COSEL

参考資料

TEST DATA OF CBS4504832

Regulated DC Power Supply
Aug 29, 2008

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COSEL CO.,LTD.

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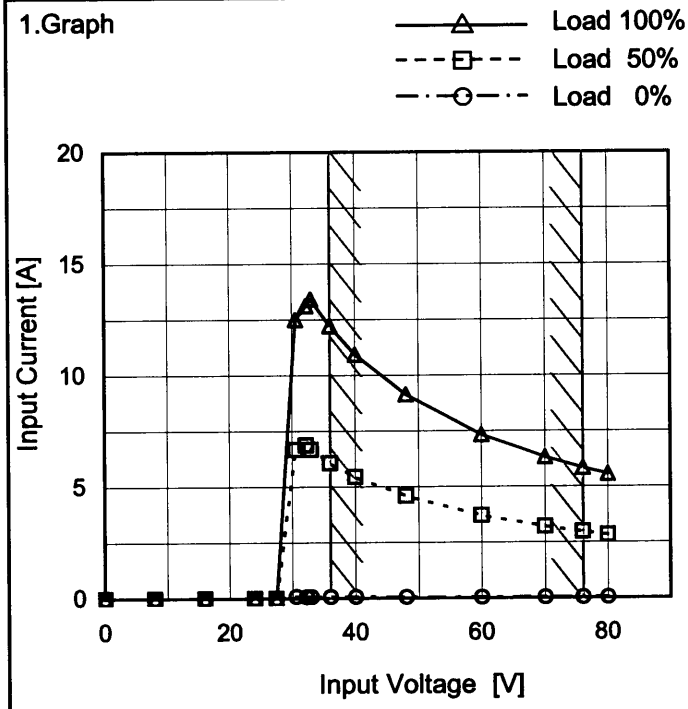


Note: Slanted line shows the range of the rated input voltage.

2.Values

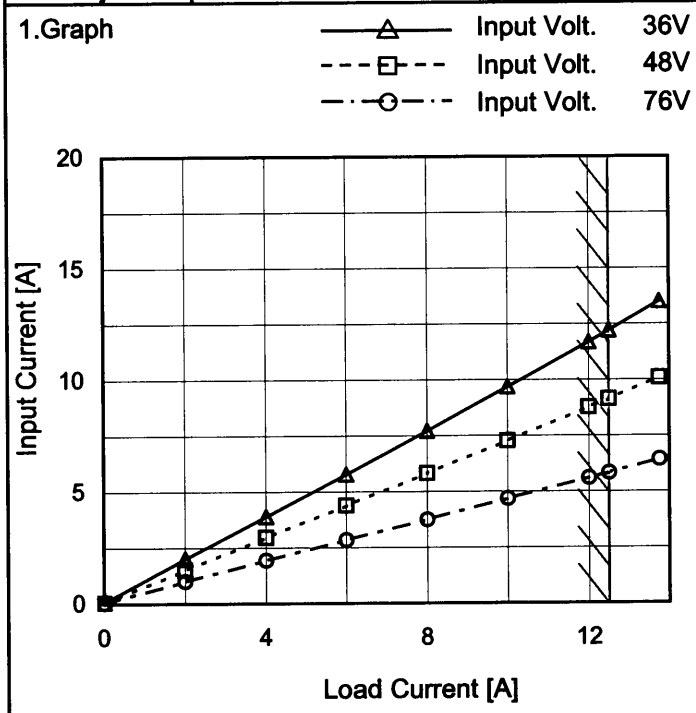
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
8.0	0.002	0.002	0.002
16.0	0.000	0.000	0.002
24.0	0.006	0.006	0.006
27.4	0.006	0.006	0.006
30.6	0.079	6.660	12.500
32.2	0.078	6.870	13.120
33.0	0.077	6.660	13.420
36.0	0.074	6.060	12.210
40.0	0.072	5.450	10.930
48.0	0.060	4.580	9.140
60.0	0.047	3.704	7.330
70.0	0.041	3.206	6.320
76.0	0.040	2.968	5.840
80.0	0.038	2.830	5.560
—	-	-	-
—	-	-	-
—	-	-	-

COSEL

Model	CBS4504832
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]
0.00	0.074	0.060	0.040
2.00	2.010	1.514	1.011
4.00	3.888	2.956	1.940
6.00	5.780	4.382	2.844
8.00	7.720	5.820	3.754
10.00	9.680	7.270	4.680
12.00	11.680	8.760	5.610
12.50	12.210	9.140	5.840
13.75	13.510	10.080	6.440
—	-	-	-
—	-	-	-

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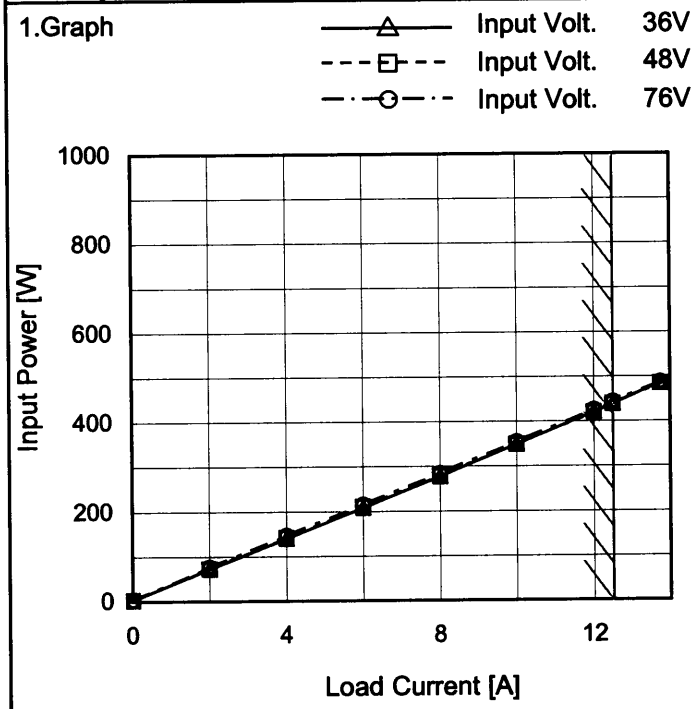
Model	CBS4504832
Item	Input Power (by Load Current)
Object	————————

