COSEL

参考資料

TEST DATA OF BRFS30

Regulated DC Power Supply
2013/05/16

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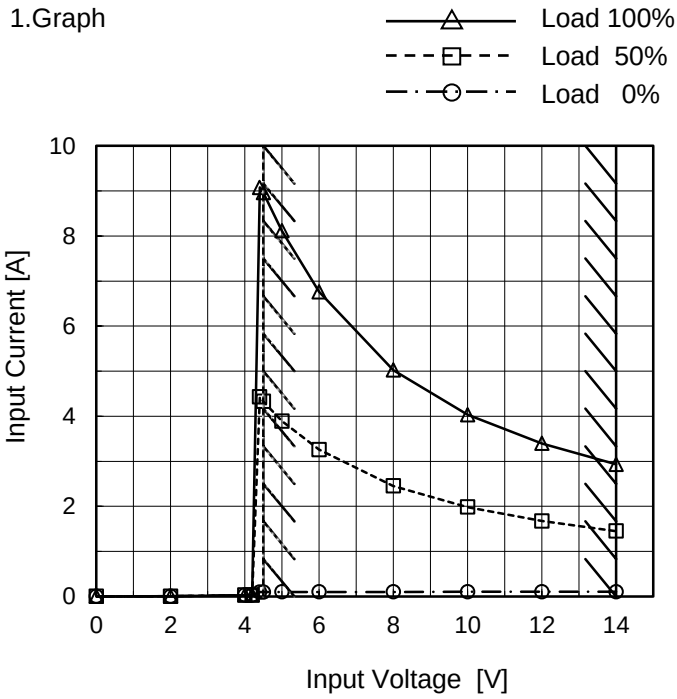
Model	BRFS30
Item	Input Current (by Input Voltage)
Object	————————

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
2.0	0.004	0.004	0.004
4.0	0.028	0.028	0.028
4.2	0.029	0.028	0.028
4.4	0.097	4.426	9.076
4.5	0.098	4.329	8.960
5.0	0.100	3.889	8.115
6.0	0.100	3.259	6.761
8.0	0.101	2.453	5.022
10.0	0.102	1.983	4.032
12.0	0.103	1.673	3.396
14.0	0.104	1.451	2.932
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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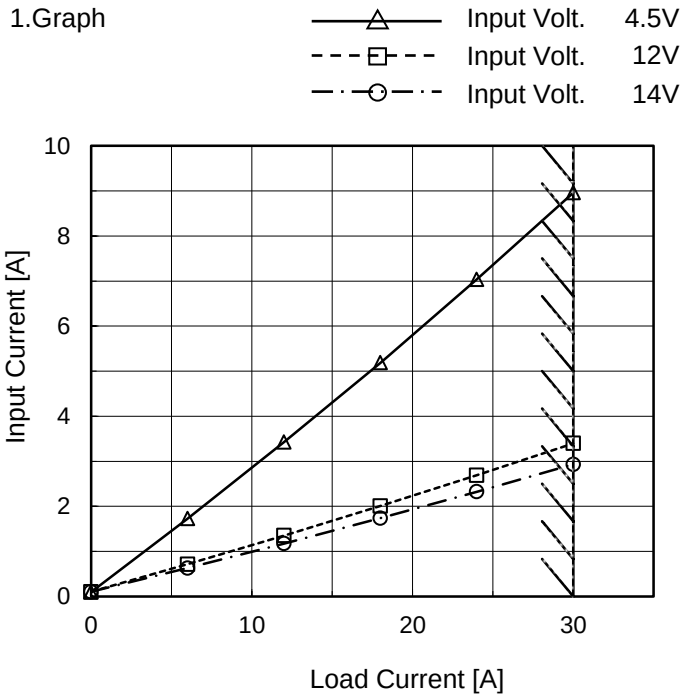
Model	BRFS30
Item	Input Current (by Load Current)
Object	————————

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. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	0.098	0.103	0.104
6	1.728	0.716	0.630
12	3.425	1.351	1.175
18	5.188	2.008	1.739
24	7.037	2.690	2.323
30	8.960	3.396	2.932
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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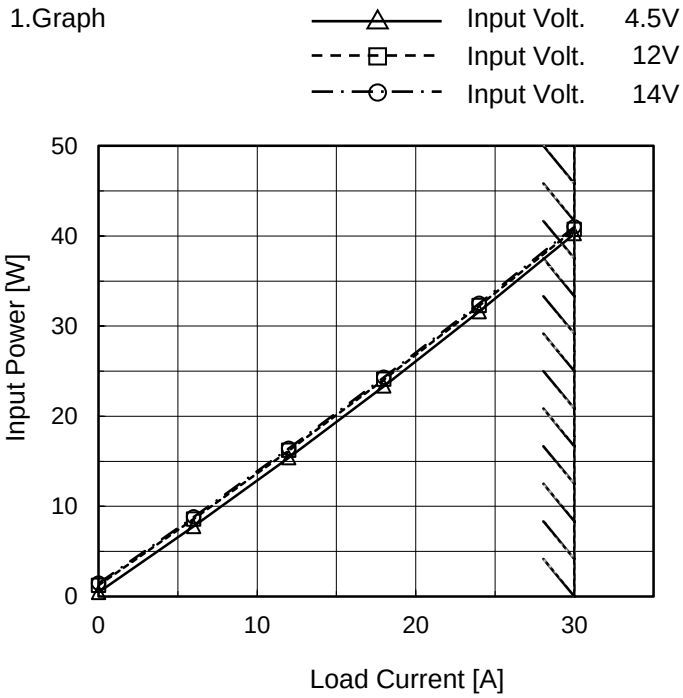
Model	BRFS30
Item	Input Power (by Load Current)
Object	————————

