COSEL

参考資料

TEST DATA OF DHS100B24

Regulated DC Power Supply
May 21, 2009

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COSEL CO.,LTD.

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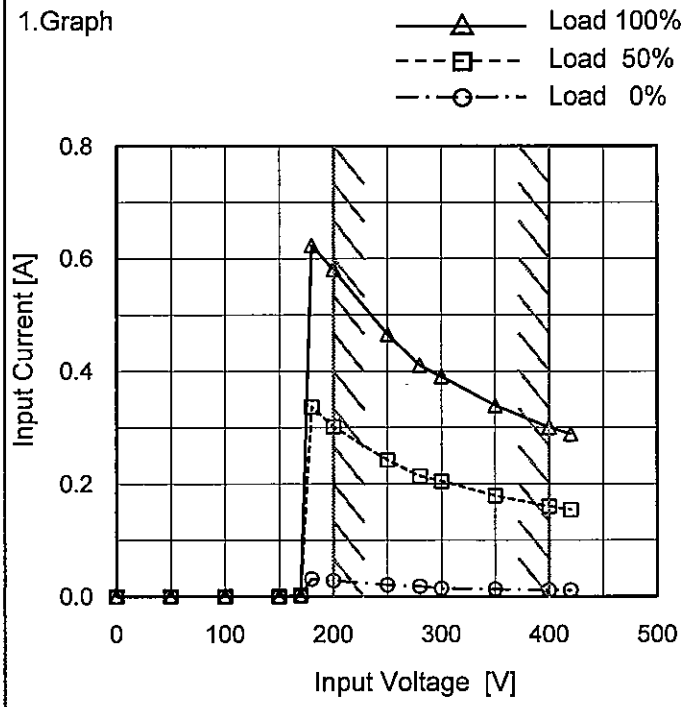
COSEL

Model	DHS100B24
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	0.000	0.000	0.000
50	0.000	0.000	0.000
100	0.000	0.000	0.000
150	0.000	0.000	0.000
170	0.002	0.002	0.002
180	0.032	0.337	0.623
200	0.028	0.302	0.580
250	0.021	0.243	0.465
280	0.018	0.214	0.410
300	0.014	0.205	0.390
350	0.013	0.179	0.339
400	0.011	0.160	0.300
420	0.011	0.154	0.288
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

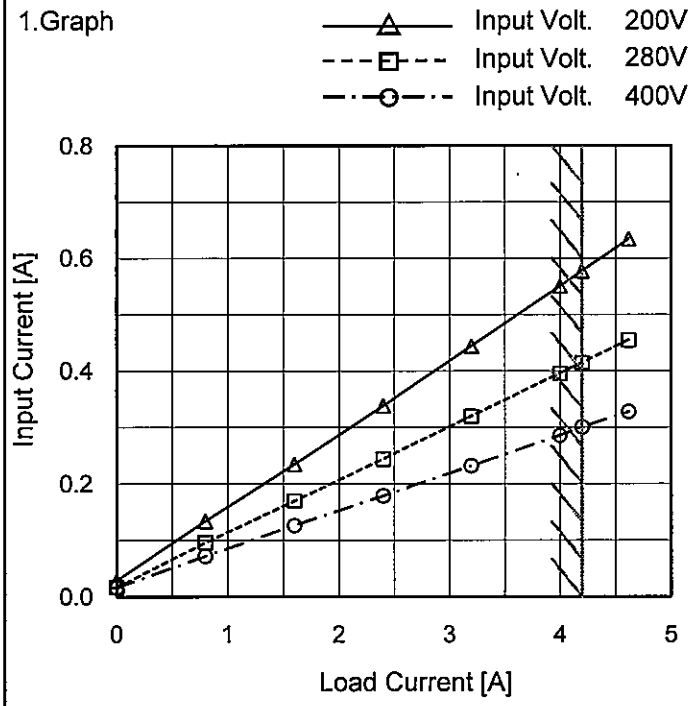
BC-10338

COSEL

Model	DHS100B24
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. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.00	0.028	0.017	0.016
0.80	0.134	0.096	0.072
1.60	0.234	0.170	0.126
2.40	0.338	0.244	0.178
3.20	0.443	0.319	0.232
4.00	0.550	0.395	0.286
4.20	0.577	0.414	0.300
4.62	0.634	0.455	0.328
--	-	-	-
--	-	-	-
--	-	-	-

