参考資料

COSEL

TEST DATA OF CHS4002424

Regulated DC Powew Supply
June 22,2018

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COSEL CO.,LTD.

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

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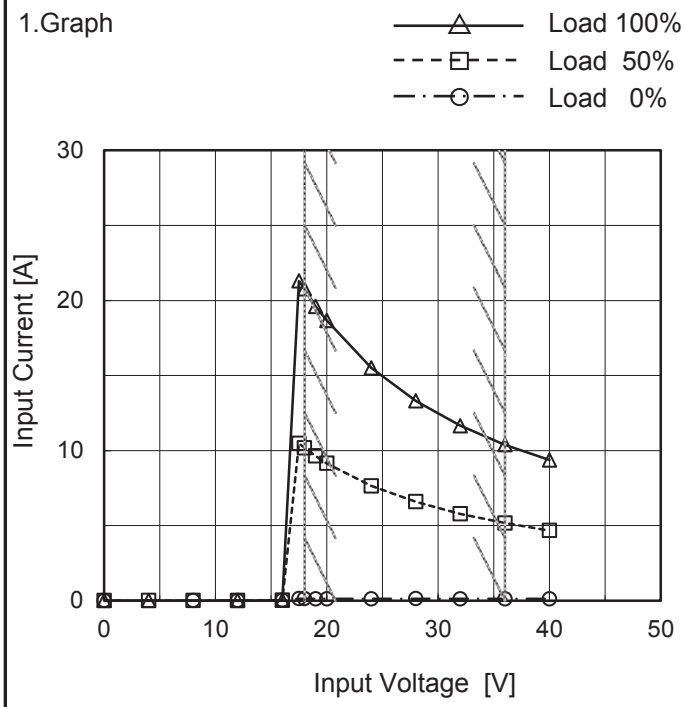
1.Graph



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

2.Values

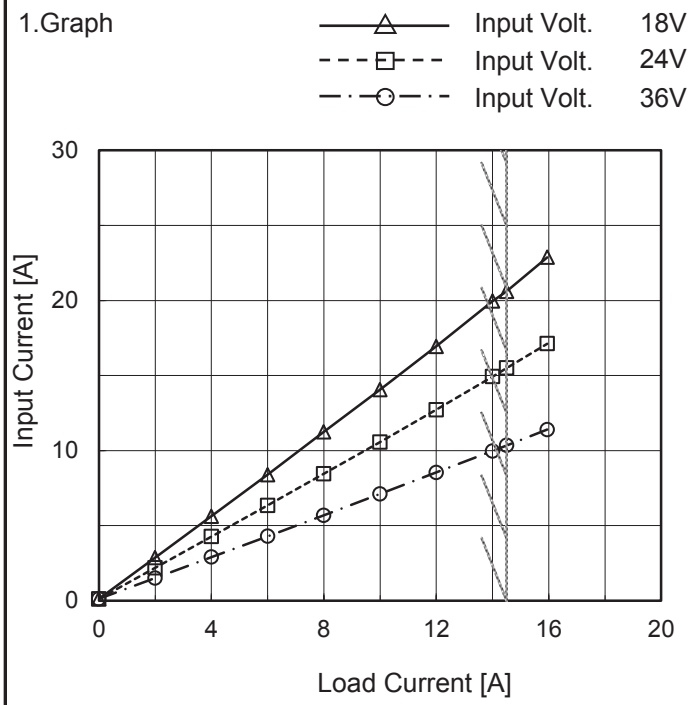
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
4.0	0.000	0.000	0.000
8.0	0.006	0.006	0.006
12.0	0.009	0.009	0.009
16.0	0.022	0.020	0.020
17.5	0.125	10.465	21.293
18.0	0.126	10.184	20.775
19.0	0.119	9.632	19.602
20.0	0.122	9.148	18.666
24.0	0.121	7.642	15.514
28.0	0.125	6.592	13.298
32.0	0.122	5.774	11.655
36.0	0.123	5.169	10.384
40.0	0.122	4.668	9.366
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

BC-11279

Model	CHS4002424
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

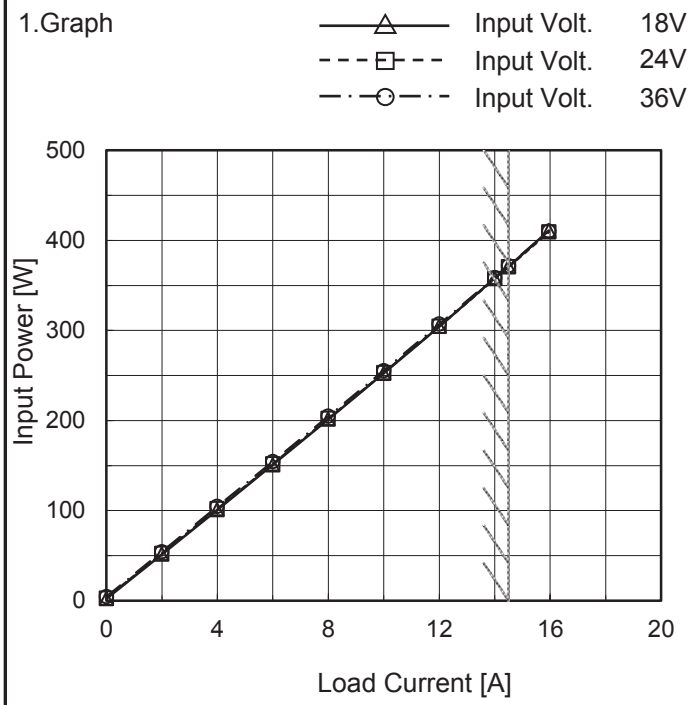
Load Current [A]	Input Current [A]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	0.126	0.121	0.123
2.00	2.865	2.191	1.505
4.00	5.620	4.264	2.904
6.00	8.389	6.343	4.286
8.00	11.244	8.455	5.684
10.00	14.063	10.560	7.106
12.00	16.942	12.717	8.542
14.00	19.956	14.927	9.970
14.50	20.775	15.514	10.384
15.95	22.869	17.117	11.394
--	-	-	-

BC-11279

Model	CHS4002424
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.

