



# TEST DATA OF STMGFW154805

Regulated DC Power Supply  
January 24, 2013

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Takahiro Yoneda Design Manager

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Satoshi Kinoshita Design Engineer

**COSEL CO.,LTD.**



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Model	STMGFW154805
Item	Input Current (by Input Voltage)
Object	<p>1. Graph</p> <p>Input Current [A]</p> <p>Input Voltage [V]</p> <p>Note: Slanted line shows the range of the rated input voltage.</p>

Temperature Testing Circuitry	25°C		
	Figure A		
2. Values			
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
5.0	0.002	0.002	0.002
10.0	0.002	0.002	0.002
15.0	0.003	0.003	0.003
16.0	0.003	0.003	0.003
16.5	0.003	0.003	0.003
17.0	0.019	0.538	1.235
17.5	0.019	0.522	1.198
18.0	0.018	0.508	1.053
24.0	0.013	0.378	0.771
36.0	0.011	0.251	0.509
48.0	0.008	0.193	0.382
76.0	0.006	0.124	0.242
80.0	0.007	0.119	0.253
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Model	STMGFW154805																																																
Item	Input Current (by Load Current)																																																
Object	—																																																
1.Graph	<p>—△— Input Volt. 18V      - - □ - - Input Volt. 24V      - - * - - Input Volt. 36V      - - ○ - - Input Volt. 48V      - - ◆ - - Input Volt. 76V</p> <table border="1"> <caption>Data points estimated from Figure A</caption> <thead> <tr> <th>Load Ration [%]</th> <th>18[V] [A]</th> <th>24[V] [A]</th> <th>36[V] [A]</th> <th>48[V] [A]</th> <th>76[V] [A]</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.018</td><td>0.013</td><td>0.010</td><td>0.008</td><td>0.007</td></tr> <tr><td>20</td><td>0.215</td><td>0.160</td><td>0.107</td><td>0.084</td><td>0.056</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>0.616</td><td>0.460</td><td>0.307</td><td>0.229</td><td>0.150</td></tr> <tr><td>80</td><td>0.829</td><td>0.615</td><td>0.407</td><td>0.304</td><td>0.195</td></tr> <tr><td>100</td><td>1.053</td><td>0.771</td><td>0.509</td><td>0.382</td><td>0.242</td></tr> <tr><td>110</td><td>1.170</td><td>0.852</td><td>0.561</td><td>0.420</td><td>0.266</td></tr> </tbody> </table>	Load Ration [%]	18[V] [A]	24[V] [A]	36[V] [A]	48[V] [A]	76[V] [A]	0	0.018	0.013	0.010	0.008	0.007	20	0.215	0.160	0.107	0.084	0.056	40	0.410	0.309	0.208	0.155	0.104	60	0.616	0.460	0.307	0.229	0.150	80	0.829	0.615	0.407	0.304	0.195	100	1.053	0.771	0.509	0.382	0.242	110	1.170	0.852	0.561	0.420	0.266
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Temperature 25°C  
 Testing Circuitry Figure A

## 2.Values

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1.Graph	<p>Legend:</p> <ul style="list-style-type: none"> <li>Input Volt. 18V</li> <li>Input Volt. 24V</li> <li>Input Volt. 36V</li> <li>Input Volt. 48V</li> <li>Input Volt. 76V</li> </ul> <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>0.33</td><td>0.31</td><td>0.38</td><td>0.41</td><td>0.54</td></tr> <tr><td>20</td><td>3.87</td><td>3.83</td><td>3.88</td><td>4.02</td><td>4.32</td></tr> <tr><td>40</td><td>7.35</td><td>7.40</td><td>7.48</td><td>7.43</td><td>7.92</td></tr> <tr><td>60</td><td>11.09</td><td>11.01</td><td>11.04</td><td>10.97</td><td>11.43</td></tr> <tr><td>80</td><td>14.88</td><td>14.69</td><td>14.60</td><td>14.60</td><td>14.85</td></tr> <tr><td>100</td><td>18.86</td><td>18.46</td><td>18.29</td><td>18.29</td><td>18.45</td></tr> <tr><td>110</td><td>20.93</td><td>20.40</td><td>20.14</td><td>20.12</td><td>20.22</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 [%]	18[V]	24[V]	36[V]	48[V]	76[V]	0	0.33	0.31	0.38	0.41	0.54	20	3.87	3.83	3.88	4.02	4.32	40	7.35	7.40	7.48	7.43	7.92	60	11.09	11.01	11.04	10.97	11.43	80	14.88	14.69	14.60	14.60	14.85	100	18.86	18.46	18.29	18.29	18.45	110	20.93	20.40	20.14	20.12	20.22	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-							
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Model	STMGFW154805	Temperature	25°C																																
Item	Efficiency (by Input Voltage)	Testing Circuitry	Figure A																																
Object	—																																		
1.Graph			2.Values																																
<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 a general downward trend as input voltage increases. A vertical slanted line is drawn across the graph, indicating the rated input voltage range.</p>			<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>17</td> <td>82.5</td> <td>80.4</td> </tr> <tr> <td>18</td> <td>82.6</td> <td>80.9</td> </tr> <tr> <td>24</td> <td>83.7</td> <td>82.7</td> </tr> <tr> <td>30</td> <td>82.9</td> <td>83.4</td> </tr> <tr> <td>36</td> <td>83.6</td> <td>83.5</td> </tr> <tr> <td>48</td> <td>81.7</td> <td>83.6</td> </tr> <tr> <td>60</td> <td>81.7</td> <td>83.8</td> </tr> <tr> <td>76</td> <td>80.3</td> <td>82.8</td> </tr> <tr> <td>80</td> <td>79.6</td> <td>82.4</td> </tr> </tbody> </table>	Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	17	82.5	80.4	18	82.6	80.9	24	83.7	82.7	30	82.9	83.4	36	83.6	83.5	48	81.7	83.6	60	81.7	83.8	76	80.3	82.8	80	79.6	82.4
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Note: Slanted line shows the range of the rated input voltage.

