参考資料

COSEL

TEST DATA OF SUCW30515

Regulated DC Power Supply
Mar 17, 2005

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COSEL CO.,LTD.

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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)

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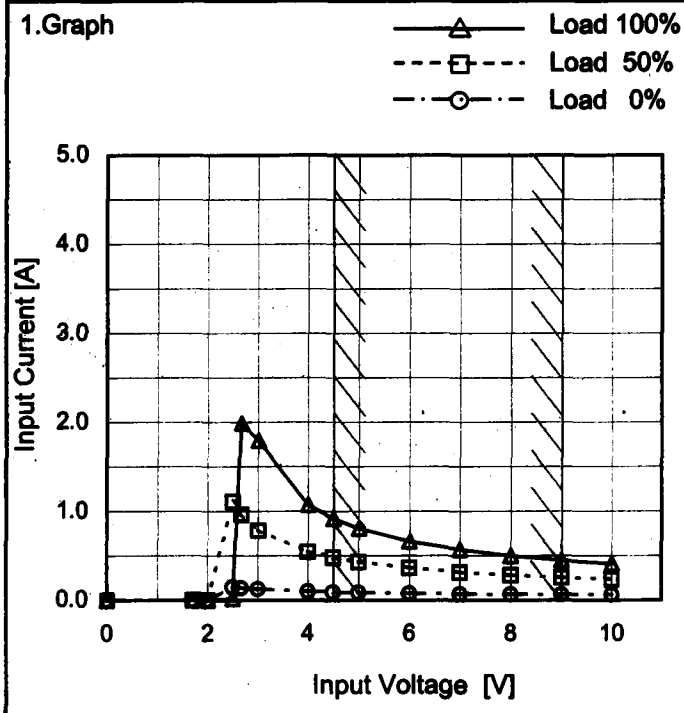
Model	SUCW30515
Item	Input Current (by Input Voltage)
Object	———————

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]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.00	0.000	0.000	0.000
1.70	0.000	0.000	0.000
2.00	0.000	0.000	0.000
2.49	0.148	1.110	0.020
2.66	0.138	0.963	1.991
3.00	0.126	0.783	1.797
4.00	0.099	0.542	1.070
4.50	0.091	0.481	0.921
5.00	0.086	0.431	0.809
6.00	0.076	0.361	0.662
7.00	0.069	0.314	0.573
8.00	0.065	0.279	0.501
9.00	0.063	0.254	0.450
10.00	0.062	0.234	0.409
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

BC-3770

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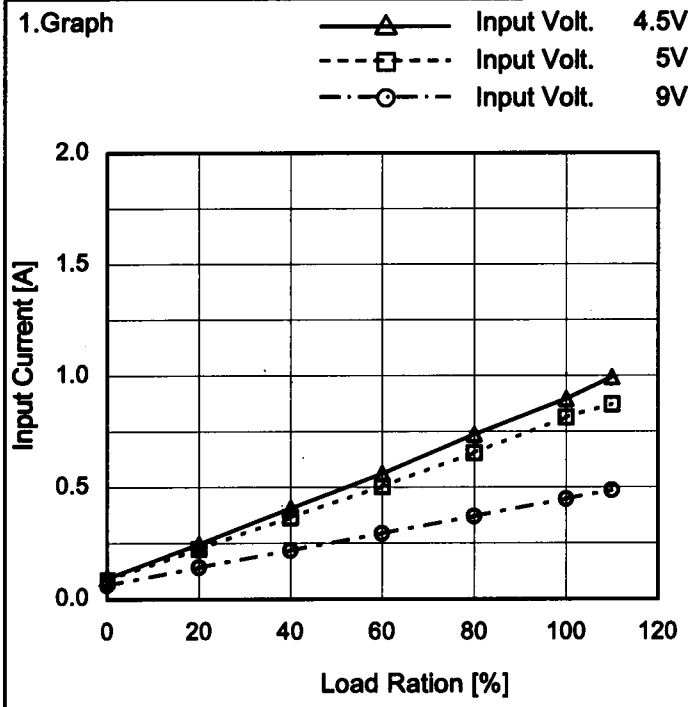
Model	SUCW30515
Item	Input Current (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

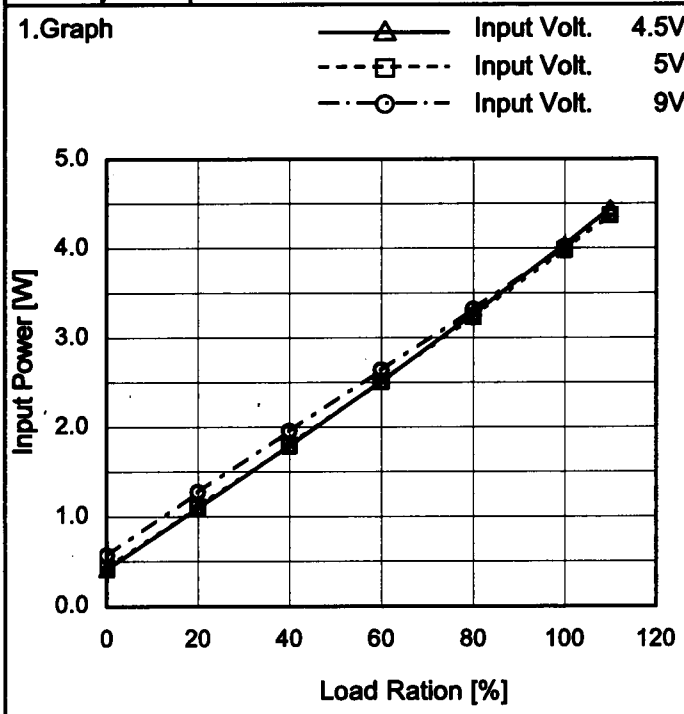
Load Ration [%]	Input Current [A]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
0	0.091	0.085	0.062
20	0.246	0.224	0.141
40	0.405	0.366	0.216
60	0.561	0.503	0.293
80	0.737	0.654	0.369
100	0.897	0.813	0.447
110	0.993	0.872	0.486
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SUCW30515
Item	Input Power (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

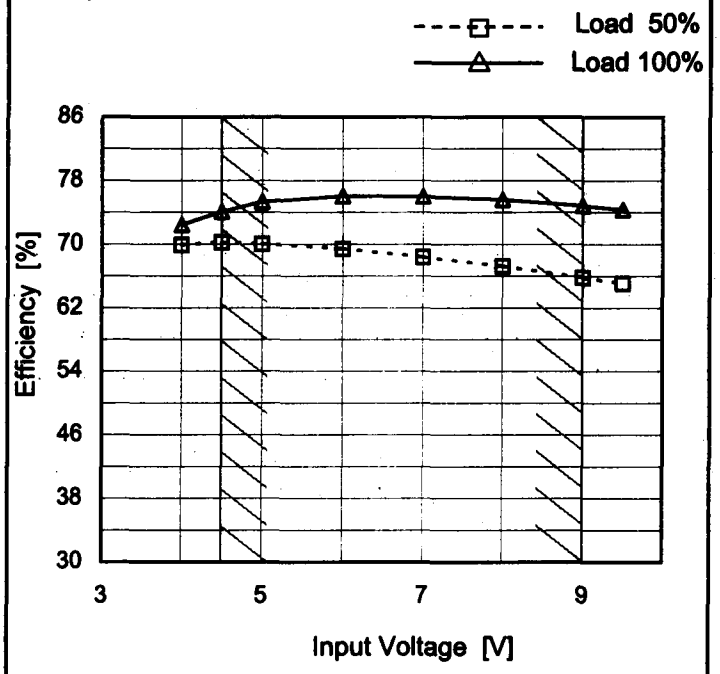
Load Ration [%]	Input Power [W]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
0	0.41	0.43	0.57
20	1.10	1.11	1.28
40	1.79	1.80	1.96
60	2.51	2.51	2.64
80	3.27	3.23	3.32
100	4.04	3.98	4.02
110	4.45	4.37	4.37
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SUCW30515
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

