参考資料

COSEL

TEST DATA OF CQS48120-14

Regulated DC Power Supply
Jan 15, 2007

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Takashi Mizuhara Design Engineer

COSEL CO.,LTD.

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

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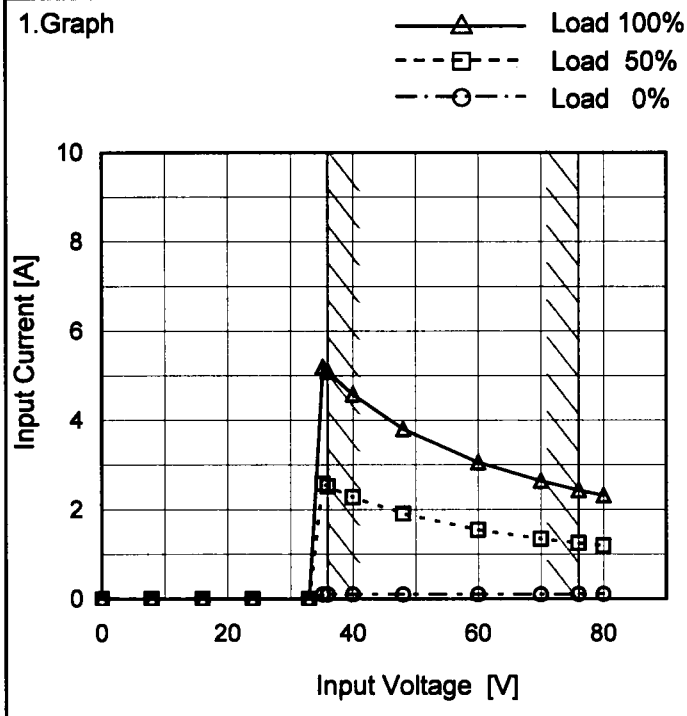

Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
8.0	0.000	0.000	0.000
16.0	0.000	0.000	0.000
24.0	0.000	0.000	0.000
33.0	0.000	0.000	0.000
35.2	0.101	2.578	5.200
36.0	0.101	2.524	5.090
40.0	0.100	2.274	4.580
48.0	0.100	1.910	3.809
60.0	0.099	1.546	3.060
70.0	0.101	1.346	2.642
76.0	0.105	1.248	2.435
80.0	0.107	1.193	2.322
--	-	-	-
--	-	-	-
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--	-	-	-
--	-	-	-

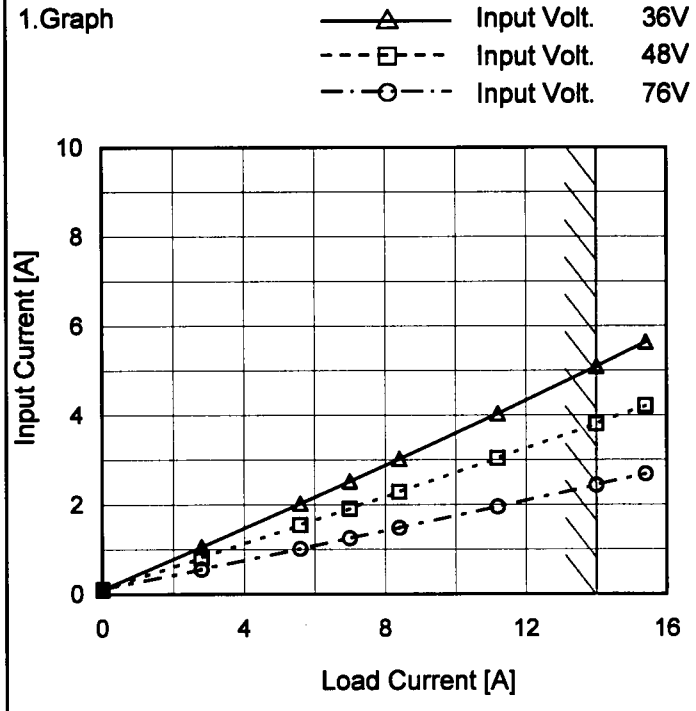
BC-10076

COSEL

Model	CQS48120-14
Item	Input Current (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	0.101	0.100	0.105
2.8	1.054	0.813	0.555
5.6	2.025	1.542	1.015
7.0	2.524	1.910	1.248
8.4	3.021	2.284	1.482
11.2	4.035	3.036	1.953
14.0	5.090	3.809	2.435
15.4	5.640	4.214	2.684
--	-	-	-
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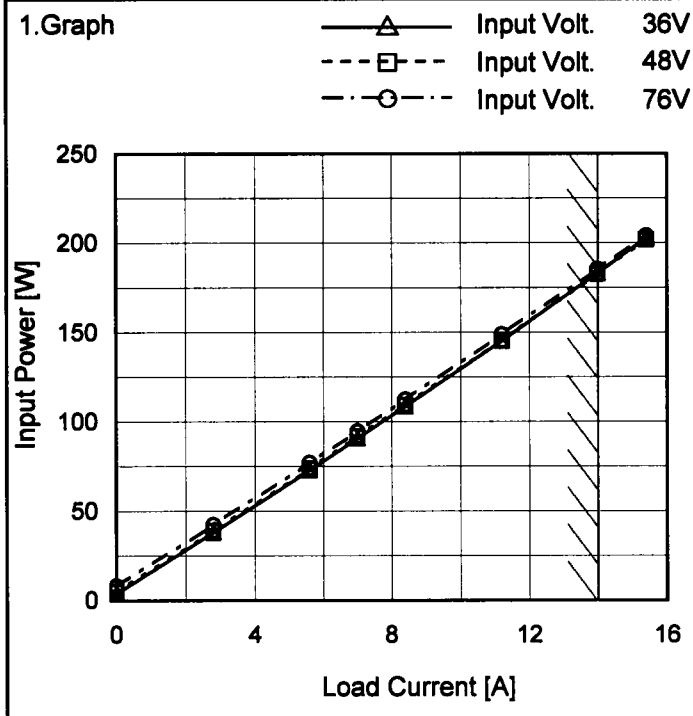
COSEL