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. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	0.44	1.24	1.46
6	7.76	8.59	8.81
12	15.40	16.21	16.44
18	23.34	24.09	24.33
24	31.60	32.26	32.51
30	40.25	40.74	41.03
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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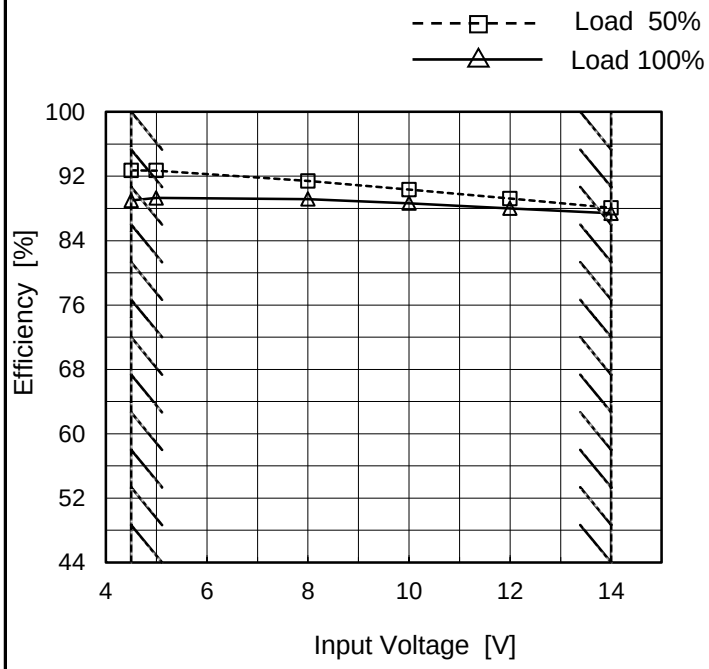
Model	BRFS30
Item	Efficiency (by Input Voltage)
Object	―――――――――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

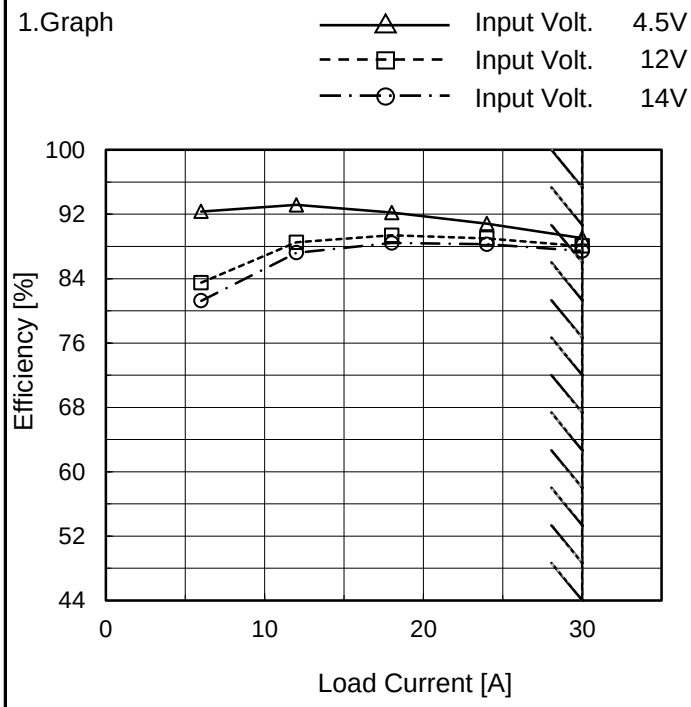
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
4.5	92.7	89.0
5.0	92.7	89.3
8.0	91.4	89.2
10.0	90.3	88.7
12.0	89.2	88.0
14.0	88.1	87.4
--	-	-
--	-	-
--	-	-

COSEL

Model	BRFS30
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

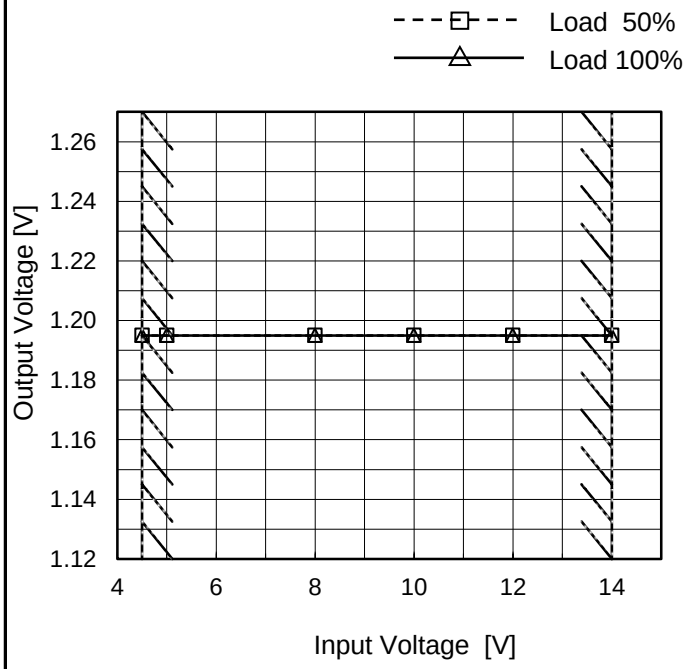
Load Current [A]	Efficiency [%]		
	Input Volt. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	-	-	-
6	92.4	83.5	81.2
12	93.2	88.5	87.2
18	92.2	89.4	88.4
24	90.8	89.0	88.3
30	89.0	88.0	87.4
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	BRFS30
Item	Line Regulation
Object	+1.2V30A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

