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参考資料

TEST DATA OF BRDS60S

Regulated DC Power Supply
June 7, 2017

Approved by : Yoshimichi Hirokawa
Yoshimichi Hirokawa Design Manager

Prepared by : Yasuhiro Masuya
Yasuhiro Masuya Design Engineer

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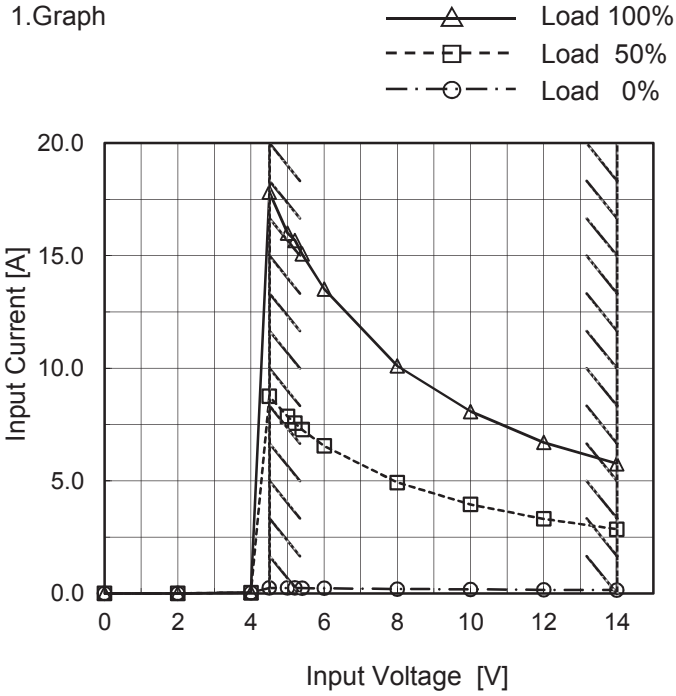
Model	BRDS60S
Item	Input Current (by Input Voltage)
Object	+1.2V

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

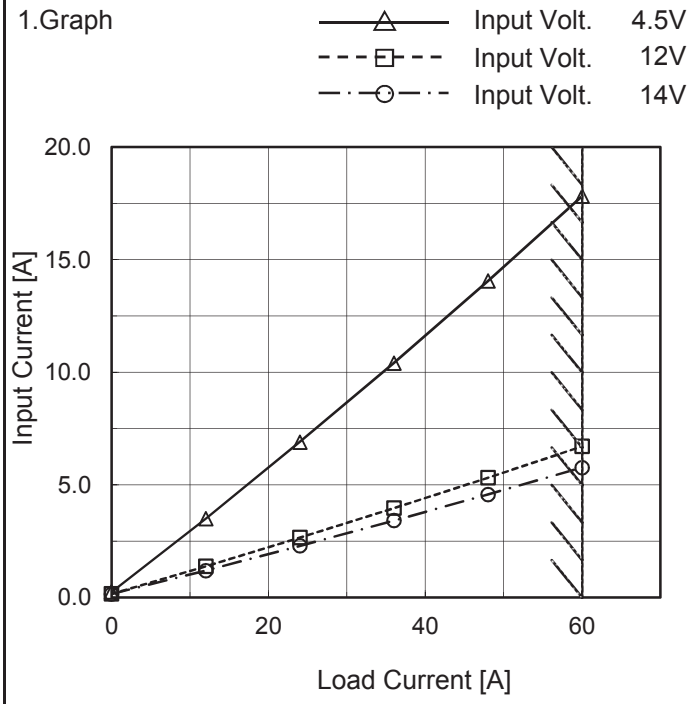
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
2.0	0.000	0.000	0.000
4.0	0.034	0.034	0.034
4.5	0.244	8.755	17.818
5.0	0.241	7.862	16.005
5.2	0.241	7.558	15.681
5.4	0.237	7.279	15.075
6.0	0.225	6.551	13.524
8.0	0.196	4.928	10.103
10.0	0.176	3.955	8.081
12.0	0.159	3.311	6.712
14.0	0.147	2.848	5.766
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC - 11166

Model	BRDS60S
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.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	0.244	0.159	0.147
12	3.500	1.377	1.190
24	6.898	2.658	2.289
36	10.408	3.967	3.410
48	14.052	5.316	4.569
60	17.818	6.712	5.766
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC - 11166

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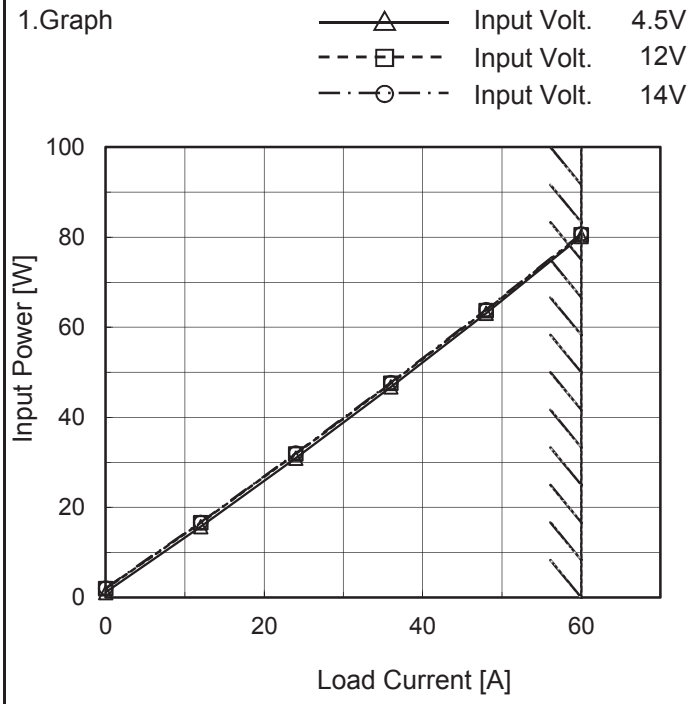
Model	BRDS60S
Item	Input Power (by Load Current)
Object	+1.2V