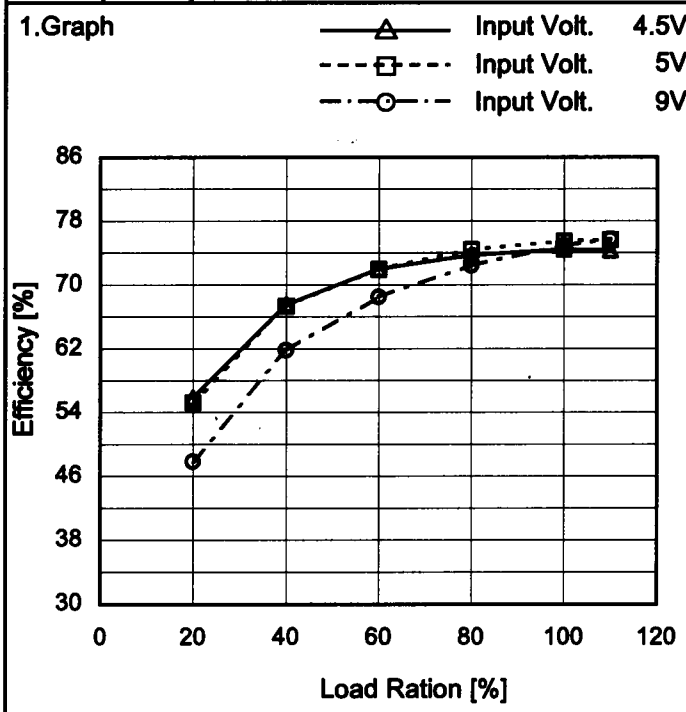
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
4.0	69.9	72.5
4.5	70.2	74.1
5.0	70.0	75.3
6.0	69.4	76.1
7.0	68.4	76.0
8.0	67.3	75.6
9.0	65.8	74.8
9.5	65.1	74.4
–	-	-

COSEL

Model	SUCW30515
Item	Efficiency (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

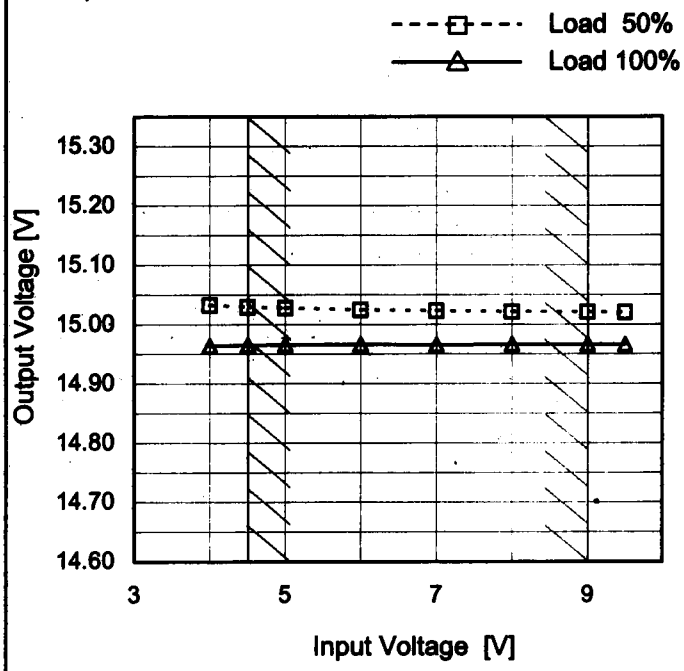
Load Ration [%]	Efficiency [%]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
0	-	-	-
20	55.9	55.2	47.8
40	67.6	67.4	61.8
60	72.0	72.0	68.5
80	73.7	74.4	72.5
100	74.5	75.5	74.9
110	74.3	75.7	75.7
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SUCW30515
Item	Line Regulation
Object	+15V0.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

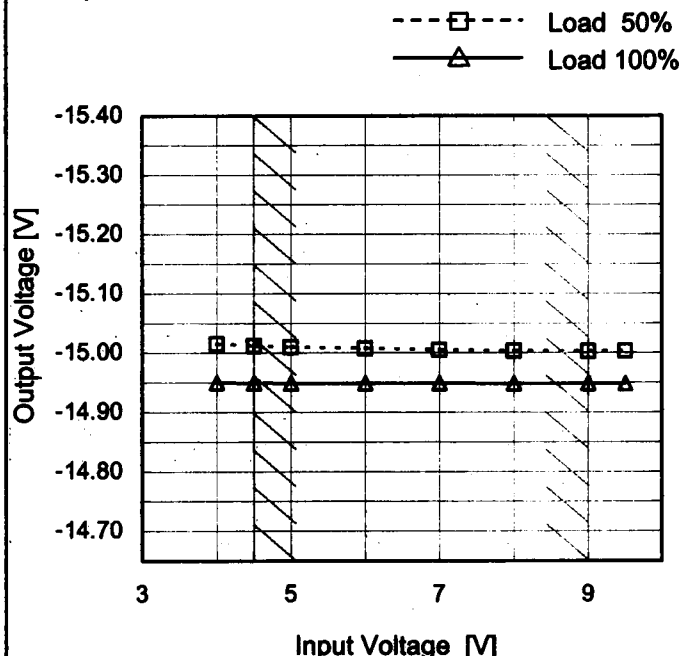


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
4.0	15.033	14.964
4.5	15.029	14.965
5.0	15.028	14.966
6.0	15.025	14.966
7.0	15.023	14.966
8.0	15.022	14.966
9.0	15.021	14.966
9.5	15.021	14.966
–	-	-

Object	-15V0.1A

1.Graph



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

2.Values

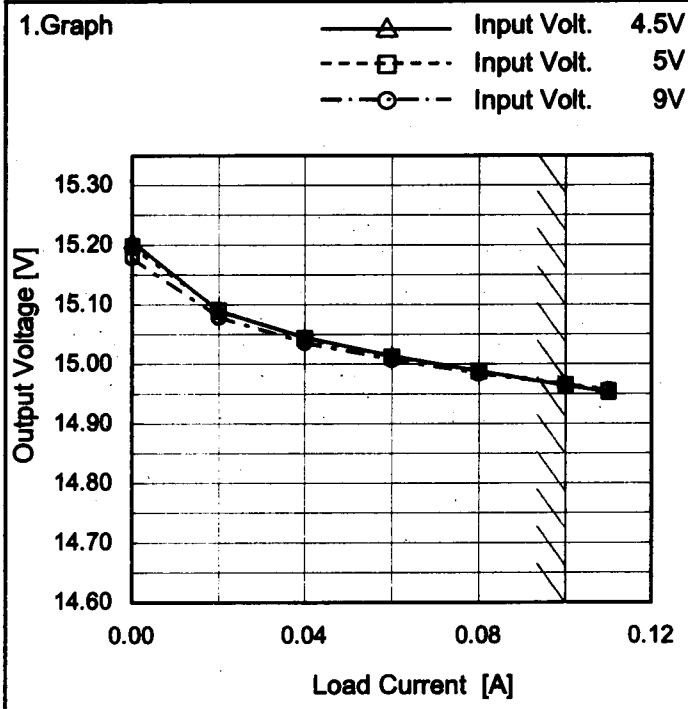
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
4.0	-15.016	-14.950
4.5	-15.012	-14.950
5.0	-15.010	-14.949
6.0	-15.008	-14.949
7.0	-15.005	-14.949
8.0	-15.004	-14.949
9.0	-15.003	-14.949
9.5	-15.004	-14.948
–	-	-

COSEL

Model	SUCW30515
Item	Load Regulation
Object	+15V0.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

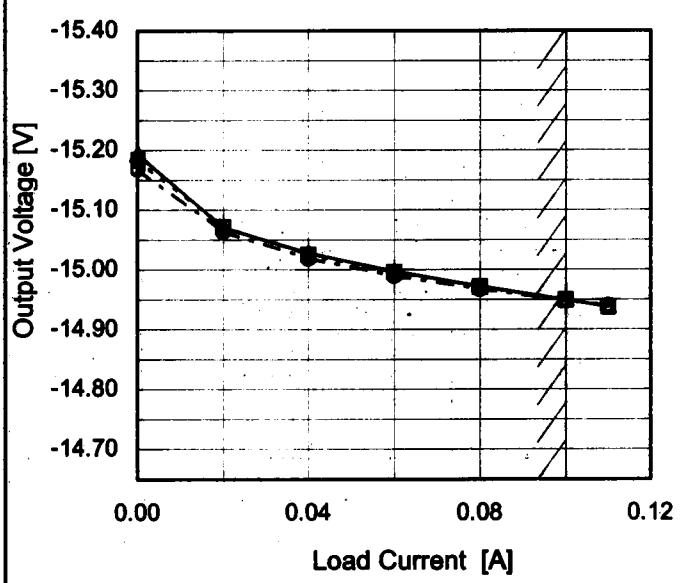


2.Values

Load Current [A]	Output Voltage [V] Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
0.00	15.206	15.198	15.179
0.02	15.090	15.091	15.079
0.04	15.045	15.044	15.036
0.06	15.014	15.013	15.007
0.08	14.988	14.988	14.984
0.10	14.964	14.965	14.965
0.11	14.953	14.955	14.957
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