Model	CQS48120-14
Item	Input Power (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

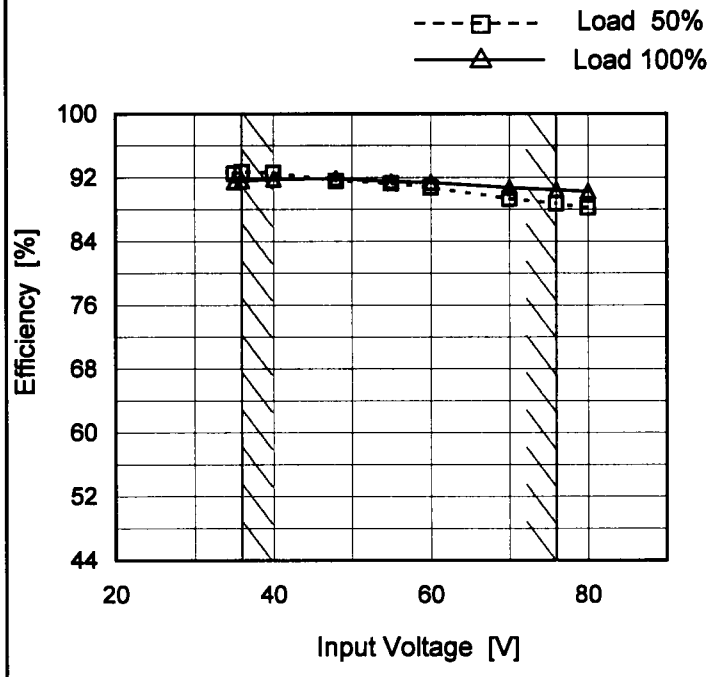
Load Current [A]	Input Power [W]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	3.7	4.8	8.0
2.8	38.0	39.0	42.3
5.6	73.0	73.8	77.0
7.0	90.7	91.7	94.7
8.4	108.7	109.3	112.5
11.2	145.3	145.7	148.9
14.0	183.1	182.6	185.3
15.4	202.8	201.8	204.0
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	CQS48120-14
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%
35	92.5	91.5
36	92.7	91.6
40	92.6	91.8
48	91.6	91.9
55	91.3	91.5
60	90.8	91.4
70	89.3	90.8
76	88.8	90.5
80	88.2	90.3

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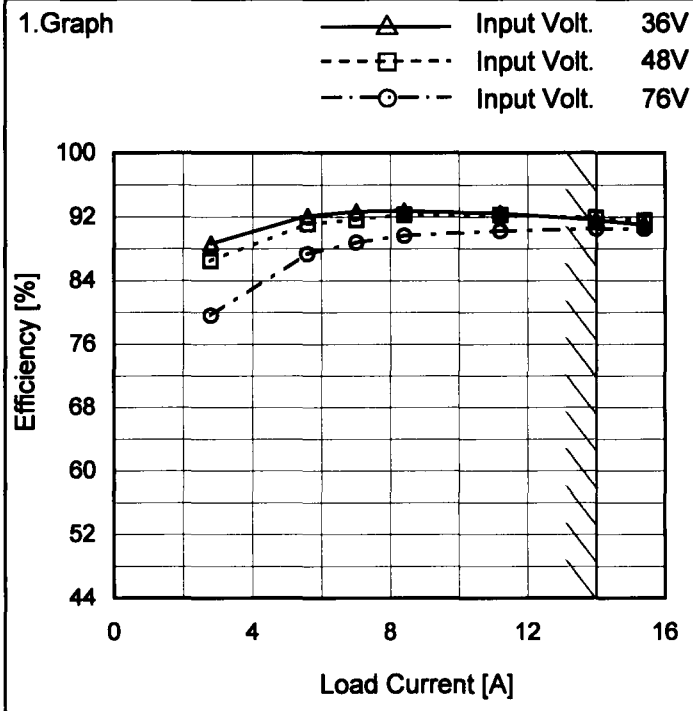
Model	CQS48120-14
Item	Efficiency (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	-	-	-
2.8	88.7	86.4	79.6
5.6	92.1	91.1	87.3
7.0	92.7	91.6	88.8
8.4	92.8	92.3	89.6
11.2	92.5	92.2	90.2
14.0	91.6	91.9	90.5
15.4	91.0	91.5	90.5
--	-	-	-
--	-	-	-
--	-	-	-