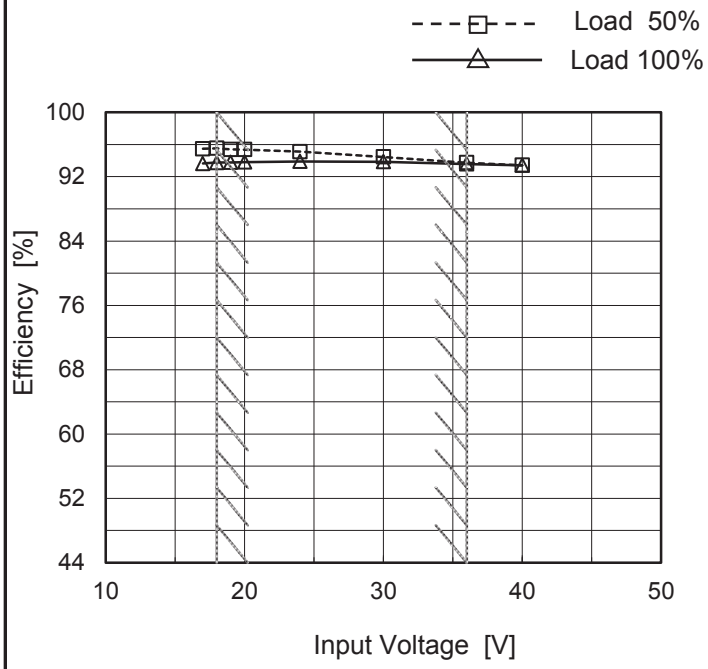
2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	2.1	2.8	4.3
2.00	51.5	52.5	54.1
4.00	100.8	102.0	104.5
6.00	150.9	151.8	154.2
8.00	201.5	202.1	204.7
10.00	252.5	253.0	255.2
12.00	304.5	304.7	306.9
14.00	358.0	357.3	358.7
14.50	371.0	370.5	371.9
15.95	410.9	409.2	410.1
--	-	-	-

Model	CHS4002424
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.

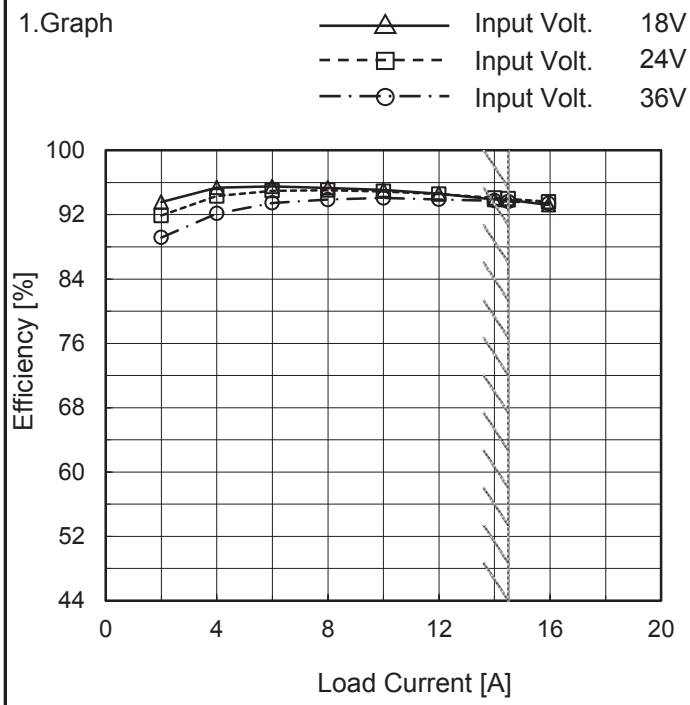
2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
17	95.5	93.6
18	95.5	93.8
19	95.4	93.8
20	95.4	93.8
24	95.1	93.9
30	94.5	93.9
36	93.7	93.6
40	93.4	93.4
--	-	-

Model	CHS4002424
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]
0.00	-	-	-
2.00	93.6	91.9	89.2
4.00	95.4	94.3	92.1
6.00	95.5	95.0	93.5
8.00	95.3	95.0	93.9
10.00	95.1	94.9	94.1
12.00	94.6	94.6	93.9
14.00	93.9	94.1	93.7
14.50	93.8	93.9	93.6
15.95	93.2	93.6	93.4
--	-	-	-