Object	-15V0.1A

1.Graph



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

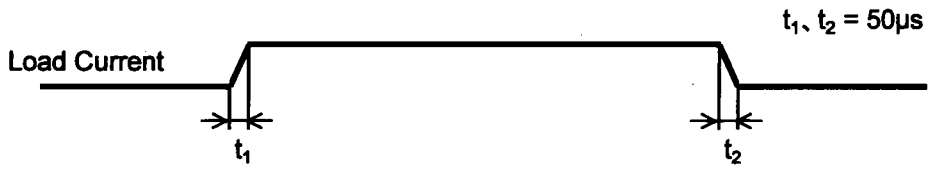
2.Values

Load Current [A]	Output Voltage [V] Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
0.00	-15.194	-15.184	-15.169
0.02	-15.071	-15.072	-15.063
0.04	-15.028	-15.025	-15.019
0.06	-14.998	-14.996	-14.990
0.08	-14.972	-14.971	-14.967
0.10	-14.949	-14.949	-14.948
0.11	-14.938	-14.938	-14.940
—	-	-	-
—	-	-	-
—	-	-	-
—	-	-	-

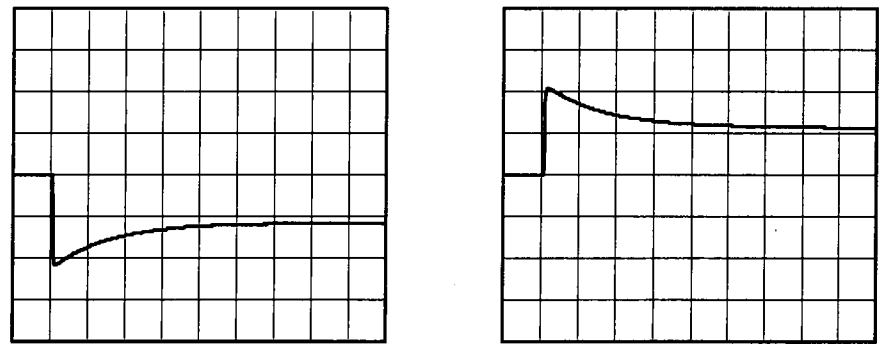
COSEL

Model	SUCW30515	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+15V0.1A	

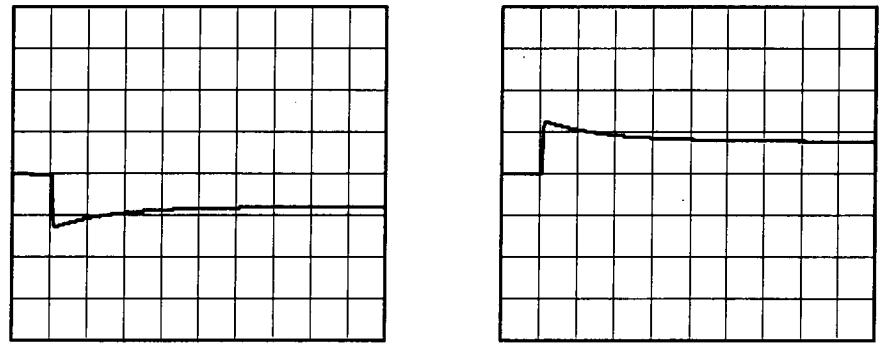
Input Volt. 5 V
Cycle 100 mS



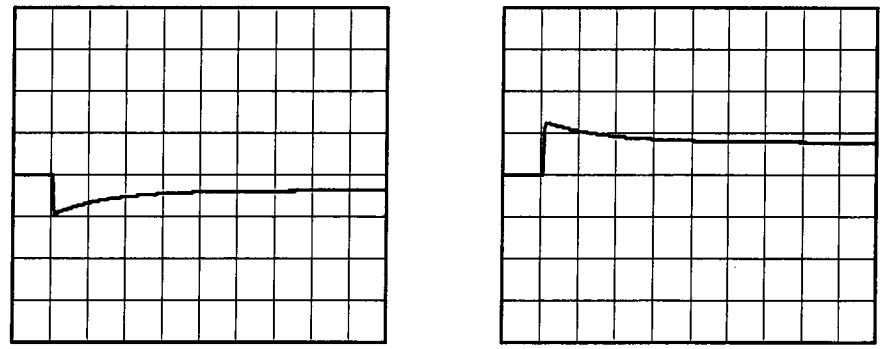
Min. Load (0A) ⟷
Load 100% (0.1A)



Min. Load (0A) ⟷
Load 50% (0.05A)



Load 50% (0.05A) ⟷
Load 100% (0.1A)



COSEL

Model	SUCW30515
Item	Dynamic Load Response
Object	-15V0.1A

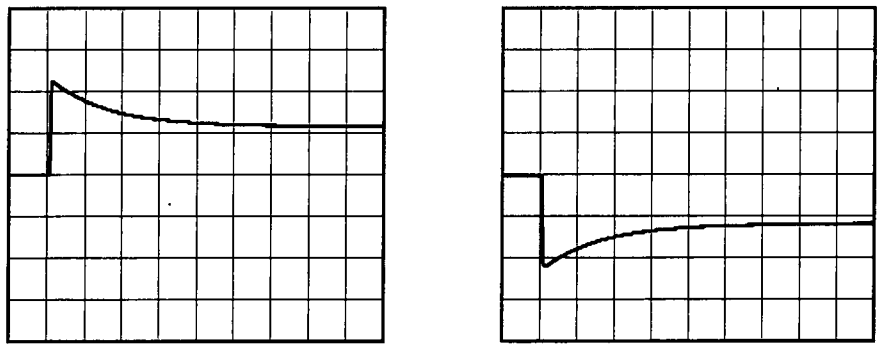
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 5 V
Cycle 100 mS

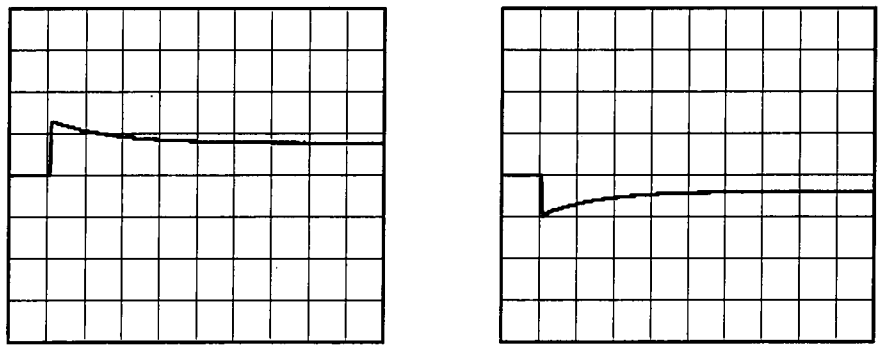
t_1、t_2 = 50μs

Load Current

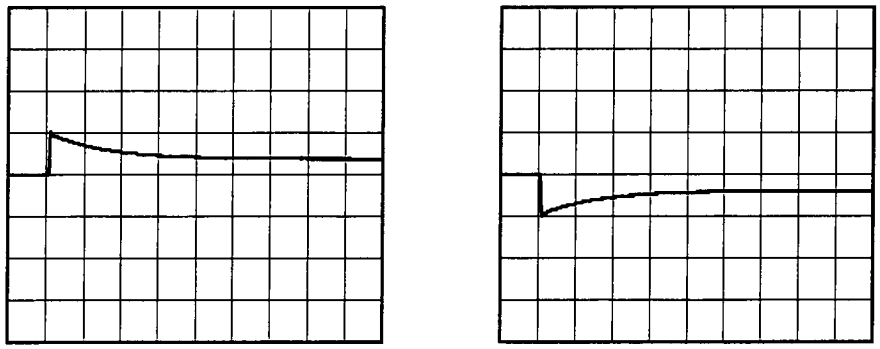
Min. Load (0A) ⟷ Load 100% (0.1A)



Min. Load (0A) ⟷ Load 50% (0.05A)



Load 50% (0.05A) ⟷ Load 100% (0.1A)

