COSEL

参考資料

TEST DATA OF CQHS2504850

Regulated DC Power Supply
August 25, 2014

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COSEL CO.,LTD.

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

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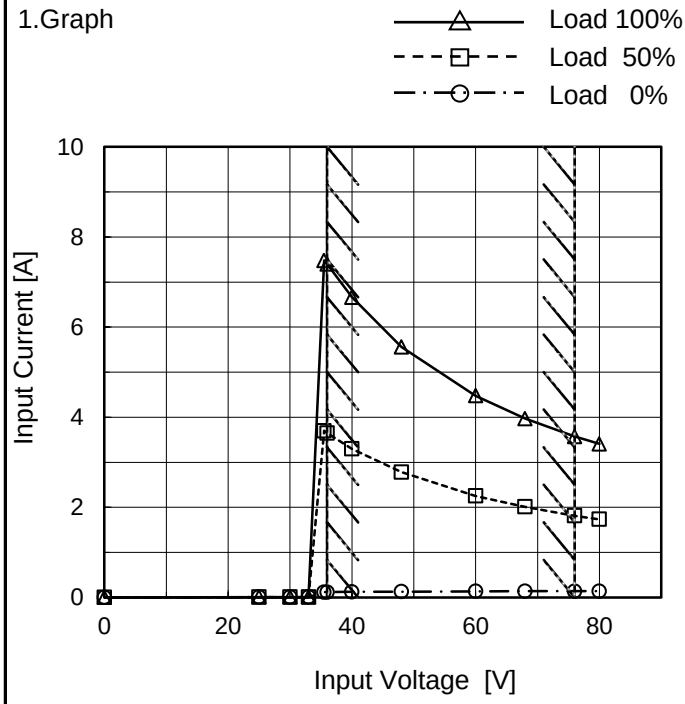


Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
25.0	0.006	0.006	0.006
30.0	0.006	0.006	0.006
33.0	0.006	0.006	0.006
35.5	0.119	3.698	7.480
36.0	0.119	3.650	7.402
40.0	0.125	3.298	6.661
48.0	0.130	2.782	5.560
60.0	0.135	2.254	4.476
68.0	0.138	2.012	3.968
76.0	0.138	1.814	3.570
80.0	0.139	1.733	3.407
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

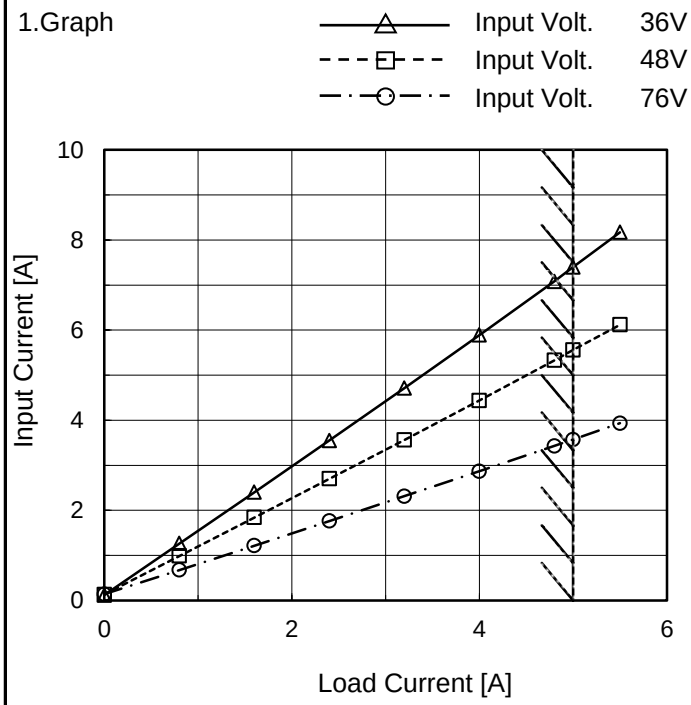
BC-10847

COSEL

Model	CQHS2504850
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]
0.0	0.119	0.130	0.138
0.8	1.266	0.988	0.677
1.6	2.402	1.840	1.217
2.4	3.548	2.702	1.761
3.2	4.710	3.562	2.314
4.0	5.890	4.437	2.866
4.8	7.080	5.330	3.430
5.0	7.400	5.560	3.570
5.5	8.170	6.120	3.932
--	-	-	-
--	-	-	-

