

TEST DATA OF SUW64815 SUCW64815

Regulated DC Power Supply
Feb 22, 2005

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Tetsuo Sugimori Design Manager

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COSEL CO.,LTD.



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COSEL

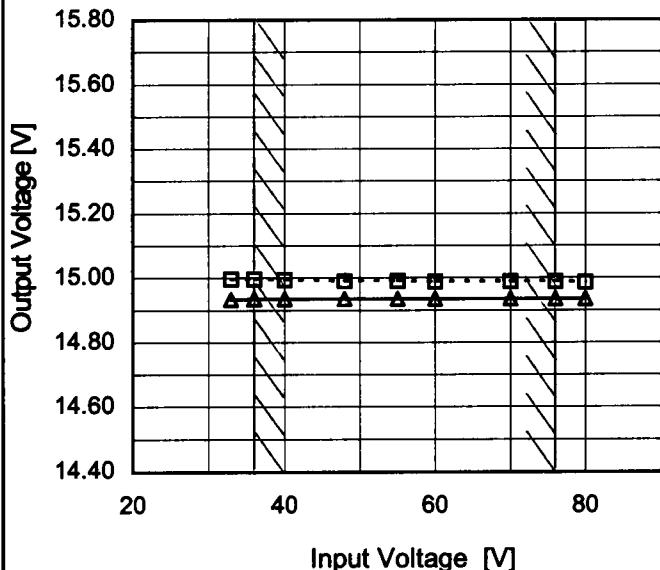
Model SUW64815/SUCW64815

Item Line Regulation

Object +15V0.2A

1.Graph

---□--- Load 50%
—△— Load 100%

Temperature 25°C
Testing Circuitry Figure A

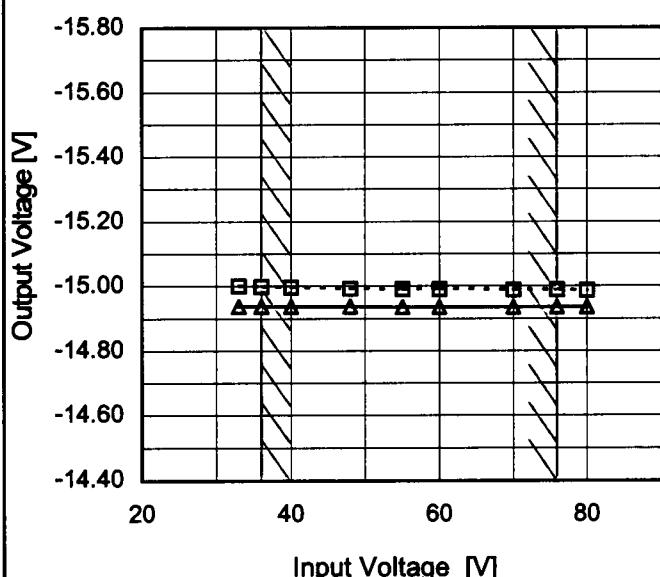
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
33	14.997	14.934
36	14.996	14.934
40	14.994	14.935
48	14.991	14.935
55	14.991	14.936
60	14.990	14.936
70	14.989	14.936
76	14.988	14.936
80	14.988	14.936

Object -15V0.2A

1.Graph

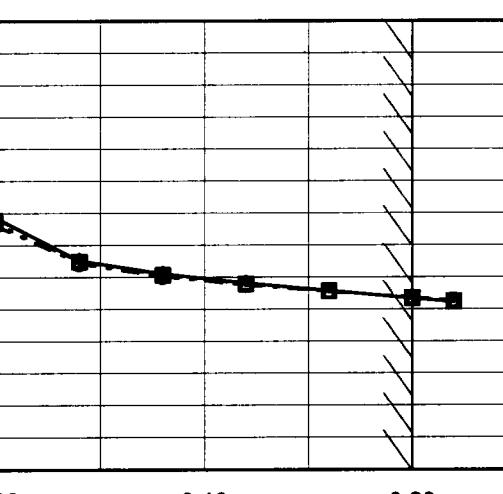
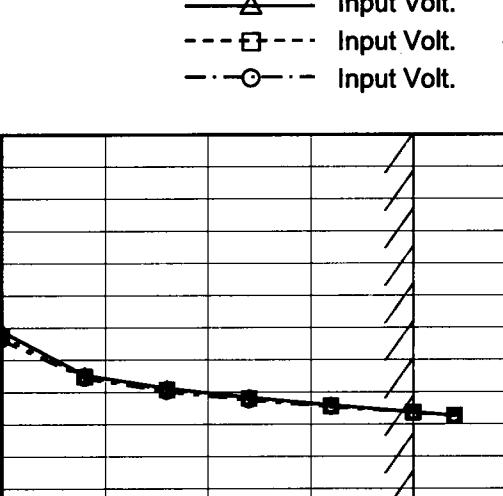
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—△— Load 100%