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

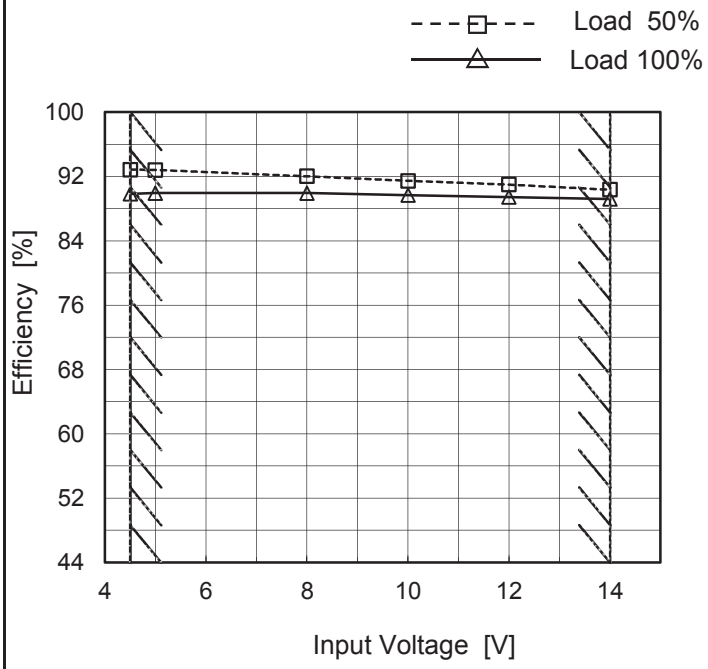
2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	1.10	1.91	2.06
12	15.70	16.55	16.68
24	30.96	31.89	32.06
36	46.75	47.53	47.74
48	63.09	63.72	63.93
60	80.18	80.54	80.72
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	BRDS60S
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.

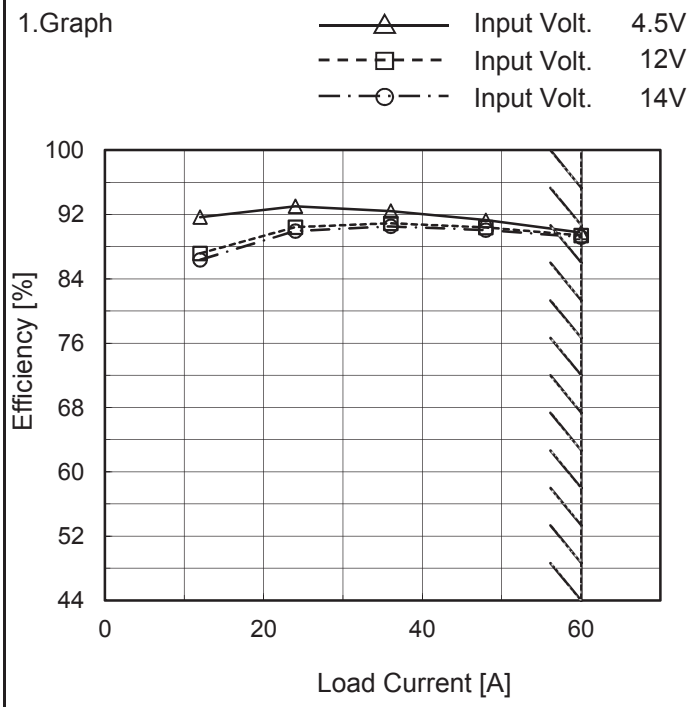
2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
4.5	92.8	89.8
5.0	92.8	89.9
8.0	92.0	89.9
10.0	91.4	89.7
12.0	91.0	89.4
14.0	90.4	89.2
--	-	-
--	-	-
--	-	-

Model	BRDS60S
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.

