COSEL

参考資料

TEST DATA OF BRDS40

Regulated DC Power Supply
October 9, 2015

Approved by : Yoshimichi Hirokawa
Yoshimichi Hirokawa Design Manager

Prepared by : Yohei Urayama
Yohei Urayama Design Engineer

COSEL CO.,LTD.

COSEL

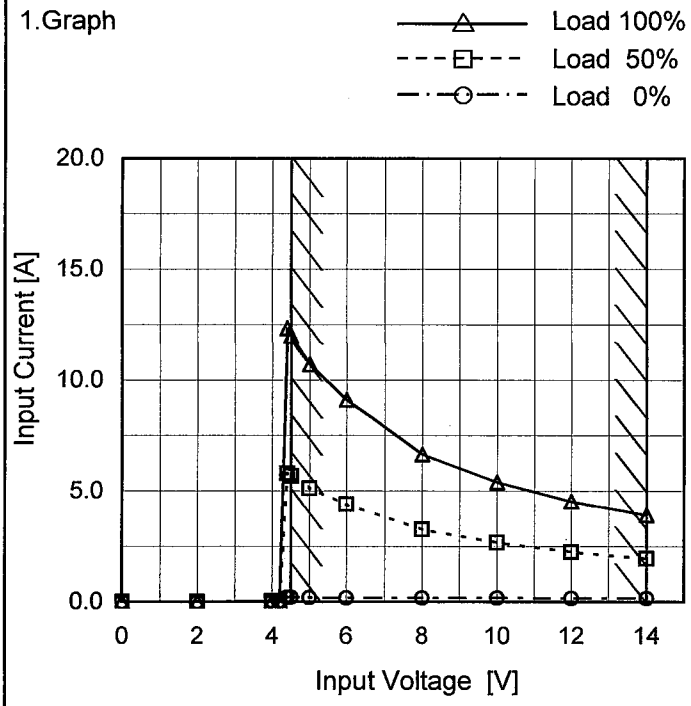
CONTENTS

COSEL

Model	BRDS40
Item	Input Current (by Input Voltage)
Object	+1.2V40A

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
2.0	0.003	0.003	0.002
4.0	0.034	0.034	0.034
4.2	0.034	0.035	0.034
4.4	0.197	5.800	12.350
4.5	0.196	5.672	11.988
5.0	0.192	5.112	10.697
6.0	0.180	4.397	9.098
8.0	0.169	3.253	6.650
10.0	0.168	2.666	5.394
12.0	0.163	2.246	4.521
14.0	0.158	1.949	3.914
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

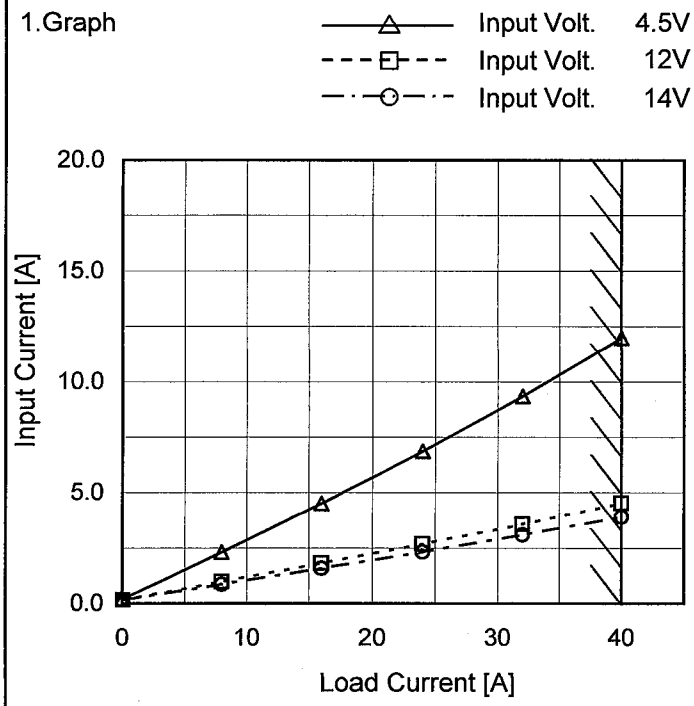
BC-10932

COSEL

Model	BRDS40
Item	Input Current (by Load Current)
Object	+1.2V40A

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. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	0.196	0.163	0.158
8	2.311	0.983	0.865
16	4.515	1.817	1.581
24	6.864	2.684	2.323
32	9.345	3.582	3.097
40	11.988	4.521	3.914
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

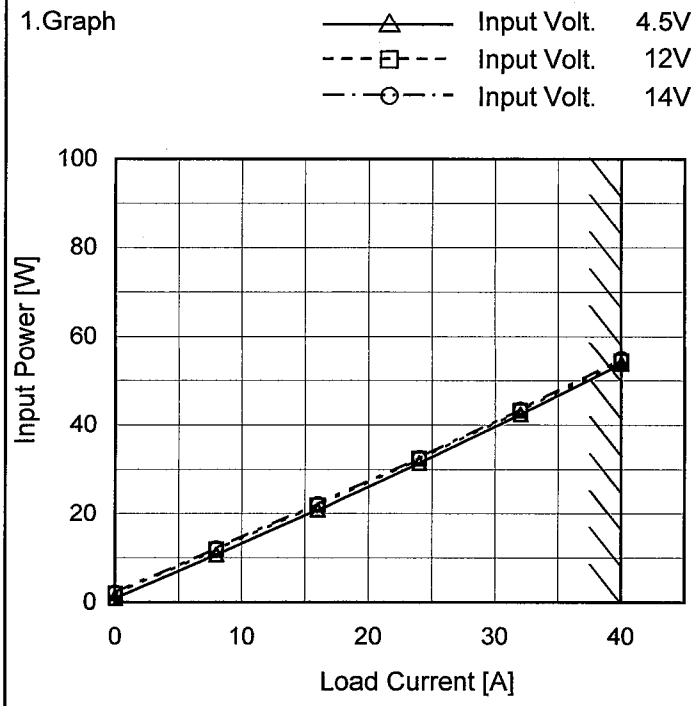
BC-10932

COSEL

Model	BRDS40
Item	Input Power (by Load Current)
Object	+1.2V40A

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. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	0.92	1.97	2.23
8	10.77	11.89	12.19
16	20.87	21.95	22.27
24	31.44	32.38	32.68
32	42.39	43.15	43.53
40	53.80	54.39	54.96
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

