COSEL

参考資料

TEST DATA OF SUTW62415

Regulated DC Power Supply
March 17, 2009

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COSEL CO.,LTD.

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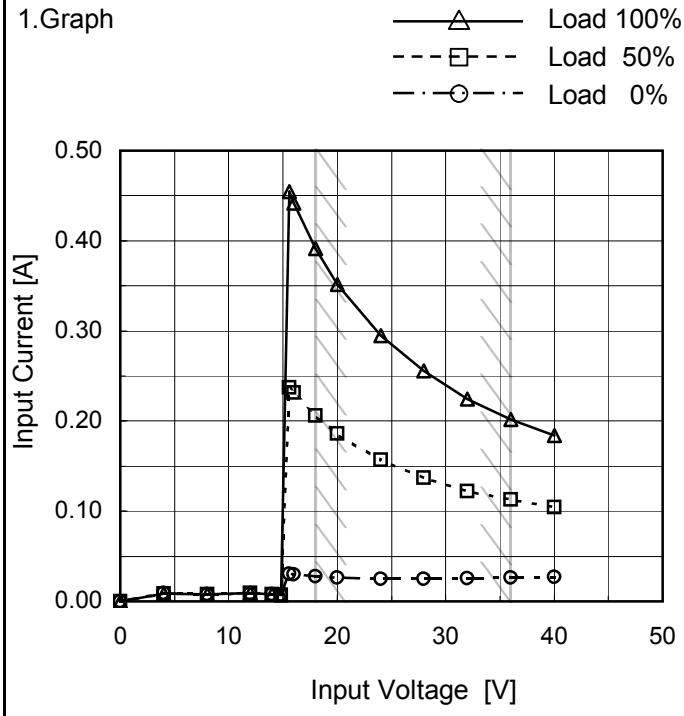
Model	SUTW62415
Item	Input Current (by Input Voltage)
Object	————————

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	0.009	0.009	0.009
8.0	0.008	0.008	0.008
12.0	0.009	0.009	0.009
14.0	0.008	0.008	0.008
14.8	0.007	0.007	0.007
15.6	0.030	0.237	0.454
16.0	0.030	0.232	0.442
18.0	0.028	0.206	0.391
20.0	0.026	0.186	0.351
24.0	0.025	0.157	0.295
28.0	0.025	0.137	0.256
32.0	0.026	0.123	0.225
36.0	0.026	0.113	0.202
40.0	0.027	0.105	0.184
--	-	-	-
--	-	-	-
--	-	-	-

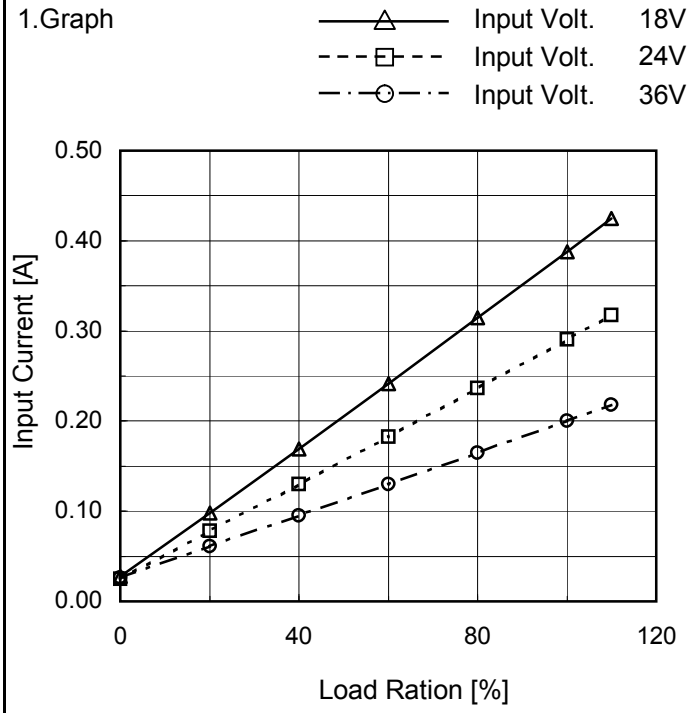
BC-10279

COSEL

Model	SUTW62415
Item	Input Current (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

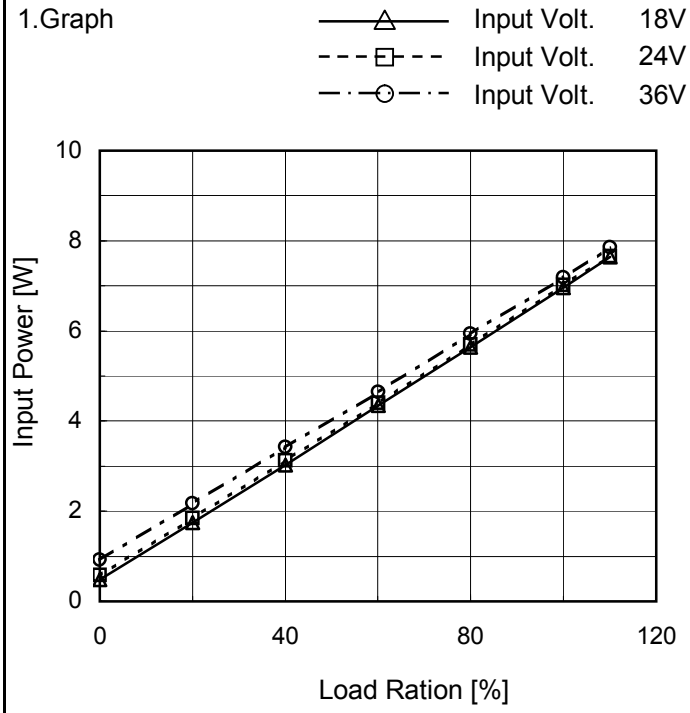
Load Ration [%]	Input Current [A]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.028	0.025	0.026
20	0.098	0.078	0.061
40	0.169	0.130	0.095
60	0.242	0.183	0.130
80	0.314	0.236	0.165
100	0.388	0.291	0.200
110	0.425	0.318	0.218
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SUTW62415
Item	Input Power (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



2.Values

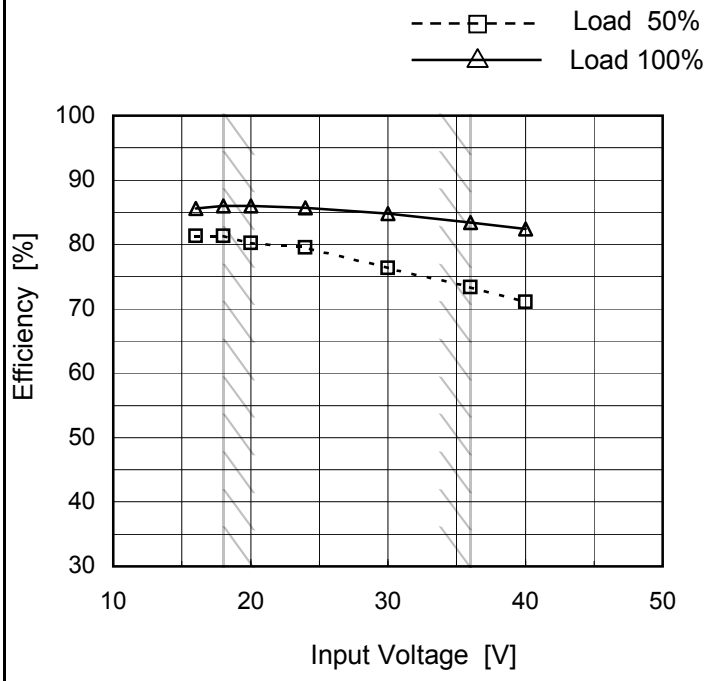
Load Ration [%]	Input Power [W]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.49	0.58	0.93
20	1.75	1.85	2.18
40	3.03	3.13	3.42
60	4.34	4.41	4.65
80	5.64	5.69	5.94
100	6.96	7.01	7.19
110	7.64	7.65	7.85
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	SUTW62415
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