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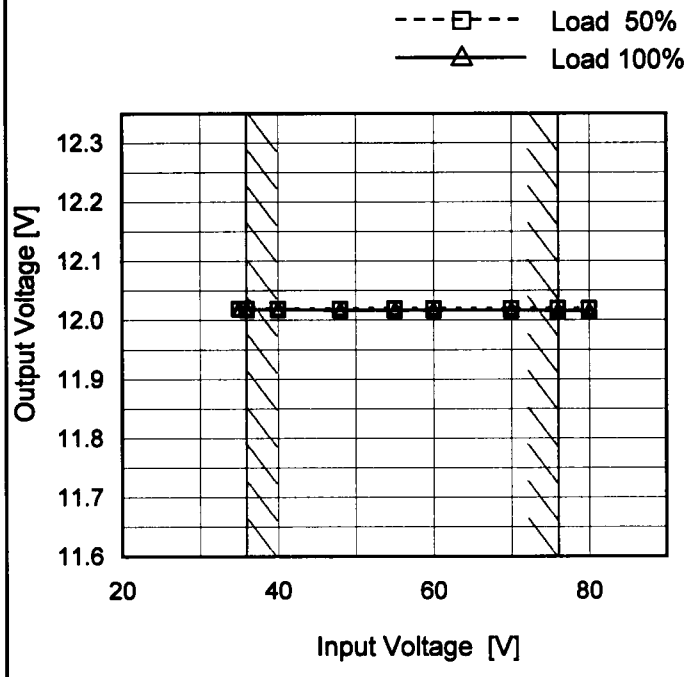
Model	CQS48120-14
Item	Line Regulation
Object	+12V14A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

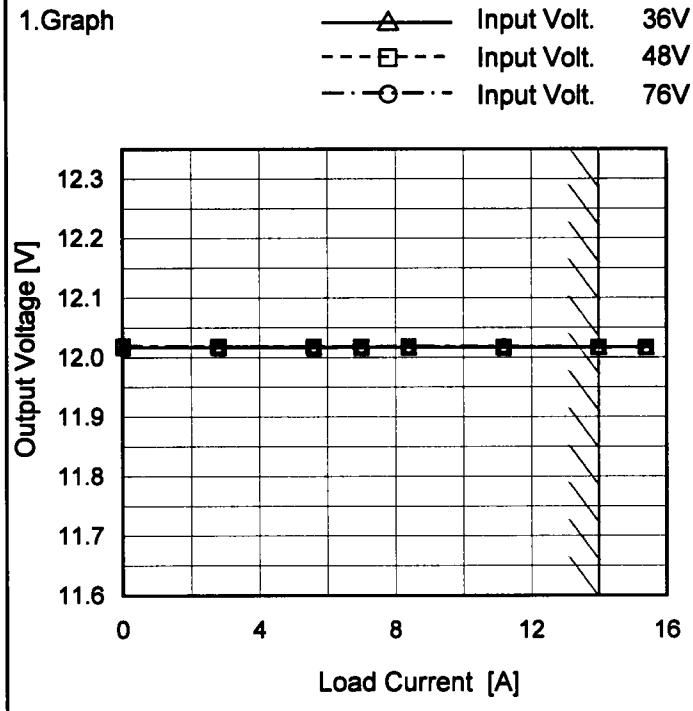
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
35	12.019	12.019
36	12.019	12.018
40	12.019	12.018
48	12.019	12.017
55	12.020	12.017
60	12.020	12.017
70	12.020	12.017
76	12.020	12.016
80	12.020	12.016

COSEL

Model	CQS48120-14
Item	Load Regulation
Object	+12V14A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	12.017	12.019	12.019
2.8	12.017	12.018	12.018
5.6	12.017	12.018	12.018
7.0	12.017	12.018	12.018
8.4	12.017	12.018	12.018
11.2	12.017	12.017	12.018
14.0	12.017	12.017	12.017
15.4	12.017	12.017	12.017
--	-	-	-
--	-	-	-
--	-	-	-

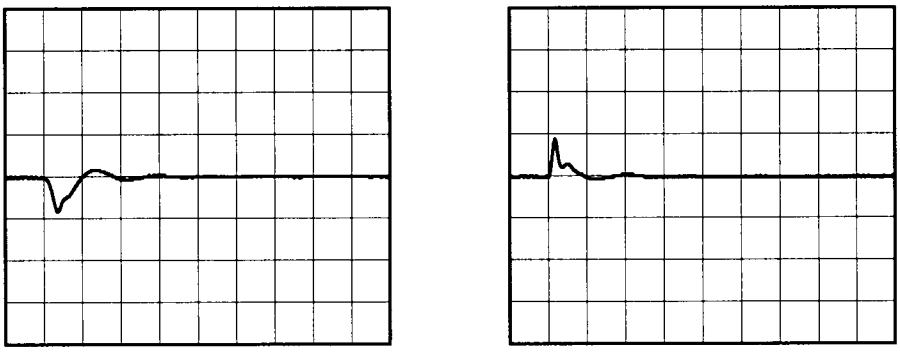
COSEL

Model	CQS48120-14
Item	Dynamic Load Response
Object	+12V14A

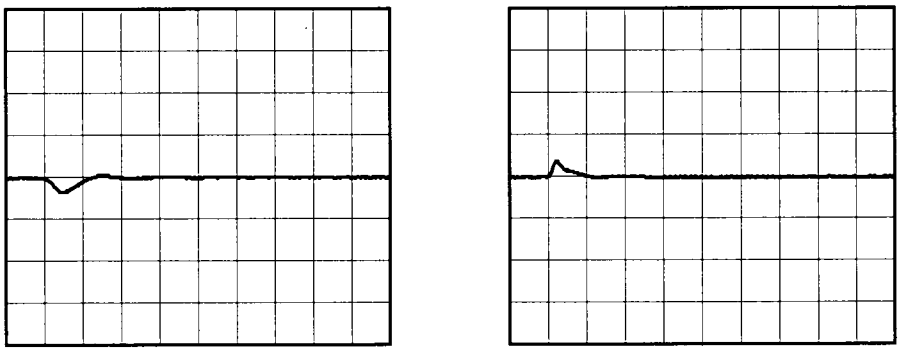
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 48 V
Cycle 100 mS

