参考資料

COSEL

TEST DATA OF SUW62415
SUCW62415

Regulated DC Power Supply
Feb 24, 2005

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Yoshikazu Mizuno Design Engineer

COSEL CO.,LTD.

参考資料

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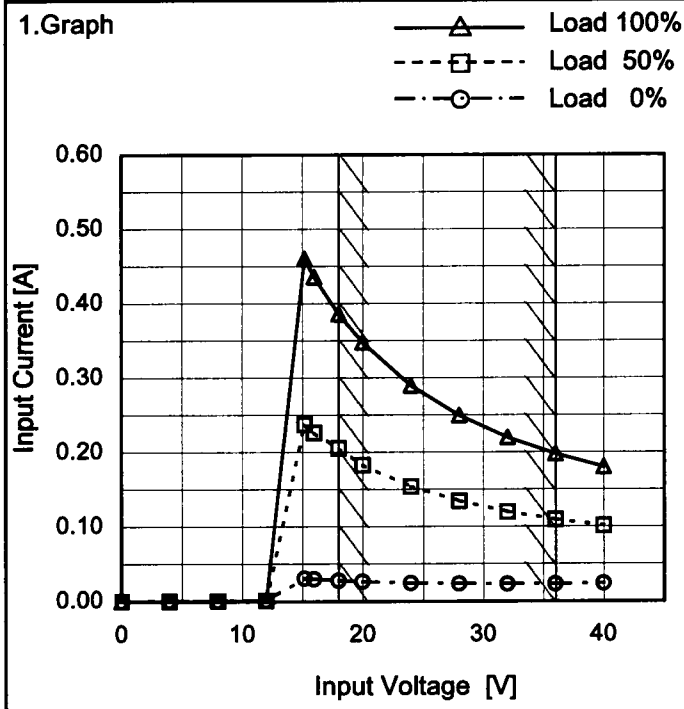
Model	SUW62415/SUCW62415
Item	Input Current (by Input Voltage)
Object	――――――

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%
0.0	0.000	0.000	0.000
4.0	0.000	0.000	0.000
8.0	0.001	0.001	0.001
12.0	0.001	0.001	0.001
15.2	0.031	0.237	0.460
16.0	0.030	0.226	0.436
18.0	0.028	0.206	0.386
20.0	0.026	0.183	0.348
24.0	0.024	0.154	0.290
28.0	0.023	0.134	0.250
32.0	0.023	0.120	0.220
36.0	0.023	0.109	0.198
40.0	0.024	0.101	0.180
--	-	-	-
--	-	-	-
--	-	-	-

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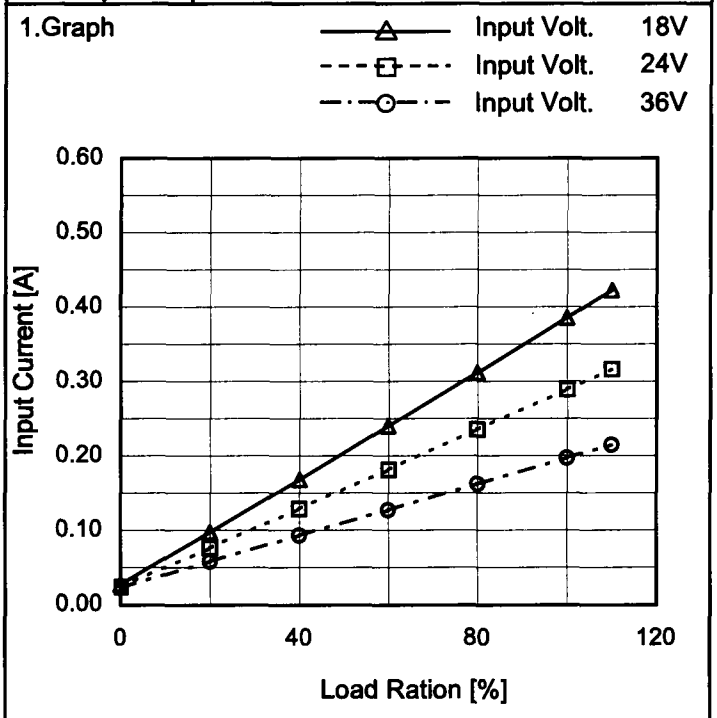
Model	SUW62415/SUCW62415
Item	Input Current (by Load Current)
Object	――――――

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]
0	0.028	0.024	0.023
20	0.098	0.077	0.058
40	0.168	0.129	0.093
60	0.240	0.182	0.127
80	0.312	0.235	0.162
100	0.385	0.289	0.197
110	0.422	0.317	0.215
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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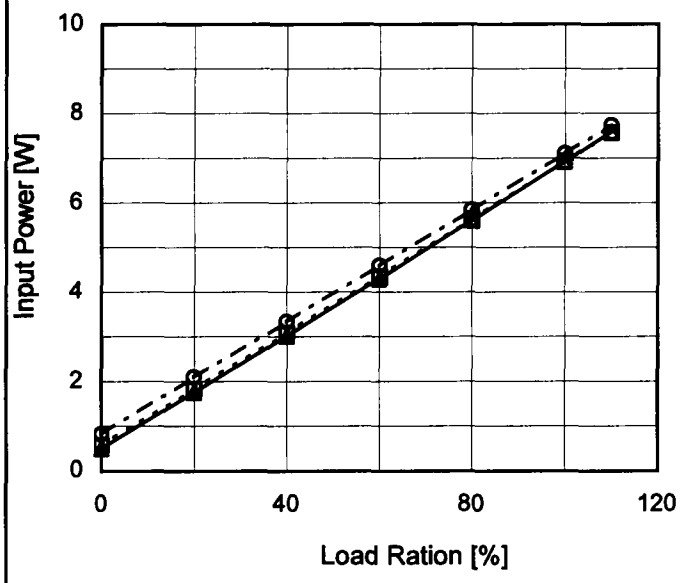
Model	SUW62415/SUCW62415
Item	Input Power (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

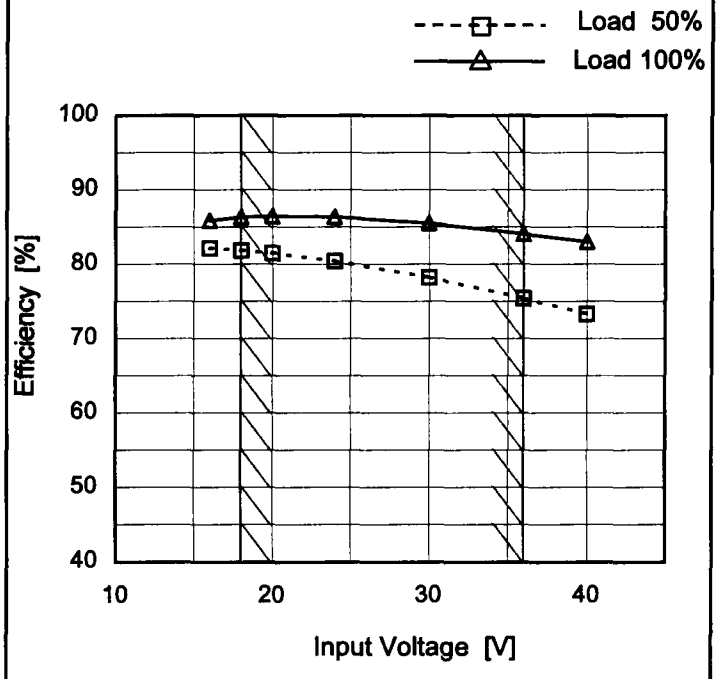
Load Ration [%]	Input Power [W]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.50	0.58	0.83
20	1.75	1.84	2.10
40	3.01	3.09	3.34
60	4.29	4.35	4.59
80	5.60	5.63	5.84
100	6.92	6.92	7.11
110	7.59	7.57	7.74
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SUW62415/SUCW62415
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

