COSEL

参考資料

TEST DATA OF CHS3002405

Regulated DC Power Supply
June 24, 2015

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Tomomi Akai Design Engineer

COSEL CO.,LTD.

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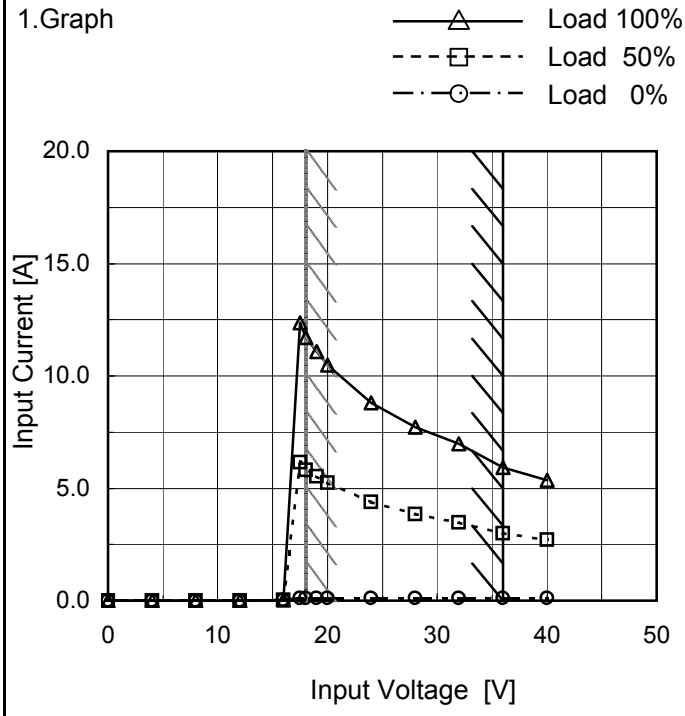
Model	CHS3002405
Item	Input Current (by Input Voltage)
Object	————————

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	0.000	0.000	0.000
4.0	0.000	0.000	0.000
8.0	0.006	0.006	0.006
12.0	0.007	0.007	0.007
16.0	0.021	0.021	0.021
17.5	0.102	6.150	12.362
18.0	0.103	5.801	11.717
19.0	0.104	5.529	11.070
20.0	0.105	5.252	10.490
24.0	0.110	4.379	8.816
28.0	0.113	3.856	7.721
32.0	0.115	3.482	6.985
36.0	0.115	2.998	5.938
40.0	0.115	2.716	5.365
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

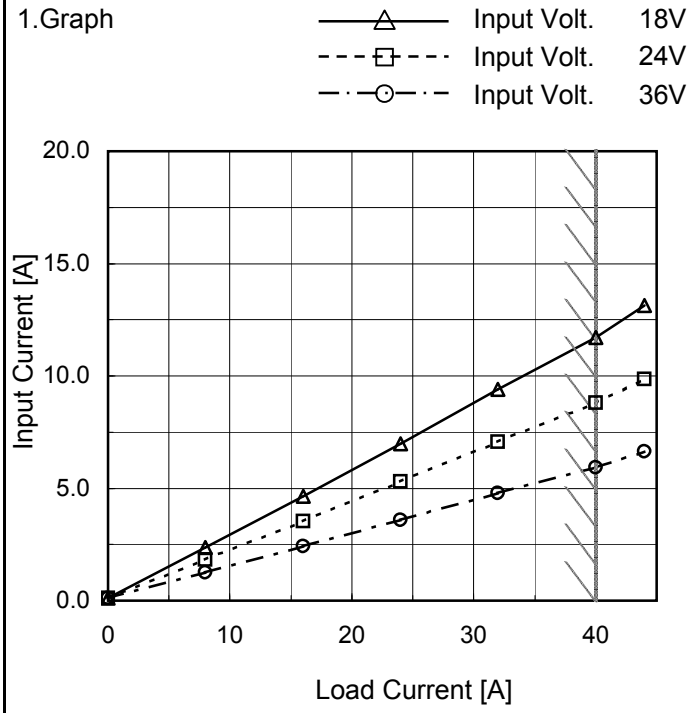
BC-10914

COSEL

Model	CHS3002405
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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.103	0.110	0.115
8	2.361	1.820	1.249
16	4.646	3.547	2.419
24	6.985	5.306	3.591
32	9.408	7.079	4.788
40	11.717	8.816	5.938
44	13.123	9.863	6.649
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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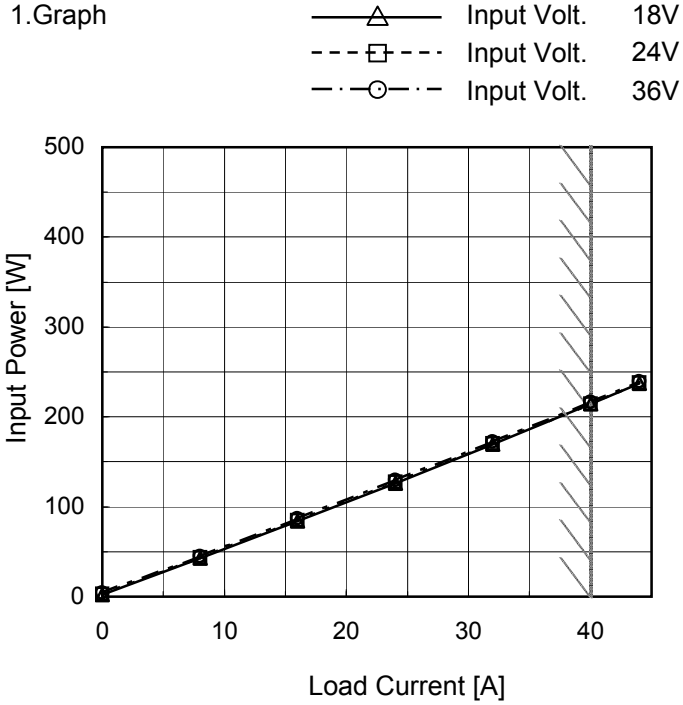
Model	CHS3002405
Item	Input Power (by Load Current)
Object	————————

