td>0.000</td><td>0.000</td><td>0.800</td></tr> <tr><td>35</td><td>0.000</td><td>0.000</td><td>0.550</td></tr> <tr><td>45</td><td>0.000</td><td>0.000</td><td>0.400</td></tr> <tr><td>75</td><td>0.000</td><td>0.000</td><td>0.250</td></tr> </tbody> </table>			Input Voltage [V]	Load 0% [A]	Load 50% [A]	Load 100% [A]	18	0.000	0.000	0.000	20	0.000	0.000	0.000	25	0.000	0.000	0.800	35	0.000	0.000	0.550	45	0.000	0.000	0.400	75	0.000	0.000	0.250																																																			
Input Voltage [V]	Load 0% [A]	Load 50% [A]	Load 100% [A]																																																																															
18	0.000	0.000	0.000																																																																															
20	0.000	0.000	0.000																																																																															
25	0.000	0.000	0.800																																																																															
35	0.000	0.000	0.550																																																																															
45	0.000	0.000	0.400																																																																															
75	0.000	0.000	0.250																																																																															
2.Values	<table border="1"> <thead> <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> </thead> <tbody> <tr><td>0.0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>5.0</td><td>0.003</td><td>0.003</td><td>0.003</td></tr> <tr><td>10.0</td><td>0.003</td><td>0.003</td><td>0.003</td></tr> <tr><td>16.0</td><td>0.003</td><td>0.003</td><td>0.003</td></tr> <tr><td>16.5</td><td>0.003</td><td>0.003</td><td>0.003</td></tr> <tr><td>17.0</td><td>0.020</td><td>0.537</td><td>1.246</td></tr> <tr><td>17.5</td><td>0.020</td><td>0.521</td><td>1.210</td></tr> <tr><td>18.0</td><td>0.019</td><td>0.506</td><td>1.174</td></tr> <tr><td>24.0</td><td>0.014</td><td>0.376</td><td>0.860</td></tr> <tr><td>36.0</td><td>0.010</td><td>0.251</td><td>0.566</td></tr> <tr><td>48.0</td><td>0.008</td><td>0.193</td><td>0.424</td></tr> <tr><td>76.0</td><td>0.009</td><td>0.124</td><td>0.271</td></tr> <tr><td>80.0</td><td>0.009</td><td>0.118</td><td>0.257</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> <tr><td>--</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>			Input Voltage [V]	Input Current [A]			Load 0%	Load 50%	Load 100%	0.0	0.000	0.000	0.000	5.0	0.003	0.003	0.003	10.0	0.003	0.003	0.003	16.0	0.003	0.003	0.003	16.5	0.003	0.003	0.003	17.0	0.020	0.537	1.246	17.5	0.020	0.521	1.210	18.0	0.019	0.506	1.174	24.0	0.014	0.376	0.860	36.0	0.010	0.251	0.566	48.0	0.008	0.193	0.424	76.0	0.009	0.124	0.271	80.0	0.009	0.118	0.257	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Input Voltage [V]	Input Current [A]																																																																																	
	Load 0%	Load 50%	Load 100%																																																																															
0.0	0.000	0.000	0.000																																																																															
5.0	0.003	0.003	0.003																																																																															
10.0	0.003	0.003	0.003																																																																															
16.0	0.003	0.003	0.003																																																																															
16.5	0.003	0.003	0.003																																																																															
17.0	0.020	0.537	1.246																																																																															
17.5	0.020	0.521	1.210																																																																															
18.0	0.019	0.506	1.174																																																																															
24.0	0.014	0.376	0.860																																																																															
36.0	0.010	0.251	0.566																																																																															
48.0	0.008	0.193	0.424																																																																															
76.0	0.009	0.124	0.271																																																																															
80.0	0.009	0.118	0.257																																																																															
--	-	-	-																																																																															
--	-	-	-																																																																															
--	-	-	-																																																																															
--	-	-	-																																																																															
--	-	-	-																																																																															
Note:	Slanted line shows the range of the rated input voltage.																																																																																	

COSEL

Model	MGFW154805																																																																																	
Item	Input Current (by Load Current)																																																																																	
Object	_____																																																																																	
1.Graph	—△— Input Volt. 18V - -□--- Input Volt. 24V - -*--- Input Volt. 36V - -○--- Input Volt. 48V - -◇--- Input Volt. 76V																																																																																	
2.Values	<table border="1"> <thead> <tr> <th rowspan="2">Load Ration [%]</th> <th colspan="5">Input Current [A]</th> </tr> <tr> <th>18[V]</th> <th>24[V]</th> <th>36[V]</th> <th>48[V]</th> <th>76[V]</th> </tr> </thead> <tbody> <tr> <td>0</td><td>0.020</td><td>0.015</td><td>0.009</td><td>0.008</td><td>0.009</td></tr> <tr> <td>20</td><td>0.215</td><td>0.159</td><td>0.109</td><td>0.083</td><td>0.058</td></tr> <tr> <td>40</td><td>0.410</td><td>0.309</td><td>0.208</td><td>0.155</td><td>0.104</td></tr> <tr> <td>60</td><td>0.614</td><td>0.459</td><td>0.306</td><td>0.229</td><td>0.151</td></tr> <tr> <td>80</td><td>0.824</td><td>0.610</td><td>0.406</td><td>0.302</td><td>0.196</td></tr> <tr> <td>100</td><td>1.046</td><td>0.767</td><td>0.508</td><td>0.381</td><td>0.241</td></tr> <tr> <td>110</td><td>1.157</td><td>0.848</td><td>0.559</td><td>0.419</td><td>0.267</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> </tbody> </table>					Load Ration [%]	Input Current [A]					18[V]	24[V]	36[V]	48[V]	76[V]	0	0.020	0.015	0.009	0.008	0.009	20	0.215	0.159	0.109	0.083	0.058	40	0.410	0.309	0.208	0.155	0.104	60	0.614	0.459	0.306	0.229	0.151	80	0.824	0.610	0.406	0.302	0.196	100	1.046	0.767	0.508	0.381	0.241	110	1.157	0.848	0.559	0.419	0.267	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
Load Ration [%]	Input Current [A]																																																																																	
	18[V]	24[V]	36[V]	48[V]	76[V]																																																																													
0	0.020	0.015	0.009	0.008	0.009																																																																													
20	0.215	0.159	0.109	0.083	0.058																																																																													
40	0.410	0.309	0.208	0.155	0.104																																																																													
60	0.614	0.459	0.306	0.229	0.151																																																																													
80	0.824	0.610	0.406	0.302	0.196																																																																													
100	1.046	0.767	0.508	0.381	0.241																																																																													
110	1.157	0.848	0.559	0.419	0.267																																																																													
--	-	-	-	-	-																																																																													
--	-	-	-	-	-																																																																													
--	-	-	-	-	-																																																																													
--	-	-	-	-	-																																																																													

COSEL

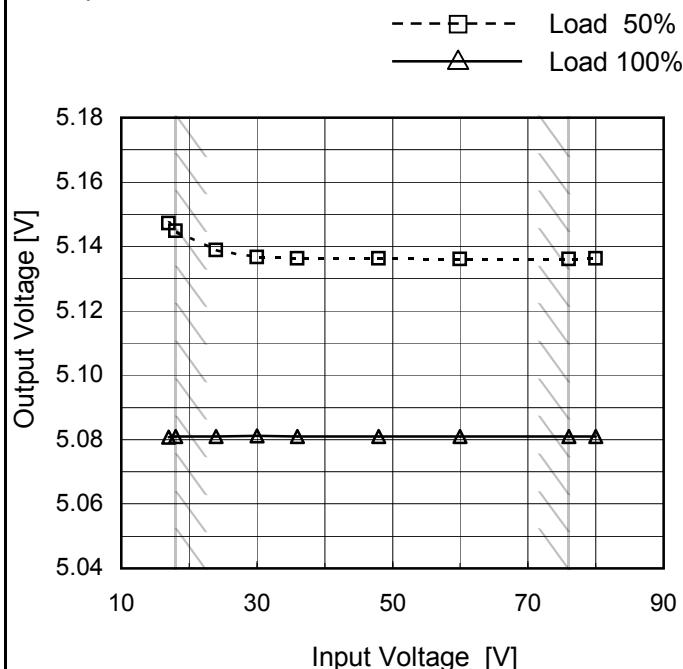
Model	MGFW154805	Temperature	25°C																																																																													
Item	Input Power (by Load Current)	Testing Circuitry	Figure A																																																																													
Object	<hr/>																																																																															
1.Graph	<p>Legend:</p> <ul style="list-style-type: none"> Input Volt. 18V Input Volt. 24V Input Volt. 36V Input Volt. 48V Input Volt. 76V <table border="1"> <thead> <tr> <th>Load Ration [%]</th> <th>18[V]</th> <th>24[V]</th> <th>36[V]</th> <th>48[V]</th> <th>76[V]</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.36</td><td>0.35</td><td>0.35</td><td>0.41</td><td>0.72</td></tr> <tr><td>20</td><td>3.87</td><td>3.82</td><td>3.93</td><td>4.00</td><td>4.41</td></tr> <tr><td>40</td><td>7.35</td><td>7.41</td><td>7.48</td><td>7.46</td><td>7.95</td></tr> <tr><td>60</td><td>11.04</td><td>10.97</td><td>11.02</td><td>10.97</td><td>11.48</td></tr> <tr><td>80</td><td>14.80</td><td>14.63</td><td>14.59</td><td>14.50</td><td>14.94</td></tr> <tr><td>100</td><td>18.76</td><td>18.38</td><td>18.24</td><td>18.26</td><td>18.34</td></tr> <tr><td>110</td><td>20.83</td><td>20.32</td><td>20.09</td><td>20.08</td><td>20.30</td></tr> </tbody> </table>			Load Ration [%]	18[V]	24[V]	36[V]	48[V]	76[V]	0	0.36	0.35	0.35	0.41	0.72	20	3.87	3.82	3.93	4.00	4.41	40	7.35	7.41	7.48	7.46	7.95	60	11.04	10.97	11.02	10.97	11.48	80	14.80	14.63	14.59	14.50	14.94	100	18.76	18.38	18.24	18.26	18.34	110	20.83	20.32	20.09	20.08	20.30																													
Load Ration [%]	18[V]	24[V]	36[V]	48[V]	76[V]																																																																											
0	0.36	0.35	0.35	0.41	0.72																																																																											
20	3.87	3.82	3.93	4.00	4.41																																																																											
40	7.35	7.41	7.48	7.46	7.95																																																																											
60	11.04	10.97	11.02	10.97	11.48																																																																											
80	14.80	14.63	14.59	14.50	14.94																																																																											
100	18.76	18.38	18.24	18.26	18.34																																																																											
110	20.83	20.32	20.09	20.08	20.30																																																																											
2.Values	<table border="1"> <thead> <tr> <th rowspan="2">Load Ration [%]</th> <th colspan="5">Input Power [W]</th> </tr> <tr> <th>18[V]</th> <th>24[V]</th> <th>36[V]</th> <th>48[V]</th> <th>76[V]</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.36</td><td>0.35</td><td>0.35</td><td>0.41</td><td>0.72</td></tr> <tr><td>20</td><td>3.87</td><td>3.82</td><td>3.93</td><td>4.00</td><td>4.41</td></tr> <tr><td>40</td><td>7.35</td><td>7.41</td><td>7.48</td><td>7.46</td><td>7.95</td></tr> <tr><td>60</td><td>11.04</td><td>10.97</td><td>11.02</td><td>10.97</td><td>11.48</td></tr> <tr><td>80</td><td>14.80</td><td>14.63</td><td>14.59</td><td>14.50</td><td>14.94</td></tr> <tr><td>100</td><td>18.76</td><td>18.38</td><td>18.24</td><td>18.26</td><td>18.34</td></tr> <tr><td>110</td><td>20.83</td><td>20.32</td><td>20.09</td><td>20.08</td><td>20.30</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> </tbody> </table>			Load Ration [%]	Input Power [W]					18[V]	24[V]	36[V]	48[V]	76[V]	0	0.36	0.35	0.35	0.41	0.72	20	3.87	3.82	3.93	4.00	4.41	40	7.35	7.41	7.48	7.46	7.95	60	11.04	10.97	11.02	10.97	11.48	80	14.80	14.63	14.59	14.50	14.94	100	18.76	18.38	18.24	18.26	18.34	110	20.83	20.32	20.09	20.08	20.30	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
Load Ration [%]	Input Power [W]																																																																															
	18[V]	24[V]	36[V]	48[V]	76[V]																																																																											
0	0.36	0.35	0.35	0.41	0.72																																																																											
20	3.87	3.82	3.93	4.00	4.41																																																																											
40	7.35	7.41	7.48	7.46	7.95																																																																											
60	11.04	10.97	11.02	10.97	11.48																																																																											
80	14.80	14.63	14.59	14.50	14.94																																																																											
100	18.76	18.38	18.24	18.26	18.34																																																																											
110	20.83	20.32	20.09	20.08	20.30																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											