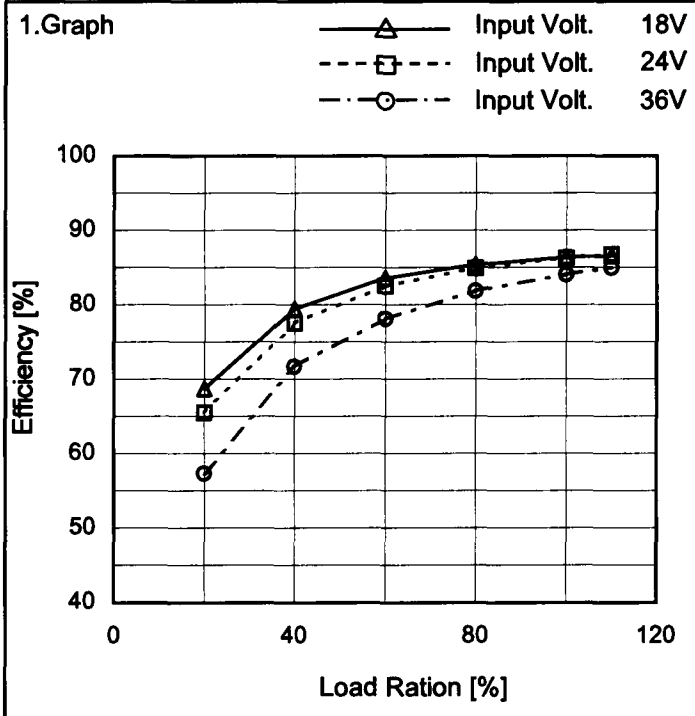
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
16	82.2	85.9
18	81.8	86.3
20	81.5	86.5
24	80.4	86.4
30	78.2	85.5
36	75.4	84.1
40	73.3	83.0
--	-	-
--	-	-

COSEL

Model	SUW62415/SUCW62415
Item	Efficiency (by Load Current)
Object	――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

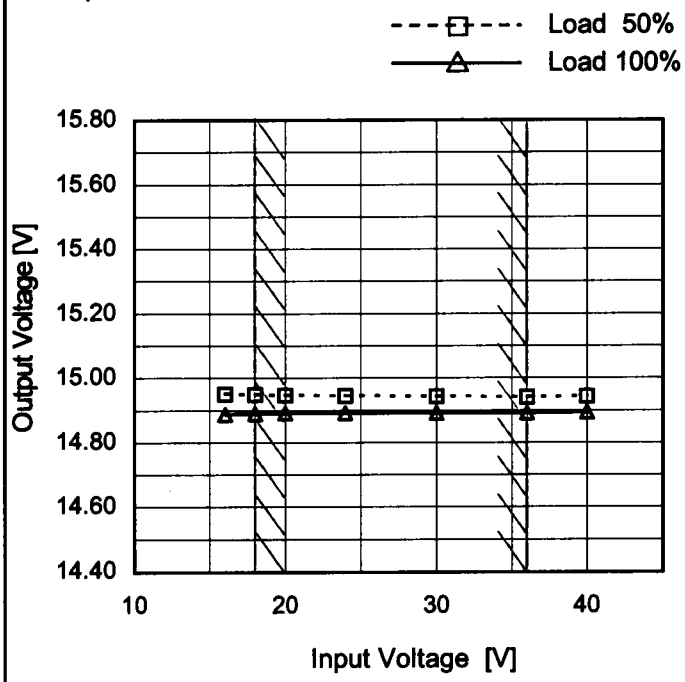
Load Ration [%]	Efficiency [%]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	-	-	-
20	68.7	65.5	57.3
40	79.5	77.6	71.7
60	83.6	82.5	78.1
80	85.4	84.9	81.9
100	86.4	86.3	84.1
110	86.5	86.8	85.0
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SUW62415/SUCW62415
Item	Line Regulation
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

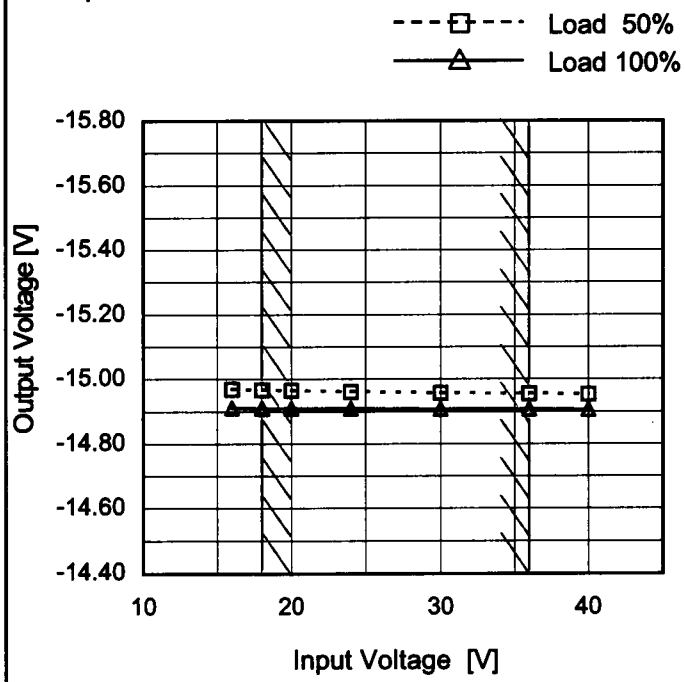


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
16	14.950	14.888
18	14.949	14.890
20	14.947	14.890
24	14.945	14.891
30	14.943	14.892
36	14.942	14.892
40	14.942	14.892
--	-	-
--	-	-

Object	-15V0.2A

1.Graph



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

2.Values

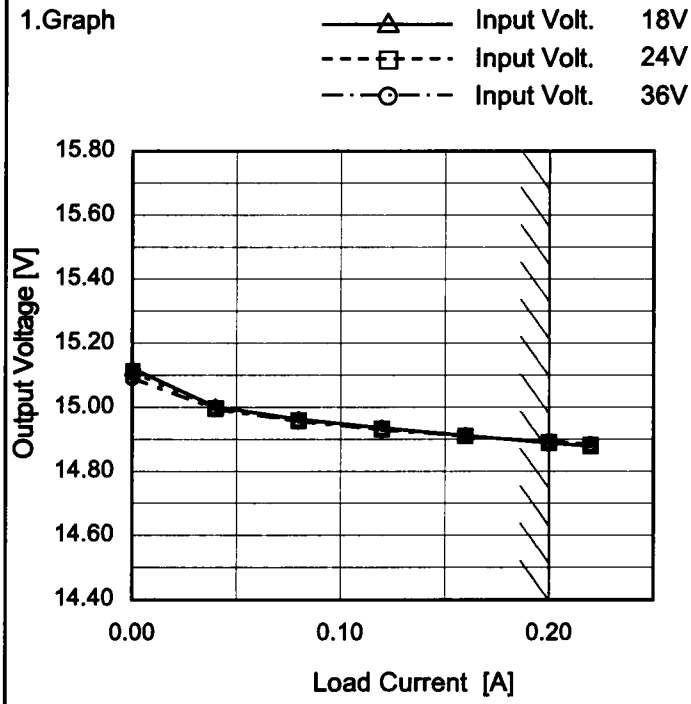
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
16	-14.969	-14.910
18	-14.966	-14.910
20	-14.964	-14.909
24	-14.960	-14.908
30	-14.957	-14.907
36	-14.954	-14.906
40	-14.953	-14.906
--	-	-
--	-	-

COSEL

Model	SUW62415/SUCW62415
Item	Load Regulation
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

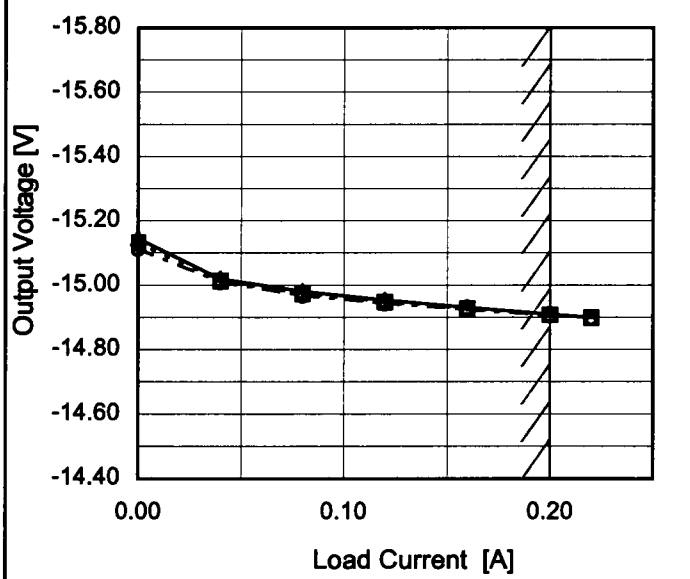


2.Values

Load Current [A]	Output Voltage [V] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	15.122	15.112	15.092
0.04	15.001	14.997	14.994
0.08	14.963	14.959	14.956
0.12	14.936	14.933	14.930
0.16	14.911	14.911	14.910
0.20	14.889	14.891	14.892
0.22	14.878	14.882	14.884
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Object	-15V0.2A