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	1.9	2.7	4.1
8	42.5	43.7	45.0
16	83.9	85.1	87.0
24	126.1	127.2	129.4
32	169.7	170.4	172.6
40	214.2	214.6	216.8
44	237.1	237.5	239.5
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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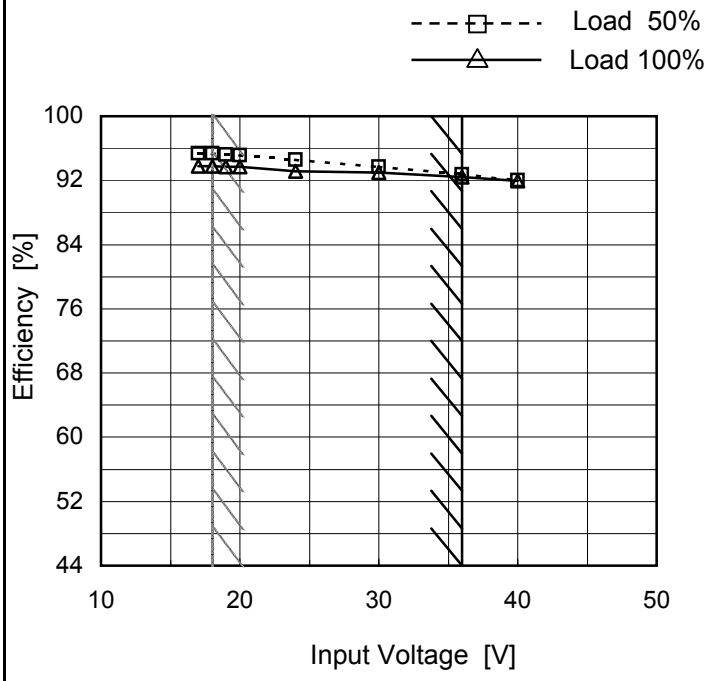
Model	CHS3002405
Item	Efficiency (by Input Voltage)
Object	———————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

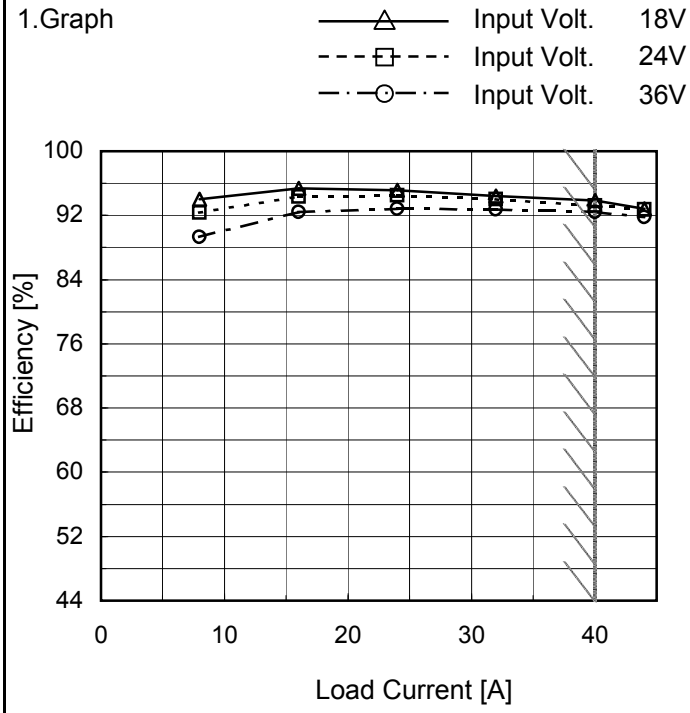
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	95.4	93.7
18	95.4	93.8
19	95.2	93.7
20	95.1	93.7
24	94.6	93.2
30	93.7	93.0
36	92.7	92.4
40	92.0	91.9
--	-	-

COSEL

Model	CHS3002405
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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	-	-	-
8	94.0	92.3	89.3
16	95.4	94.4	92.4
24	95.1	94.5	92.8
32	94.4	94.0	92.7
40	93.8	93.2	92.4
44	92.8	92.7	91.8
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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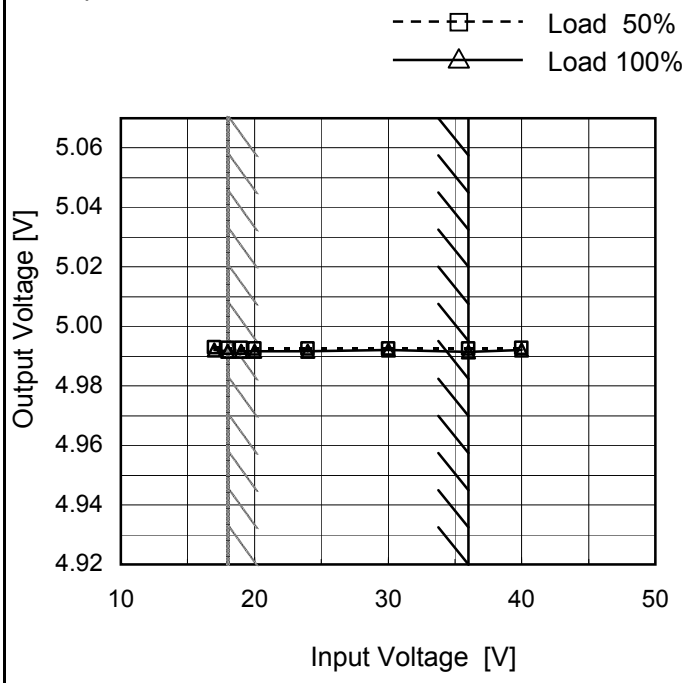
Model	CHS3002405
Item	Line Regulation
Object	+5V40A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