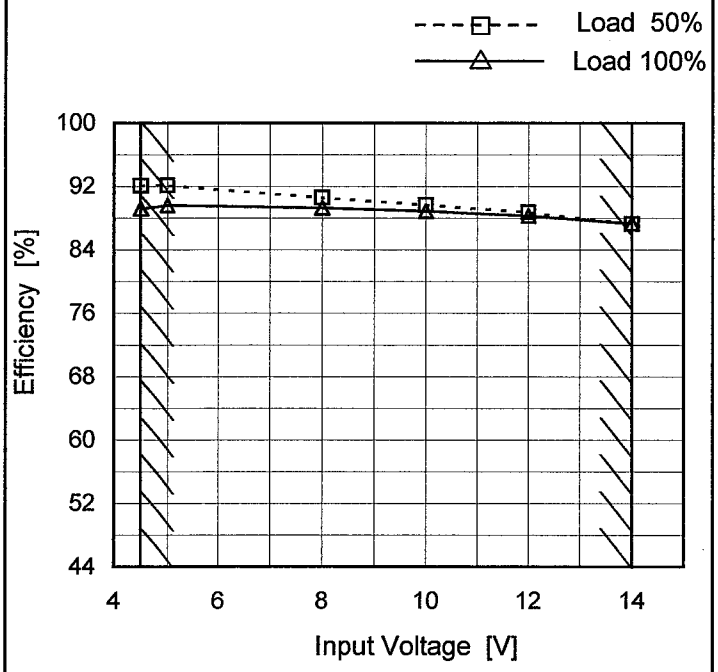
BC-10932

COSEL

Model	BRDS40
Item	Efficiency (by Input Voltage)
Object	+1.2V40A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

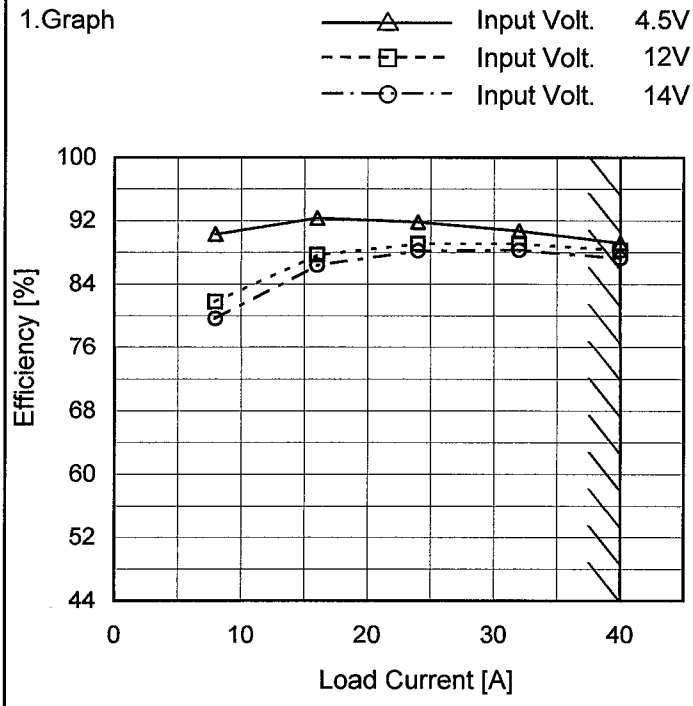
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
4.5	92.1	89.2
5.0	92.1	89.6
8.0	90.6	89.3
10.0	89.7	88.9
12.0	88.7	88.3
14.0	87.3	87.3
--	-	-
--	-	-
--	-	-

COSEL

Model	BRDS40
Item	Efficiency (by Load Current)
Object	+1.2V40A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

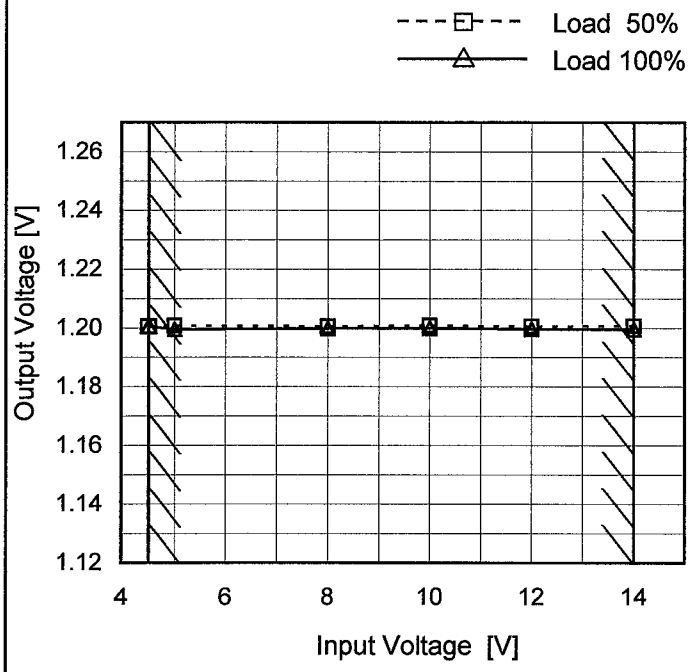
Load Current [A]	Efficiency [%] Input Volt. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	-	-	-
8	90.3	81.8	79.7
16	92.3	87.7	86.4
24	91.8	89.1	88.2
32	90.7	89.1	88.3
40	89.2	88.3	87.3
--	-	-	-
---	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	BRDS40
Item	Line Regulation
Object	+1.2V40A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