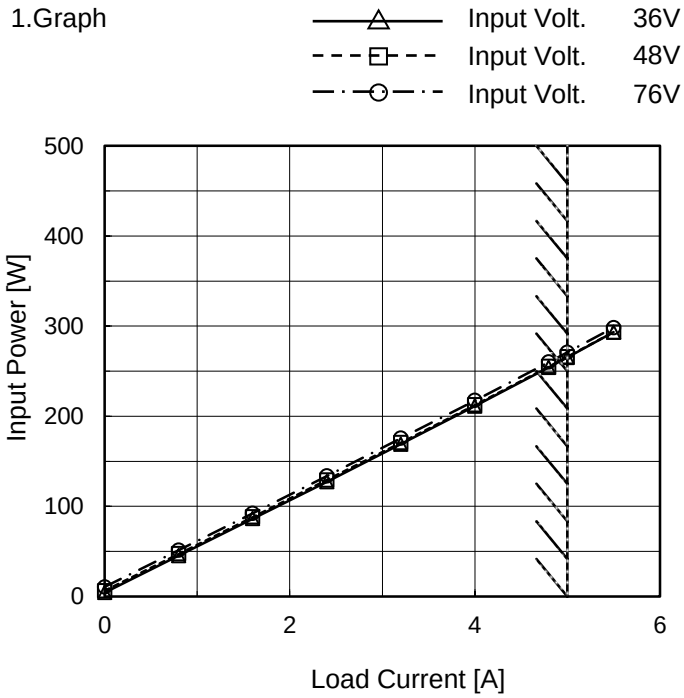
BC-10847

COSEL

Model	CQHS2504850
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

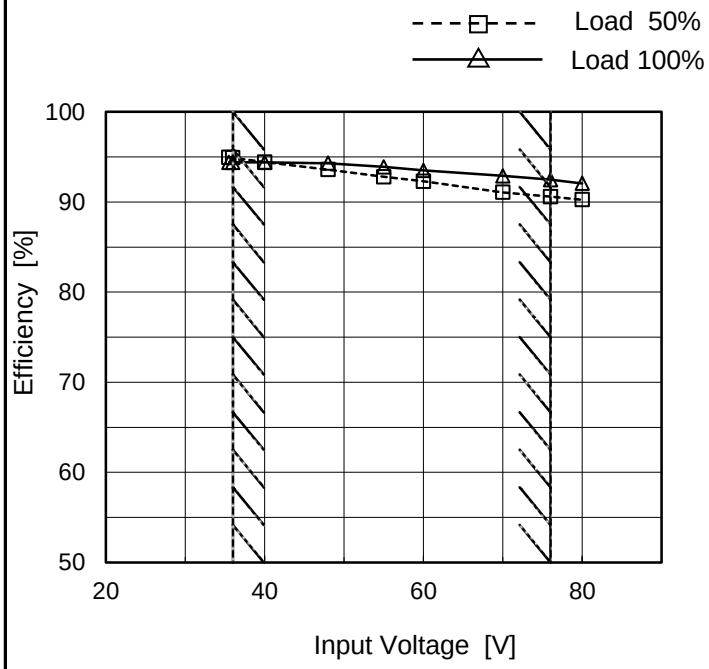
Load Current [A]	Input Power [W]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.0	4.3	6.3	10.5
0.8	45.4	47.3	51.4
1.6	86.3	88.1	92.3
2.4	127.3	129.2	133.6
3.2	168.9	170.5	175.5
4.0	211.2	212.4	217.5
4.8	254.3	255.1	260.0
5.0	265.3	265.9	270.9
5.5	293.3	293.3	298.2
--	-	-	-
--	-	-	-

COSEL

Model	CQHS2504850
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%
35.5	95.0	94.4
36.0	94.9	94.4
40.0	94.4	94.4
48.0	93.6	94.3
55.0	92.8	93.9
60.0	92.3	93.5
70.0	91.1	92.9
76.0	90.6	92.5
80.0	90.3	92.1

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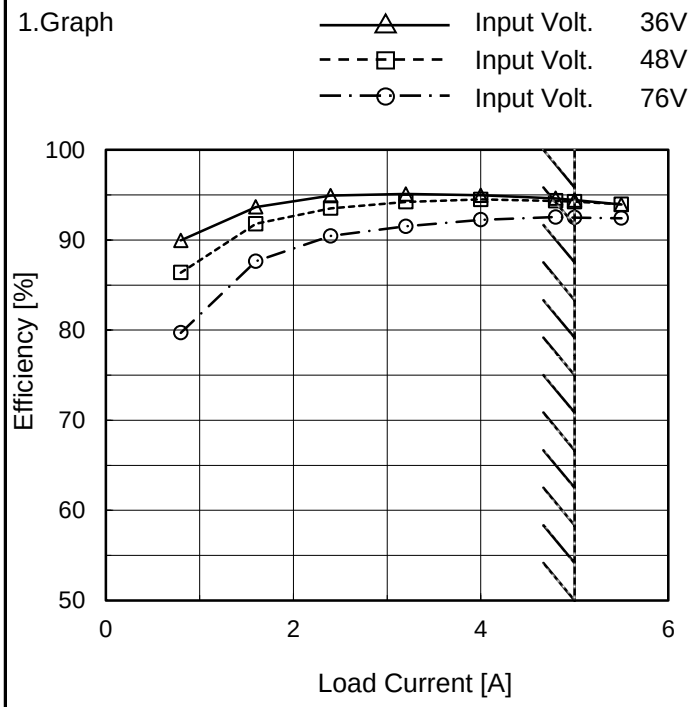
Model	CQHS2504850
Item	Efficiency (by Load Current)
Object	———————

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]
0.0	-	-	-
0.8	90.0	86.4	79.7
1.6	93.7	91.8	87.6
2.4	94.9	93.5	90.5
3.2	95.1	94.2	91.5
4.0	95.0	94.5	92.2
4.8	94.6	94.3	92.6
5.0	94.4	94.3	92.5
5.5	93.9	94.0	92.4
--	-	-	-
--	-	-	-