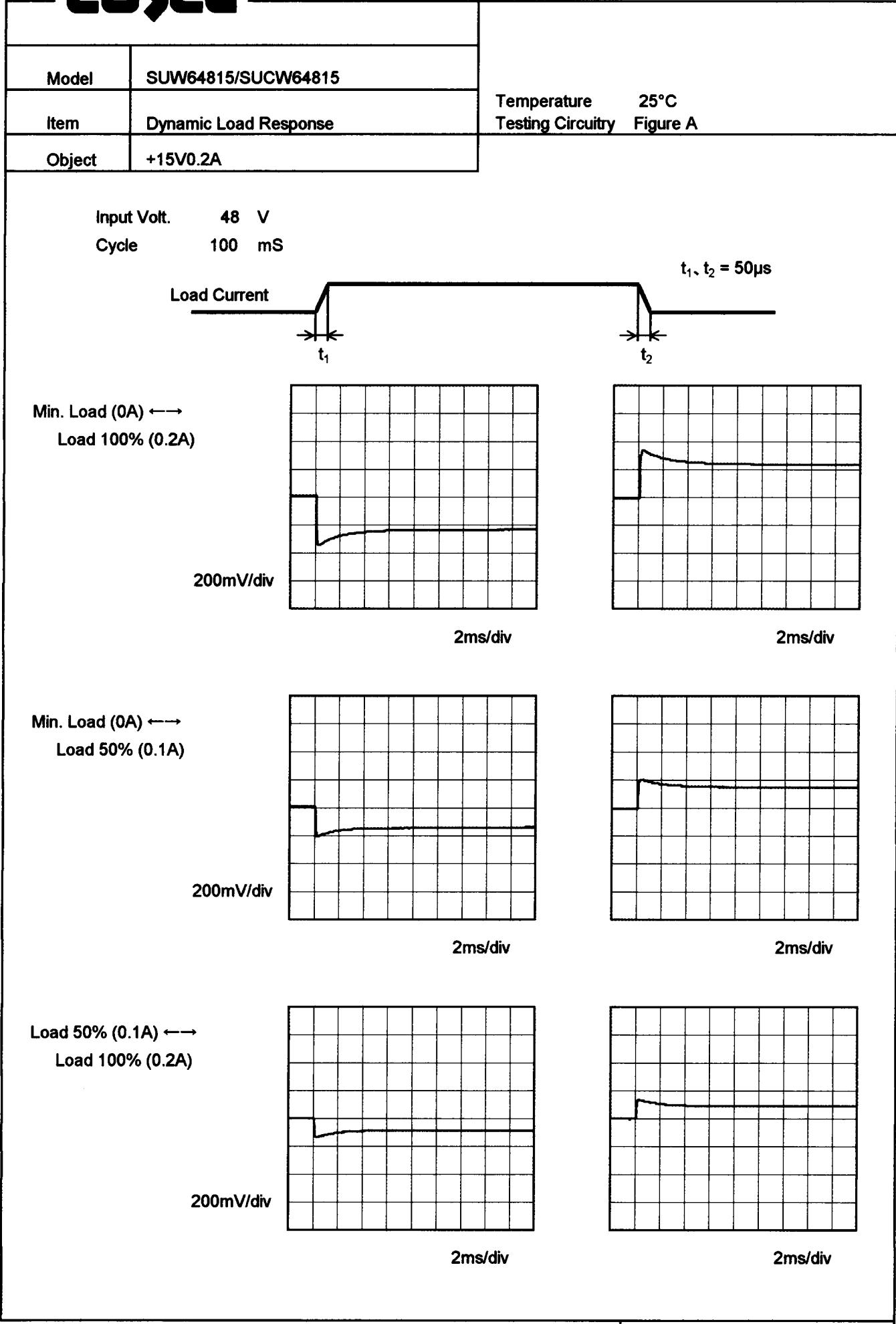
2.Values

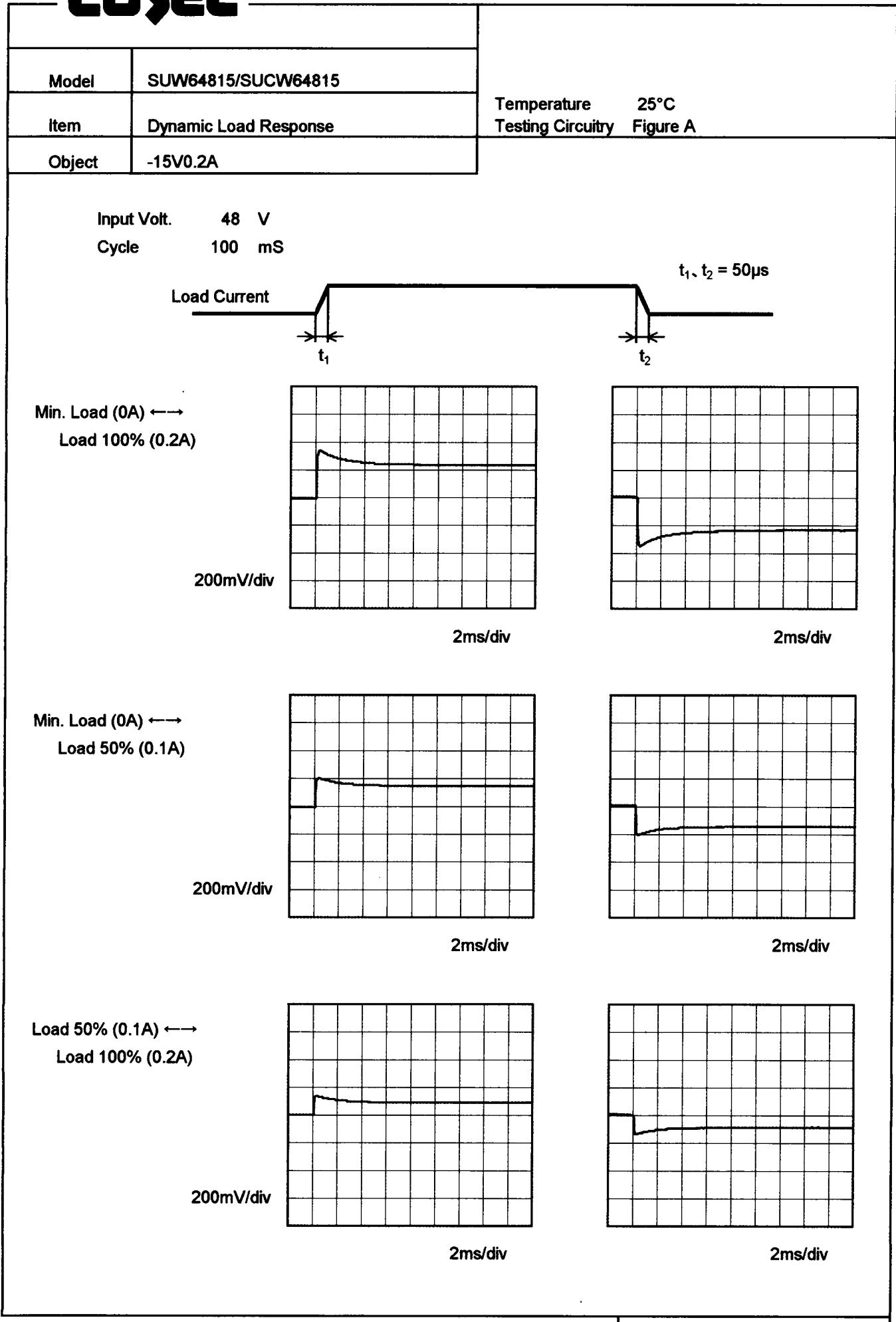
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
33	-15.000	-14.937
36	-14.998	-14.938
40	-14.996	-14.937
48	-14.993	-14.937
55	-14.991	-14.936
60	-14.990	-14.936
70	-14.988	-14.936
76	-14.988	-14.936
80	-14.987	-14.935

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

Model	SUW64815/SUCW64815	Temperature Testing Circuitry Figure A	25°C																																																			
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COSEL