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]
0.00	2.7	2.9	3.0
2.00	72.2	72.7	76.8
4.00	140.0	141.8	147.3
6.00	208.6	210.2	215.7
8.00	277.9	279.4	285.0
10.00	349.0	349.3	355.0
12.00	421.0	420.5	426.0
12.50	439.0	439.0	444.0
13.75	486.0	484.0	488.0
—	-	-	-
—	-	-	-

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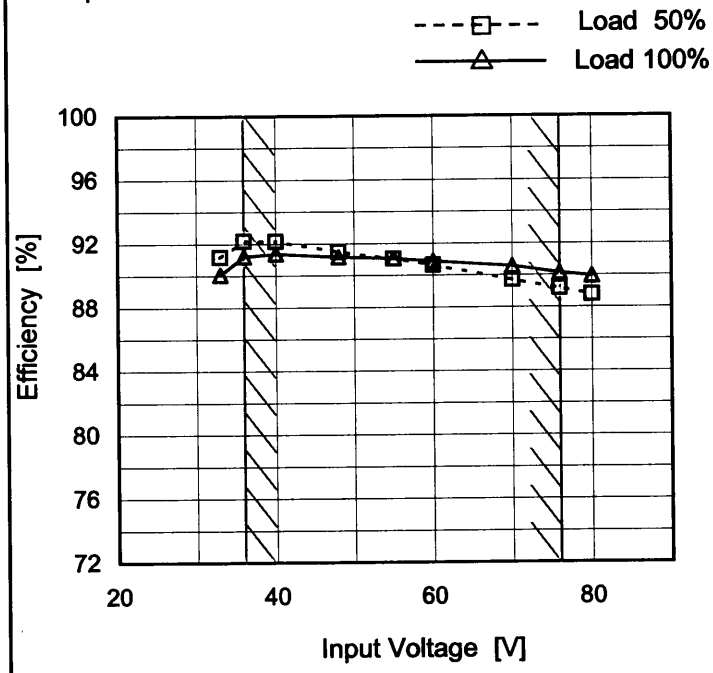
COSEL

Model	CBS4504832
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%
33	91.2	90.1
36	92.2	91.2
40	92.2	91.4
48	91.5	91.2
55	91.0	91.1
60	90.6	90.9
70	89.7	90.6
76	89.2	90.2
80	88.8	89.9

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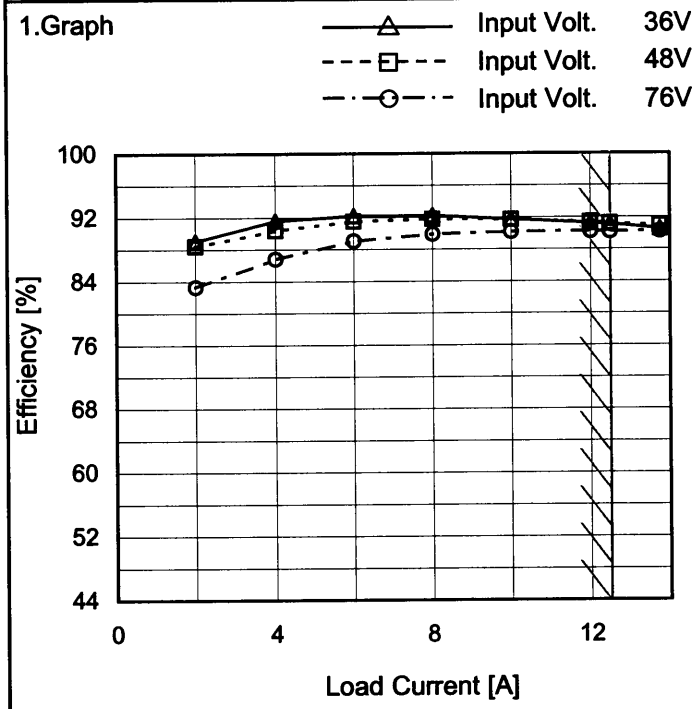
Model	CBS4504832
Item	Efficiency (by Load Current)
Object	———————

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]
0.00	-	-	-
2.00	89.1	88.4	83.3
4.00	91.6	90.4	86.8
6.00	92.2	91.5	89.1
8.00	92.2	91.8	89.9
10.00	91.7	91.7	90.2
12.00	91.3	91.4	90.2
12.50	91.2	91.2	90.2
13.75	90.6	90.9	90.2
—	-	-	-
—	-	-	-

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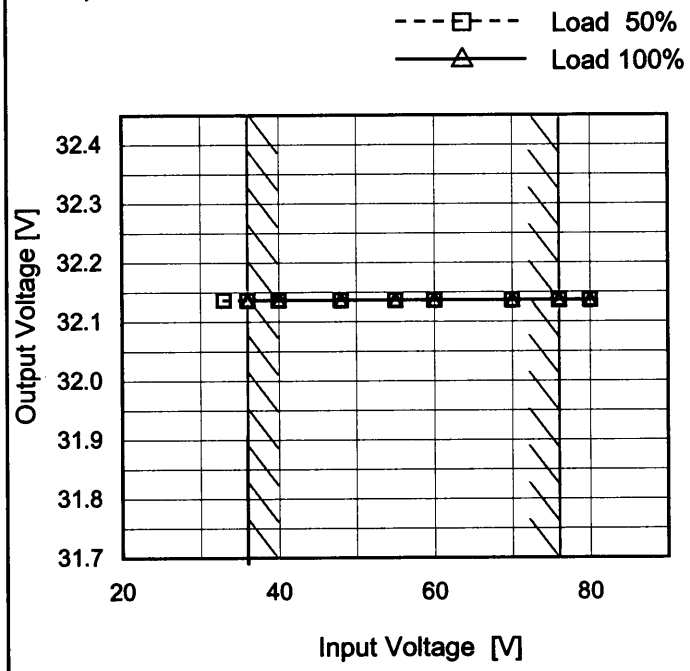
Model	CBS4504832
Item	Line Regulation
Object	+32V12.5A