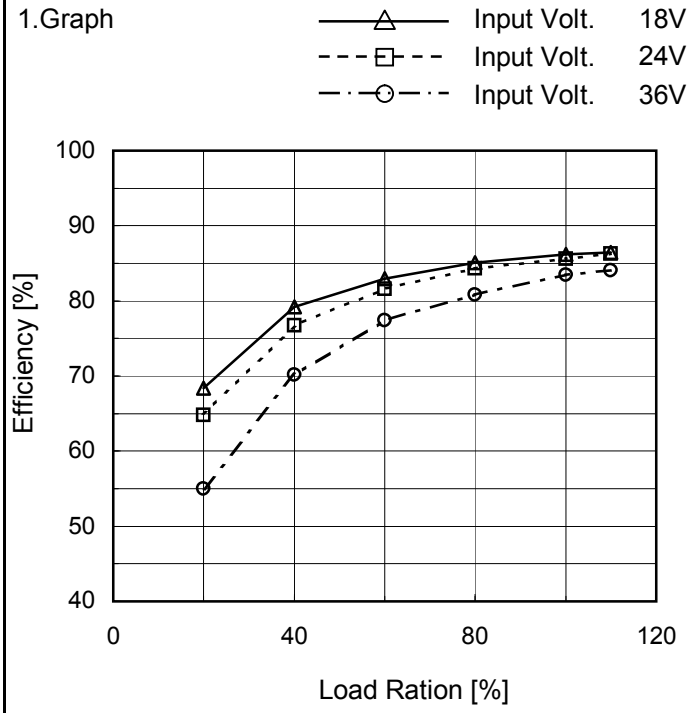
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
16	81.3	85.6
18	81.3	86.0
20	80.2	86.0
24	79.5	85.7
30	76.4	84.8
36	73.3	83.4
40	71.1	82.4
--	-	-
--	-	-

COSEL

Model	SUTW62415
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	68.3	64.8	55.0
40	79.2	76.7	70.2
60	82.9	81.6	77.4
80	85.1	84.3	80.8
100	86.2	85.6	83.4
110	86.4	86.3	84.1
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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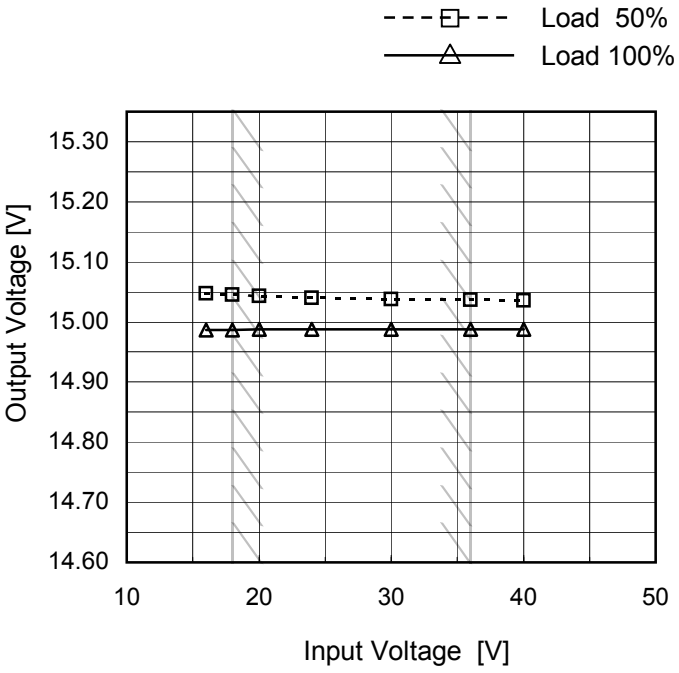
Model	SUTW62415
Item	Line Regulation
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

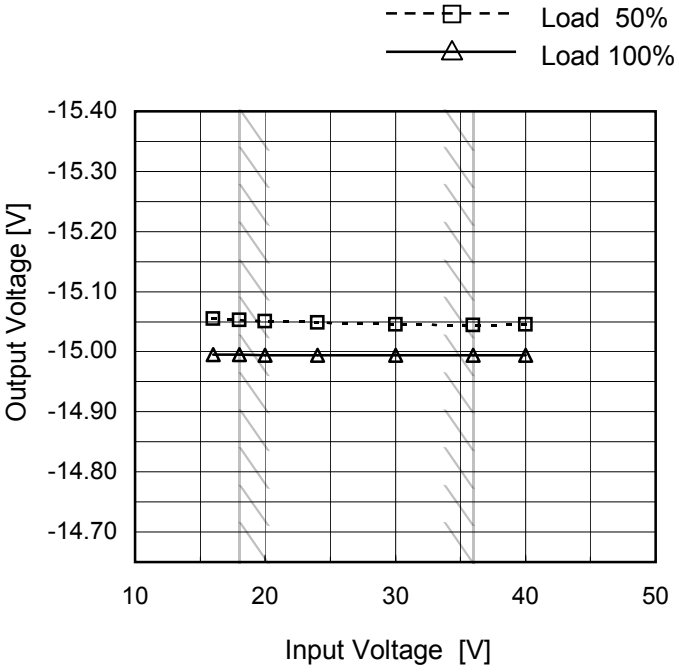


2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
16	15.048	14.986
18	15.045	14.987
20	15.044	14.988
24	15.041	14.988
30	15.038	14.988
36	15.036	14.987
40	15.035	14.988
--	-	-
--	-	-

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	-15.055	-14.995
18	-15.053	-14.995
20	-15.051	-14.994
24	-15.048	-14.994
30	-15.045	-14.994
36	-15.044	-14.994
40	-15.045	-14.994
--	-	-
--	-	-

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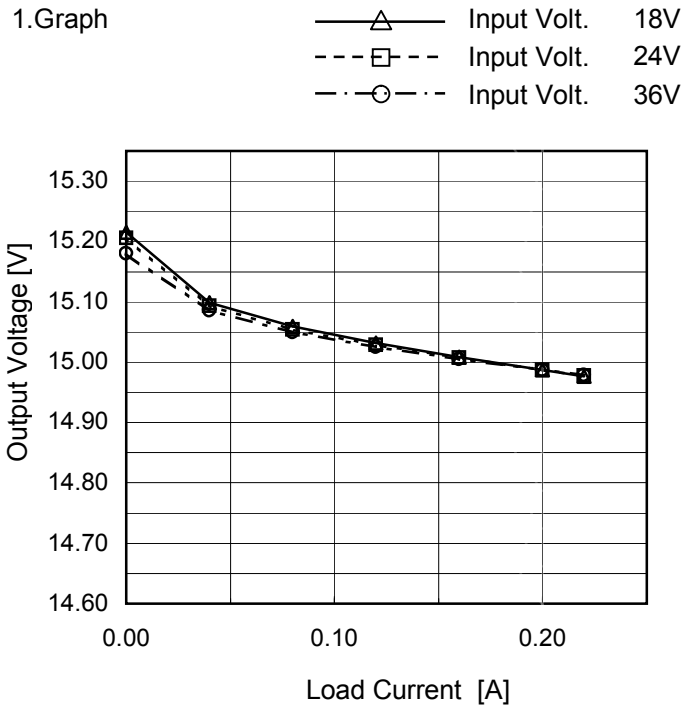
Model	SUTW62415
Item	Load Regulation
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

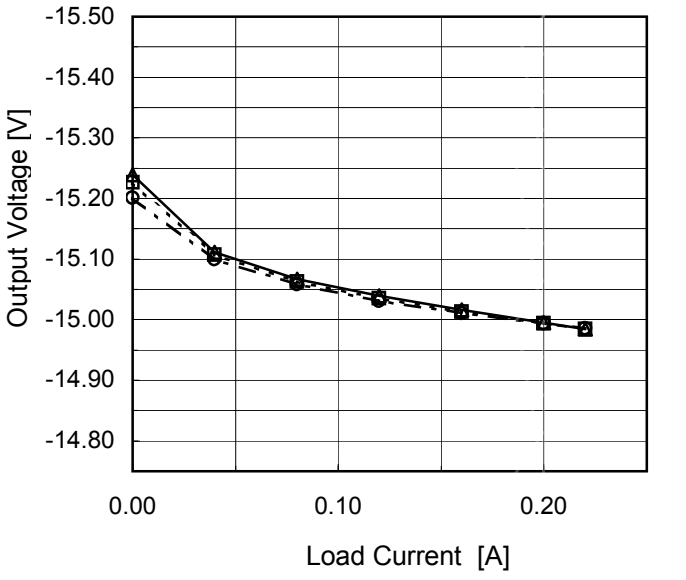


2.Values

Load Current [A]	Output Voltage [V] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	15.215	15.205	15.180
0.04	15.098	15.094	15.086
0.08	15.060	15.054	15.049
0.12	15.032	15.028	15.025
0.16	15.009	15.007	15.005
0.20	14.987	14.987	14.987
0.22	14.976	14.978	14.979
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Object	-15V0.2A

