参考資料

COSEL

TEST DATA OF CHS3004815

Regulated DC Power Supply
September 26, 2019

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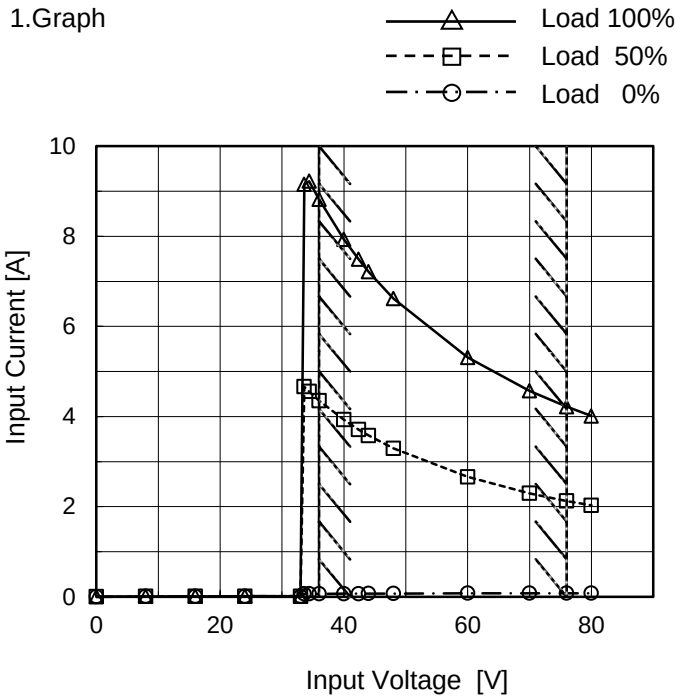
Model	CHS3004815
Item	Input Current (by Input Voltage)
Object	————————

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
8.0	0.008	0.008	0.008
16.0	0.009	0.009	0.009
24.0	0.010	0.010	0.010
33.0	0.010	0.010	0.010
33.6	0.064	4.662	9.151
34.4	0.064	4.554	9.223
36.0	0.065	4.351	8.821
40.0	0.068	3.930	7.931
42.4	0.069	3.711	7.491
44.0	0.070	3.579	7.214
48.0	0.073	3.295	6.619
60.0	0.077	2.661	5.313
70.0	0.079	2.297	4.570
76.0	0.080	2.126	4.217
80.0	0.080	2.028	4.013
--	-	-	-
--	-	-	-

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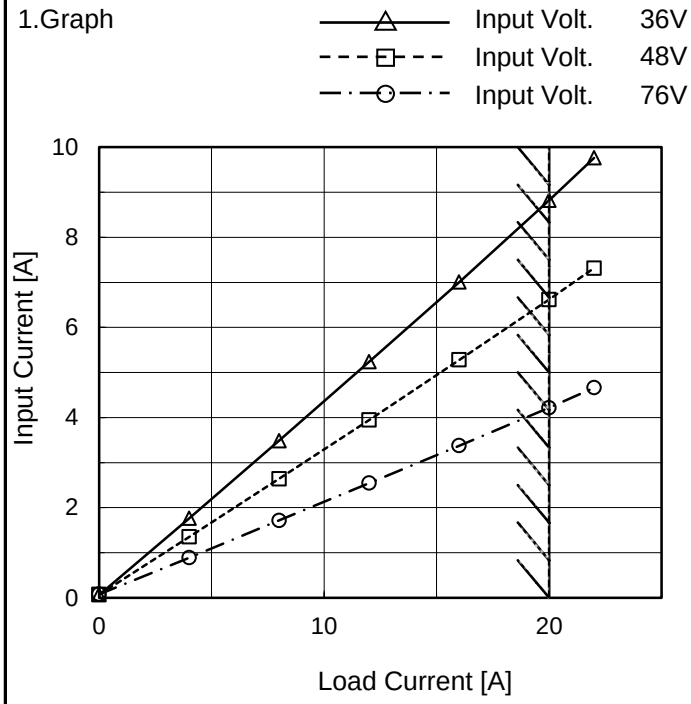
Model	CHS3004815
Item	Input Current (by Load Current)
Object	———————

