

# TEST DATA OF STMGFS154815

Regulated DC Power Supply  
January 26, 2013

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Satoshi Kinoshita 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.Ripple Voltage (by Load Current) . . . . .	8
9.Ripple-Noise . . . . .	9
10.Ripple Voltage (by Ambient Temperature) . . . . .	10
11.Ambient Temperature Drift . . . . .	11
12.Output Voltage Accuracy . . . . .	12
13.Time Lapse Drift . . . . .	13
14.Rise and Fall Time . . . . .	14
15.Minimum Input Voltage for Regulated Output Voltage . . . . .	15
16.Overcurrent Protection . . . . .	16
17.Figure of Testing Circuitry . . . . .	17

(Final Page 17)

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Model		STMGFS154815	
Item		Input Current (by Input Voltage)	
Object			
1.Graph		2.Values	

—△—

Load 100%

---□---

Load 50%

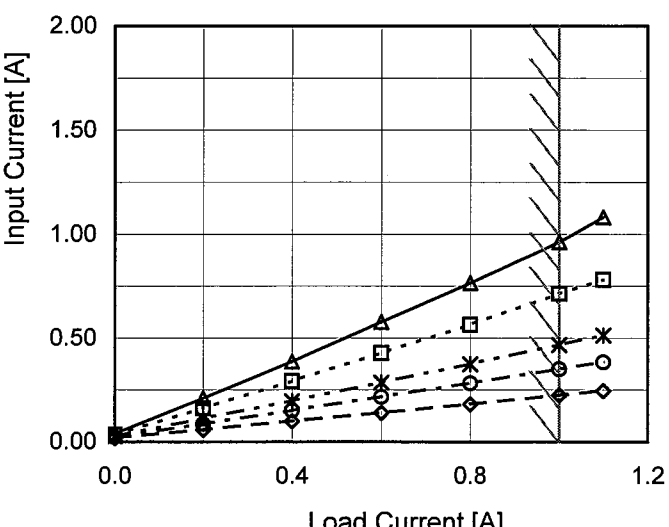
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Load 0%

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

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	0.002	0.002	0.002
16.0	0.002	0.002	0.002
16.5	0.042	0.522	1.049
17.0	0.042	0.509	1.024
17.5	0.041	0.493	0.993
18.0	0.040	0.479	0.962
24.0	0.033	0.358	0.714
36.0	0.027	0.240	0.467
48.0	0.023	0.182	0.351
76.0	0.018	0.119	0.225
80.0	0.018	0.114	0.213
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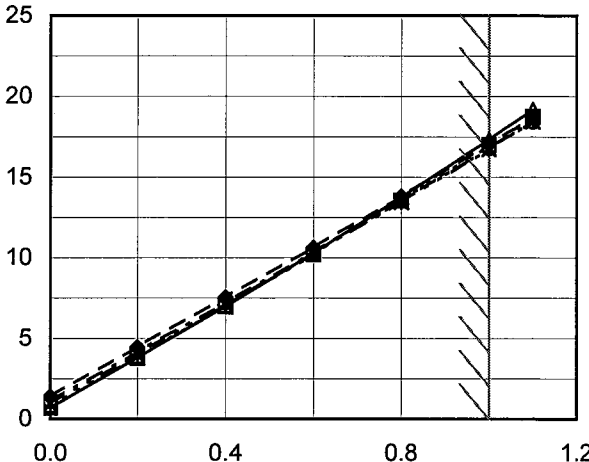
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Model	STMGFS154815					
Item	Input Current (by Load Current)					
Object						
1.Graph		<div><div>—△— Input Volt. 18V</div><div>---□--- Input Volt. 24V</div><div>-·-·*·-·- Input Volt. 36V</div><div>-·-·○-·- Input Volt. 48V</div><div>---◇--- Input Volt. 76V</div></div> <div></div>				
Note: Slanted line shows the range of the rated load current.						