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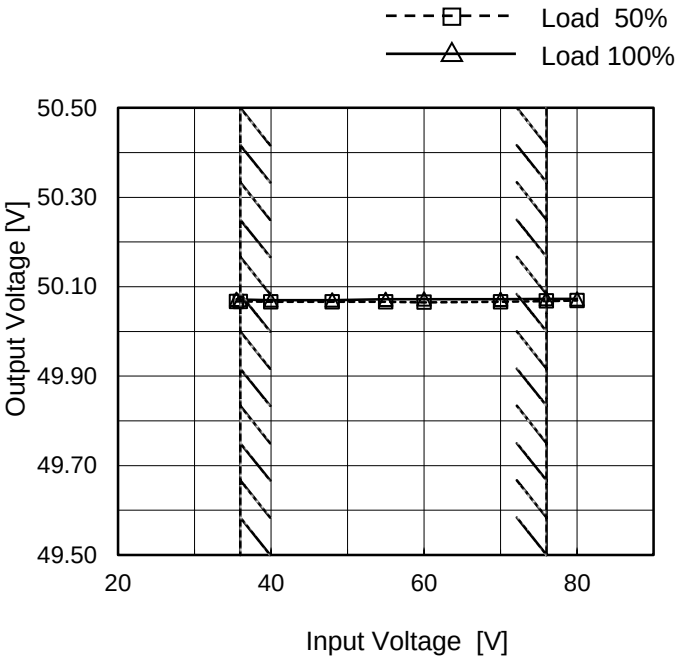
Model	CQHS2504850
Item	Line Regulation
Object	+50V5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

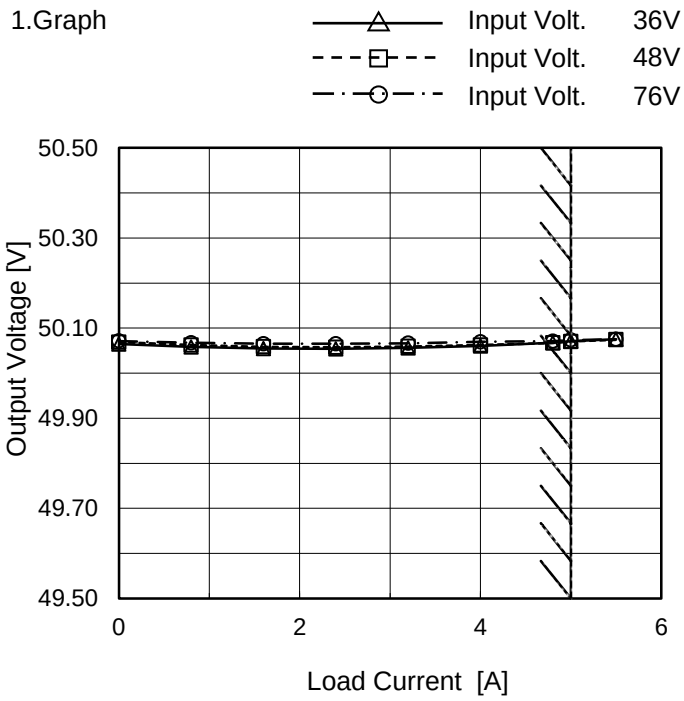
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
35.5	50.067	50.072
36.0	50.067	50.071
40.0	50.066	50.070
48.0	50.066	50.070
55.0	50.066	50.072
60.0	50.065	50.072
70.0	50.066	50.072
76.0	50.068	50.073
80.0	50.069	50.073

COSEL

Model	CQHS2504850
Item	Load Regulation
Object	+50V5A

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]
0.0	50.065	50.069	50.071
0.8	50.058	50.063	50.067
1.6	50.055	50.059	50.065
2.4	50.054	50.058	50.065
3.2	50.056	50.059	50.066
4.0	50.060	50.062	50.069
4.8	50.067	50.067	50.071
5.0	50.071	50.070	50.073
5.5	50.075	50.074	50.075
--	-	-	-
--	-	-	-

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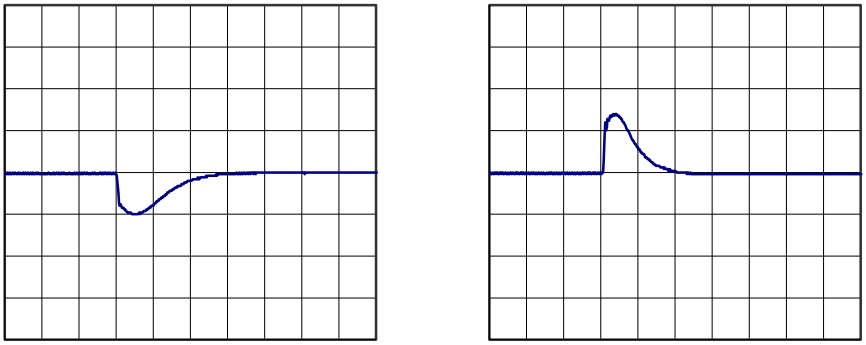
Model	CQHS2504850
Item	Dynamic Load Response
Object	+50V5A

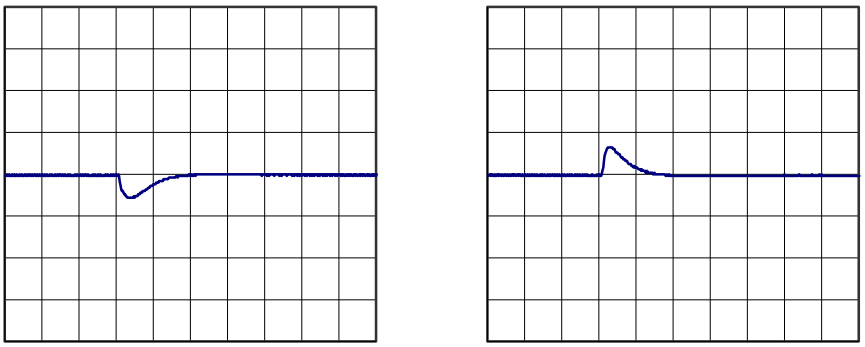
Temperature 25°C
Testing Circuitry Figure A