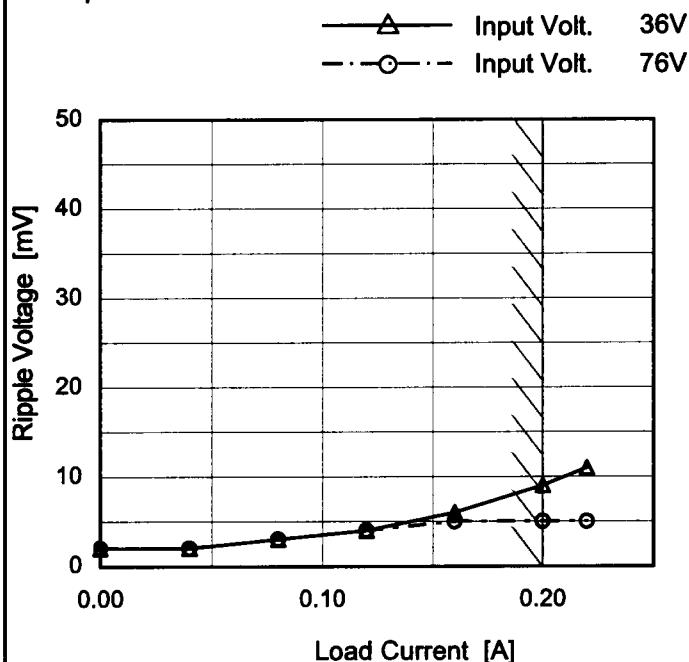
COSEL

COSEL

Model	SUW64815/SUCW64815
Item	Ripple Voltage (by Load Current)
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	2	2
0.04	2	2
0.08	3	3
0.12	4	4
0.16	6	5
0.20	9	5
0.22	11	5
--	-	-
--	-	-
--	-	-
--	-	-

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]

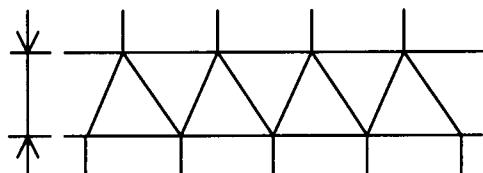
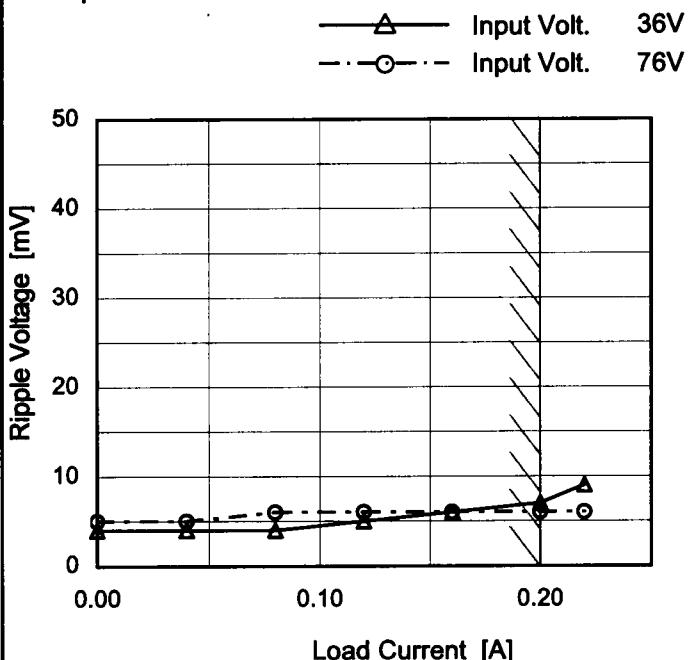


Fig.Complex Ripple Wave Form

COSEL

Model	SUW64815/SUCW64815
Item	Ripple Voltage (by Load Current)
Object	-15V0.2A

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]

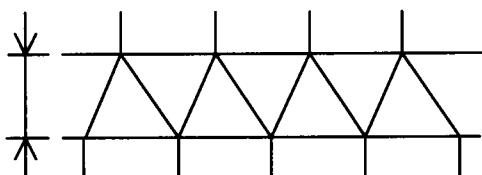


Fig.Complex Ripple Wave Form

Temperature 25°C
 Testing Circuitry Figure B

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	4	5
0.04	4	5
0.08	4	6
0.12	5	6
0.16	6	6
0.20	7	6
0.22	9	6
--	-	-
--	-	-
--	-	-
--	-	-

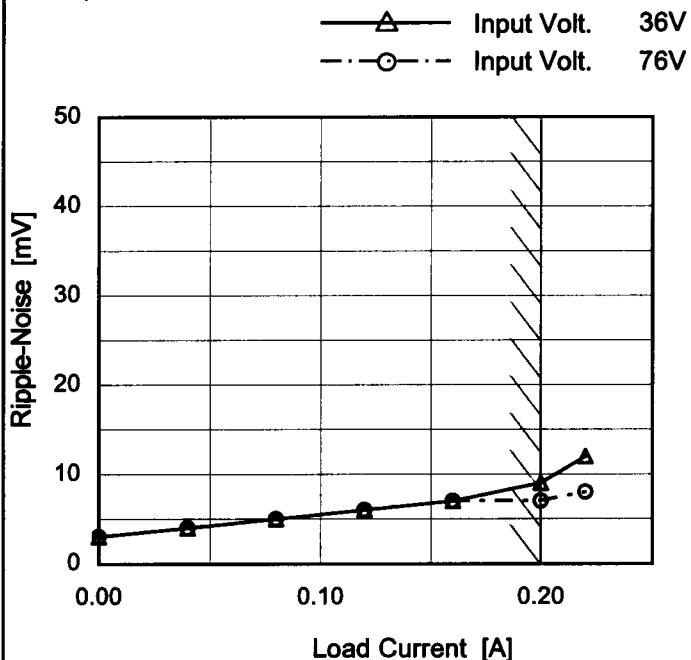
COSEL

Model SUW64815/SUCW64815

Item Ripple-Noise

Object +15V0.2A

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.

