COSEL

参考資料

TEST DATA OF BRFS150

Regulated DC Power Supply
February 20, 2018

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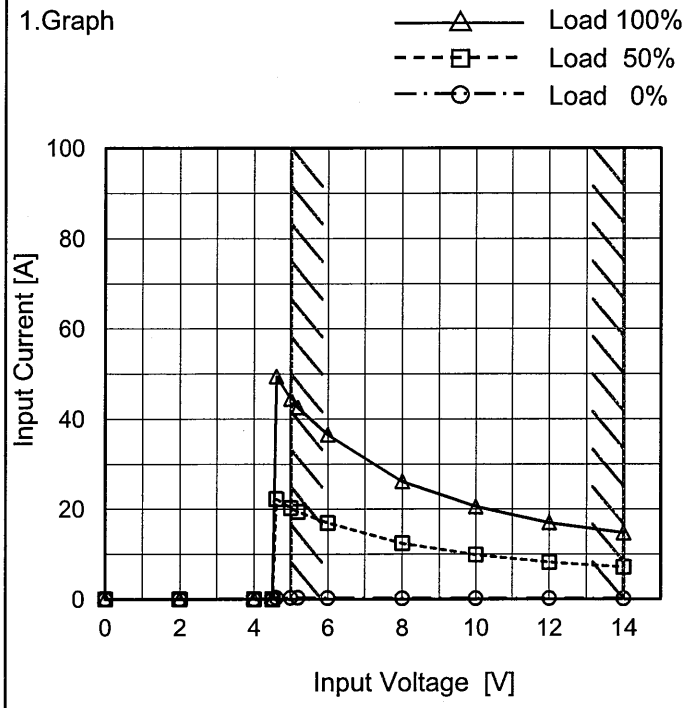
Model	BRFS150
Item	Input Current (by Input Voltage)
Object	+1.2V

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

At 1.2V output, refer to the specifications 2.6(2).

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
2.0	0.000	0.000	0.000
4.0	0.039	0.038	0.038
4.5	0.038	0.039	0.039
4.6	0.351	22.273	49.476
5.0	0.346	20.283	44.468
5.2	0.344	19.422	42.576
6.0	0.317	16.939	36.524
8.0	0.266	12.440	26.161
10.0	0.232	9.874	20.569
12.0	0.207	8.223	16.970
14.0	0.189	7.141	14.746
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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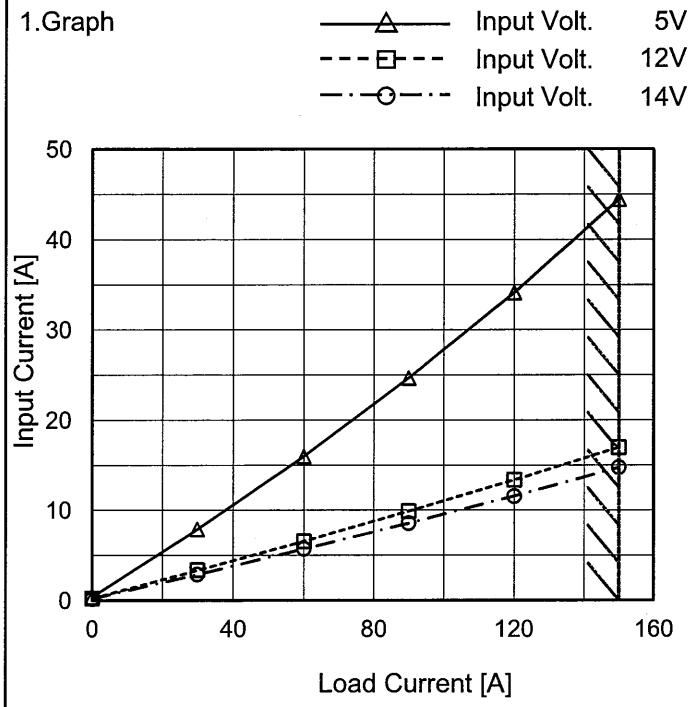
Model	BRFS150
Item	Input Current (by Load Current)
Object	+1.2V

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

At 1.2V output, refer to the specifications 2.6(2).

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	0.346	0.207	0.189
30	7.885	3.341	2.883
60	15.971	6.564	5.717
90	24.673	9.897	8.570
120	34.106	13.363	11.564
150	44.468	16.970	14.746
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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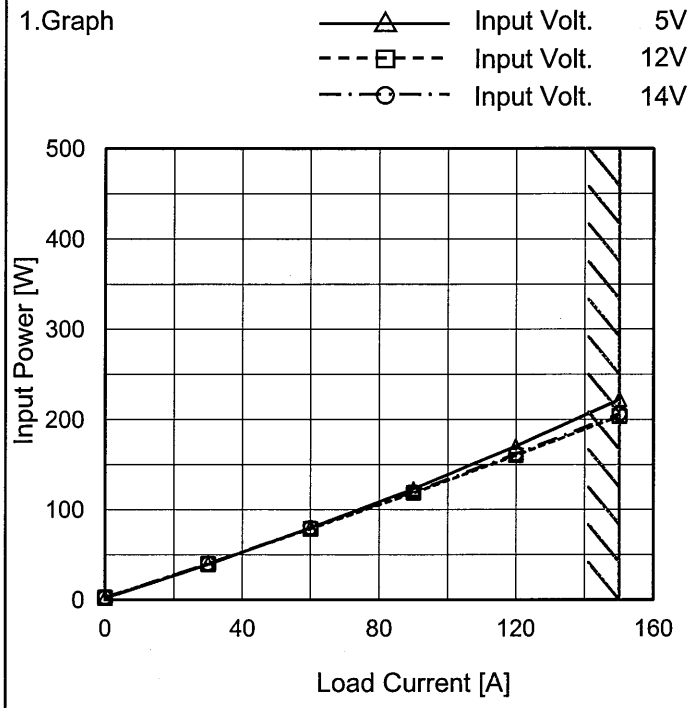
Model	BRFS150
Item	Input Power (by Load Current)
Object	+1.2V

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

At 1.2V output, refer to the specifications 2.6(2).