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	0.065	0.073	0.080
4	1.764	1.352	0.890
8	3.486	2.642	1.717
12	5.239	3.945	2.543
16	7.005	5.279	3.376
20	8.821	6.619	4.217
22	9.762	7.315	4.663
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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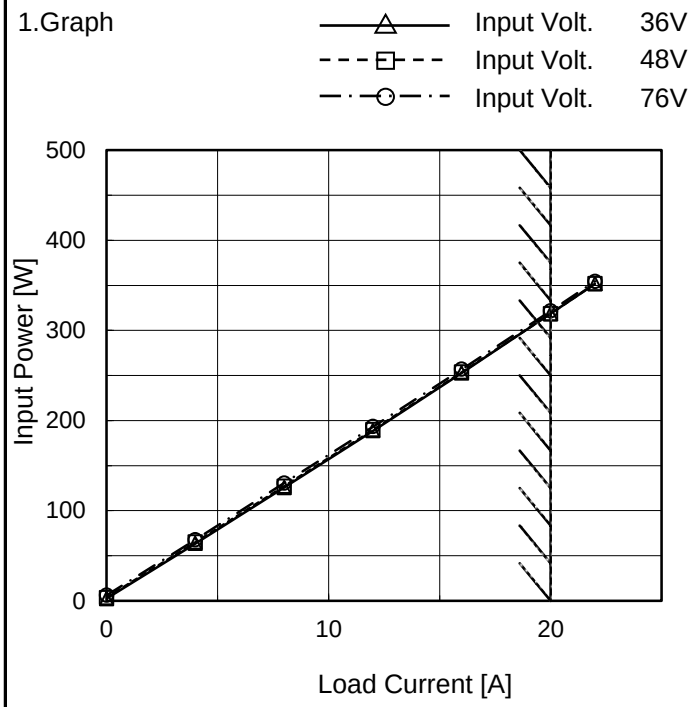
COSEL

Model	CHS3004815
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	2.3	3.5	6.0
4	63.6	65.0	67.6
8	125.6	127.0	130.5
12	188.7	189.8	193.3
16	252.9	253.6	256.9
20	318.5	318.6	321.6
22	351.8	351.8	354.5
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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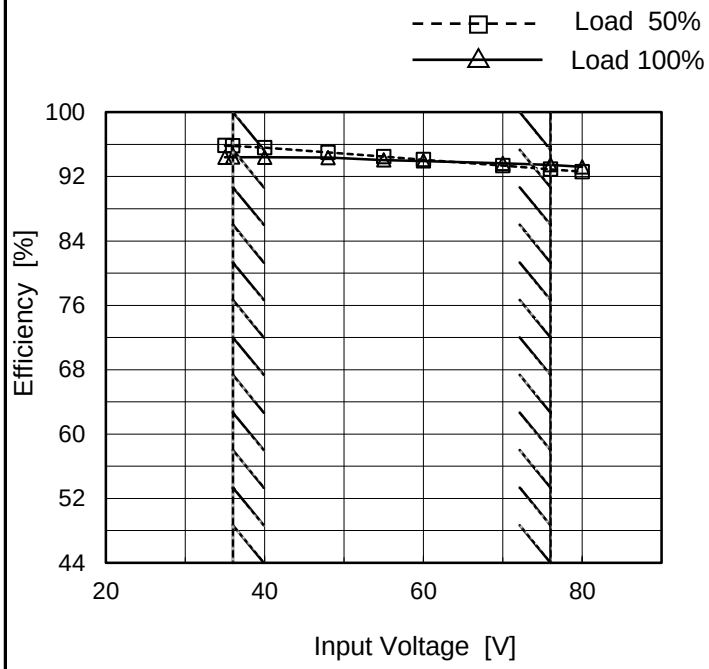
Model	CHS3004815
Item	Efficiency (by Input Voltage)
Object	———————————