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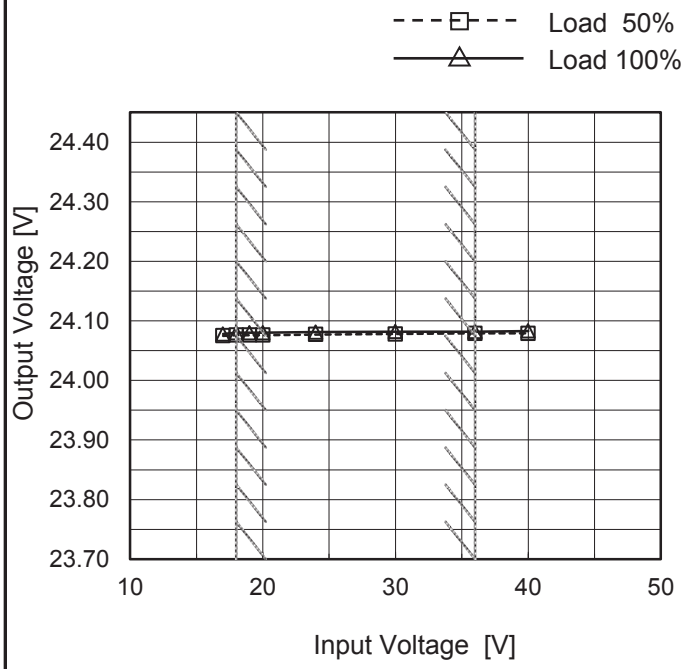
Model	CHS4002424
Item	Line Regulation
Object	+24V14.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

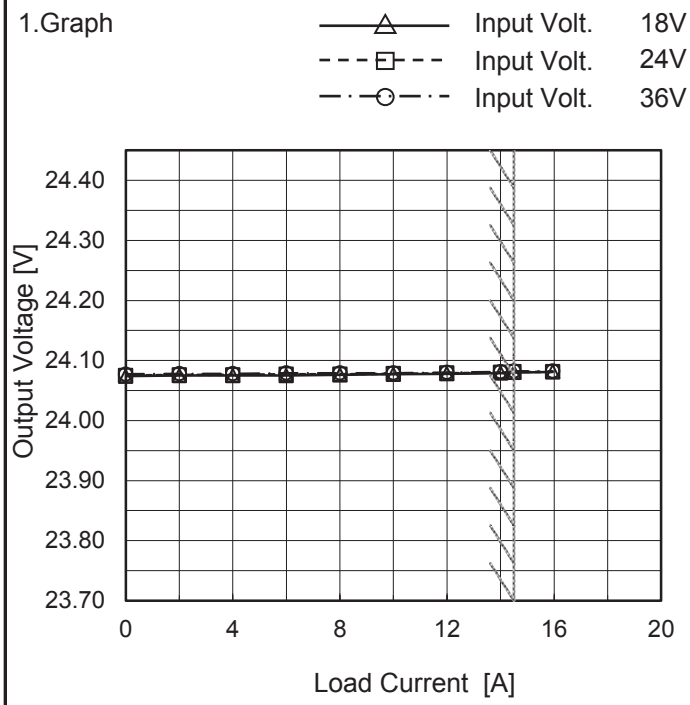
2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	24.075	24.078
18	24.076	24.080
19	24.076	24.080
20	24.076	24.080
24	24.077	24.081
30	24.078	24.082
36	24.079	24.082
40	24.079	24.083
--	-	-

Model	CHS4002424
Item	Load Regulation
Object	+24V14.5A

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	24.074	24.075	24.077
2.00	24.075	24.076	24.078
4.00	24.075	24.076	24.078
6.00	24.075	24.077	24.079
8.00	24.076	24.077	24.079
10.00	24.077	24.078	24.079
12.00	24.078	24.079	24.080
14.00	24.079	24.080	24.081
14.50	24.080	24.081	24.082
15.95	24.081	24.081	24.082
--	-	-	-

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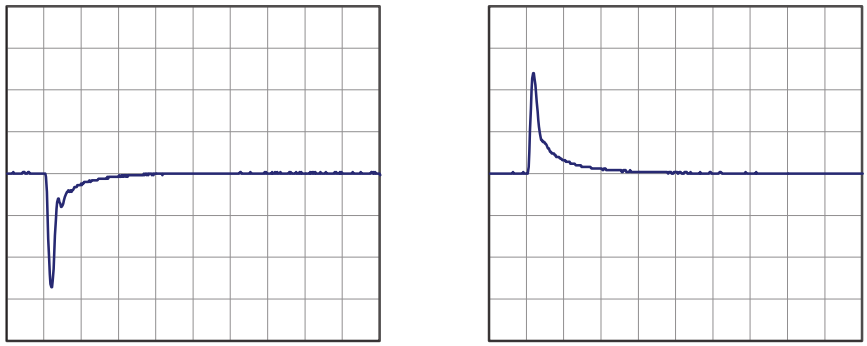
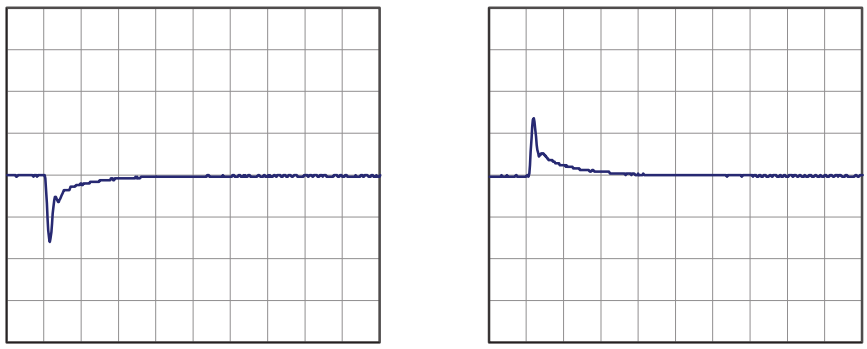
Model	CHS4002424		
Item	Dynamic Load Response	Temperature Testing Circuitry	25℃ Figure A
Object	+24V14.5A		