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Model	STMGFW154805	Temperature Testing Circuitry	25°C Figure A																																
Item	Line Regulation																																		
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# COSEL

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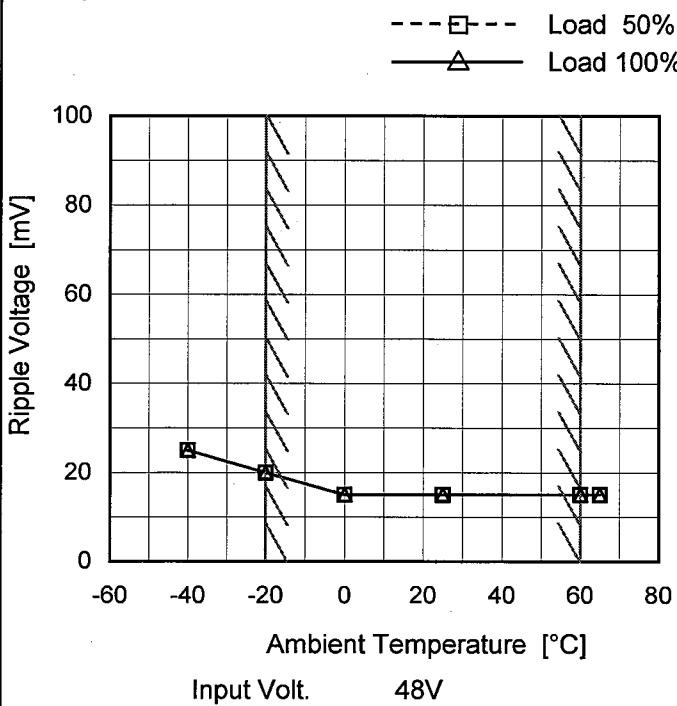
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**COSEL**

Model	STMGFW154805
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V1.5A

## 1.Graph



## Testing Circuitry Figure B

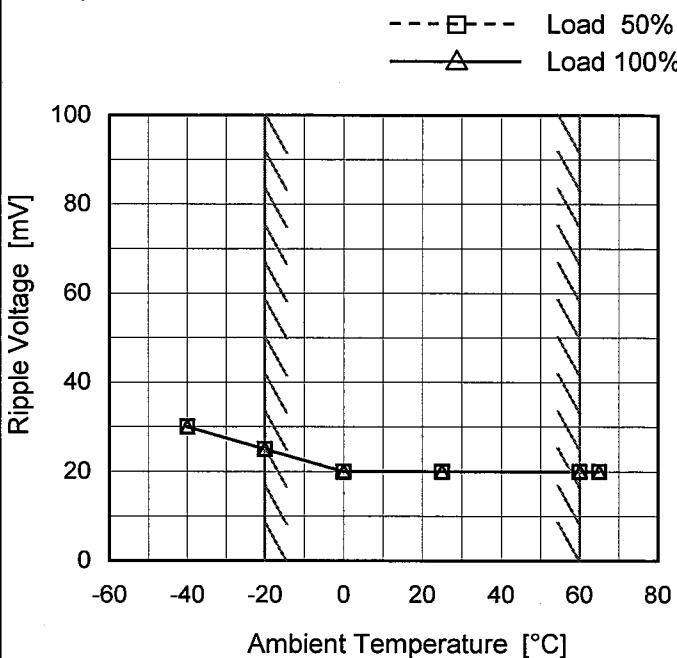
## 2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	25	25
-20	20	20
0	15	15
25	15	15
60	15	15
65	15	15
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