Temperature 25°C	
Testing Circuitry Figure A	

2.Values

Load Current [A]	Input Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	0.040	0.033	0.027	0.023	0.018
0.2	0.211	0.162	0.112	0.087	0.059
0.4	0.387	0.292	0.197	0.151	0.099
0.6	0.579	0.428	0.286	0.216	0.140
0.8	0.766	0.564	0.375	0.283	0.182
1.0	0.962	0.714	0.467	0.351	0.225
1.1	1.082	0.781	0.513	0.385	0.246
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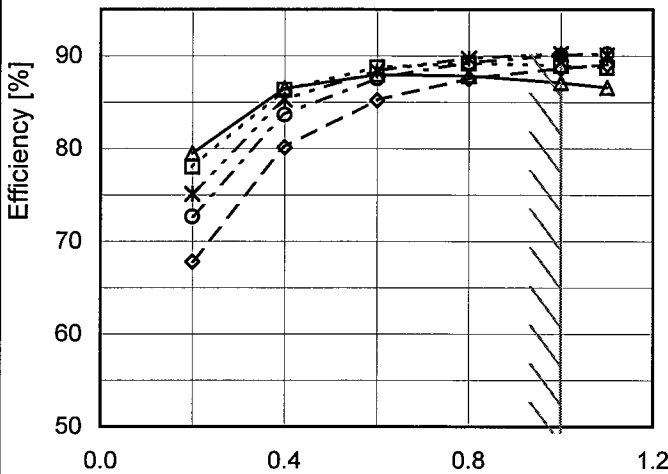
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Item		Input Power (by Load Current)		Testing Circuitry Figure A																																																																														
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		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="5">Input Power [W]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>0.0</td><td>0.72</td><td>0.80</td><td>0.95</td><td>1.10</td><td>1.41</td></tr><tr><td>0.2</td><td>3.80</td><td>3.87</td><td>4.02</td><td>4.16</td><td>4.45</td></tr><tr><td>0.4</td><td>6.98</td><td>7.00</td><td>7.09</td><td>7.22</td><td>7.54</td></tr><tr><td>0.6</td><td>10.30</td><td>10.22</td><td>10.26</td><td>10.36</td><td>10.64</td></tr><tr><td>0.8</td><td>13.76</td><td>13.55</td><td>13.48</td><td>13.54</td><td>13.82</td></tr><tr><td>1.0</td><td>17.35</td><td>17.00</td><td>16.76</td><td>16.79</td><td>17.06</td></tr><tr><td>1.1</td><td>19.20</td><td>18.74</td><td>18.46</td><td>18.43</td><td>18.68</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr></table>				Load Current [A]	Input Power [W]					Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	0.0	0.72	0.80	0.95	1.10	1.41	0.2	3.80	3.87	4.02	4.16	4.45	0.4	6.98	7.00	7.09	7.22	7.54	0.6	10.30	10.22	10.26	10.36	10.64	0.8	13.76	13.55	13.48	13.54	13.82	1.0	17.35	17.00	16.76	16.79	17.06	1.1	19.20	18.74	18.46	18.43	18.68	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-	--	-	-	-	-	-
Load Current [A]	Input Power [W]																																																																																	
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1.Graph		2.Values																																	
<div><div><div><div></div><div></div><div></div></div><div>Load 50%</div></div><div><div><div></div><div></div><div></div></div><div>Load 100%</div></div></div> <table><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>87.4</td><td>86.2</td></tr><tr><td>18</td><td>87.6</td><td>87.1</td></tr><tr><td>24</td><td>87.8</td><td>88.8</td></tr><tr><td>30</td><td>87.7</td><td>89.8</td></tr><tr><td>36</td><td>87.2</td><td>90.2</td></tr><tr><td>48</td><td>86.2</td><td>90.1</td></tr><tr><td>60</td><td>85.0</td><td>89.7</td></tr><tr><td>76</td><td>83.4</td><td>88.8</td></tr><tr><td>80</td><td>83.0</td><td>88.4</td></tr></tbody></table> <p>Note: Slanted line shows the range of the rated input voltage.</p>		Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	17	87.4	86.2	18	87.6	87.1	24	87.8	88.8	30	87.7	89.8	36	87.2	90.2	48	86.2	90.1	60	85.0	89.7	76	83.4	88.8	80	83.0	88.4		
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0.6	88.0	88.7	88.4	87.6	85.2																																																																													
0.8	87.9	89.2	89.7	89.3	87.6																																																																													
1.0	87.1	88.9	90.2	90.1	88.7																																																																													
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Model	STMGFS154815	Temperature 25°C Testing Circuitry Figure A																																	
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<div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> <p>Output Voltage [V]</p> <p>Input Voltage [V]</p> <p>Note: Slanted line shows the range of the rated input voltage.</p>		<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Output Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>17</td><td>15.092</td><td>15.096</td></tr><tr><td>18</td><td>15.092</td><td>15.097</td></tr><tr><td>24</td><td>15.092</td><td>15.097</td></tr><tr><td>30</td><td>15.092</td><td>15.097</td></tr><tr><td>36</td><td>15.093</td><td>15.097</td></tr><tr><td>48</td><td>15.092</td><td>15.097</td></tr><tr><td>60</td><td>15.092</td><td>15.097</td></tr><tr><td>76</td><td>15.092</td><td>15.097</td></tr><tr><td>80</td><td>15.092</td><td>15.097</td></tr></table>		Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	17	15.092	15.096	18	15.092	15.097	24	15.092	15.097	30	15.092	15.097	36	15.093	15.097	48	15.092	15.097	60	15.092	15.097	76	15.092	15.097	80	15.092	15.097
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Output Voltage [V]