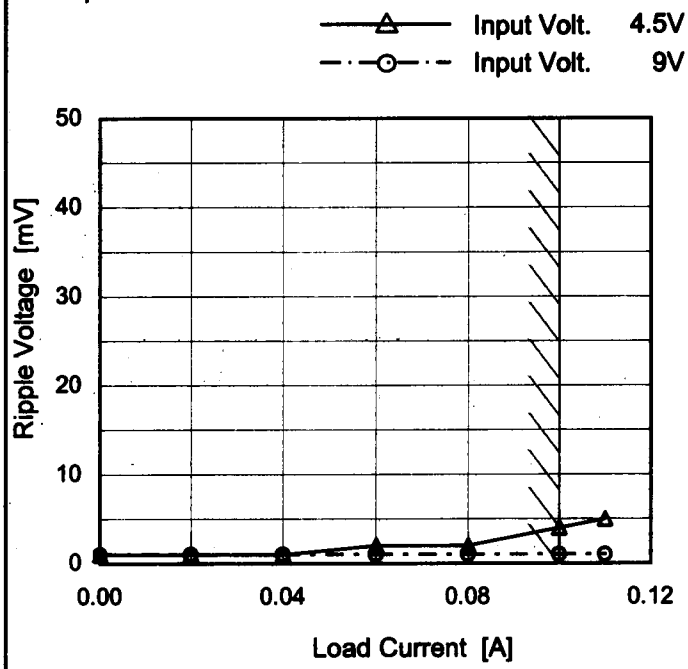


COSEL

Model	SUCW30515
Item	Ripple Voltage (by Load Current)
Object	+15V0.1A

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.

Ripple [mVp-p]

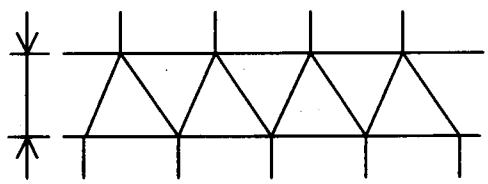


Fig.Complex Ripple Wave Form

2.Values

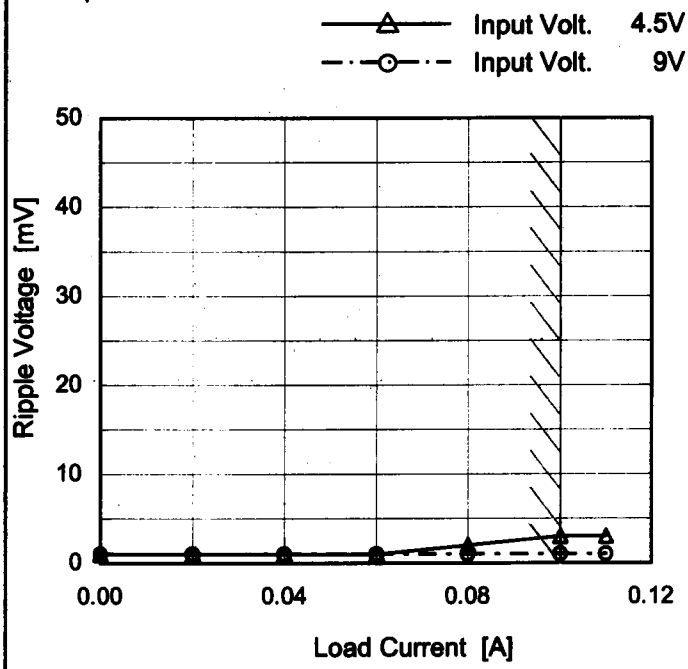
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 4.5 [V]	Input Volt. 9 [V]
0.00	1	1
0.02	1	1
0.04	1	1
0.06	2	1
0.08	2	1
0.10	4	1
0.11	5	1
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SUCW30515
Item	Ripple Voltage (by Load Current)
Object	-15V0.1A

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.

Ripple [mVp-p]

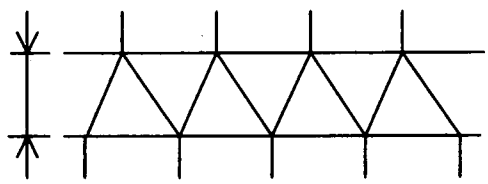


Fig.Complex Ripple Wave Form

2.Values

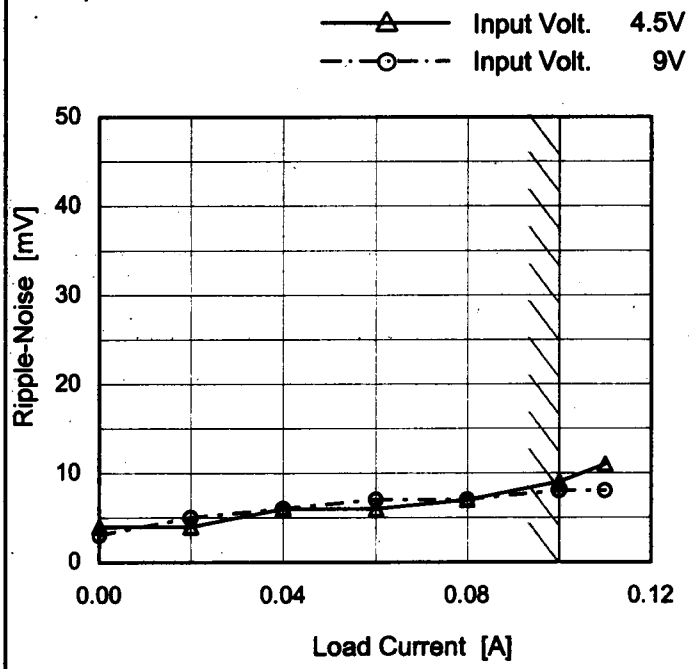
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 4.5 [V]	Input Volt. 9 [V]
0.00	1	1
0.02	1	1
0.04	1	1
0.06	1	1
0.08	2	1
0.10	3	1
0.11	3	1
–	-	-
–	-	-
–	-	-
–	-	-

COSEL

Model	SUCW30515
Item	Ripple-Noise
Object	+15V0.1A

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.

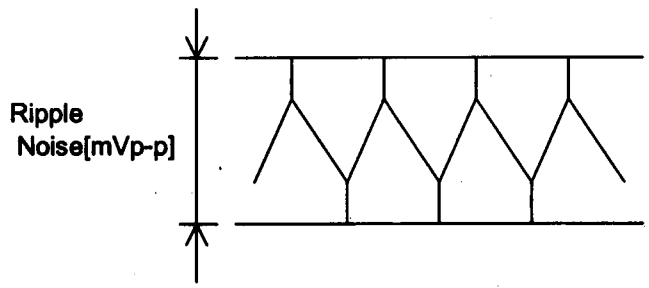


Fig.Complex Ripple Noise Wave Form

2.Values

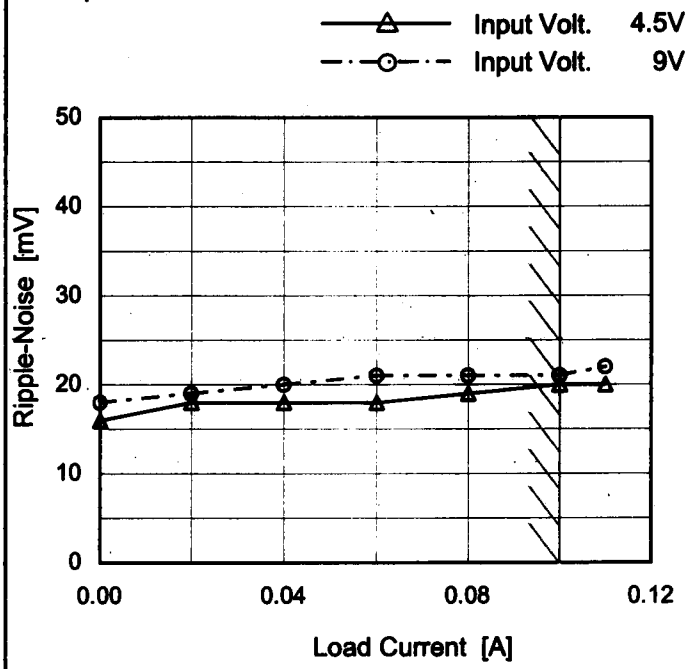
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 4.5 [V]	Input Volt. 9 [V]
0.00	4	3
0.02	4	5
0.04	6	6
0.06	6	7
0.08	7	7
0.10	9	8
0.11	11	8
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SUCW30515
Item	Ripple-Noise
Object	-15V0.1A

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.