Input Volt. 48 V
Cycle 1000 mS

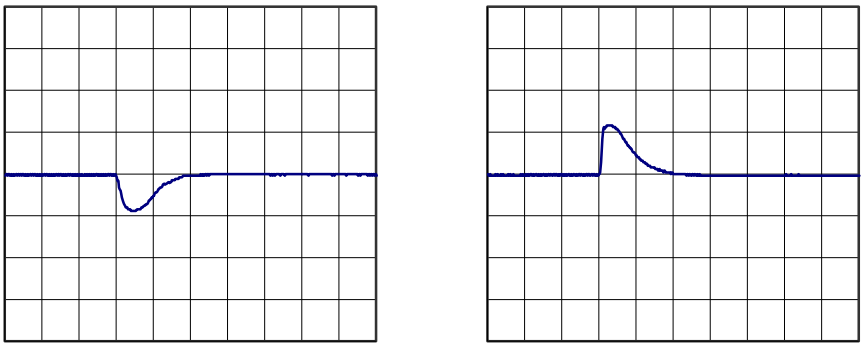
Min. Load (0A) ⟷
Load 100% (5A)



Min. Load (0A) ⟷
Load 50% (2.5A)



Load 50% (2.5A) ⟷
Load 100% (5A)



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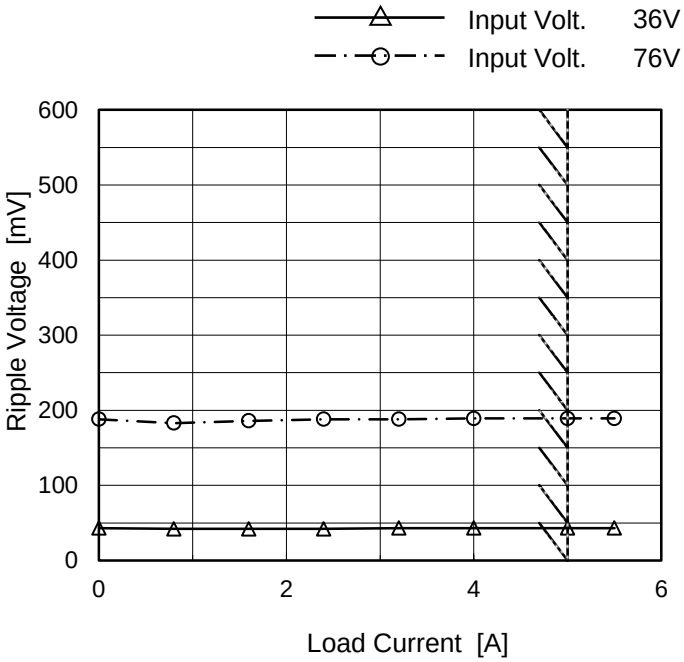
Model	CQHS2504850
Item	Ripple Voltage (by Load Current)
Object	+50V5A

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]

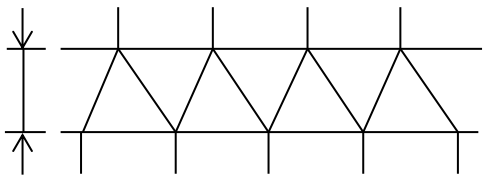


Fig.Complex Ripple Wave Form

2.Values

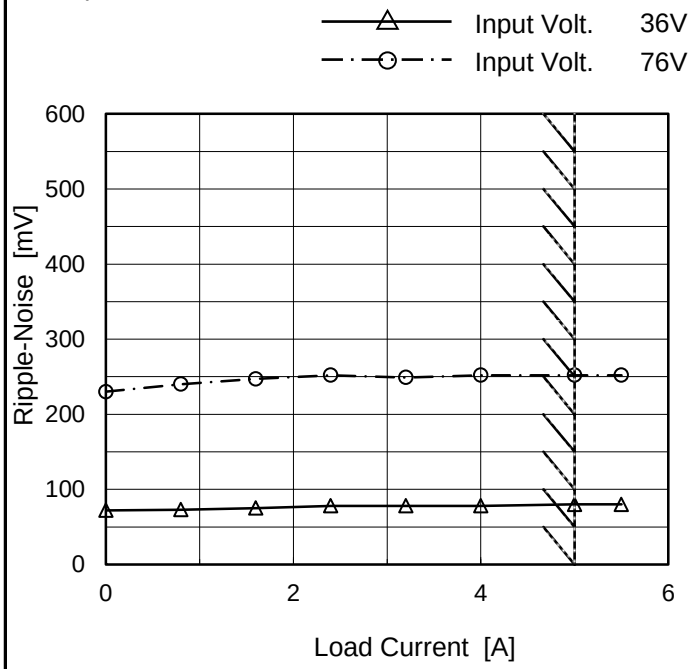
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.0	43	188
0.8	42	183
1.6	42	186
2.4	42	188
3.2	43	188
4.0	43	189
5.0	43	189
5.5	43	189
--	-	-
--	-	-
--	-	-

COSEL

Model	CQHS2504850
Item	Ripple-Noise
Object	+50V5A

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.