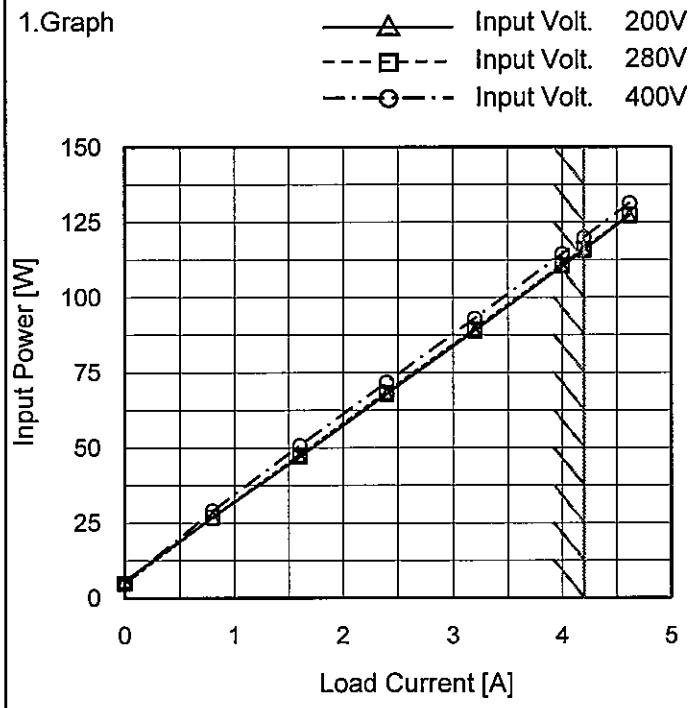
BC-10338

COSEL

Model	DHS100B24
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. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.00	5.7	4.8	5.0
0.80	26.9	27.0	29.0
1.60	47.0	47.6	50.7
2.40	67.7	68.4	71.6
3.20	88.8	89.5	92.9
4.00	110.3	110.8	114.4
4.20	115.7	116.2	119.8
4.62	127.1	127.4	131.2
--	-	-	-
--	-	-	-
--	-	-	-

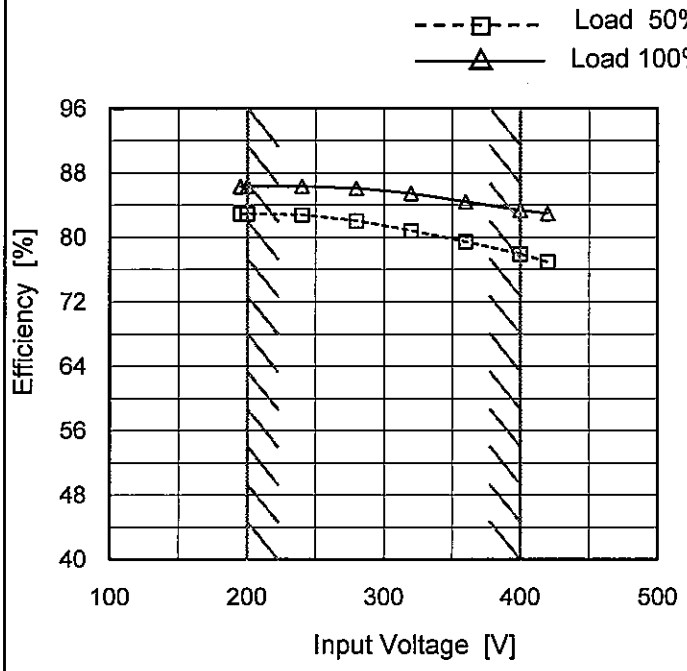
BC-10338

COSEL

Model	DHS100B24
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

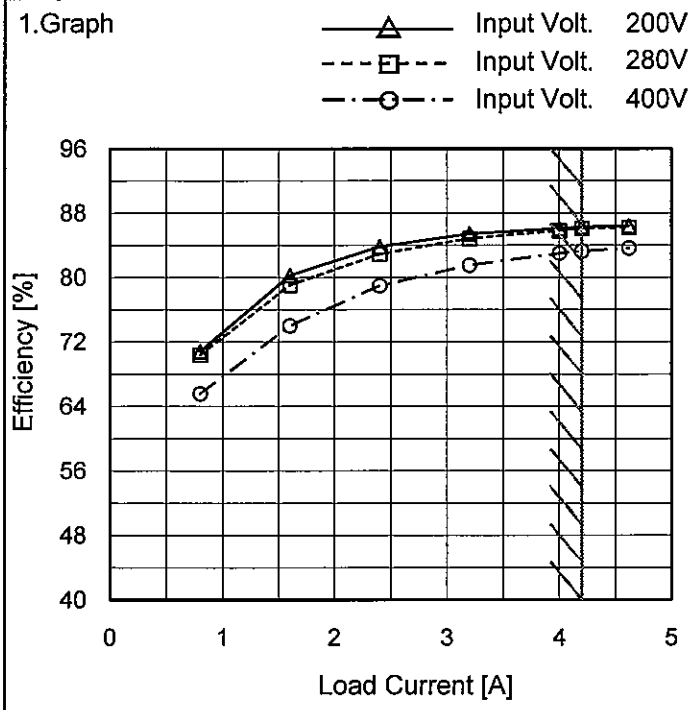
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
195	82.9	86.3
200	82.9	86.3
240	82.8	86.3
280	82.0	86.1
320	80.8	85.4
360	79.4	84.4
400	77.9	83.3
420	76.9	82.9
---	-	-

COSEL

Model	DHS100B24
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

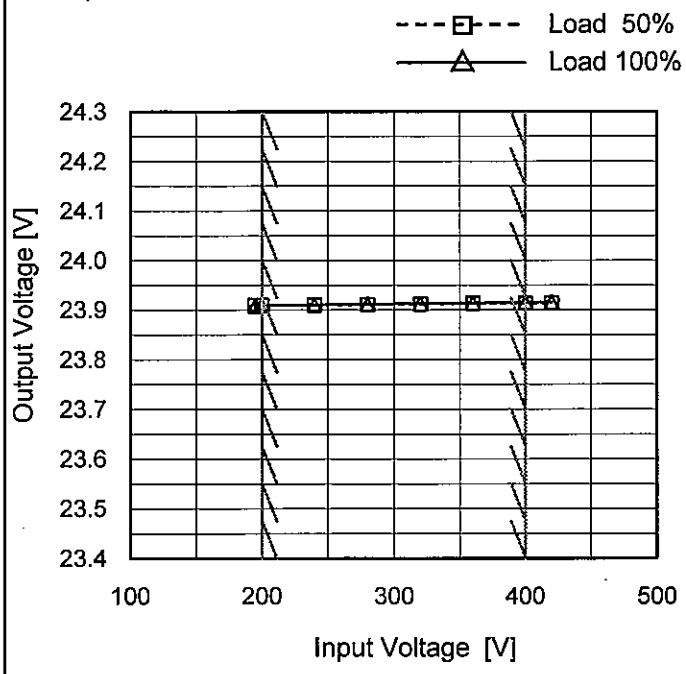
Load Current [A]	Efficiency [%]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.00	-	-	-
0.80	70.8	70.4	65.6
1.60	80.2	79.0	74.0
2.40	83.8	82.9	79.0
3.20	85.4	84.8	81.5
4.00	86.1	85.8	83.0
4.20	86.3	86.1	83.3
4.62	86.4	86.2	83.7
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	DHS100B24
Item	Line Regulation
Object	+24V4.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