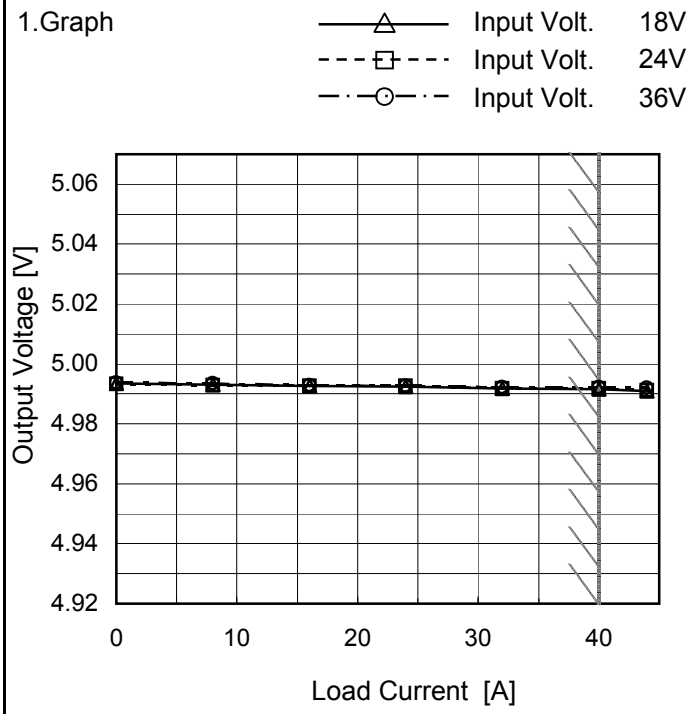
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	4.993	4.992
18	4.993	4.992
19	4.993	4.992
20	4.993	4.992
24	4.993	4.992
30	4.993	4.992
36	4.993	4.992
40	4.993	4.992
--	-	-

COSEL

Model	CHS3002405
Item	Load Regulation
Object	+5V40A

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	4.994	4.993	4.994
8	4.993	4.993	4.994
16	4.993	4.993	4.993
24	4.993	4.993	4.993
32	4.992	4.992	4.992
40	4.992	4.992	4.992
44	4.991	4.991	4.992
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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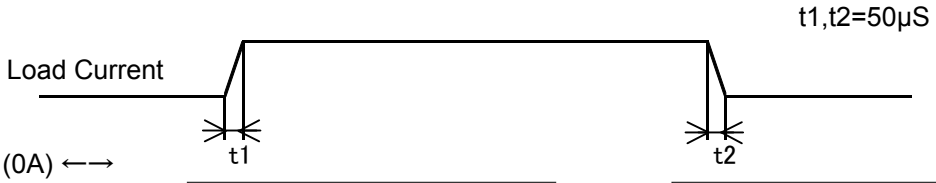
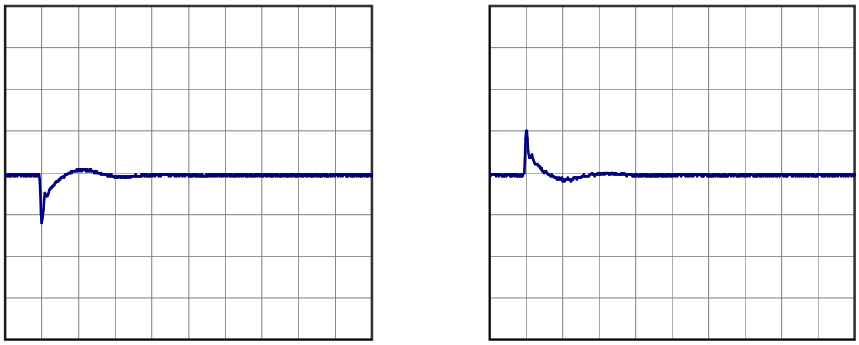
Model	CHS3002405		
Item	Dynamic Load Response	Temperature Testing Circuitry	25℃ Figure A
Object	+5V40A		