Input Volt. 24 V
Cycle 5 ms

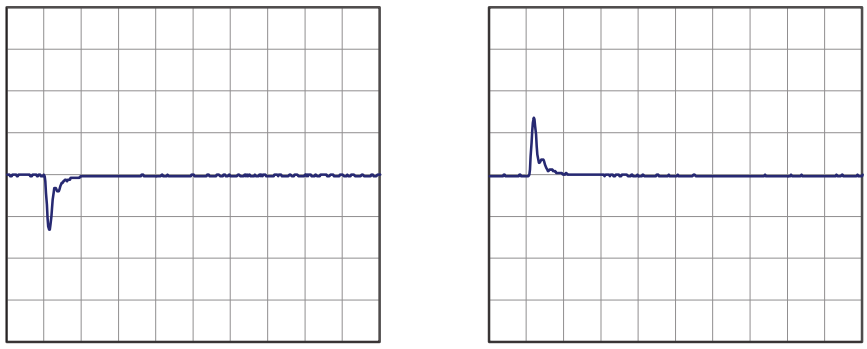
Min. Load (0A) ⟷
Load 100% (14.5A)



Min. Load (0A) ⟷
Load 50% (7.25A)



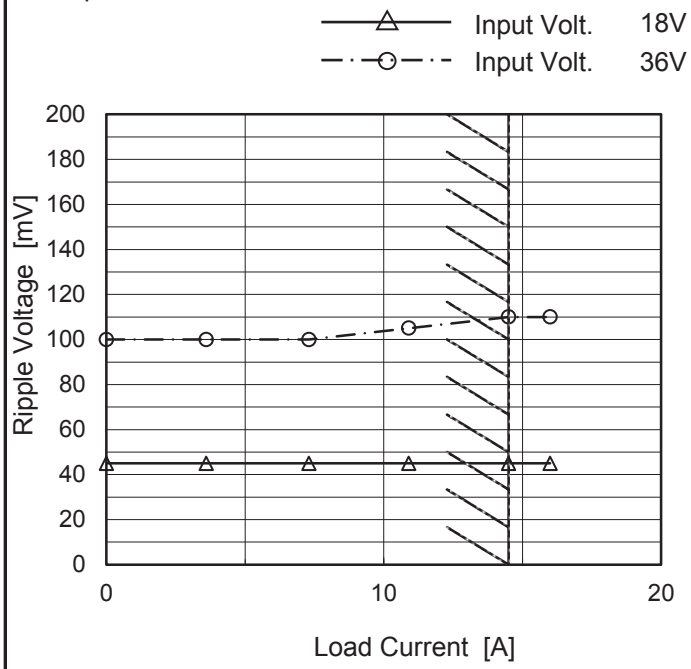
Load 50% (7.25A) ⟷
Load 100% (14.5A)



Model	CHS4002424
Item	Ripple Voltage (by Load Current)
Object	+24V14.5A

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]

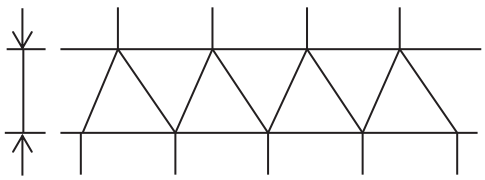


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	45	100
3.6	45	100
7.3	45	100
10.9	45	105
14.5	45	110
16.0	45	110
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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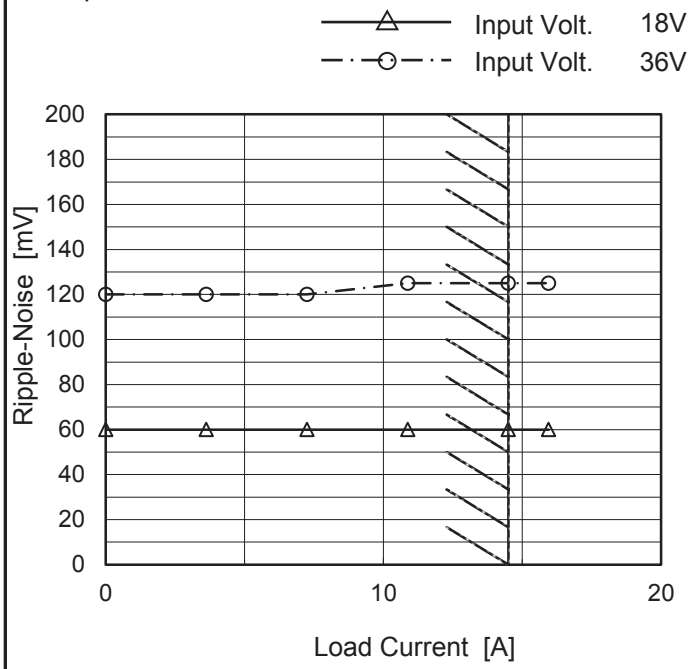
Model	CHS4002424
Item	Ripple-Noise
Object	+24V14.5A

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.