1.Graph



2.Values

Load Current [A]	Output Voltage [V] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	-15.239	-15.227	-15.201
0.04	-15.111	-15.107	-15.100
0.08	-15.067	-15.062	-15.058
0.12	-15.040	-15.035	-15.031
0.16	-15.016	-15.013	-15.011
0.20	-14.995	-14.994	-14.994
0.22	-14.984	-14.985	-14.985
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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

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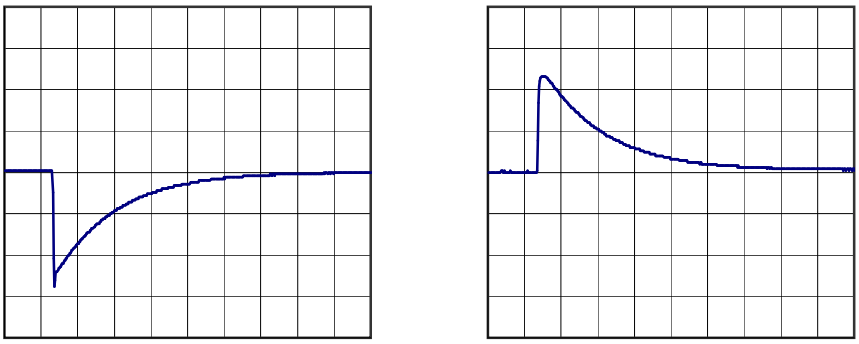
Model	SUTW62415
Item	Dynamic Load Response
Object	+15V0.2A

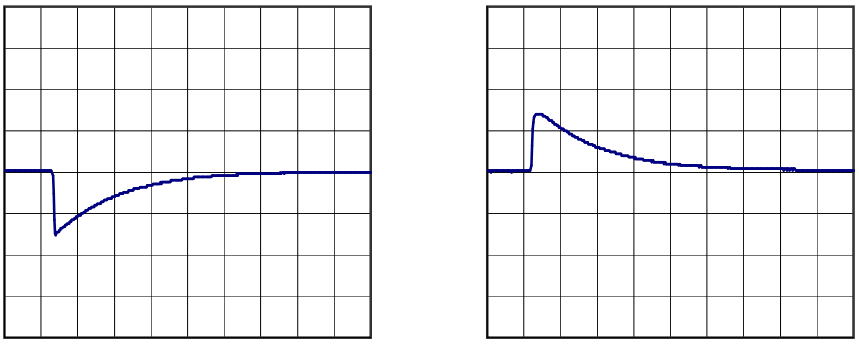
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 24 V
Cycle 100 mS

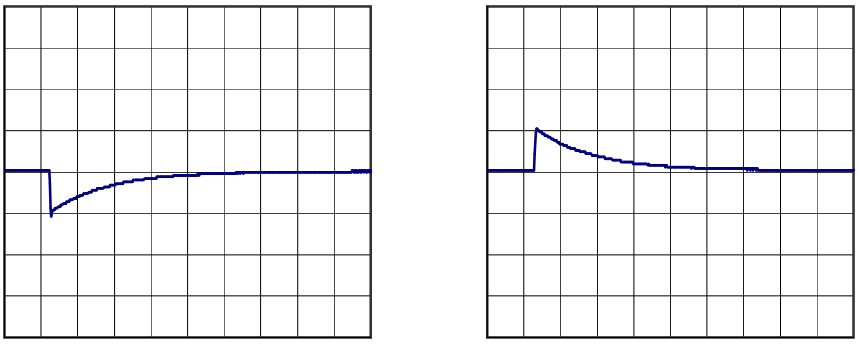
Min. Load (0A) ⟷
Load 100% (0.2A)



Min. Load (0A) ⟷
Load 50% (0.1A)



Load 50% (0.1A) ⟷
Load 100% (0.2A)



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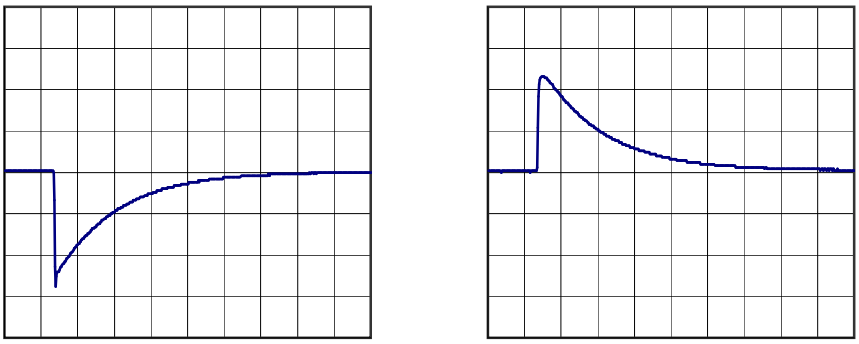
Model	SUTW62415
Item	Dynamic Load Response
Object	-15V0.2A

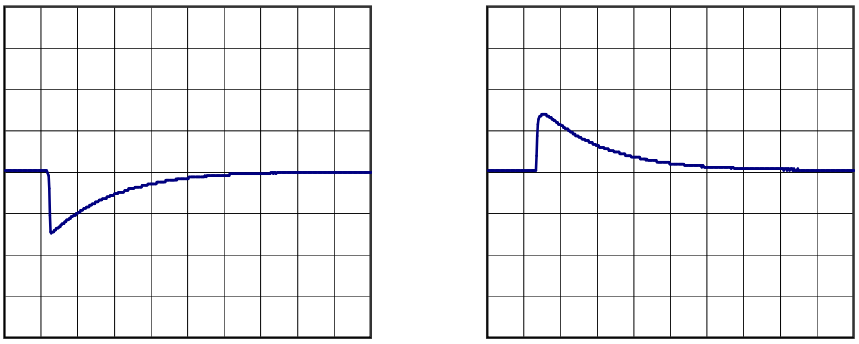
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 24 V
Cycle 100 mS

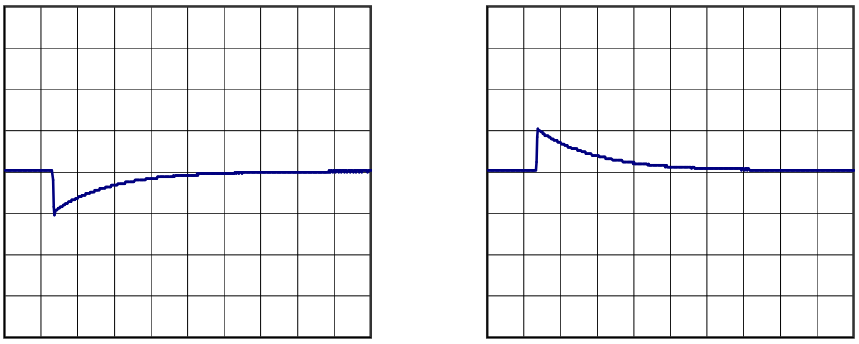
Min. Load (0A) ⟷
Load 100% (0.2A)



Min. Load (0A) ⟷
Load 50% (0.1A)



Load 50% (0.1A) ⟷
Load 100% (0.2A)



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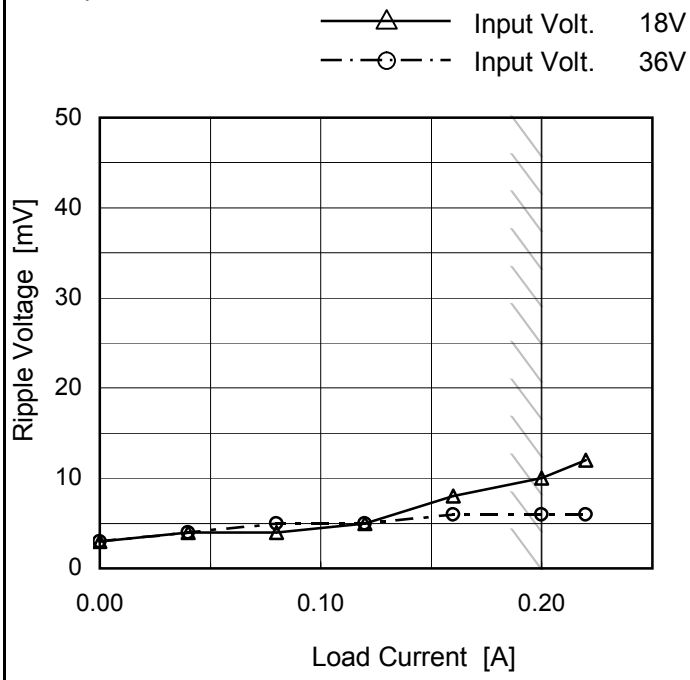
Model	SUTW62415
Item	Ripple Voltage (by Load Current)
Object	+15V0.2A

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.