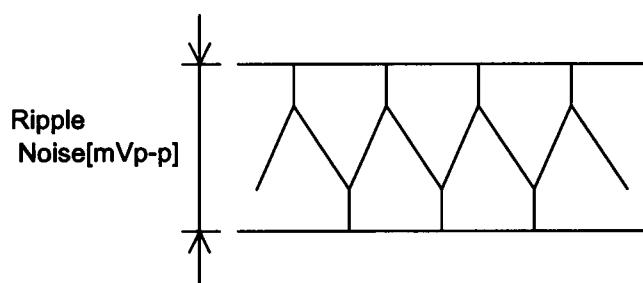


Fig.Complex Ripple Noise Wave Form

Temperature 25°C
Testing Circuitry Figure B

2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	3	3
0.04	4	4
0.08	5	5
0.12	6	6
0.16	7	7
0.20	9	7
0.22	12	8
--	-	-
--	-	-
--	-	-
--	-	-

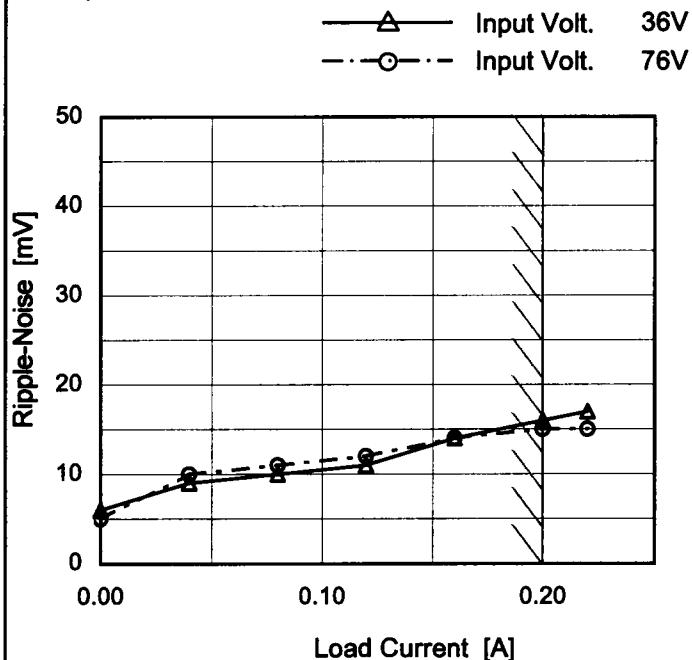
COSEL

Model SUW64815/SUCW64815

Item Ripple-Noise

Object -15V0.2A

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.

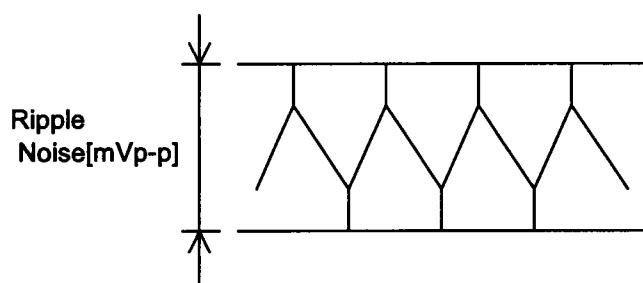


Fig.Complex Ripple Noise Wave Form

Temperature 25°C
Testing Circuitry Figure B

2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	6	5
0.04	9	10
0.08	10	11
0.12	11	12
0.16	14	14
0.20	16	15
0.22	17	15
--	-	-
--	-	-
--	-	-
--	-	-

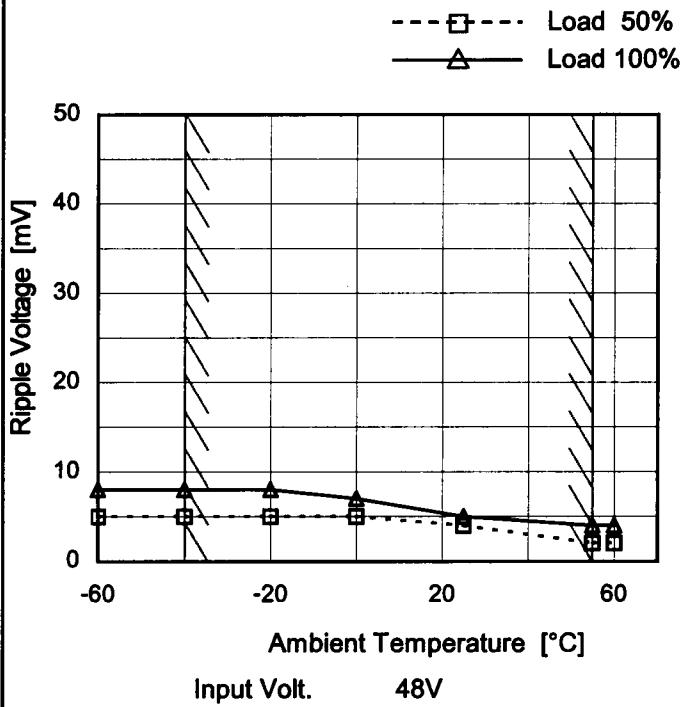
COSEL

Model SUW64815/SUCW64815

Item Ripple Voltage (by Ambient Temp.)

Object +15V0.2A

1. Graph



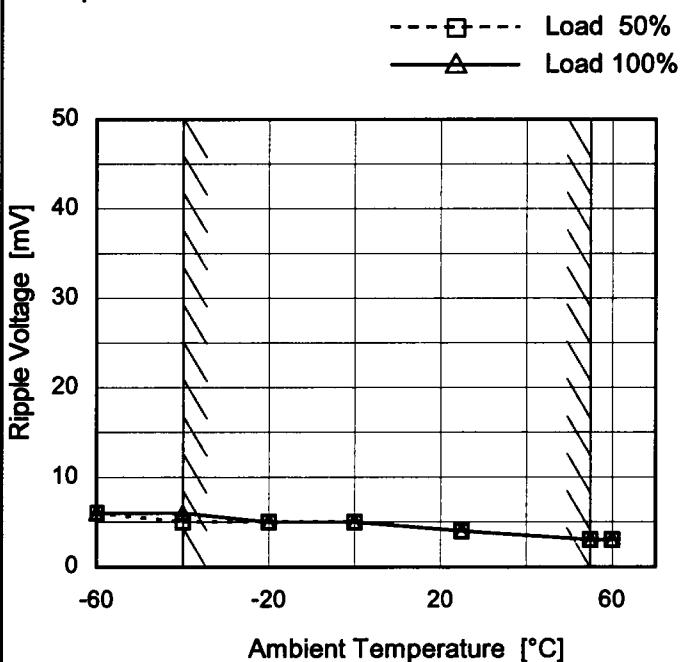
Testing Circuitry Figure B

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	5	8
-40	5	8
-20	5	8
0	5	7
25	4	5
55	2	4
60	2	4
--	-	-
--	-	-
--	-	-
--	-	-