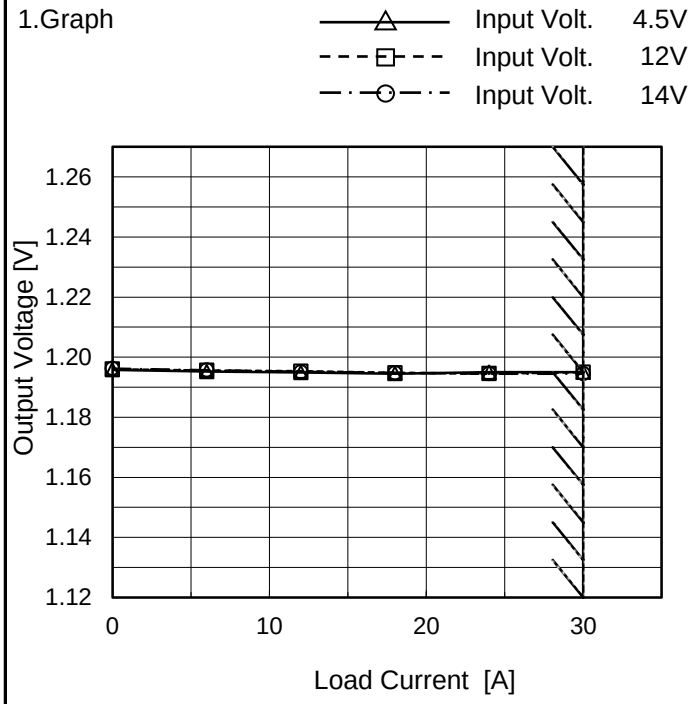
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
4.5	1.195	1.195
5.0	1.195	1.195
8.0	1.195	1.195
10.0	1.195	1.195
12.0	1.195	1.195
14.0	1.195	1.195
--	-	-
--	-	-
--	-	-

COSEL

Model	BRFS30
Item	Load Regulation
Object	+1.2V30A

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	1.196	1.196	1.196
6	1.195	1.196	1.196
12	1.195	1.195	1.195
18	1.195	1.195	1.195
24	1.195	1.195	1.195
30	1.195	1.195	1.195
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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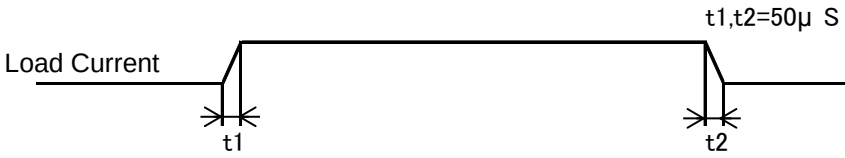
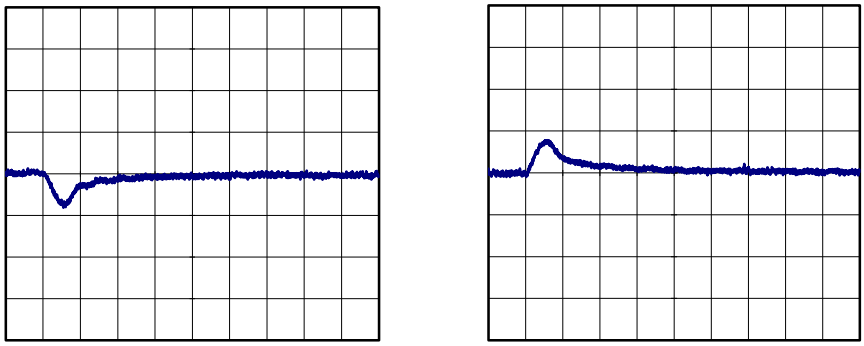
Model	BRFS30	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure B
Object	+1.2V30A	

Input Volt. 12 V
Cycle 5 ms



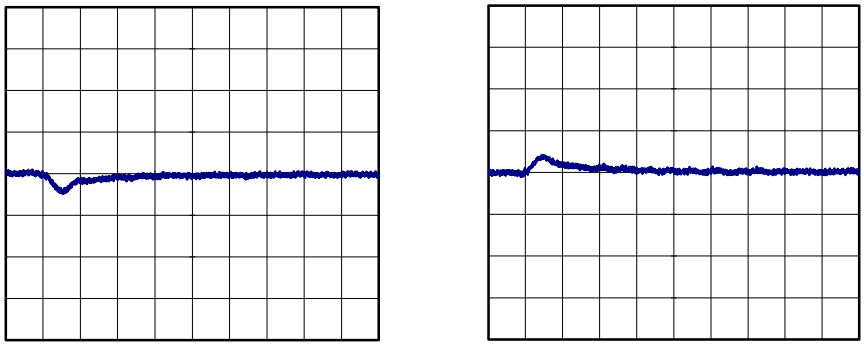
Min. Load (0A) ←→
Load 100% (30A)