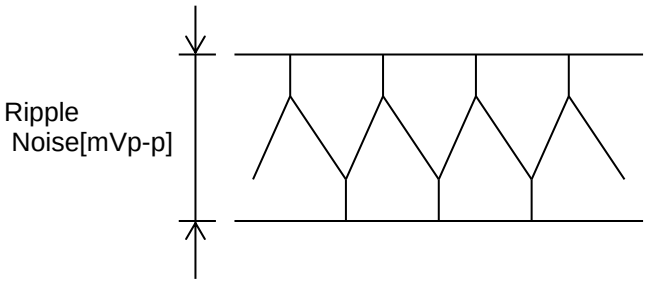


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV] Input Volt. 36 [V]	Ripple-Noise [mV] Input Volt. 76 [V]
0.0	72	230
0.8	73	240
1.6	75	247
2.4	78	252
3.2	78	249
4.0	78	252
5.0	80	252
5.5	80	252
--	-	-
--	-	-
--	-	-

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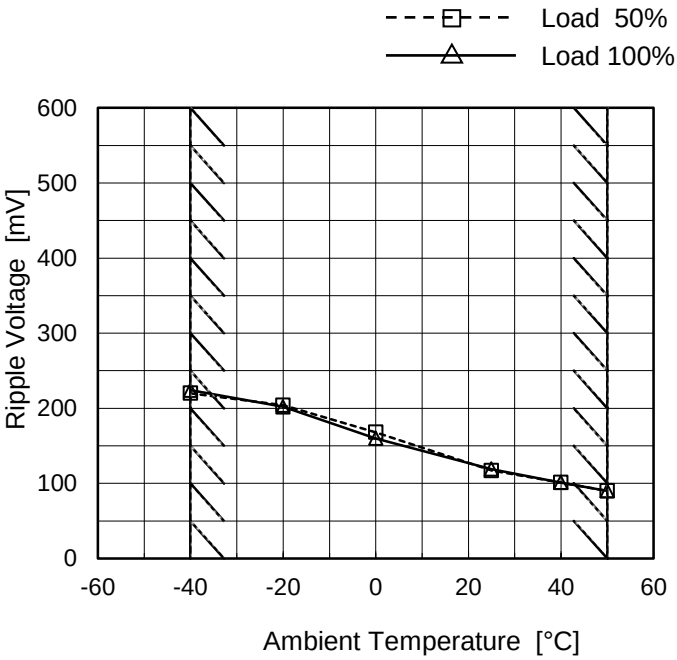
Model	CQHS2504850
Item	Ripple Voltage (by Ambient Temp.)
Object	+50V5A

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.

Ripple [mVp-p]

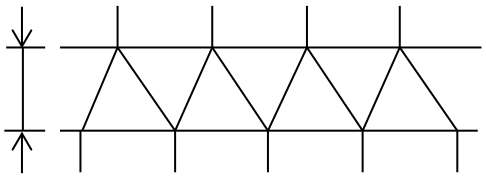


Fig.Complex Ripple Wave Form

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-40	220	224
-20	204	202
0	168	160
25	117	119
40	101	101
50	90	90
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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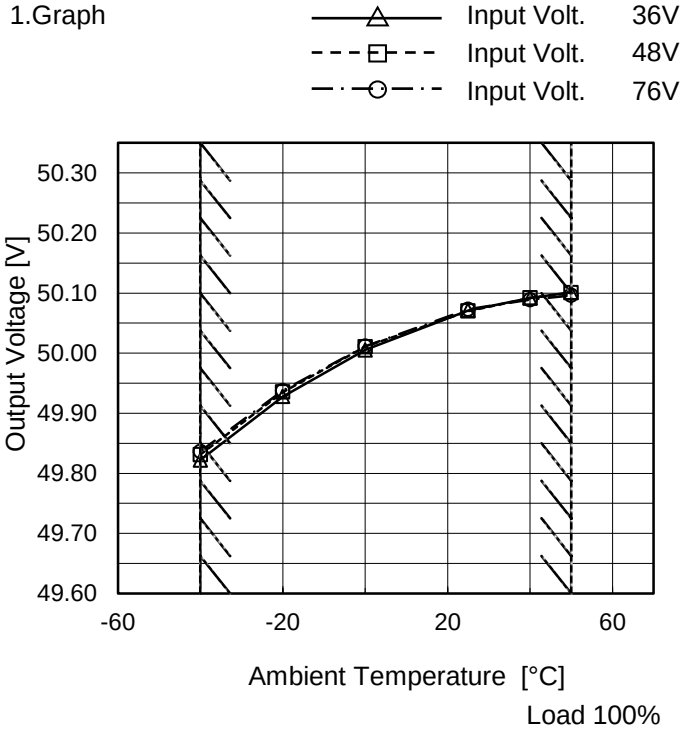
Model	CQHS2504850
Item	Ambient Temperature Drift
Object	+50V5A

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]
-40	49.822	49.831	49.837
-20	49.928	49.935	49.938
0	50.005	50.011	50.012
25	50.071	50.070	50.073
40	50.092	50.092	50.089
50	50.101	50.100	50.096
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	CQHS2504850	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+50V5A	

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 - 50°C
Input Voltage : 36 - 76V
Load Current : 0 - 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	50	36	0	50.092	±149	±0.3
Minimum Voltage	-40	76	0	49.795		

