参考資料

COSEL

TEST DATA OF STMGFW154805

Regulated DC Power Supply
January 24, 2013

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COSEL CO.,LTD.

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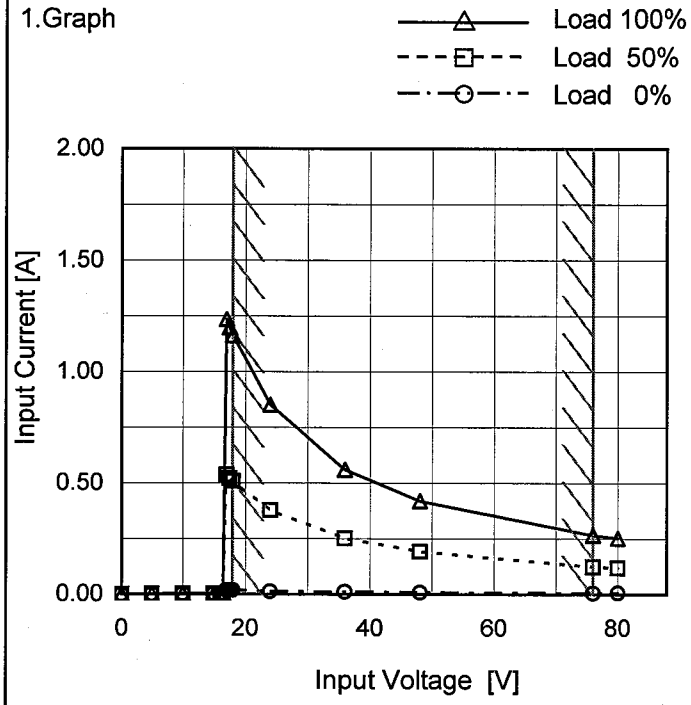
1.Graph



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

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
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

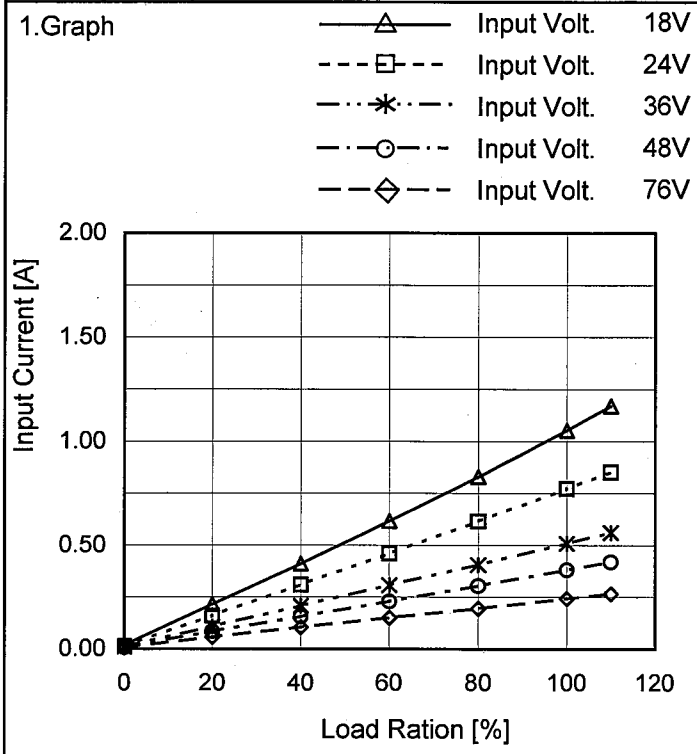
BC - 10729

COSEL

Model	STMGFW154805
Item	Input Current (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

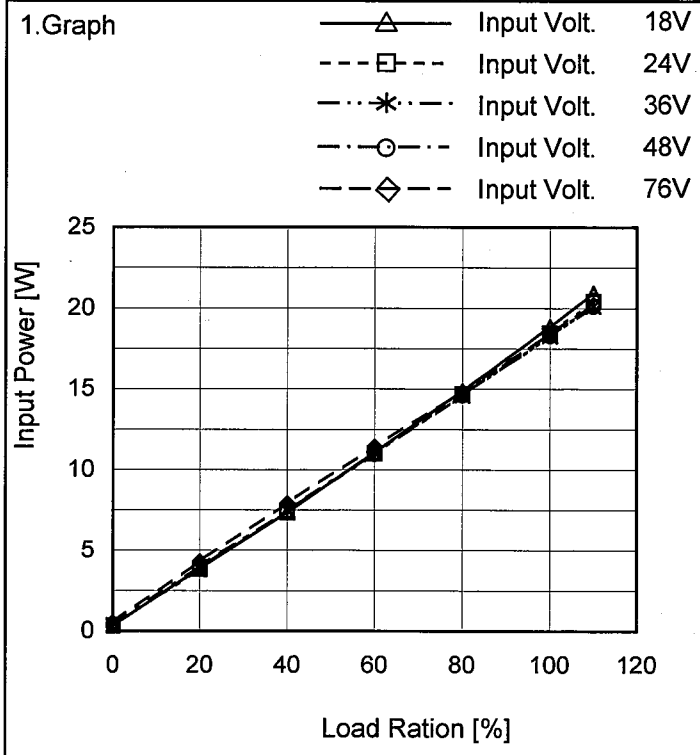
Load Ration [%]	Input Current [A]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.018	0.013	0.010	0.008	0.007
20	0.215	0.160	0.107	0.084	0.056
40	0.410	0.309	0.208	0.155	0.104
60	0.616	0.460	0.307	0.229	0.150
80	0.829	0.615	0.407	0.304	0.195
100	1.053	0.771	0.509	0.382	0.242
110	1.170	0.852	0.561	0.420	0.266
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	STMGFW154805
Item	Input Power (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Ration [%]	Input Power [W]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	0.33	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
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

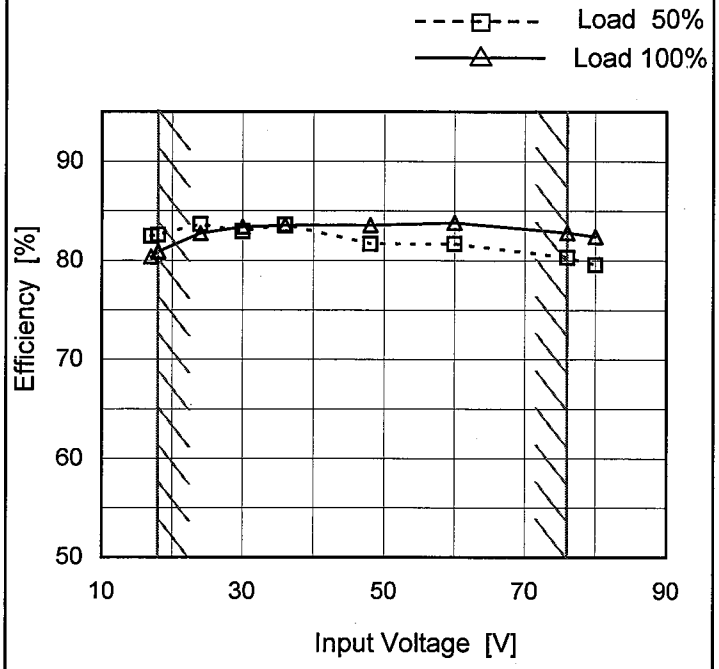
BC - 10729

COSEL

Model	STMGFW154805
Item	Efficiency (by Input Voltage)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