Model	MGFW154805																																	
Item	Efficiency (by Input Voltage)	Temperature Testing Circuitry 25°C Figure A																																
Object	—	—																																
1. Graph																																		
<p>The graph plots Efficiency [%] on the y-axis (50 to 90) against Input Voltage [V] on the x-axis (10 to 90). Two data series are shown: Load 50% (dashed line with square markers) and Load 100% (solid line with triangle markers). Both series show efficiency increasing slightly with input voltage. A slanted line indicates the rated input voltage range.</p> <table border="1"> <thead> <tr> <th>Input Voltage [V]</th> <th>Efficiency Load 50% [%]</th> <th>Efficiency Load 100% [%]</th> </tr> </thead> <tbody> <tr><td>15</td><td>82.7</td><td>80.9</td></tr> <tr><td>30</td><td>82.9</td><td>81.3</td></tr> <tr><td>50</td><td>84.0</td><td>83.0</td></tr> <tr><td>70</td><td>82.9</td><td>83.5</td></tr> <tr><td>80</td><td>83.4</td><td>83.7</td></tr> <tr><td>15</td><td>81.7</td><td>83.6</td></tr> <tr><td>30</td><td>81.0</td><td>83.5</td></tr> <tr><td>50</td><td>80.3</td><td>83.3</td></tr> <tr><td>70</td><td>79.9</td><td>82.9</td></tr> </tbody> </table>			Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]	15	82.7	80.9	30	82.9	81.3	50	84.0	83.0	70	82.9	83.5	80	83.4	83.7	15	81.7	83.6	30	81.0	83.5	50	80.3	83.3	70	79.9	82.9		
Input Voltage [V]	Efficiency Load 50% [%]	Efficiency Load 100% [%]																																
15	82.7	80.9																																
30	82.9	81.3																																
50	84.0	83.0																																
70	82.9	83.5																																
80	83.4	83.7																																
15	81.7	83.6																																
30	81.0	83.5																																
50	80.3	83.3																																
70	79.9	82.9																																
2. Values																																		
<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Efficiency [%]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>15</td><td>82.7</td><td>80.9</td></tr> <tr><td>30</td><td>82.9</td><td>81.3</td></tr> <tr><td>50</td><td>84.0</td><td>83.0</td></tr> <tr><td>70</td><td>82.9</td><td>83.5</td></tr> <tr><td>80</td><td>83.4</td><td>83.7</td></tr> <tr><td>15</td><td>81.7</td><td>83.6</td></tr> <tr><td>30</td><td>81.0</td><td>83.5</td></tr> <tr><td>50</td><td>80.3</td><td>83.3</td></tr> <tr><td>70</td><td>79.9</td><td>82.9</td></tr> </tbody> </table>			Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	15	82.7	80.9	30	82.9	81.3	50	84.0	83.0	70	82.9	83.5	80	83.4	83.7	15	81.7	83.6	30	81.0	83.5	50	80.3	83.3	70	79.9	82.9
Input Voltage [V]	Efficiency [%]																																	
	Load 50%	Load 100%																																
15	82.7	80.9																																
30	82.9	81.3																																
50	84.0	83.0																																
70	82.9	83.5																																
80	83.4	83.7																																
15	81.7	83.6																																
30	81.0	83.5																																
50	80.3	83.3																																
70	79.9	82.9																																
<p>Note: Slanted line shows the range of the rated input voltage.</p>																																		

Model	MGFW154805																																																																																	
Item	Efficiency (by Load Current)																																																																																	
Object	_____																																																																																	
1.Graph	<p>Legend:</p> <ul style="list-style-type: none"> Input Volt. 18V Input Volt. 24V Input Volt. 36V Input Volt. 48V Input Volt. 76V <table border="1"> <thead> <tr> <th>Load Ration [%]</th> <th>18[V]</th> <th>24[V]</th> <th>36[V]</th> <th>48[V]</th> <th>76[V]</th> </tr> </thead> <tbody> <tr><td>20</td><td>79.0</td><td>79.5</td><td>78.5</td><td>78.0</td><td>79.0</td></tr> <tr><td>40</td><td>82.5</td><td>83.0</td><td>82.0</td><td>81.5</td><td>82.5</td></tr> <tr><td>60</td><td>82.0</td><td>82.5</td><td>81.5</td><td>81.0</td><td>82.0</td></tr> <tr><td>80</td><td>83.0</td><td>83.5</td><td>83.0</td><td>82.5</td><td>83.0</td></tr> <tr><td>100</td><td>82.5</td><td>83.0</td><td>82.5</td><td>82.0</td><td>82.5</td></tr> <tr><td>110</td><td>81.5</td><td>82.0</td><td>81.5</td><td>81.0</td><td>81.5</td></tr> </tbody> </table>					Load Ration [%]	18[V]	24[V]	36[V]	48[V]	76[V]	20	79.0	79.5	78.5	78.0	79.0	40	82.5	83.0	82.0	81.5	82.5	60	82.0	82.5	81.5	81.0	82.0	80	83.0	83.5	83.0	82.5	83.0	100	82.5	83.0	82.5	82.0	82.5	110	81.5	82.0	81.5	81.0	81.5																																			
Load Ration [%]	18[V]	24[V]	36[V]	48[V]	76[V]																																																																													
20	79.0	79.5	78.5	78.0	79.0																																																																													
40	82.5	83.0	82.0	81.5	82.5																																																																													
60	82.0	82.5	81.5	81.0	82.0																																																																													
80	83.0	83.5	83.0	82.5	83.0																																																																													
100	82.5	83.0	82.5	82.0	82.5																																																																													
110	81.5	82.0	81.5	81.0	81.5																																																																													
2.Values	<table border="1"> <thead> <tr> <th rowspan="2">Load Ration [%]</th> <th colspan="5">Efficiency [%]</th> </tr> <tr> <th>18[V]</th> <th>24[V]</th> <th>36[V]</th> <th>48[V]</th> <th>76[V]</th> </tr> </thead> <tbody> <tr><td>0</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>20</td><td>78.7</td><td>79.8</td><td>77.5</td><td>76.2</td><td>69.1</td></tr> <tr><td>40</td><td>83.0</td><td>82.3</td><td>81.5</td><td>81.7</td><td>76.7</td></tr> <tr><td>60</td><td>82.9</td><td>83.4</td><td>83.0</td><td>83.4</td><td>79.7</td></tr> <tr><td>80</td><td>82.5</td><td>83.4</td><td>83.7</td><td>84.2</td><td>81.7</td></tr> <tr><td>100</td><td>81.3</td><td>83.0</td><td>83.7</td><td>83.6</td><td>83.2</td></tr> <tr><td>110</td><td>80.6</td><td>82.6</td><td>83.6</td><td>83.6</td><td>82.7</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> </tbody> </table>					Load Ration [%]	Efficiency [%]					18[V]	24[V]	36[V]	48[V]	76[V]	0	-	-	-	-	-	20	78.7	79.8	77.5	76.2	69.1	40	83.0	82.3	81.5	81.7	76.7	60	82.9	83.4	83.0	83.4	79.7	80	82.5	83.4	83.7	84.2	81.7	100	81.3	83.0	83.7	83.6	83.2	110	80.6	82.6	83.6	83.6	82.7	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
Load Ration [%]	Efficiency [%]																																																																																	
	18[V]	24[V]	36[V]	48[V]	76[V]																																																																													
0	-	-	-	-	-																																																																													
20	78.7	79.8	77.5	76.2	69.1																																																																													
40	83.0	82.3	81.5	81.7	76.7																																																																													
60	82.9	83.4	83.0	83.4	79.7																																																																													
80	82.5	83.4	83.7	84.2	81.7																																																																													
100	81.3	83.0	83.7	83.6	83.2																																																																													
110	80.6	82.6	83.6	83.6	82.7																																																																													
--	-	-	-	-	-																																																																													
--	-	-	-	-	-																																																																													
--	-	-	-	-	-																																																																													
--	-	-	-	-	-																																																																													