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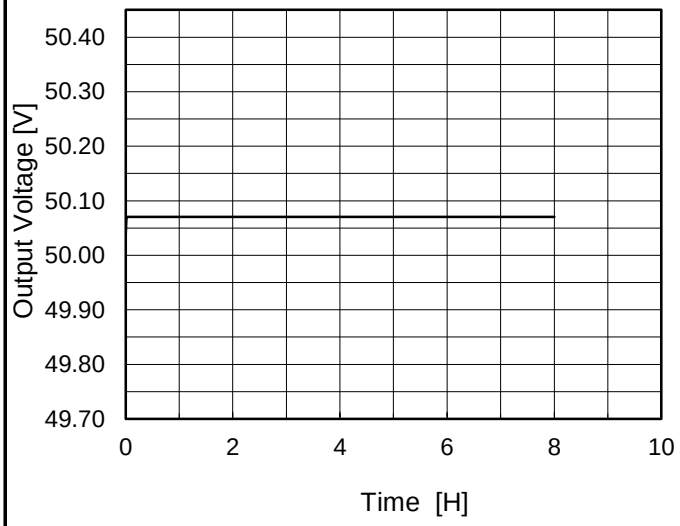
Model	CQHS2504850
Item	Time Lapse Drift
Object	+50V5A

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	50.041
0.5	50.070
1.0	50.070
2.0	50.070
3.0	50.070
4.0	50.070
5.0	50.070
6.0	50.070
7.0	50.070
8.0	50.070

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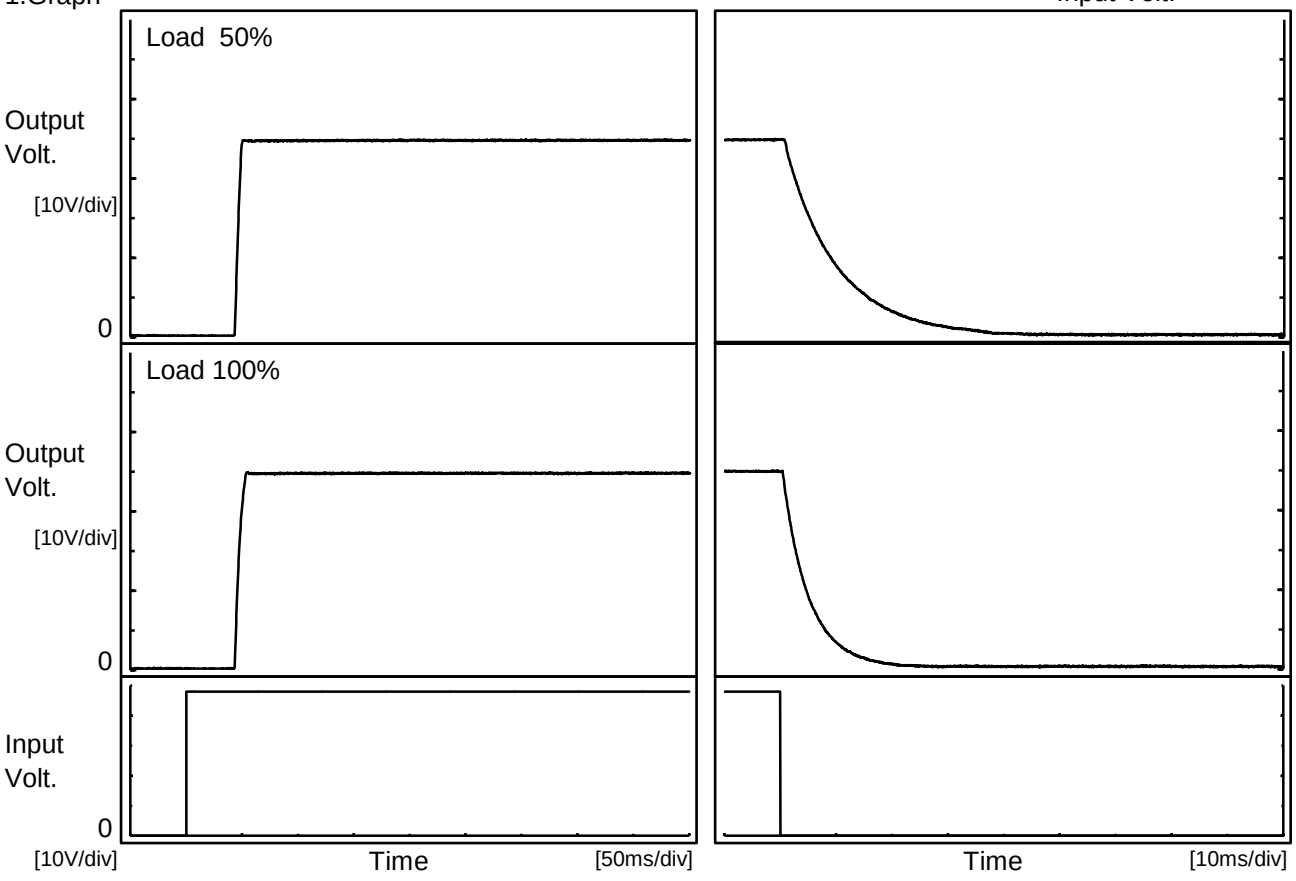
Model	CQHS2504850
Item	Rise and Fall Time
Object	+50V5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