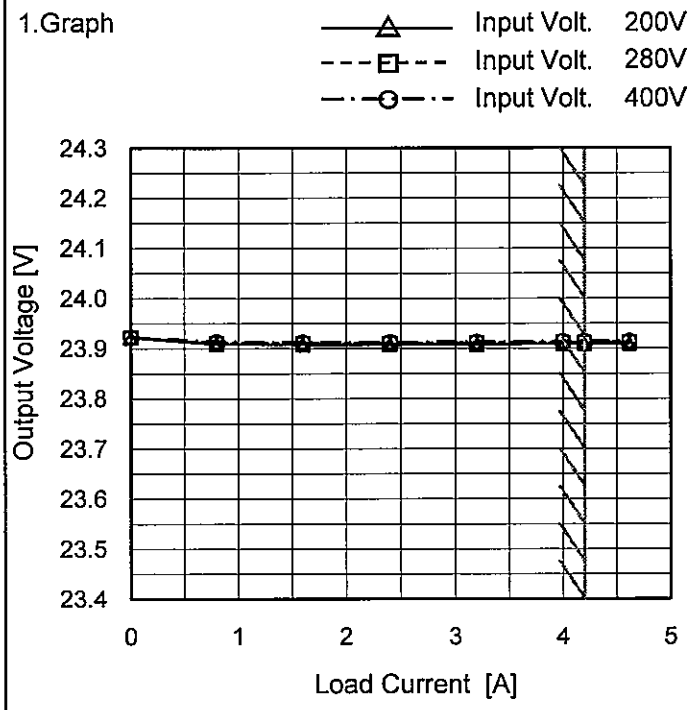
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
195	23.909	23.908
200	23.909	23.909
240	23.910	23.910
280	23.911	23.912
320	23.912	23.913
360	23.913	23.914
400	23.914	23.915
420	23.914	23.916
--	-	-

COSEL

Model	DHS100B24
Item	Load Regulation
Object	+24V4.2A

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. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
0.00	23.921	23.922	23.923
0.80	23.908	23.911	23.914
1.60	23.908	23.910	23.913
2.40	23.908	23.910	23.913
3.20	23.908	23.911	23.914
4.00	23.908	23.911	23.914
4.20	23.909	23.912	23.915
4.62	23.909	23.912	23.915
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

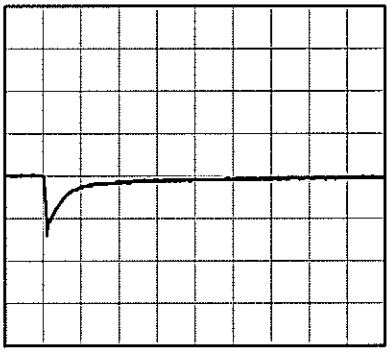
Model	DHS100B24
Item	Dynamic Load Response
Object	+24V4.2A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 280 V
Cycle 1000 ms

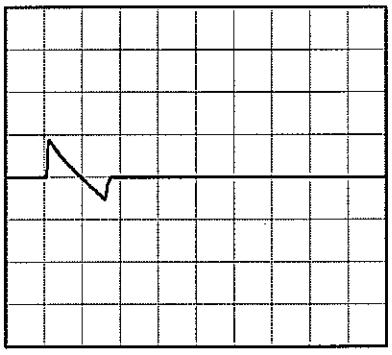
Load Current
4.2A / 20μs

Min. Load (0A) ⟷
Load 100% (4.2A)



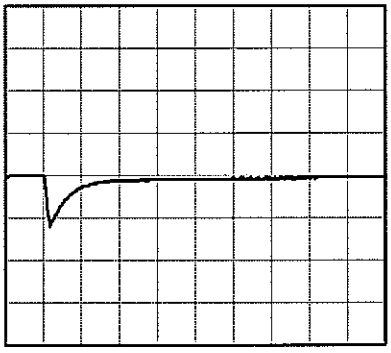
500mV/div

500 μs/div



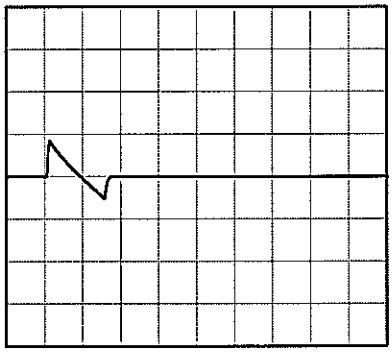
2 ms/div

Min. Load (0A) ⟷
Load 50% (2.1A)