Model	MGFW154805
Item	Line Regulation
Object	+5V1.5A

1.Graph



Temperature 25°C
Testing Circuitry Figure A

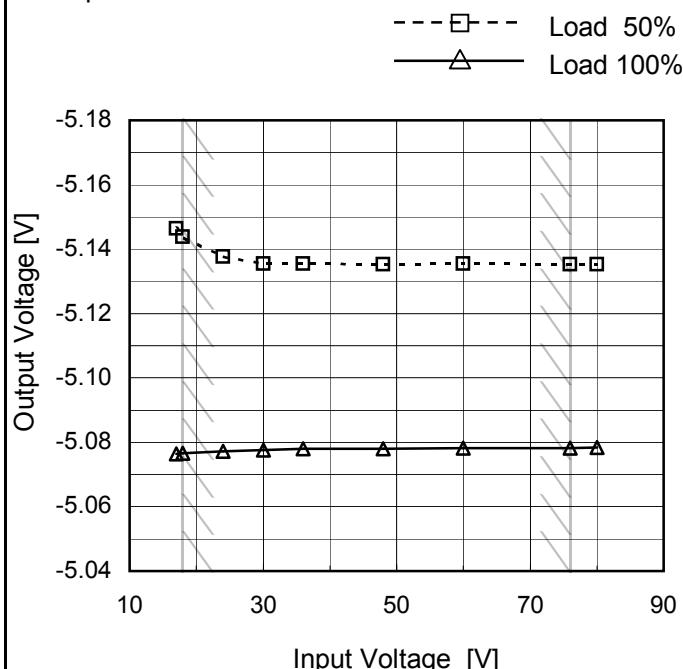
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	5.147	5.081
18	5.145	5.081
24	5.139	5.081
30	5.137	5.081
36	5.136	5.081
48	5.136	5.081
60	5.136	5.081
76	5.136	5.081
80	5.136	5.081

-5V: Rated output current

Object -5V1.5A

1.Graph



2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	-5.146	-5.076
18	-5.144	-5.077
24	-5.138	-5.077
30	-5.136	-5.078
36	-5.135	-5.078
48	-5.135	-5.078
60	-5.135	-5.078
76	-5.135	-5.078
80	-5.135	-5.078