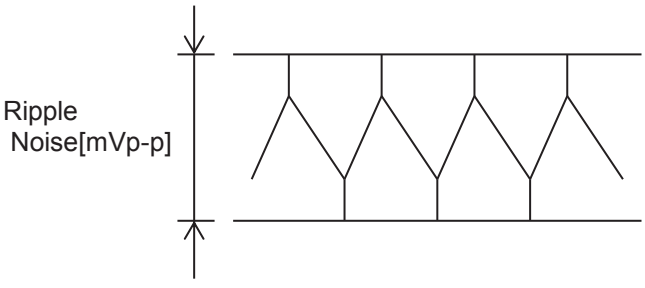


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	60	120
3.6	60	120
7.3	60	120
10.9	60	125
14.5	60	125
16.0	60	125
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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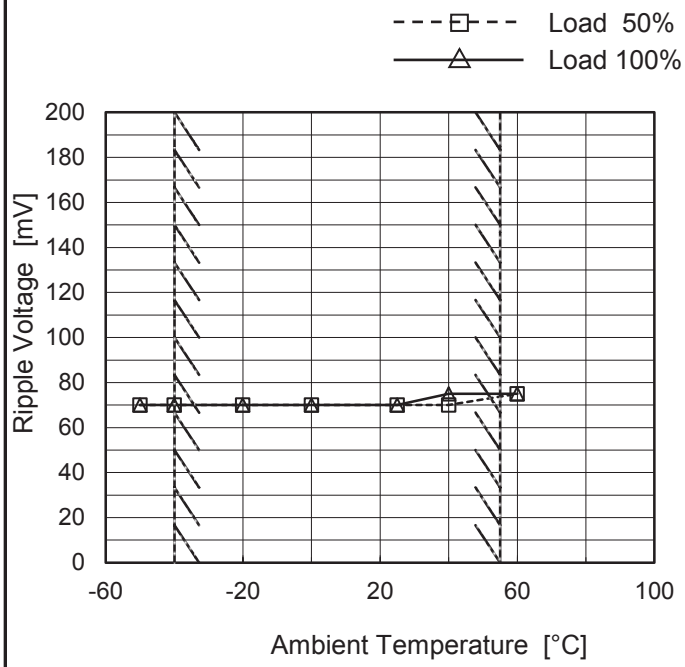
Model	CHS4002424
Item	Ripple Voltage (by Ambient Temp.)
Object	+24V14.5A

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]

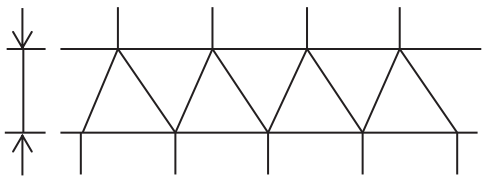


Fig.Complex Ripple Wave Form

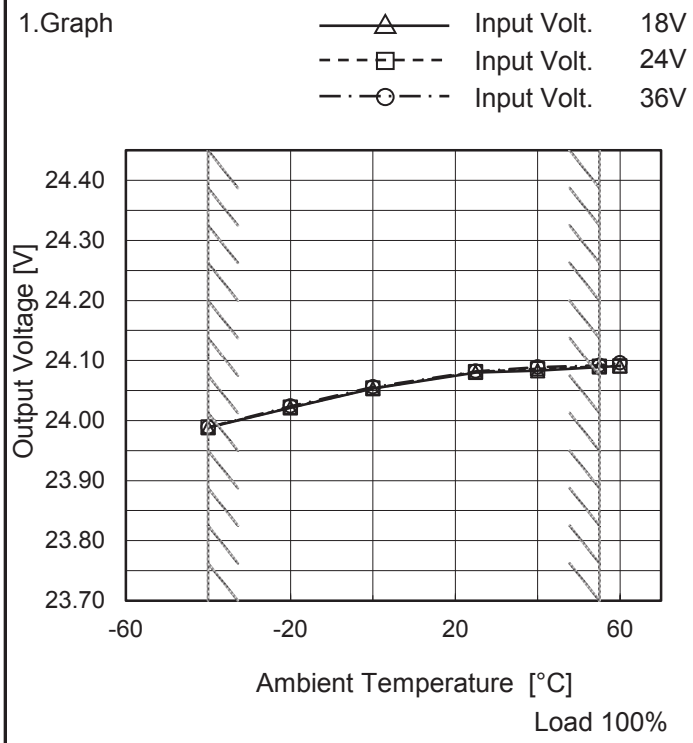
2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	70	70
-40	70	70
-20	70	70
0	70	70
25	70	70
40	70	75
60	75	75
--	-	-
--	-	-
--	-	-
--	-	-

Model	CHS4002424
Item	Ambient Temperature Drift
Object	+24V14.5A

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. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-40	23.988	23.989	23.989
-20	24.021	24.022	24.024
0	24.053	24.054	24.056
25	24.080	24.081	24.082
40	24.083	24.086	24.089
55	24.089	24.090	24.092
60	24.091	24.091	24.096
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	CHS4002424	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+24V14.5A	

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 - 55°C
Input Voltage : 18 - 36V
Load Current : 0 - 14.5A