Ripple [mVp-p]

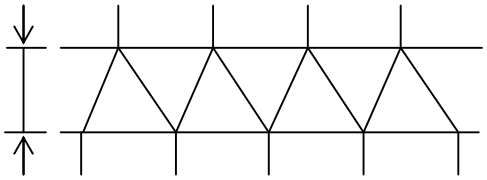


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.00	3	3
0.04	4	4
0.08	4	5
0.12	5	5
0.16	8	6
0.20	10	6
0.22	12	6
--	-	-
--	-	-
--	-	-
--	-	-

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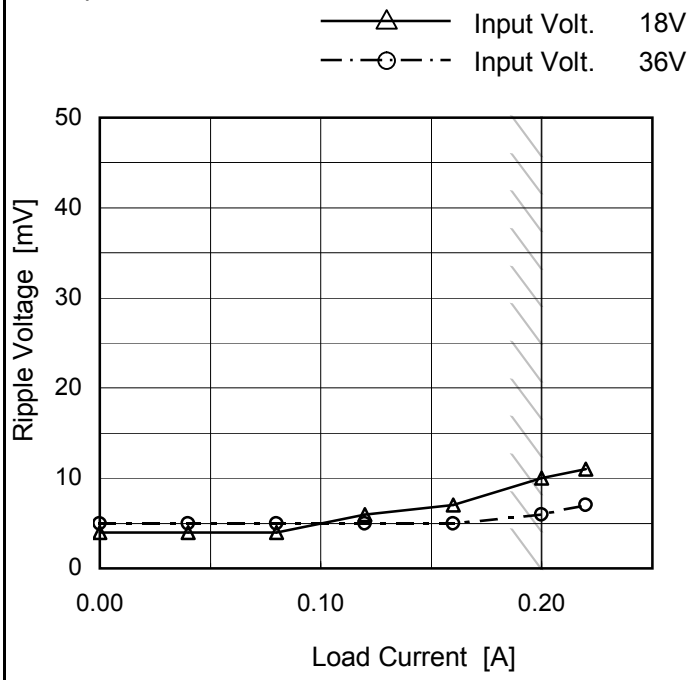
Model	SUTW62415
Item	Ripple Voltage (by Load Current)
Object	-15V0.2A

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]

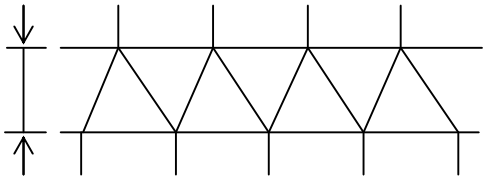


Fig.Complex Ripple Wave Form

2.Values

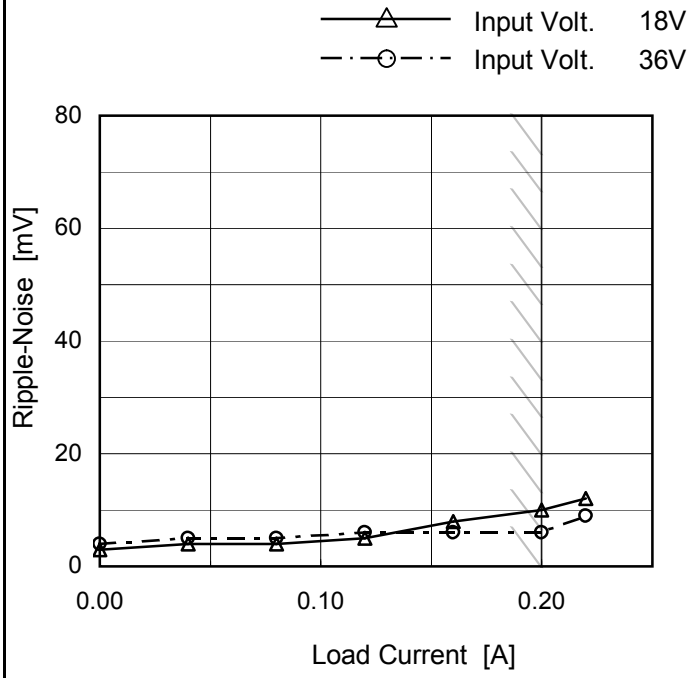
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.00	4	5
0.04	4	5
0.08	4	5
0.12	6	5
0.16	7	5
0.20	10	6
0.22	11	7
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SUTW62415
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.

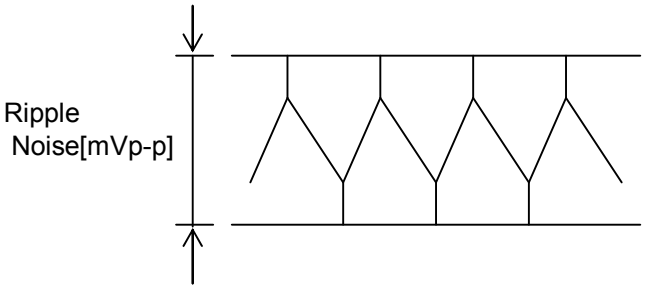


Fig.Complex Ripple Noise Wave Form

2.Values

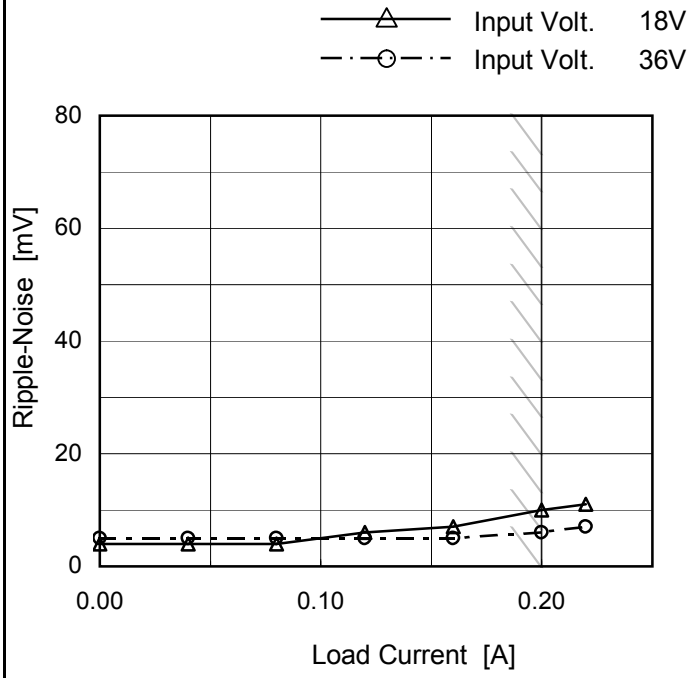
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.00	3	4
0.04	4	5
0.08	4	5
0.12	5	6
0.16	8	6
0.20	10	6
0.22	12	9
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SUTW62415
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.