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%
33	32.137	-
36	32.137	32.137
40	32.137	32.137
48	32.137	32.137
55	32.137	32.137
60	32.137	32.137
70	32.137	32.137
76	32.137	32.137
80	32.137	32.137

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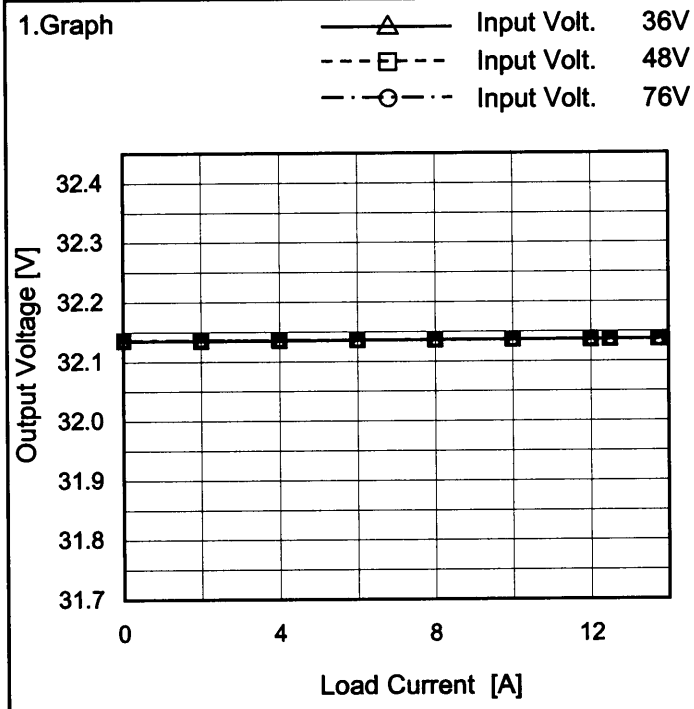
Model	CBS4504832
Item	Load Regulation
Object	+32V12.5A

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]
0.00	32.135	32.136	32.136
2.00	32.135	32.136	32.136
4.00	32.136	32.136	32.136
6.00	32.136	32.136	32.136
8.00	32.136	32.136	32.136
10.00	32.137	32.137	32.136
12.00	32.137	32.137	32.137
12.50	32.137	32.137	32.137
13.75	32.137	32.137	32.137
--	-	-	-
--	-	-	-

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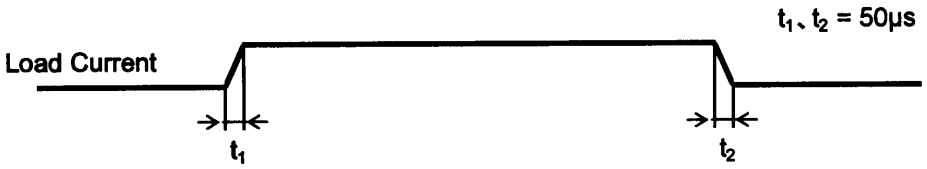
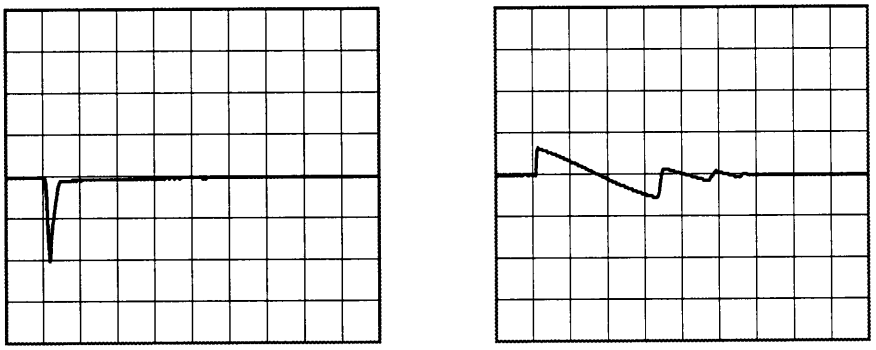
Model	CBS4504832
Item	Dynamic Load Response
Object	+32V12.5A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 48 V
Cycle 1000 mS



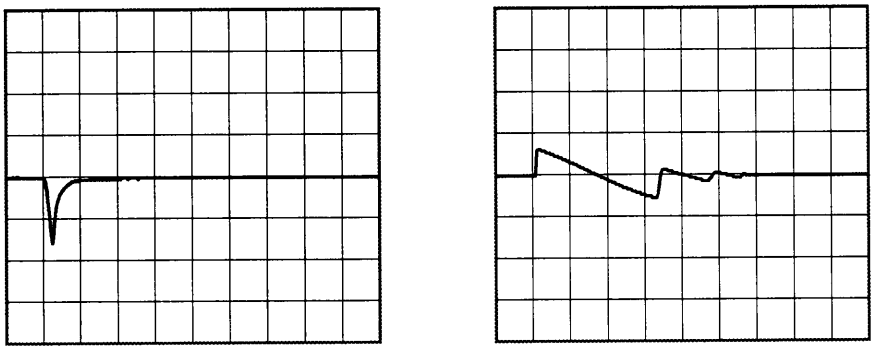
Min. Load (0A) ⟷
Load 100% (12.5A)