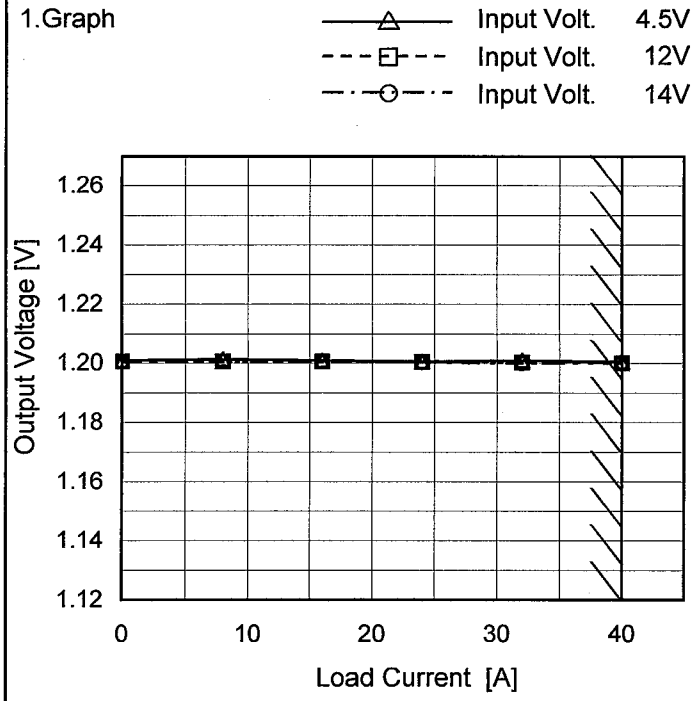
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
4.5	1.201	1.201
5.0	1.201	1.200
8.0	1.201	1.200
10.0	1.201	1.200
12.0	1.201	1.200
14.0	1.201	1.200
---	-	-
---	-	-
---	-	-

COSEL

Model	BRDS40
Item	Load Regulation
Object	+1.2V40A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

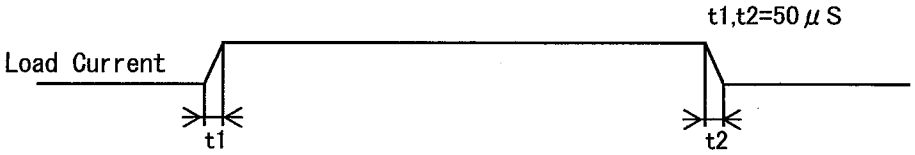
Load Current [A]	Output Voltage [V]		
	Input Volt. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	1.201	1.201	1.201
8	1.201	1.201	1.201
16	1.201	1.201	1.201
24	1.201	1.200	1.200
32	1.201	1.200	1.200
40	1.201	1.200	1.200
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

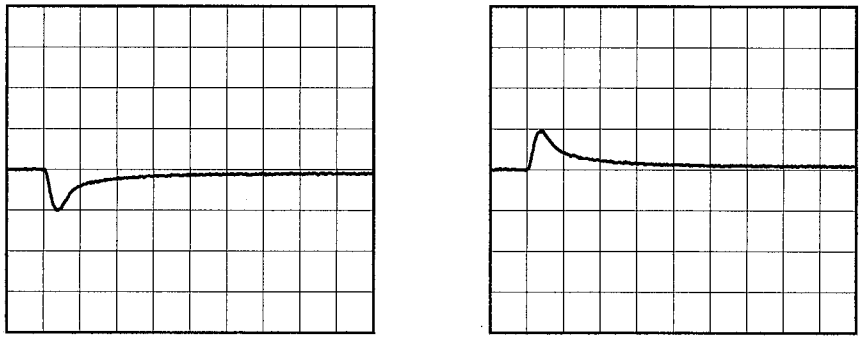
Model	BRDS40
Item	Dynamic Load Response
Object	+1.2V40A

Temperature 25°C
Testing Circuitry Figure B

Input Volt. 12 V
Cycle 5 ms



Min. Load (0A) ⟷
Load 100% (40A)

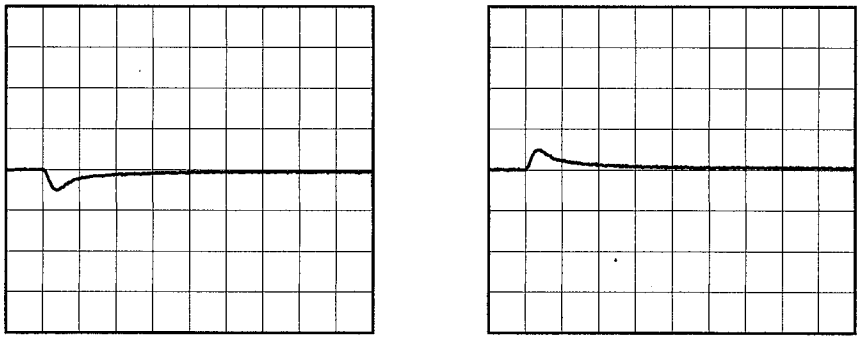


100mV/div

100 μ s/div

100 μ s/div

Min. Load (0A) ⟷
Load 50% (20A)