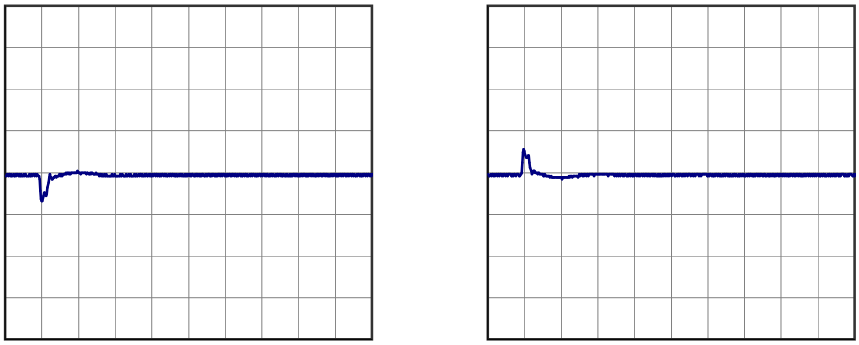
Input Volt. 48 V
Cycle 5 ms



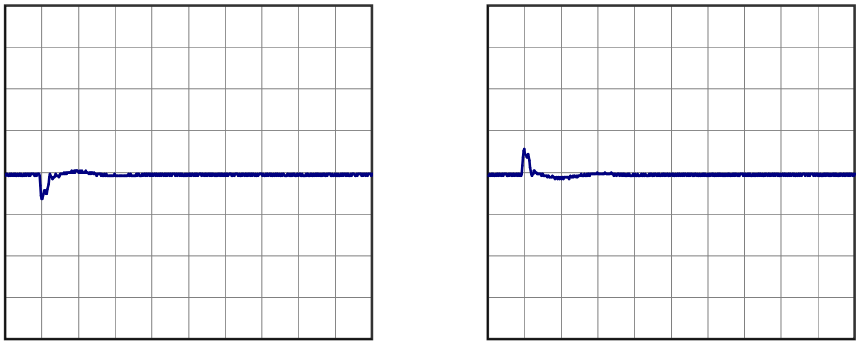
Min. Load (0A) ⟷
Load 100% (40A)



Min. Load (0A) ⟷
Load 50% (20A)



Load 50% (20A) ⟷
Load 100% (40A)



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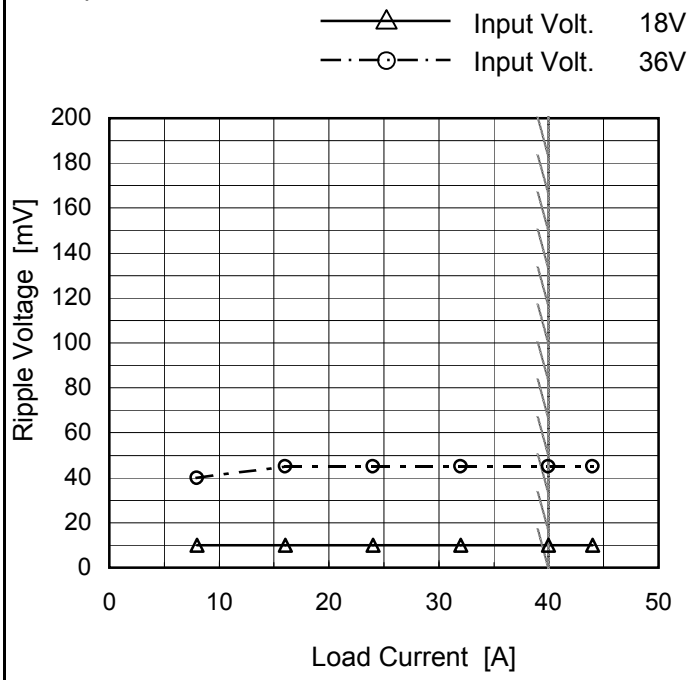
Model	CHS3002405
Item	Ripple Voltage (by Load Current)
Object	+5V40A

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]

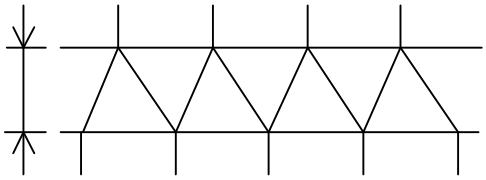


Fig.Complex Ripple Wave Form

2.Values

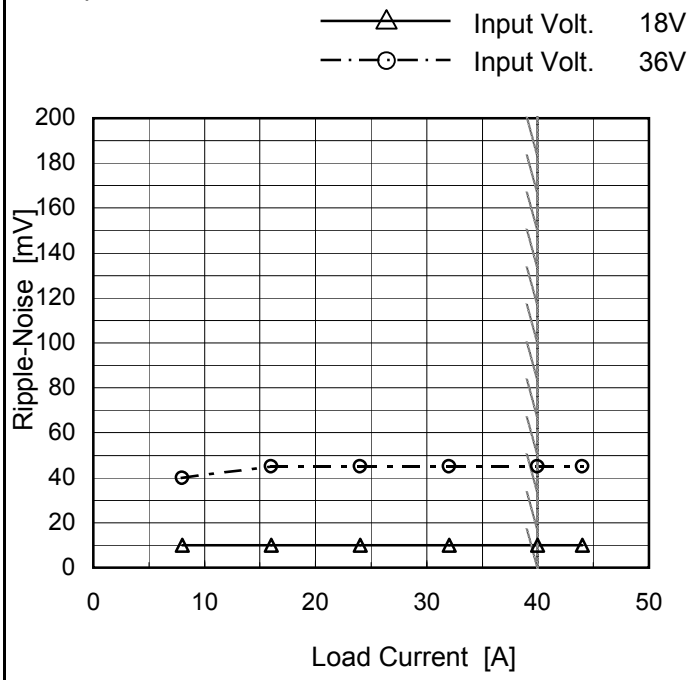
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
8	10	40
16	10	45
24	10	45
32	10	45
40	10	45
44	10	45
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	CHS3002405
Item	Ripple-Noise
Object	+5V40A

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.