15.40

15.30

15.20

15.10

15.00

14.90

14.80

14.70

10

30

50

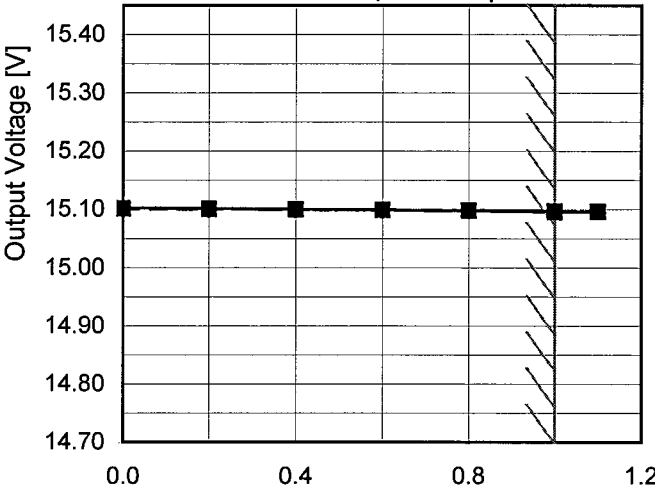
70

90

Input Voltage [V]

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

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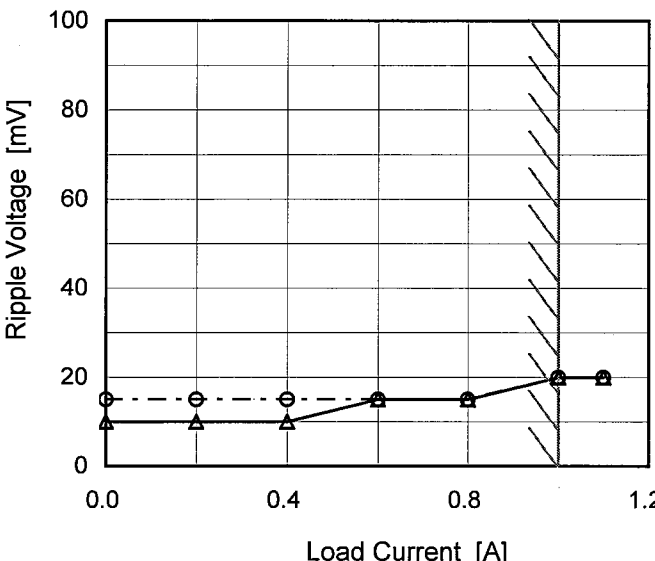
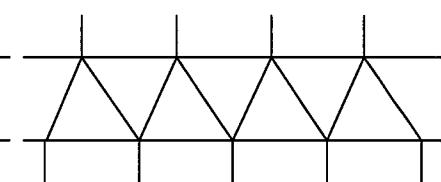
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0.6	15.100	15.100	15.099	15.099	15.098																																																																													
0.8	15.098	15.099	15.098	15.098	15.097																																																																													
1.0	15.096	15.097	15.097	15.097	15.097																																																																													
1.1	15.097	15.096	15.097	15.097	15.096																																																																													
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Note: Slanted line shows the range of the rated load current.																																																																																		