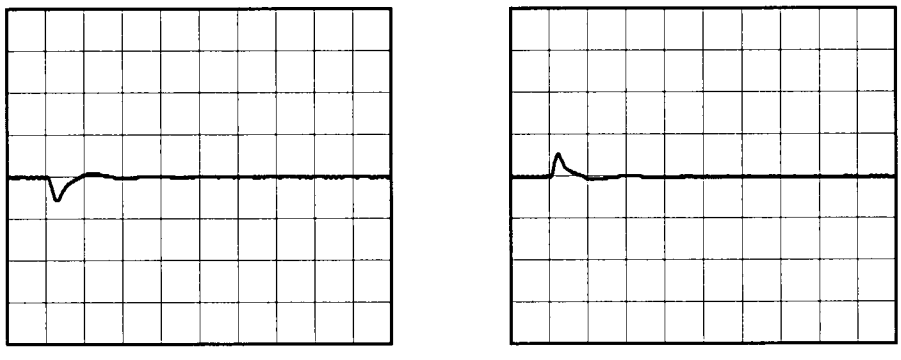
Min. Load (0A) ⟷
Load 100% (14A)



Min. Load (0A) ⟷
Load 50% (7A)



Load 50% (7A) ⟷
Load 100% (14A)

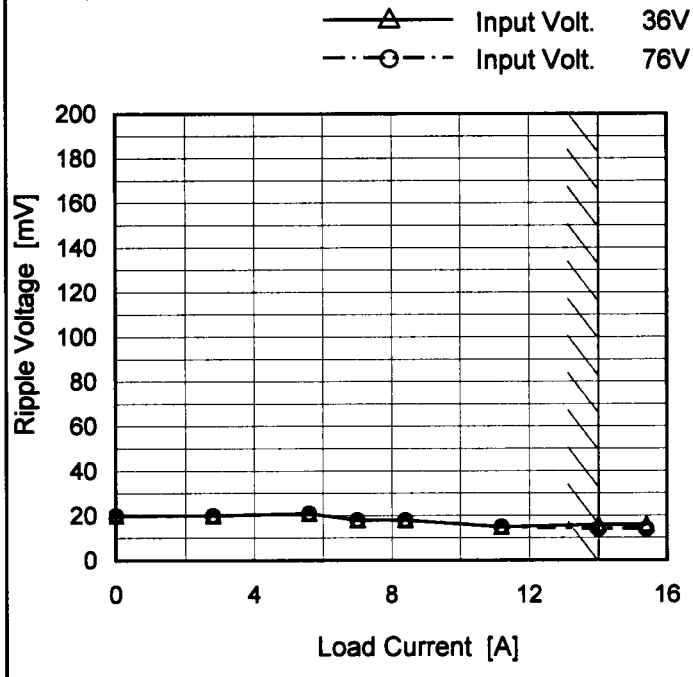


COSEL

Model	CQS48120-14
Item	Ripple Voltage (by Load Current)
Object	+12V14A

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.

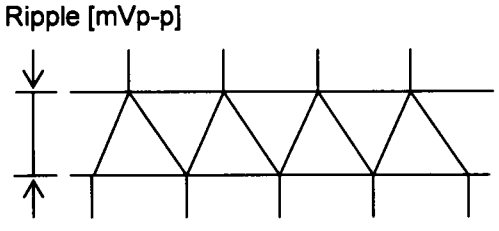


Fig.Complex Ripple Wave Form

2.Values

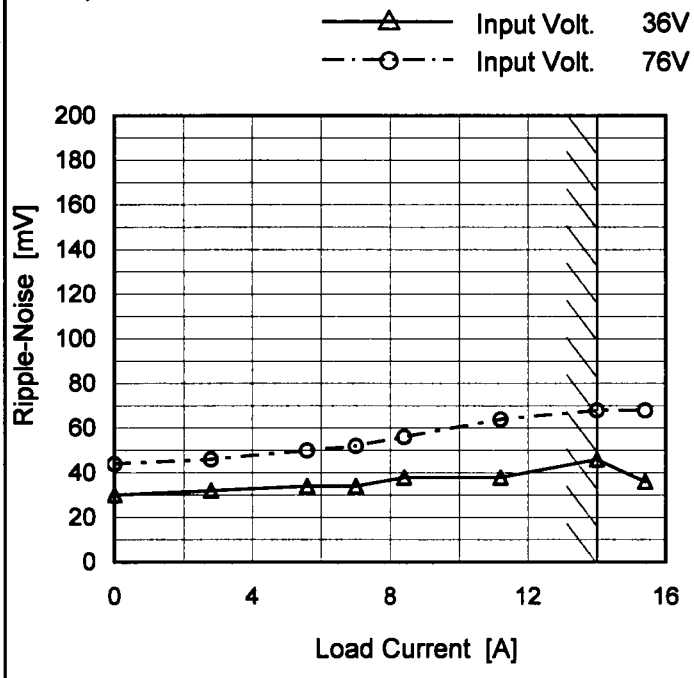
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	20	20
2.8	20	20
5.6	21	21
7.0	18	18
8.4	18	18
11.2	15	15
14.0	16	14
15.4	16	14
--	-	-
--	-	-
--	-	-

COSEL

Model	CQS48120-14
Item	Ripple-Noise
Object	+12V14A

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.