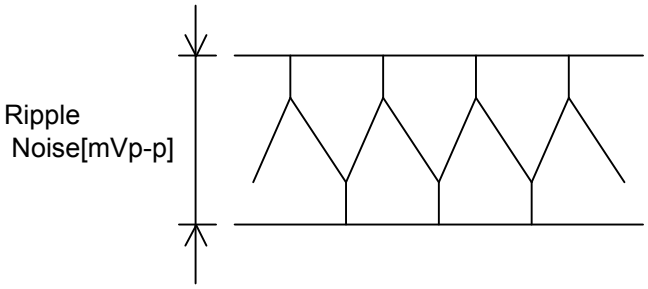


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
8.0	10	40
16.0	10	45
24.0	10	45
32.0	10	45
40.0	10	45
44.0	10	45
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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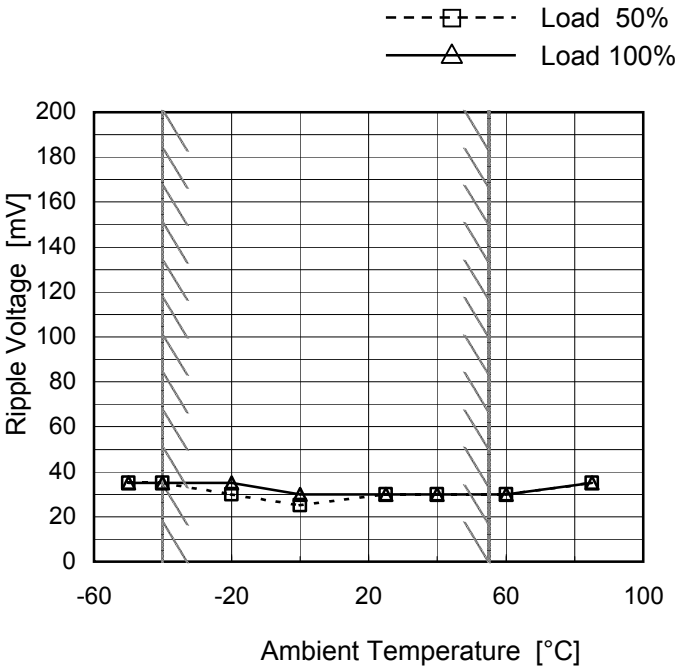
Model	CHS3002405
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V40A

Testing Circuitry Figure B

1.Graph



Input Volt. 24 V

Measured by 100 MHz Oscilloscope.

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

Ripple [mVp-p]

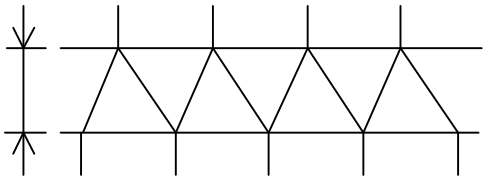


Fig.Complex Ripple Wave Form

2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	35	35
-40	35	35
-20	30	35
0	25	30
25	30	30
40	30	30
60	30	30
85	35	35
--	-	-
--	-	-
--	-	-

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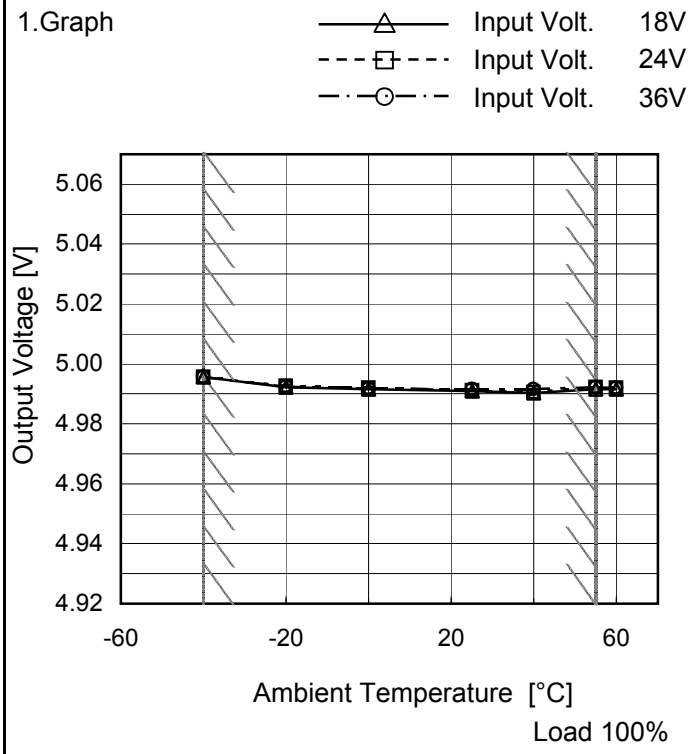
Model	CHS3002405
Item	Ambient Temperature Drift
Object	+5V40A

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-40	4.996	4.996	4.996
-20	4.992	4.993	4.993
0	4.992	4.992	4.992
25	4.991	4.991	4.992
40	4.990	4.991	4.992
55	4.992	4.992	4.992
60	4.992	4.992	4.992
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	CHS3002405	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V40A	

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 - 55°C
Input Voltage : 18 - 36V
Load Current : 0 - 40A

* 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	-40	36	0	4.998	±4	±0.1
Minimum Voltage	40	18	40	4.990		