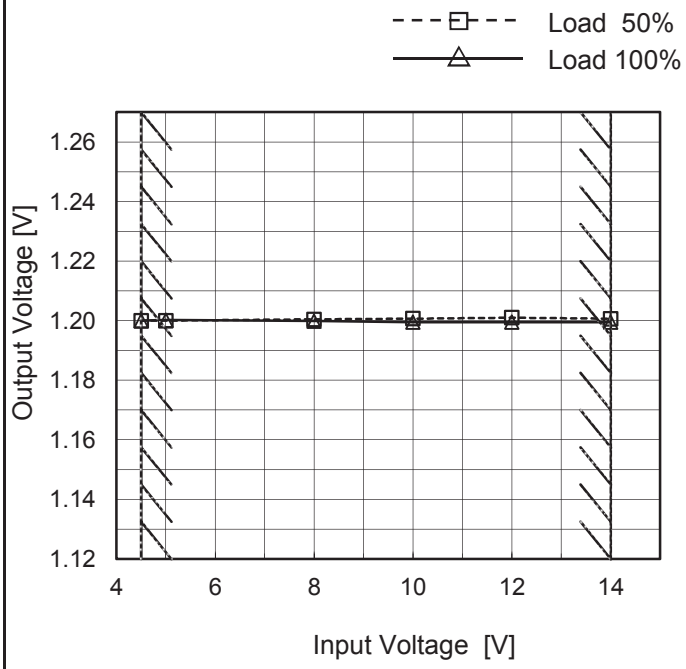
2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	-	-	-
12	91.7	87.1	86.4
24	93.0	90.4	89.9
36	92.4	90.9	90.5
48	91.3	90.4	90.1
60	89.8	89.4	89.2
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	BRDS60S
Item	Line Regulation
Object	+1.2V60A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

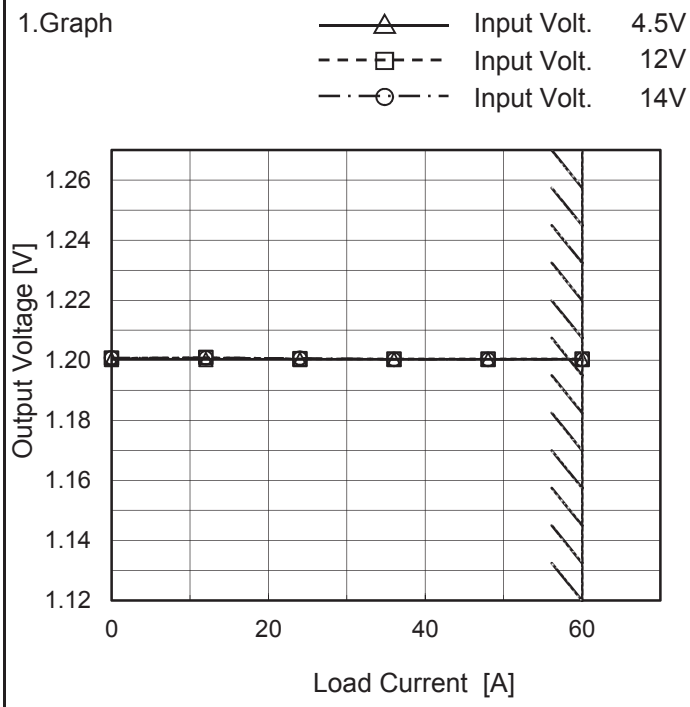
2.Values

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

Model	BRDS60S
Item	Load Regulation
Object	+1.2V60A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

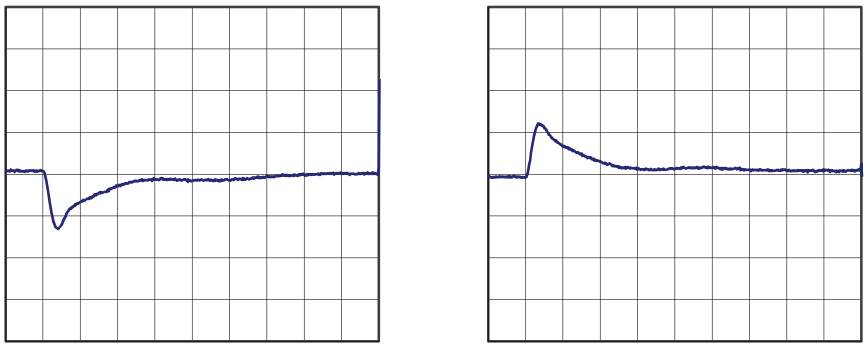
2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 4.5[V]	Input Volt. 12[V]	Input Volt. 14[V]
0	1.200	1.201	1.201
12	1.200	1.201	1.201
24	1.200	1.201	1.201
36	1.200	1.200	1.200
48	1.200	1.200	1.200
60	1.200	1.200	1.200
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	BRDS60S	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure B
Object	+1.2V60A	

Input Volt. 12 V
Cycle 5 ms

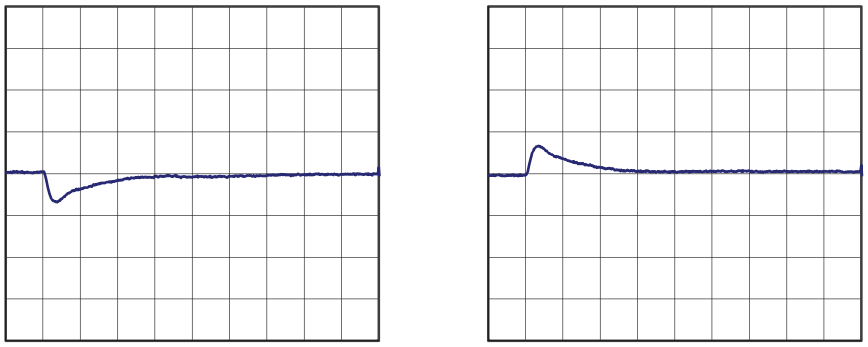
Min. Load (0A) ⟷
Load 100% (60A)