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

$$\text{* Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

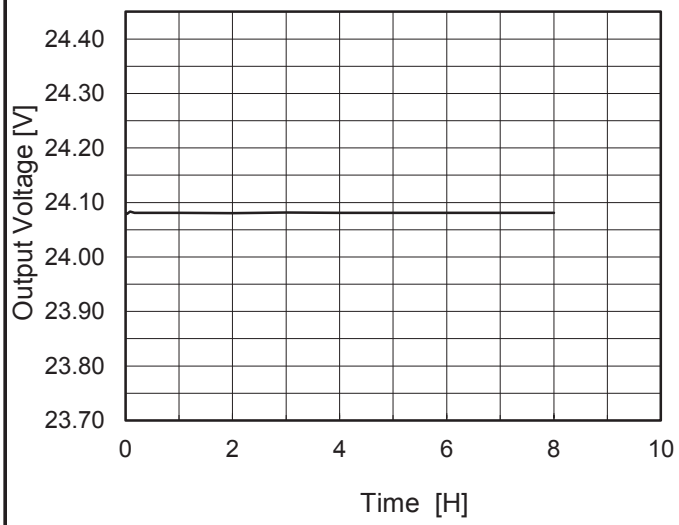
2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	36	14.5	24.092	±56	±0.2
Minimum Voltage	-40	36	0	23.981		

Model	CHS4002424
Item	Time Lapse Drift
Object	+24V14.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 24V
Load 100%

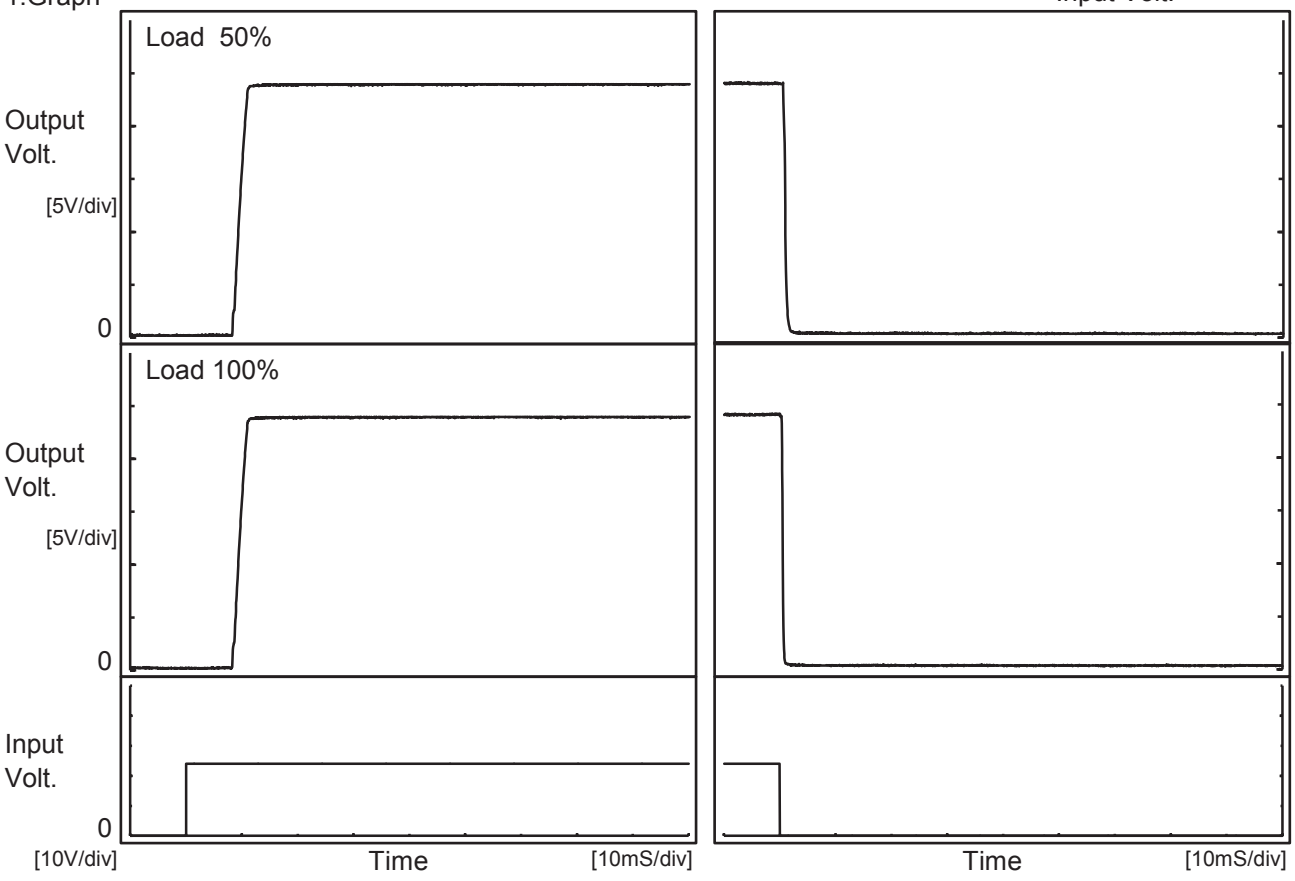
2.Values

Time since start [H]	Output Voltage [V]
0.0	24.081
0.5	24.081
1.0	24.081
2.0	24.081
3.0	24.081
4.0	24.081
5.0	24.081
6.0	24.081
7.0	24.081
8.0	24.081