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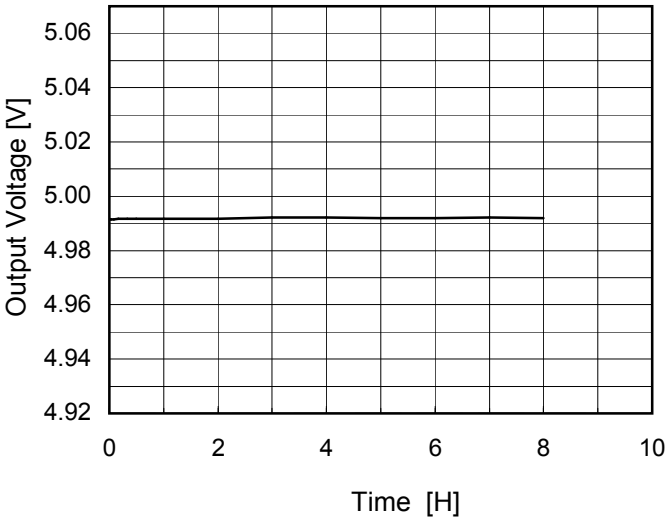
Model	CHS3002405
Item	Time Lapse Drift
Object	+5V40A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 24V
Load 100%

2.Values

Time since start [H]	Output Voltage [V]
0.0	4.992
0.5	4.992
1.0	4.992
2.0	4.992
3.0	4.992
4.0	4.992
5.0	4.992
6.0	4.992
7.0	4.992
8.0	4.992

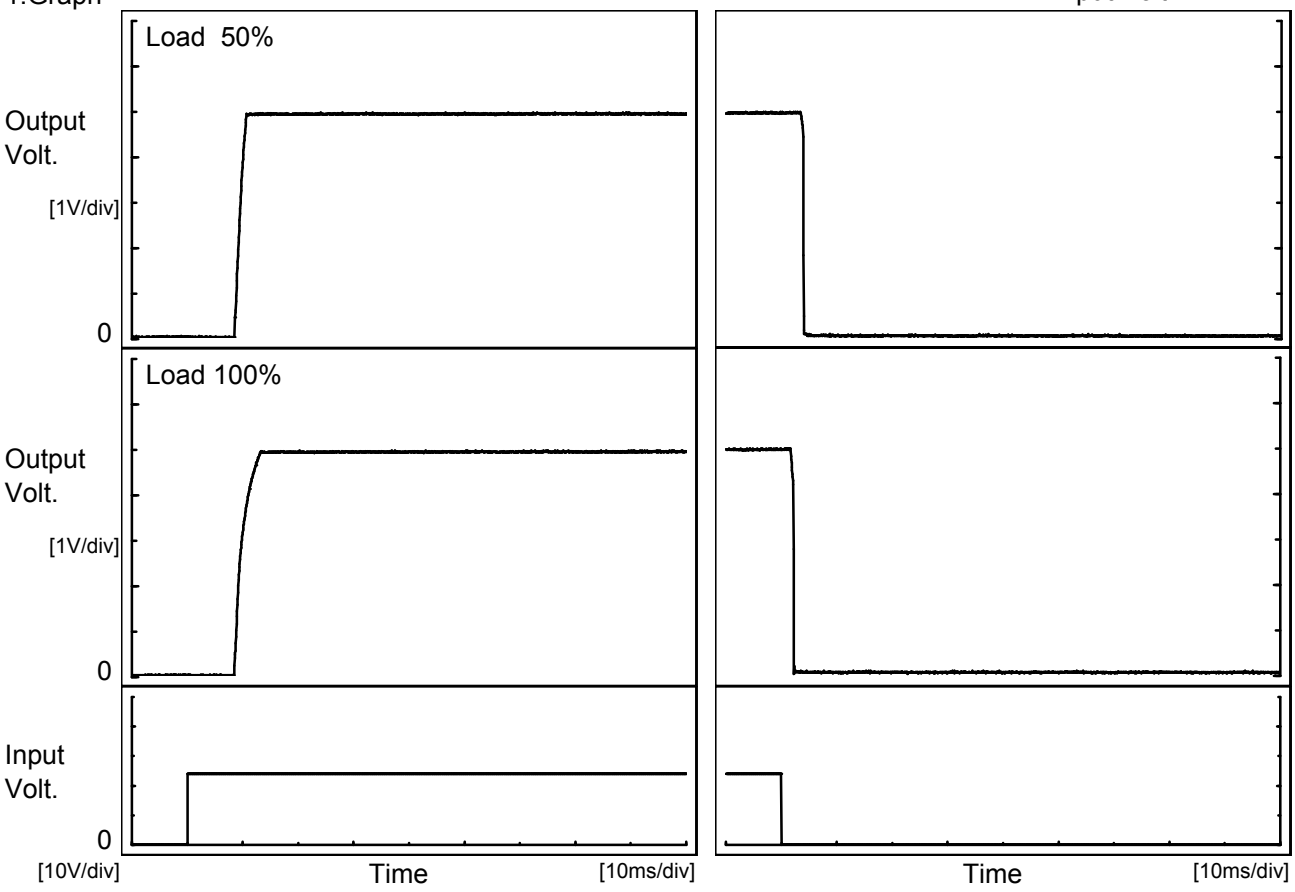
COSEL

Model	CHS3002405
Item	Rise and Fall Time
Object	+5V40A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