100mV/div

100 μ s/div 100 μ s/div

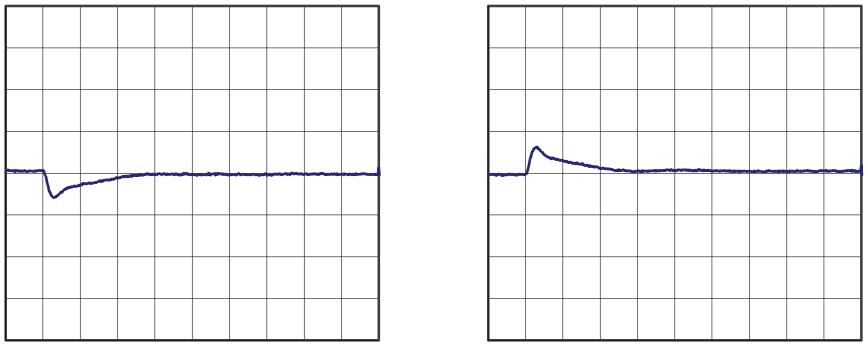
Min. Load (0A) ⟷
Load 50% (30A)



100mV/div

100 μ s/div 100 μ s/div

Load 50% (30A) ⟷
Load 100% (60A)



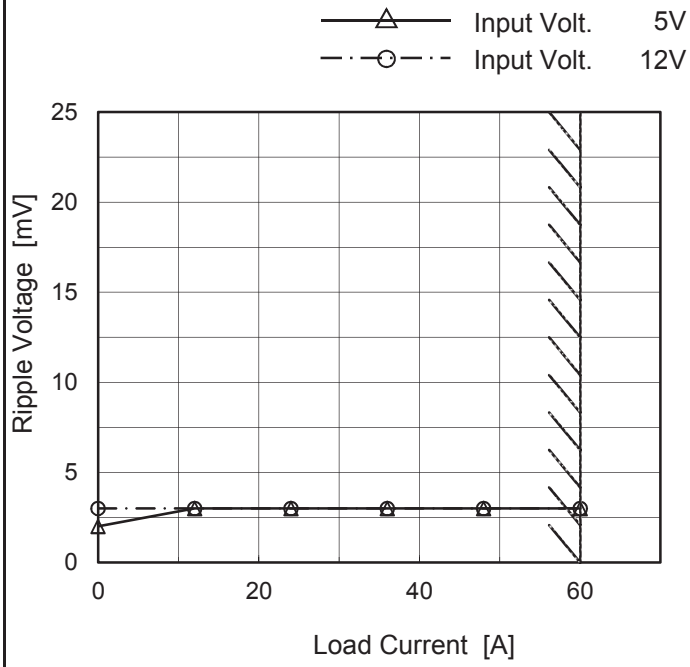
100mV/div

100 μ s/div 100 μ s/div

Model	BRDS60S
Item	Ripple Voltage (by Load Current)
Object	+1.2V60A

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]

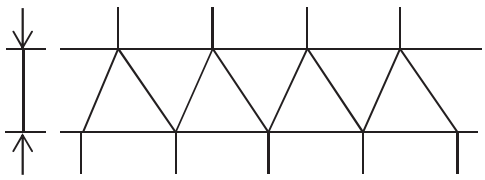


Fig.Complex Ripple Wave Form

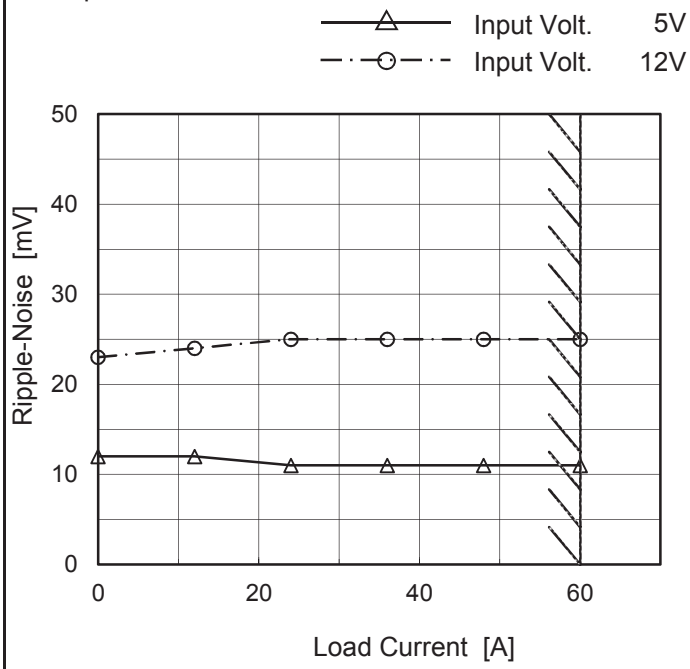
2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 5 [V]	Input Volt. 12 [V]
0	2	3
12	3	3
24	3	3
36	3	3
48	3	3
60	3	3
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

Model	BRDS60S
Item	Ripple-Noise
Object	+1.2V60A

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.