100mV/div

100 μ s/div 100 μ s/div

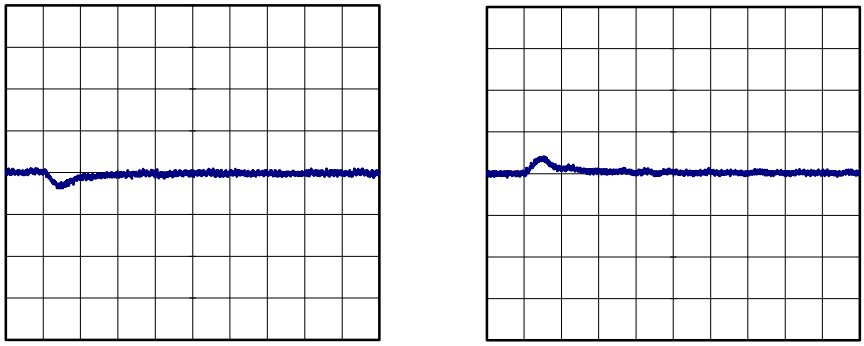
Min. Load (0A) ←→
Load 50% (15A)



100mV/div

100 μ s/div 100 μ s/div

Load 50% (15A) ←→
Load 100% (30A)



100mV/div

100 μ s/div 100 μ s/div

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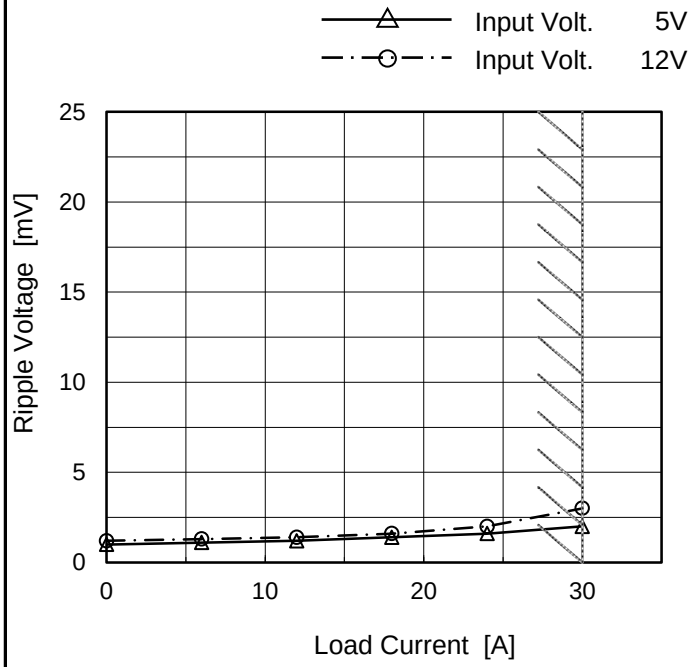
Model	BRFS30
Item	Ripple Voltage (by Load Current)
Object	+1.2V30A

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.

Ripple [mVp-p]

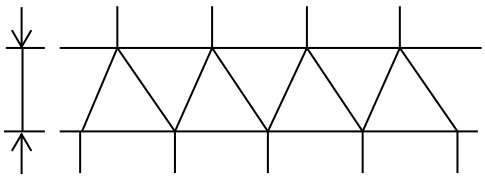


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 5 [V]	Input Volt. 12 [V]
0	1	1
6	1	1
12	1	1
18	1	2
24	2	2
30	2	3
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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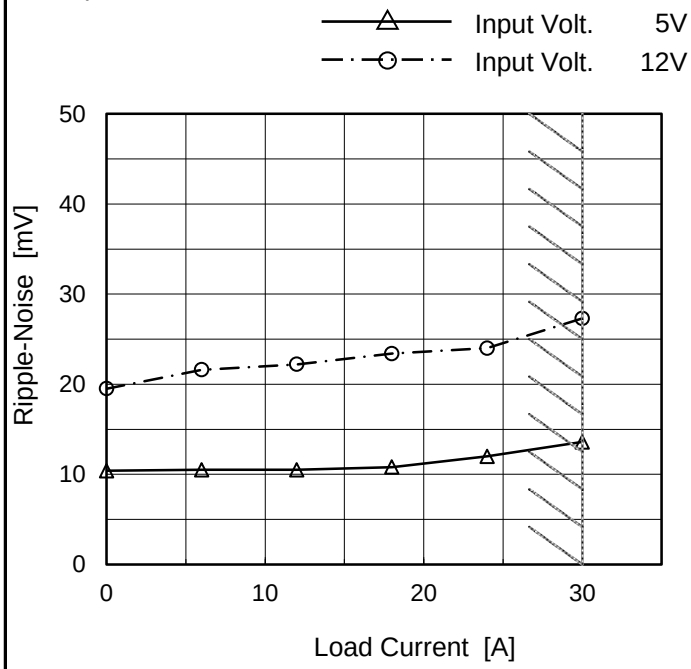
Model	BRFS30
Item	Ripple-Noise
Object	+1.2V30A

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.