Object -15V0.2A

1. Graph



2. Values

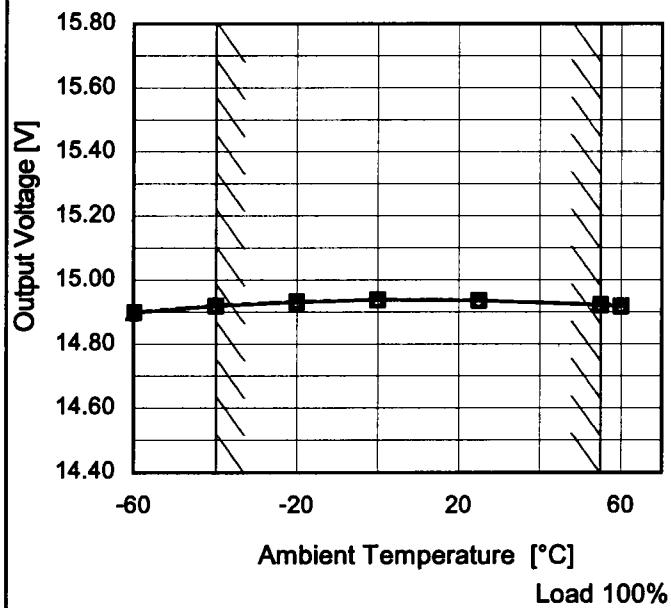
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	6	6
-40	5	6
-20	5	5
0	5	5
25	4	4
55	3	3
60	3	3
--	-	-
--	-	-
--	-	-
--	-	-

Measured by 100 MHz Oscilloscope.

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

COSEL
Model SUW64815/SUCW64815
Item Ambient Temperature Drift
Object +15V0.2A
1.Graph

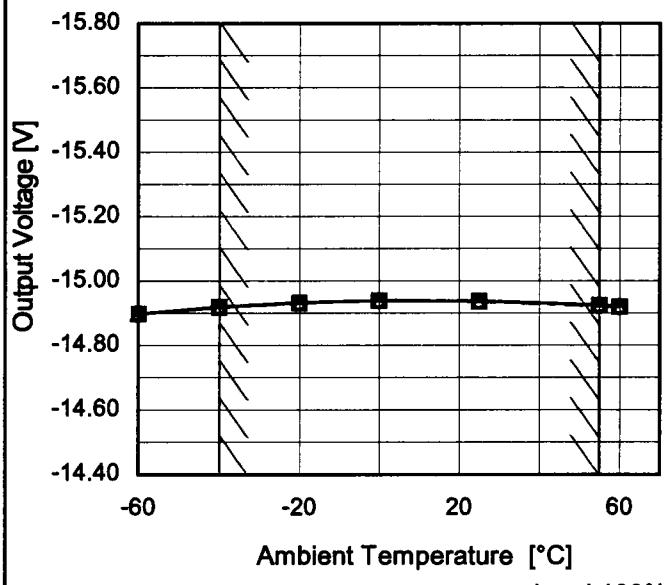
—▲— Input Volt. 36V
 - - - □ - - - Input Volt. 48V
 - - ○ - - - Input Volt. 76V

**Testing Circuitry Figure A****2.Values**

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-60	14.898	14.899	14.900
-40	14.919	14.920	14.921
-20	14.931	14.933	14.933
0	14.938	14.939	14.939
25	14.936	14.937	14.937
55	14.922	14.923	14.923
60	14.918	14.919	14.919
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Object -15V0.2A**1.Graph**

—▲— Input Volt. 36V
 - - - □ - - - Input Volt. 48V
 - - ○ - - - Input Volt. 76V

**2.Values**

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-60	-14.898	-14.898	-14.897
-40	-14.919	-14.919	-14.918
-20	-14.933	-14.932	-14.931
0	-14.939	-14.939	-14.938
25	-14.938	-14.937	-14.936
55	-14.925	-14.924	-14.922
60	-14.921	-14.920	-14.919
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	SUW64815/SUCW64815	Testing Circuitry Figure A
Item	Output Voltage Accuracy	

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 : 36 - 76V

Load Current (AVR 1) : 0 - 0.2A (AVR 2):0 - 0.2A

* Other Output : Rated Load

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

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

2. Values

Object	+15V0.2A			Output		Output Voltage Accuracy	
	Item	Temperature [°C]	Input Voltage[V]	Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage		25	36	0	15.183	±131	±0.9
Minimum Voltage		55	36	0.2	14.922		

Object	-15V0.2A			Output		Output Voltage Accuracy	
	Item	Temperature [°C]	Input Voltage[V]	Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage		25	36	0	-15.188	±133	±0.9
Minimum Voltage		55	76	0.2	-14.922		

COSEL

Model	SUW64815/SUCW64815
Item	Time Lapse Drift
Object	+15V0.2A
1.Graph	
<p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 48V</p> <p>Load 100%</p>	
Object	
1.Graph	
<p>Output Voltage [V]</p> <p>Time [H]</p> <p>Input Volt. 48V</p> <p>Load 100%</p>	

Temperature 25°C
Testing Circuitry Figure A

2.Values

Time since start [H]	Output Voltage [V]
0.0	14.937
0.5	14.936
1.0	14.936
2.0	14.935
3.0	14.935
4.0	14.935
5.0	14.935
6.0	14.935
7.0	14.935
8.0	14.935

2.Values

Time since start [H]	Output Voltage [V]
0.0	-14.939
0.5	-14.938
1.0	-14.938
2.0	-14.937
3.0	-14.937
4.0	-14.937
5.0	-14.937
6.0	-14.937
7.0	-14.937
8.0	-14.937