Model	CHS4002424	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+24V14.5A	

1.Graph

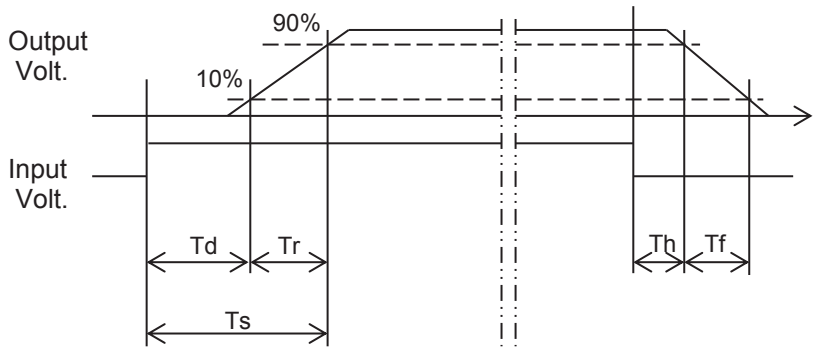
Input Volt. 24 V



2.Values

[mS]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	8.7	2.2	10.9	0.7	0.6
100 %	8.7	2.1	10.8	0.4	0.3



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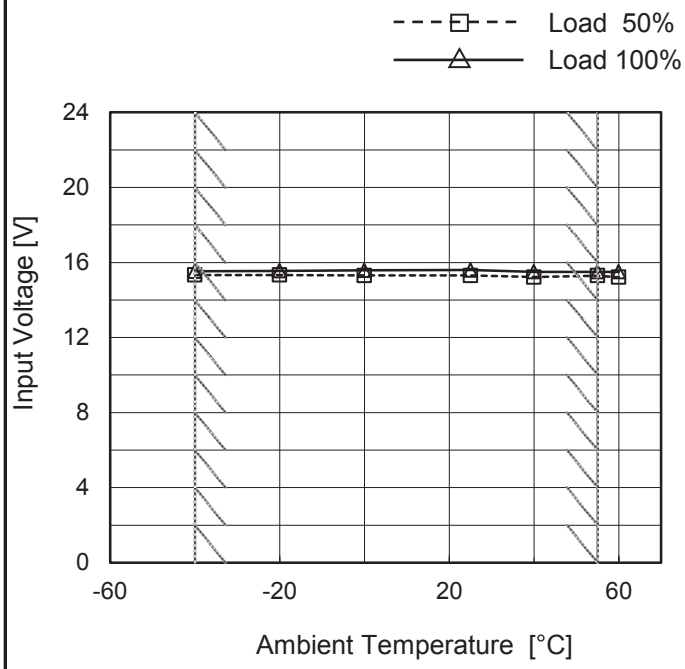
Model	CHS4002424
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+24V14.5A

Testing Circuitry Figure A

1.Graph



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

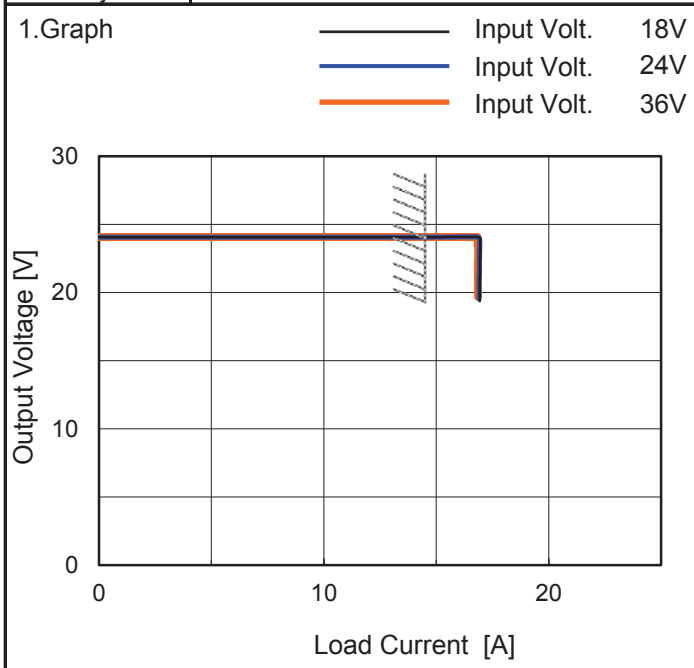
2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	15.4	15.6
-20	15.4	15.6
0	15.3	15.6
25	15.3	15.6
40	15.3	15.5
55	15.3	15.5
60	15.3	15.5
--	-	-
--	-	-
--	-	-
--	-	-

Model	CHS4002424
Item	Overcurrent Protection
Object	+24V14.5A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