-5V: Rated output current

Object	-5V1.5A
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## 1.Graph



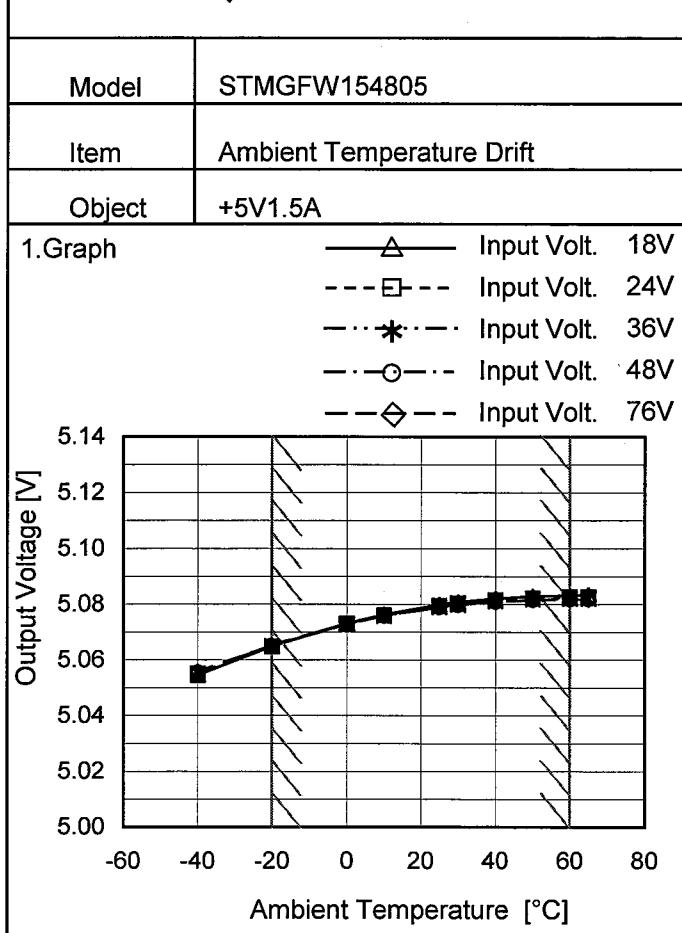
## 2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	30	30
-20	25	25
0	20	20
25	20	20
60	20	20
65	20	20
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

+5V: Rated output current

Measured by 100 MHz Oscilloscope.

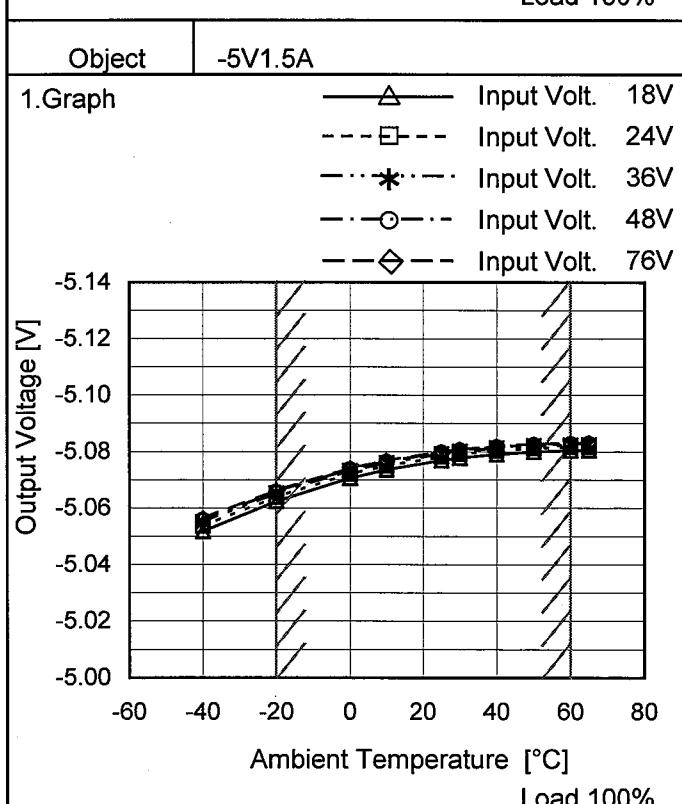
Note: Slanted line shows the range of the rated ambient temperature.