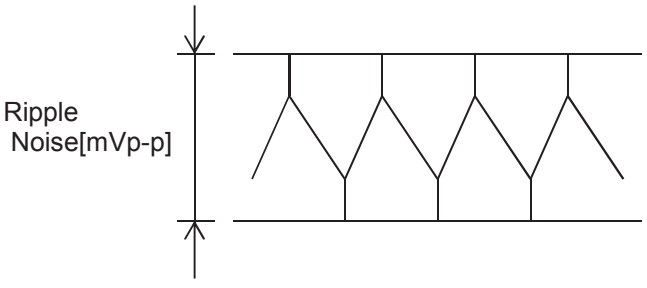


Fig.Complex Ripple Noise Wave Form

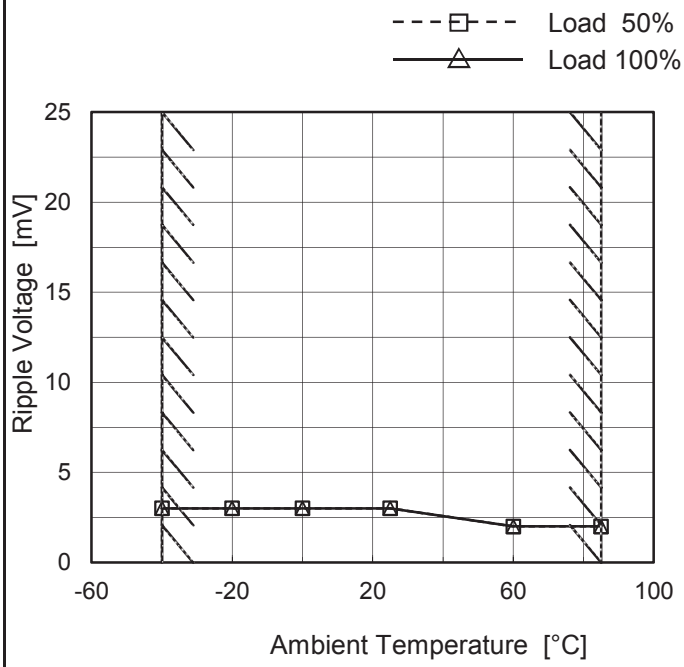
2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 5 [V]	Input Volt. 12 [V]
0	12	23
12	12	24
24	11	25
36	11	25
48	11	25
60	11	25
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

Model	BRDS60S
Item	Ripple Voltage (by Ambient Temp.)
Object	+1.2V60A

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.

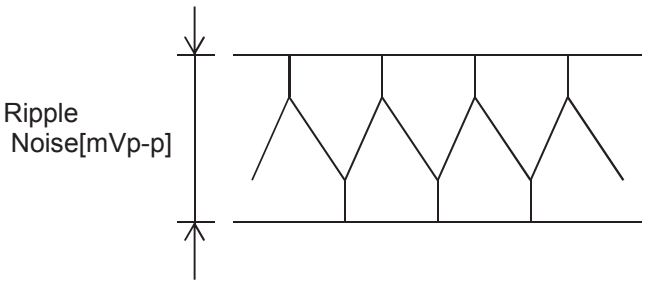


Fig.Complex Ripple Noise Wave Form

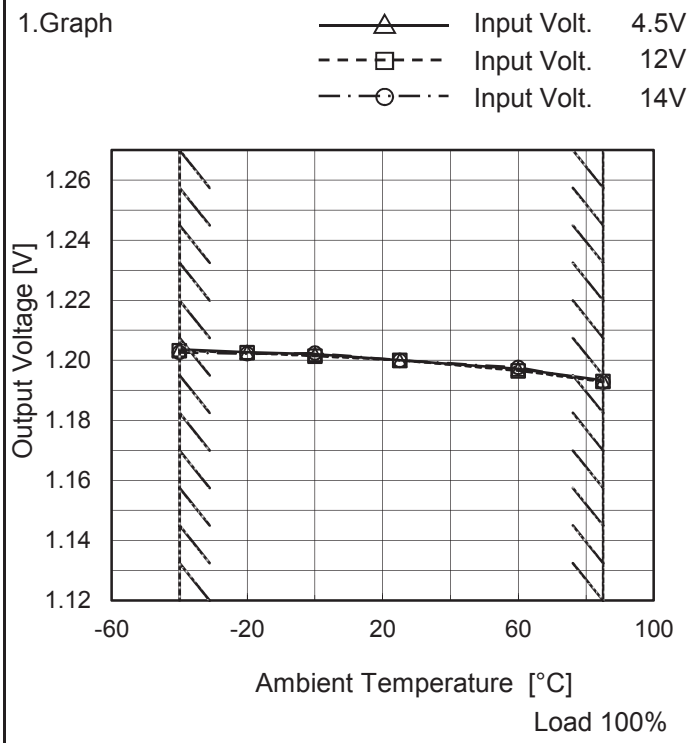
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	3	3
-20	3	3
0	3	3
25	3	3
60	2	2
85	2	2
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

Model	BRDS60S
Item	Ambient Temperature Drift
Object	+1.2V60A

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	1.204	1.203	1.203
-20	1.203	1.203	1.202
0	1.202	1.201	1.202
25	1.200	1.200	1.200
60	1.197	1.197	1.198
85	1.193	1.193	1.193
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	BRDS60S	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+1.2V60A	

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 - 60A

* 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	4.5	60	1.204	±6	±0.5
Minimum Voltage	85	14	60	1.193		