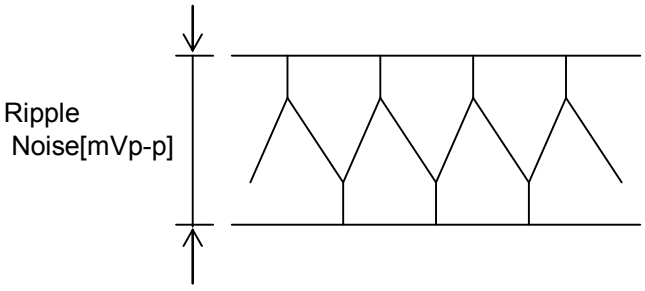


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.00	4	5
0.04	4	5
0.08	4	5
0.12	6	5
0.16	7	5
0.20	10	6
0.22	11	7
--	-	-
--	-	-
--	-	-
--	-	-

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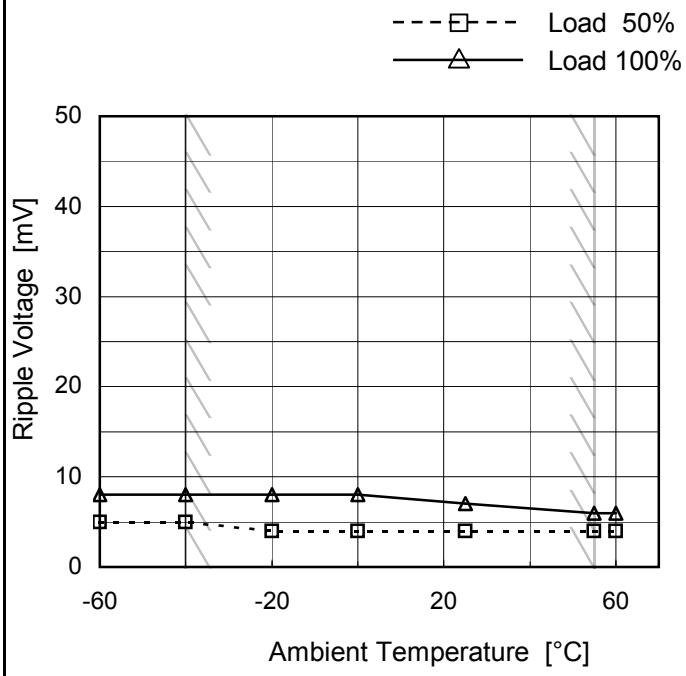
Model	SUTW62415
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V0.2A

Testing Circuitry Figure B

1.Graph



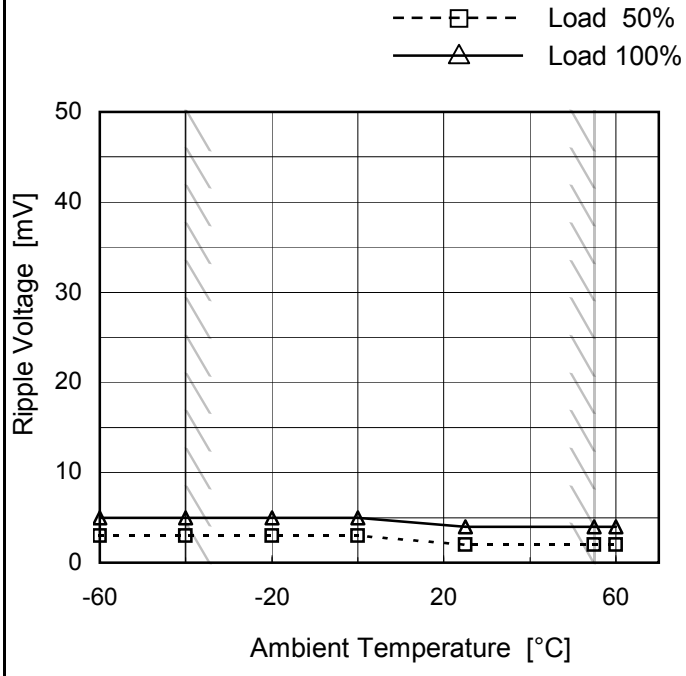
Input Volt. 24V

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	5	8
-40	5	8
-20	4	8
0	4	8
25	4	7
55	4	6
60	4	6
--	-	-
--	-	-
--	-	-
--	-	-

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	5
-40	3	5
-20	3	5
0	3	5
25	2	4
55	2	4
60	2	4
--	-	-
--	-	-
--	-	-
--	-	-

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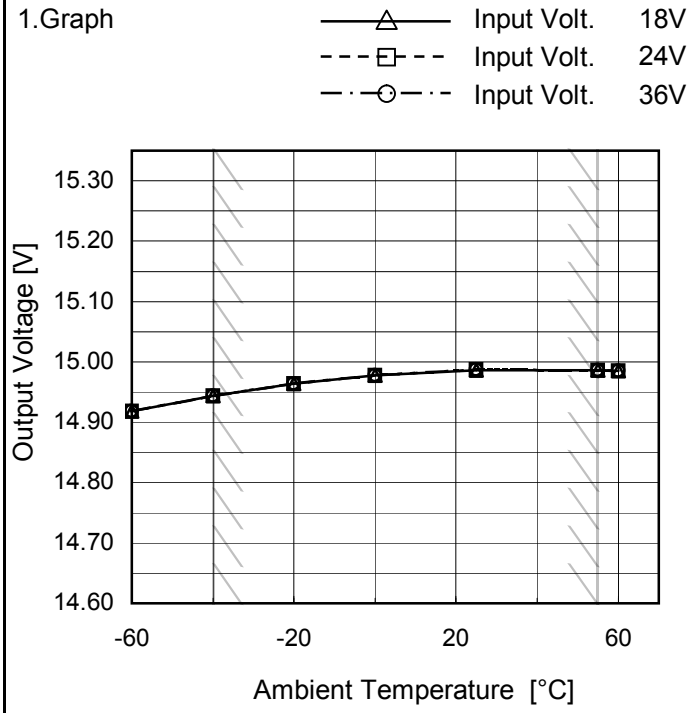
Model	SUTW62415
Item	Ambient Temperature Drift
Object	+15V0.2A

Testing Circuitry Figure A

1.Graph



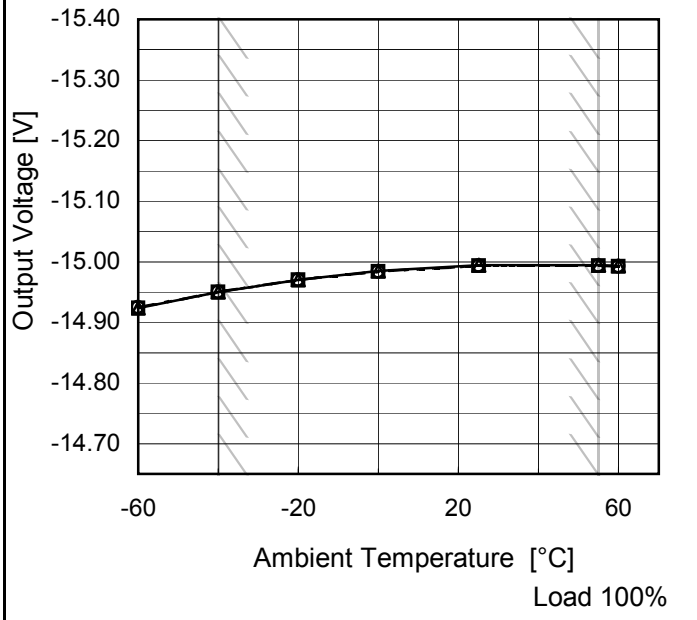
Load 100%

2.Values

Ambient Temperature [°C]	Output Voltage [V] Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	14.918	14.919	14.918
-40	14.944	14.944	14.944
-20	14.963	14.964	14.964
0	14.978	14.978	14.978
25	14.987	14.987	14.987
55	14.986	14.987	14.986
60	14.985	14.986	14.985
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Object	-15V0.2A

1.Graph



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]
-60	-14.924	-14.924	-14.924
-40	-14.950	-14.950	-14.950
-20	-14.970	-14.970	-14.970
0	-14.985	-14.984	-14.984
25	-14.994	-14.994	-14.993
55	-14.994	-14.994	-14.993
60	-14.993	-14.993	-14.992
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	SUTW62415	
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

* 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	55	18	0	15.223	±247	±1.6
Minimum Voltage	-40	18	0.2	14.729		