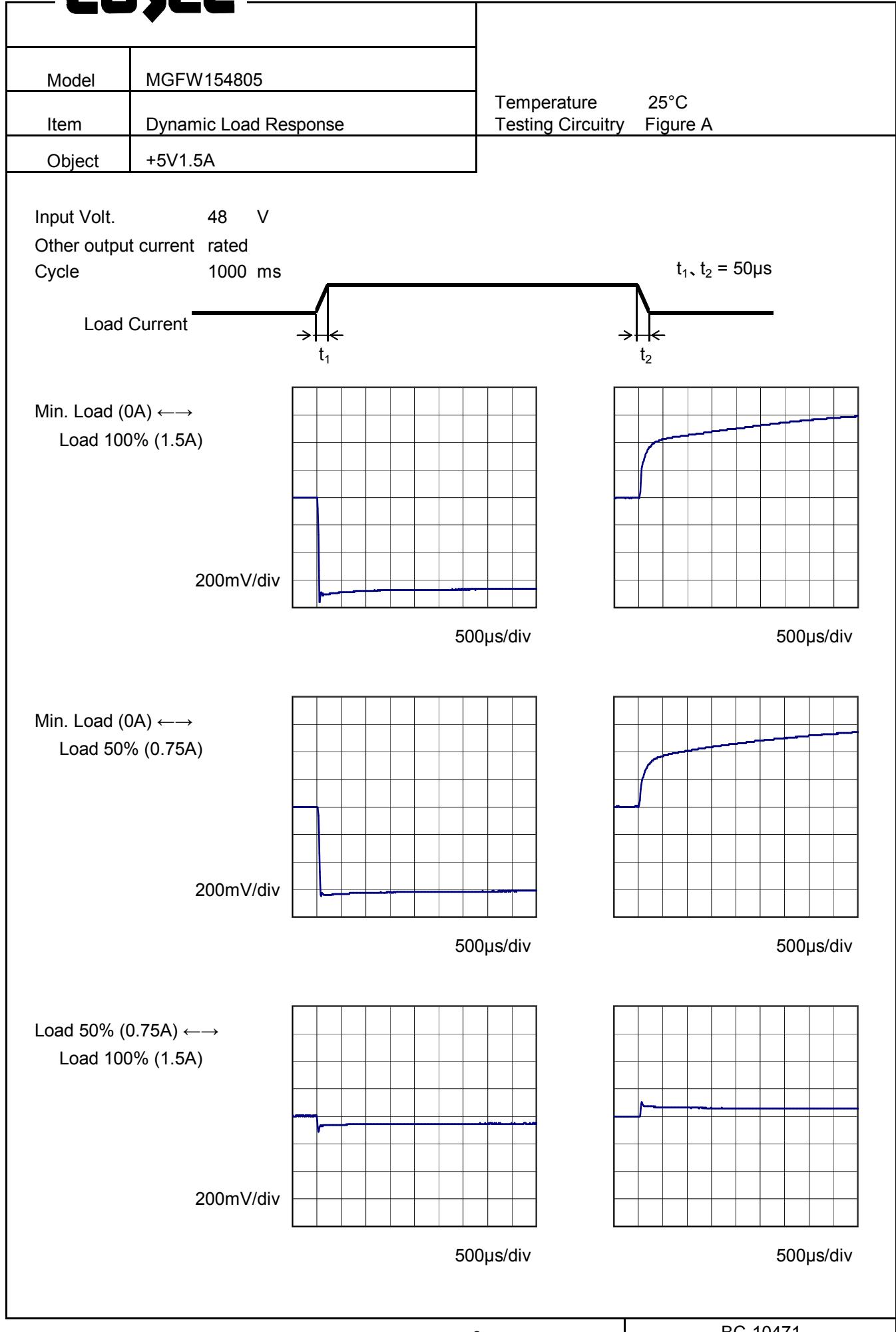
+5V: Rated output current

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

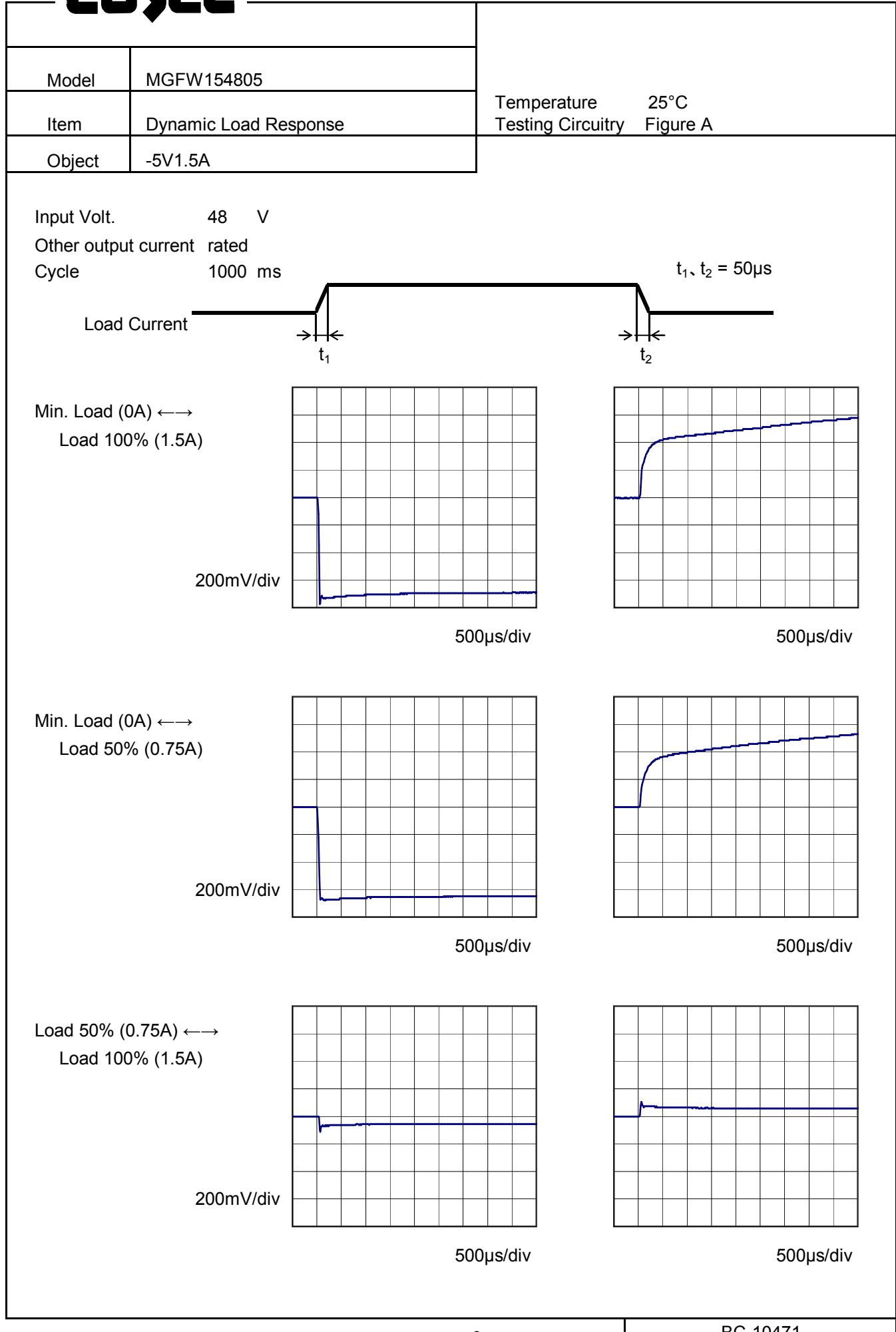
COSEL

Model	MGFW154805	Temperature	25°C																																																																													
Item	Load Regulation	Testing Circuitry	Figure A																																																																													
Object	+5V1.5A																																																																															
1.Graph	<p>Output Voltage [V]</p> <p>Load Current [A]</p> <ul style="list-style-type: none"> Input Volt. 18V Input Volt. 24V Input Volt. 36V Input Volt. 48V Input Volt. 76V 																																																																															
2.Values																																																																																
	<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="5">Output Voltage [V]</th> </tr> <tr> <th>18[V]</th> <th>24[V]</th> <th>36[V]</th> <th>48[V]</th> <th>76[V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>6.036</td><td>6.022</td><td>5.982</td><td>5.938</td><td>5.887</td></tr> <tr><td>0.30</td><td>5.207</td><td>5.204</td><td>5.203</td><td>5.204</td><td>5.203</td></tr> <tr><td>0.60</td><td>5.162</td><td>5.156</td><td>5.154</td><td>5.154</td><td>5.154</td></tr> <tr><td>0.90</td><td>5.133</td><td>5.127</td><td>5.124</td><td>5.124</td><td>5.123</td></tr> <tr><td>1.20</td><td>5.106</td><td>5.103</td><td>5.100</td><td>5.100</td><td>5.100</td></tr> <tr><td>1.50</td><td>5.080</td><td>5.080</td><td>5.080</td><td>5.080</td><td>5.080</td></tr> <tr><td>1.65</td><td>5.068</td><td>5.070</td><td>5.071</td><td>5.071</td><td>5.072</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> </tbody> </table>			Load Current [A]	Output Voltage [V]					18[V]	24[V]	36[V]	48[V]	76[V]	0.00	6.036	6.022	5.982	5.938	5.887	0.30	5.207	5.204	5.203	5.204	5.203	0.60	5.162	5.156	5.154	5.154	5.154	0.90	5.133	5.127	5.124	5.124	5.123	1.20	5.106	5.103	5.100	5.100	5.100	1.50	5.080	5.080	5.080	5.080	5.080	1.65	5.068	5.070	5.071	5.071	5.072	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
Load Current [A]	Output Voltage [V]																																																																															
	18[V]	24[V]	36[V]	48[V]	76[V]																																																																											
0.00	6.036	6.022	5.982	5.938	5.887																																																																											
0.30	5.207	5.204	5.203	5.204	5.203																																																																											
0.60	5.162	5.156	5.154	5.154	5.154																																																																											
0.90	5.133	5.127	5.124	5.124	5.123																																																																											
1.20	5.106	5.103	5.100	5.100	5.100																																																																											
1.50	5.080	5.080	5.080	5.080	5.080																																																																											
1.65	5.068	5.070	5.071	5.071	5.072																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											
	-5V: Rated output current																																																																															
Object	-5V1.5A	2.Values																																																																														
1.Graph	<p>Output Voltage [V]</p> <p>Load Current [A]</p> <ul style="list-style-type: none"> Input Volt. 18V Input Volt. 24V Input Volt. 36V Input Volt. 48V Input Volt. 76V 																																																																															
2.Values	<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="5">Output Voltage [V]</th> </tr> <tr> <th>18[V]</th> <th>24[V]</th> <th>36[V]</th> <th>48[V]</th> <th>76[V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>-6.009</td><td>-6.013</td><td>-5.997</td><td>-5.964</td><td>-5.915</td></tr> <tr><td>0.30</td><td>-5.204</td><td>-5.202</td><td>-5.202</td><td>-5.203</td><td>-5.202</td></tr> <tr><td>0.60</td><td>-5.158</td><td>-5.153</td><td>-5.152</td><td>-5.152</td><td>-5.151</td></tr> <tr><td>0.90</td><td>-5.129</td><td>-5.124</td><td>-5.121</td><td>-5.121</td><td>-5.121</td></tr> <tr><td>1.20</td><td>-5.102</td><td>-5.100</td><td>-5.097</td><td>-5.097</td><td>-5.097</td></tr> <tr><td>1.50</td><td>-5.076</td><td>-5.077</td><td>-5.077</td><td>-5.077</td><td>-5.077</td></tr> <tr><td>1.65</td><td>-5.063</td><td>-5.065</td><td>-5.068</td><td>-5.068</td><td>-5.069</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> </tbody> </table>			Load Current [A]	Output Voltage [V]					18[V]	24[V]	36[V]	48[V]	76[V]	0.00	-6.009	-6.013	-5.997	-5.964	-5.915	0.30	-5.204	-5.202	-5.202	-5.203	-5.202	0.60	-5.158	-5.153	-5.152	-5.152	-5.151	0.90	-5.129	-5.124	-5.121	-5.121	-5.121	1.20	-5.102	-5.100	-5.097	-5.097	-5.097	1.50	-5.076	-5.077	-5.077	-5.077	-5.077	1.65	-5.063	-5.065	-5.068	-5.068	-5.069	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
Load Current [A]	Output Voltage [V]																																																																															
	18[V]	24[V]	36[V]	48[V]	76[V]																																																																											
0.00	-6.009	-6.013	-5.997	-5.964	-5.915																																																																											
0.30	-5.204	-5.202	-5.202	-5.203	-5.202																																																																											
0.60	-5.158	-5.153	-5.152	-5.152	-5.151																																																																											
0.90	-5.129	-5.124	-5.121	-5.121	-5.121																																																																											
1.20	-5.102	-5.100	-5.097	-5.097	-5.097																																																																											
1.50	-5.076	-5.077	-5.077	-5.077	-5.077																																																																											
1.65	-5.063	-5.065	-5.068	-5.068	-5.069																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											
	+5V: Rated output current																																																																															
<p>Note: Slanted line shows the range of the rated load current.</p>																																																																																

COSEL



COSEL



Model	MGFW154805																																							
Item	Ripple Voltage (by Load Current)	Temperature 25°C Testing Circuitry Figure B																																						
Object	+5V1.5A																																							
1.Graph																																								
2.Values																																								
<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="2">Ripple Voltage [mV]</th> </tr> <tr> <th>Input Volt. 18 [V]</th> <th>Input Volt. 76 [V]</th> </tr> </thead> <tbody> <tr> <td>0.00</td><td>2</td><td>3</td></tr> <tr> <td>0.30</td><td>2</td><td>3</td></tr> <tr> <td>0.60</td><td>3</td><td>4</td></tr> <tr> <td>0.90</td><td>3</td><td>4</td></tr> <tr> <td>1.20</td><td>3</td><td>4</td></tr> <tr> <td>1.50</td><td>4</td><td>5</td></tr> <tr> <td>1.65</td><td>4</td><td>5</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>			Load Current [A]	Ripple Voltage [mV]		Input Volt. 18 [V]	Input Volt. 76 [V]	0.00	2	3	0.30	2	3	0.60	3	4	0.90	3	4	1.20	3	4	1.50	4	5	1.65	4	5	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																							
	Input Volt. 18 [V]	Input Volt. 76 [V]																																						
0.00	2	3																																						
0.30	2	3																																						
0.60	3	4																																						
0.90	3	4																																						
1.20	3	4																																						
1.50	4	5																																						
1.65	4	5																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
-5V: Rated output current																																								
<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>																																								
- 10 -																																								
BC-10471																																								

Model	MGFW154805																																							
Item	Ripple Voltage (by Load Current)	Temperature 25°C Testing Circuitry Figure B																																						
Object	-5V1.5A																																							
1.Graph																																								
<p>Y-axis: Ripple Voltage [mV] (0 to 100) X-axis: Load Current [A] (0.00 to 1.60)</p>																																								
2.Values																																								
<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="2">Ripple Voltage [mV]</th> </tr> <tr> <th>Input Volt. 18 [V]</th> <th>Input Volt. 76 [V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>4</td><td>4</td></tr> <tr><td>0.30</td><td>4</td><td>4</td></tr> <tr><td>0.60</td><td>5</td><td>4</td></tr> <tr><td>0.90</td><td>5</td><td>5</td></tr> <tr><td>1.20</td><td>6</td><td>5</td></tr> <tr><td>1.50</td><td>7</td><td>7</td></tr> <tr><td>1.65</td><td>7</td><td>7</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>			Load Current [A]	Ripple Voltage [mV]		Input Volt. 18 [V]	Input Volt. 76 [V]	0.00	4	4	0.30	4	4	0.60	5	4	0.90	5	5	1.20	6	5	1.50	7	7	1.65	7	7	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																							
	Input Volt. 18 [V]	Input Volt. 76 [V]																																						
0.00	4	4																																						
0.30	4	4																																						
0.60	5	4																																						
0.90	5	5																																						
1.20	6	5																																						
1.50	7	7																																						
1.65	7	7																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
+5V: Rated output current																																								
<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>																																								