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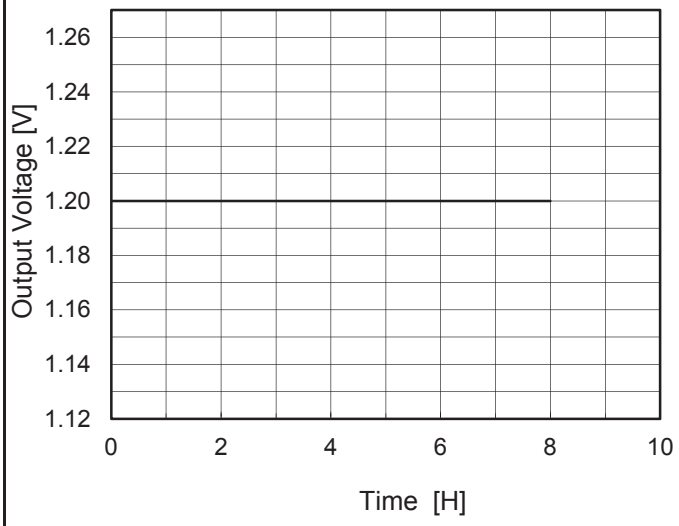
Model	BRDS60S
Item	Time Lapse Drift
Object	+1.2V60A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 12V
Load 100%

2.Values

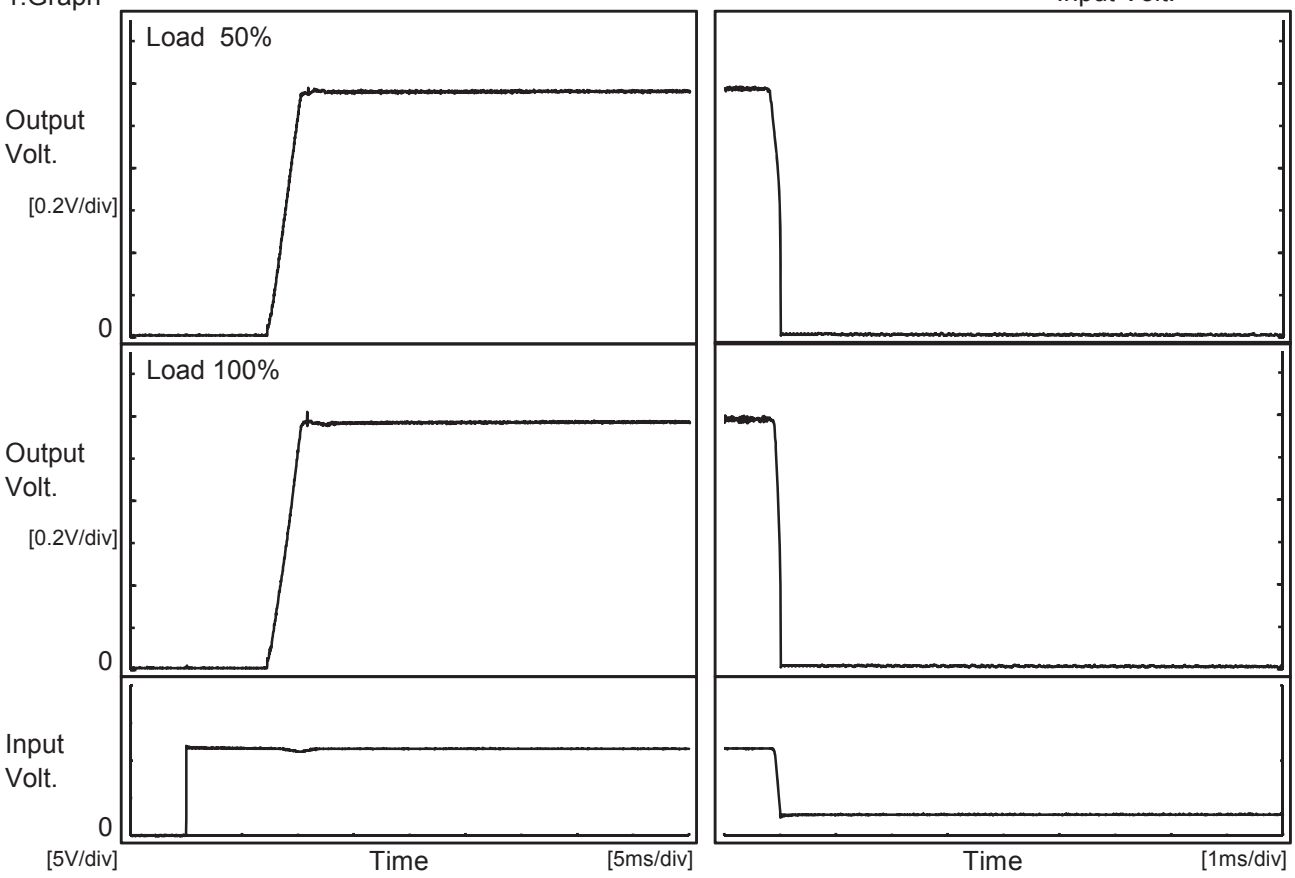
Time since start [H]	Output Voltage [V]
0.0	1.200
0.5	1.200
1.0	1.200
2.0	1.200
3.0	1.200
4.0	1.200
5.0	1.200
6.0	1.200
7.0	1.200
8.0	1.200

Model	BRDS60S
Item	Rise and Fall Time
Object	+1.2V60A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