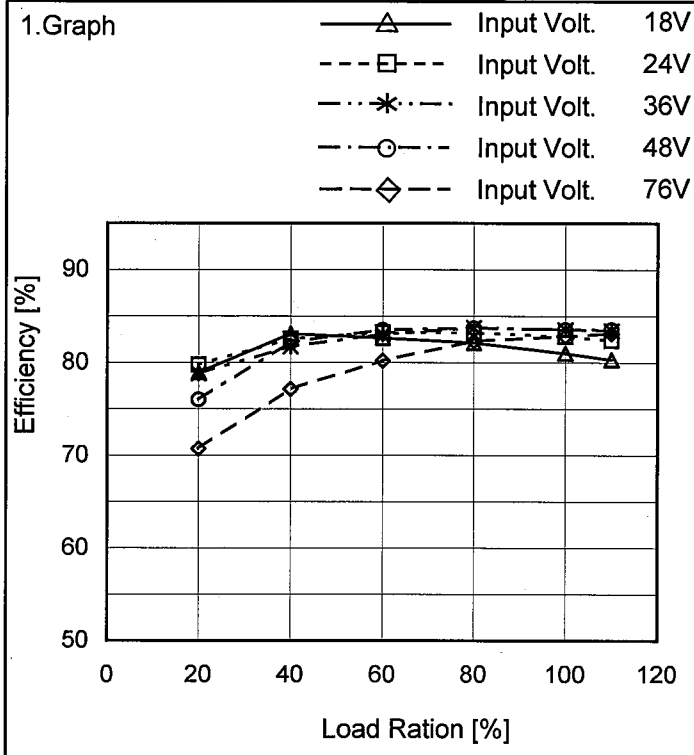
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	82.5	80.4
18	82.6	80.9
24	83.7	82.7
30	82.9	83.4
36	83.6	83.5
48	81.7	83.6
60	81.7	83.8
76	80.3	82.8
80	79.6	82.4

COSEL

Model	STMGFW154805
Item	Efficiency (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

Load Ration [%]	Efficiency [%]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0	-	-	-	-	-
20	78.9	79.8	78.8	76.0	70.7
40	83.1	82.5	81.7	82.2	77.1
60	82.7	83.2	83.0	83.5	80.2
80	82.2	83.2	83.7	83.7	82.3
100	81.0	82.8	83.5	83.5	82.8
110	80.3	82.4	83.5	83.5	83.1
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

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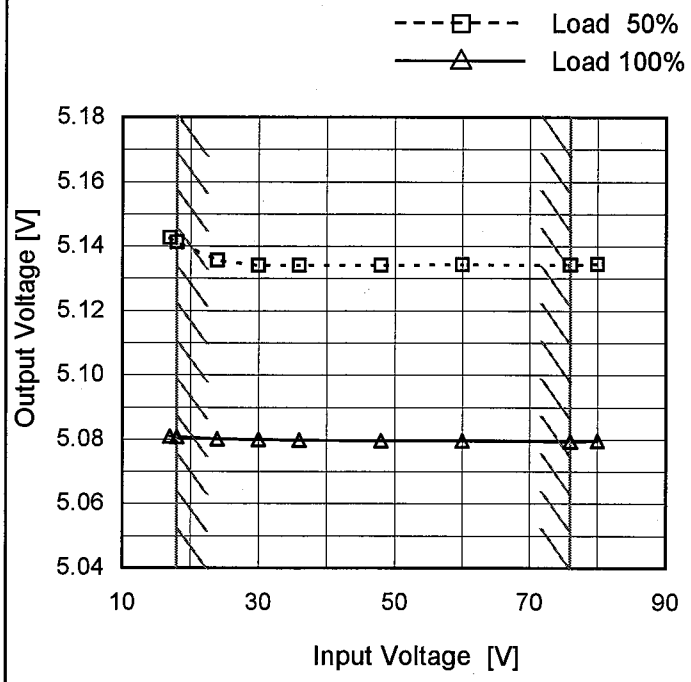
Model	STMGFW154805
Item	Line Regulation
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

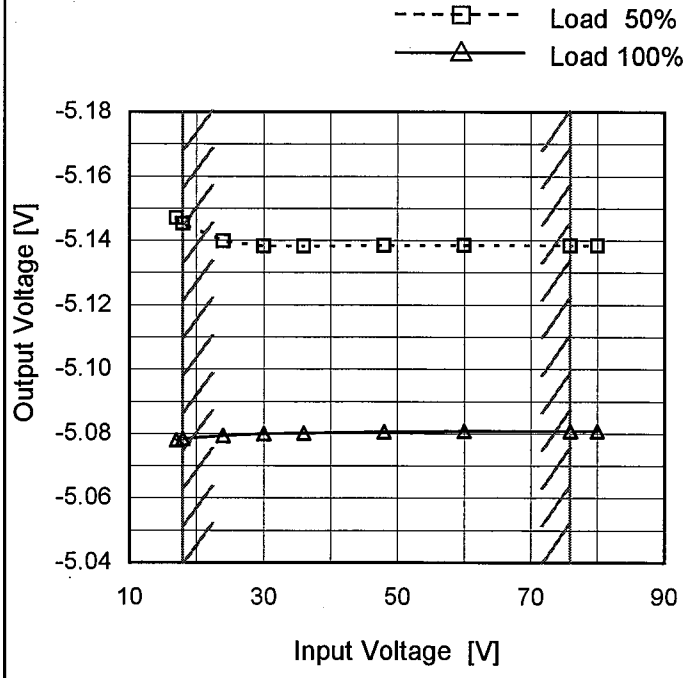


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	5.143	5.081
18	5.141	5.081
24	5.136	5.080
30	5.134	5.080
36	5.134	5.080
48	5.134	5.080
60	5.134	5.080
76	5.134	5.079
80	5.135	5.080

Object	-5V1.5A

1.Graph



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

2.Values

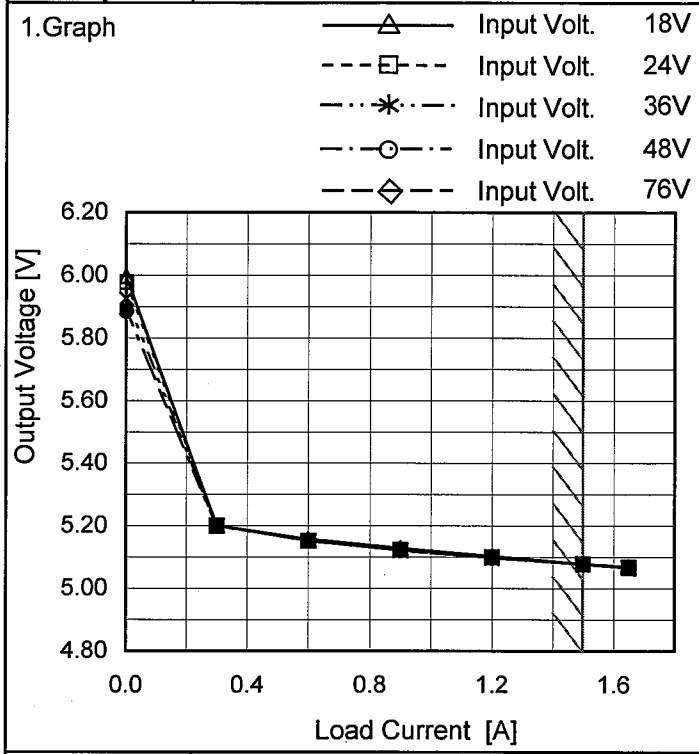
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	-5.147	-5.078
18	-5.145	-5.078
24	-5.140	-5.079
30	-5.138	-5.080
36	-5.138	-5.080
48	-5.138	-5.081
60	-5.138	-5.081
76	-5.138	-5.081
80	-5.138	-5.081