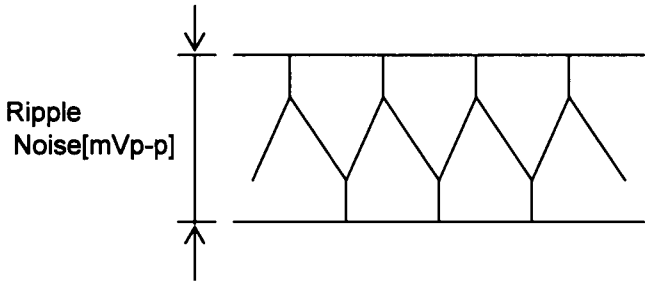


Fig.Complex Ripple Noise Wave Form

2.Values

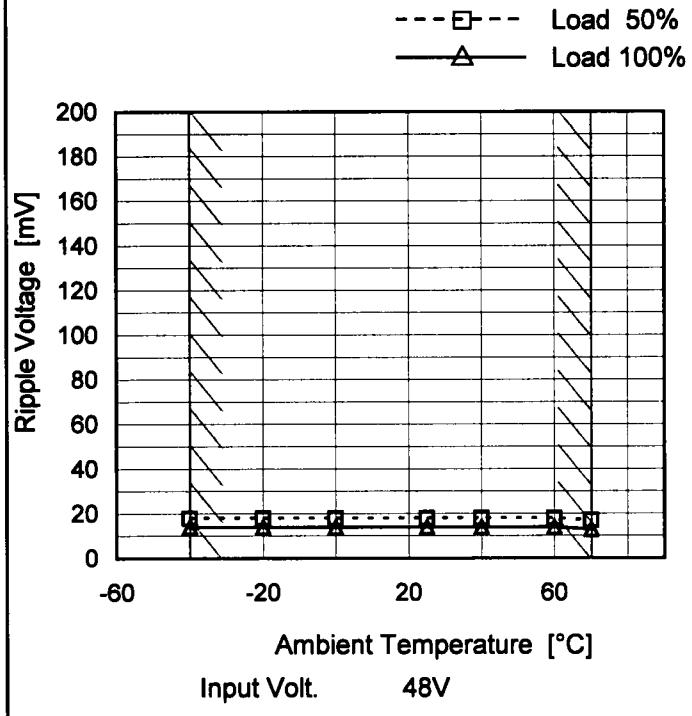
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	30	44
2.8	32	46
5.6	34	50
7.0	34	52
8.4	38	56
11.2	38	64
14.0	46	68
15.4	36	68
--	-	-
--	-	-
--	-	-

COSEL

Model	CQS48120-14
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V14A

Testing Circuitry Figure B

1.Graph



Input Volt. 48V

Measured by 100 MHz Oscilloscope.

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

2.Values

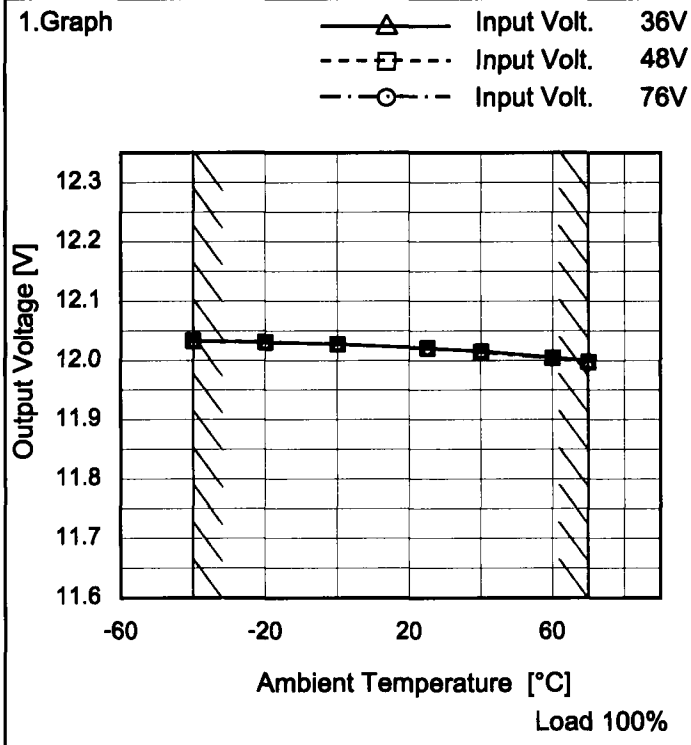
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	18	14
-20	18	14
0	18	14
25	18	14
40	18	14
60	18	14
70	17	13
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	CQS48120-14
Item	Ambient Temperature Drift
Object	+12V14A

Testing Circuitry Figure A

1.Graph



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

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-40	12.033	12.033	12.032
-20	12.031	12.031	12.030
0	12.028	12.027	12.027
25	12.021	12.021	12.020
40	12.016	12.015	12.014
60	12.005	12.004	12.003
70	11.999	11.997	11.996
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	CQS48120-14	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V14A	

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 - 70°C
Input Voltage : 36 - 76V
Load Current : 0 - 14A