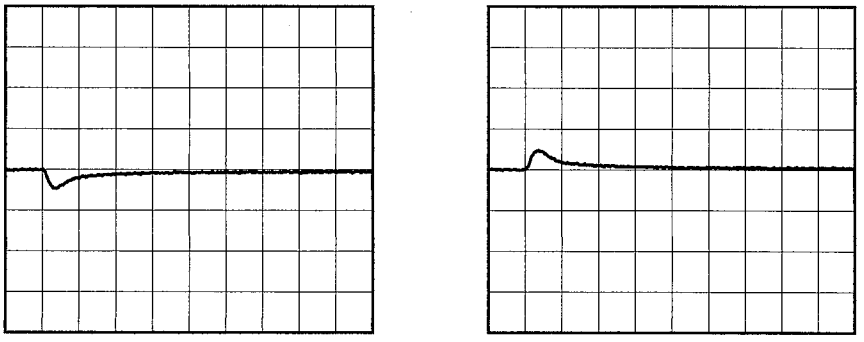


100mV/div

100 μ s/div

100 μ s/div

Load 50% (20A) ⟷
Load 100% (40A)



100mV/div

100 μ s/div

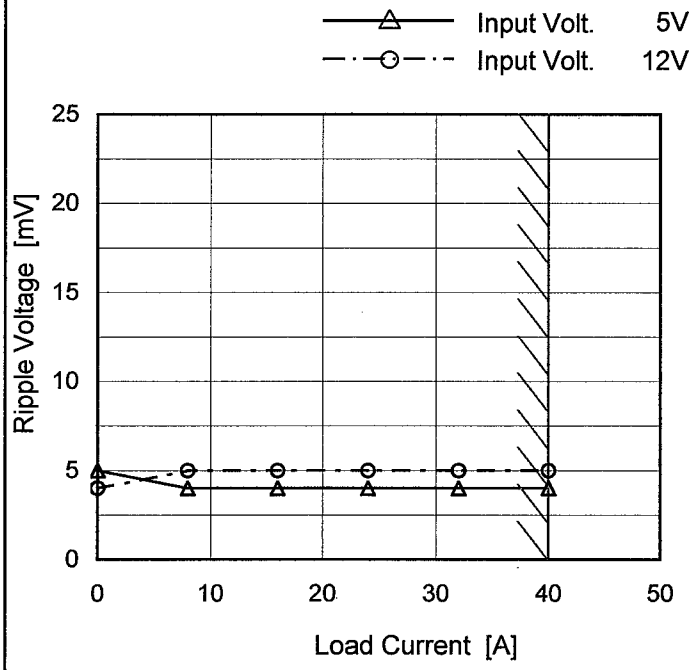
100 μ s/div

COSEL

Model	BRDS40
Item	Ripple Voltage (by Load Current)
Object	+1.2V40A

Temperature 25°C
Testing Circuitry Figure C

1.Graph



Measured by 20 MHz Oscilloscope.
Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

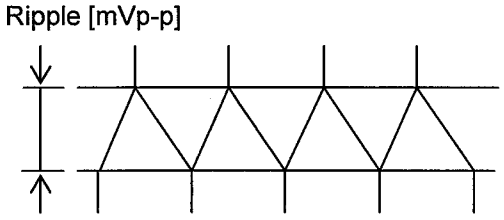


Fig.Complex Ripple Wave Form

2.Values

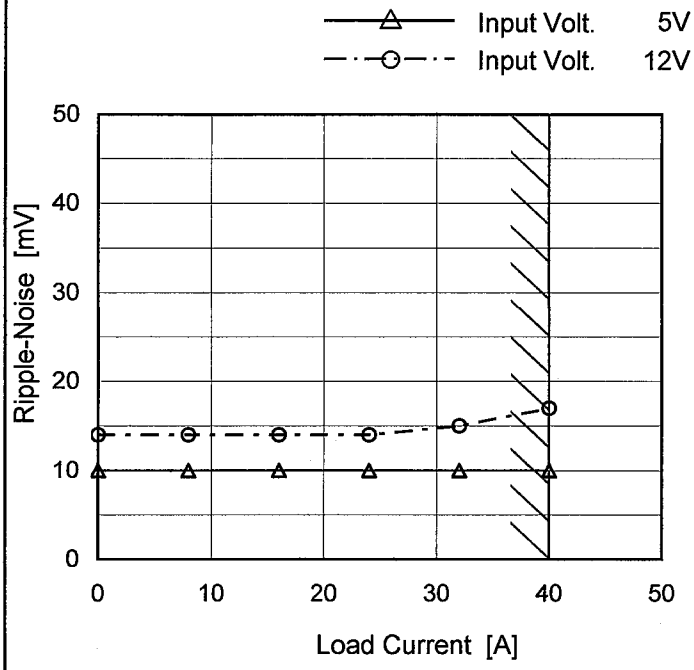
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 5 [V]	Input Volt. 12 [V]
0	5.0	4.0
8	4.0	5.0
16	4.0	5.0
24	4.0	5.0
32	4.0	5.0
40	4.0	5.0
---	-	-
---	-	-
---	-	-
---	-	-
---	-	-

COSEL

Model	BRDS40
Item	Ripple-Noise
Object	+1.2V40A

Temperature 25°C
Testing Circuitry Figure C

1.Graph



Measured by 20 MHz Oscilloscope.
Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