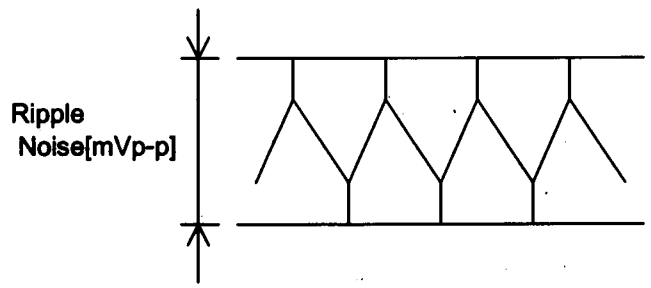


Fig.Complex Ripple Noise Wave Form

2.Values

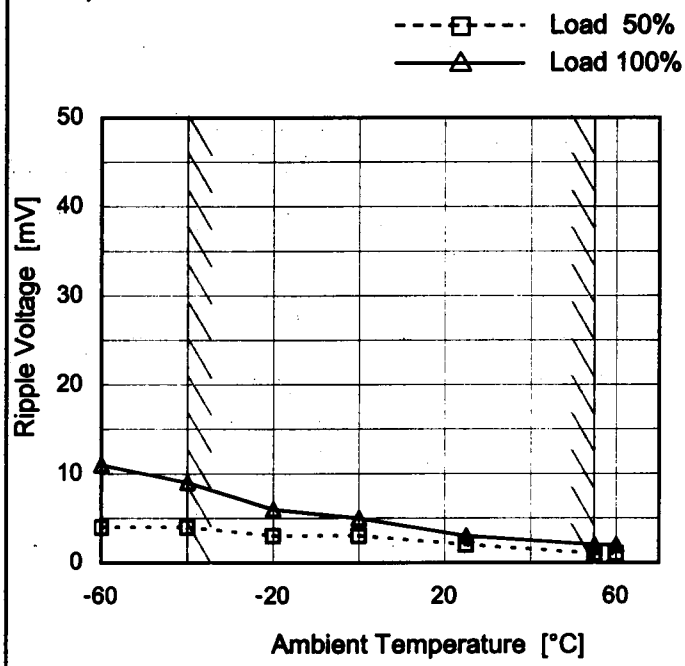
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 4.5 [V]	Input Volt. 9 [V]
0.00	16	18
0.02	18	19
0.04	18	20
0.06	18	21
0.08	19	21
0.10	20	21
0.11	20	22
–	-	-
–	-	-
–	-	-
–	-	-

COSEL

Model	SUCW30515
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V0.1A

Testing Circuitry Figure B

1.Graph



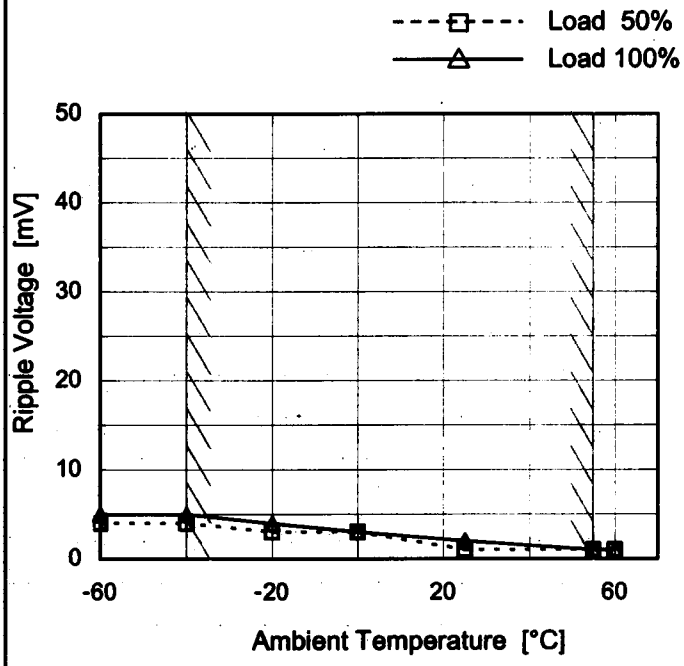
Input Volt. 5V

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	4	11
-40	4	9
-20	3	6
0	3	5
25	2	3
55	1	2
60	1	2
–	-	-
–	-	-
–	-	-
–	-	-

Object	-15V0.1A

1.Graph



Input Volt. 5V

Measured by 100 MHz Oscilloscope.

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

2.Values

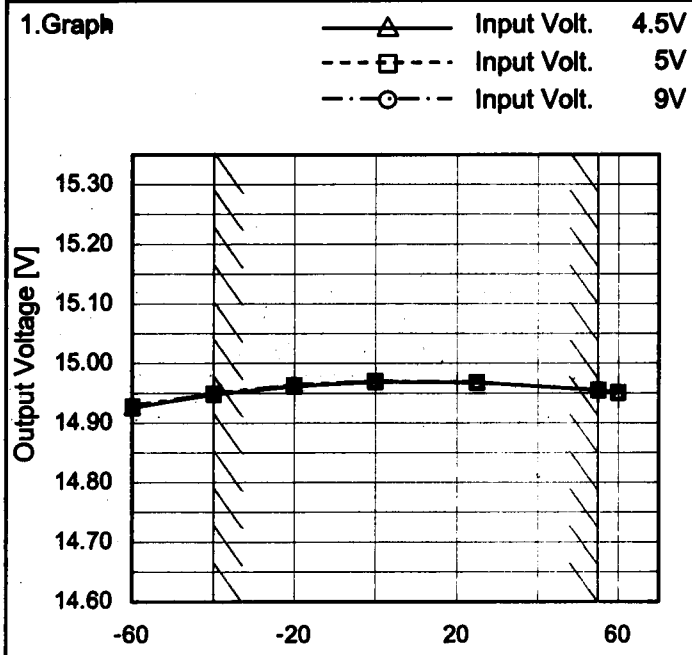
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	4	5
-40	4	5
-20	3	4
0	3	3
25	1	2
55	1	1
60	1	1
–	-	-
–	-	-
–	-	-
–	-	-

COSEL

Model	SUCW30515
Item	Ambient Temperature Drift
Object	+15V0.1A

Testing Circuitry Figure A

1.Graph

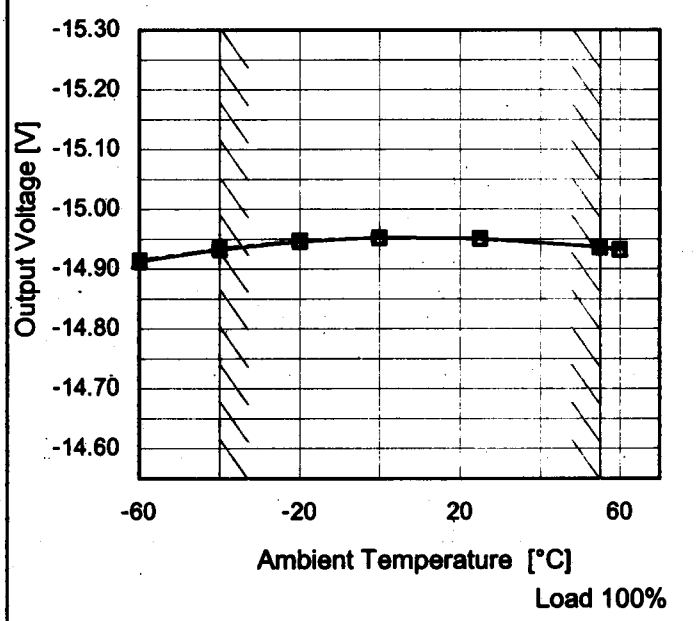


2.Values

Ambient Temperature [°C]	Output Voltage [V] Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
-60	14.926	14.928	14.929
-40	14.948	14.949	14.950
-20	14.962	14.963	14.964
0	14.969	14.970	14.970
25	14.968	14.968	14.968
55	14.955	14.955	14.954
60	14.951	14.951	14.950
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Object	-15V0.1A

1.Graph



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

2.Values

Ambient Temperature [°C]	Output Voltage [V] Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
-60	-14.913	-14.914	-14.914
-40	-14.933	-14.934	-14.934
-20	-14.946	-14.947	-14.947
0	-14.953	-14.952	-14.952
25	-14.951	-14.951	-14.950
55	-14.937	-14.936	-14.936
60	-14.933	-14.932	-14.931
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SUCW30515	
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 : -40 - 55°C
Input Voltage : 4.5 - 9V
Load Current (AVR 1) : 0 - 0.1A (AVR 2):0 - 0.1A
* Other Output : Rated Load

* 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	+15V0.1A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	4.5	0	15.211	±128	±0.9
Minimum Voltage	55	4.5	0.1	14.955		