1 V/div

500μs/div 5ms/div

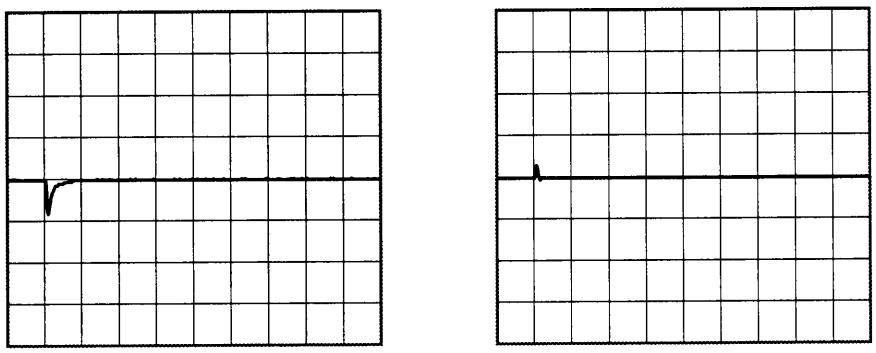
Min. Load (0A) ⟷
Load 50% (6.25A)



1 V/div

500μs/div 5ms/div

Load 10% (1.25A) ⟷
Load 100% (12.5A)



1 V/div

500μs/div 5ms/div

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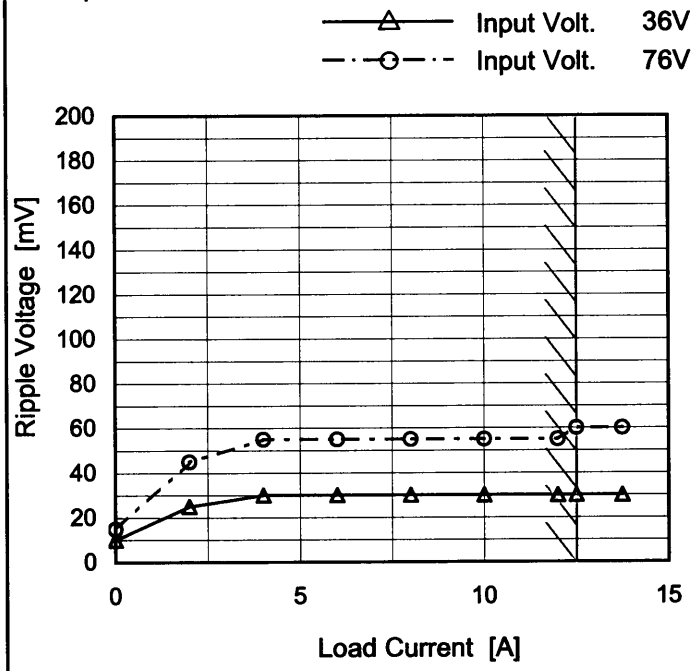
Model	CBS4504832
Item	Ripple Voltage (by Load Current)
Object	+32V12.5A

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.

Ripple [mVp-p]

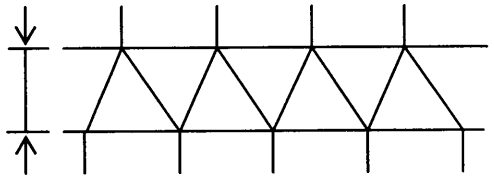


Fig.Complex Ripple Wave Form

2.Values

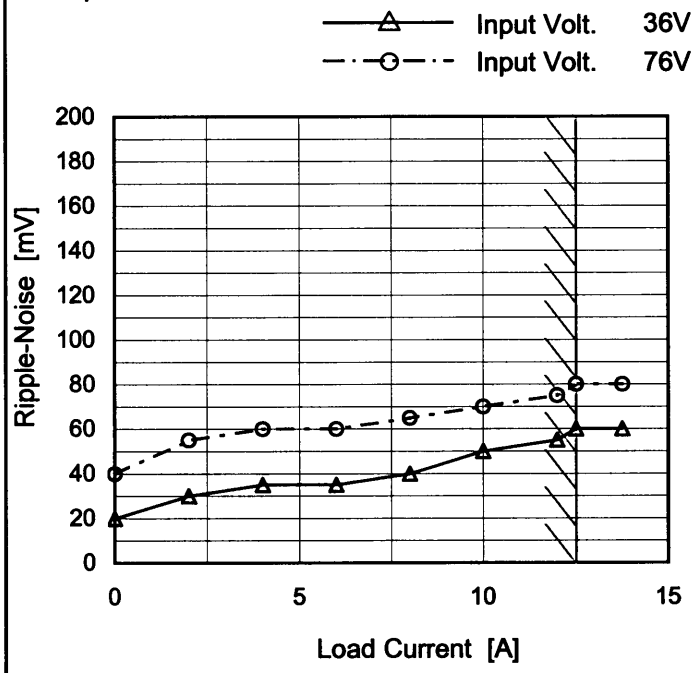
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	10	15
2.00	25	45
4.00	30	55
6.00	30	55
8.00	30	55
10.00	30	55
12.00	30	55
12.50	30	60
13.75	30	60
--	-	-
--	-	-

COSEL

Model	CBS4504832
Item	Ripple-Noise
Object	+32V12.5A

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.