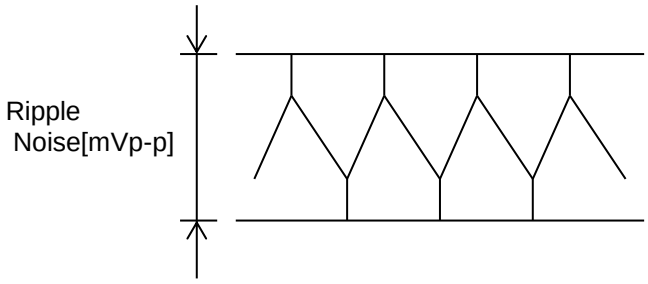


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 5 [V]	Input Volt. 12 [V]
0	10	20
6	11	22
12	11	22
18	11	23
24	12	24
30	14	27
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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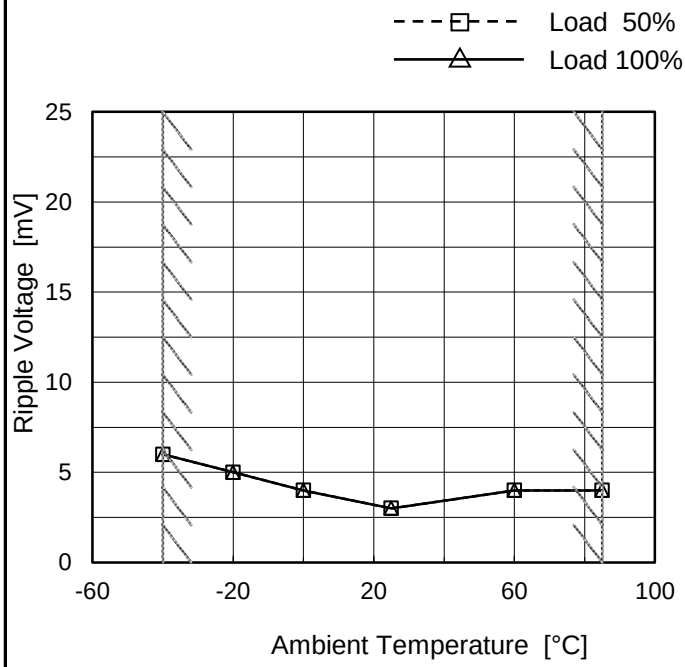
Model	BRFS30
Item	Ripple Voltage (by Ambient Temp.)
Object	+1.2V30A

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]

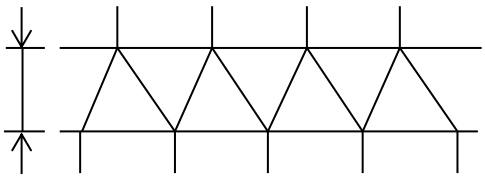


Fig.Complex Ripple Wave Form

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	6.0	6.0
-20	5.0	5.0
0	4.0	4.0
25	3.0	3.0
60	4.0	4.0
85	4.0	4.0
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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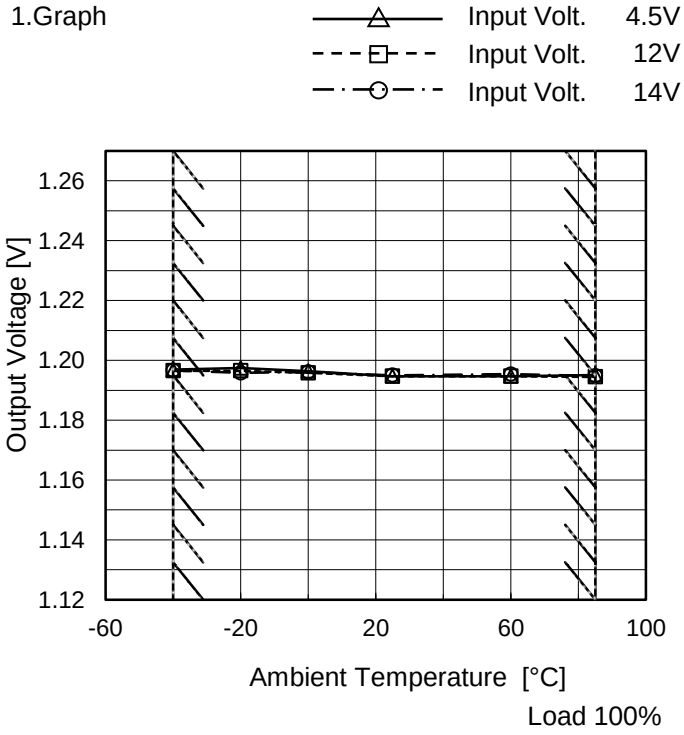
Model	BRFS30
Item	Ambient Temperature Drift
Object	+1.2V30A

Testing Circuitry Figure A

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. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
-40	1.197	1.197	1.197
-20	1.197	1.197	1.196
0	1.196	1.196	1.196
25	1.195	1.195	1.195
60	1.195	1.195	1.195
85	1.195	1.195	1.195
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	BRFS30	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+1.2V30A	