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Model		STMGFS154815		Temperature 25°C																																							
Item		Ripple Voltage (by Load Current)		Testing Circuitry Figure B																																							
Object		+15V1A																																									
1.Graph				2.Values																																							
<div><div><div>—△—</div><div>Input Volt.</div><div>18V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>76V</div></div></div>  <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>				<table><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><tr><td>0.0</td><td>10</td><td>15</td></tr><tr><td>0.2</td><td>10</td><td>15</td></tr><tr><td>0.4</td><td>10</td><td>15</td></tr><tr><td>0.6</td><td>15</td><td>15</td></tr><tr><td>0.8</td><td>15</td><td>15</td></tr><tr><td>1.0</td><td>20</td><td>20</td></tr><tr><td>1.1</td><td>20</td><td>20</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></table>		Load Current [A]	Ripple Voltage [mV]		Input Volt. 18 [V]	Input Volt. 76 [V]	0.0	10	15	0.2	10	15	0.4	10	15	0.6	15	15	0.8	15	15	1.0	20	20	1.1	20	20	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																										
	Input Volt. 18 [V]	Input Volt. 76 [V]																																									
0.0	10	15																																									
0.2	10	15																																									
0.4	10	15																																									
0.6	15	15																																									
0.8	15	15																																									
1.0	20	20																																									
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<div><div>Ripple [mVp-p]</div><div>Fig.Complex Ripple Wave Form</div></div>																																											

- 8 -

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Model		STMGFS154815																																							
Item		Ripple-Noise																																							
Object		+15V1A																																							
1.Graph		2.Values																																							
<div><div><div><div><div></div><div></div></div><div>Input Volt.</div><div>18V</div></div><div><div><div></div><div></div></div><div>Input Volt.</div><div>76V</div></div></div><div><p>Ripple-Noise [mV]</p><p>Load Current [A]</p></div><div><p>Measured by 100 MHz Oscilloscope.</p><p>Ripple-Noise is shown as p-p in the figure below.</p><p>Note: Slanted line shows the range of the rated load current.</p></div><div><div><div><div></div><div></div></div><div>Ripple Noise[mVp-p]</div><div></div></div><p>Fig.Complex Ripple Noise Wave Form</p></div></div>		<table><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><tr><td>0.0</td><td>20</td><td>20</td></tr><tr><td>0.2</td><td>25</td><td>25</td></tr><tr><td>0.4</td><td>30</td><td>30</td></tr><tr><td>0.6</td><td>30</td><td>30</td></tr><tr><td>0.8</td><td>30</td><td>30</td></tr><tr><td>1.0</td><td>30</td><td>40</td></tr><tr><td>1.1</td><td>40</td><td>40</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></table>		Load Current [A]	Ripple-Noise [mV]		Input Volt. 18 [V]	Input Volt. 76 [V]	0.0	20	20	0.2	25	25	0.4	30	30	0.6	30	30	0.8	30	30	1.0	30	40	1.1	40	40	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																								
	Input Volt. 18 [V]	Input Volt. 76 [V]																																							
0.0	20	20																																							
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0.4	30	30																																							
0.6	30	30																																							
0.8	30	30																																							
1.0	30	40																																							
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- 9 -

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Model		STMGFS154815	
Item		Ambient Temperature Drift	
Object		+15V1A	

1.Graph

—△—

Input Volt.

18V

---□---

Input Volt.

24V

---\*---

Input Volt.

36V

---○---

Input Volt.

48V

---◇---

Input Volt.