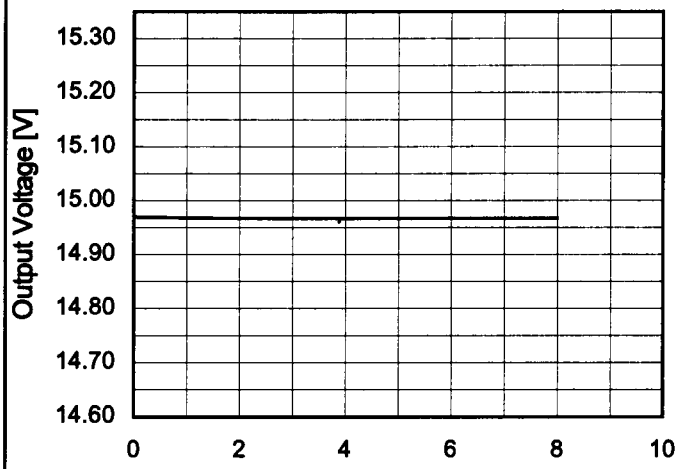
Object	-15V0.1A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	4.5	0	-15.196	±130	±0.9
Minimum Voltage	55	4.5	0.1	-14.937		

COSEL

Model	SUCW30515
Item	Time Lapse Drift
Object	+15V0.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



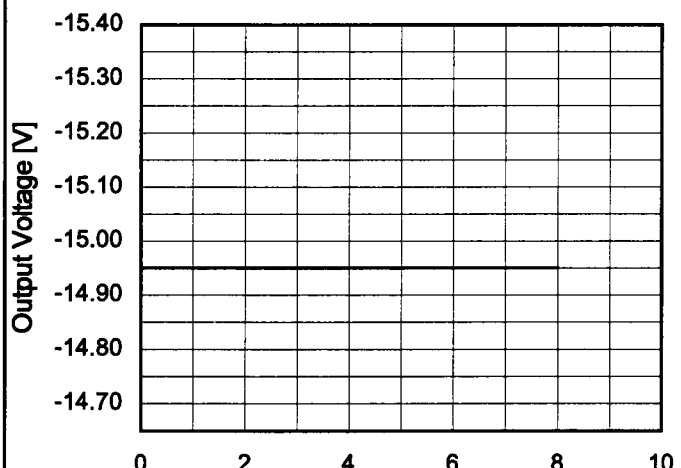
Input Volt. 5V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	14.971
0.5	14.969
1.0	14.968
2.0	14.967
3.0	14.967
4.0	14.967
5.0	14.967
6.0	14.967
7.0	14.967
8.0	14.967

Object	-15V0.1A

1.Graph



Input Volt. 5V
Load 100%

2.Values

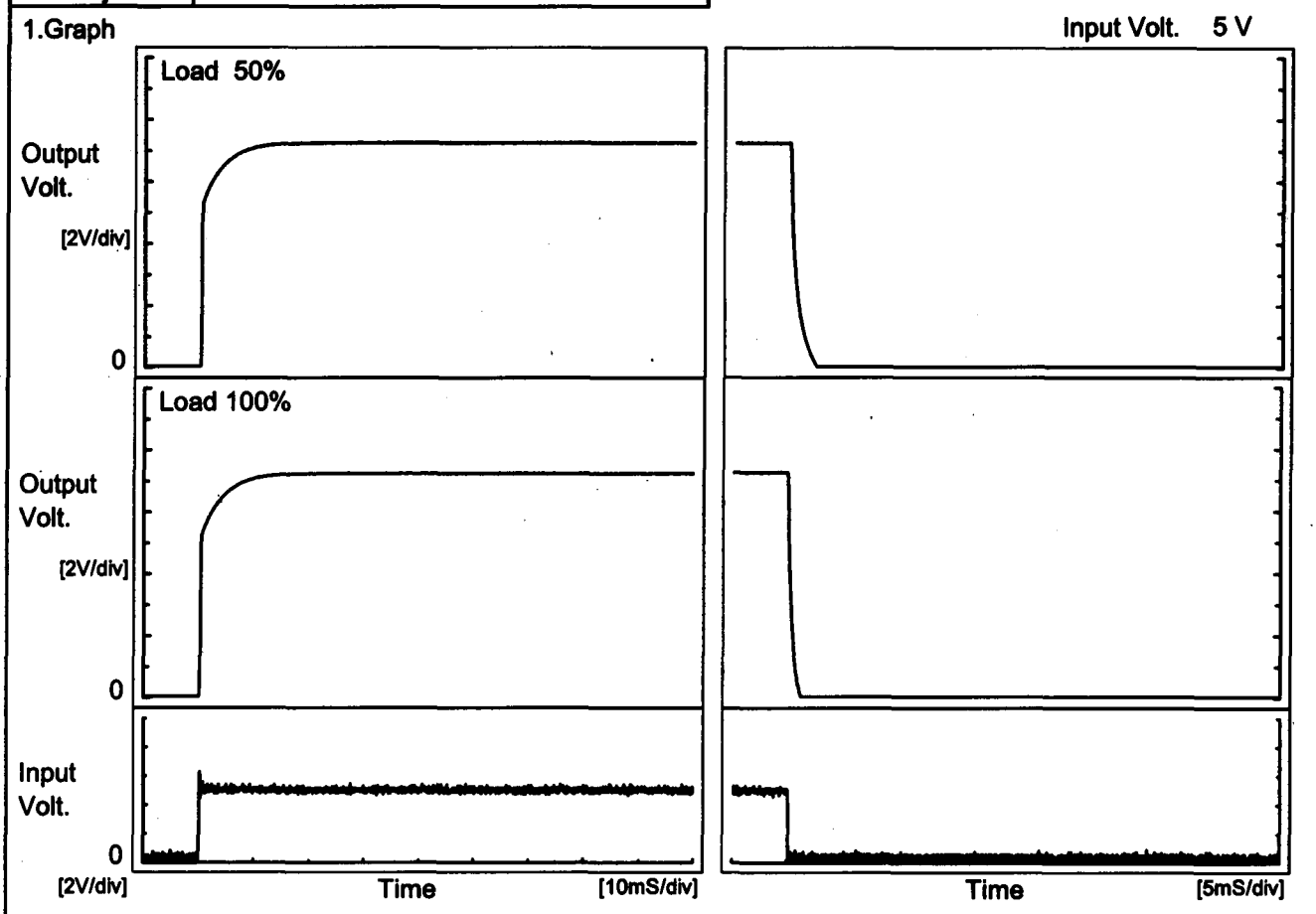
Time since start [H]	Output Voltage [V]
0.0	-14.953
0.5	-14.951
1.0	-14.951
2.0	-14.951
3.0	-14.951
4.0	-14.951
5.0	-14.951
6.0	-14.951
7.0	-14.951
8.0	-14.951

COSEL

Model	SUCW30515
Item	Rise and Fall Time
Object	+15V0.1A

Temperature 25°C
Testing Circuitry Figure A

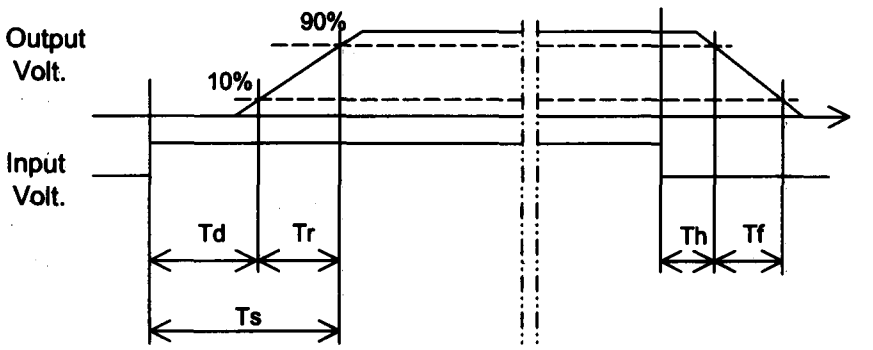
1.Graph



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.2	5.7	5.9	0.1	1.5
100 %	0.2	6.1	6.3	0.1	0.8