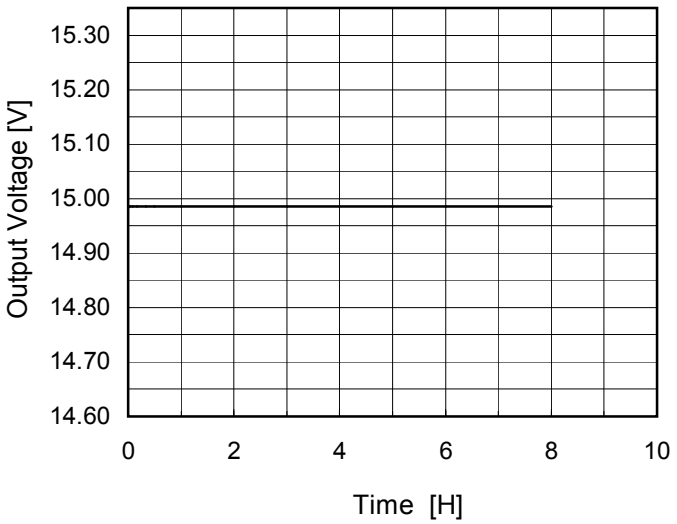
Object	-15V0.2A					
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	18	0	-15.247	±245	±1.6
Minimum Voltage	-40	18	0.2	-14.757		

COSEL

Model	SUTW62415
Item	Time Lapse Drift
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



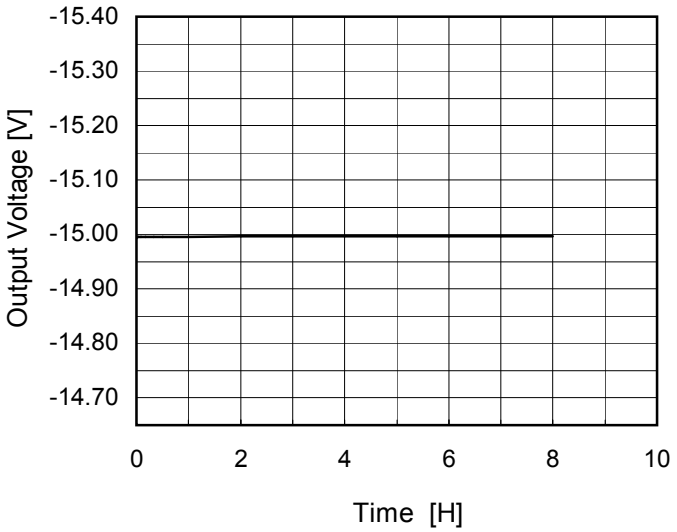
Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	14.983
0.5	14.986
1.0	14.986
2.0	14.986
3.0	14.986
4.0	14.986
5.0	14.986
6.0	14.986
7.0	14.986
8.0	14.986

Object	-15V0.2A

1.Graph



Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	-14.993
0.5	-14.996
1.0	-14.996
2.0	-14.996
3.0	-14.996
4.0	-14.996
5.0	-14.996
6.0	-14.996
7.0	-14.996
8.0	-14.996

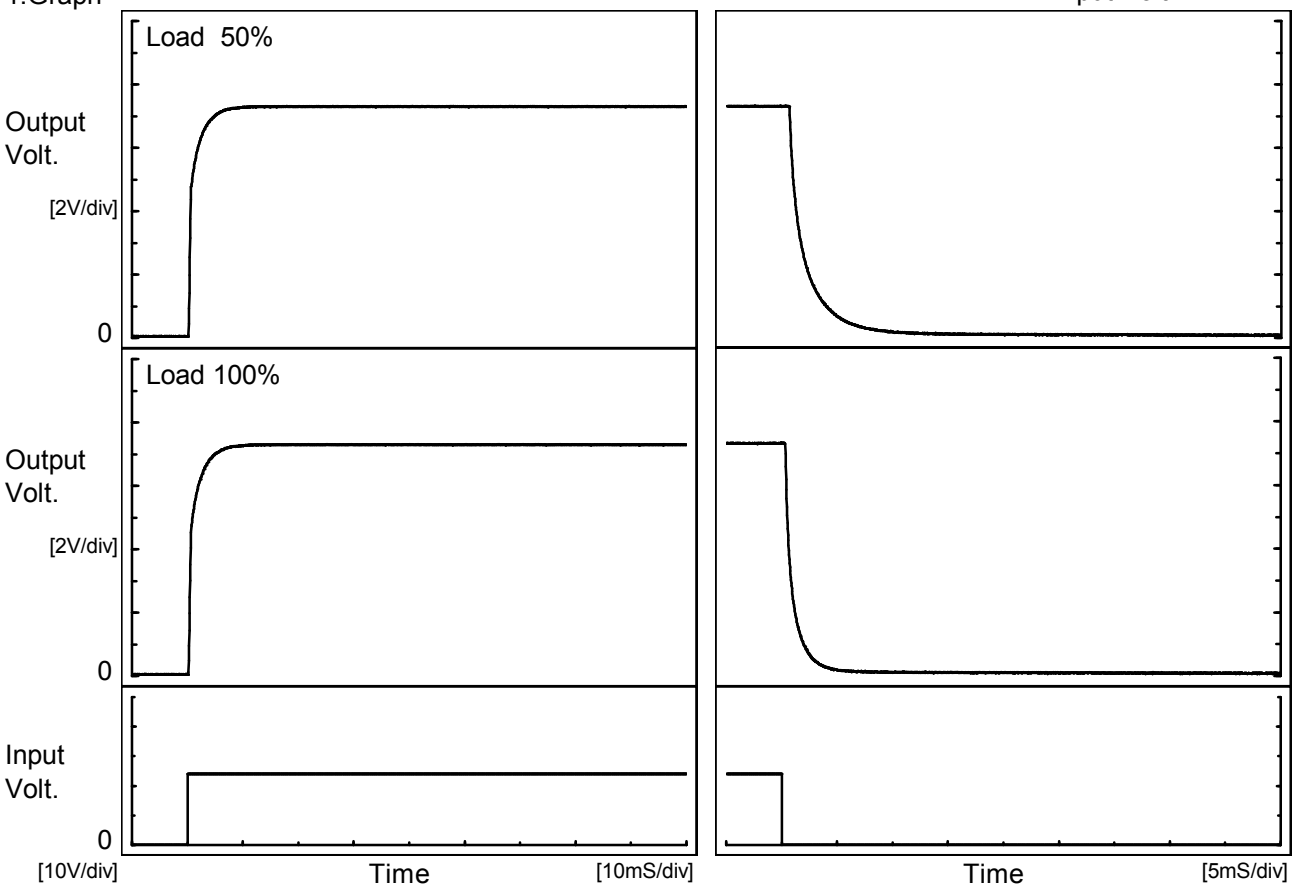
COSEL

Model	SUTW62415
Item	Rise and Fall Time
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

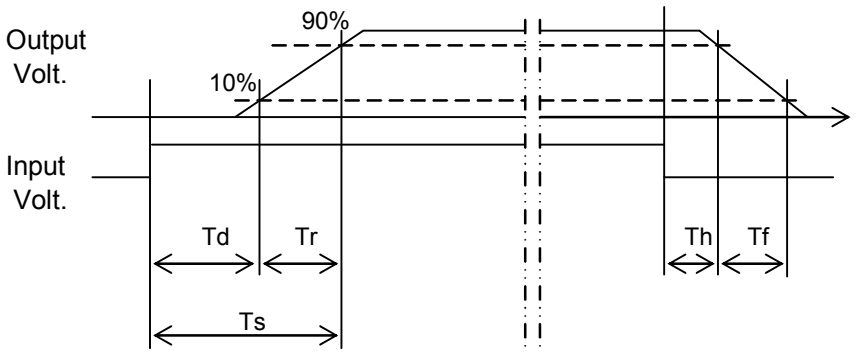
Input Volt. 24 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.3	3.5	3.8	0.7	3.9
100 %	0.3	3.6	3.9	0.4	1.9