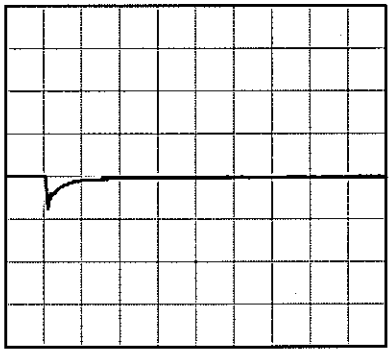
500mV/div

500 μs/div



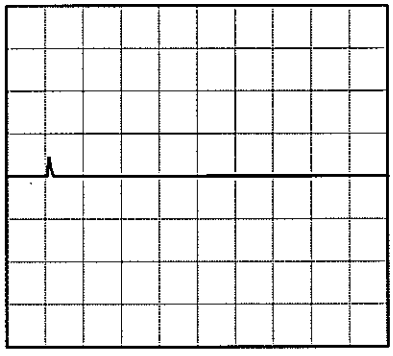
2 ms/div

Load 10% (0.42A) ⟷
Load 100% (4.2A)



500mV/div

500 μs/div



2 ms/div

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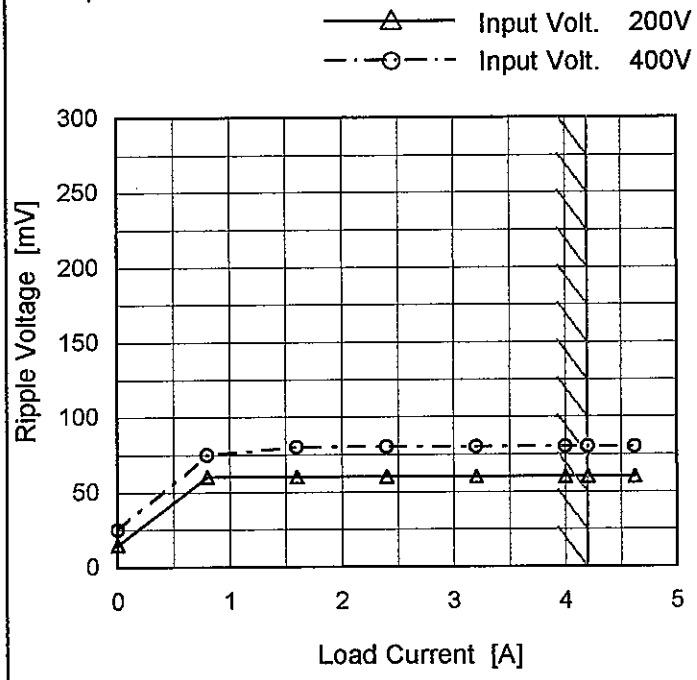
Model	DHS100B24
Item	Ripple Voltage (by Load Current)
Object	+24V4.2A

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]

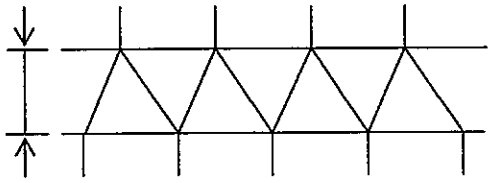


Fig.Complex Ripple Wave Form

2.Values

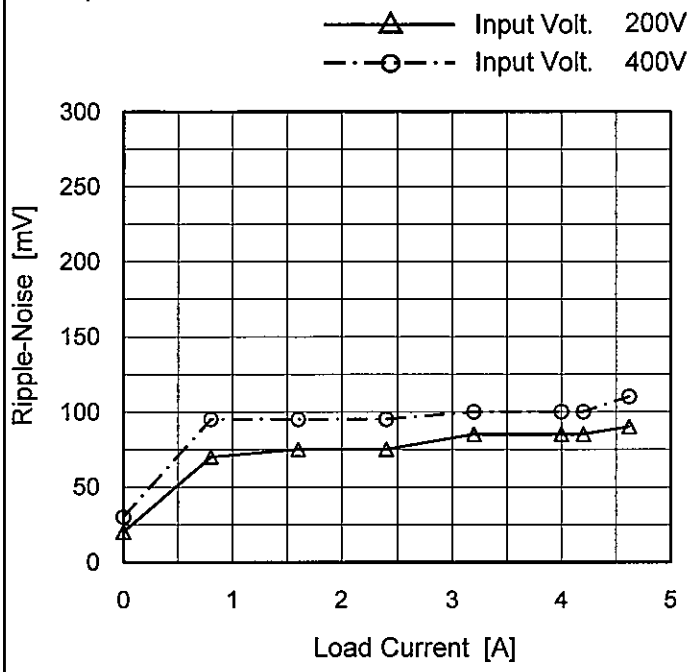
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0.00	15	25
0.80	60	75
1.60	60	80
2.40	60	80
3.20	60	80
4.00	60	80
4.20	60	80
4.62	60	80
--	-	-
--	-	-
--	-	-

COSEL

Model	DHS100B24
Item	Ripple-Noise
Object	+3.3V20A

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.