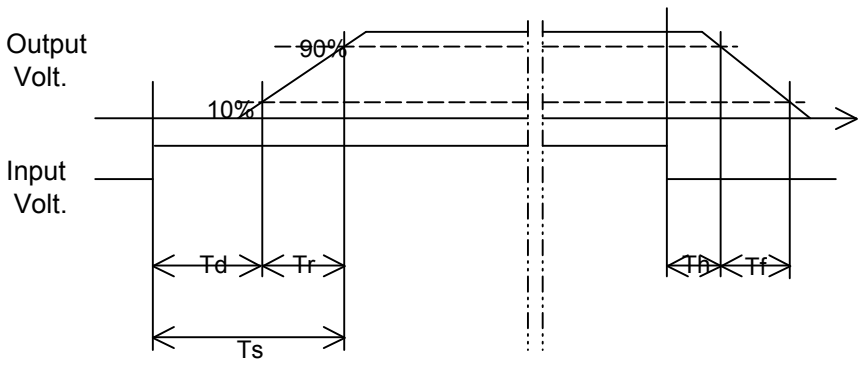
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	8.7	1.8	10.5	3.9	0.1
100 %	8.7	3.4	12.1	1.9	0.3

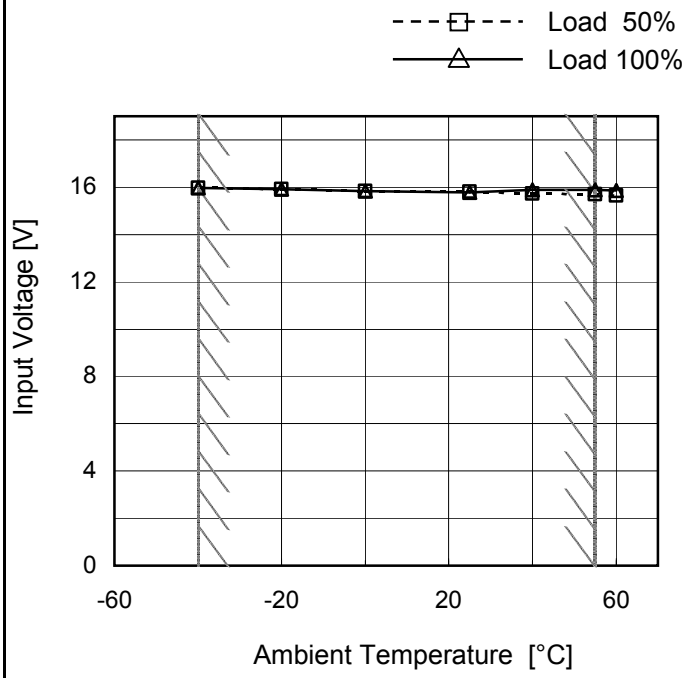


COSEL

Model	CHS3002405
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V40A

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	16.0	16.0
-20	16.0	16.0
0	15.9	15.9
25	15.9	15.8
40	15.8	15.9
55	15.7	15.9
60	15.7	15.9
--	-	-
--	-	-
--	-	-
--	-	-

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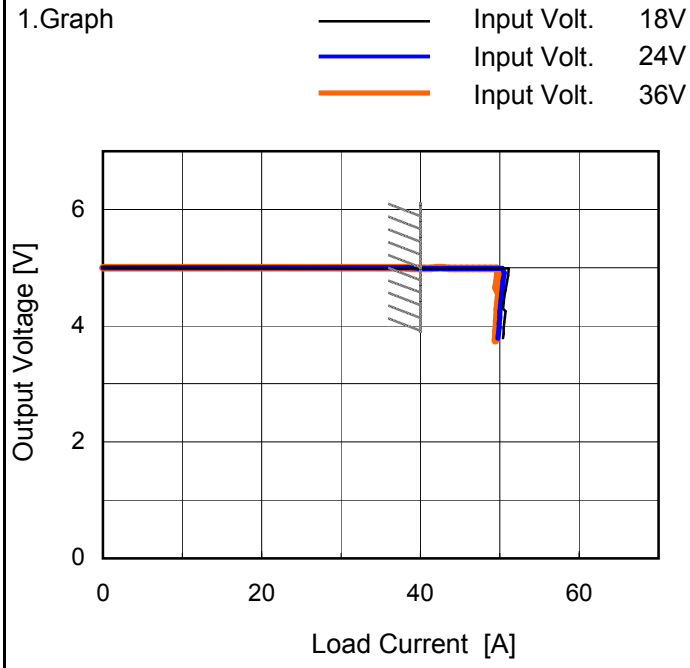
Model	CHS3002405
Item	Overcurrent Protection
Object	+5V40A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

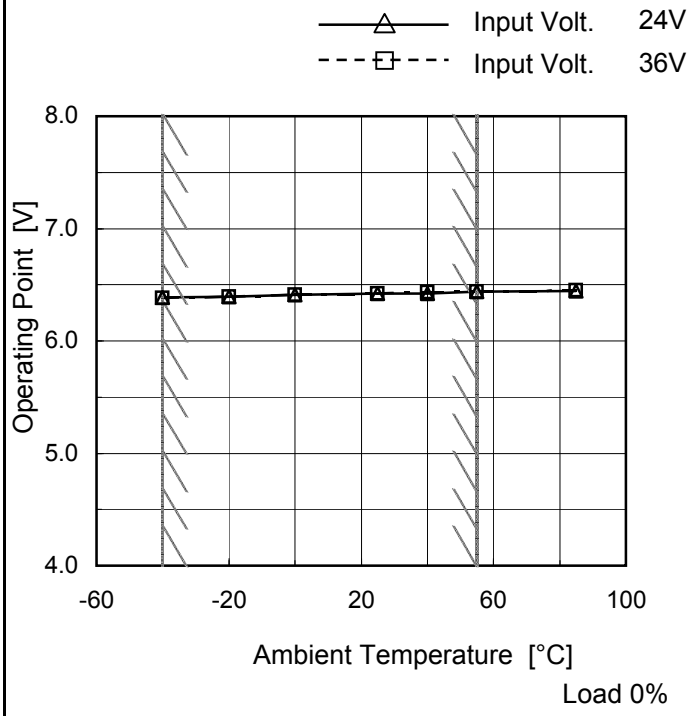
Output Voltage [V]	Load Current [A]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
4.75	50.87	50.43	49.67
4.50	50.57	50.21	49.91
4.00	50.59	49.93	49.57
3.50	50.40	49.79	49.46
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	CHS3002405
Item	Overvoltage Protection
Object	+5V40A