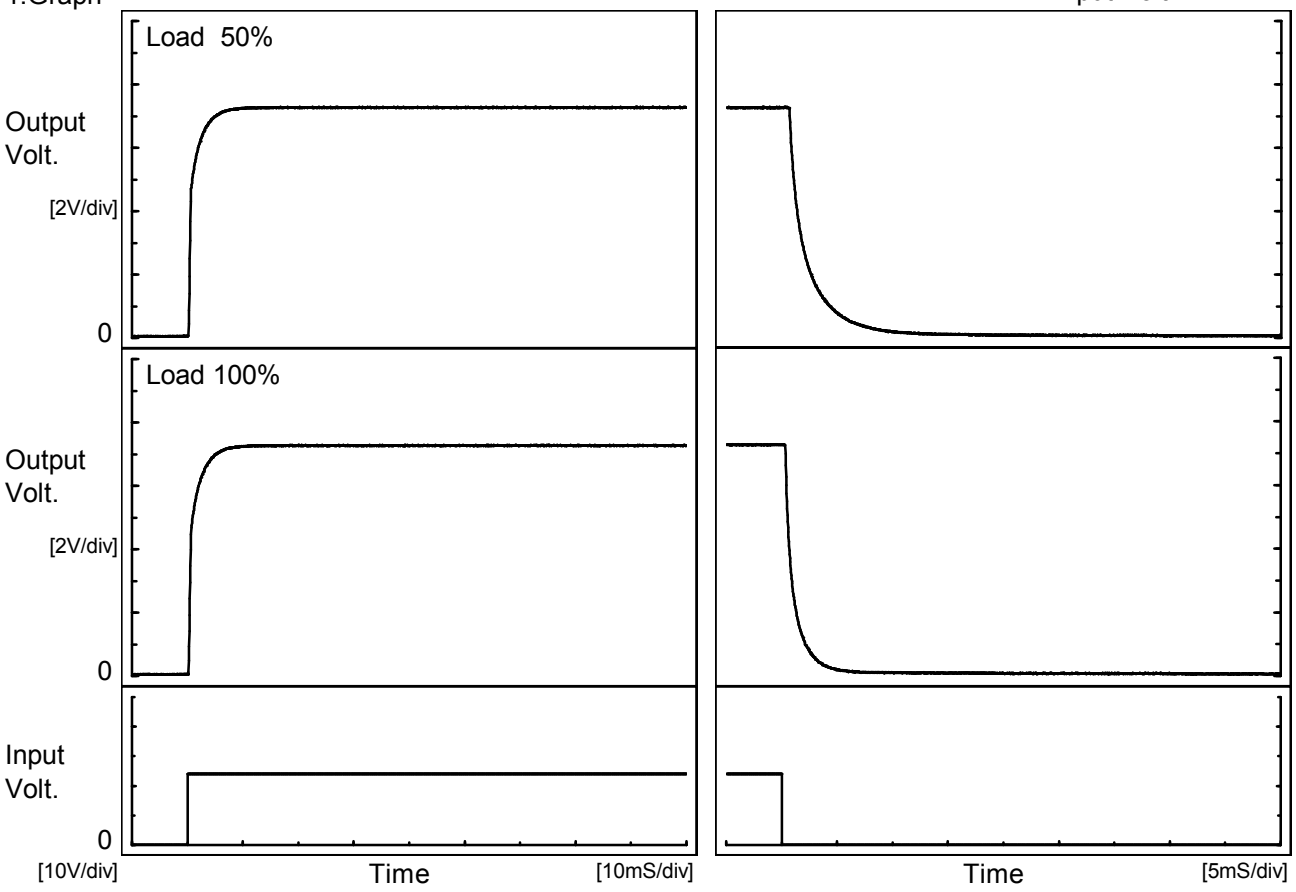
COSEL

Model	SUTW62415
Item	Rise and Fall Time
Object	-15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

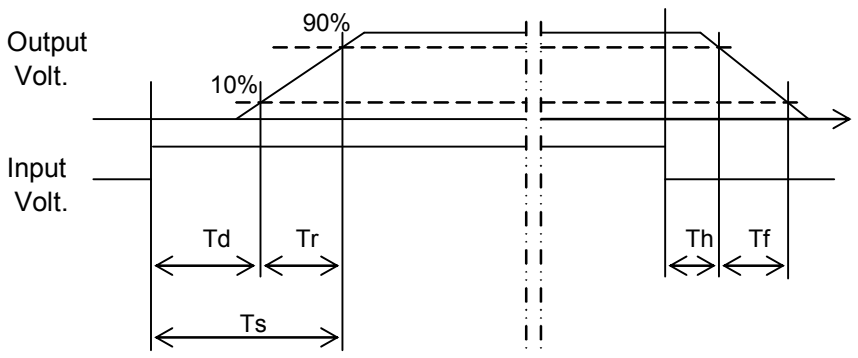
Input Volt. 24 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.3	3.6	3.9	0.7	4.2
100 %	0.3	3.7	4.0	0.4	2.2

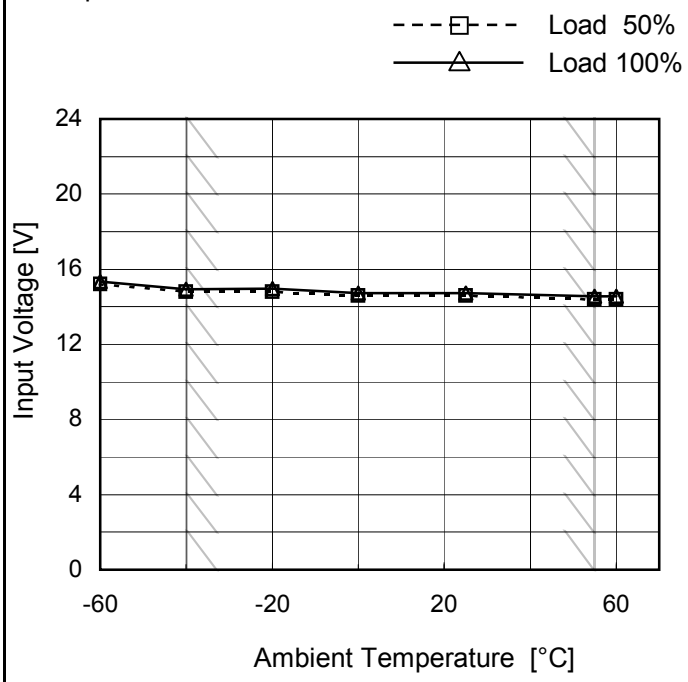


COSEL

Model	SUTW62415
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V0.2A

Testing Circuitry Figure A

1.Graph

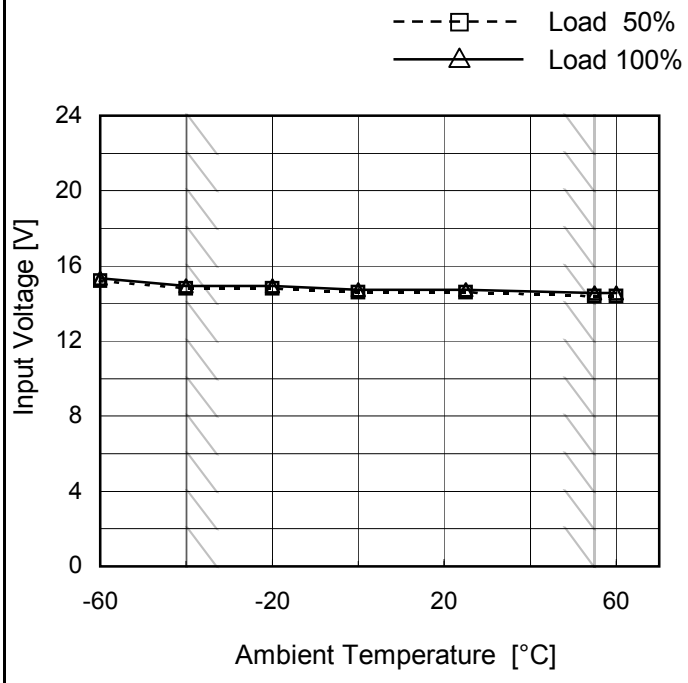


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.2	15.4
-40	14.8	15.0
-20	14.8	15.0
0	14.6	14.8
25	14.6	14.8
55	14.4	14.6
60	14.4	14.6
--	-	-
--	-	-
--	-	-
--	-	-