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]
0.00	-15.145	-15.132	-15.113
0.04	-15.020	-15.014	-15.010
0.08	-14.980	-14.974	-14.968
0.12	-14.953	-14.948	-14.944
0.16	-14.931	-14.927	-14.924
0.20	-14.910	-14.908	-14.907
0.22	-14.900	-14.899	-14.898
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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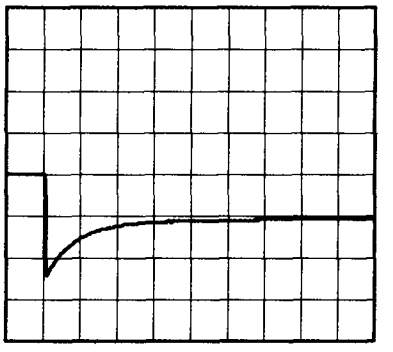
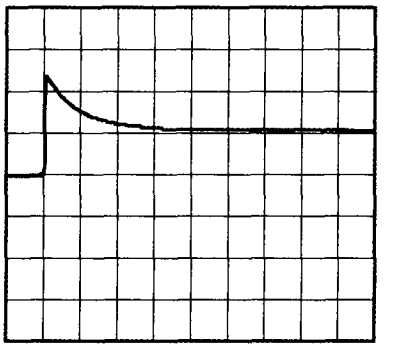
Model	SUW62415/SUCW62415
Item	Dynamic Load Response
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 24 V
Cycle 100 mS

Min. Load (0A) ←→
Load 100% (0.2A)

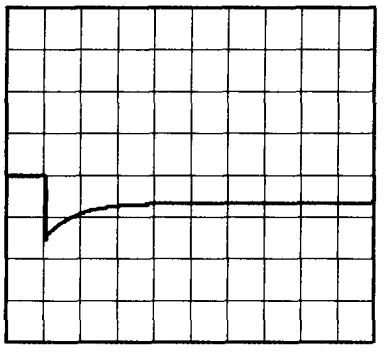


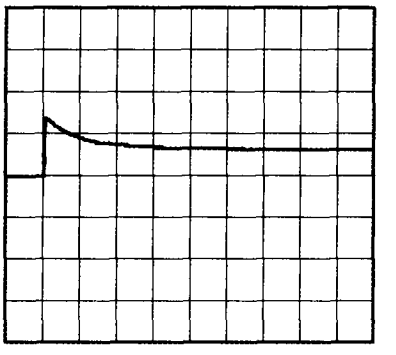


200mV/div

2ms/div 2ms/div

Min. Load (0A) ←→
Load 50% (0.1A)

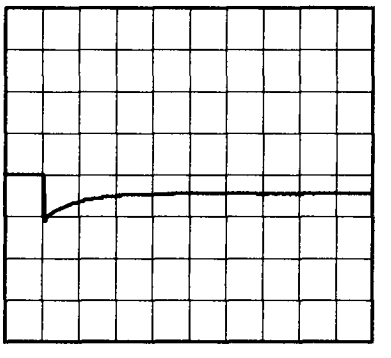


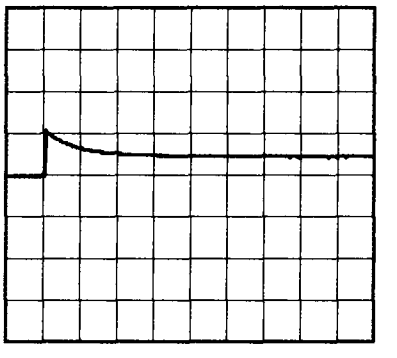


200mV/div

2ms/div 2ms/div

Load 50% (0.1A) ←→
Load 100% (0.2A)





200mV/div

2ms/div 2ms/div

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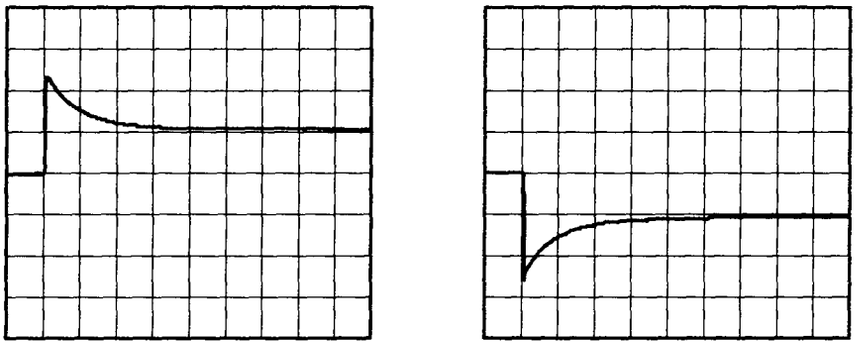
Model	SUW62415/SUCW62415
Item	Dynamic Load Response
Object	-15V0.2A

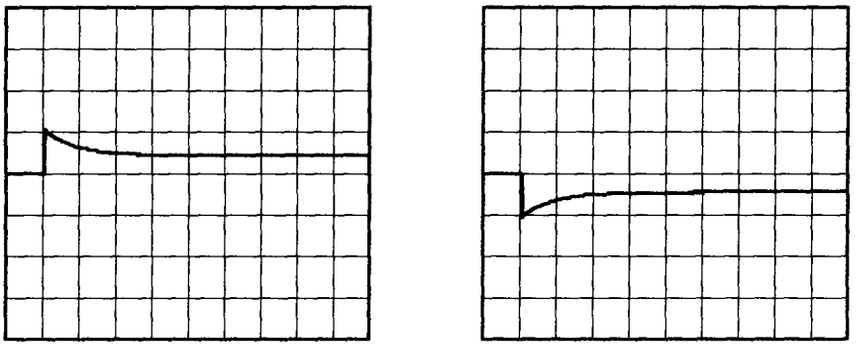
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 24 V
Cycle 100 mS

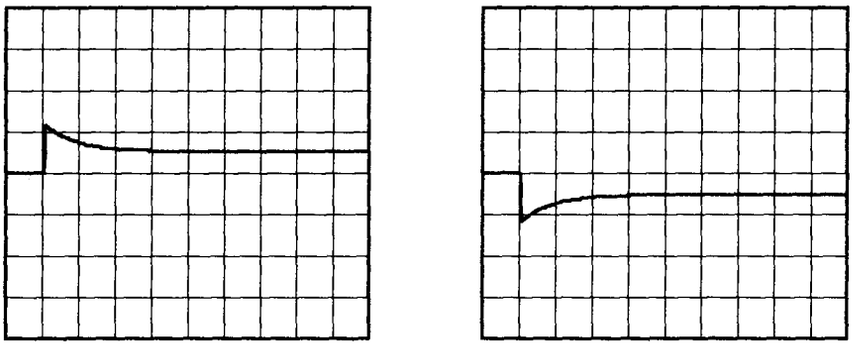
Min. Load (0A) ←→
Load 100% (0.2A)



Min. Load (0A) ←→
Load 50% (0.1A)



Load 50% (0.1A) ←→
Load 100% (0.2A)