2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	1.7	2.5	2.7
30	39.4	40.1	40.4
60	79.8	78.7	80.0
90	123.2	118.7	119.9
120	170.4	160.3	161.9
150	222.0	203.6	206.3
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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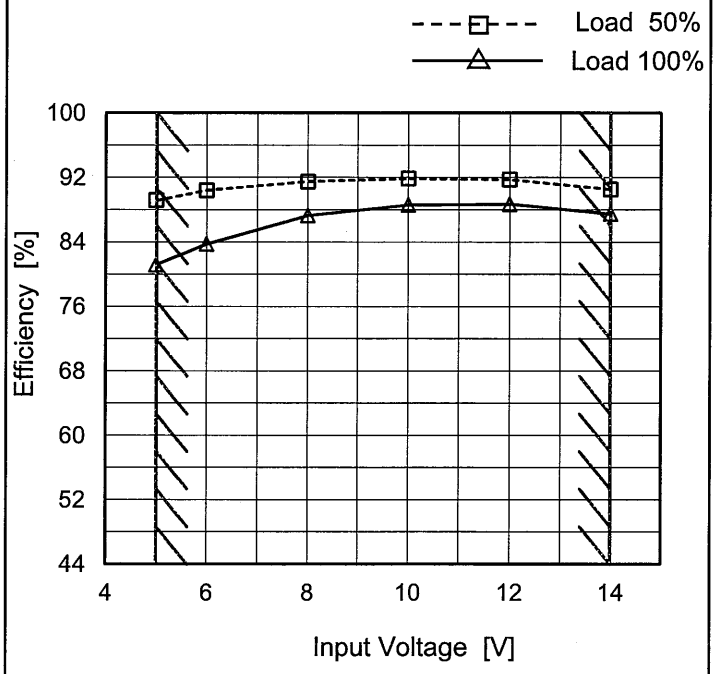
Model	BRFS150
Item	Efficiency (by Input Voltage)
Object	+1.2V

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

At 1.2V output, refer to the specifications 2.6(2).

2.Values

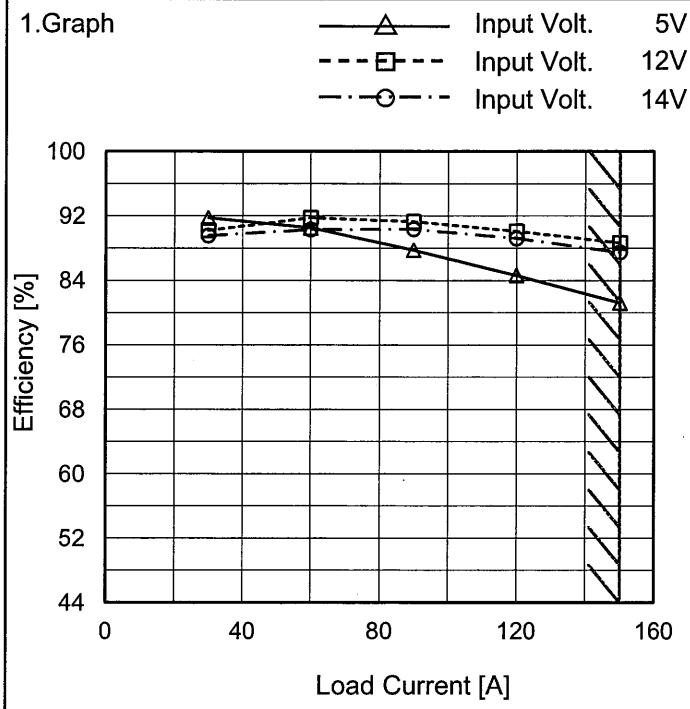
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
5	89.2	81.2
6	90.4	83.8
8	91.5	87.3
10	91.9	88.6
12	91.7	88.7
14	90.5	87.5
--	-	-
--	-	-
--	-	-

COSEL

Model	BRFS150
Item	Efficiency (by Load Current)
Object	+1.2V

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

At 1.2V output, refer to the specifications 2.6(2).