COSEL

Model SUW64815/SUCW64815

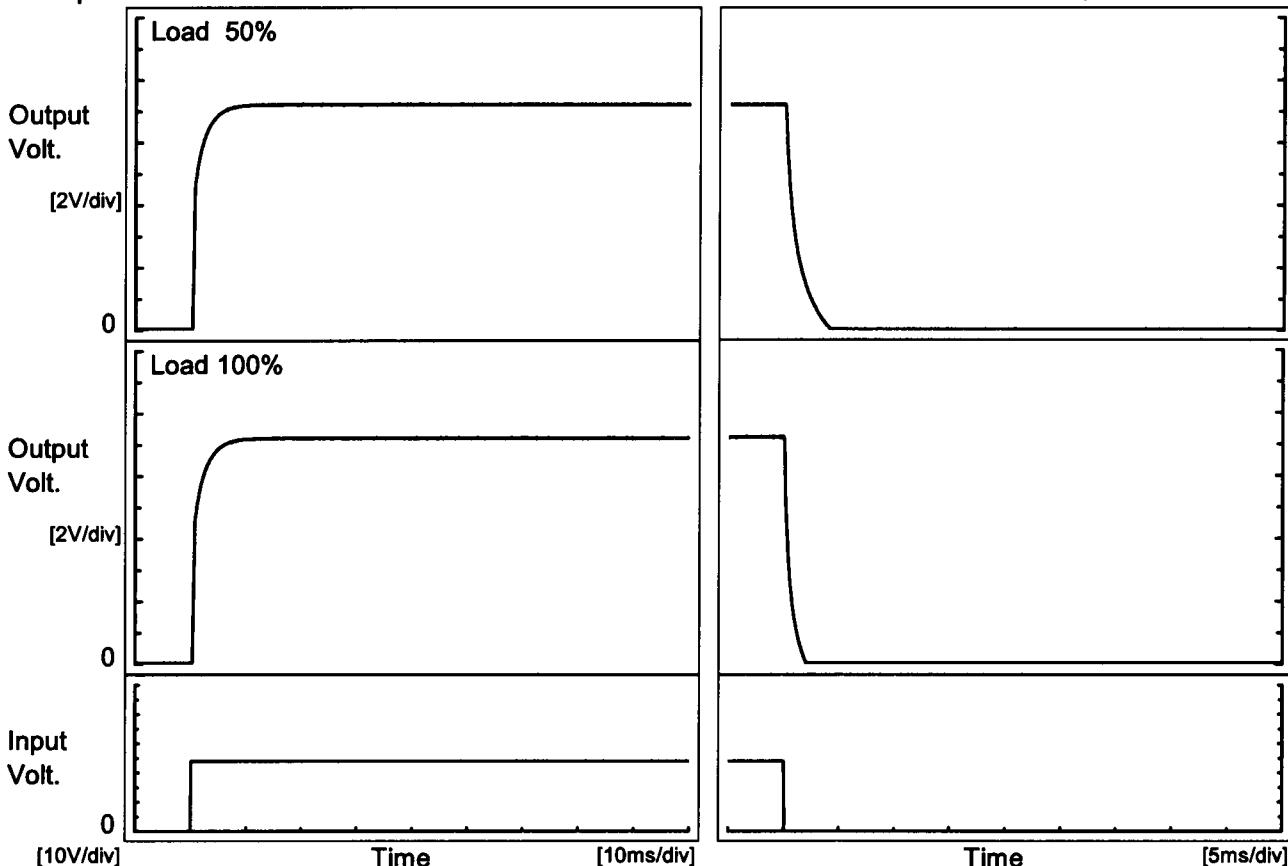
Item Rise and Fall Time

Object +15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1. Graph

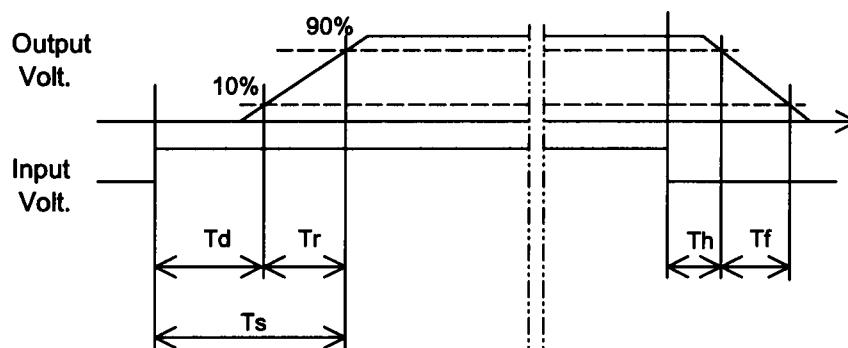
Input Volt. 48 V



2. Values

[ms]