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 - 30A

* 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

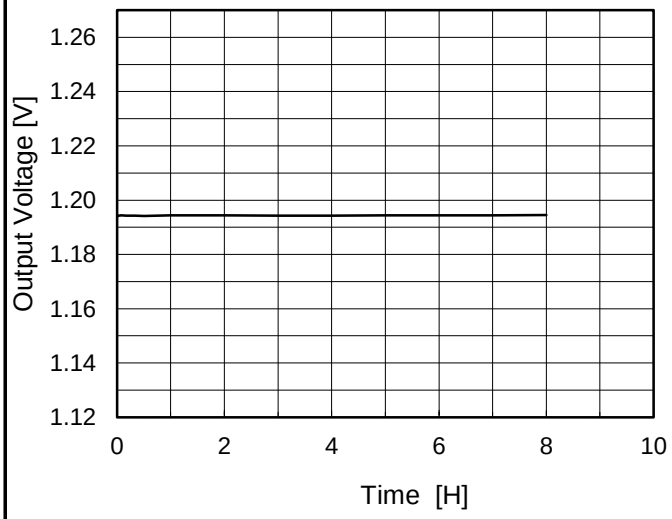
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	60	14	0	1.199	±2	±0.2
Minimum Voltage	85	12	30	1.195		

COSEL

Model	BRFS30
Item	Time Lapse Drift
Object	+1.2V30A

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	1.194
0.5	1.194
1.0	1.194
2.0	1.194
3.0	1.194
4.0	1.194
5.0	1.194
6.0	1.194
7.0	1.194
8.0	1.194

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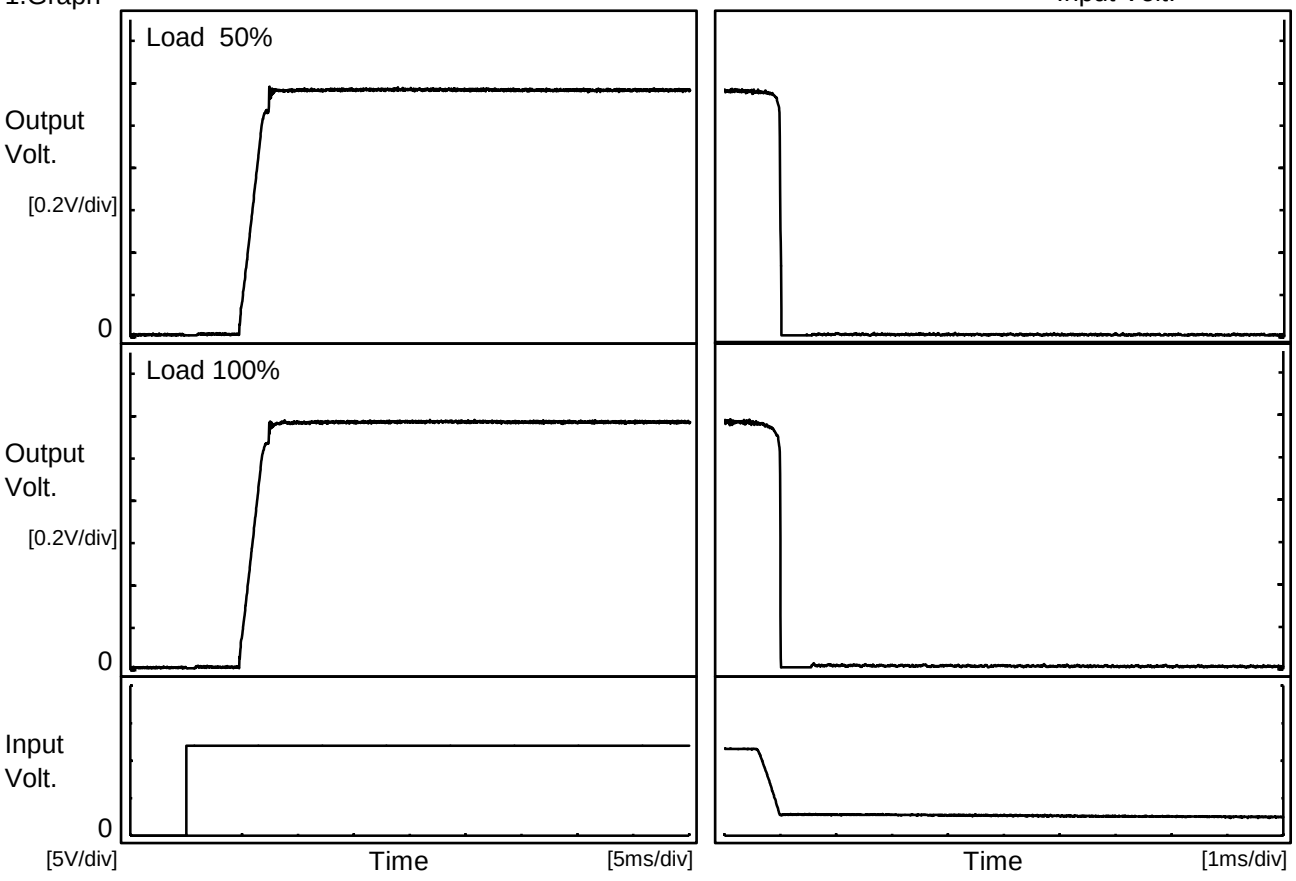
Model	BRFS30
Item	Rise and Fall Time
Object	+1.2V30A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