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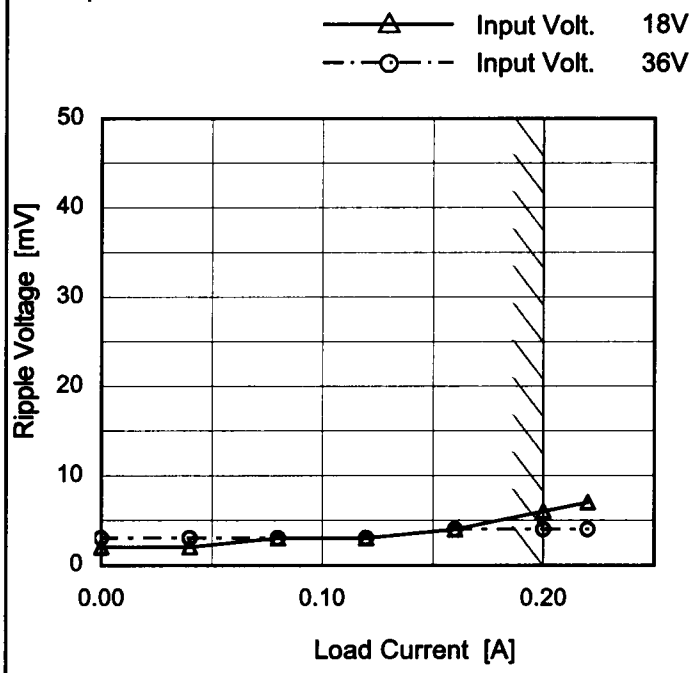
Model	SUW62415/SUCW62415
Item	Ripple Voltage (by Load Current)
Object	+15V0.2A

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]

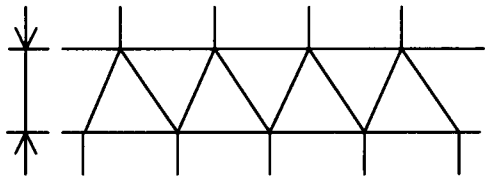


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV] Input Volt. 18 [V]	Ripple Voltage [mV] Input Volt. 36 [V]
0.00	2	3
0.04	2	3
0.08	3	3
0.12	3	3
0.16	4	4
0.20	6	4
0.22	7	4
--	-	-
--	-	-
--	-	-
--	-	-

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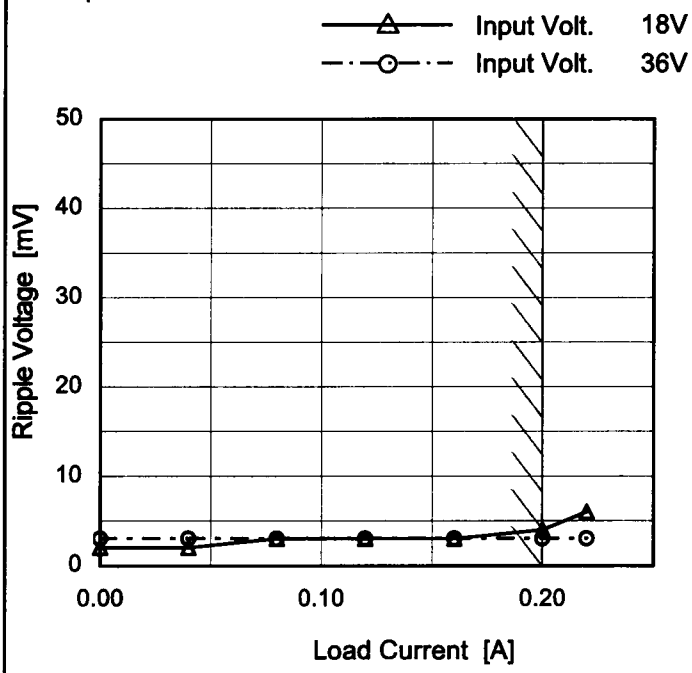
Model	SUW62415/SUCW62415
Item	Ripple Voltage (by Load Current)
Object	-15V0.2A

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]

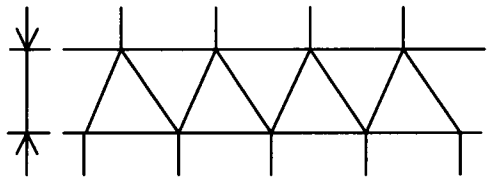


Fig.Complex Ripple Wave Form

2.Values

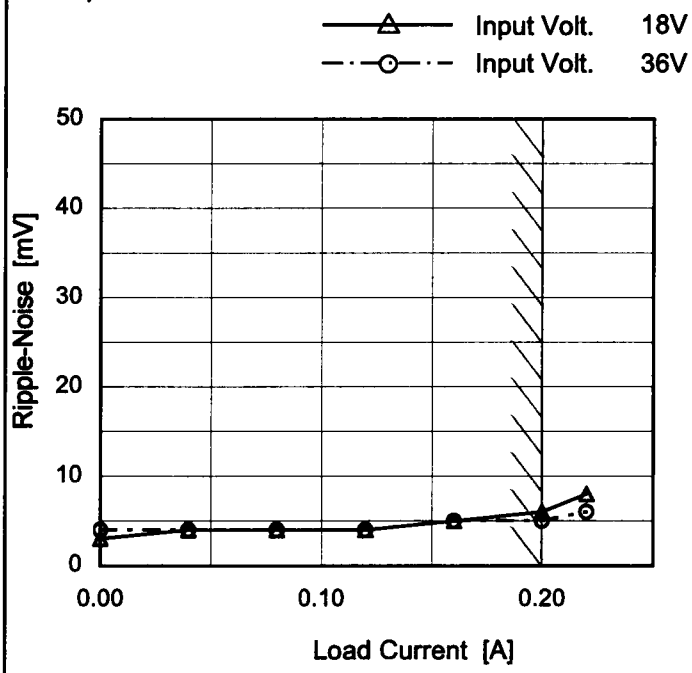
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.00	2	3
0.04	2	3
0.08	3	3
0.12	3	3
0.16	3	3
0.20	4	3
0.22	6	3
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SUW62415/SUCW62415
Item	Ripple-Noise
Object	+15V0.2A

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.

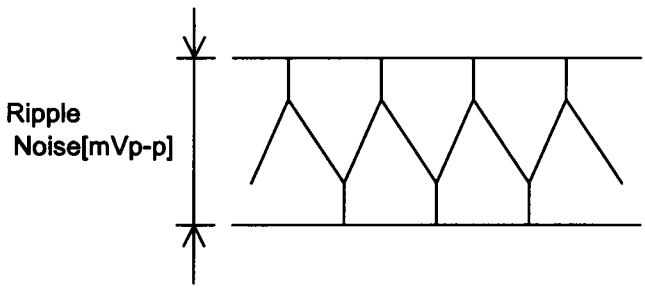


Fig.Complex Ripple Noise Wave Form

2.Values

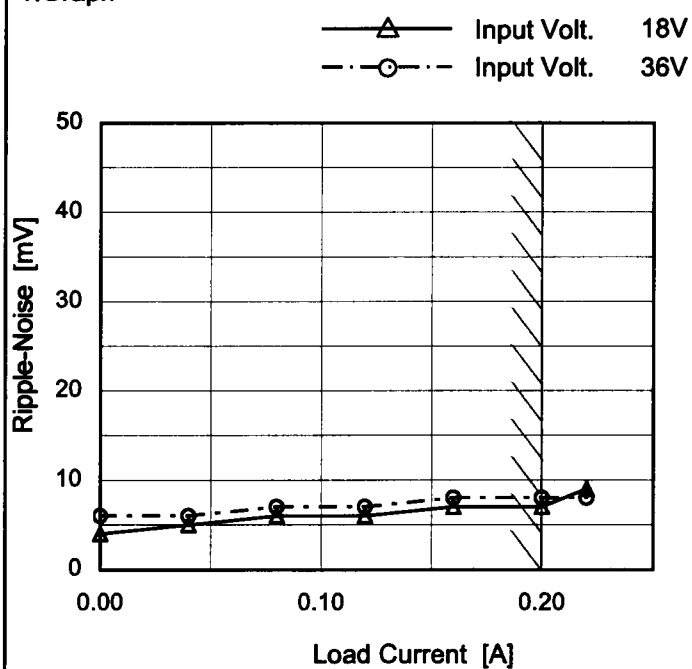
Load Current [A]	Ripple-Noise [mV] Input Volt. 18 [V]	Ripple-Noise [mV] Input Volt. 36 [V]
0.00	3	4
0.04	4	4
0.08	4	4
0.12	4	4
0.16	5	5
0.20	6	5
0.22	8	6
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SUW62415/SUCW62415
Item	Ripple-Noise
Object	-15V0.2A

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.