2.Values

Load Current [A]	Efficiency [%] Input Volt. 5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	-	-	-
30	91.8	90.2	89.6
60	90.5	91.8	90.3
90	87.8	91.3	90.4
120	84.6	90.1	89.2
150	81.2	88.7	87.5
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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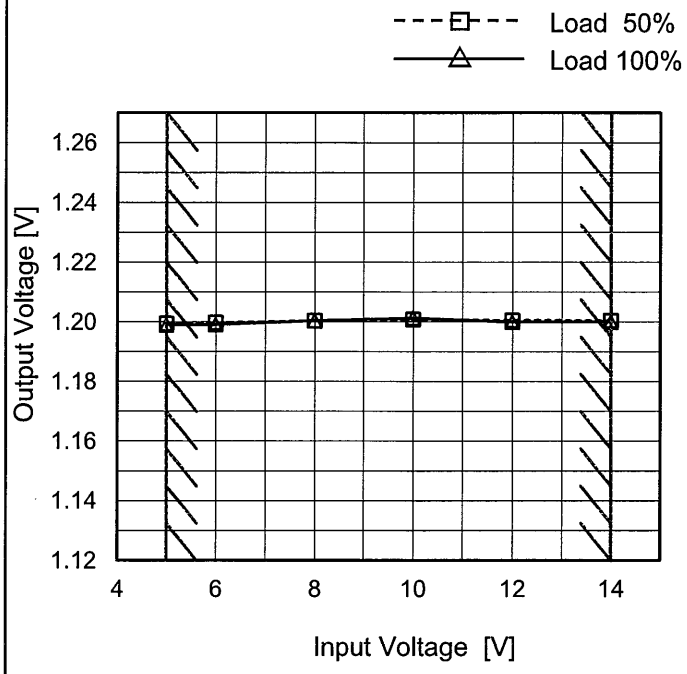
Model	BRFS150
Item	Line Regulation
Object	+1.2V150A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

At 1.2V output, refer to the specifications 2.6(2).

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
5	1.199	1.199
6	1.200	1.199
8	1.200	1.200
10	1.201	1.201
12	1.201	1.200
14	1.200	1.200
--	-	-
--	-	-
--	-	-

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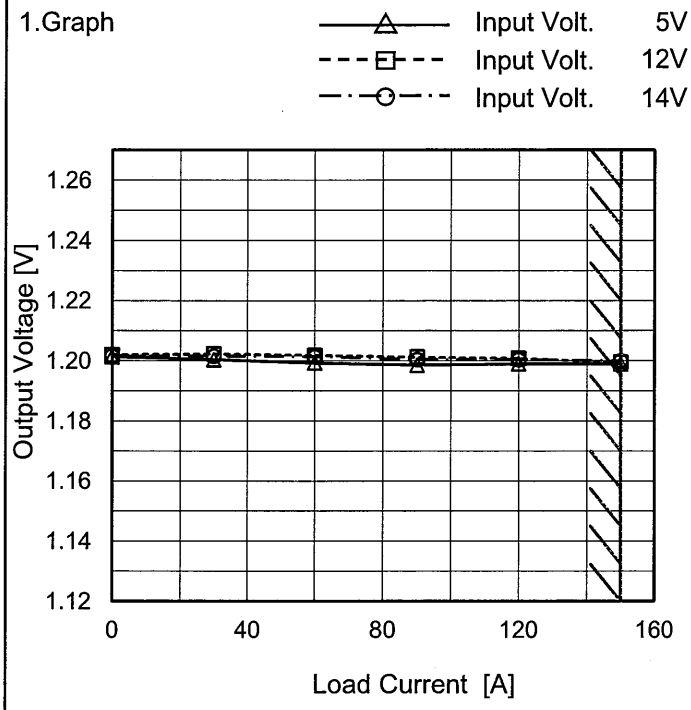
Model	BRFS150
Item	Load Regulation
Object	+1.2V150A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

At 1.2V output, refer to the specifications 2.6(2).

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	1.201	1.202	1.202
30	1.200	1.202	1.202
60	1.199	1.202	1.201
90	1.199	1.201	1.200
120	1.199	1.201	1.200
150	1.199	1.200	1.200
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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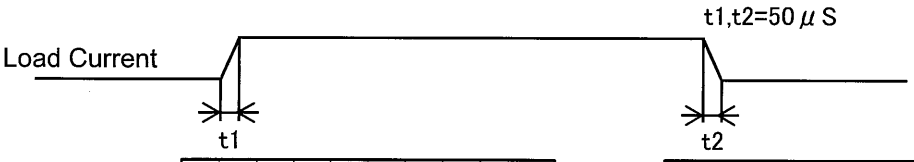
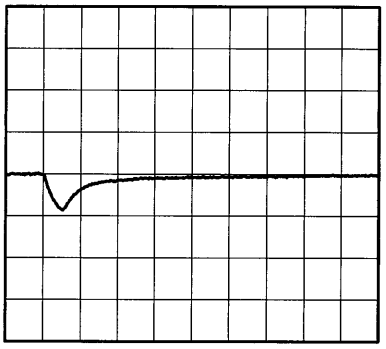
Model	BRFS150
Item	Dynamic Load Response
Object	+1.2V150A

Temperature 25°C
Testing Circuitry Figure B

Input Volt. 12 V
Cycle 5 ms

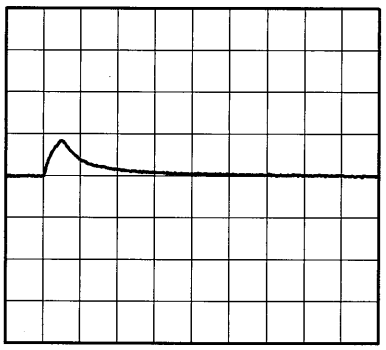


Min. Load (0A) ⟷ Load 100% (150A)