Load	Time	Td	Tr	Ts	Th	Tf
50 %		0.3	4.0	4.3	0.1	2.6
100 %		0.4	4.2	4.6	0.1	1.3



COSEL

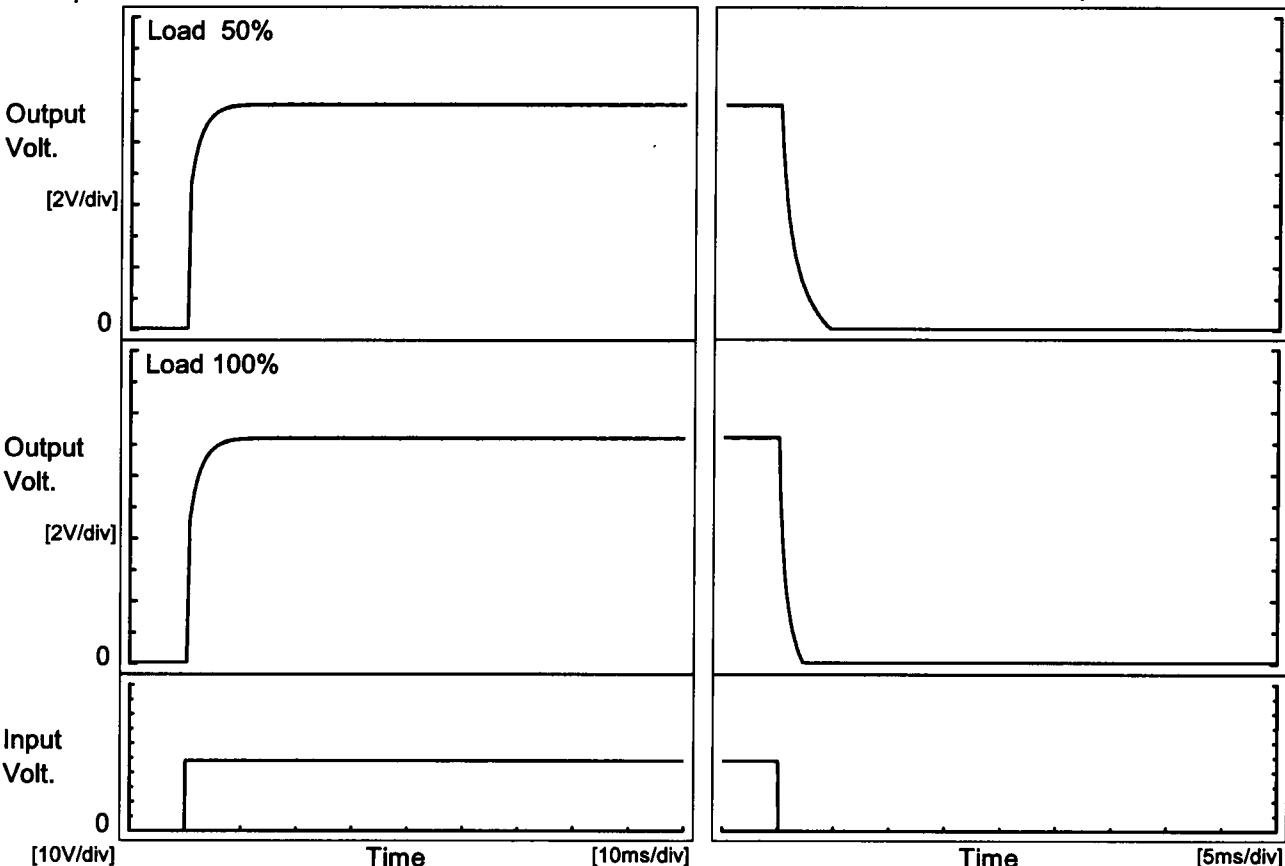
Model SUW64815/SUCW64815

Item Rise and Fall Time

Object -15V0.2A

Temperature 25°C
Testing Circuitry Figure A

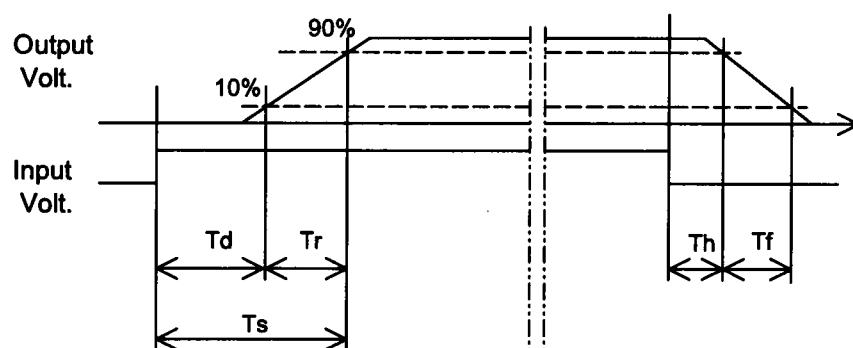
1. Graph



2. Values

[ms]

Load	Time	Td	Tr	Ts	Th	Tf
50 %		0.3	4.1	4.4	0.1	2.9
100 %		0.4	4.2	4.6	0.1	1.5



COSEL

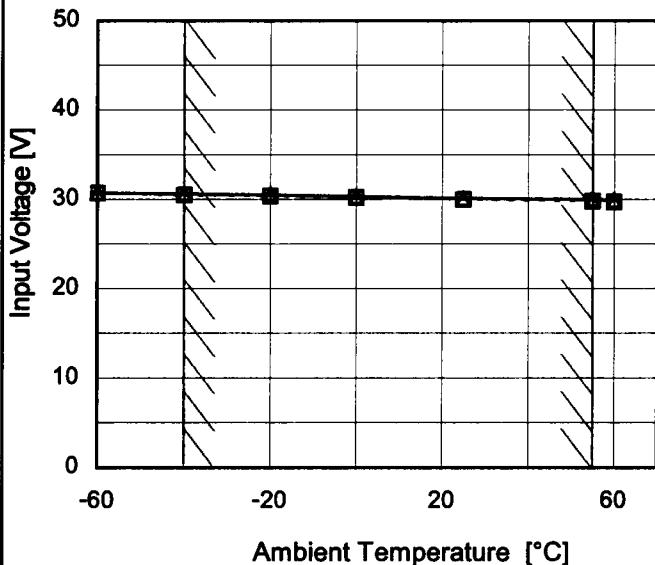
Model SUW64815/SUCW64815

Item Minimum Input Voltage
for Regulated Output Voltage

Object +15V0.2A

1.Graph

---□--- Load 50%
—△— Load 100%



Testing Circuitry Figure A

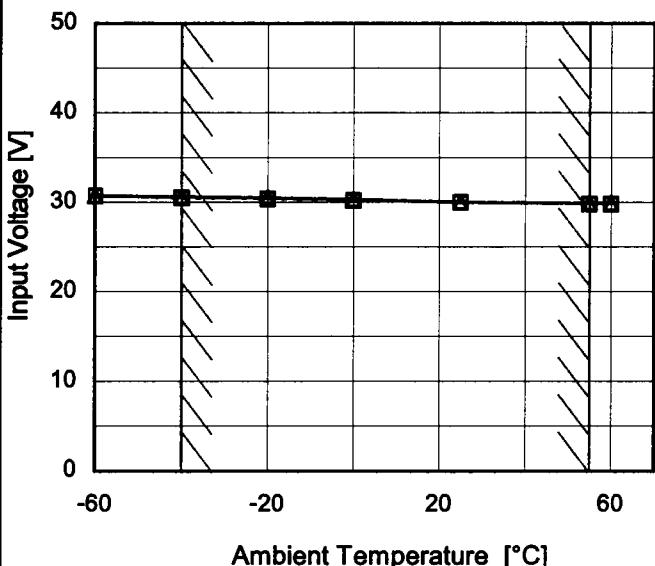
2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	30.7	30.7
-40	30.5	30.6
-20	30.4	30.5
0	30.2	30.3
25	30.0	30.1
55	29.8	30.0
60	29.7	29.9
--	-	-
--	-	-
--	-	-
--	-	-

Object -15V0.2A

1.Graph

---□--- Load 50%
—△— Load 100%



2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	30.7	30.7
-40	30.5	30.6
-20	30.4	30.5
0	30.2	30.3
25	30.0	30.0
55	29.8	29.9
60	29.8	29.9
--	-	-
--	-	-
--	-	-
--	-	-