COSEL

Model	STMGFW154805
Item	Load Regulation
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

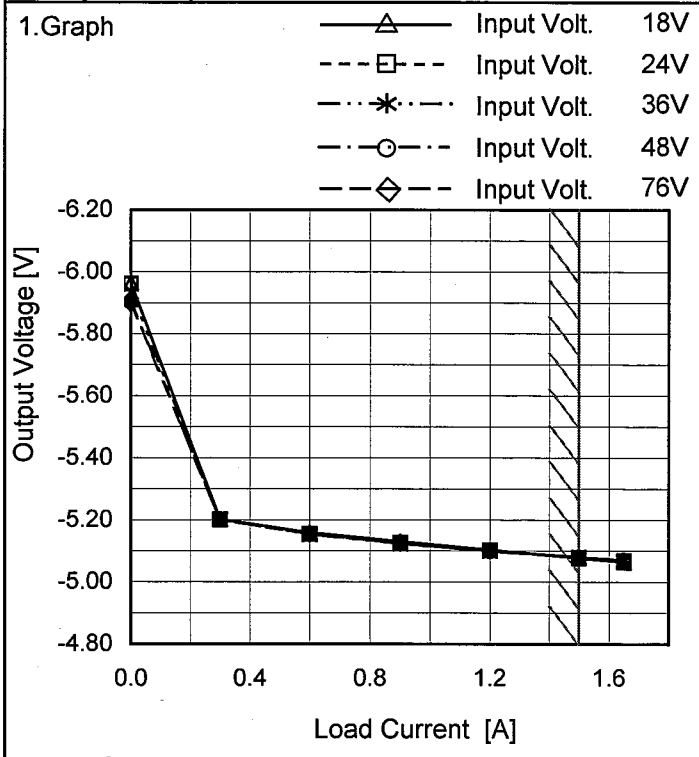


2.Values

Load Current [A]	Output Voltage [V]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	5.996	5.976	5.926	5.886	5.887
0.30	5.201	5.200	5.200	5.201	5.201
0.60	5.157	5.152	5.152	5.152	5.152
0.90	5.129	5.124	5.122	5.122	5.122
1.20	5.104	5.101	5.098	5.098	5.098
1.50	5.079	5.078	5.078	5.078	5.078
1.65	5.067	5.068	5.069	5.069	5.069
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

Object	-5V1.5A

1.Graph



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

2.Values

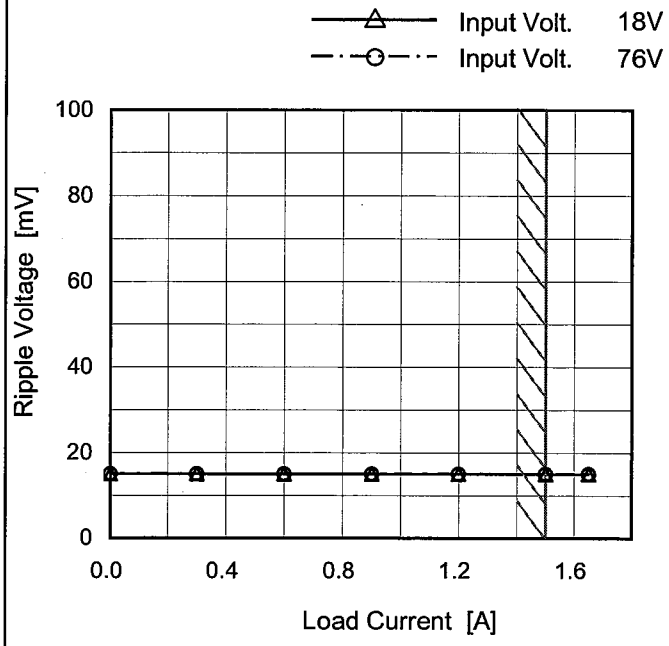
Load Current [A]	Output Voltage [V]				
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	-5.963	-5.961	-5.935	-5.902	-5.895
0.30	-5.202	-5.200	-5.201	-5.201	-5.202
0.60	-5.159	-5.154	-5.154	-5.154	-5.154
0.90	-5.130	-5.126	-5.124	-5.124	-5.124
1.20	-5.104	-5.102	-5.100	-5.100	-5.100
1.50	-5.077	-5.079	-5.080	-5.080	-5.080
1.65	-5.065	-5.067	-5.070	-5.071	-5.071
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

COSEL

Model	STMGFW154805
Item	Ripple Voltage (by Load Current)
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

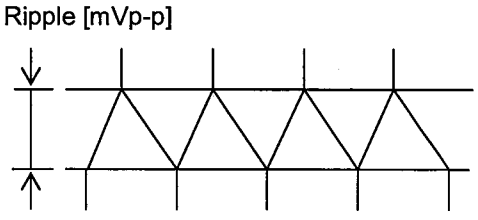


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	15	15
0.30	15	15
0.60	15	15
0.90	15	15
1.20	15	15
1.50	15	15
1.65	15	15
--	-	-
--	-	-
--	-	-
--	-	-

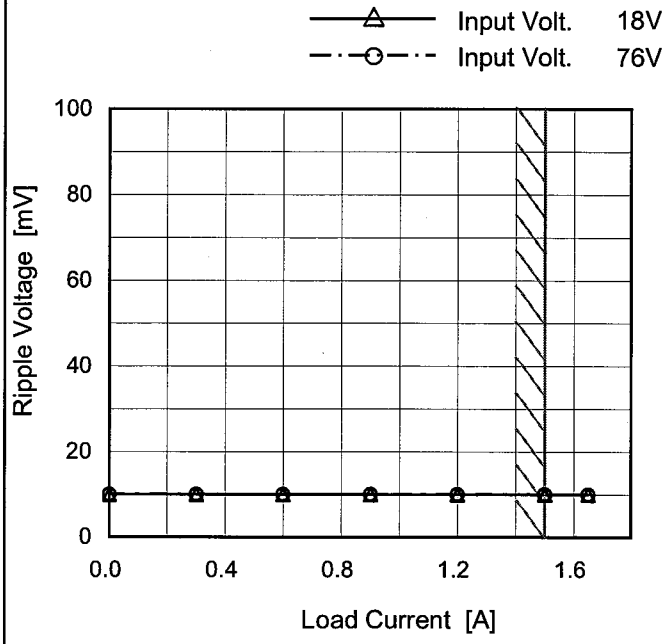
-5V: Rated output current

COSEL

Model	STMGFW154805
Item	Ripple Voltage (by Load Current)
Object	-5V1.5A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



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.