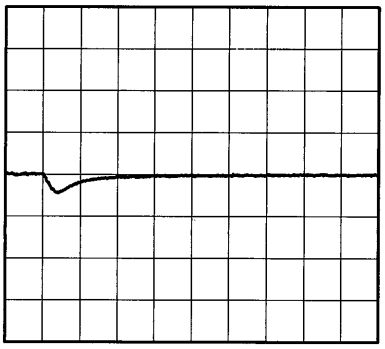
100mV/div

100 μ s/div



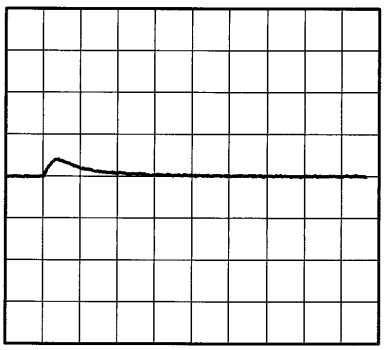
100 μ s/div

Min. Load (0A) ⟷ Load 50% (75A)



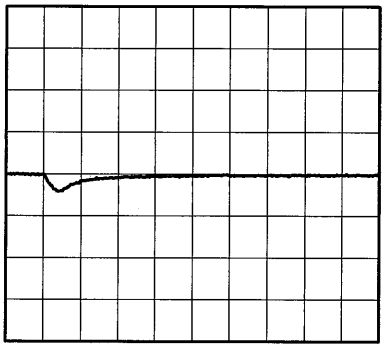
100mV/div

100 μ s/div



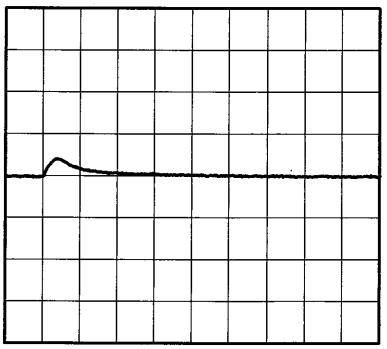
100 μ s/div

Load 50% (75A) ⟷ Load 100% (150A)



100mV/div

100 μ s/div



100 μ s/div

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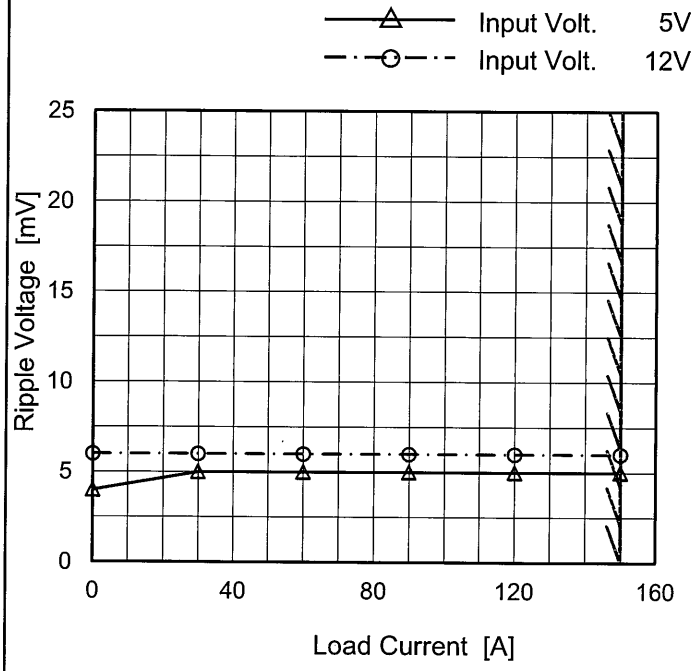
Model	BRFS150
Item	Ripple Voltage (by Load Current)
Object	+1.2V150A

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]

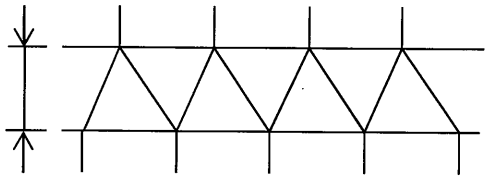


Fig.Complex Ripple Wave Form

2.Values

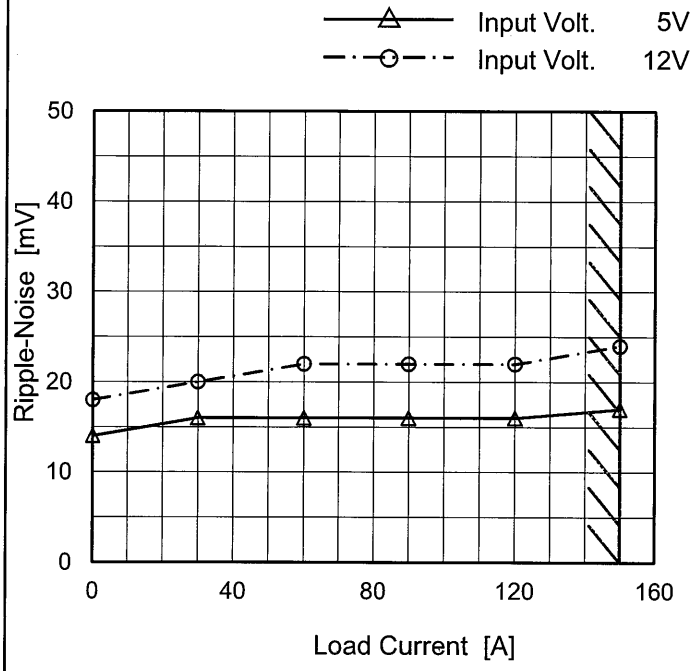
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 5 [V]	Input Volt. 12 [V]
0	4	6
30	5	6
60	5	6
90	5	6
120	5	6
150	5	6
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	BRFS150
Item	Ripple-Noise
Object	+1.2V150A

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.