**COSEL**


Testing Circuitry Figure A

## 2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	18[V]	24[V]	36[V]	48[V]	76[V]
-40	5.055	5.055	5.055	5.056	5.056
-20	5.065	5.065	5.065	5.065	5.065
0	5.073	5.073	5.073	5.073	5.073
10	5.076	5.076	5.076	5.076	5.076
25	5.080	5.079	5.079	5.079	5.079
30	5.081	5.080	5.080	5.080	5.080
40	5.082	5.082	5.081	5.081	5.081
50	5.083	5.082	5.082	5.082	5.082
60	5.083	5.083	5.082	5.082	5.082
65	5.083	5.083	5.082	5.082	5.082
--	-	-	-	-	-



## 2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	18[V]	24[V]	36[V]	48[V]	76[V]
-40	-5.052	-5.054	-5.055	-5.056	-5.056
-20	-5.062	-5.064	-5.065	-5.066	-5.066
0	-5.071	-5.072	-5.073	-5.074	-5.074
10	-5.074	-5.075	-5.076	-5.077	-5.077
25	-5.077	-5.078	-5.079	-5.080	-5.080
30	-5.078	-5.079	-5.080	-5.081	-5.081
40	-5.079	-5.080	-5.081	-5.082	-5.082
50	-5.080	-5.081	-5.082	-5.083	-5.083
60	-5.080	-5.082	-5.082	-5.083	-5.083
65	-5.081	-5.082	-5.083	-5.083	-5.083
--	-	-	-	-	-

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



Model	STMGFW154805	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 : -20 - 60°C

Input Voltage : 18 - 76V

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

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

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

### 2. Values

Object	+5V1.5A		Output		Output Voltage Accuracy	
Item	Temperature [°C]	Input Voltage[V]	Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	40	18	0	5.995	±465	±9.3
Minimum Voltage	-20	18	1.5	5.065		

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	-5.962	±450	±9.0
Minimum Voltage	-20	18	1.5	-5.062		

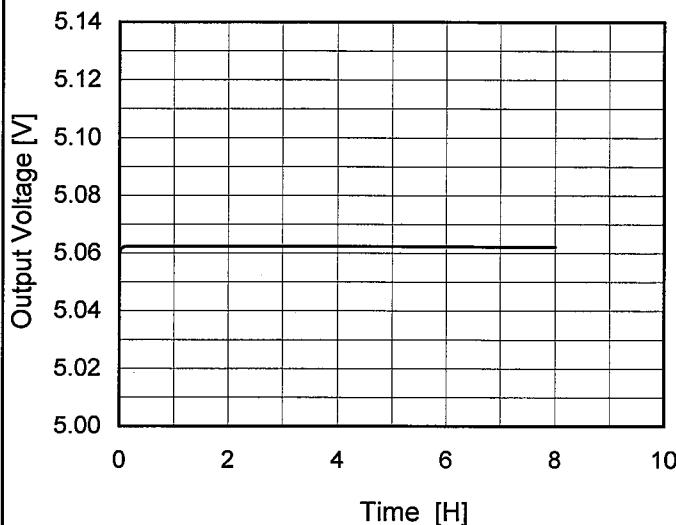
# COSEL

Model STMGFW154805

Item Time Lapse Drift

Object +5V1.5A

1.Graph

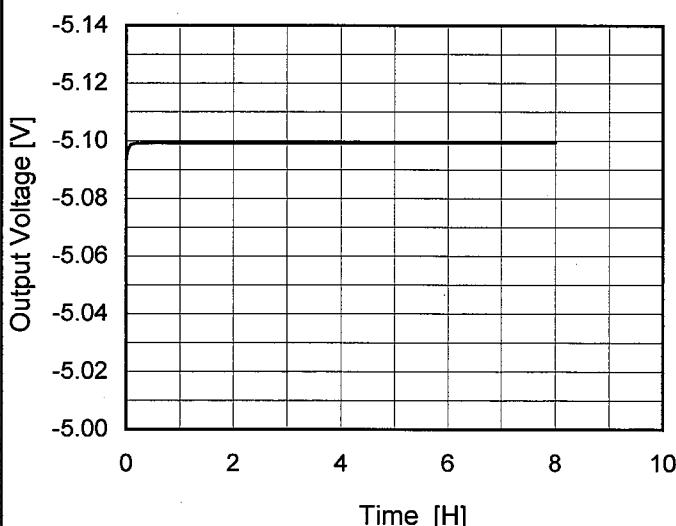


Input Volt. 48V

Load 100%

Object -5V1.5A

1.Graph



Input Volt. 48V

Load 100%

Temperature 25°C  
Testing Circuitry Figure A

2.Values

Time since start [H]	Output Voltage [V]
0.0	5.059
0.5	5.062
1.0	5.062
2.0	5.062
3.0	5.062
4.0	5.062
5.0	5.062
6.0	5.062
7.0	5.062
8.0	5.062