* 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

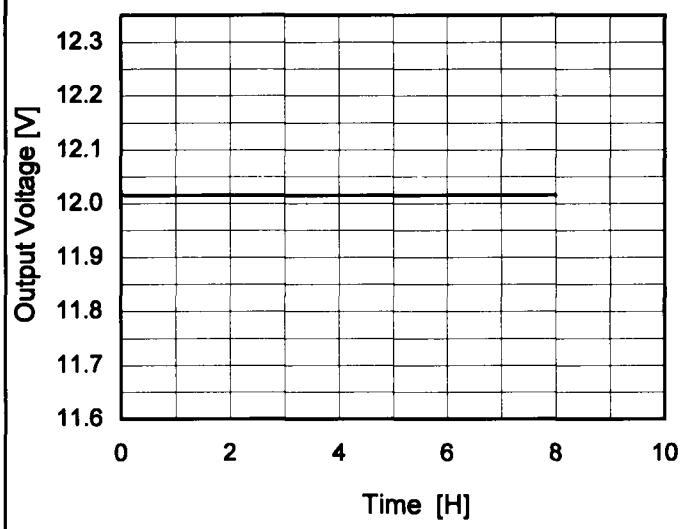
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-40	76	0	12.035	±20	±0.2
Minimum Voltage	70	76	14	11.996		

COSEL

Model	CQS48120-14
Item	Time Lapse Drift
Object	+12V14A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 48V
Load 100%

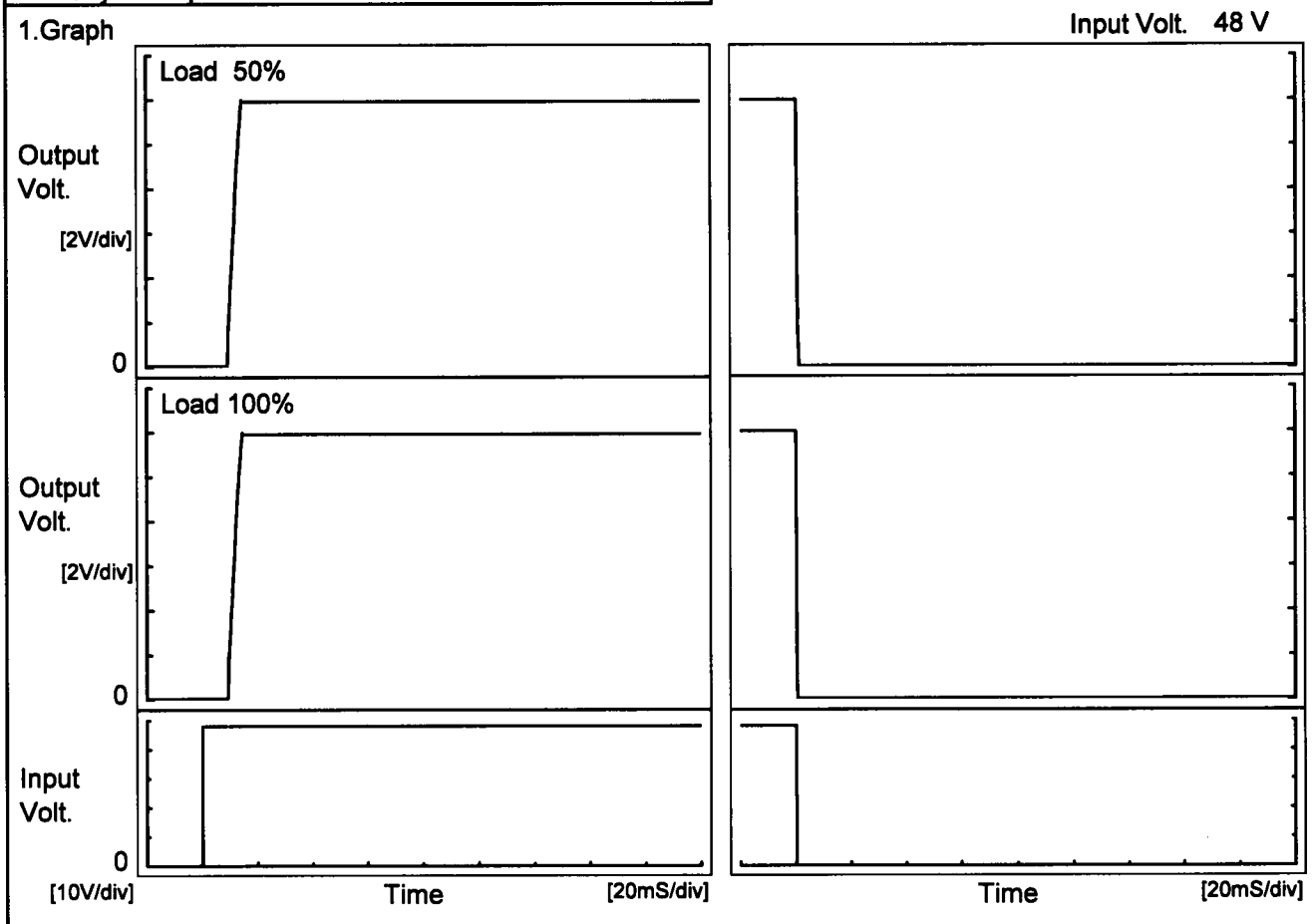
2.Values

Time since start [H]	Output Voltage [V]
0.0	12.022
0.5	12.015
1.0	12.015
2.0	12.015
3.0	12.015
4.0	12.015
5.0	12.015
6.0	12.015
7.0	12.015
8.0	12.015