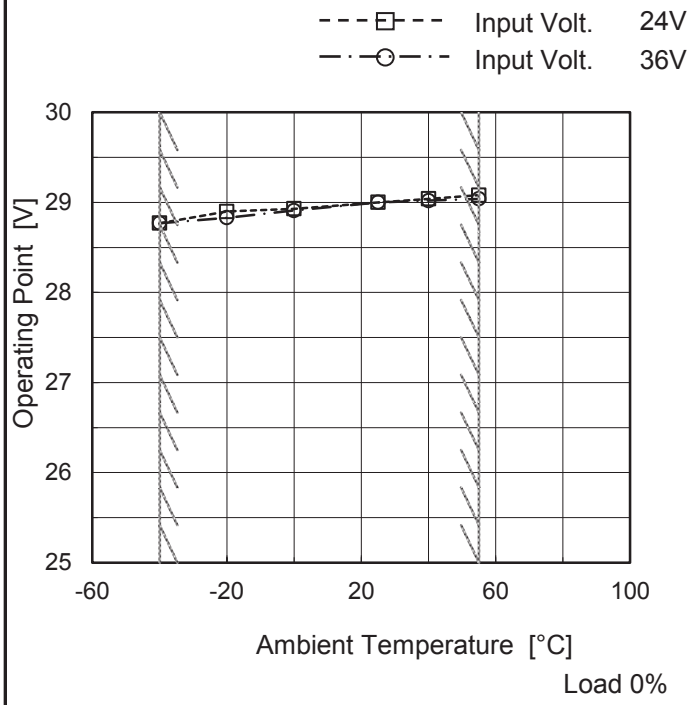
2.Values

Output Voltage [V]	Load Current [A]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
22.8	16.95	16.92	16.86
21.6	16.94	16.91	16.86
19.2	16.92	16.90	16.85
16.8	16.92	16.90	16.86
14.4	16.92	16.90	16.86
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	CHS4002424
Item	Overvoltage Protection
Object	+24V14.5A

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. 24[V]	Input Volt. 36[V]
-40	28.77	28.77
-20	28.90	28.83
0	28.93	28.91
25	29.00	29.00
40	29.04	29.02
55	29.08	29.04
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

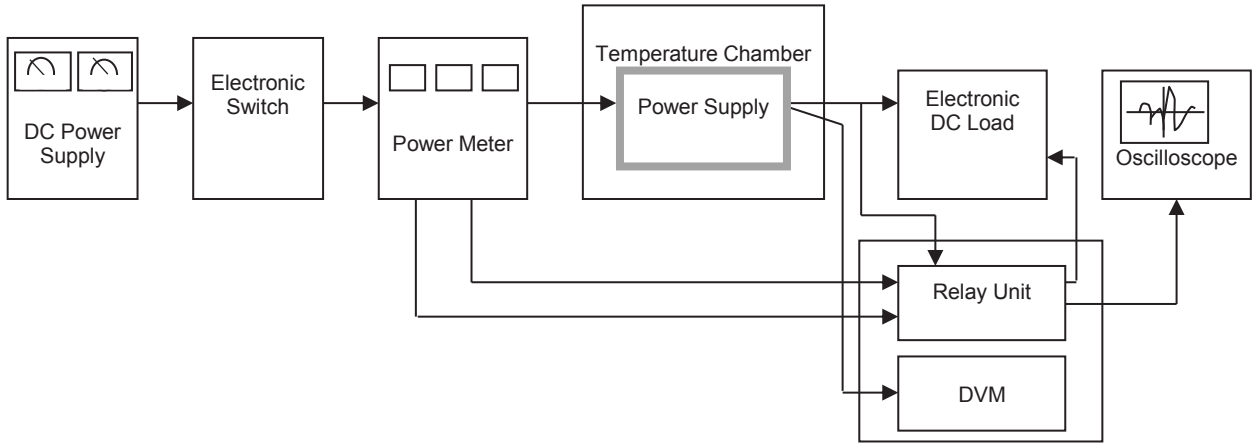


Figure A

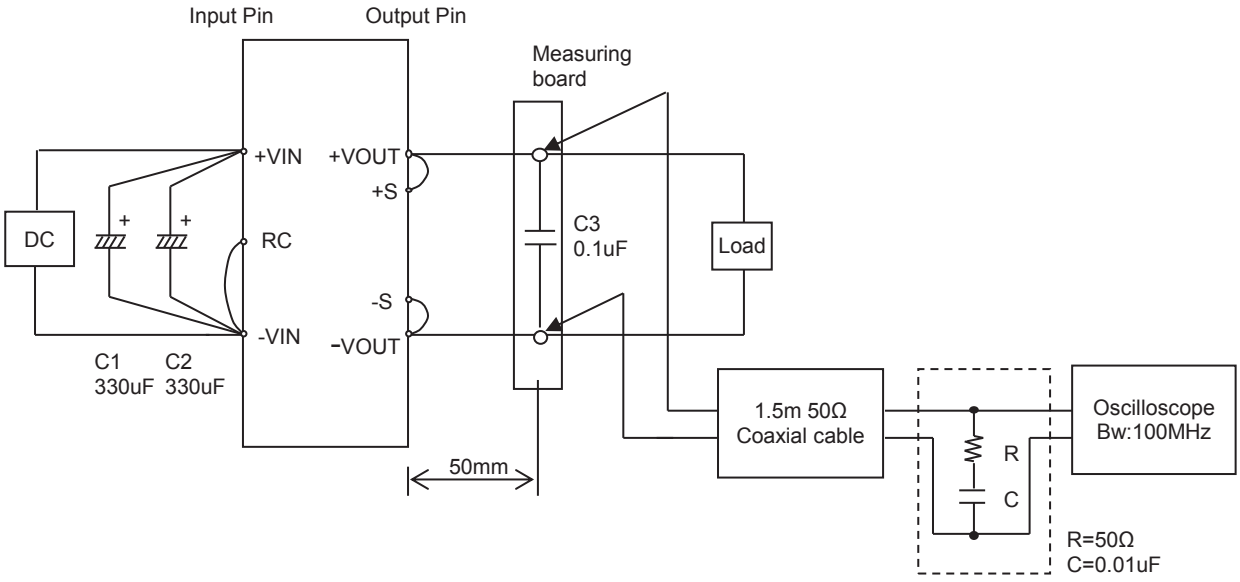


Figure B