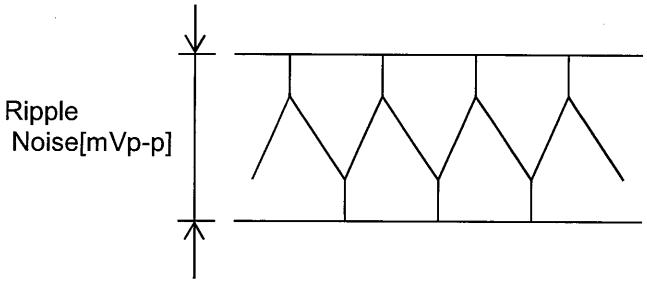


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV] Input Volt. 5 [V]	Ripple-Noise [mV] Input Volt. 12 [V]
0	14	18
30	16	20
60	16	22
90	16	22
120	16	22
150	17	24
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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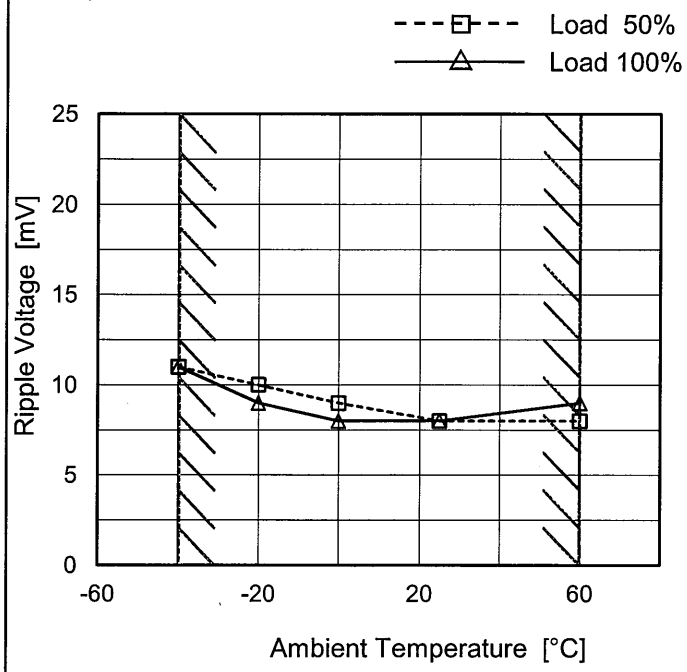
Model	BRFS150
Item	Ripple Voltage (by Ambient Temp.)
Object	+1.2V150A

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]

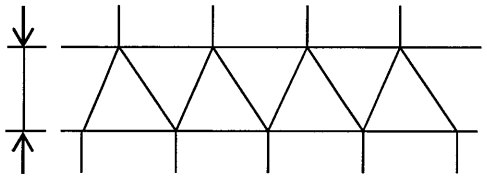


Fig.Complex Ripple Wave Form

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	11	11
-20	10	9
0	9	8
25	8	8
60	8	9
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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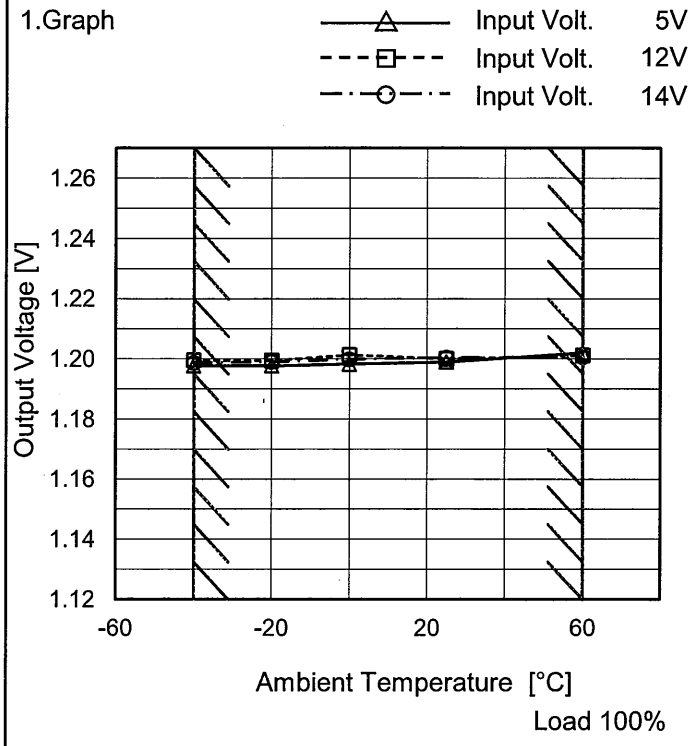
Model	BRFS150
Item	Ambient Temperature Drift
Object	+1.2V150A

Testing Circuitry Figure A

1.Graph



Load 100%

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

At 1.2V output, refer to the specifications 2.6(2).