76V

Output Voltage [V]

Ambient Temperature [°C]

Load 100%

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

2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-40	15.021	15.022	15.023	15.023	15.024
-20	15.050	15.051	15.052	15.052	15.052
0	15.072	15.073	15.074	15.074	15.074
10	15.081	15.082	15.082	15.083	15.083
25	15.096	15.097	51.097	15.097	15.097
30	15.096	15.097	15.097	15.098	15.097
40	15.101	15.101	15.102	15.103	15.102
50	15.106	15.106	15.107	15.107	15.107
60	15.110	15.111	15.111	15.111	15.111
65	15.112	15.112	15.113	15.113	15.112
--	-	-	-	-	-



		Testing Circuitry Figure A
Model	STMGFS154815	
Item	Output Voltage Accuracy	
Object	+15V1A	

### 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 : 0 - 1A

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

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

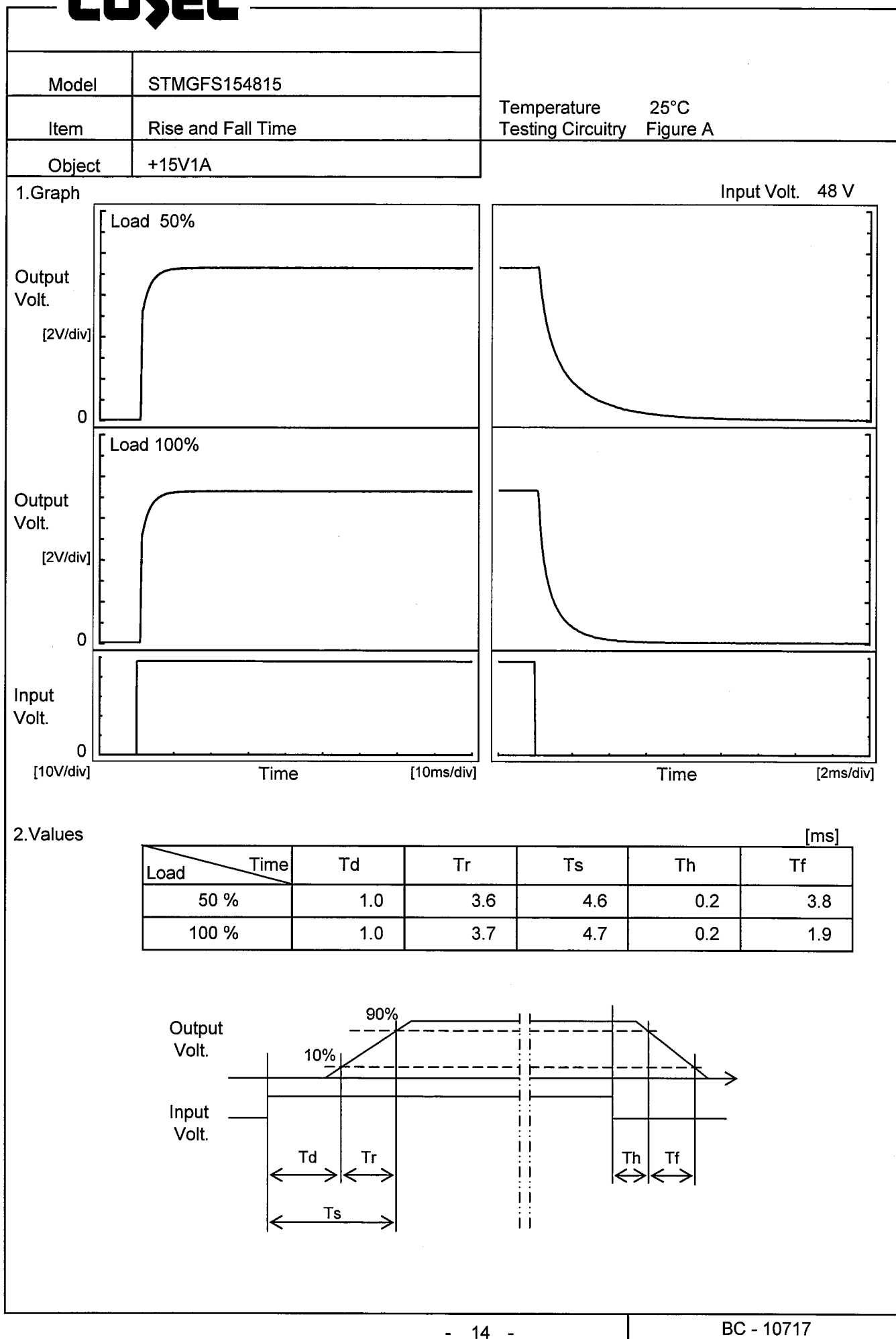
### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	18	0	15.116	±33	±0.2
Minimum Voltage	-20	18	1	15.050		