COSEL

Model	CQS48120-14	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+12V14A	

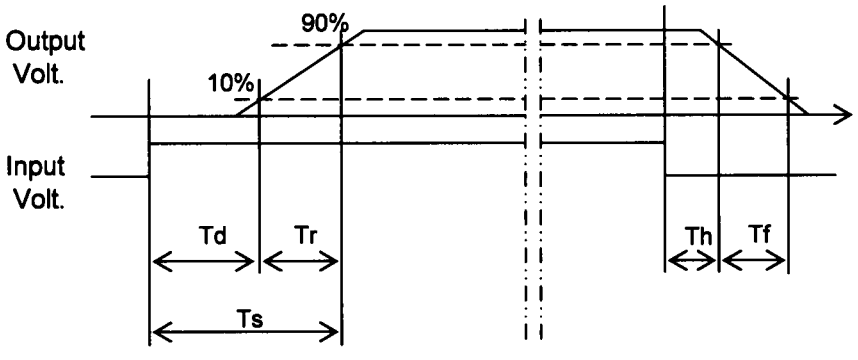
1.Graph



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	9.6	4.2	13.8	0.1	0.6
100 %	9.6	13.9	23.5	0.2	0.3

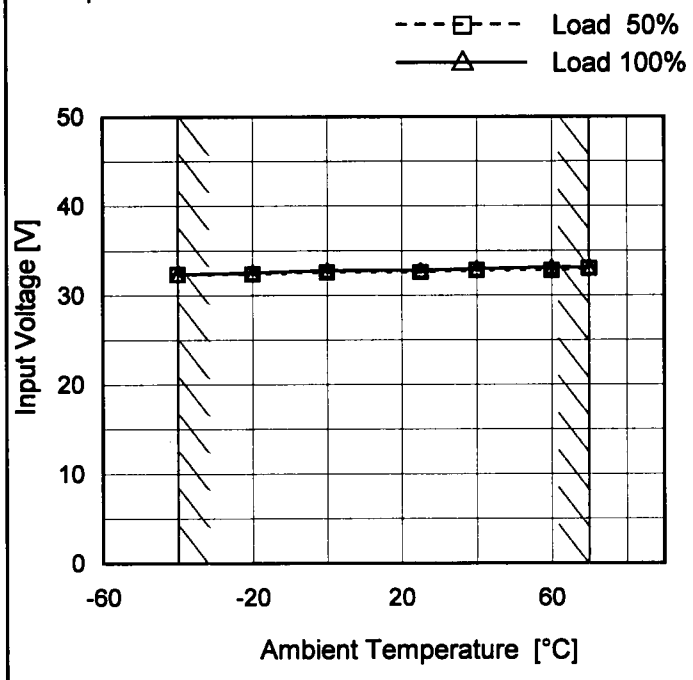


COSEL

Model	CQS48120-14
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V14A

Testing Circuitry Figure A

1.Graph



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

2.Values

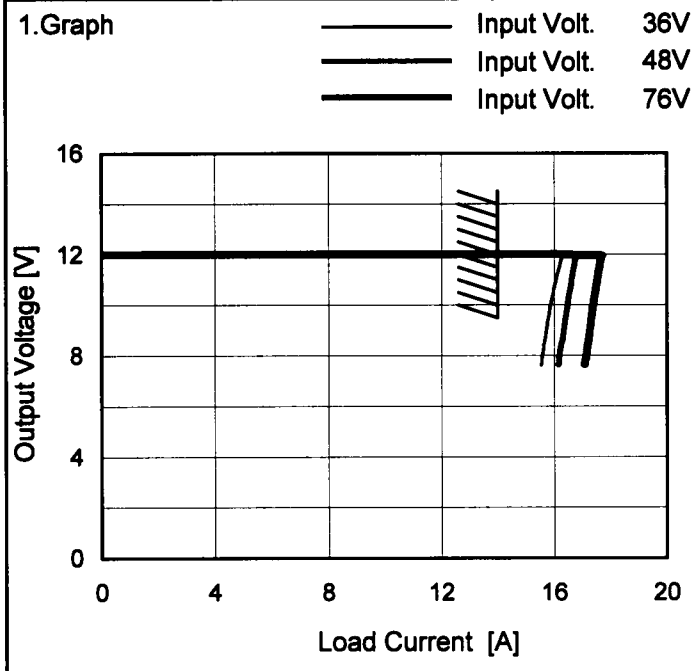
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	32.4	32.4
-20	32.4	32.6
0	32.6	32.8
25	32.6	32.8
40	32.8	33.0
60	32.8	33.2
70	33.0	33.2
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	CQS48120-14
Item	Overcurrent Protection
Object	+12V14A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

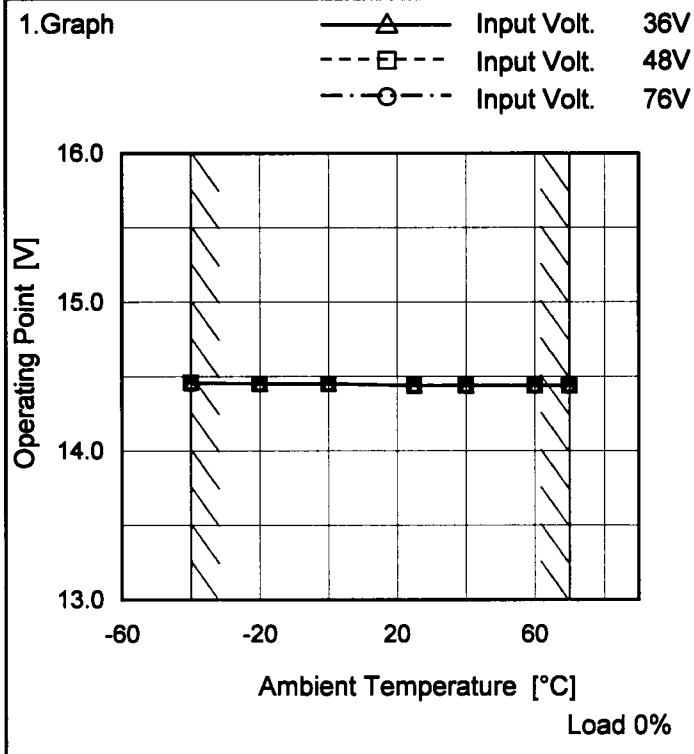
Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
12.0	15.69	16.01	15.96
11.4	16.17	16.67	17.58
10.8	16.04	16.58	17.51
9.6	15.82	16.40	17.34
8.4	15.64	16.25	17.18
7.6	15.54	16.14	17.08
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	CQS48120-14
Item	Overvoltage Protection
Object	+12V14A