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

COSEL

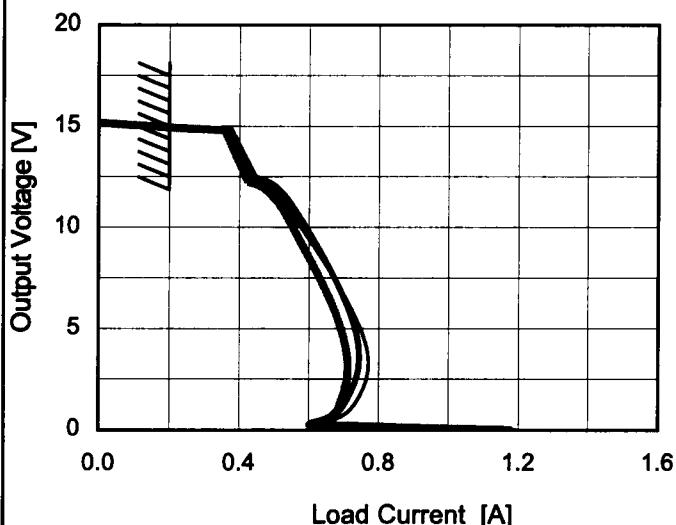
Model SUW64815/SUCW64815

Item Overcurrent Protection

Object +15V0.2A

1.Graph

— Input Volt. 36V
 — Input Volt. 48V
 — Input Volt. 76V

Temperature 25°C
Testing Circuitry Figure A

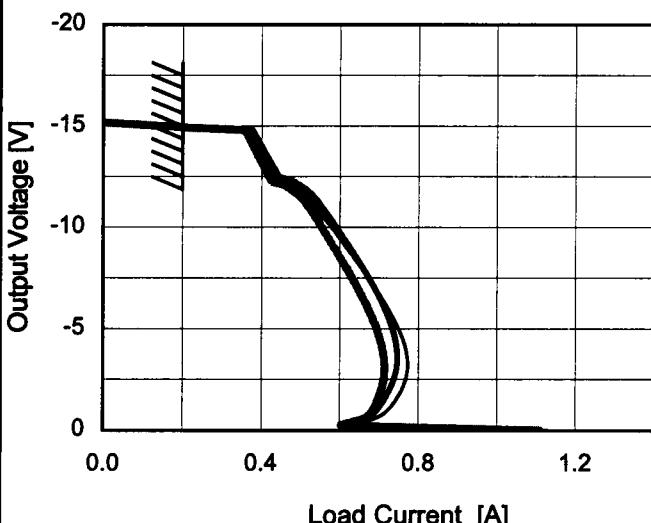
2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
15.0	0.20	0.20	0.20
14.3	0.38	0.39	0.37
13.5	0.40	0.42	0.39
12.0	0.48	0.50	0.46
10.5	0.56	0.57	0.54
9.0	0.62	0.63	0.59
7.5	0.67	0.67	0.63
6.0	0.72	0.71	0.67
4.5	0.76	0.74	0.70
3.0	0.77	0.74	0.71
1.5	0.74	0.71	0.69
0.0	1.19	1.17	1.18

Object -15V0.2A

1.Graph

— Input Volt. 36V
 — Input Volt. 48V
 — Input Volt. 76V



2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-15.00	0.20	0.20	0.20
-14.25	0.38	0.39	0.37
-13.50	0.40	0.42	0.39
-12.00	0.48	0.50	0.46
-10.50	0.56	0.57	0.54
-9.00	0.61	0.63	0.58
-7.50	0.67	0.67	0.63
-6.00	0.72	0.72	0.67
-4.50	0.76	0.74	0.70
-3.00	0.77	0.74	0.71
-1.50	0.75	0.71	0.70
0.00	1.13	1.10	1.11

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

COSEL

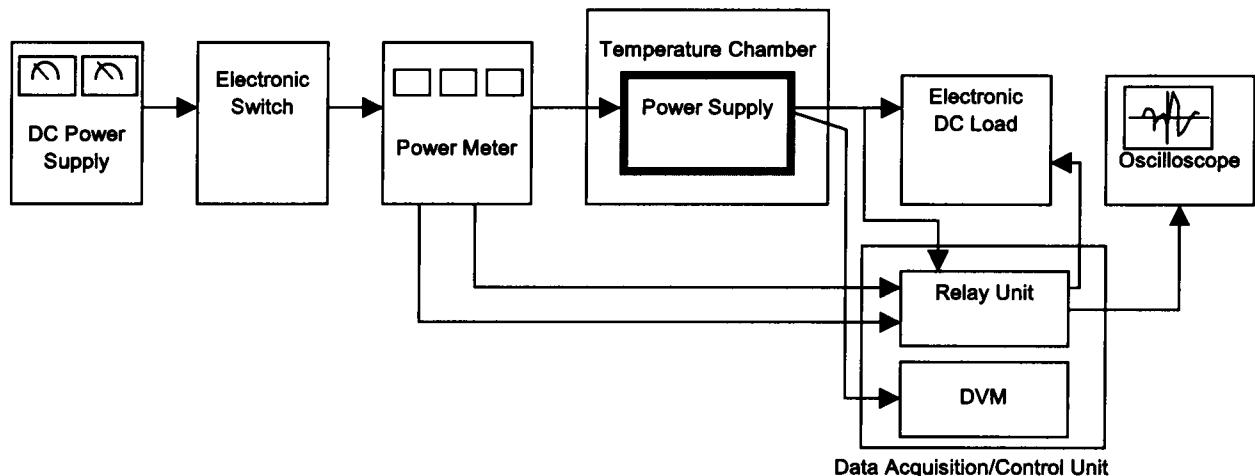


Figure A

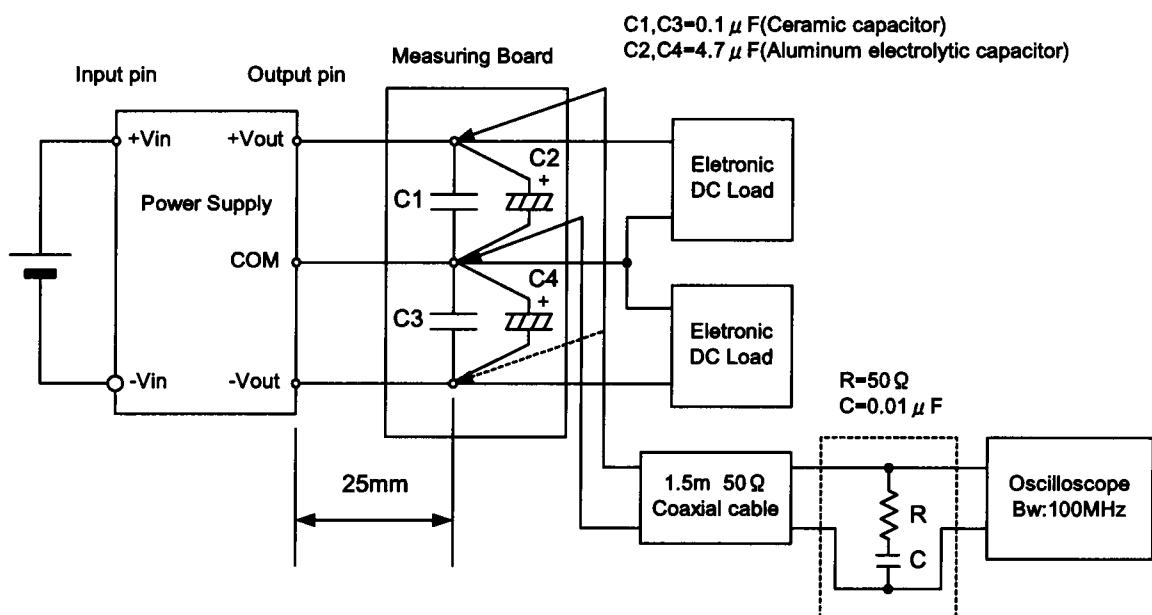


Figure B (Ripple and Ripple noise Characteristic)