Object	-15V0.2A

1.Graph



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

2.Values

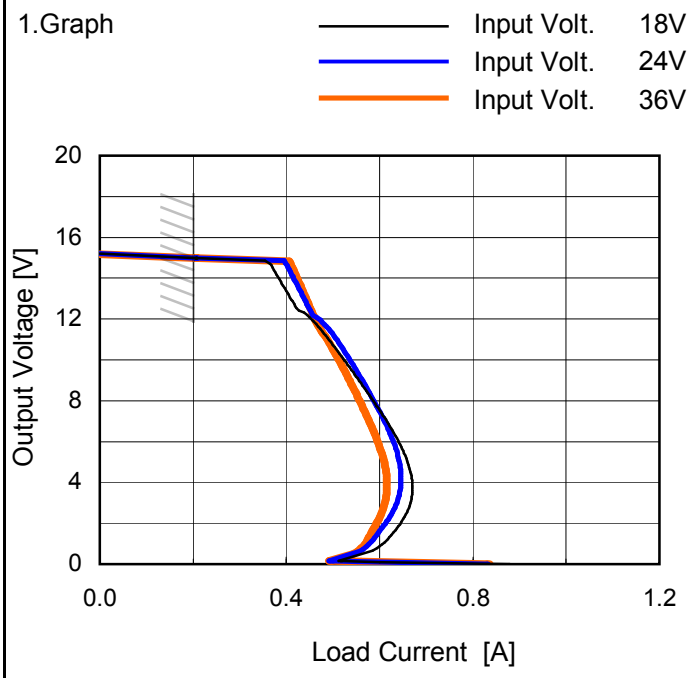
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.2	15.4
-40	14.8	15.0
-20	14.8	15.0
0	14.6	14.8
25	14.6	14.8
55	14.4	14.6
60	14.4	14.6
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	SUTW62415
Item	Overcurrent Protection
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

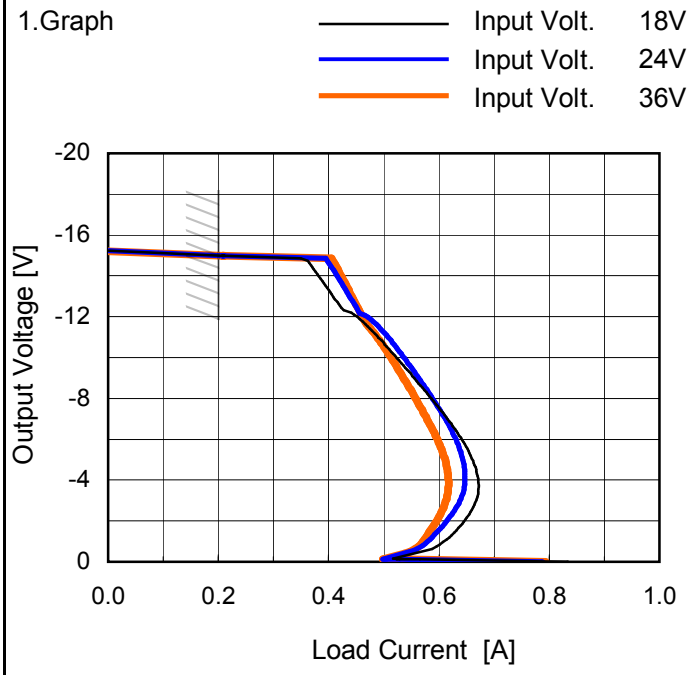


2.Values

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	0.38	0.41	0.42
13.5	0.40	0.42	0.43
12.0	0.45	0.47	0.46
10.5	0.51	0.52	0.50
9.0	0.55	0.56	0.53
7.5	0.60	0.60	0.57
6.0	0.64	0.63	0.60
4.5	0.67	0.65	0.61
3.0	0.67	0.64	0.61
1.5	0.63	0.60	0.58
0.0	0.88	0.83	0.84

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	0.21	0.21	0.21
-14.25	0.38	0.41	0.42
-13.50	0.39	0.43	0.43
-12.00	0.45	0.47	0.46
-10.50	0.51	0.52	0.50
-9.00	0.55	0.56	0.53
-7.50	0.60	0.60	0.57
-6.00	0.64	0.63	0.60
-4.50	0.67	0.65	0.62
-3.00	0.67	0.64	0.61
-1.50	0.63	0.60	0.58
0.00	0.83	0.79	0.79

BC-10279

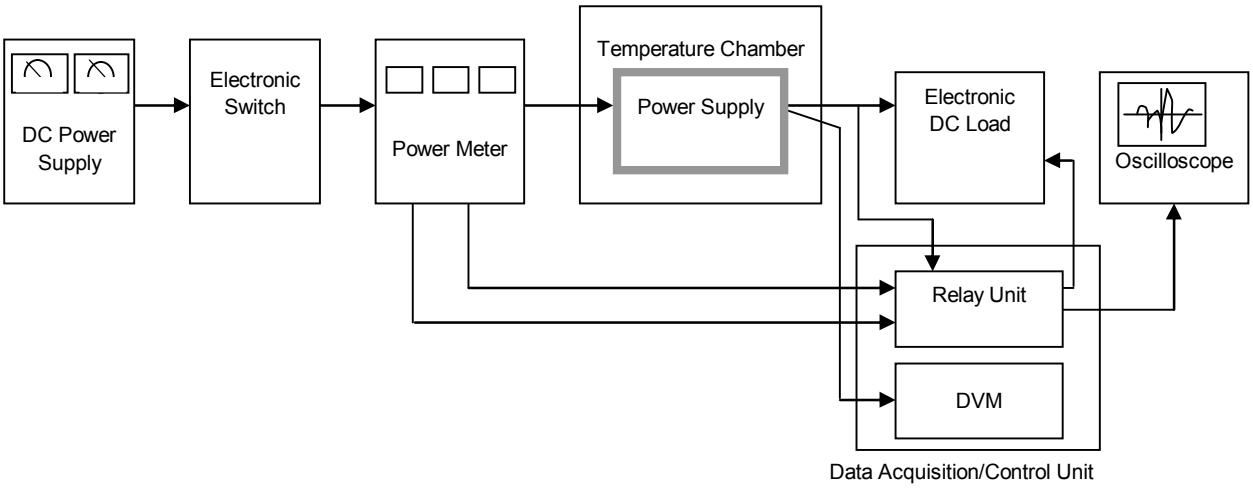


Figure A

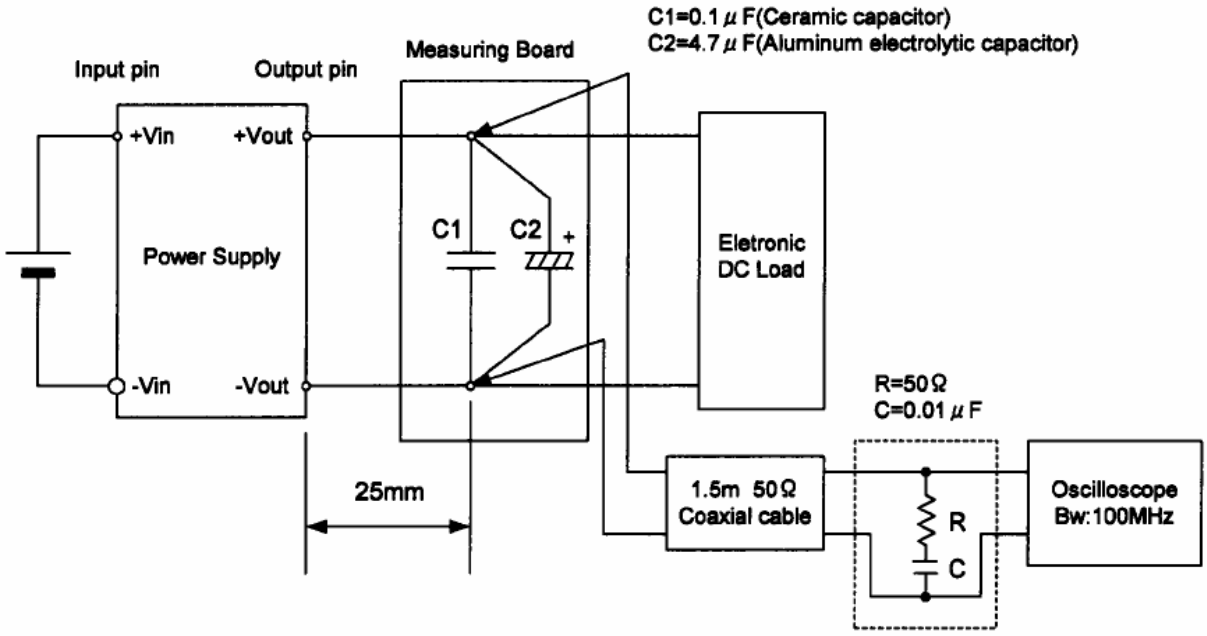


Figure B (Ripple and Ripple noise Characteristic)