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 5[V]	Input Volt. 12[V]	Input Volt. 14[V]
-40	1.198	1.200	1.199
-20	1.198	1.199	1.199
0	1.198	1.201	1.200
25	1.199	1.200	1.200
60	1.202	1.201	1.201
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	BRFS150	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+1.2V150A	

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 - 60°C
Input Voltage : 5 - 14V (At 1.2V output, refer to the specifications 2.6(2).)
Load Current : 0 - 150A

* 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	60	5	0	1.203	±3	±0.3
Minimum Voltage	-40	5	150	1.198		

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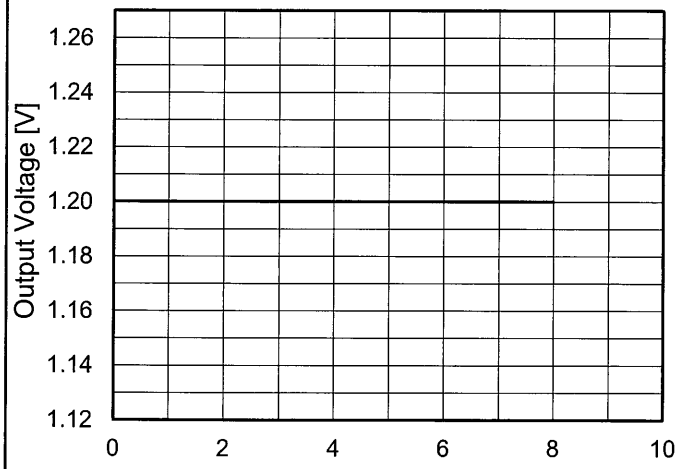
Model	BRFS150
Item	Time Lapse Drift
Object	+1.2V150A

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

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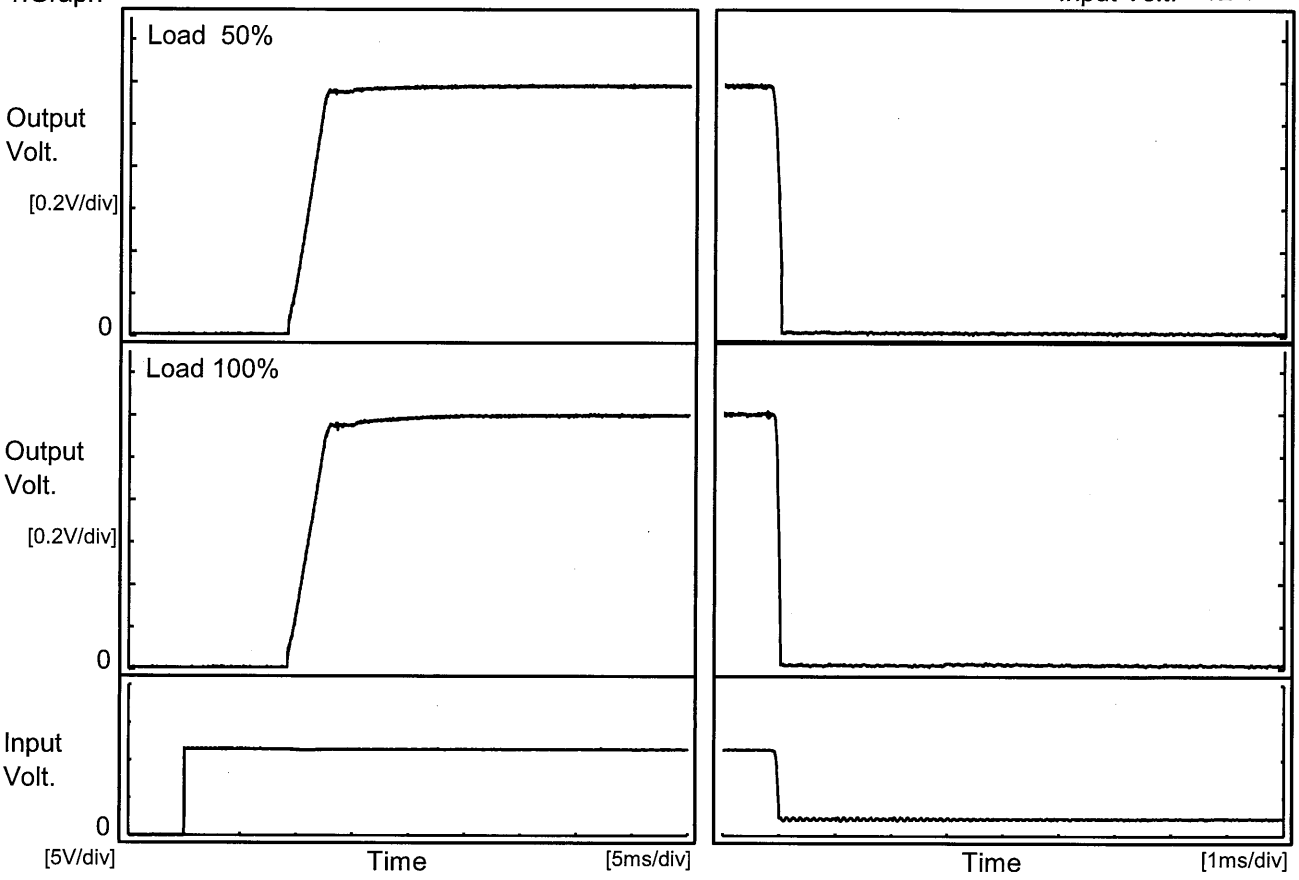
Model	BRFS150
Item	Rise and Fall Time
Object	+1.2V150A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

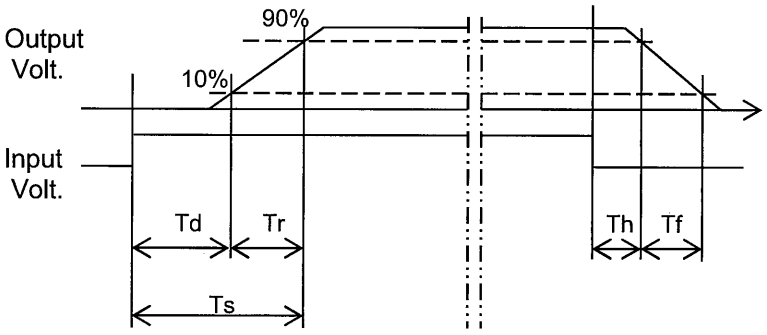
Input Volt. 12 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	9.5	2.9	12.4	0.1	0.3
100 %	9.5	3.1	12.6	0.1	0.3