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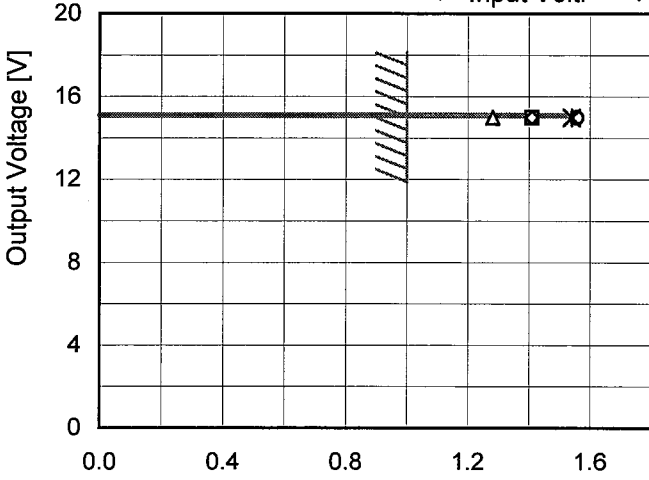
Model	STMGFS154815		
Item	Time Lapse Drift	Temperature	25°C
		Testing Circuitry	Figure A
Object	+15V1A		
1.Graph		2.Values	
<div><div><div>Output Voltage [V]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></di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Model	STMGFS154815																																																																																								
Item	Overcurrent Protection																																																																																								
Object	+15V1A																																																																																								
1.Graph		2.Values																																																																																							
<div><div><div>△</div><div>Input Volt.</div><div>18V</div></div><div><div>□</div><div>Input Volt.</div><div>24V</div></div><div><div>*</div><div>Input Volt.</div><div>36V</div></div><div><div>○</div><div>Input Volt.</div><div>48V</div></div><div><div>◇</div><div>Input Volt.</div><div>76V</div></div></div> <div></div> <div>Note: Slanted line shows the range of the rated load current.</div> <div>Intermittent operation occurs when overcurrent protection is activated.</div>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="5">Load Current [A]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>15.0</td><td>1.282</td><td>1.411</td><td>1.540</td><td>1.556</td><td>1.411</td></tr><tr><td>14.3</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>13.5</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>12.0</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>10.5</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>9.0</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>7.5</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>6.0</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>4.5</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>3.0</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>1.5</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.0</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr></table>					Output Voltage [V]	Load Current [A]					Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	15.0	1.282	1.411	1.540	1.556	1.411	14.3	-	-	-	-	-	13.5	-	-	-	-	-	12.0	-	-	-	-	-	10.5	-	-	-	-	-	9.0	-	-	-	-	-	7.5	-	-	-	-	-	6.0	-	-	-	-	-	4.5	-	-	-	-	-	3.0	-	-	-	-	-	1.5	-	-	-	-	-	0.0	-	-	-	-	-
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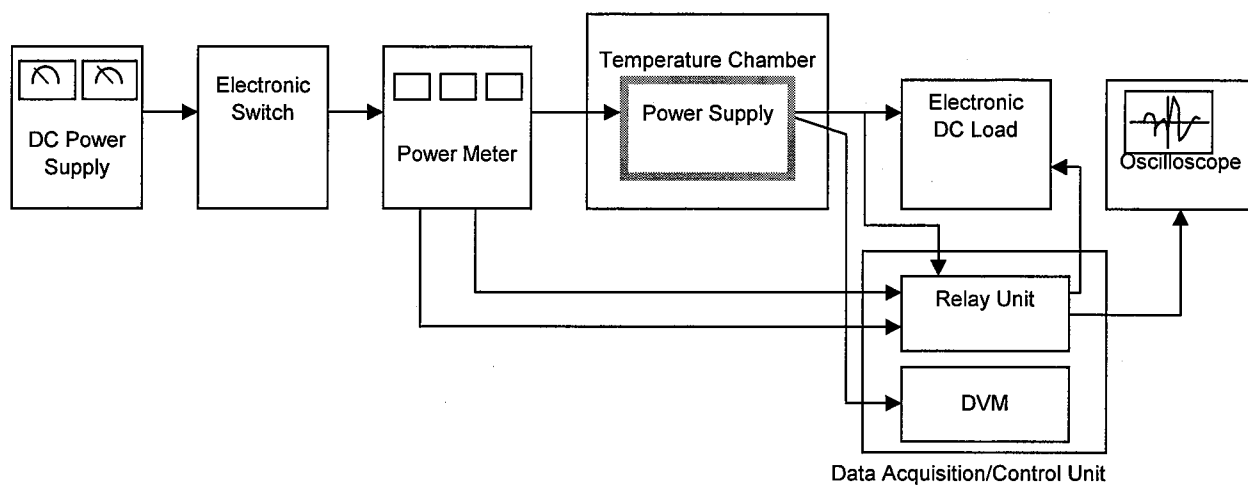