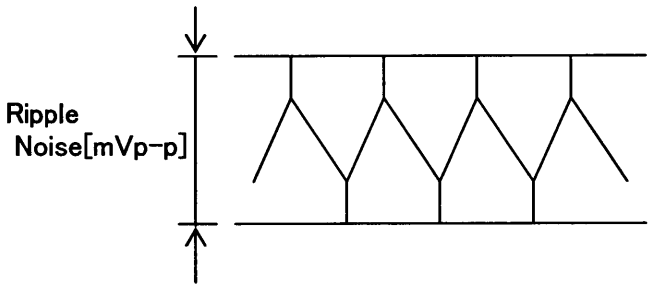


Fig.Complex Ripple Noise Wave Form

2.Values

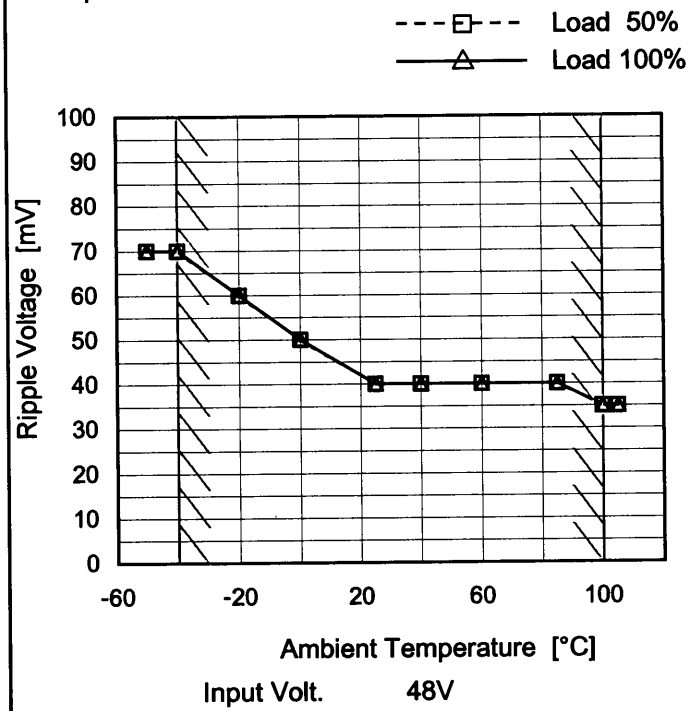
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	20	40
2.00	30	55
4.00	35	60
6.00	35	60
8.00	40	65
10.00	50	70
12.00	55	75
12.50	60	80
13.75	60	80
–	-	-
–	-	-

COSEL

Model	CBS4504832
Item	Ripple Voltage (by Ambient Temp.)
Object	+32V12.5A

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%
-50	70	70
-40	70	70
-20	60	60
0	50	50
25	40	40
40	40	40
60	40	40
85	40	40
100	35	35
105	35	35
--	-	-

Ripple [mVp-p]

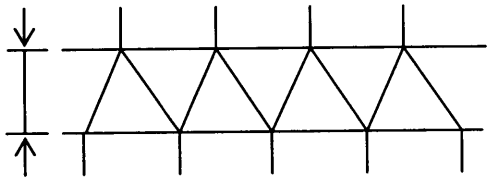


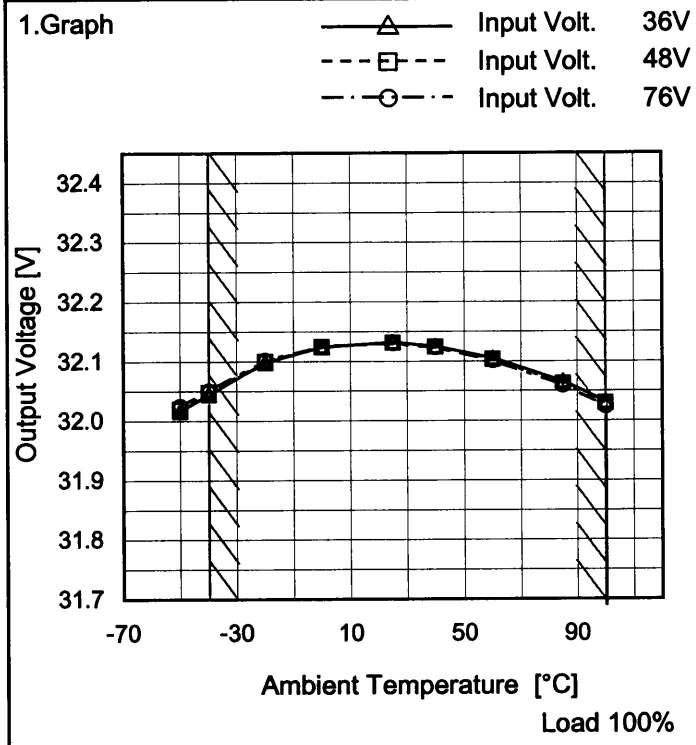
Fig.Complex Ripple Wave Form

COSEL

Model	CBS4504832
Item	Ambient Temperature Drift
Object	+32V12.5A

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]
-50	32.017	32.020	32.025
-40	32.045	32.048	32.051
-20	32.098	32.100	32.102
0	32.124	32.124	32.125
25	32.132	32.131	32.130
40	32.125	32.124	32.123
60	32.105	32.103	32.101
85	32.066	32.062	32.059
100	32.032	32.029	32.024
--	-	-	-
--	-	-	-

COSEL

Model	CBS4504832	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+32V12.5A	

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 - 100°C
Input Voltage : 36 - 76V
Load Current : 0 - 12.5A

* 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

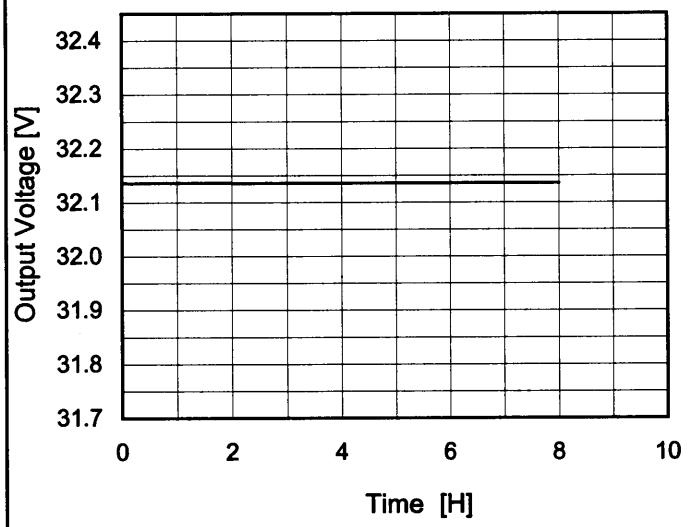
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	25	36	12.5	32.132	±54	±0.2
Minimum Voltage	100	76	12.5	32.024		