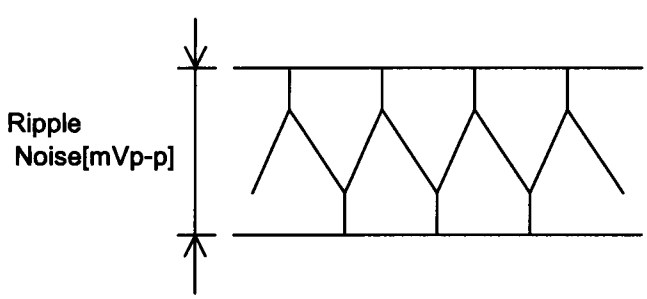


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV] Input Volt. 18 [V]	Ripple-Noise [mV] Input Volt. 36 [V]
0.00	4	6
0.04	5	6
0.08	6	7
0.12	6	7
0.16	7	8
0.20	7	8
0.22	9	8
--	-	-
--	-	-
--	-	-
--	-	-

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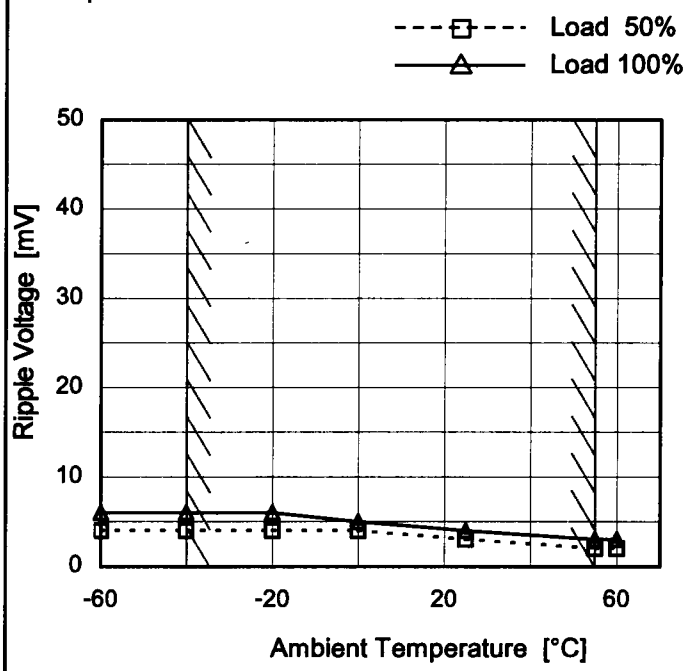
Model	SUW62415/SUCW62415
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V0.2A

Testing Circuitry Figure B

1.Graph



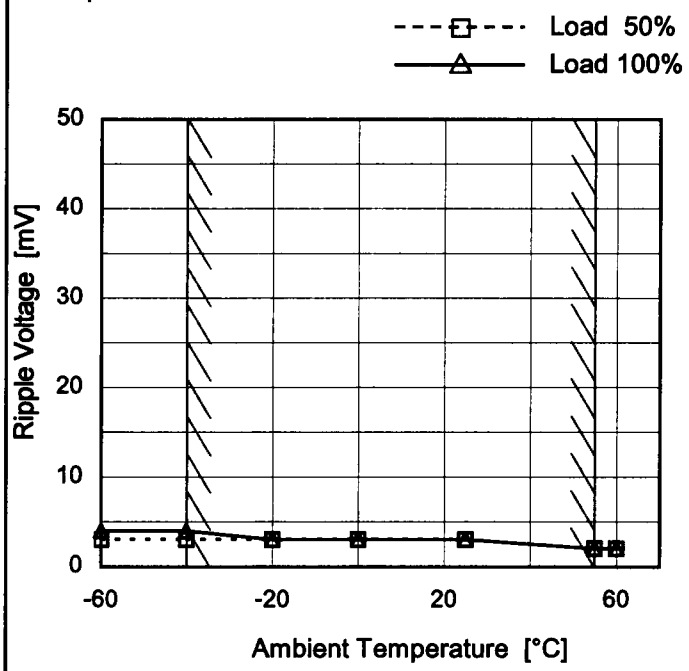
Input Volt. 24V

2.Values

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

Object	-15V0.2A

1.Graph



Input Volt. 24V

Measured by 100 MHz Oscilloscope.

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

2.Values

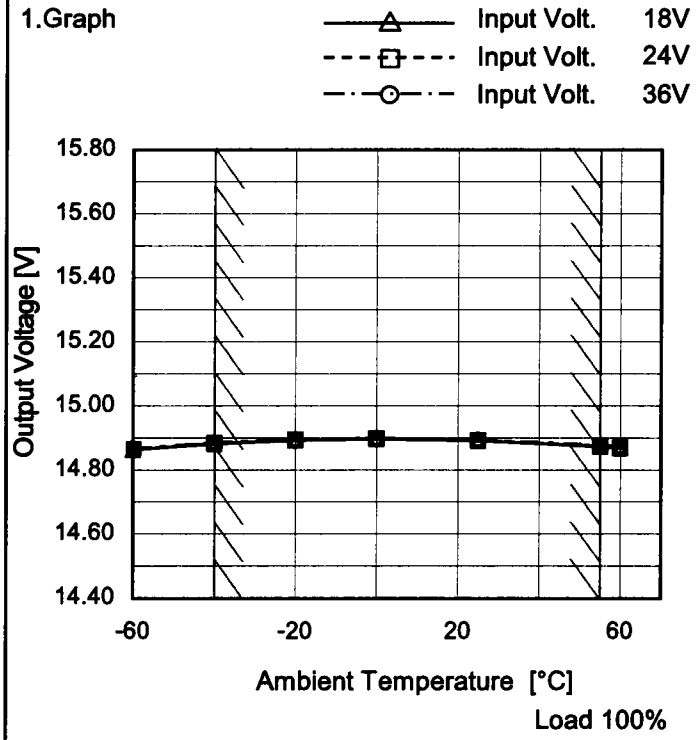
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	3	4
-40	3	4
-20	3	3
0	3	3
25	3	3
55	2	2
60	2	2
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SUW62415/SUCW62415
Item	Ambient Temperature Drift
Object	+15V0.2A

Testing Circuitry Figure A

1.Graph

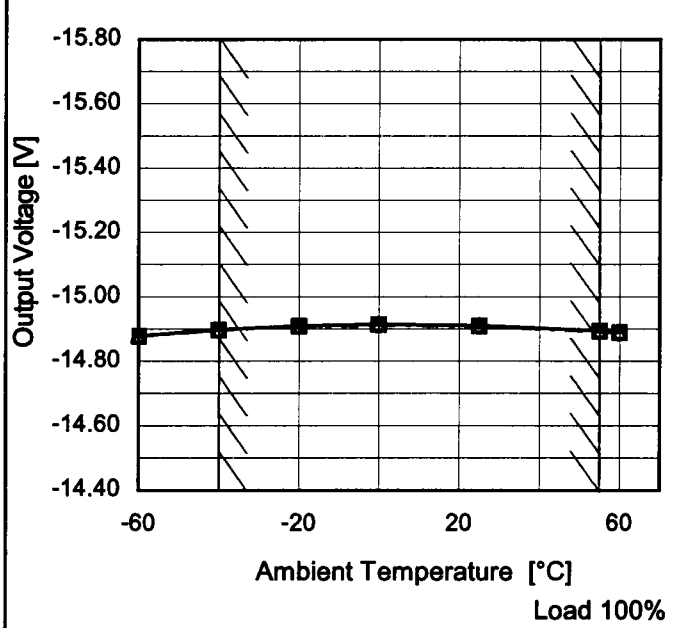


2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	14.864	14.865	14.866
-40	14.882	14.884	14.885
-20	14.893	14.895	14.895
0	14.897	14.899	14.899
25	14.892	14.893	14.894
55	14.874	14.875	14.877
60	14.869	14.870	14.872
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Object	-15V0.2A

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]
-60	-14.879	-14.878	-14.877
-40	-14.898	-14.897	-14.896
-20	-14.910	-14.909	-14.908
0	-14.915	-14.914	-14.912
25	-14.911	-14.910	-14.908
55	-14.895	-14.894	-14.892
60	-14.891	-14.889	-14.887
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SUW62415/SUCW62415	
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 : 18 - 36V
Load Current (AVR 1) : 0 - 0.2A (AVR 2):0 - 0.2A
* Other Output : Rated Load

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

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

2.Values

Object	+15V0.2A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	18	0	15.117	±122	±0.8
Minimum Voltage	55	18	0.2	14.874		