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 200 [V]	Input Volt. 400 [V]
0.00	20	30
0.80	70	95
1.60	75	95
2.40	75	95
3.20	85	100
4.00	85	100
4.20	85	100
4.62	90	110
--	-	-
--	-	-
--	-	-

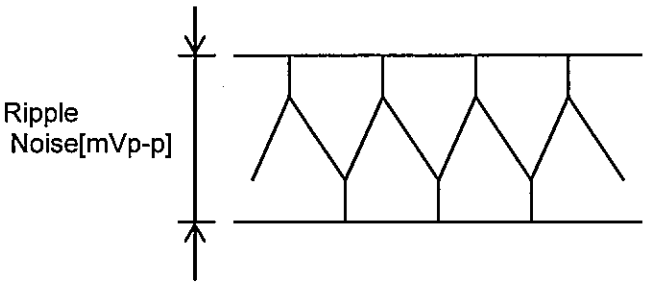


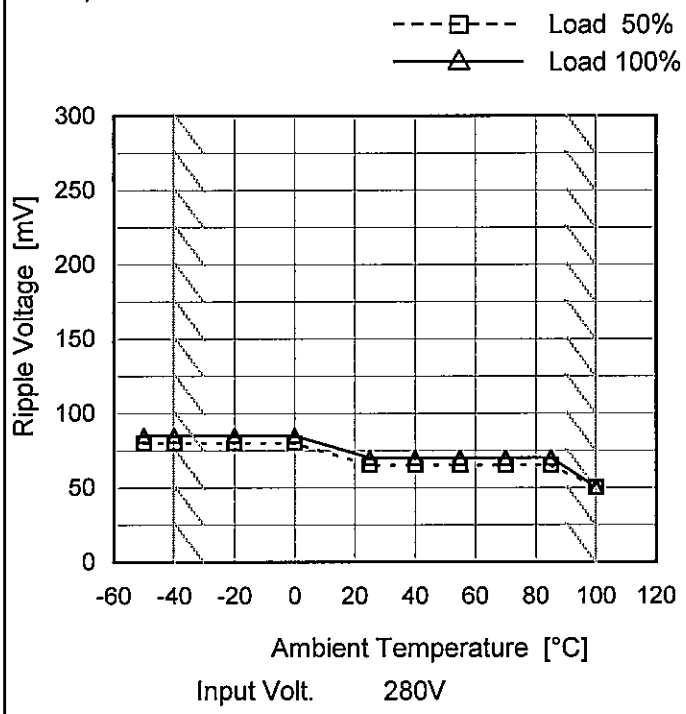
Fig.Complex Ripple Noise Wave Form

COSEL

Model	DHS100B24
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V20A

Testing Circuitry Figure B

1.Graph



Input Volt. 280V

Measured by 100 MHz Oscilloscope.

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

2.Values

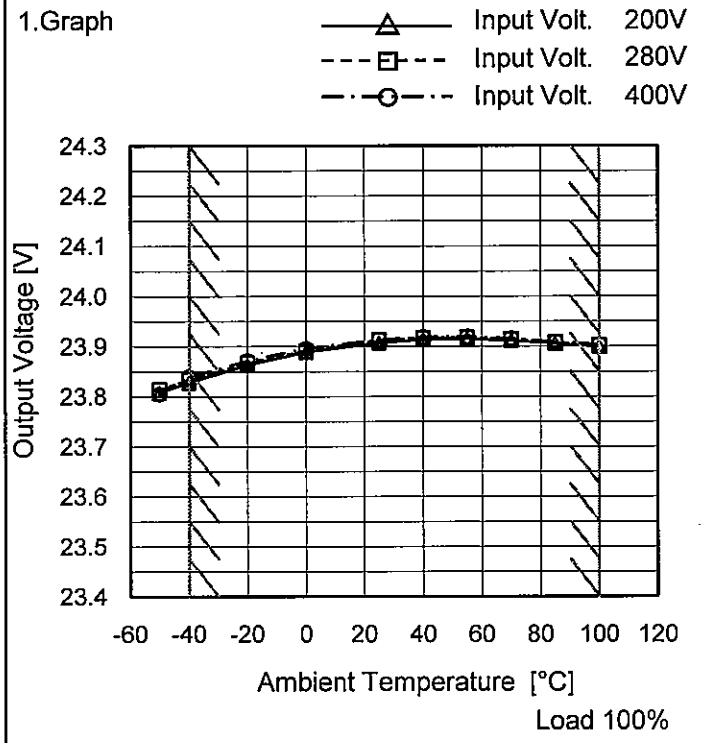
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	80	85
-40	80	85
-20	80	85
0	80	85
25	65	70
40	65	70
55	65	70
70	65	70
85	65	70
100	50	50
--	-	-

COSEL

Model	DHS100B24
Item	Ambient Temperature Drift
Object	+24V4.2A

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. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-50	23.807	23.814	23.805
-40	23.828	23.834	23.839
-20	23.863	23.867	23.871
0	23.888	23.891	23.896
25	23.907	23.912	23.913
40	23.913	23.916	23.919
55	23.915	23.917	23.919
70	23.912	23.914	23.915
85	23.906	23.908	23.909
100	23.899	23.902	23.903
--	-	-	-

COSEL

Model	DHS100B24	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+24V4.2A	

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 : 200 - 400V
Load Current : 0 - 4.2A