COSEL

Model	CBS4504832
Item	Time Lapse Drift
Object	+32V12.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 48V
Load 100%

2.Values

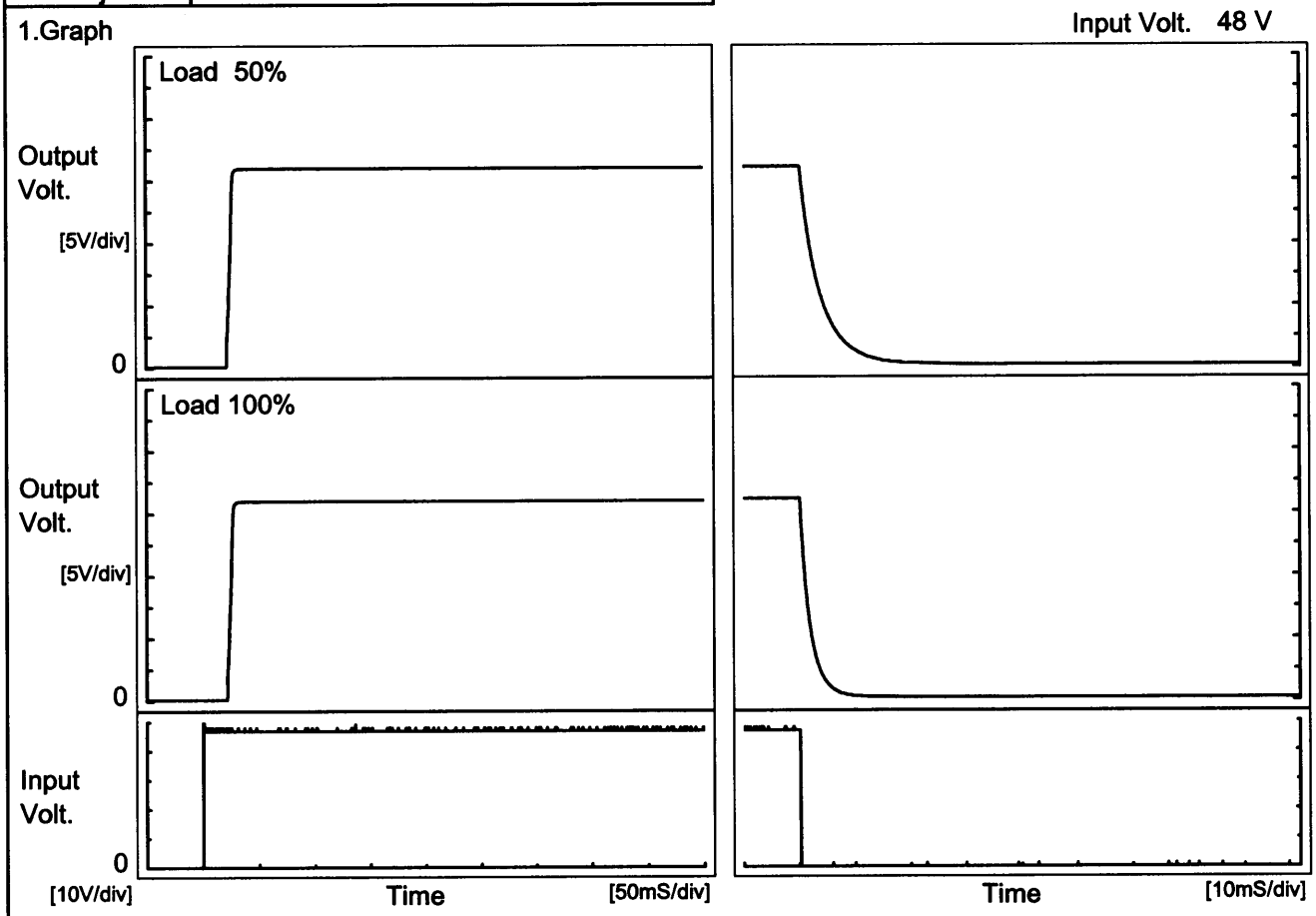
Time since start [H]	Output Voltage [V]
0.0	32.138
0.5	32.137
1.0	32.136
2.0	32.136
3.0	32.136
4.0	32.136
5.0	32.136
6.0	32.136
7.0	32.136
8.0	32.136

COSEL

Model	CBS4504832
Item	Rise and Fall Time
Object	+32V12.5A

Temperature 25°C
Testing Circuitry Figure A

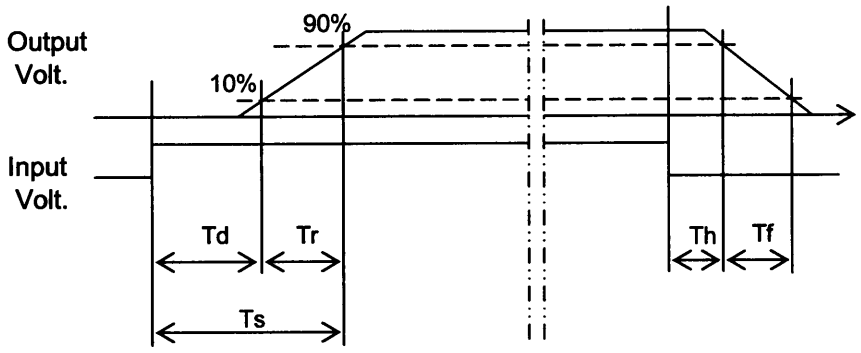
1.Graph



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	22.3	4.8	27.1	0.5	8.4
100 %	22.3	4.8	27.1	0.3	4.3