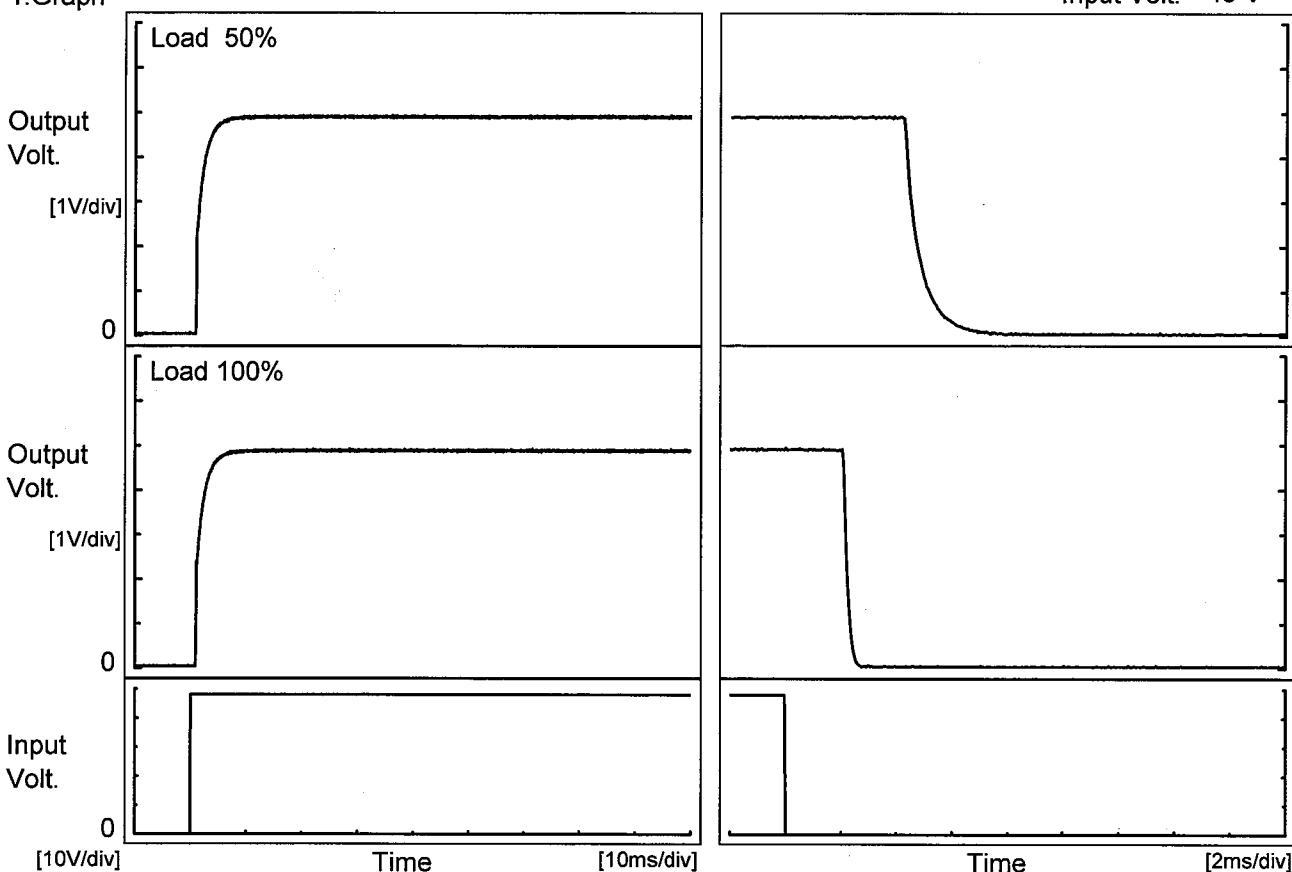
2.Values

Time since start [H]	Output Voltage [V]
0.0	-5.093
0.5	-5.099
1.0	-5.099
2.0	-5.099
3.0	-5.099
4.0	-5.099
5.0	-5.099
6.0	-5.099
7.0	-5.099
8.0	-5.099

**COSEL**

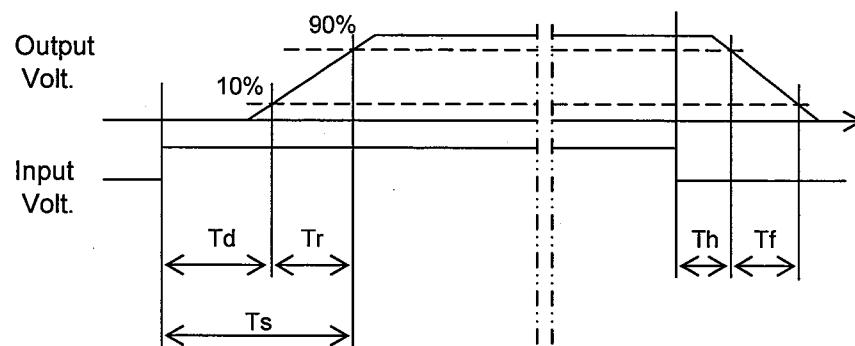
Model	STMGFW154805	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+5V1.5A		

## 1. Graph



## 2. Values

Load	Time	Td	Tr	Ts	Th	Tf	[ms]
50 %		1.0	3.1	4.1	4.3	1.3	
100 %		1.0	3.2	4.2	2.1	0.3	