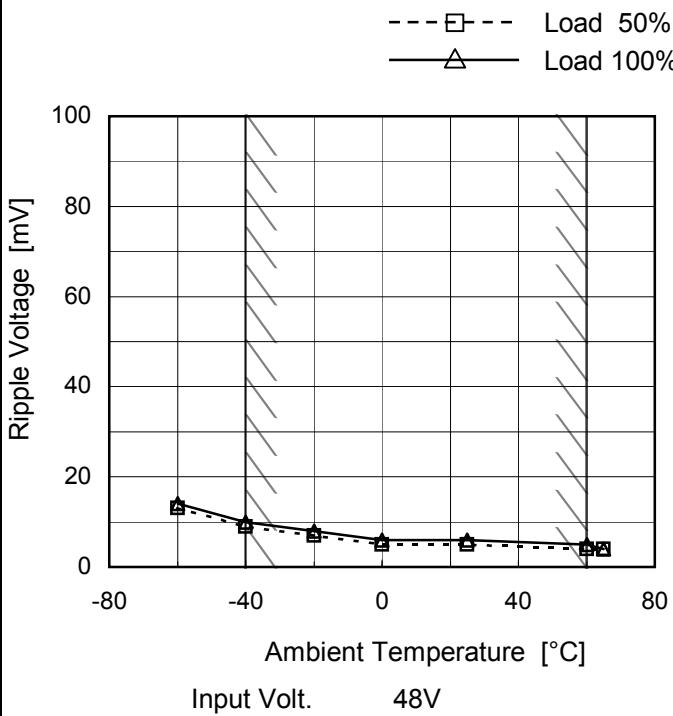
Model	MGFW154805																																							
Item	Ripple-Noise	Temperature 25°C Testing Circuitry Figure B																																						
Object	+5V1.5A																																							
1.Graph																																								
<p>Input Volt. 18V Input Volt. 76V</p> <p>Ripple Voltage [mV]</p> <p>Load Current [A]</p>																																								
2.Values																																								
<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="2">Ripple-Noise [mV]</th> </tr> <tr> <th>Input Volt. 18 [V]</th> <th>Input Volt. 76 [V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>3</td><td>4</td></tr> <tr><td>0.30</td><td>4</td><td>4</td></tr> <tr><td>0.60</td><td>4</td><td>5</td></tr> <tr><td>0.90</td><td>5</td><td>5</td></tr> <tr><td>1.20</td><td>5</td><td>6</td></tr> <tr><td>1.50</td><td>6</td><td>6</td></tr> <tr><td>1.65</td><td>6</td><td>6</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> <p>-5V: Rated output current</p>			Load Current [A]	Ripple-Noise [mV]		Input Volt. 18 [V]	Input Volt. 76 [V]	0.00	3	4	0.30	4	4	0.60	4	5	0.90	5	5	1.20	5	6	1.50	6	6	1.65	6	6	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																							
	Input Volt. 18 [V]	Input Volt. 76 [V]																																						
0.00	3	4																																						
0.30	4	4																																						
0.60	4	5																																						
0.90	5	5																																						
1.20	5	6																																						
1.50	6	6																																						
1.65	6	6																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
<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	MGFW154805																																							
Item	Ripple-Noise	Temperature 25°C Testing Circuitry Figure B																																						
Object	-5V1.5A																																							
1.Graph																																								
<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The Y-axis ranges from 0 to 100 mV, and the X-axis ranges from 0.00 to 1.60 A. Two curves are plotted: Input Volt. 18V (solid line with triangle markers) and Input Volt. 76V (dashed line with circle markers). Both curves remain relatively flat around 5-10 mV across the entire load current range. A vertical slanted line is drawn through the graph, indicating the rated load current range.</p>																																								
2.Values																																								
<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="2">Ripple-Noise [mV]</th> </tr> <tr> <th>Input Volt. 18 [V]</th> <th>Input Volt. 76 [V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>6</td><td>7</td></tr> <tr><td>0.30</td><td>5</td><td>5</td></tr> <tr><td>0.60</td><td>7</td><td>6</td></tr> <tr><td>0.90</td><td>7</td><td>6</td></tr> <tr><td>1.20</td><td>8</td><td>7</td></tr> <tr><td>1.50</td><td>8</td><td>8</td></tr> <tr><td>1.65</td><td>9</td><td>8</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> <p>+5V: Rated output current</p>			Load Current [A]	Ripple-Noise [mV]		Input Volt. 18 [V]	Input Volt. 76 [V]	0.00	6	7	0.30	5	5	0.60	7	6	0.90	7	6	1.20	8	7	1.50	8	8	1.65	9	8	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																							
	Input Volt. 18 [V]	Input Volt. 76 [V]																																						
0.00	6	7																																						
0.30	5	5																																						
0.60	7	6																																						
0.90	7	6																																						
1.20	8	7																																						
1.50	8	8																																						
1.65	9	8																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
<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>Fig.Complex Ripple Noise Wave Form</p>																																								

Model	MGFW154805
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V1.5A

Testing Circuitry Figure B

1.Graph

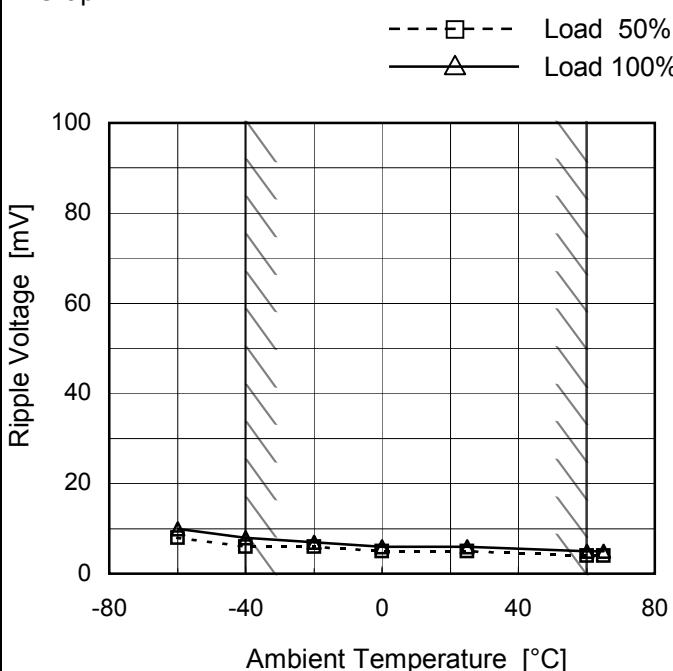


2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	13	14
-40	9	10
-20	7	8
0	5	6
25	5	6
60	4	5
65	4	4
--	-	-
--	-	-
--	-	-
--	-	-

-5V: Rated output current

1.Graph



2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	8	10
-40	6	8
-20	6	7
0	5	6
25	5	6
60	4	5
65	4	5
--	-	-
--	-	-
--	-	-
--	-	-

+5V: Rated output current

Measured by 100 MHz Oscilloscope.

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

Model	MGFW154805	Testing Circuitry Figure A																																																																														
Item	Ambient Temperature Drift																																																																															
Object	+5V1.5A																																																																															
1.Graph	<p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> <ul style="list-style-type: none"> —△— Input Volt. 18V - -□-- Input Volt. 24V - -*-- Input Volt. 36V - -○-- Input Volt. 48V - -◇-- Input Volt. 76V 	2.Values																																																																														
		<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="5">Output Voltage [V]</th> </tr> <tr> <th>18[V]</th> <th>24[V]</th> <th>36[V]</th> <th>48[V]</th> <th>76[V]</th> </tr> </thead> <tbody> <tr><td>-60</td><td>5.054</td><td>5.055</td><td>5.056</td><td>5.057</td><td>5.057</td></tr> <tr><td>-40</td><td>5.063</td><td>5.064</td><td>5.065</td><td>5.065</td><td>5.066</td></tr> <tr><td>-20</td><td>5.071</td><td>5.072</td><td>5.072</td><td>5.072</td><td>5.073</td></tr> <tr><td>0</td><td>5.077</td><td>5.077</td><td>5.078</td><td>5.078</td><td>5.078</td></tr> <tr><td>25</td><td>5.081</td><td>5.081</td><td>5.081</td><td>5.081</td><td>5.081</td></tr> <tr><td>60</td><td>5.083</td><td>5.082</td><td>5.082</td><td>5.082</td><td>5.082</td></tr> <tr><td>65</td><td>5.082</td><td>5.082</td><td>5.082</td><td>5.082</td><td>5.082</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> </tbody> </table>		Ambient Temperature [°C]	Output Voltage [V]					18[V]	24[V]	36[V]	48[V]	76[V]	-60	5.054	5.055	5.056	5.057	5.057	-40	5.063	5.064	5.065	5.065	5.066	-20	5.071	5.072	5.072	5.072	5.073	0	5.077	5.077	5.078	5.078	5.078	25	5.081	5.081	5.081	5.081	5.081	60	5.083	5.082	5.082	5.082	5.082	65	5.082	5.082	5.082	5.082	5.082	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																																															
	18[V]	24[V]	36[V]	48[V]	76[V]																																																																											
-60	5.054	5.055	5.056	5.057	5.057																																																																											
-40	5.063	5.064	5.065	5.065	5.066																																																																											
-20	5.071	5.072	5.072	5.072	5.073																																																																											
0	5.077	5.077	5.078	5.078	5.078																																																																											
25	5.081	5.081	5.081	5.081	5.081																																																																											
60	5.083	5.082	5.082	5.082	5.082																																																																											
65	5.082	5.082	5.082	5.082	5.082																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											
Object	-5V1.5A	2.Values																																																																														
1.Graph	<p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p> <ul style="list-style-type: none"> —△— Input Volt. 18V - -□-- Input Volt. 24V - -*-- Input Volt. 36V - -○-- Input Volt. 48V - -◇-- Input Volt. 76V 	<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="5">Output Voltage [V]</th> </tr> <tr> <th>18[V]</th> <th>24[V]</th> <th>36[V]</th> <th>48[V]</th> <th>76[V]</th> </tr> </thead> <tbody> <tr><td>-60</td><td>-5.047</td><td>-5.049</td><td>-5.051</td><td>-5.051</td><td>-5.052</td></tr> <tr><td>-40</td><td>-5.057</td><td>-5.059</td><td>-5.060</td><td>-5.061</td><td>-5.062</td></tr> <tr><td>-20</td><td>-5.066</td><td>-5.067</td><td>-5.068</td><td>-5.069</td><td>-5.069</td></tr> <tr><td>0</td><td>-5.072</td><td>-5.073</td><td>-5.074</td><td>-5.074</td><td>-5.075</td></tr> <tr><td>25</td><td>-5.076</td><td>-5.077</td><td>-5.078</td><td>-5.078</td><td>-5.079</td></tr> <tr><td>60</td><td>-5.079</td><td>-5.079</td><td>-5.080</td><td>-5.080</td><td>-5.080</td></tr> <tr><td>65</td><td>-5.079</td><td>-5.079</td><td>-5.080</td><td>-5.080</td><td>-5.080</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> </tbody> </table>		Ambient Temperature [°C]	Output Voltage [V]					18[V]	24[V]	36[V]	48[V]	76[V]	-60	-5.047	-5.049	-5.051	-5.051	-5.052	-40	-5.057	-5.059	-5.060	-5.061	-5.062	-20	-5.066	-5.067	-5.068	-5.069	-5.069	0	-5.072	-5.073	-5.074	-5.074	-5.075	25	-5.076	-5.077	-5.078	-5.078	-5.079	60	-5.079	-5.079	-5.080	-5.080	-5.080	65	-5.079	-5.079	-5.080	-5.080	-5.080	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																																															
	18[V]	24[V]	36[V]	48[V]	76[V]																																																																											
-60	-5.047	-5.049	-5.051	-5.051	-5.052																																																																											
-40	-5.057	-5.059	-5.060	-5.061	-5.062																																																																											
-20	-5.066	-5.067	-5.068	-5.069	-5.069																																																																											
0	-5.072	-5.073	-5.074	-5.074	-5.075																																																																											
25	-5.076	-5.077	-5.078	-5.078	-5.079																																																																											
60	-5.079	-5.079	-5.080	-5.080	-5.080																																																																											
65	-5.079	-5.079	-5.080	-5.080	-5.080																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											
--	-	-	-	-	-																																																																											