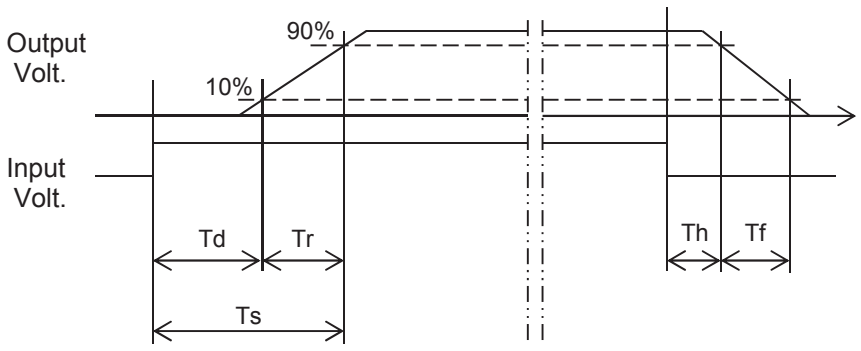
Input Volt. 12 V



2.Values

[ms]

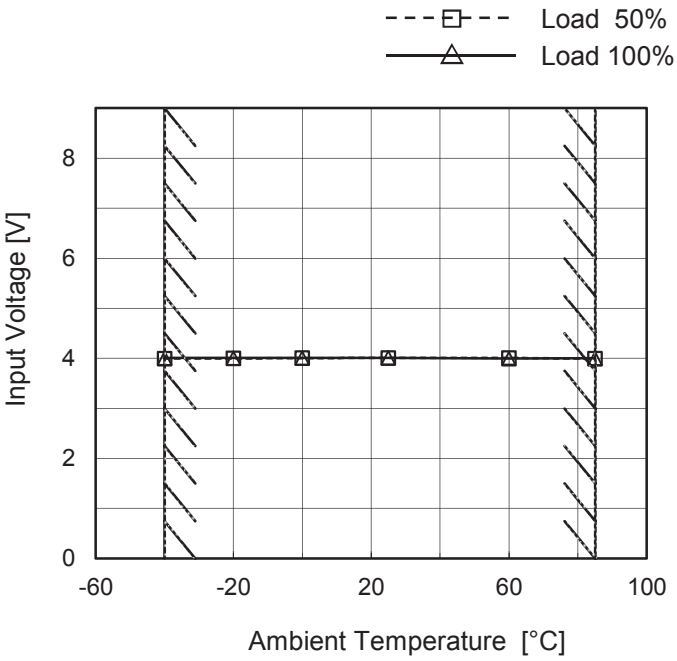
Load \ Time	Td	Tr	Ts	Th	Tf
50 %	7.7	2.4	10.1	0.1	0.4
100 %	7.7	2.6	10.3	0.1	0.3



Model	BRDS60S
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+1.2V60A

Testing Circuitry Figure A

1.Graph



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

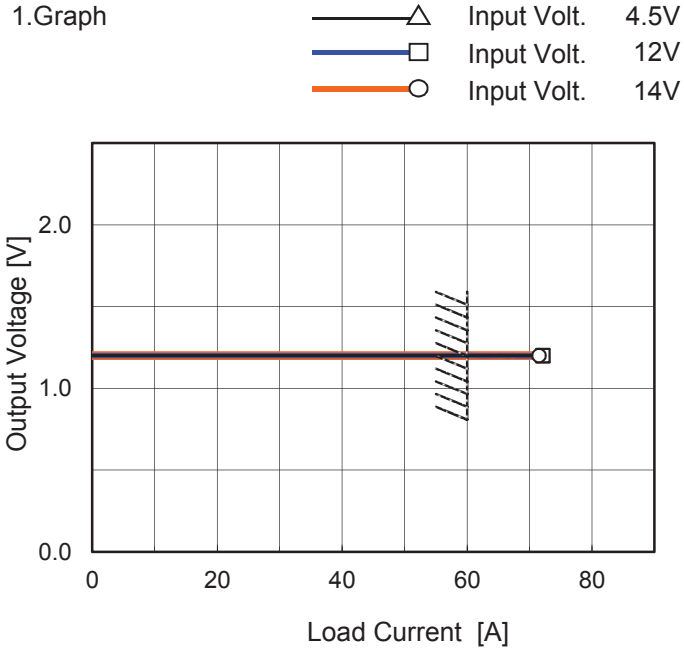
2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	4.00	4.01
-20	4.00	4.01
0	4.01	4.01
25	4.01	4.01
60	4.01	4.00
85	4.00	4.00
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

Model	BRDS60S
Item	Overcurrent Protection
Object	+1.2V60A

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	72.11	72.11	71.49
1.14	-	-	-
1.08	-	-	-
0.96	-	-	-
0.84	-	-	-
0.72	-	-	-
0.60	-	-	-
0.48	-	-	-
0.36	-	-	-
0.24	-	-	-
0.12	-	-	-
0.00	-	-	-