Testing Circuitry Figure A

1.Graph



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

2.Values

Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-40	14.46	14.46	14.45
-20	14.45	14.45	14.45
0	14.45	14.45	14.45
25	14.44	14.44	14.44
40	14.44	14.44	14.44
60	14.44	14.44	14.44
70	14.44	14.44	14.44
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

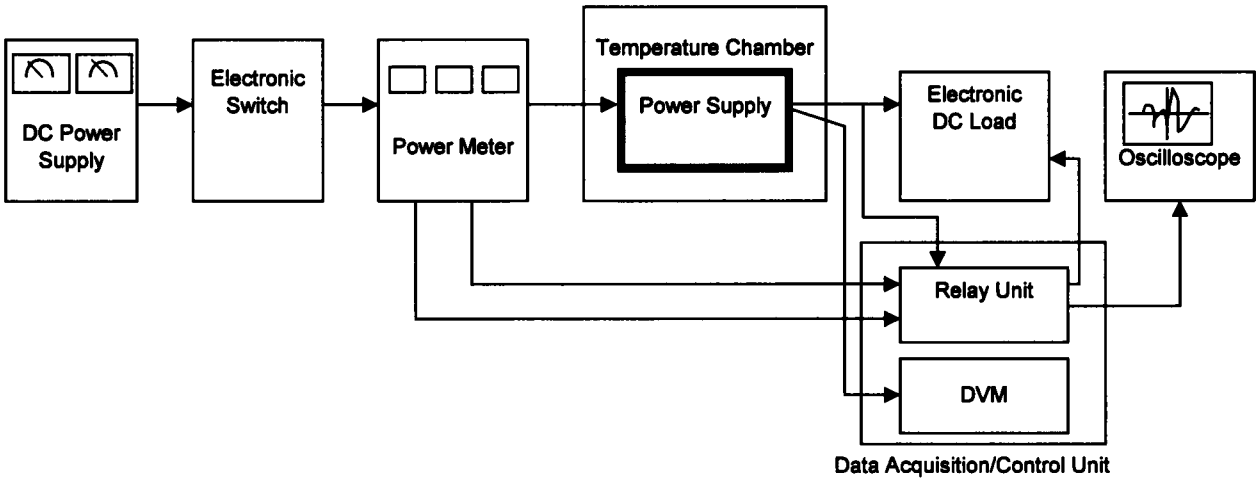


Figure A

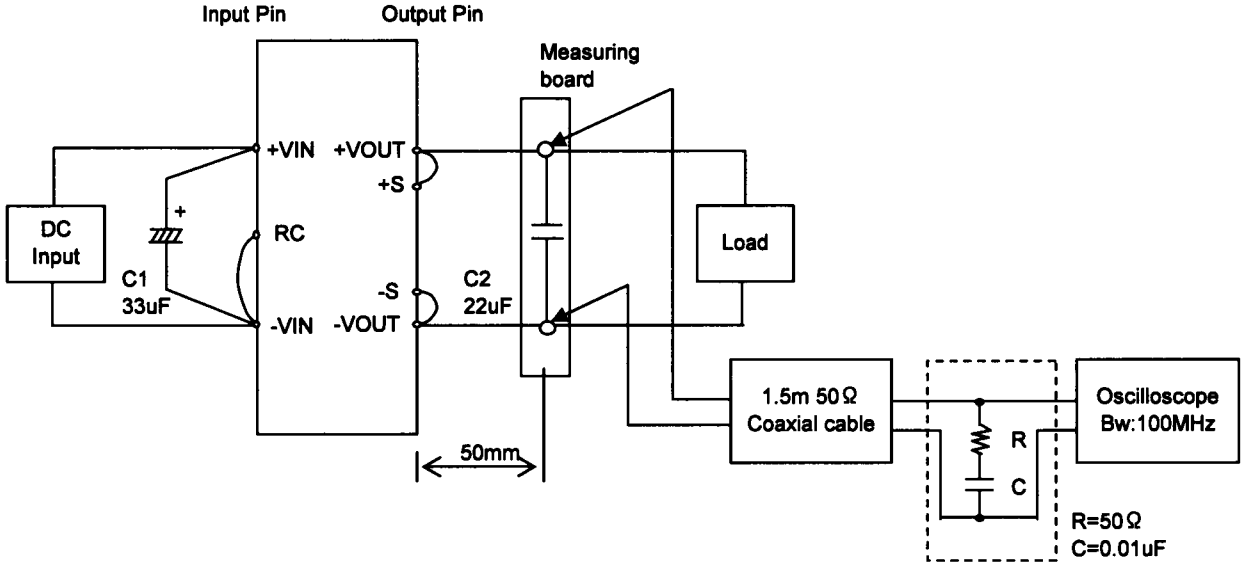


Figure B