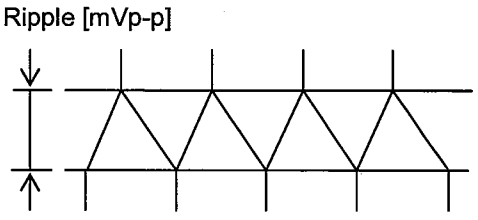


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	10	10
0.30	10	10
0.60	10	10
0.90	10	10
1.20	10	10
1.50	10	10
1.65	10	10
--	-	-
--	-	-
--	-	-
--	-	-

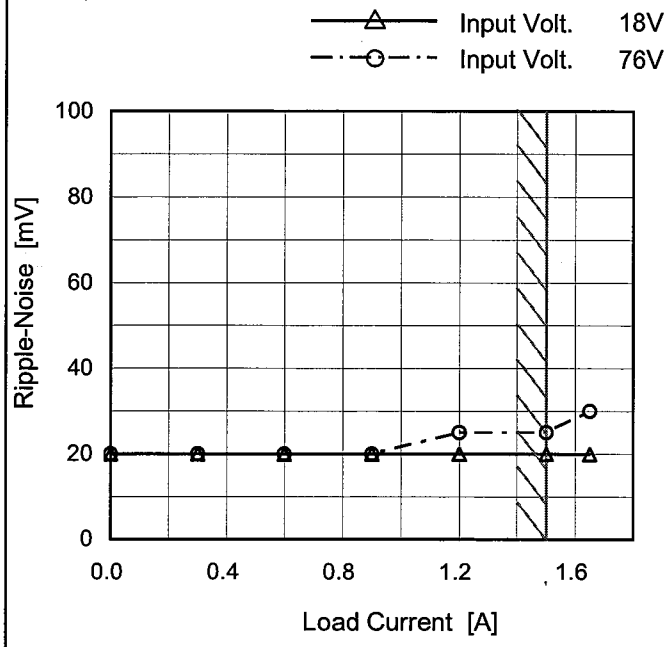
+5V: Rated output current

COSEL

Model	STMGFW154805
Item	Ripple-Noise
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

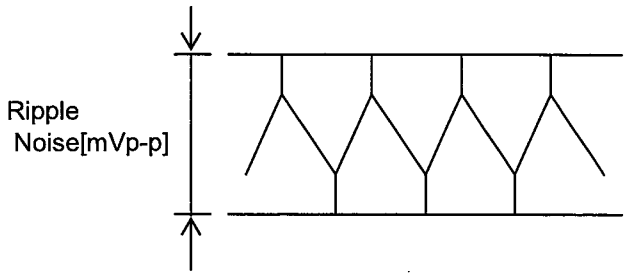


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	20	20
0.30	20	20
0.60	20	20
0.90	20	20
1.20	20	25
1.50	20	25
1.65	20	30
--	-	-
--	-	-
--	-	-
--	-	-

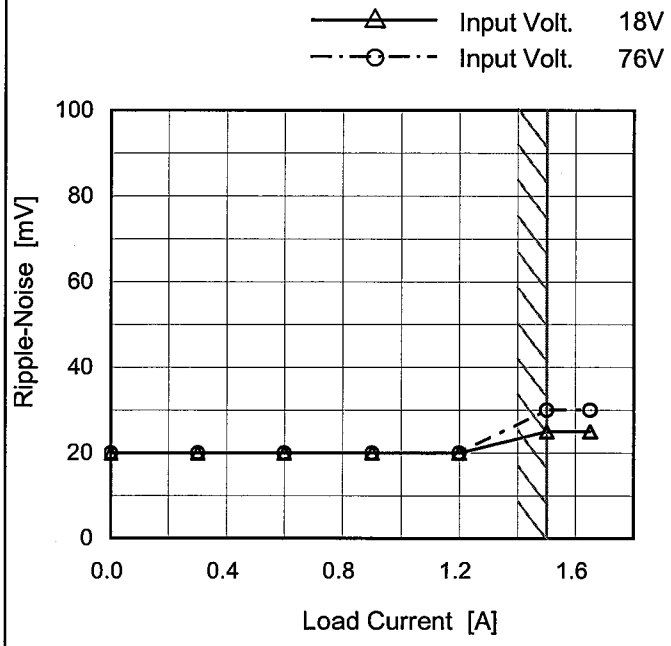
-5V: Rated output current

COSEL

Model	STMGFW154805
Item	Ripple-Noise
Object	-5V1.5A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



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.

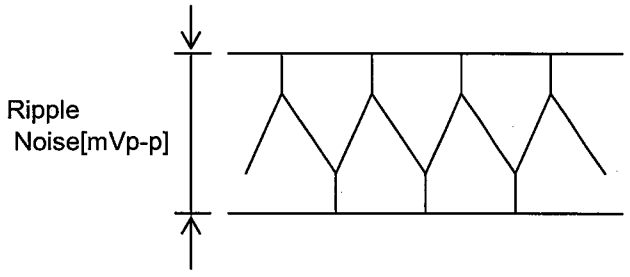


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 76 [V]
0.00	20	20
0.30	20	20
0.60	20	20
0.90	20	20
1.20	20	20
1.50	25	30
1.65	25	30
--	-	-
--	-	-
--	-	-
--	-	-

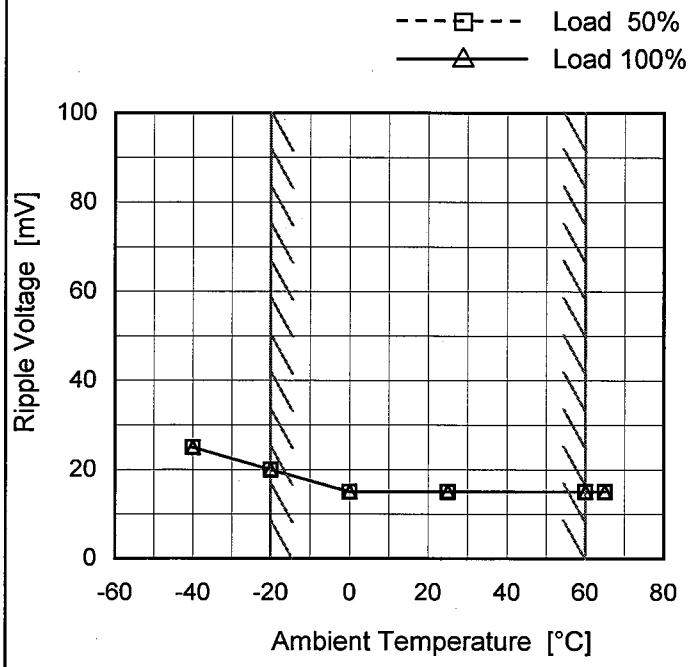
+5V: Rated output current

COSEL

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

Testing Circuitry Figure B

1.Graph



Input Volt. 48V

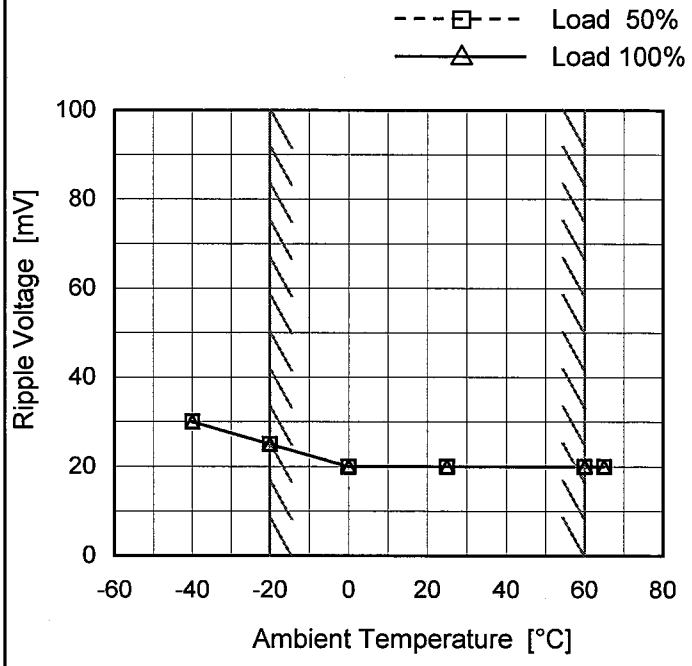
2.Values

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

1.Graph



Input Volt. 48V

Measured by 100 MHz Oscilloscope.