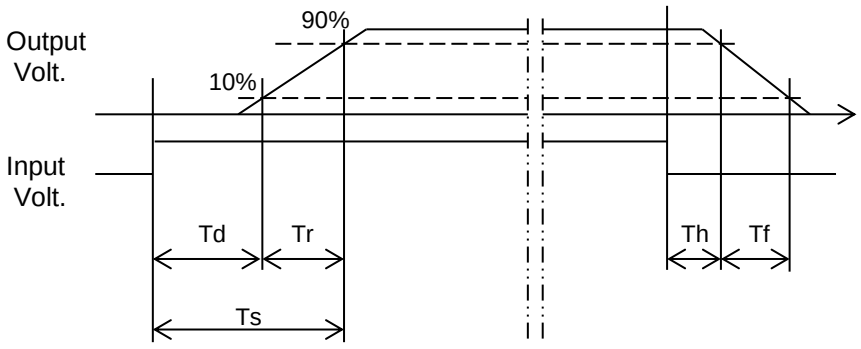
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	43.8	3.6	47.4	1.4	5.1
100 %	43.8	4.4	48.2	0.8	2.6



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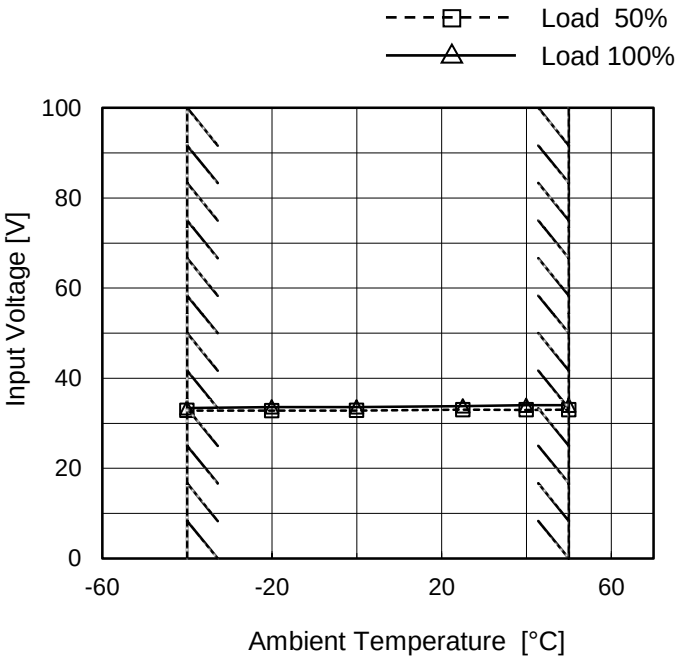
Model	CQHS2504850
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+50V5A

Testing Circuitry Figure A

1.Graph



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

2.Values

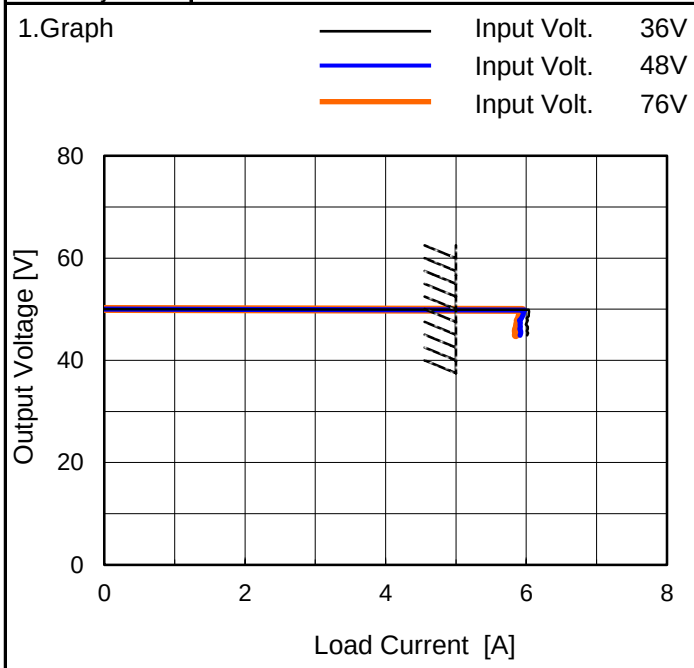
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	32.9	33.4
-20	32.8	33.6
0	32.9	33.7
25	33.1	33.9
40	33.0	34.0
50	33.1	34.1
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	CQHS2504850
Item	Overcurrent Protection
Object	+50V5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

When the output voltage fell to less than 45.0V , the unit shuts off the output by operating low voltage protection.

2.Values

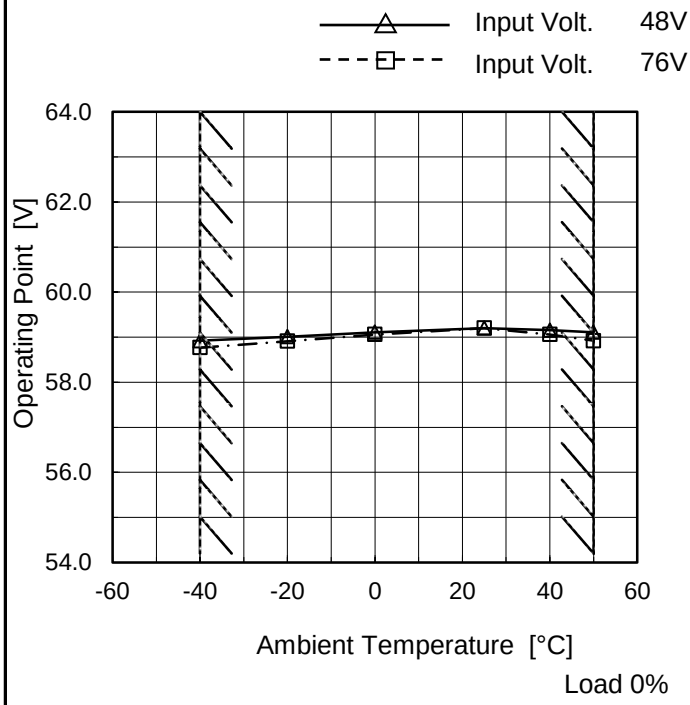
Output Voltage [V]	Load Current [A] Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
47.5	6.01	5.92	5.88
45.0	6.03	5.92	5.86
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	CQHS2504850
Item	Overvoltage Protection
Object	+50V5A