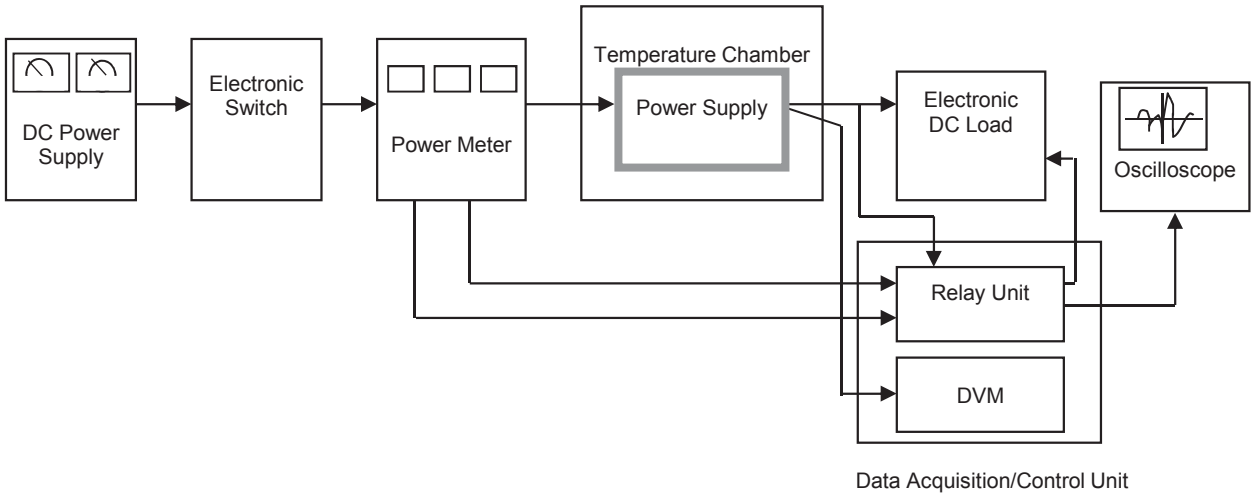


Figure A

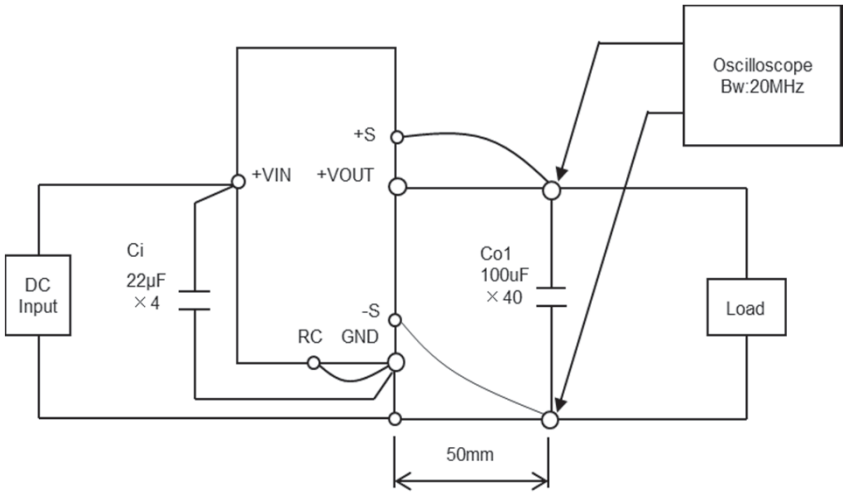


Figure B

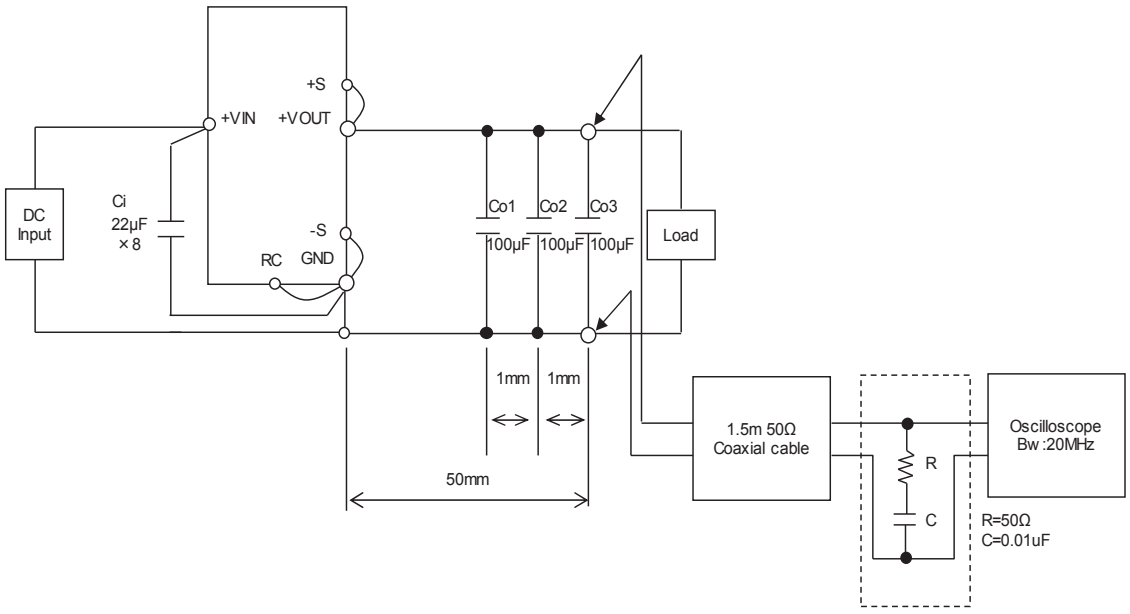


Figure C