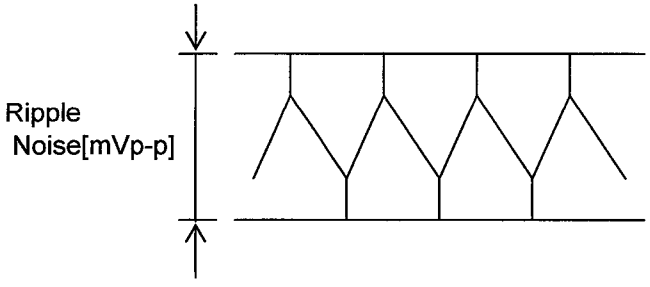


Fig.Complex Ripple Noise Wave Form

2.Values

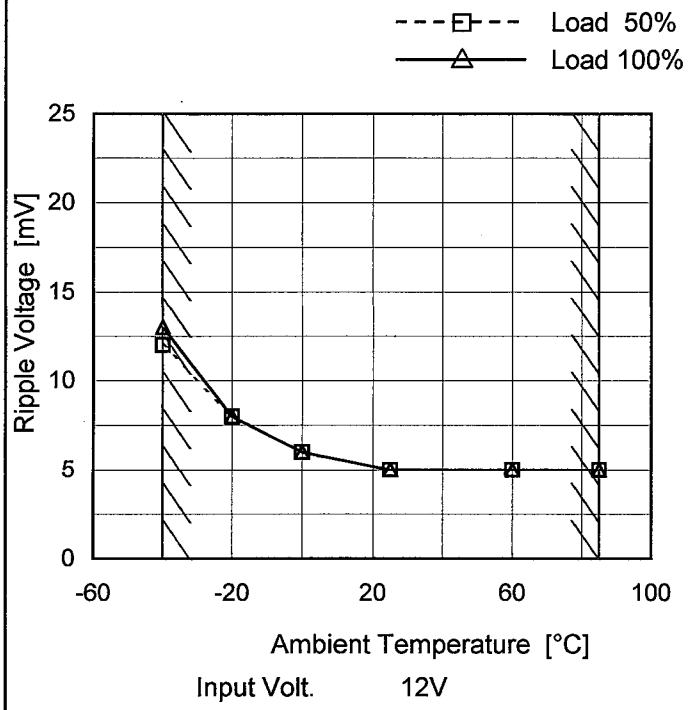
Load Current [A]	Ripple-Noise [mV] Input Volt. 5 [V]	Ripple-Noise [mV] Input Volt. 12 [V]
0	10	14
8	10	14
16	10	14
24	10	14
32	10	15
40	10	17
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	BRDS40
Item	Ripple Voltage (by Ambient Temp.)
Object	+1.2V40A

Testing Circuitry Figure C

1.Graph



Input Volt. 12V

Measured by 20 MHz Oscilloscope.
Note: Slanted line shows the range of the rated ambient temperature.

Ripple [mVp-p]

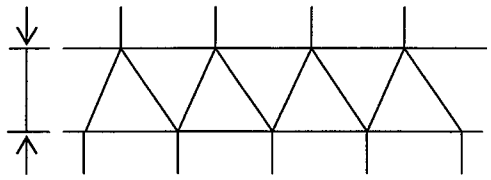


Fig.Complex Ripple Wave Form

2.Values

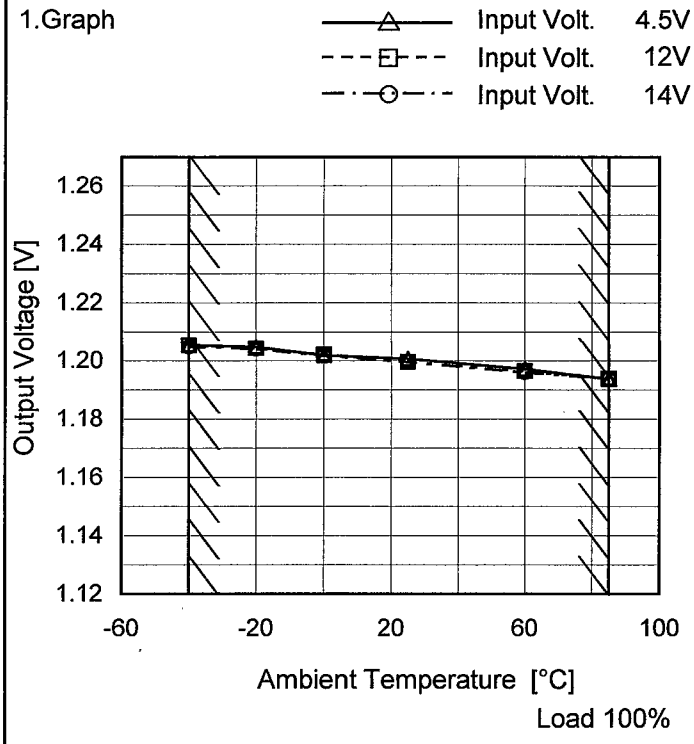
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	12.0	13.0
-20	8.0	8.0
0	6.0	6.0
25	5.0	5.0
60	5.0	5.0
85	5.0	5.0
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	BRDS40
Item	Ambient Temperature Drift
Object	+1.2V40A

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. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
-40	1.205	1.205	1.205
-20	1.205	1.204	1.204
0	1.202	1.202	1.202
25	1.201	1.200	1.200
60	1.197	1.196	1.196
85	1.194	1.194	1.194
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	BRDS40	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+1.2V40A	

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 - 85°C
Input Voltage : 4.5 - 14V
Load Current : 0 - 40A