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



Model	MGFW154805	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 - 60°C

Input Voltage : 18 - 76V

Load Current (AVR 1) : 0 - 1.5A (AVR 2) : 0 - 1.5A

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

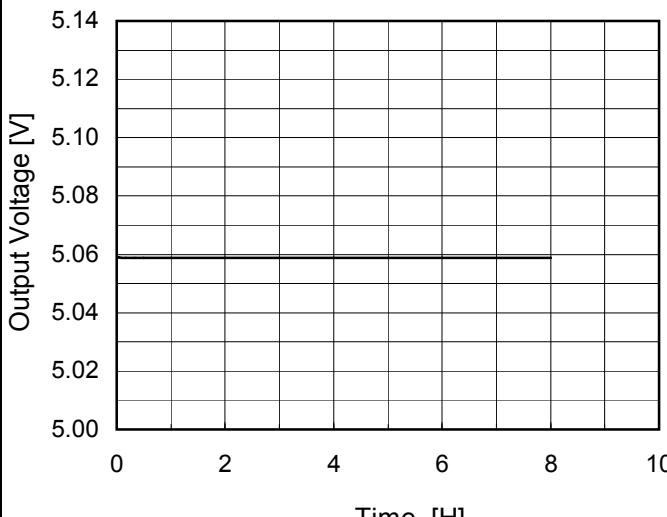
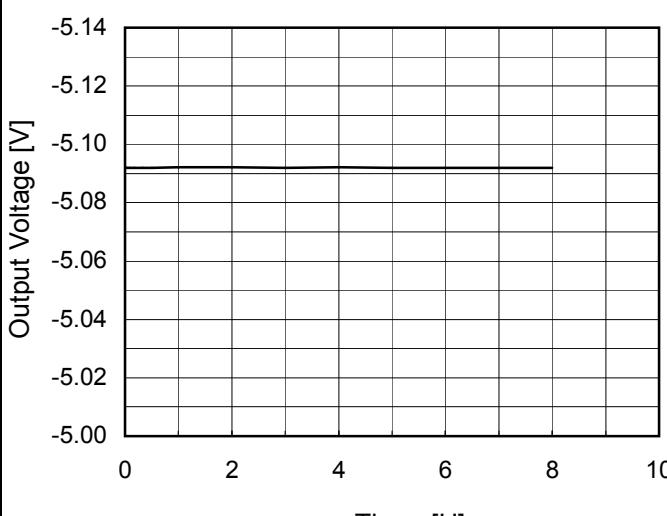
$$\text{* Output Voltage Accuracy (Ratio)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

2. Values

Object	+5V1.5A		Output		Output Voltage Accuracy	
Item	Temperature [°C]	Input Voltage[V]	Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	18		0	6.034	±486
Minimum Voltage	-40	18	1.5	5.063		±9.7

Object	-5V1.5A		Output		Output Voltage Accuracy	
Item	Temperature [°C]	Input Voltage[V]	Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	24		0	-6.014	±479
Minimum Voltage	-40	18	1.5	-5.057		±9.6

COSEL

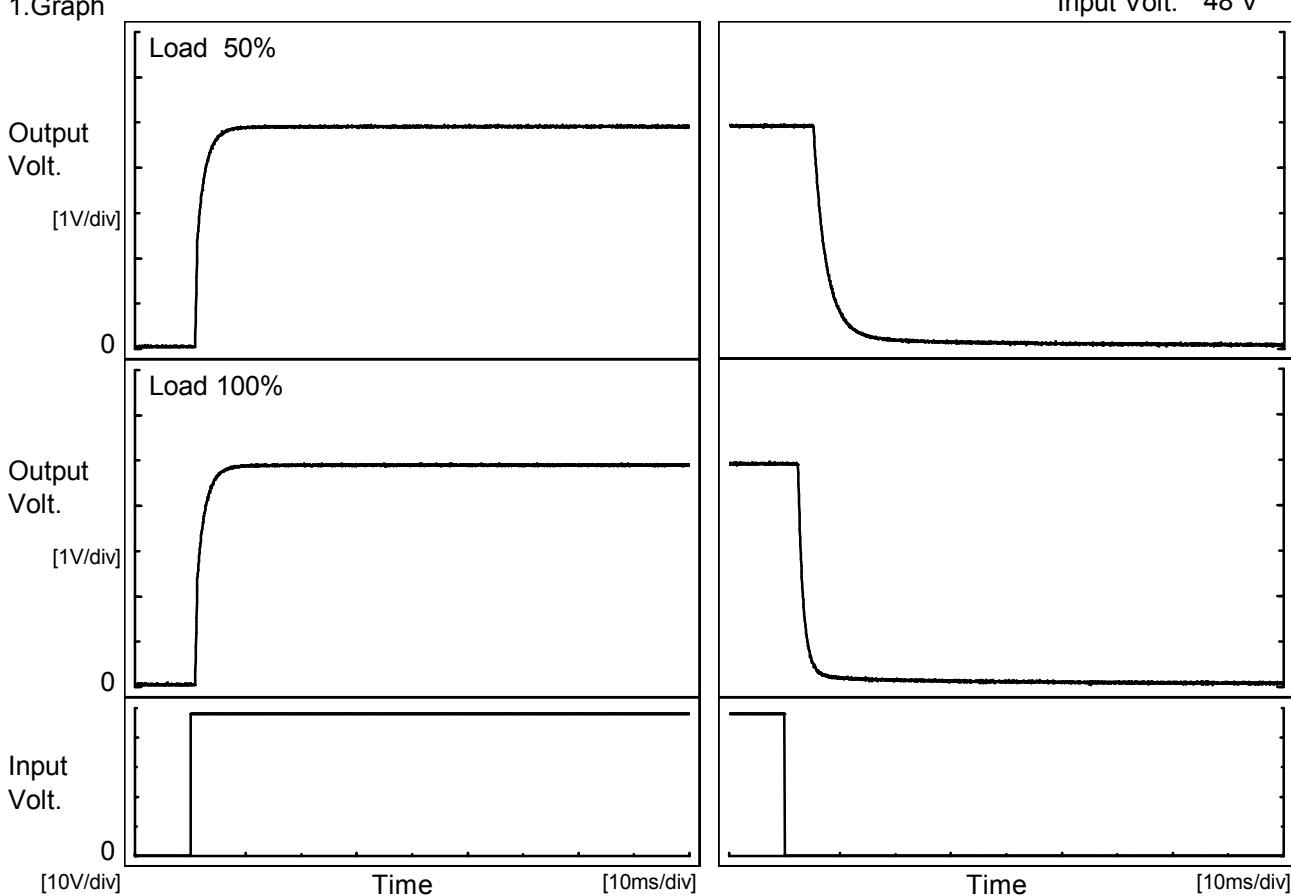
Model	MGFW154805	Temperature Testing Circuitry 25°C Figure A																						
Item	Time Lapse Drift																							
Object	+5V1.5A																							
1.Graph		2.Values																						
 <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 48V</p> <p>Load 100%</p>		<table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>5.059</td></tr> <tr><td>0.5</td><td>5.059</td></tr> <tr><td>1.0</td><td>5.059</td></tr> <tr><td>2.0</td><td>5.059</td></tr> <tr><td>3.0</td><td>5.059</td></tr> <tr><td>4.0</td><td>5.059</td></tr> <tr><td>5.0</td><td>5.059</td></tr> <tr><td>6.0</td><td>5.059</td></tr> <tr><td>7.0</td><td>5.059</td></tr> <tr><td>8.0</td><td>5.059</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	5.059	0.5	5.059	1.0	5.059	2.0	5.059	3.0	5.059	4.0	5.059	5.0	5.059	6.0	5.059	7.0	5.059	8.0	5.059
Time since start [H]	Output Voltage [V]																							
0.0	5.059																							
0.5	5.059																							
1.0	5.059																							
2.0	5.059																							
3.0	5.059																							
4.0	5.059																							
5.0	5.059																							
6.0	5.059																							
7.0	5.059																							
8.0	5.059																							
Object -5V1.5A		2.Values																						
 <p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 48V</p> <p>Load 100%</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>-5.092</td></tr> <tr><td>0.5</td><td>-5.092</td></tr> <tr><td>1.0</td><td>-5.092</td></tr> <tr><td>2.0</td><td>-5.092</td></tr> <tr><td>3.0</td><td>-5.092</td></tr> <tr><td>4.0</td><td>-5.092</td></tr> <tr><td>5.0</td><td>-5.092</td></tr> <tr><td>6.0</td><td>-5.092</td></tr> <tr><td>7.0</td><td>-5.092</td></tr> <tr><td>8.0</td><td>-5.092</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	-5.092	0.5	-5.092	1.0	-5.092	2.0	-5.092	3.0	-5.092	4.0	-5.092	5.0	-5.092	6.0	-5.092	7.0	-5.092	8.0	-5.092
Time since start [H]	Output Voltage [V]																							
0.0	-5.092																							
0.5	-5.092																							
1.0	-5.092																							
2.0	-5.092																							
3.0	-5.092																							
4.0	-5.092																							
5.0	-5.092																							
6.0	-5.092																							
7.0	-5.092																							
8.0	-5.092																							