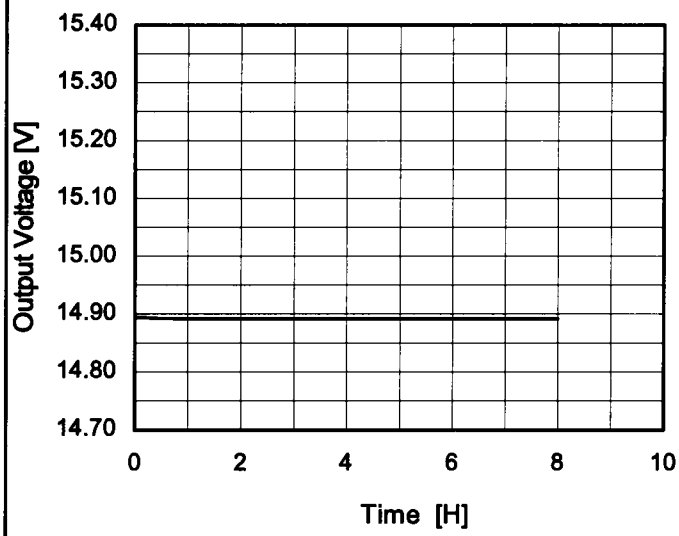
Object	-15V0.2A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	18	0	-15.140	±124	±0.8
Minimum Voltage	55	36	0.2	-14.892		

COSEL

Model	SUW62415/SUCW62415
Item	Time Lapse Drift
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



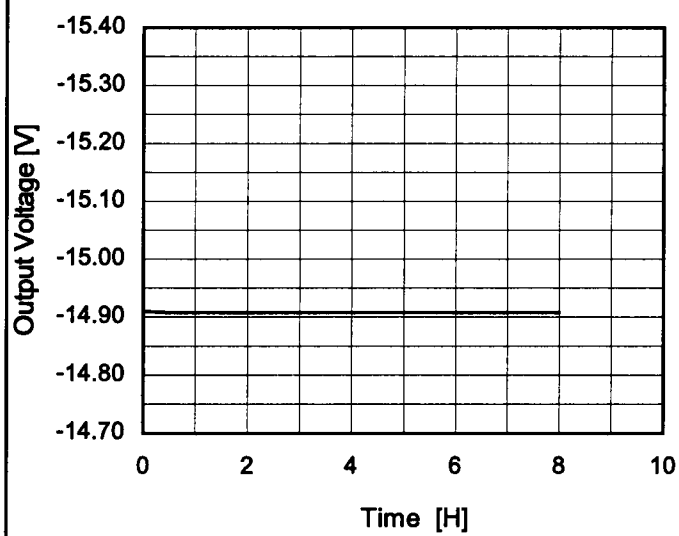
Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	14.894
0.5	14.893
1.0	14.892
2.0	14.892
3.0	14.892
4.0	14.892
5.0	14.892
6.0	14.892
7.0	14.892
8.0	14.892

Object	-15V0.2A

1.Graph



Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-14.910
0.5	-14.908
1.0	-14.908
2.0	-14.908
3.0	-14.908
4.0	-14.908
5.0	-14.908
6.0	-14.908
7.0	-14.908
8.0	-14.908

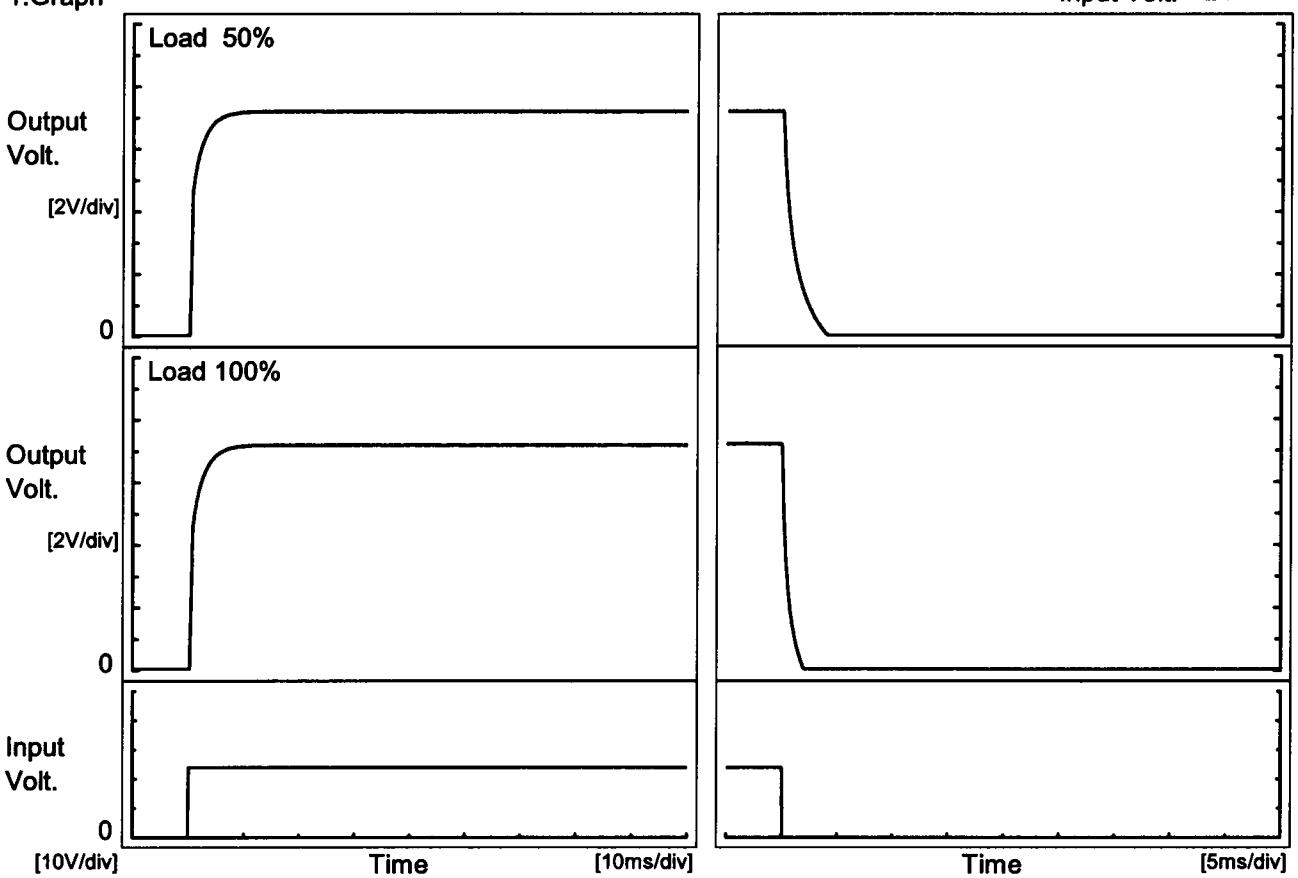
COSEL

Model	SUW62415/SUCW62415
Item	Rise and Fall Time
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

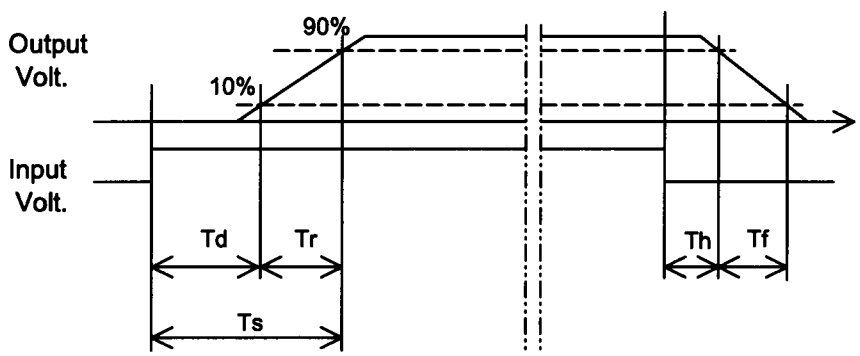
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.3	4.1	4.4	0.1	2.6
100 %	0.3	4.3	4.6	0.1	1.3