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

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
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

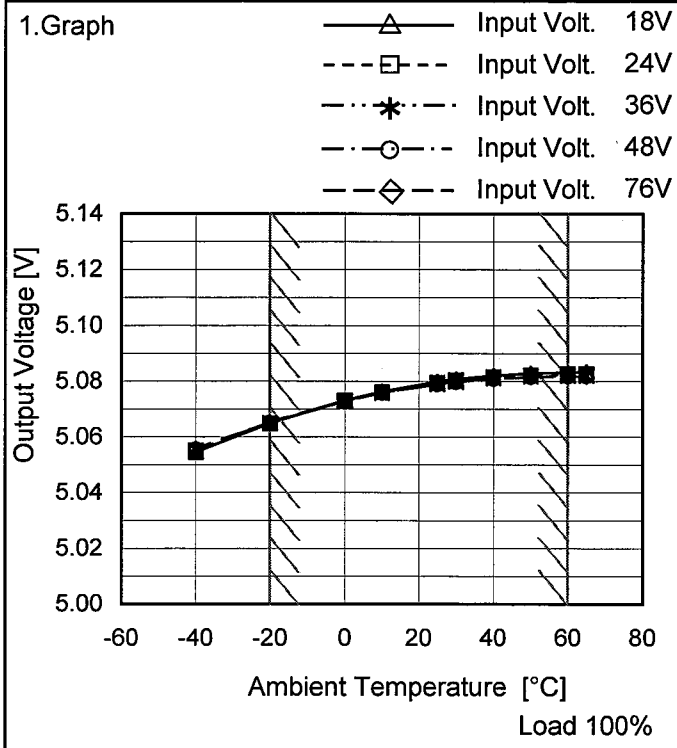
+5V: Rated output current

COSEL

Model	STMGFW154805
Item	Ambient Temperature Drift
Object	+5V1.5A

Testing Circuitry Figure A

1.Graph

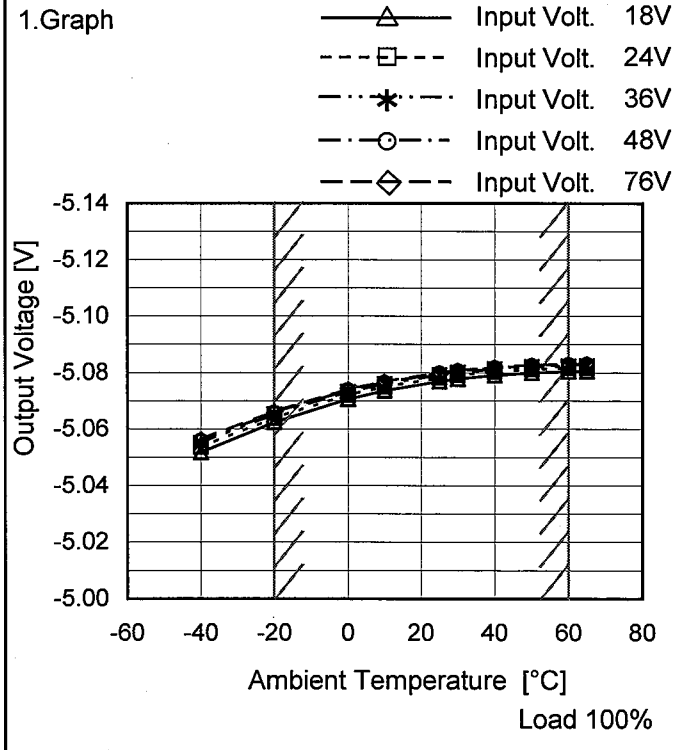


2.Values

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	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
--	-	-	-	-	-

Object	-5V1.5A

1.Graph



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	-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
--	-	-	-	-	-

COSEL

Model	STMGFW154805	
Item	Output Voltage Accuracy	Testing Circuitry Figure A

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 = ±(Maximum of Output Voltage - 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					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			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		

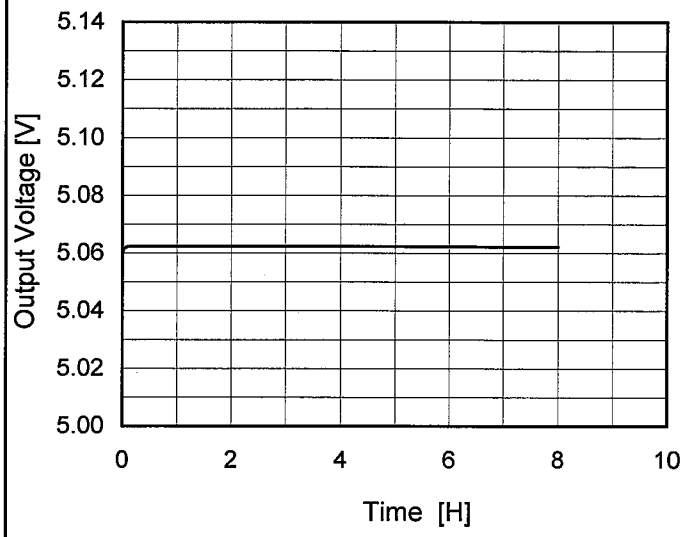
Object	-5V1.5A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	18	0	-5.962	±450	±9.0
Minimum Voltage	-20	18	1.5	-5.062		

COSEL

Model	STMGFW154805
Item	Time Lapse Drift
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



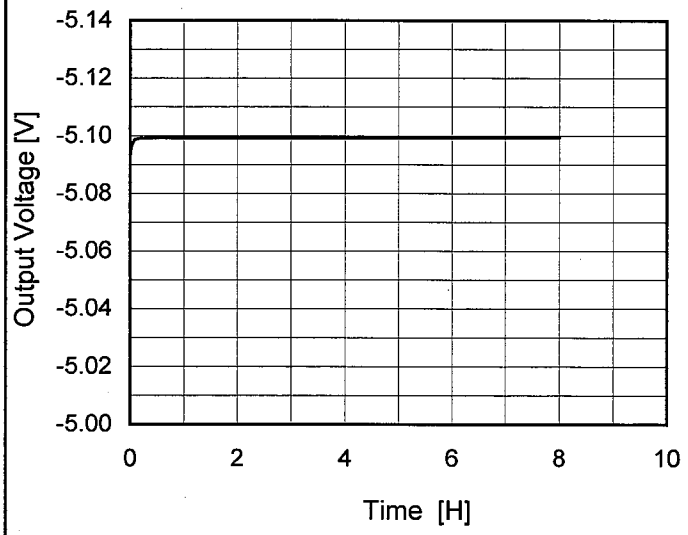
Input Volt. 48V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	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