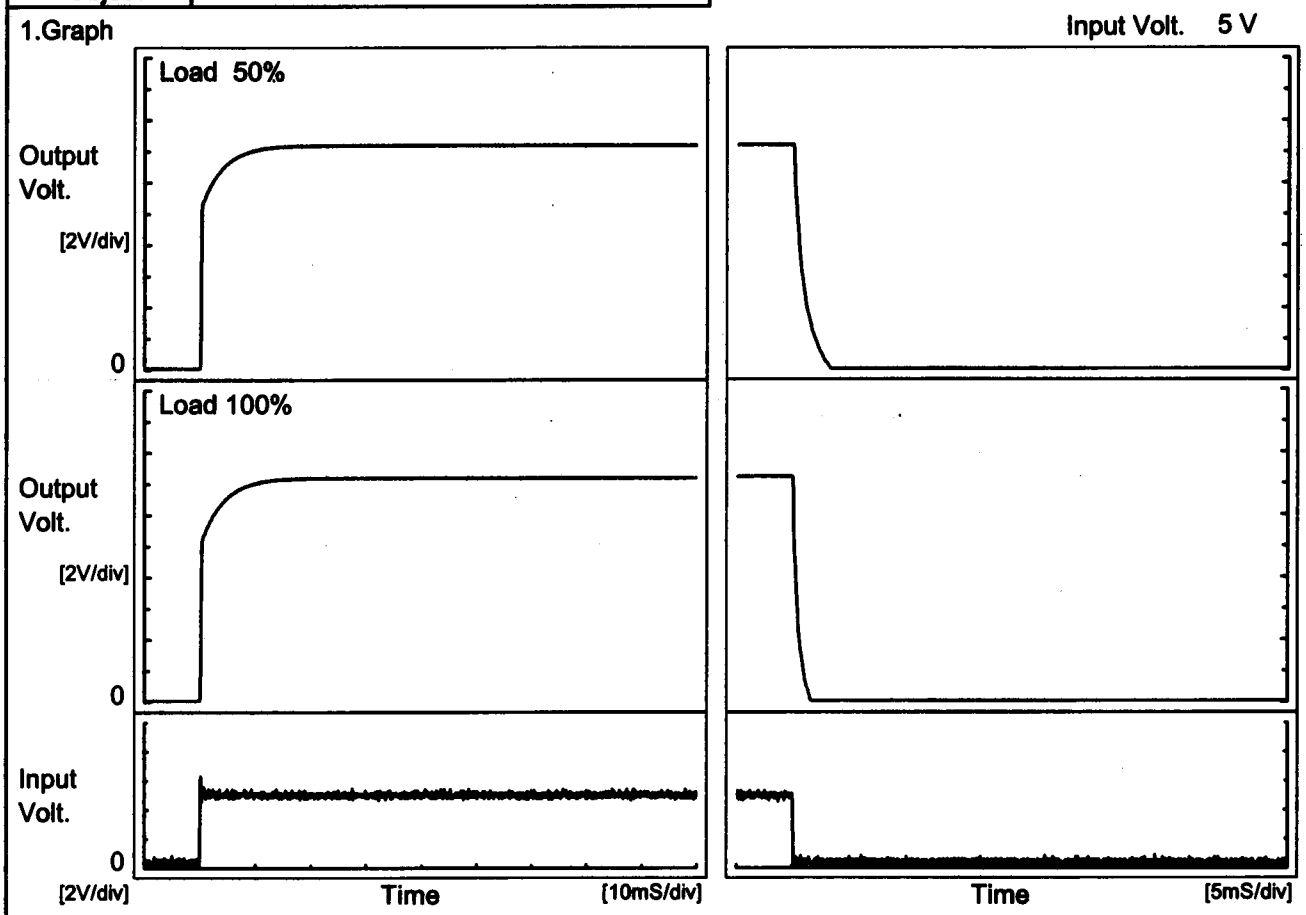


COSEL

Model	SUCW30515
Item	Rise and Fall Time
Object	-15V0.1A

Temperature 25°C
Testing Circuitry Figure A

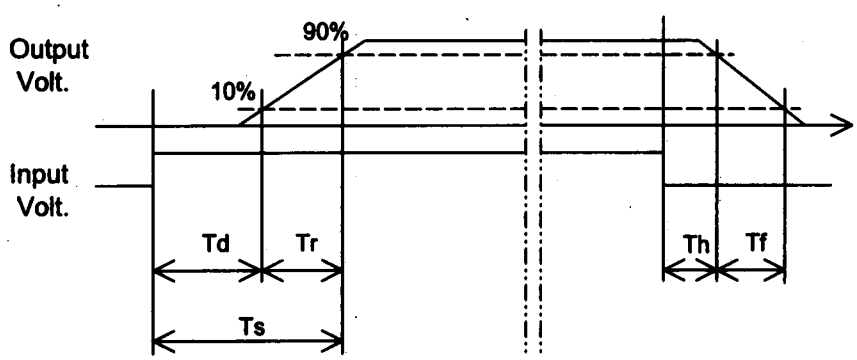
1.Graph



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.2	6.4	6.6	0.1	2.1
100 %	0.2	6.6	6.8	0.1	1.1

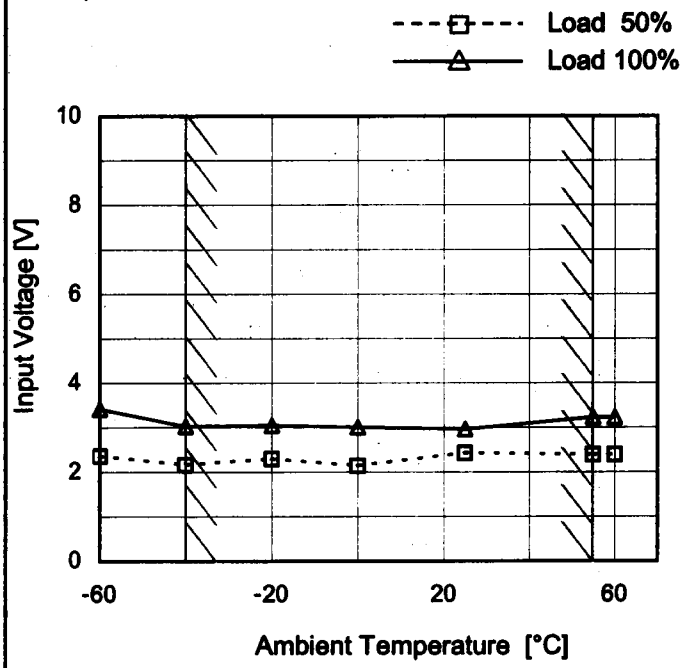


COSEL

Model	SUCW30515
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V0.1A

Testing Circuitry Figure A

1.Graph

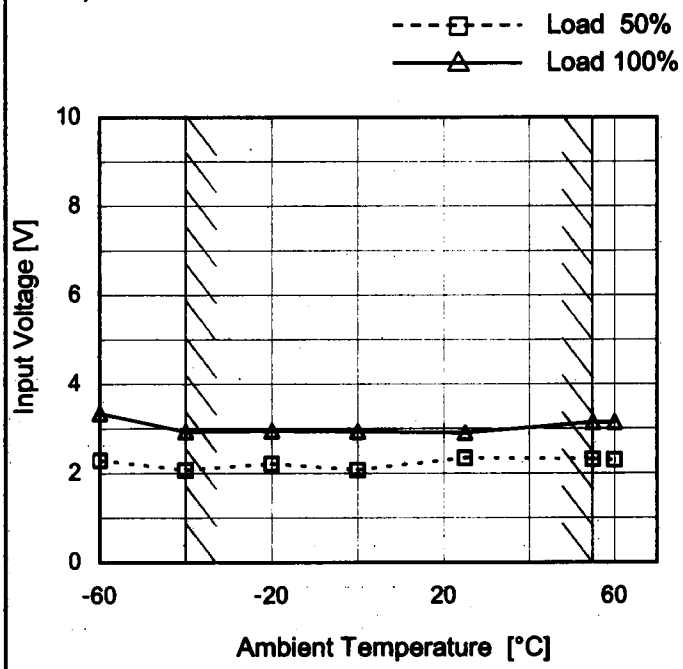


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	2.4	3.5
-40	2.2	3.1
-20	2.3	3.1
0	2.2	3.1
25	2.5	3.0
55	2.4	3.3
60	2.4	3.3
--	-	-
--	-	-
--	-	-
--	-	-

Object	-15V0.1A

1.Graph



2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	2.3	3.4
-40	2.1	3.0
-20	2.3	3.0
0	2.1	3.0
25	2.4	3.0
55	2.4	3.2
60	2.3	3.2
--	-	-
--	-	-
--	-	-
--	-	-