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

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

2.Values

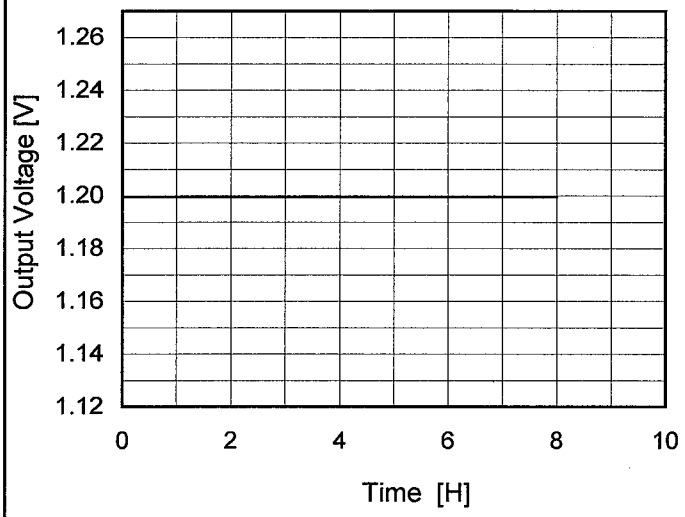
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	-40	14	0	1.205	±6	±0.5
Minimum Voltage	85	4.5	0	1.194		

COSEL

Model	BRDS40
Item	Time Lapse Drift
Object	+1.2V40A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 12V
Load 100%

2.Values

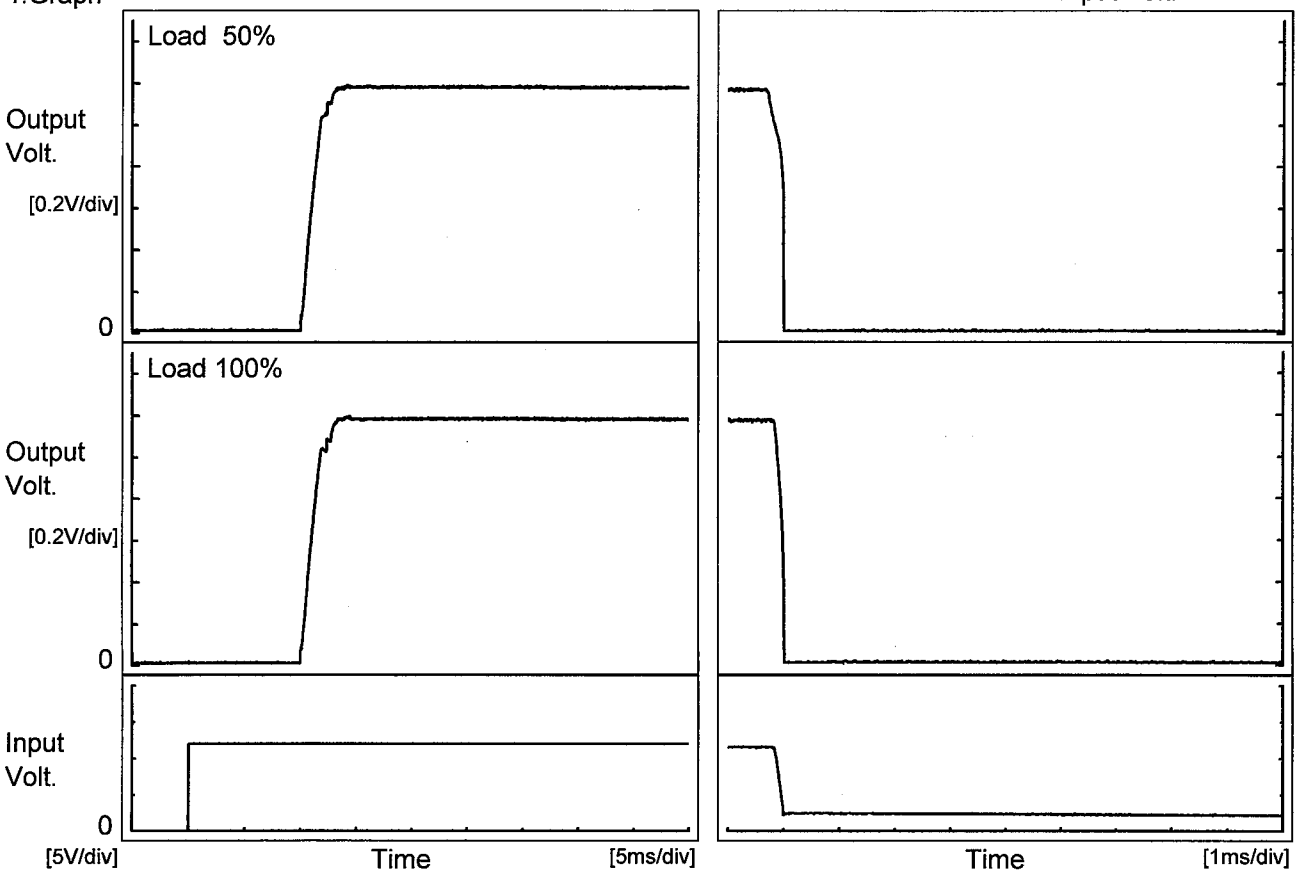
Time since start [H]	Output Voltage [V]
0.0	1.200
0.5	1.200
1.0	1.200
2.0	1.200
3.0	1.200
4.0	1.200
5.0	1.200
6.0	1.200
7.0	1.200
8.0	1.200

COSEL

Model	BRDS40
Item	Rise and Fall Time
Object	+1.2V40A

Temperature 25°C
Testing Circuitry Figure A

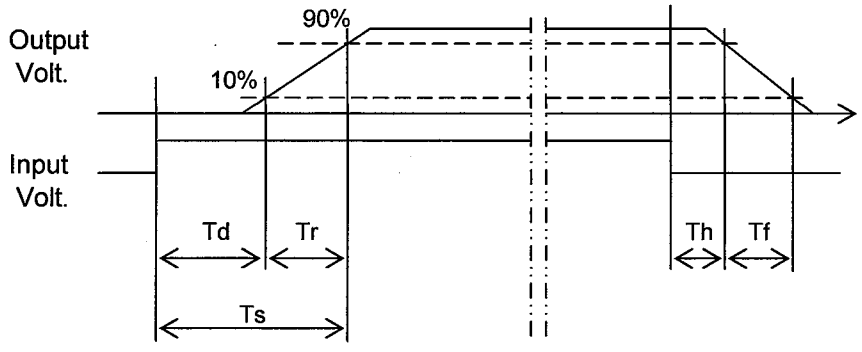
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	10.2	2.2	12.4	0.2	0.2
100 %	10.2	2.2	12.4	0.2	0.2