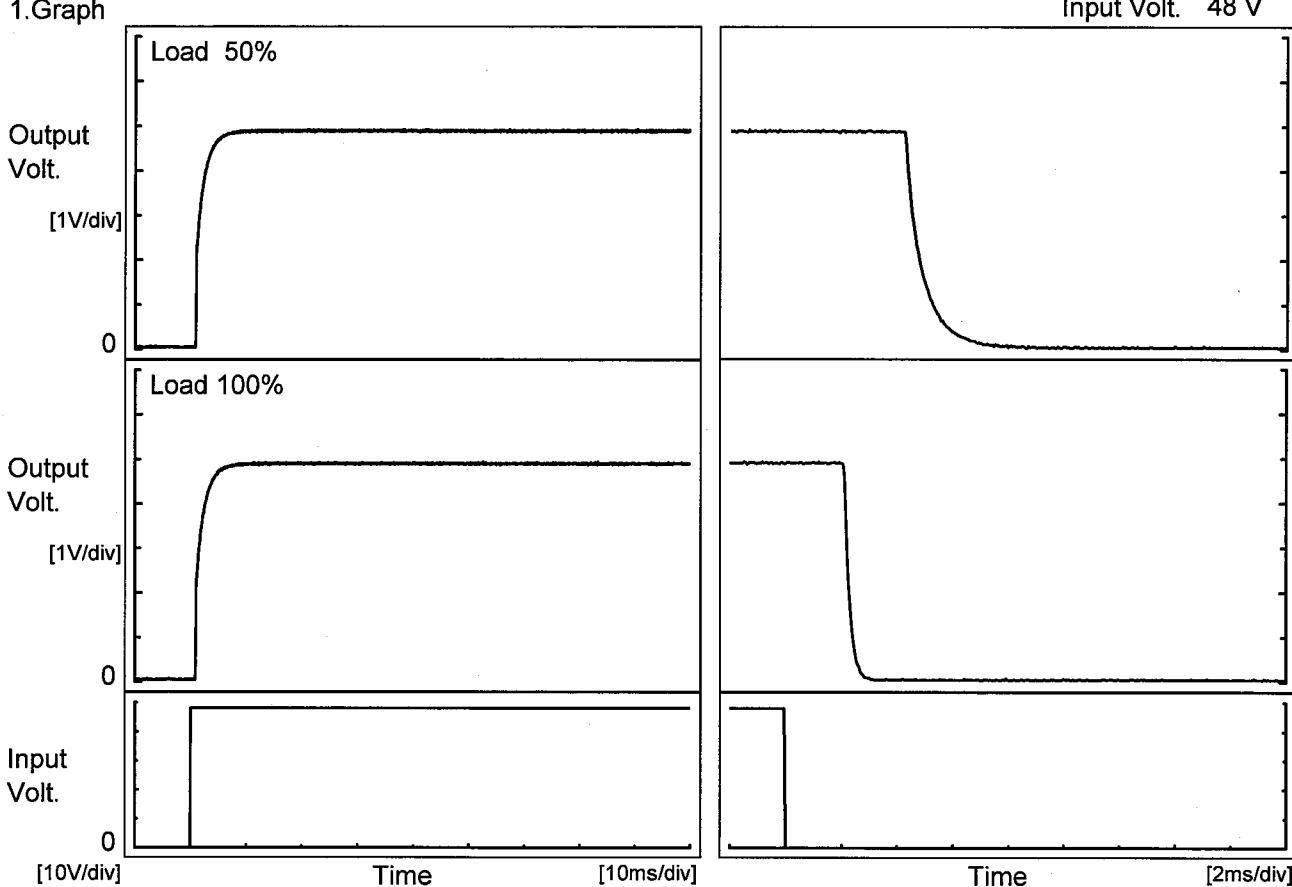


**COSEL**

Model	STMGFW154805
Item	Rise and Fall Time
Object	-5V1.5A

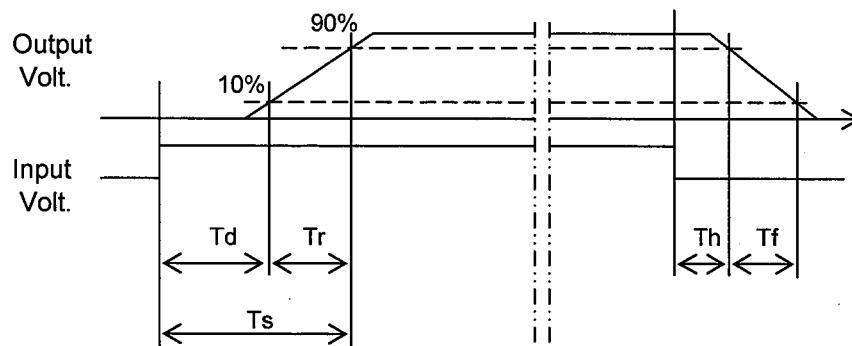
Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