COSEL

Model	MGFW154805
Item	Rise and Fall Time
Object	+5V1.5A

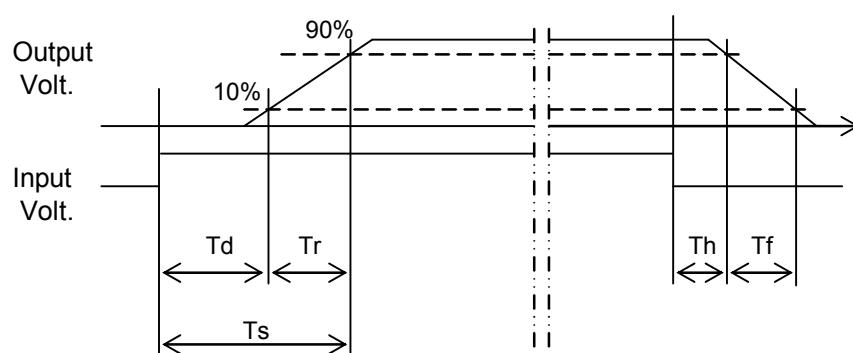
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.0	3.3	4.3	5.3	6.1
100 %		1.0	3.3	4.3	2.5	2.6

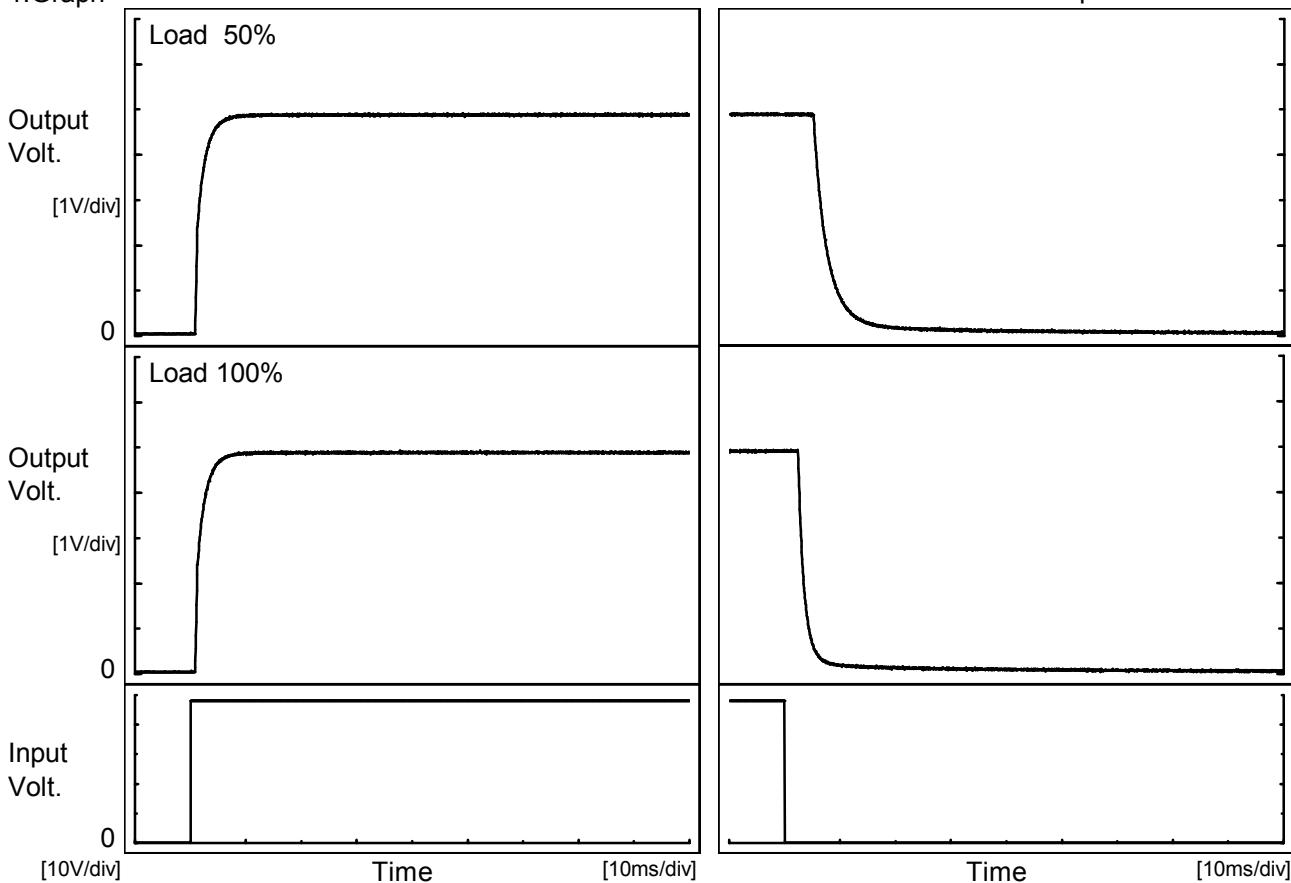


COSEL

Model	MGFW154805
Item	Rise and Fall Time
Object	-5V1.5A

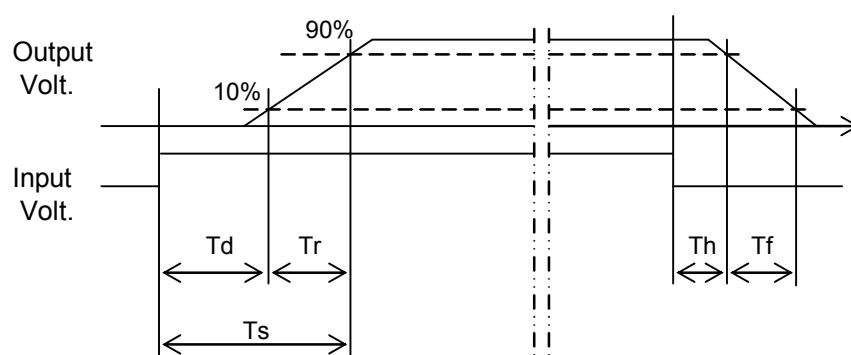
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

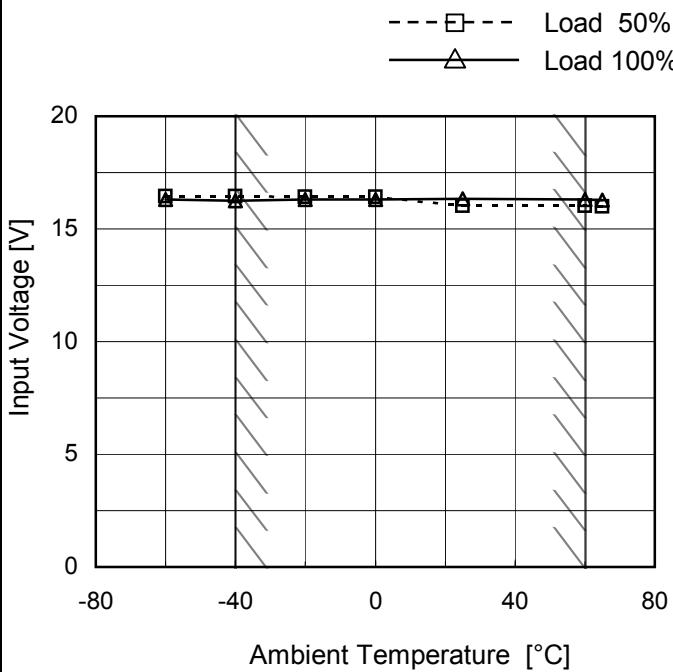
Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.0	3.4	4.4	5.3	6.3
100 %		1.0	3.4	4.4	2.5	2.9



Model	MGFW154805
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V1.5A

Testing Circuitry Figure A

1.Graph

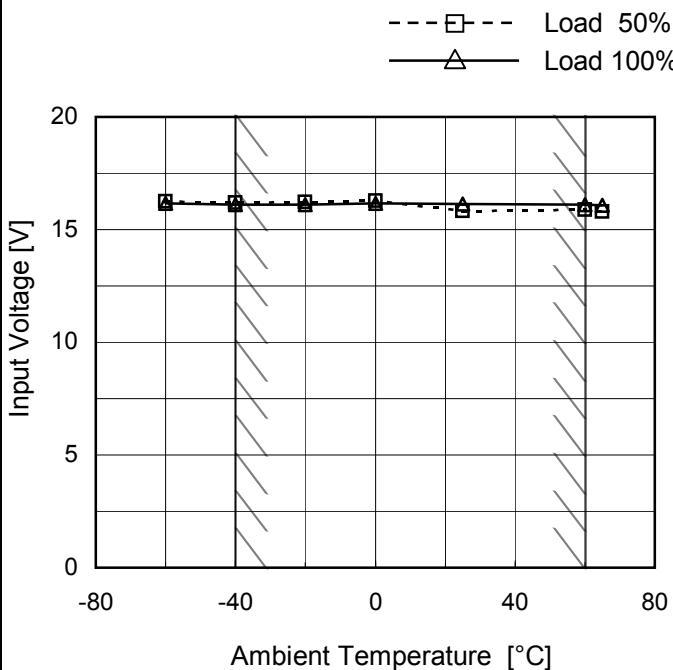


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	16.5	16.4
-40	16.5	16.3
-20	16.5	16.4
0	16.5	16.4
25	16.1	16.4
60	16.1	16.4
65	16.0	16.3
--	-	-
--	-	-
--	-	-
--	-	-