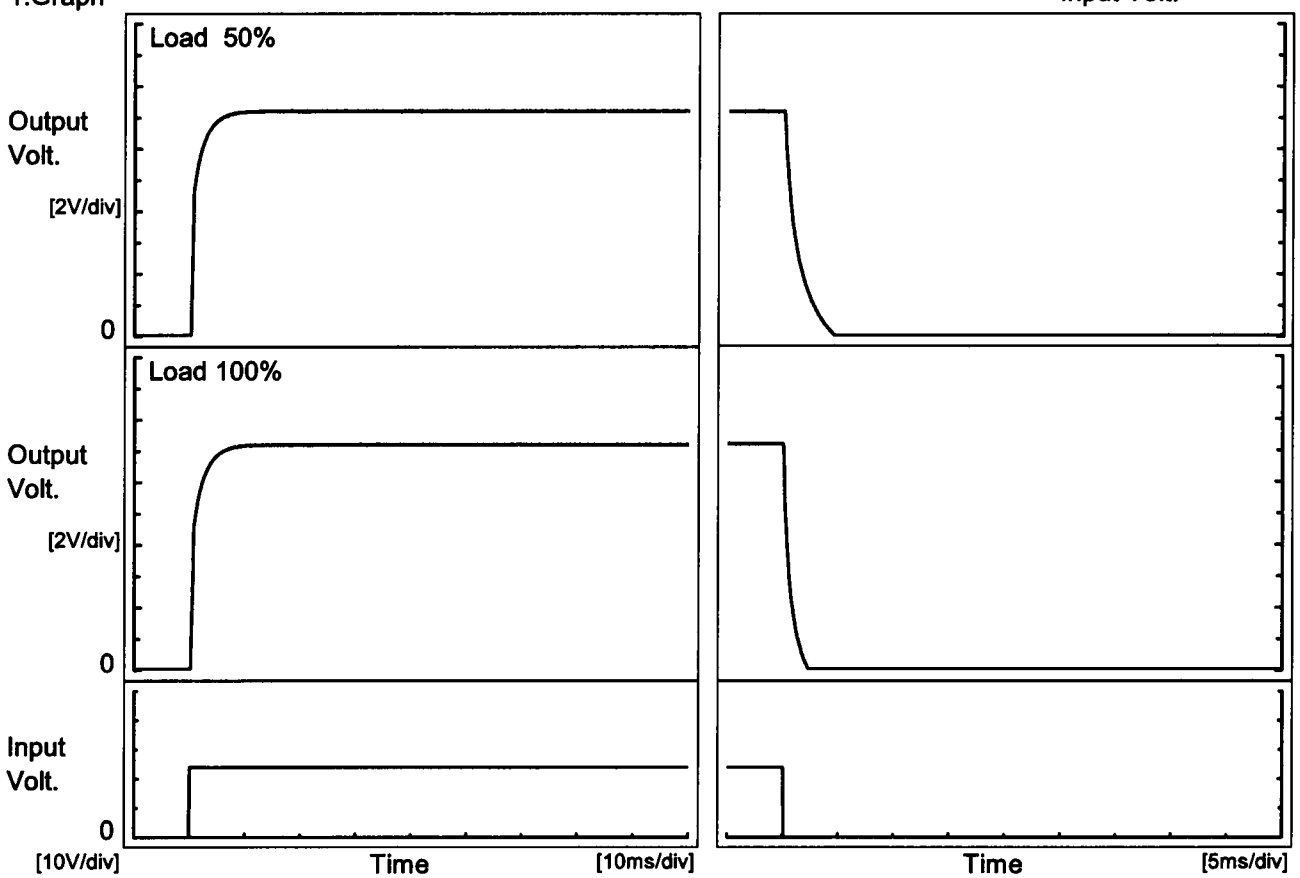
COSEL

Model	SUW62415/SUCW62415
Item	Rise and Fall Time
Object	-15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

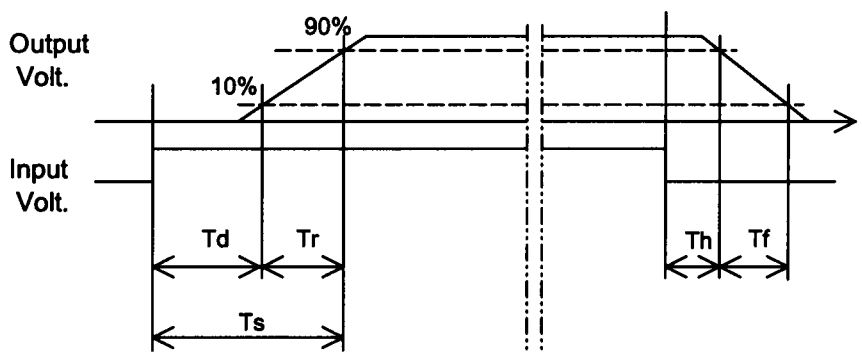
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.3	4.1	4.4	0.1	2.9
100 %	0.3	4.3	4.6	0.1	1.5



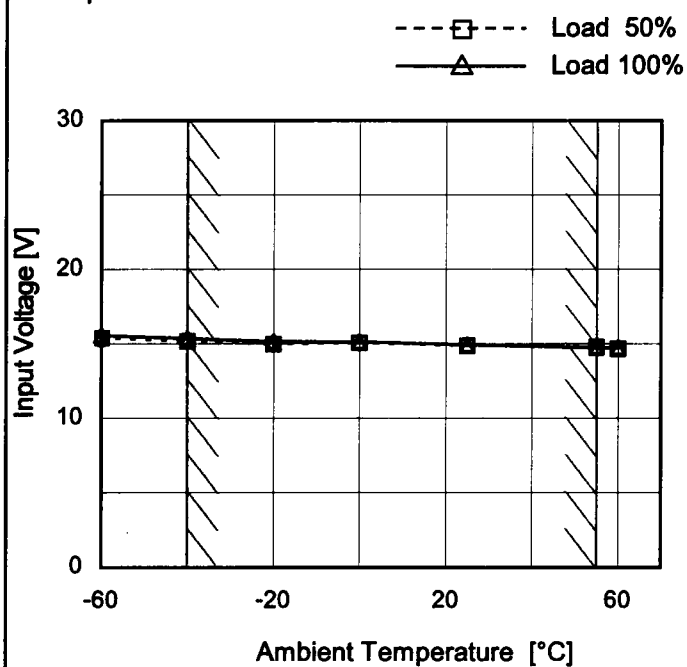
COSEL

Model	SUW62415/SUCW62415
Item	Minimum Input Voltage for Regulated Output Voltage

Testing Circuitry Figure A

Object: +15V0.2A

1.Graph

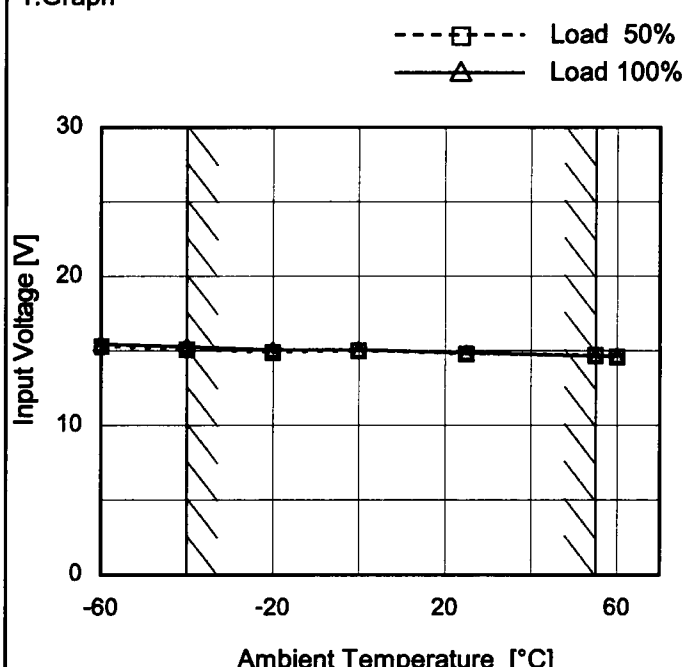


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.4	15.6
-40	15.2	15.4
-20	15.0	15.2
0	15.1	15.2
25	14.9	15.0
55	14.8	14.8
60	14.7	14.8
--	-	-
--	-	-
--	-	-
--	-	-