## 2. Values

Load	Time	Td	Tr	Ts	Th	Tf	[ms]
50 %		1.0	3.1	4.1	4.3	1.4	
100 %		1.0	3.1	4.1	2.1	0.4	

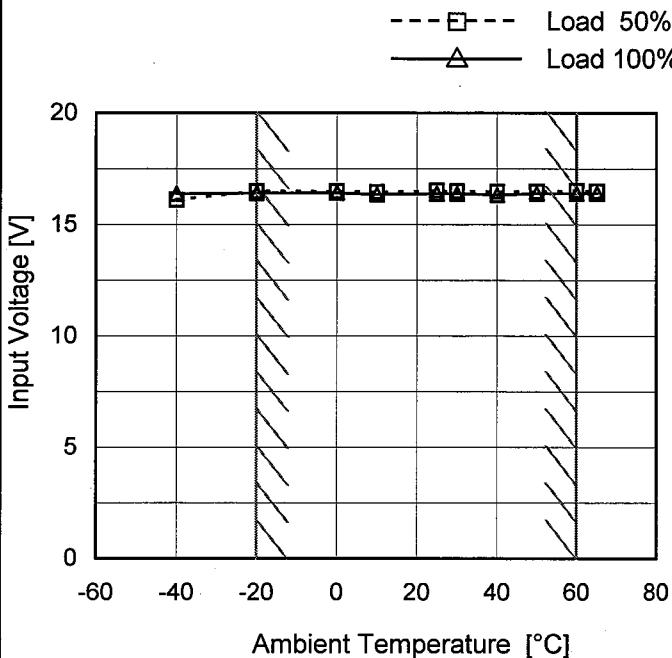


# COSEL

Model	STMGFW154805
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V1.5A

## Testing Circuitry Figure A

## 1.Graph

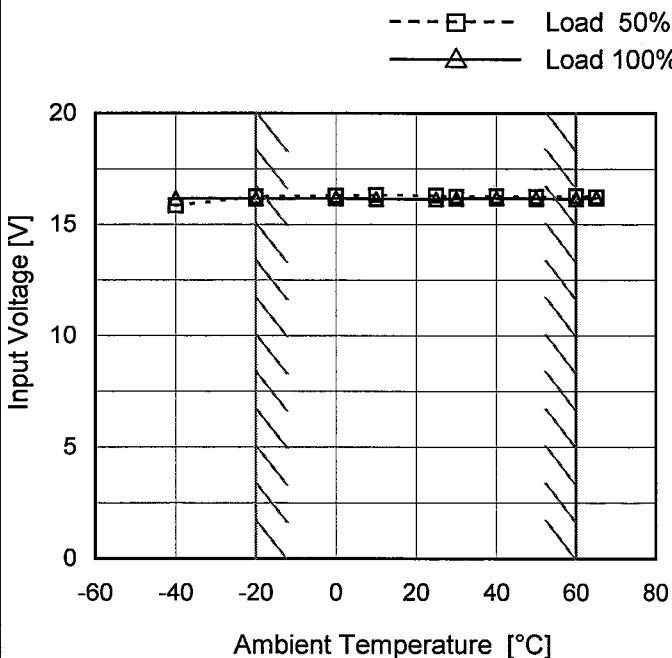


## 2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	16.1	16.4
-20	16.5	16.5
0	16.5	16.5
10	16.5	16.4
25	16.6	16.4
30	16.5	16.4
40	16.5	16.4
50	16.5	16.4
60	16.6	16.4
65	16.5	16.4
--	-	-

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

## 1.Graph



## 2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	15.9	16.2
-20	16.3	16.2
0	16.3	16.2
10	16.4	16.2
25	16.3	16.2
30	16.3	16.2
40	16.3	16.2
50	16.3	16.2
60	16.3	16.2
65	16.3	16.2
--	-	-