* 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

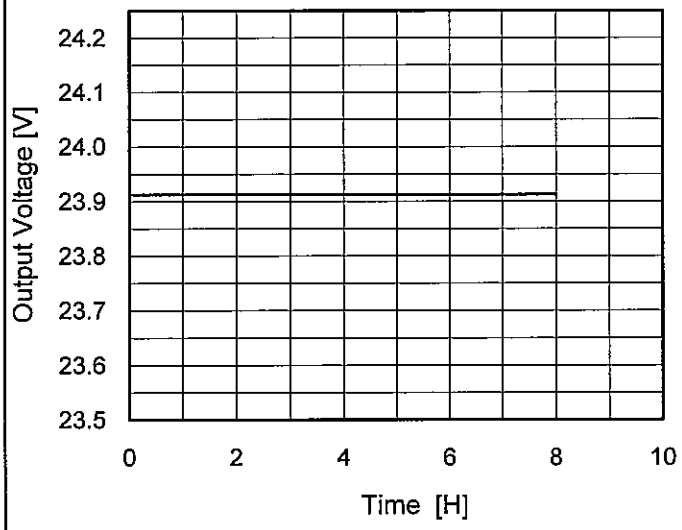
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	200	0	23.933	±53	±0.2
Minimum Voltage	-40	200	4.2	23.828		

COSEL

Model	DHS100B24
Item	Time Lapse Drift
Object	+24V4.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 280V
Load 100%

2.Values

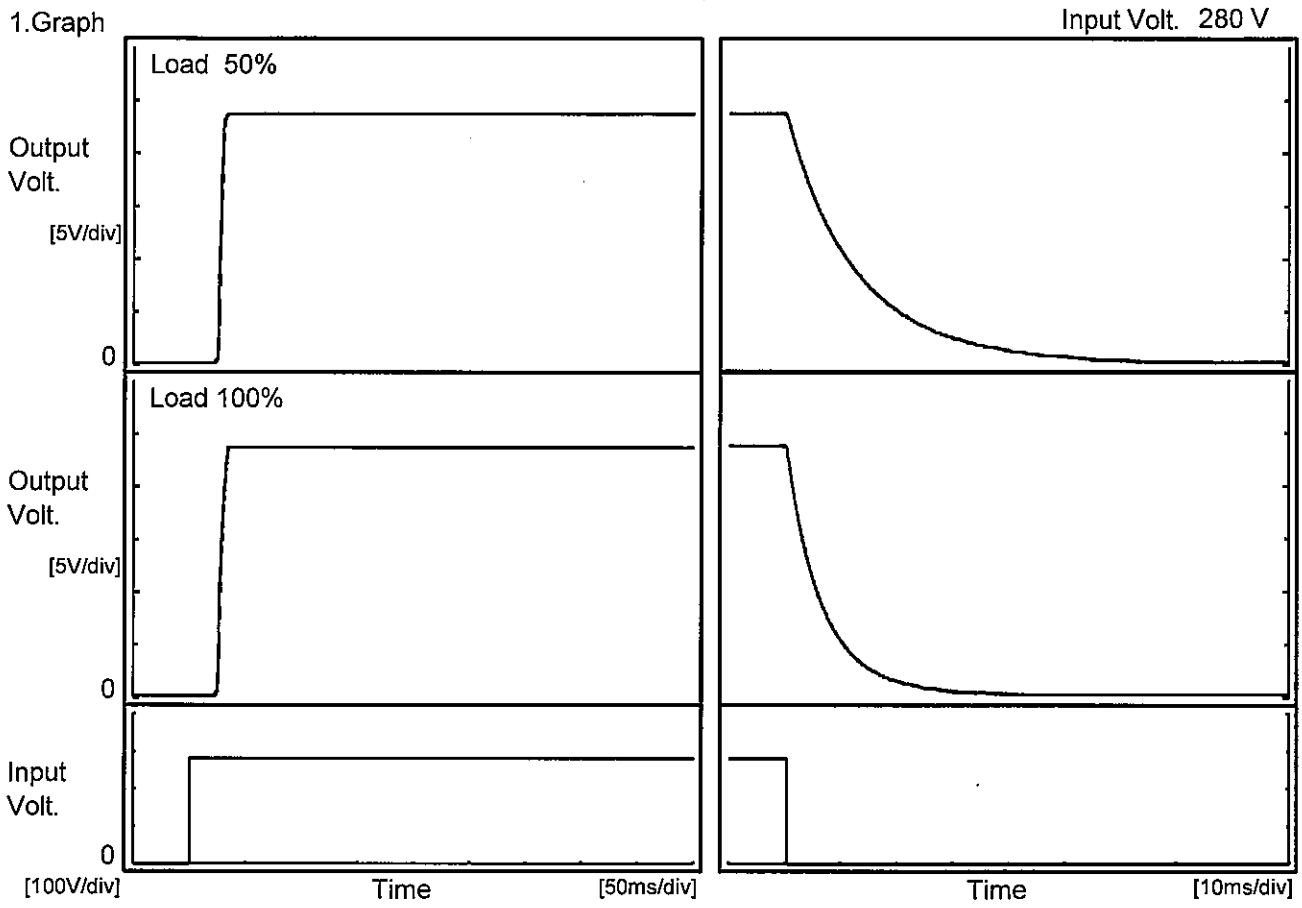
Time since start [H]	Output Voltage [V]
0.0	23.912
0.5	23.912
1.0	23.912
2.0	23.912
3.0	23.912
4.0	23.912
5.0	23.912
6.0	23.912
7.0	23.912
8.0	23.912