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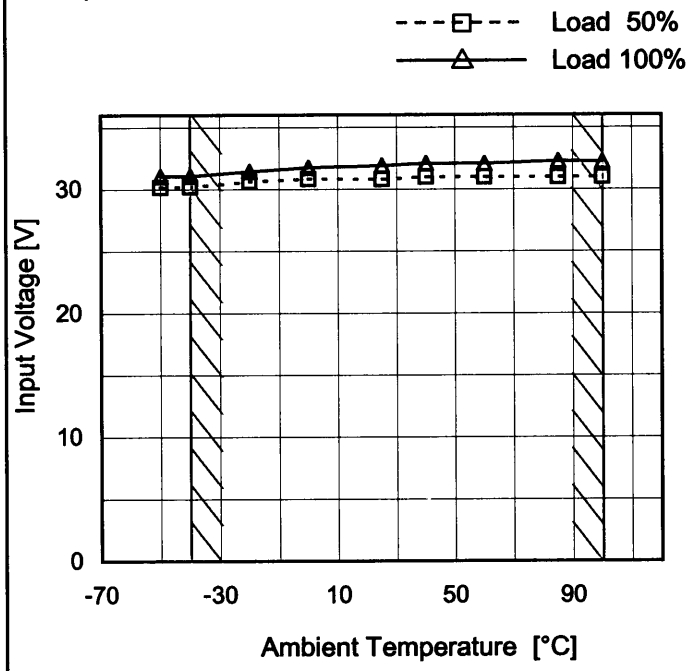
Model	CBS4504832
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+32V12.5A

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%
-50	30.2	31.1
-40	30.2	31.1
-20	30.7	31.5
0	30.9	31.8
25	30.9	32.0
40	31.0	32.1
60	31.0	32.1
85	31.0	32.3
100	31.0	32.3
–	-	-
–	-	-

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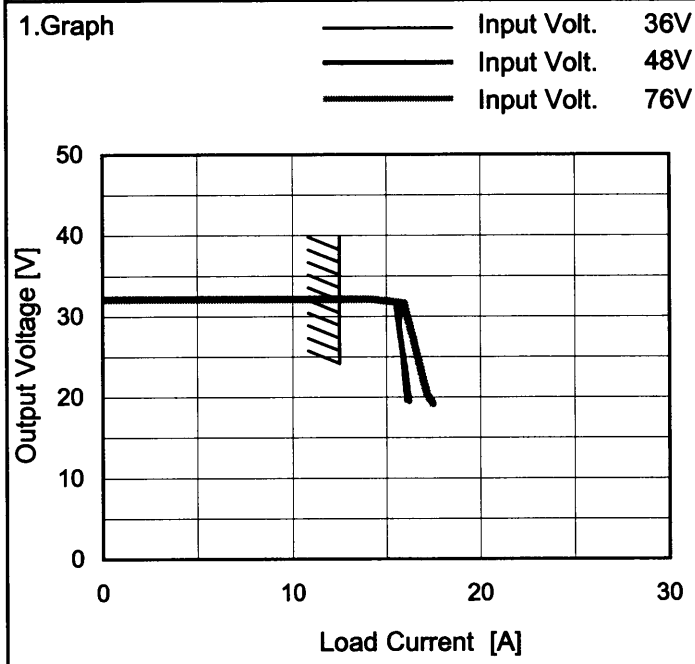
Model	CBS4504832
Item	Overcurrent Protection
Object	+32V12.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

Intermittent operation occurs when the output voltage is from 19.2V to 0V.

2.Values

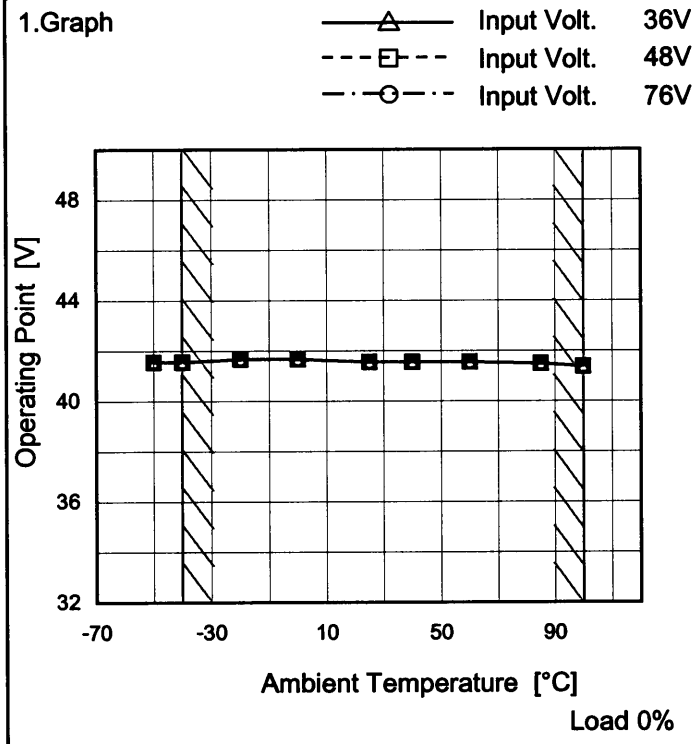
Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
32.0	12.60	12.61	12.61
30.4	15.78	15.58	16.06
28.8	15.74	15.66	16.22
25.6	15.79	15.86	16.59
22.4	15.91	16.05	16.91
19.2	16.03	16.22	17.43
–	-	-	-
–	-	-	-
–	-	-	-
–	-	-	-
–	-	-	-
–	-	-	-