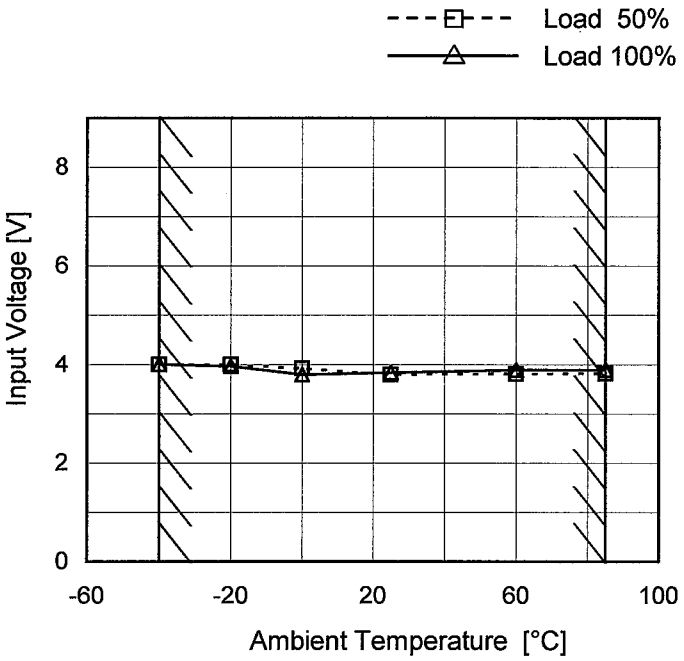


COSEL

Model	BRDS40
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+1.2V40A

Testing Circuitry Figure A

1.Graph



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

2.Values

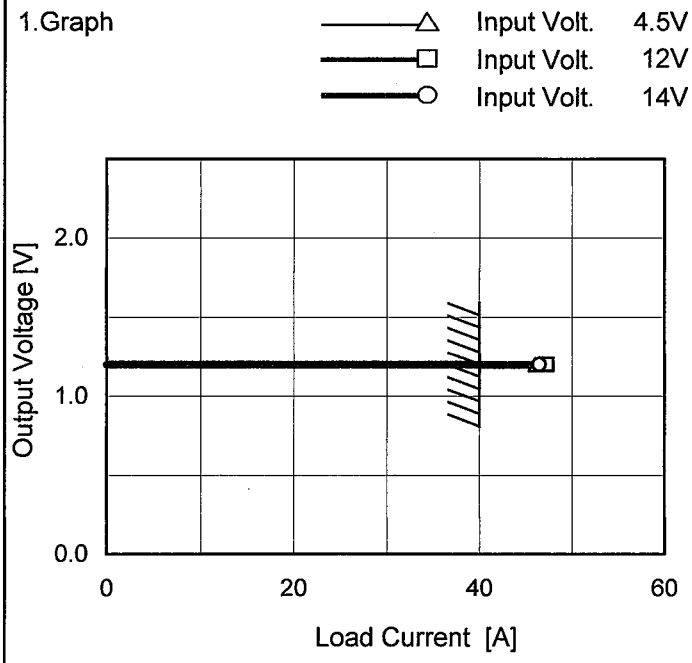
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	4.00	4.01
-20	4.00	3.97
0	3.92	3.80
25	3.80	3.84
60	3.82	3.89
85	3.82	3.90
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	BRDS40
Item	Overcurrent Protection
Object	+1.2V40A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

Intermittent operation occurs when overcurrent protection is activated.

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
1.20	46.02	46.42	46.41
1.14	-	-	-
1.08	-	-	-
0.96	-	-	-
0.84	-	-	-
0.72	-	-	-
0.60	-	-	-
0.48	-	-	-
0.36	-	-	-
0.24	-	-	-
0.12	-	-	-
0.00	-	-	-