Object	-5V1.5A

1.Graph



Input Volt. 48V
Load 100%

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

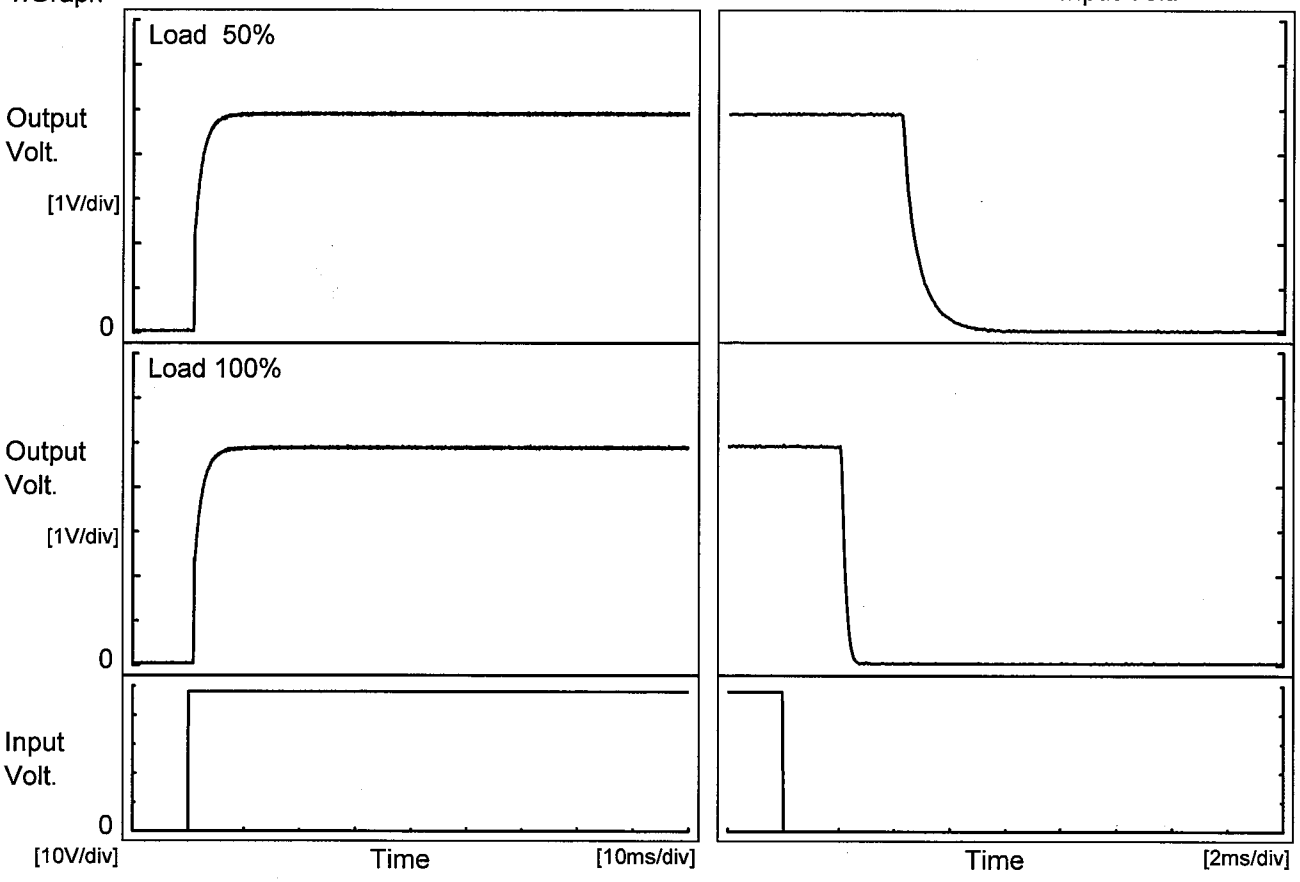
COSEL

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

Temperature 25°C
Testing Circuitry Figure A

1.Graph

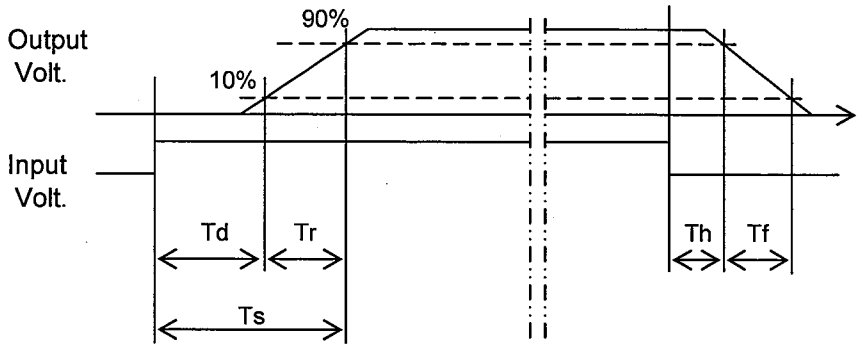
Input Volt. 48 V



2.Values

[ms]