Object: -15V0.2A

1.Graph



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

2.Values

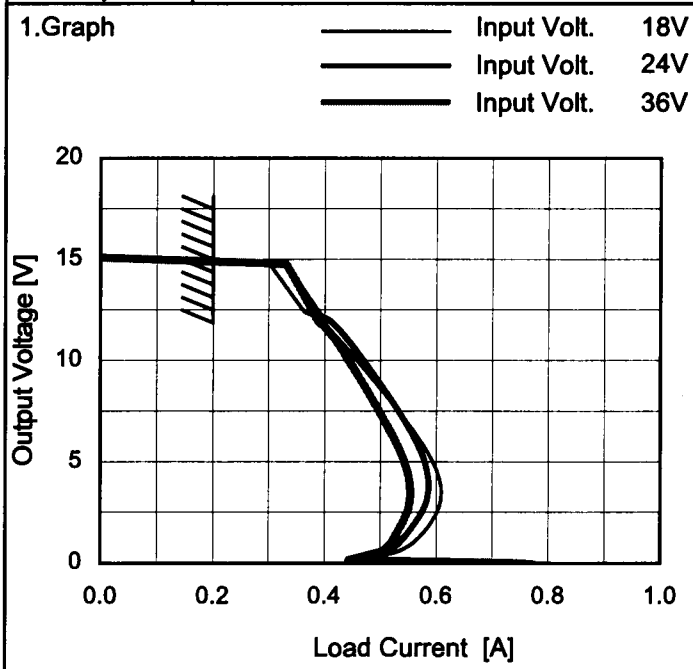
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.3	15.5
-40	15.1	15.3
-20	14.9	15.1
0	15.0	15.1
25	14.8	14.9
55	14.7	14.7
60	14.6	14.7
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SUW62415/SUCW62415
Item	Overcurrent Protection
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

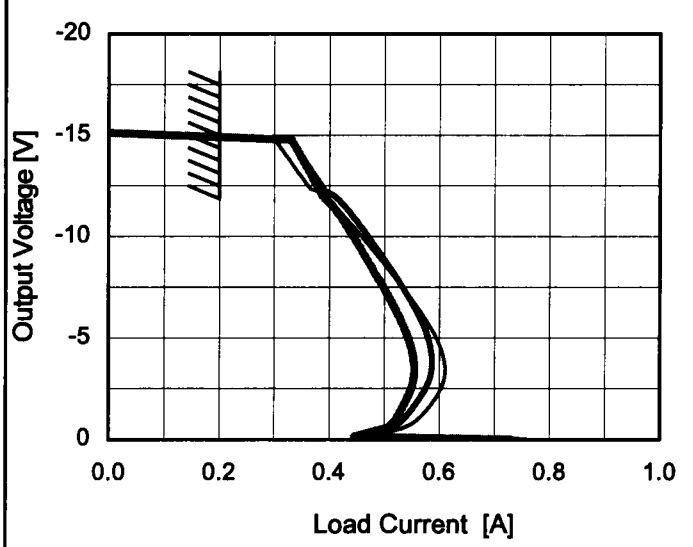


2.Values

Output Voltage [V]	Load Current [A] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
15.0	0.20	0.20	0.20
14.3	0.32	0.34	0.34
13.5	0.33	0.36	0.36
12.0	0.39	0.41	0.39
10.5	0.44	0.46	0.43
9.0	0.49	0.49	0.47
7.5	0.53	0.53	0.50
6.0	0.57	0.56	0.53
4.5	0.60	0.58	0.55
3.0	0.61	0.58	0.55
1.5	0.58	0.55	0.53
0.0	0.80	0.77	0.76

Object	-15V0.2A

1.Graph



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

2.Values

Output Voltage [V]	Load Current [A] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-15.00	0.20	0.20	0.20
-14.25	0.32	0.34	0.34
-13.50	0.34	0.36	0.36
-12.00	0.39	0.41	0.39
-10.50	0.44	0.46	0.43
-9.00	0.49	0.50	0.47
-7.50	0.53	0.53	0.50
-6.00	0.57	0.57	0.53
-4.50	0.60	0.58	0.55
-3.00	0.61	0.58	0.55
-1.50	0.58	0.55	0.53
0.00	0.78	0.74	0.73

COSEL

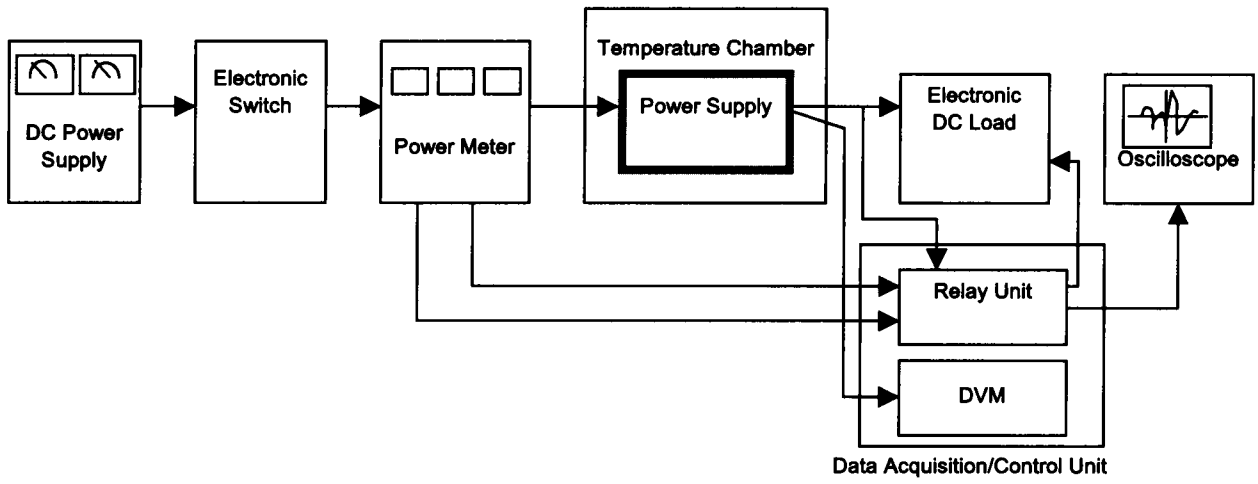


Figure A

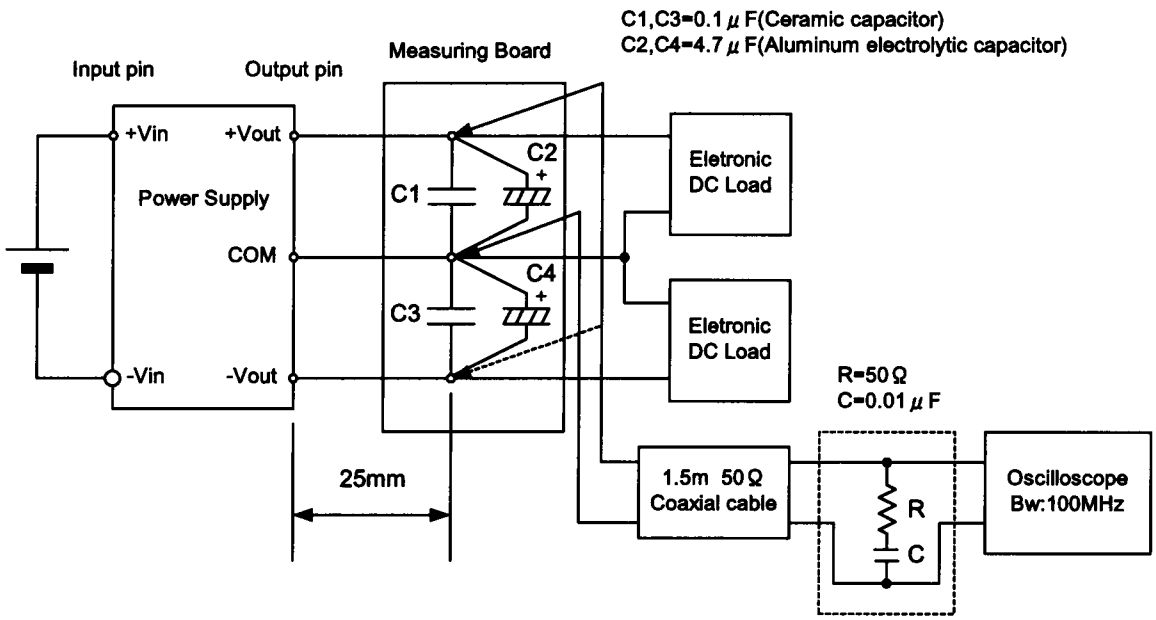


Figure B (Ripple and Ripple noise Characteristic)