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



Model	STMGFW154805	Temperature	25°C																																																																																				
Item	Overcurrent Protection	Testing Circuitry	Figure A																																																																																				
Object	+5V1.5A	2. Values																																																																																					
1. Graph																																																																																							
Object	-5V1.5A	<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>2.398</td><td>2.788</td><td>3.189</td><td>3.288</td><td>3.037</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	2.398	2.788	3.189	3.288	3.037	4.75	-	-	-	-	-	4.50	-	-	-	-	-	4.00	-	-	-	-	-	3.50	-	-	-	-	-	3.00	-	-	-	-	-	2.50	-	-	-	-	-	2.00	-	-	-	-	-	1.50	-	-	-	-	-	1.00	-	-	-	-	-	0.50	-	-	-	-	-	0.00	-	-	-	-	-
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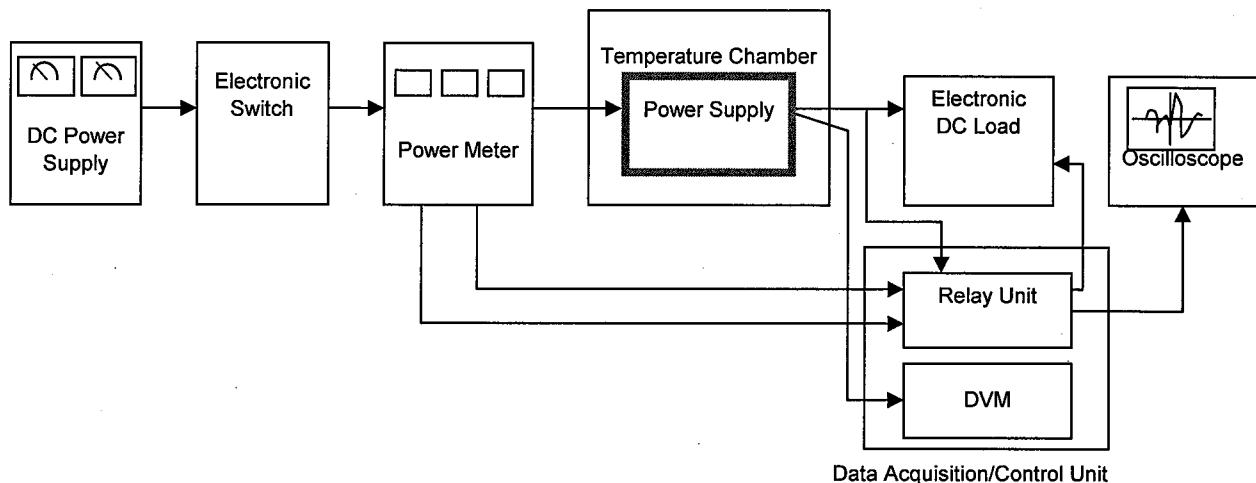


Figure A

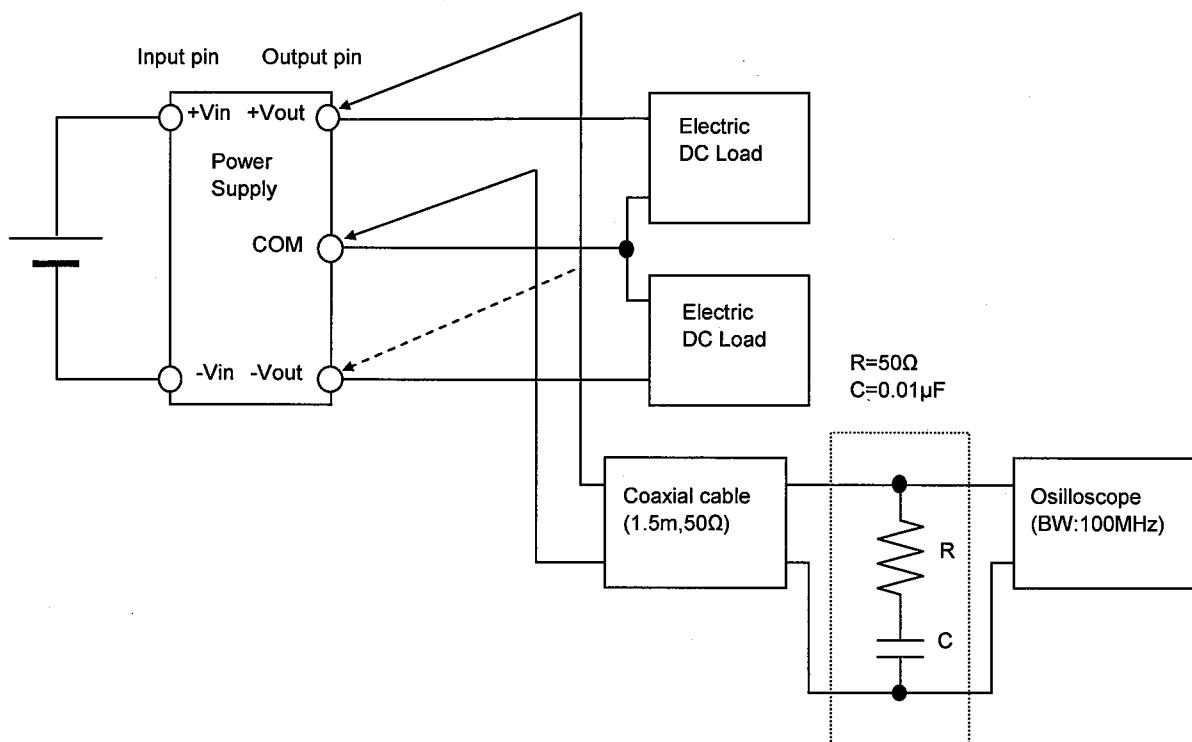


Figure B (Ripple and Ripple noise Characteristic)