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



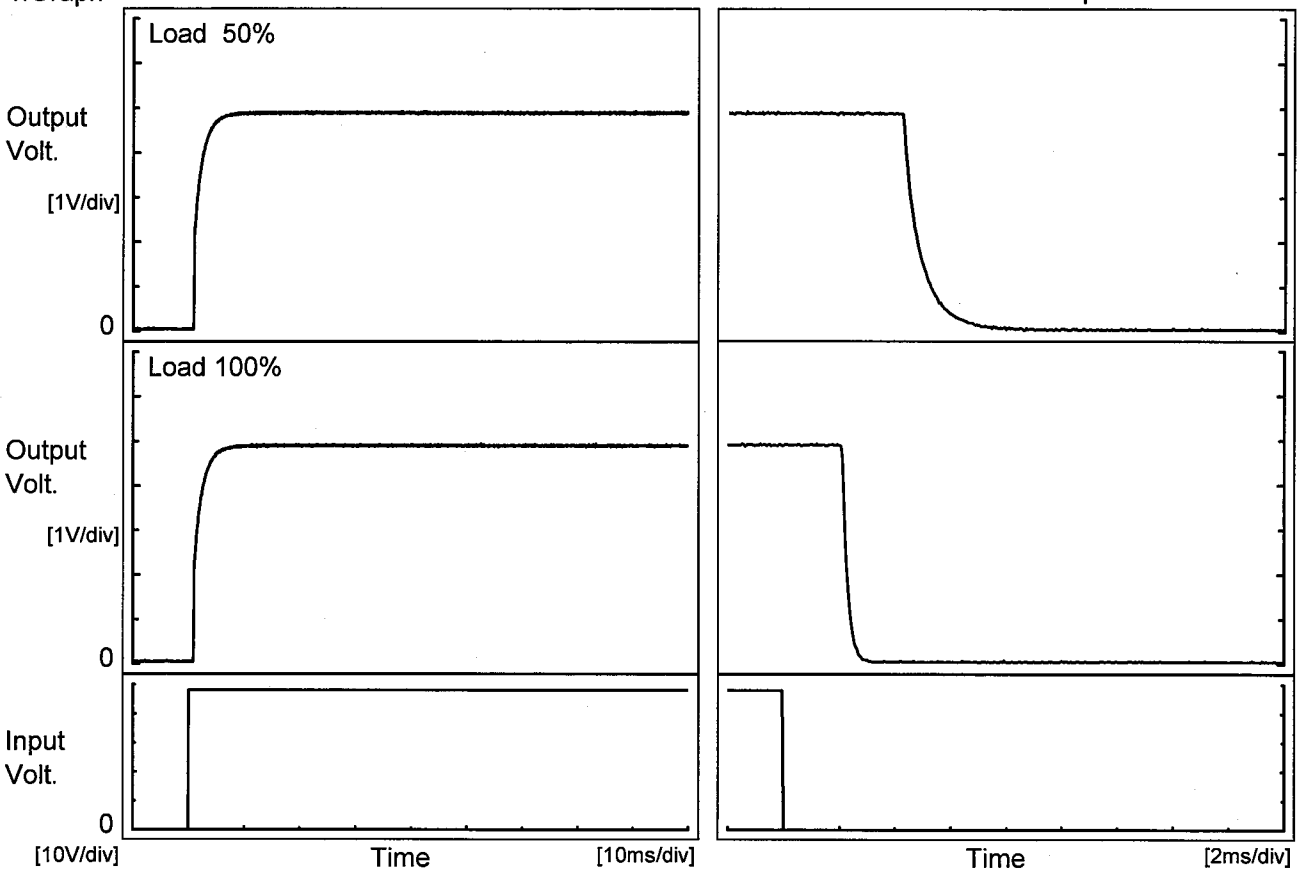
COSEL

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

Temperature 25°C
Testing Circuitry Figure A

1.Graph

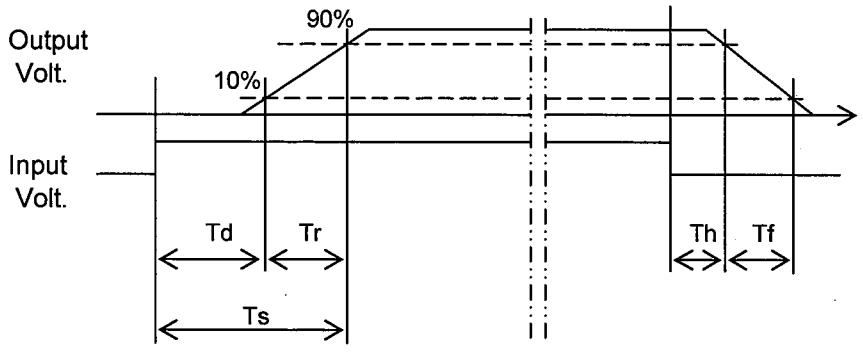
Input Volt. 48 V



2.Values

[ms]

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



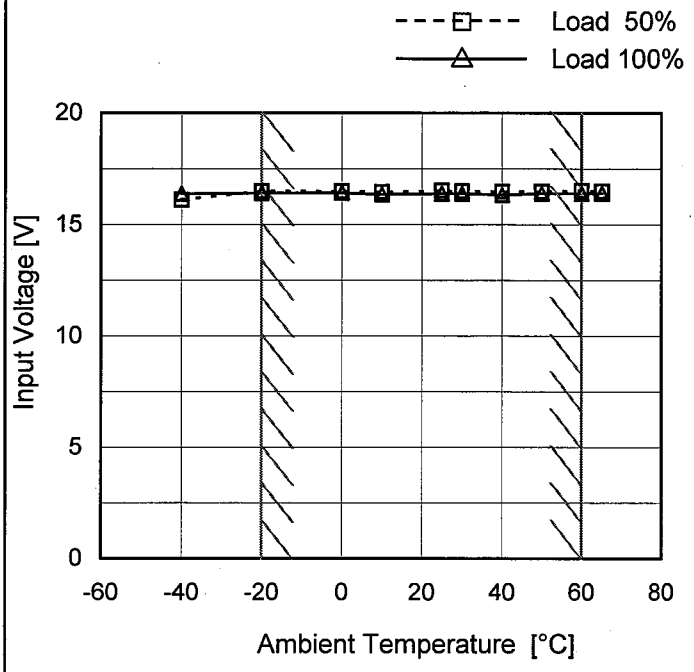
COSEL

Model	STMGFW154805
Item	Minimum Input Voltage for Regulated Output Voltage

Testing Circuitry Figure A

Object +5V1.5A

1.Graph

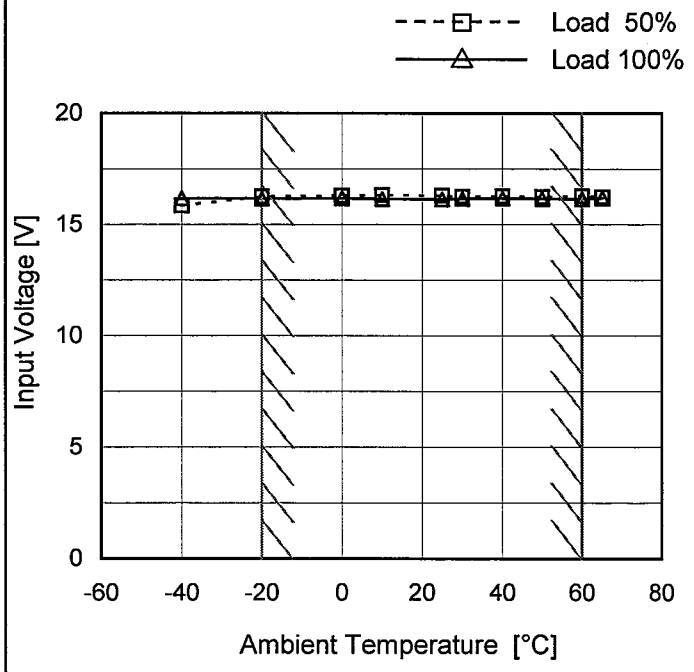


2.Values

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



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

2.Values

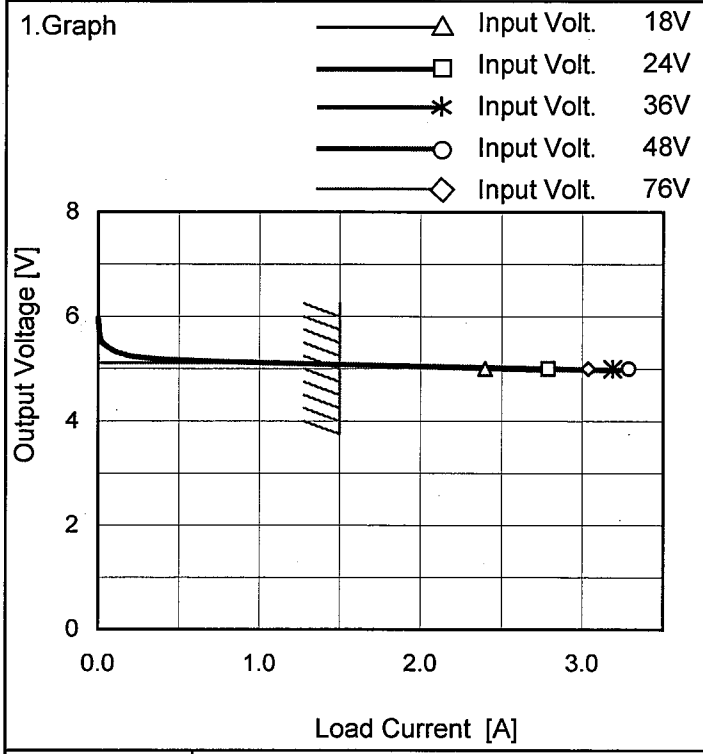
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	15.9	16.2
-20	16.3	16.2
0	16.3	16.2
10	16.4	16.2
25	16.3	16.2
30	16.3	16.2
40	16.3	16.2
50	16.3	16.2
60	16.3	16.2
65	16.3	16.2
--	-	-

COSEL

Model	STMGFW154805
Item	Overcurrent Protection
Object	+5V1.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