Figure A

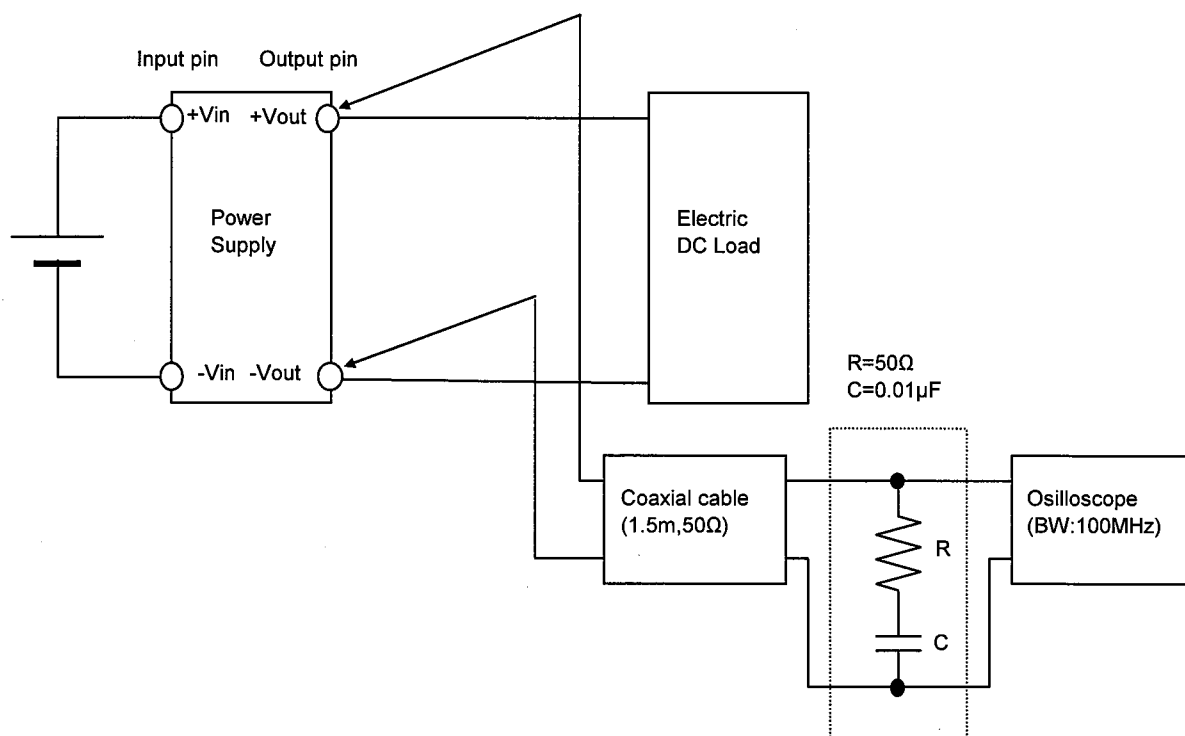


Figure B (Ripple and Ripple noise Characteristic)