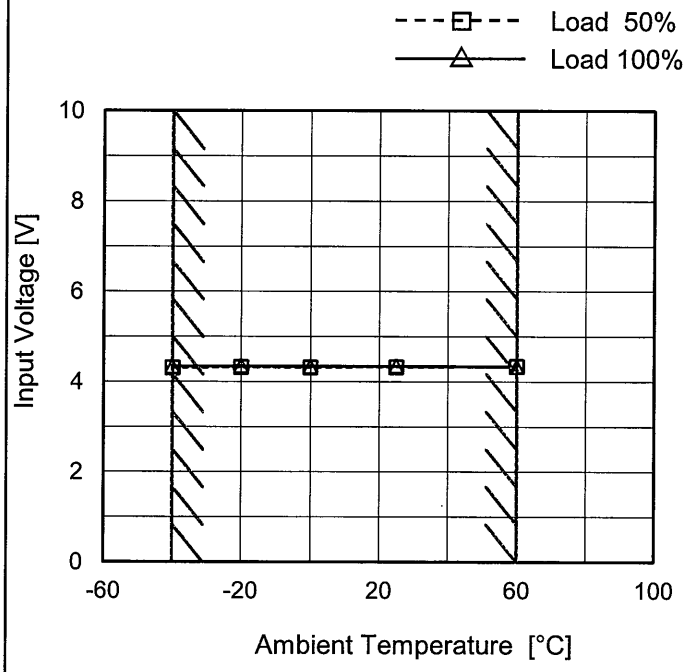


COSEL

Model	BRFS150
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+1.2V150A

Testing Circuitry Figure A

1.Graph



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

At 1.2V output, refer to the specifications 2.6(2).

2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	4.31	4.34
-20	4.32	4.35
0	4.32	4.34
25	4.33	4.35
60	4.34	4.34
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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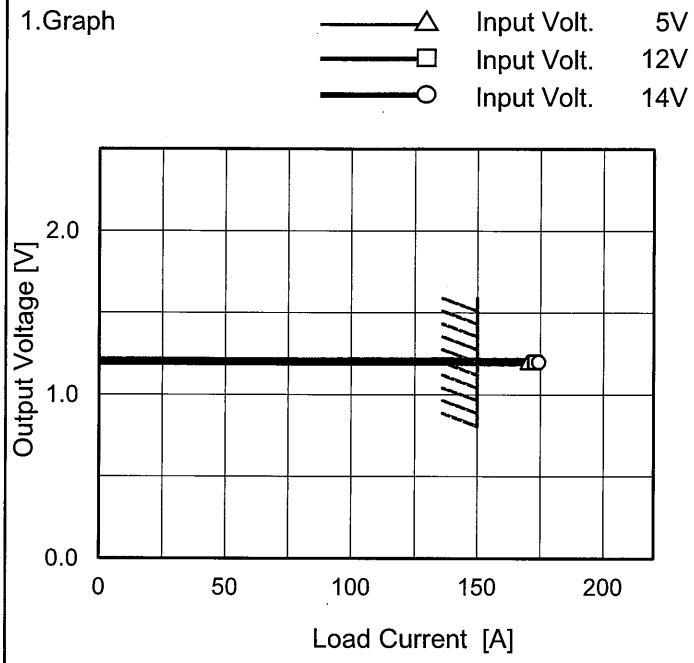
Model	BRFS150
Item	Overcurrent Protection
Object	+1.2V150A

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.

At 1.2V output, refer to the specifications 2.6(2).

2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 5[V]	Input Volt. 12[V]	Input Volt. 14[V]
1.20	169.77	172.78	174.32
1.14	-	-	-
1.08	-	-	-
0.96	-	-	-
0.84	-	-	-
0.72	-	-	-
0.60	-	-	-
0.48	-	-	-
0.36	-	-	-
0.24	-	-	-
0.12	-	-	-
0.00	-	-	-