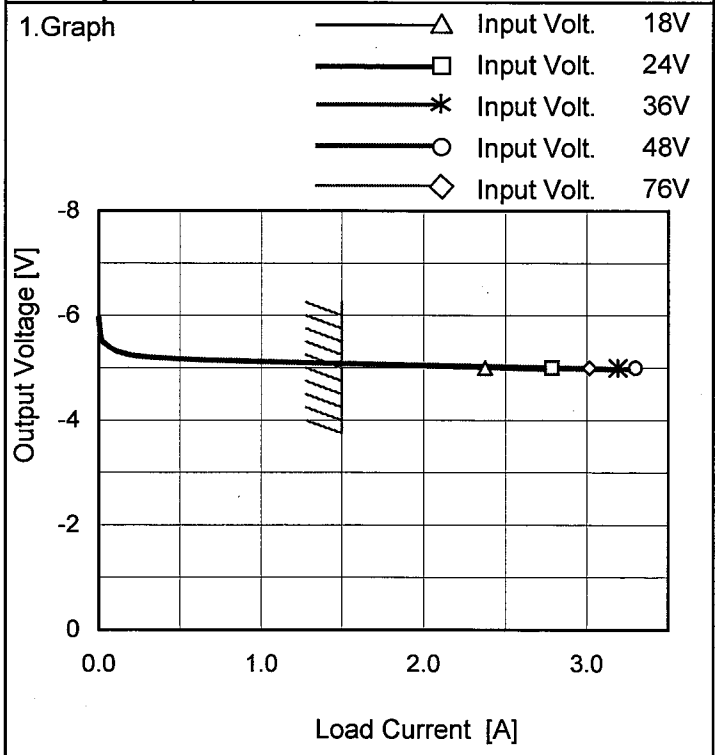


2.Values

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]
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	-	-	-	-	-

Object	-5V1.5A

1.Graph



Note: Slanted line shows the range of the rated load current.
Intermittent operation occurs when overcurrent protection is activated.

2.Values

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]
-5.00	2.378	2.788	3.195	3.300	3.016
-4.75	-	-	-	-	-
-4.50	-	-	-	-	-
-4.00	-	-	-	-	-
-3.50	-	-	-	-	-
-3.00	-	-	-	-	-
-2.50	-	-	-	-	-
-2.00	-	-	-	-	-
-1.50	-	-	-	-	-
-1.00	-	-	-	-	-
-0.50	-	-	-	-	-
0.00	-	-	-	-	-

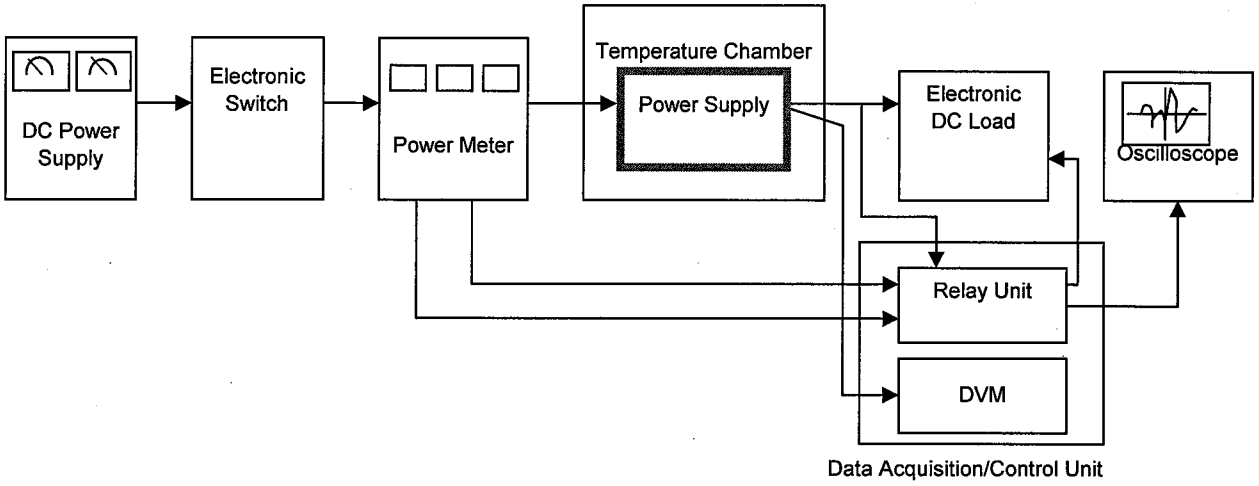


Figure A

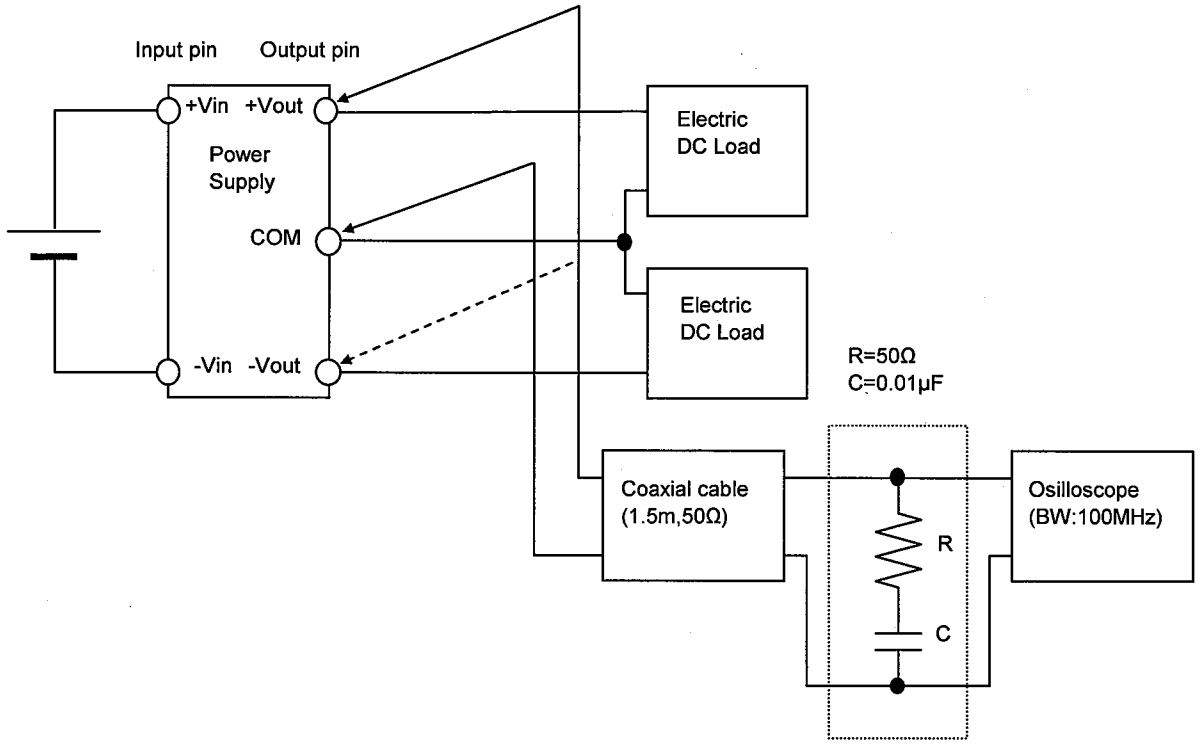


Figure B (Ripple and Ripple noise Characteristic)