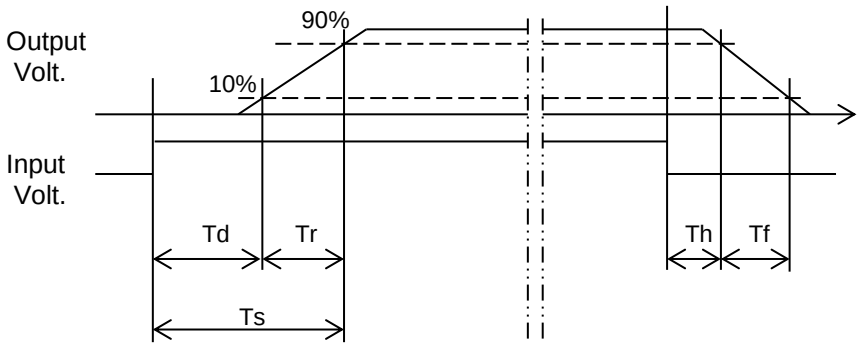
Input Volt. 12 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	4.9	2.5	7.4	0.0	0.2
100 %	4.9	2.5	7.4	0.0	0.2

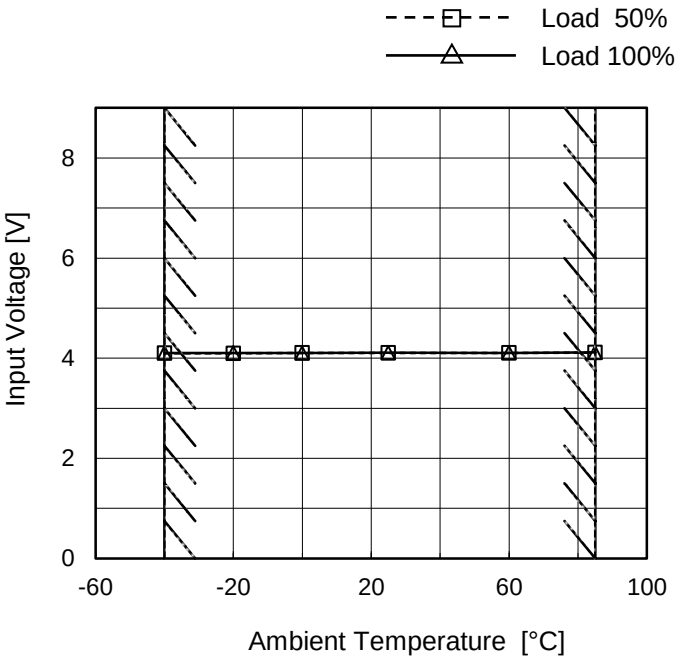


COSEL

Model	BRFS30
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+1.2V30A

Testing Circuitry Figure A

1.Graph



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

2.Values

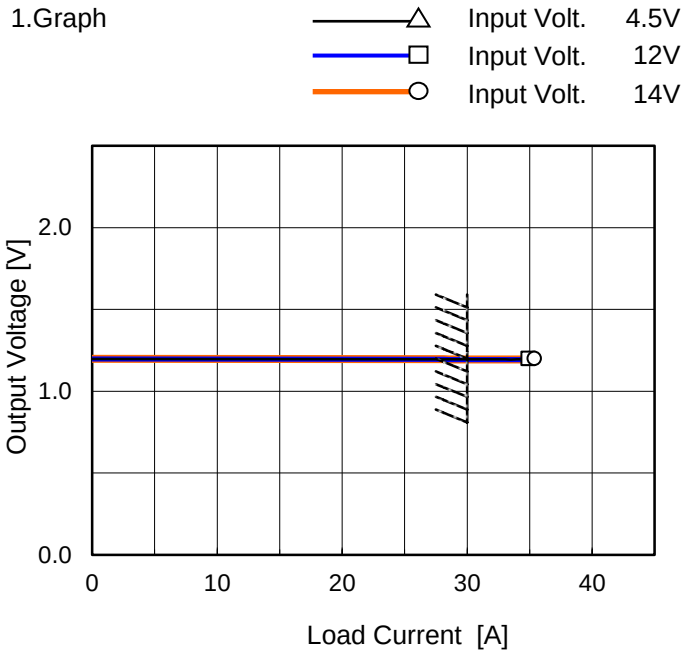
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	4.10	4.11
-20	4.10	4.11
0	4.11	4.11
25	4.11	4.11
60	4.11	4.11
85	4.12	4.12
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	BRFS30
Item	Overcurrent Protection
Object	+1.2V30A

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]
1.2	34.93	34.89	35.36
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