COSEL

Model	DHS100B24
Item	Rise and Fall Time
Object	+24V4.2A

Temperature 25°C
Testing Circuitry Figure A

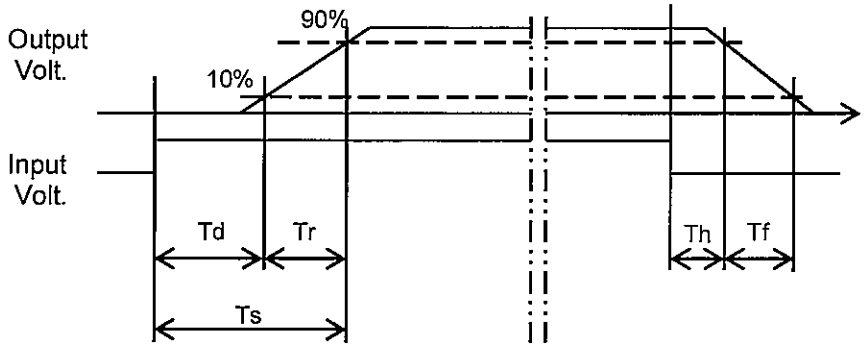
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	25.8	4.5	30.3	1.3	28.8
100 %	25.8	7.0	32.8	0.5	29.1

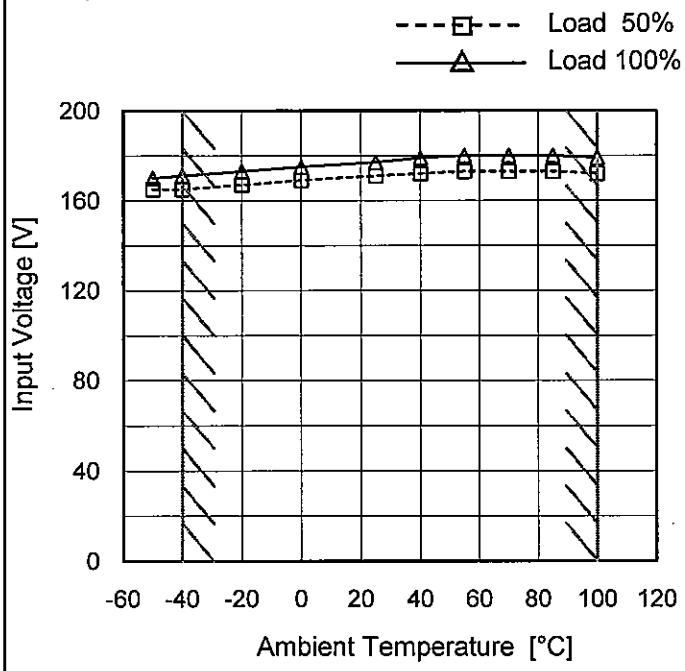


COSEL

Model	DHS100B24
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+24V4.2A

Testing Circuitry Figure A

1.Graph



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

2.Values

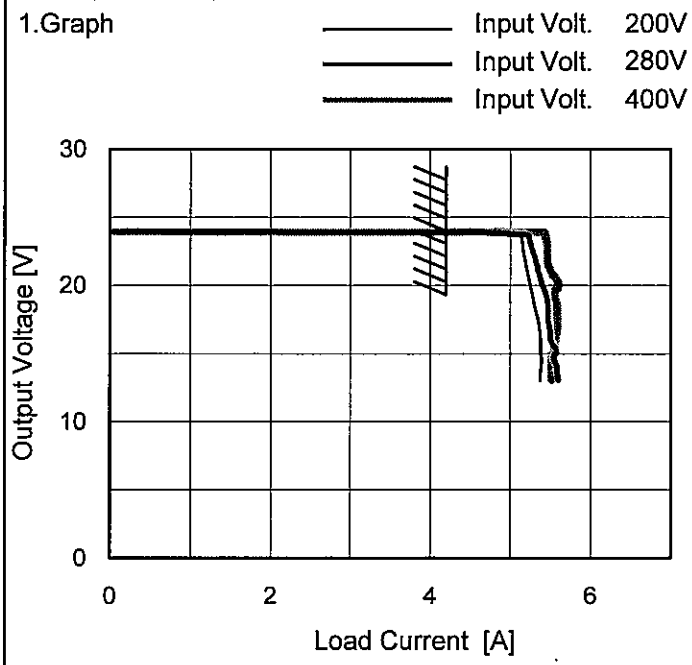
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-50	165	170
-40	165	171
-20	167	173
0	169	175
25	171	177
40	172	179
55	173	180
70	173	180
85	173	180
100	172	179
--	-	-

COSEL

Model	DHS100B24
Item	Overcurrent Protection
Object	+24V4.2A

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 13V to 0V.

2.Values

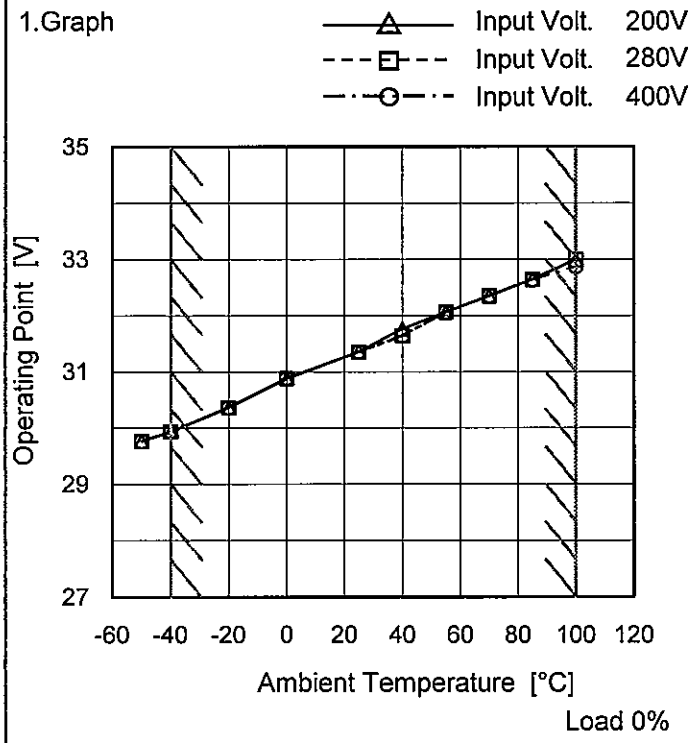
Output Voltage [V]	Load Current [A]		
	Input Volt. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
24.0	4.20	4.21	4.20
22.8	5.15	5.26	5.46
21.6	5.19	5.33	5.47
19.2	5.27	5.45	5.55
16.8	5.36	5.49	5.59
14.4	5.39	5.55	5.51
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	DHS100B24
Item	Overvoltage Protection
Object	+24V4.2A