Object	-5V1.5A
--------	---------

1.Graph



2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	16.3	16.2
-40	16.2	16.1
-20	16.3	16.2
0	16.3	16.2
25	15.9	16.2
60	15.9	16.2
65	15.8	16.1
--	-	-
--	-	-
--	-	-
--	-	-

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

Model	MGFW154805	Temperature Testing Circuitry	25°C Figure A																																																																																			
Item	Overcurrent Protection																																																																																					
Object	+5V1.5A																																																																																					
1.Graph	<p>Output Voltage [V]</p> <p>Load Current [A]</p> <ul style="list-style-type: none"> Input Volt. 18V Input Volt. 24V * Input Volt. 36V ○ Input Volt. 48V ◇ Input Volt. 76V 	2.Values																																																																																				
		<table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="5">Load Current [A]</th> </tr> <tr> <th>18[V]</th> <th>24[V]</th> <th>36[V]</th> <th>48[V]</th> <th>76[V]</th> </tr> </thead> <tbody> <tr><td>5.00</td><td>2.213</td><td>2.608</td><td>2.991</td><td>3.094</td><td>2.846</td></tr> <tr><td>4.75</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>4.50</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>4.00</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>3.50</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>3.00</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>2.50</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>2.00</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>1.50</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>1.00</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>0.50</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>0.00</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>	Output Voltage [V]	Load Current [A]					18[V]	24[V]	36[V]	48[V]	76[V]	5.00	2.213	2.608	2.991	3.094	2.846	4.75	-	-	-	-	-	4.50	-	-	-	-	-	4.00	-	-	-	-	-	3.50	-	-	-	-	-	3.00	-	-	-	-	-	2.50	-	-	-	-	-	2.00	-	-	-	-	-	1.50	-	-	-	-	-	1.00	-	-	-	-	-	0.50	-	-	-	-	-	0.00	-	-	-	-	-	-5V: Rated output current
Output Voltage [V]	Load Current [A]																																																																																					
	18[V]	24[V]	36[V]	48[V]	76[V]																																																																																	
5.00	2.213	2.608	2.991	3.094	2.846																																																																																	
4.75	-	-	-	-	-																																																																																	
4.50	-	-	-	-	-																																																																																	
4.00	-	-	-	-	-																																																																																	
3.50	-	-	-	-	-																																																																																	
3.00	-	-	-	-	-																																																																																	
2.50	-	-	-	-	-																																																																																	
2.00	-	-	-	-	-																																																																																	
1.50	-	-	-	-	-																																																																																	
1.00	-	-	-	-	-																																																																																	
0.50	-	-	-	-	-																																																																																	
0.00	-	-	-	-	-																																																																																	
Object	-5V1.5A	2.Values																																																																																				
1.Graph	<p>Output Voltage [V]</p> <p>Load Current [A]</p> <ul style="list-style-type: none"> Input Volt. 18V Input Volt. 24V * Input Volt. 36V ○ Input Volt. 48V ◇ Input Volt. 76V 	<table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="5">Load Current [A]</th> </tr> <tr> <th>18[V]</th> <th>24[V]</th> <th>36[V]</th> <th>48[V]</th> <th>76[V]</th> </tr> </thead> <tbody> <tr><td>-5.00</td><td>2.213</td><td>2.608</td><td>2.991</td><td>3.094</td><td>2.846</td></tr> <tr><td>-4.75</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-4.50</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-4.00</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-3.50</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-3.00</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-2.50</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-2.00</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-1.50</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-1.00</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>-0.50</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>0.00</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr> </tbody> </table>	Output Voltage [V]	Load Current [A]					18[V]	24[V]	36[V]	48[V]	76[V]	-5.00	2.213	2.608	2.991	3.094	2.846	-4.75	-	-	-	-	-	-4.50	-	-	-	-	-	-4.00	-	-	-	-	-	-3.50	-	-	-	-	-	-3.00	-	-	-	-	-	-2.50	-	-	-	-	-	-2.00	-	-	-	-	-	-1.50	-	-	-	-	-	-1.00	-	-	-	-	-	-0.50	-	-	-	-	-	0.00	-	-	-	-	-	+5V: Rated output current
Output Voltage [V]	Load Current [A]																																																																																					
	18[V]	24[V]	36[V]	48[V]	76[V]																																																																																	
-5.00	2.213	2.608	2.991	3.094	2.846																																																																																	
-4.75	-	-	-	-	-																																																																																	
-4.50	-	-	-	-	-																																																																																	
-4.00	-	-	-	-	-																																																																																	
-3.50	-	-	-	-	-																																																																																	
-3.00	-	-	-	-	-																																																																																	
-2.50	-	-	-	-	-																																																																																	
-2.00	-	-	-	-	-																																																																																	
-1.50	-	-	-	-	-																																																																																	
-1.00	-	-	-	-	-																																																																																	
-0.50	-	-	-	-	-																																																																																	
0.00	-	-	-	-	-																																																																																	
			Note: Slanted line shows the range of the rated load current. Intermittent operation occurs when overcurrent protection is activated.																																																																																			

COSEL

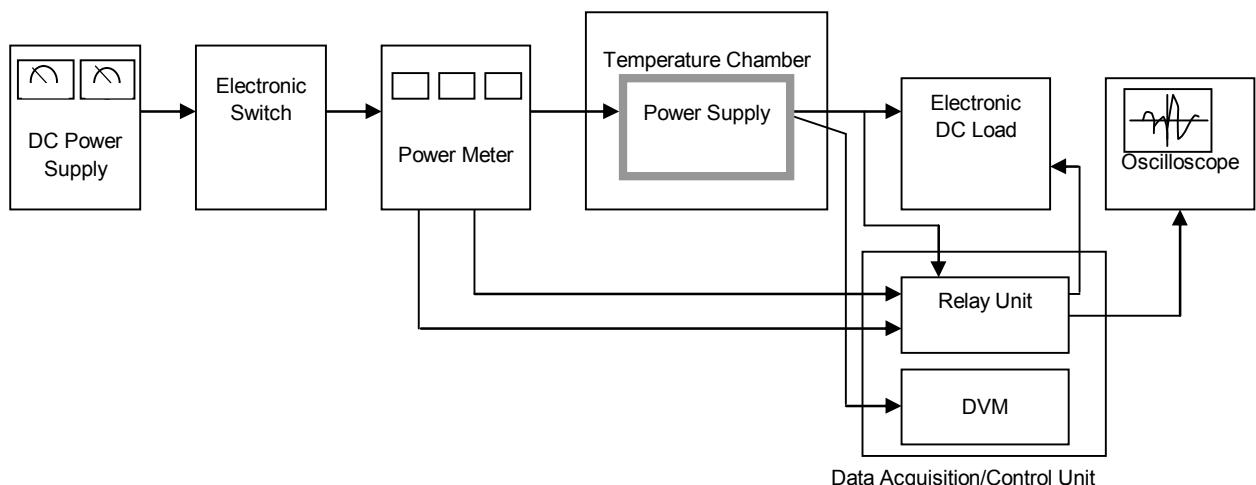


Figure A

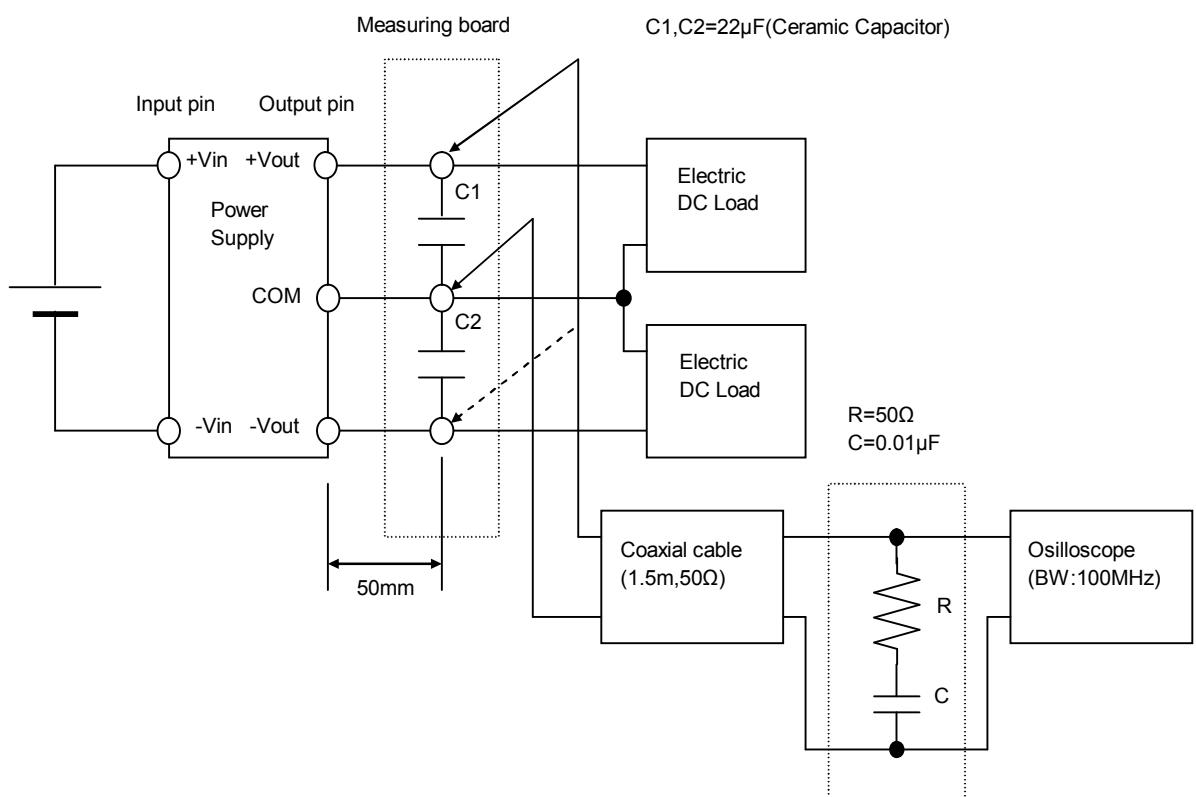


Figure B (Ripple and Ripple noise Characteristic)