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. 24[V]	Input Volt. 36[V]
-40	6.39	6.38
-20	6.39	6.39
0	6.41	6.41
25	6.42	6.42
40	6.42	6.43
55	6.44	6.44
85	6.44	6.45
--	-	-
--	-	-
--	-	-
--	-	-

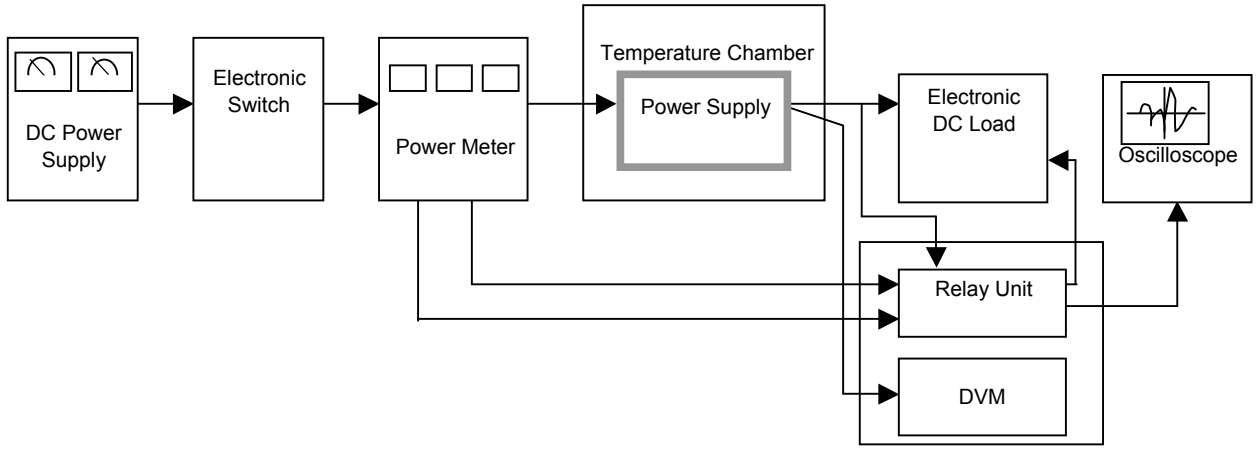


Figure A

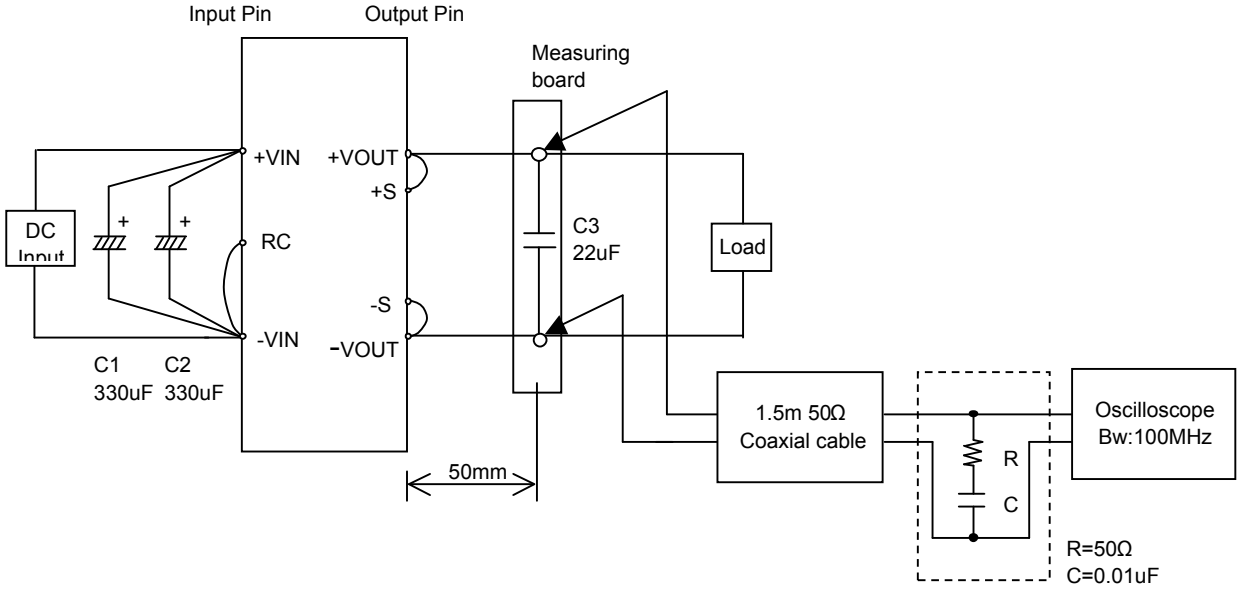


Figure B