COSEL

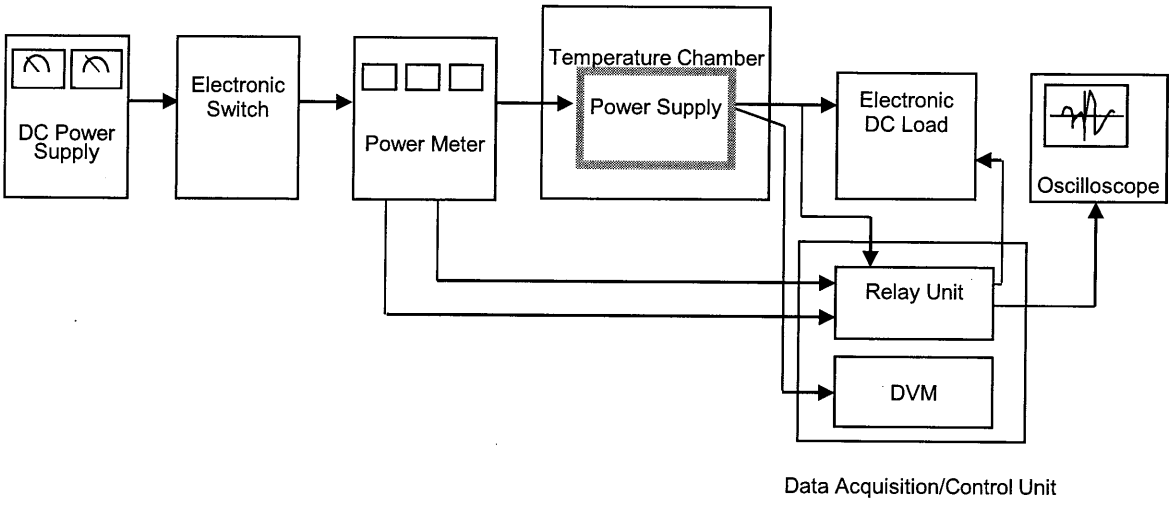


Figure A

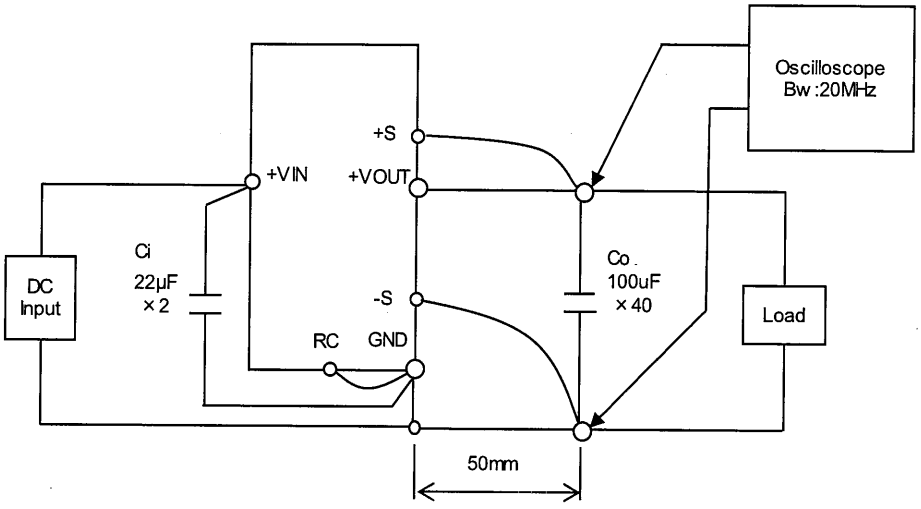


Figure B

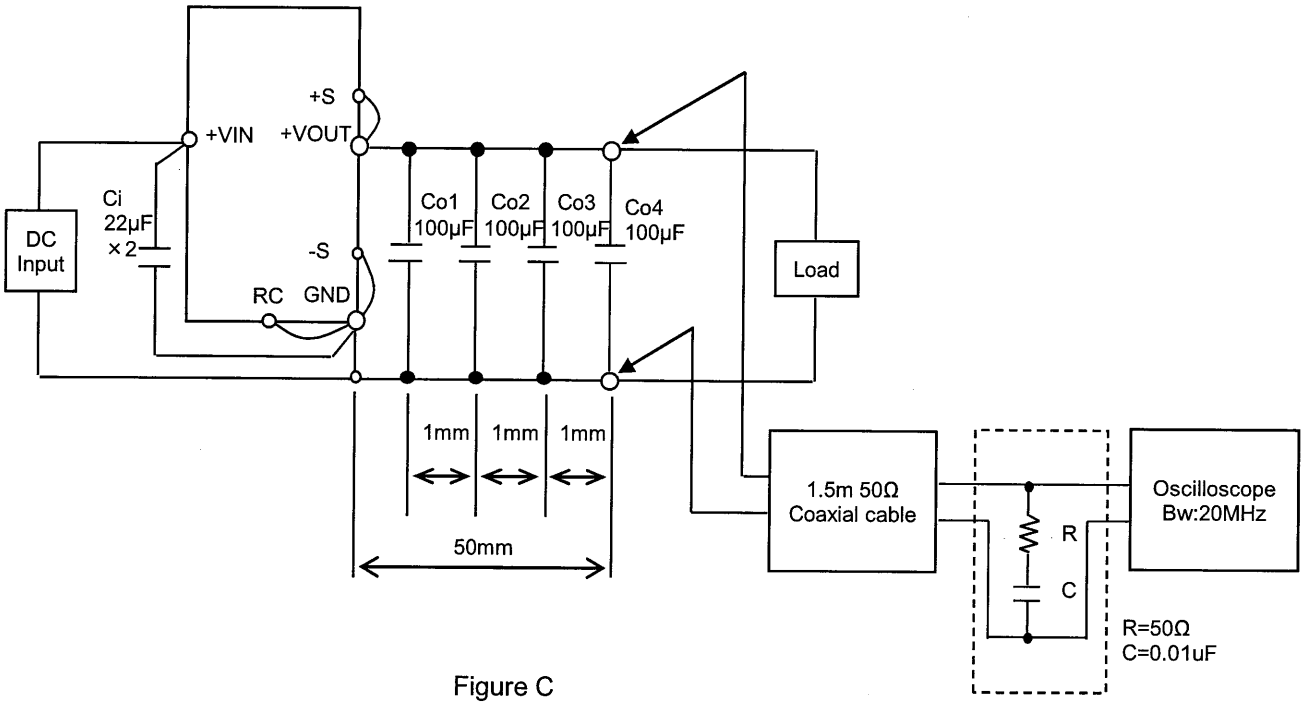


Figure C