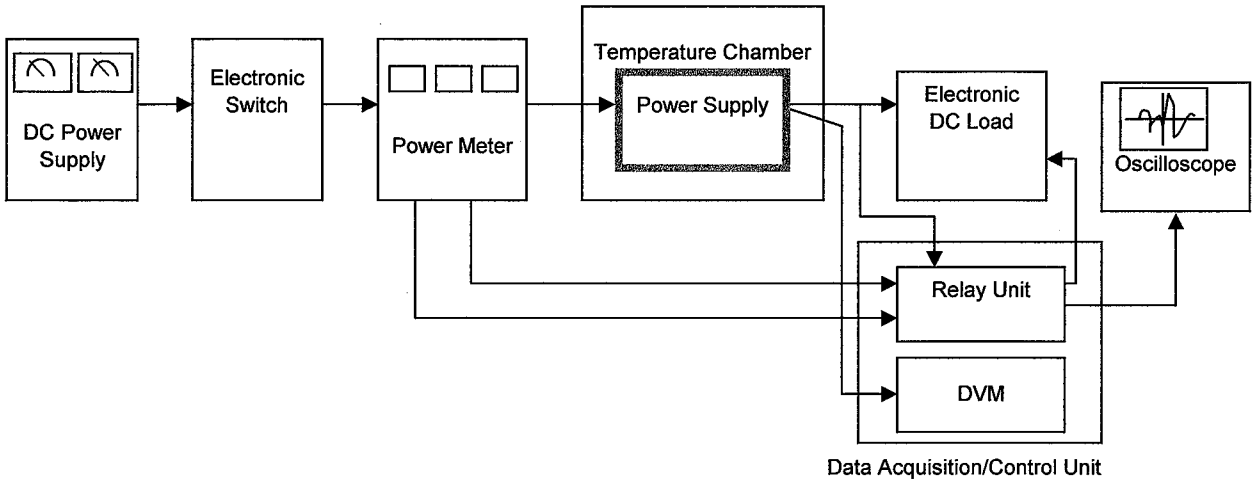


Figure A

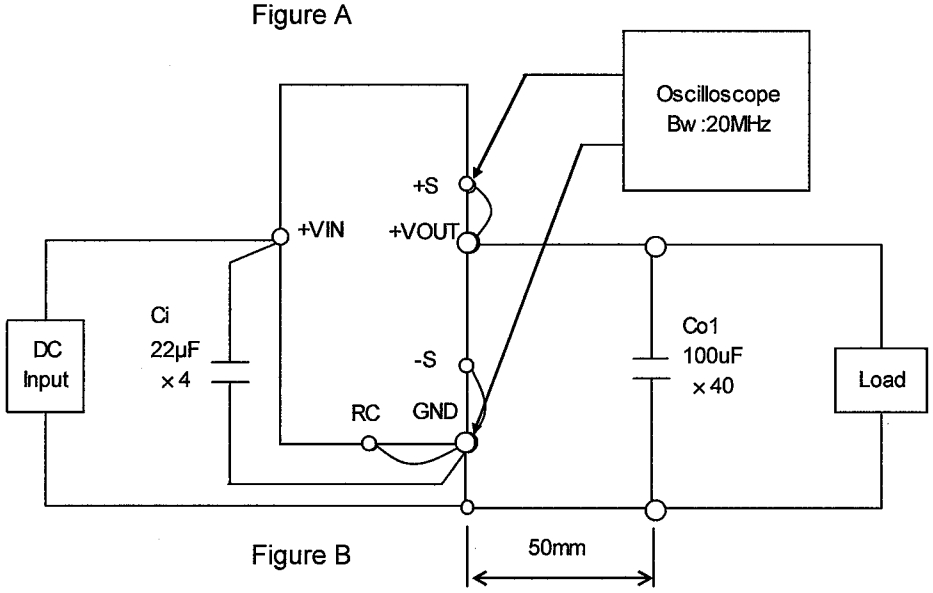


Figure B

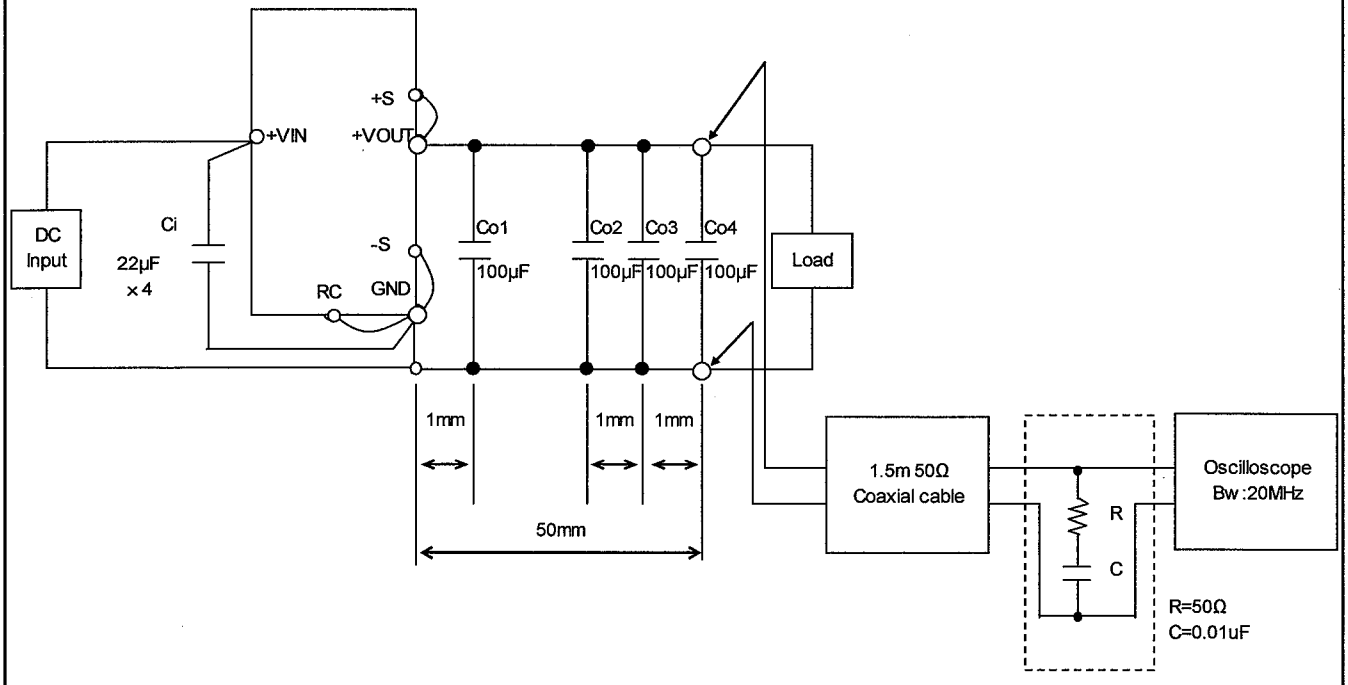


Figure C