COSEL

Model	CBS4504832
Item	Overvoltage Protection
Object	+32V12.5A

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]
-50	41.55	41.55	41.55
-40	41.55	41.55	41.55
-20	41.67	41.67	41.67
0	41.67	41.67	41.67
25	41.55	41.55	41.55
40	41.55	41.55	41.55
60	41.55	41.55	41.55
85	41.49	41.49	41.49
100	41.37	41.37	41.37
--	-	-	-
--	-	-	-

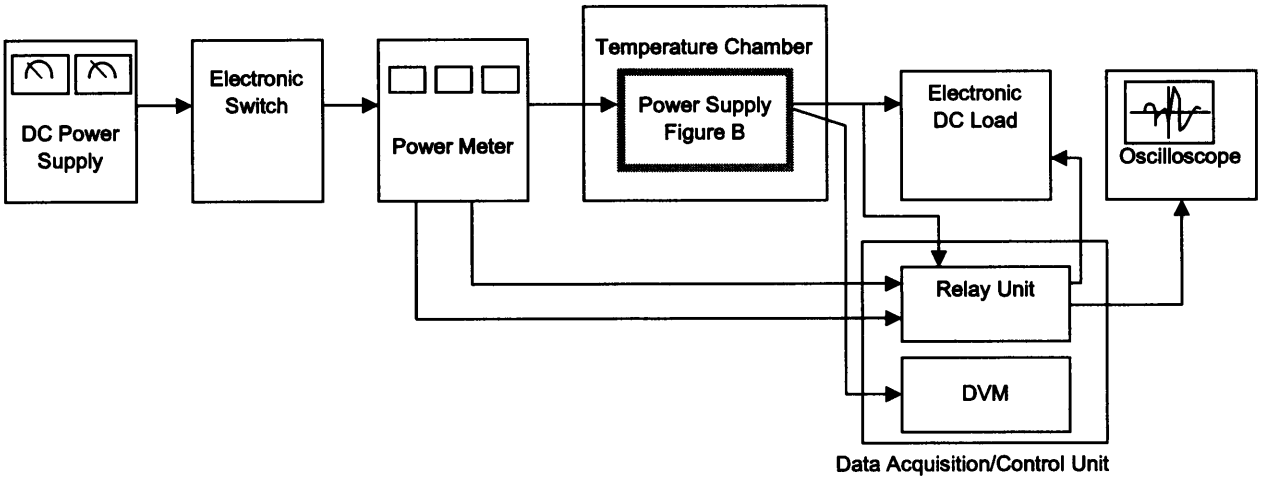
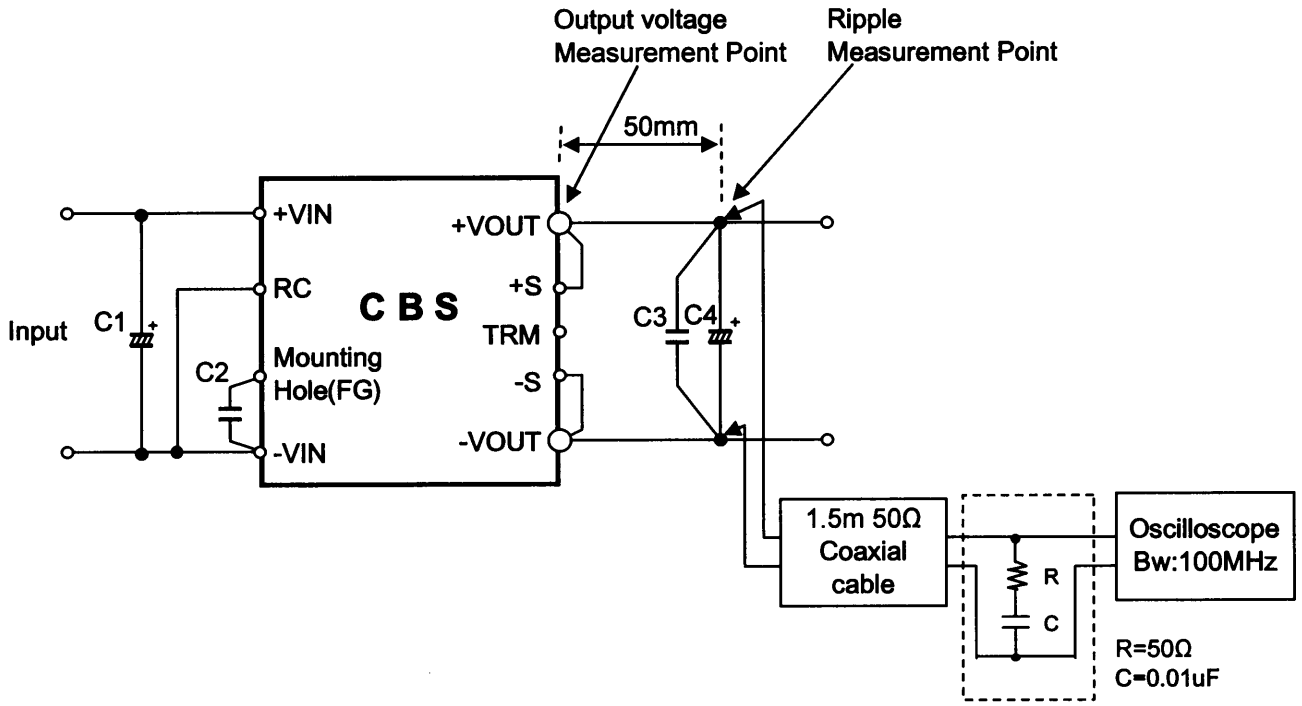


Figure A



C1 : 100V 68μF ×2
C2 : 4700pF
C3 : 100V 0.1μF
C4 : 50V 220μF ×3 (-40℃≦T_B≦-20℃)
50V 220μF (-20℃<T_B≦100℃)
TB : Base Plate Temp.

Figure B