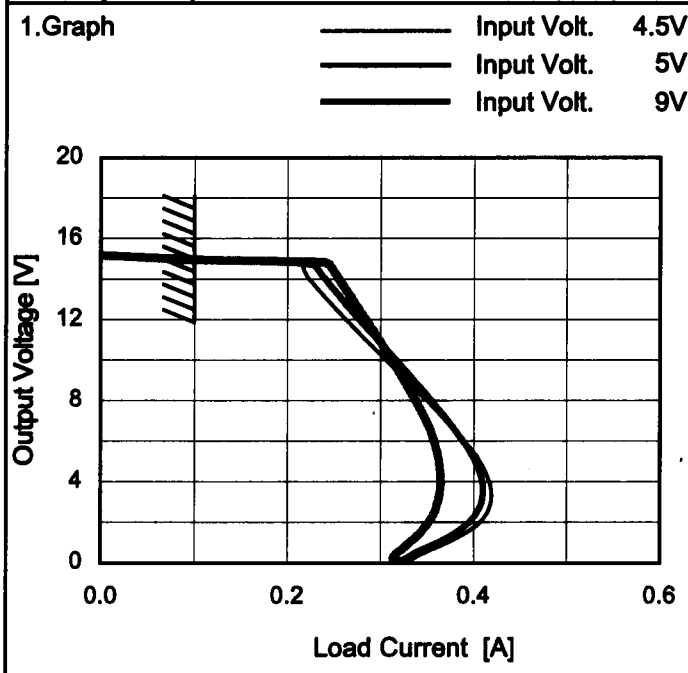
Note: Slanted line shows the range of the rated ambient temperature.

COSEL

Model	SUCW30515
Item	Overcurrent Protection
Object	+15V0.1A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

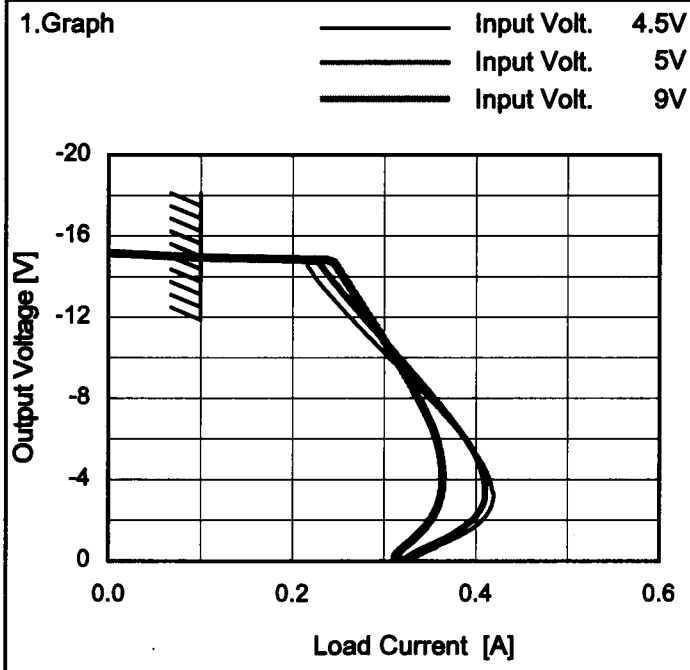


2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
15.0	0.10	0.10	0.10
14.3	0.22	0.24	0.25
13.5	0.23	0.25	0.26
12.0	0.26	0.28	0.28
10.5	0.30	0.31	0.31
9.0	0.33	0.34	0.32
7.5	0.36	0.36	0.34
6.0	0.39	0.39	0.36
4.5	0.41	0.41	0.36
3.0	0.42	0.41	0.36
1.5	0.39	0.38	0.34
0.0	0.33	0.32	0.33

Object	-15V0.1A

1.Graph



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

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]
-15.0	0.10	0.10	0.10
-14.3	0.22	0.24	0.25
-13.5	0.23	0.25	0.26
-12.0	0.26	0.28	0.28
-10.5	0.29	0.31	0.31
-9.0	0.33	0.34	0.33
-7.5	0.36	0.36	0.34
-6.0	0.39	0.39	0.36
-4.5	0.41	0.41	0.36
-3.0	0.42	0.41	0.36
-1.5	0.39	0.38	0.34
0.0	0.33	0.32	0.33

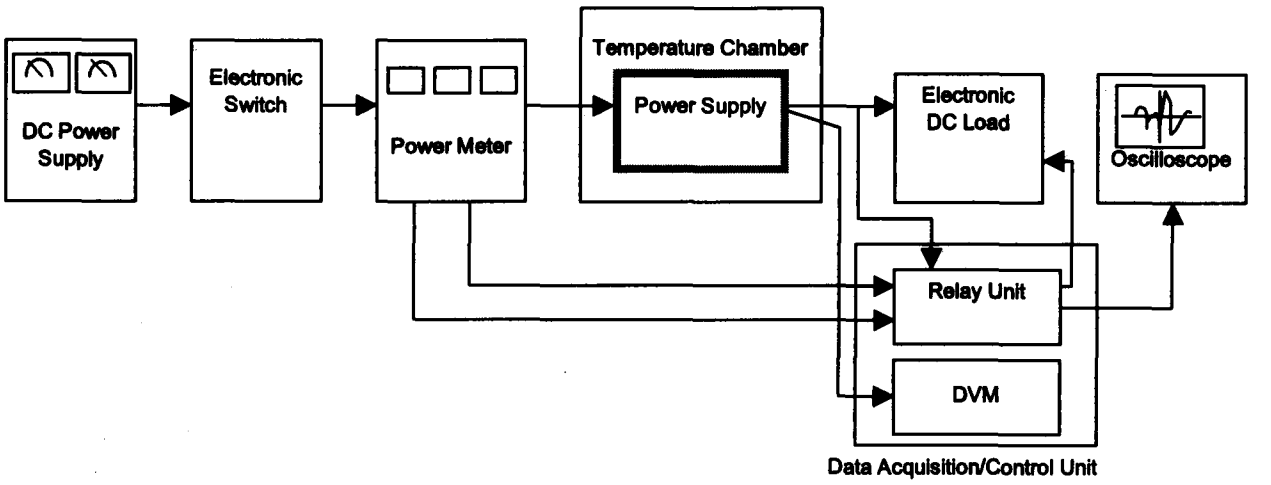


Figure A

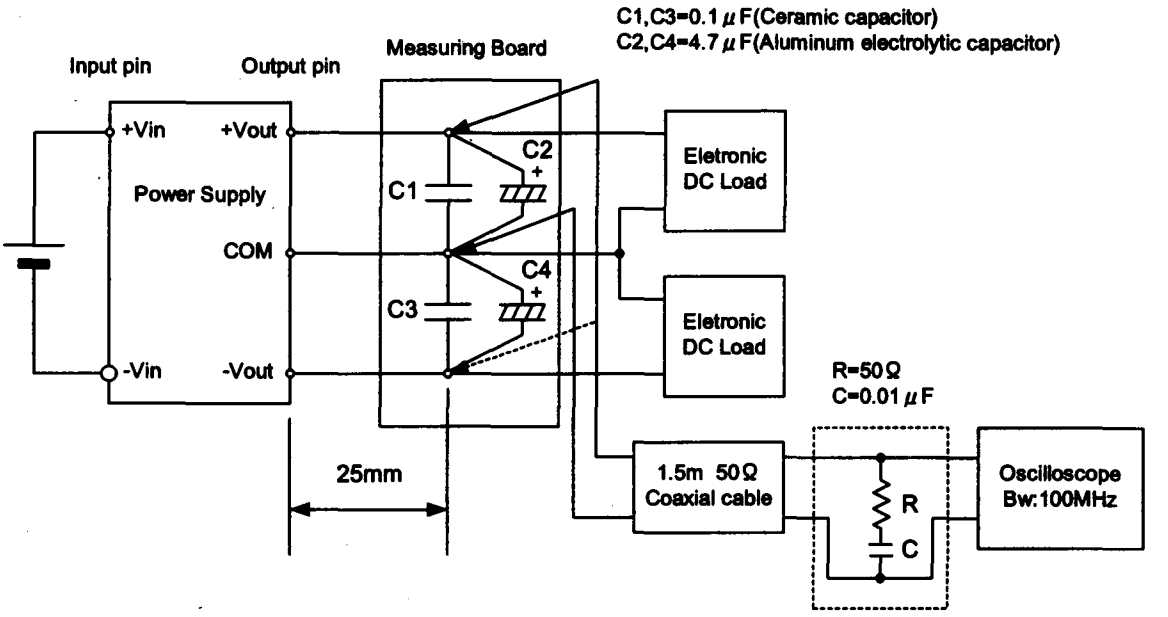


Figure B (Ripple and Ripple noise Characteristic)