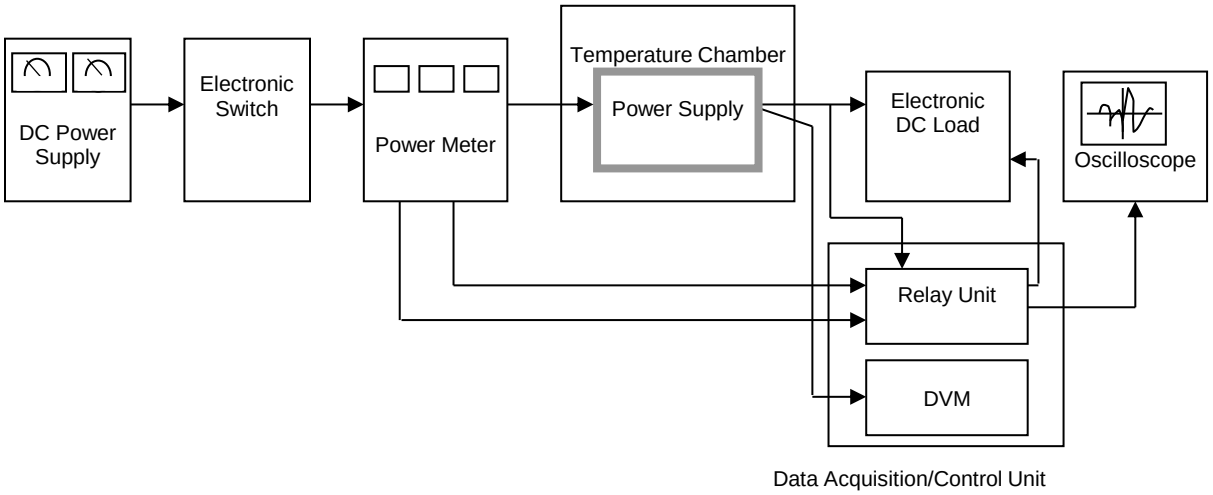


Figure A

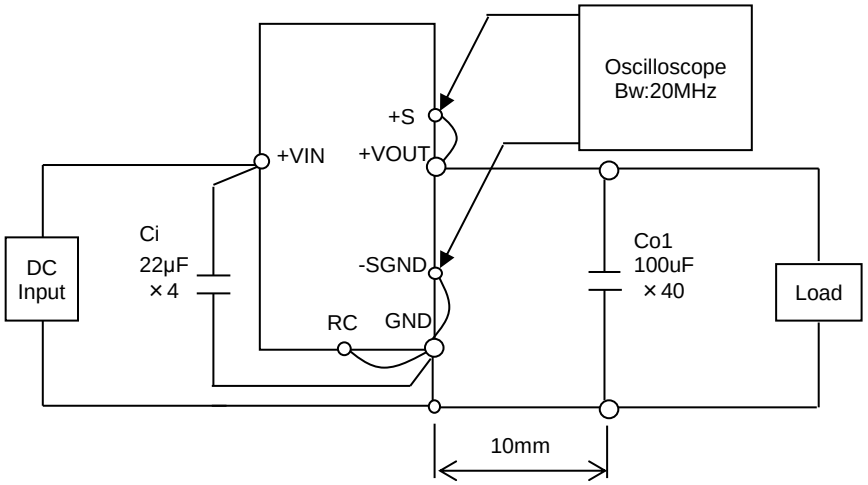


Figure B

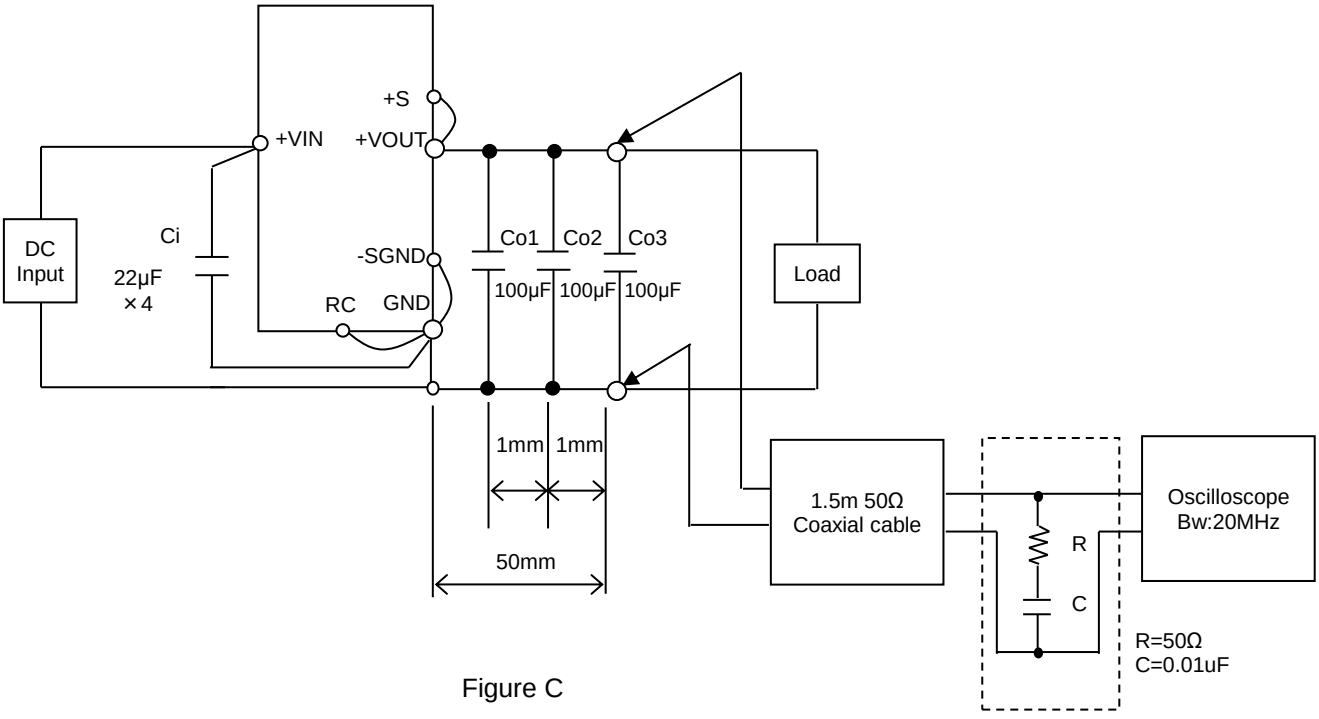


Figure C