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. 200[V]	Input Volt. 280[V]	Input Volt. 400[V]
-50	29.76	29.76	29.76
-40	29.93	29.93	29.93
-20	30.36	30.36	30.36
0	30.88	30.88	30.88
25	31.35	31.35	31.35
40	31.76	31.64	31.64
55	32.06	32.06	32.06
70	32.35	32.35	32.35
85	32.64	32.64	32.64
100	32.99	32.99	32.87
---	-	-	-

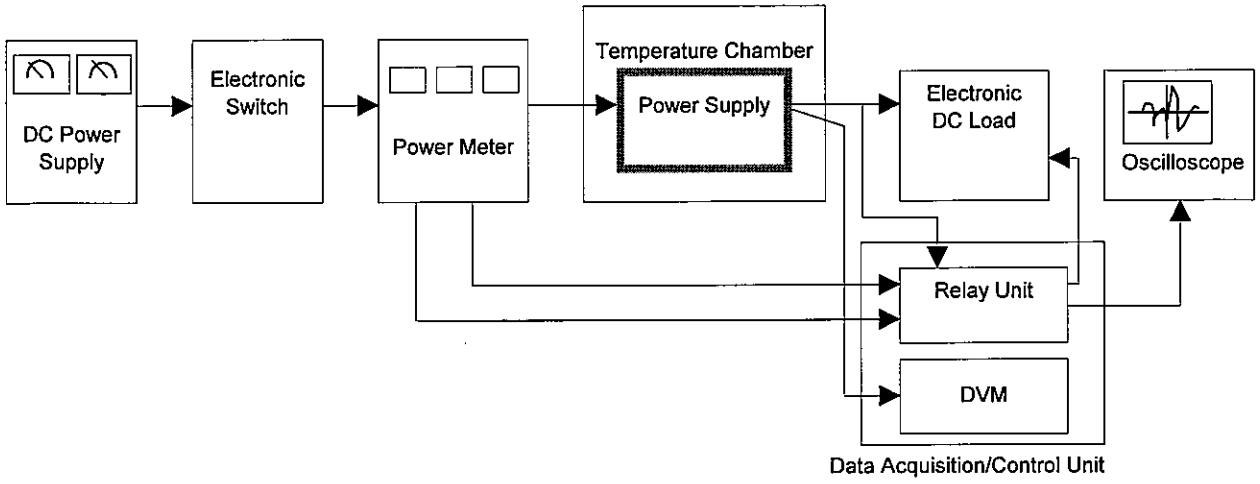
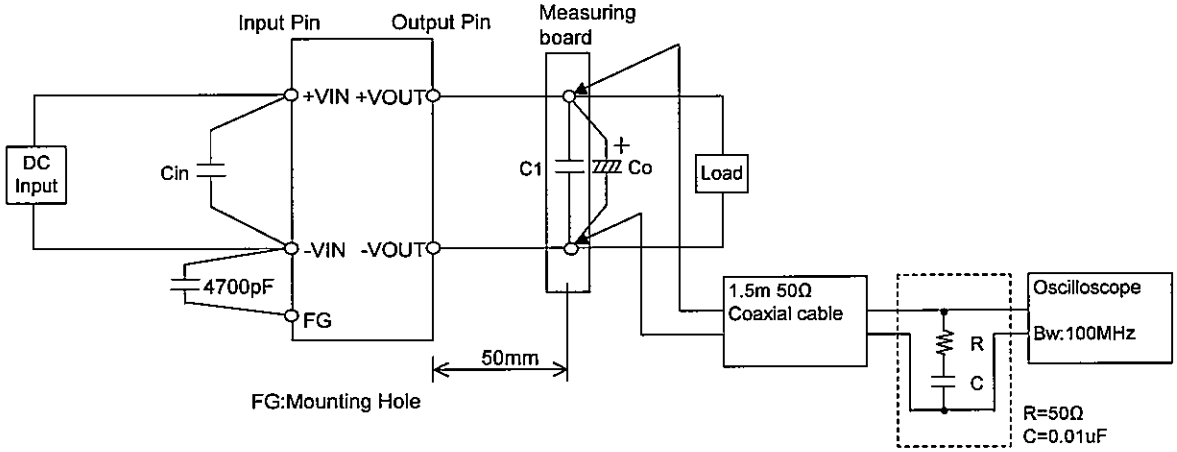


Figure A



C1 : DHS100B24 4.7uF
DHS100B28 4.7uF
Others 10uF

Co : DHS100B03 2200uF
DHS100B05 2200uF
DHS100B12 470uF
DHS100B15 470uF
DHS100B24 220uF
DHS100B28 220uF

Figure B