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. 48[V]	Input Volt. 76[V]
-40	58.92	58.77
-20	59.01	58.91
0	59.11	59.06
25	59.20	59.20
40	59.16	59.06
50	59.11	58.92
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

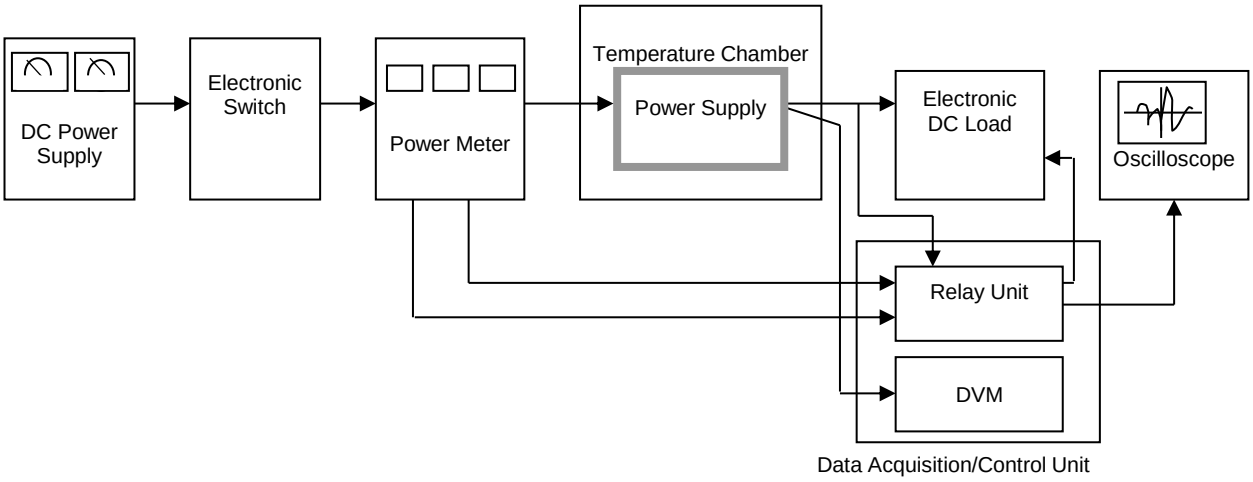
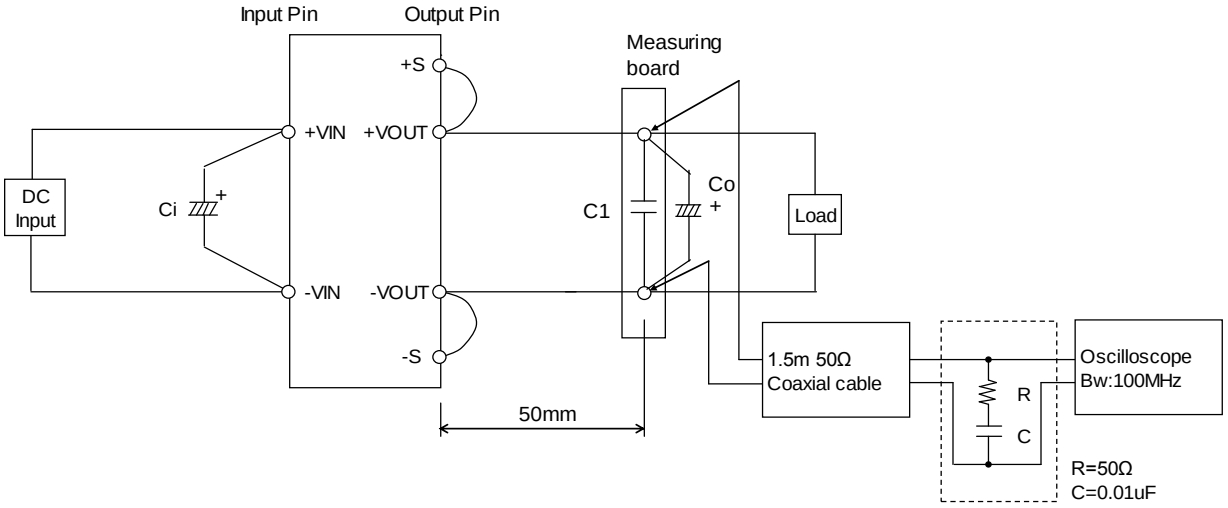


Figure A



Ci : 100V 68μF ×2
C1 : 100V 0.1μF
Co : 100V 330μF （-40℃≦Ta≦-20℃）
: 100V 100μF （-20℃＜Ta≦85℃）

Figure B（Ripple and Ripple noise Characteristic）