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	95.8	94.4
36	95.8	94.4
40	95.6	94.4
48	95.0	94.4
55	94.5	94.1
60	94.1	93.9
70	93.4	93.6
76	92.9	93.5
80	92.6	93.2

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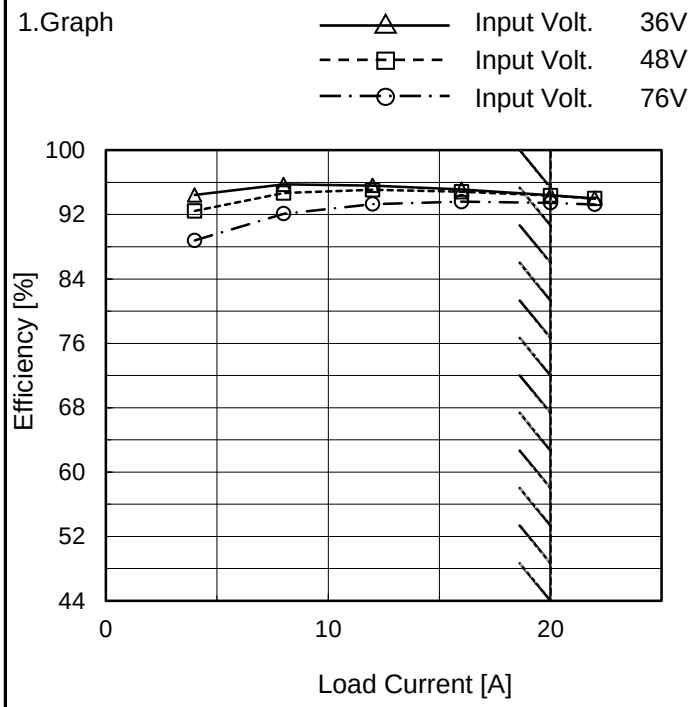
Model	CHS3004815
Item	Efficiency (by Load Current)
Object	———————

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	-	-	-
4	94.4	92.5	88.8
8	95.7	94.7	92.1
12	95.6	95.1	93.3
16	95.1	94.8	93.6
20	94.4	94.4	93.5
22	94.0	94.0	93.3
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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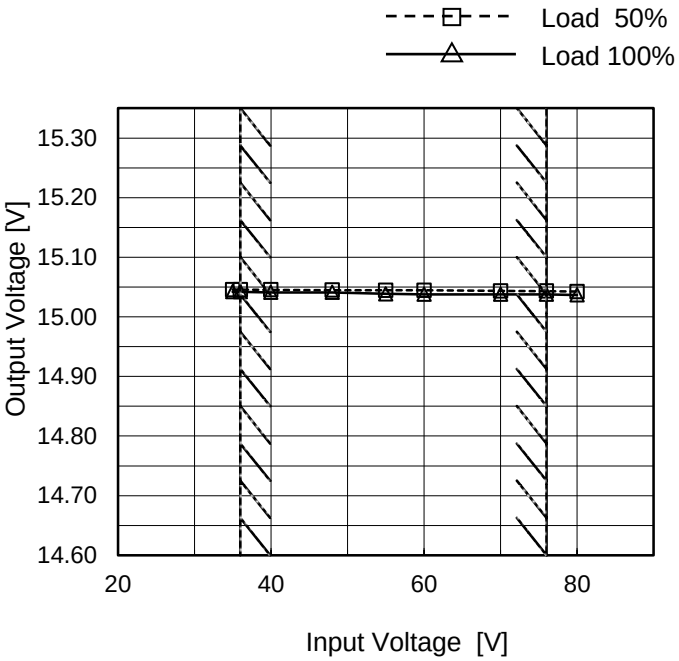
Model	CHS3004815
Item	Line Regulation
Object	+15V20A

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	15.046	15.042
36	15.046	15.042
40	15.045	15.041
48	15.045	15.041
55	15.044	15.039
60	15.044	15.038
70	15.043	15.038
76	15.043	15.038
80	15.042	15.037

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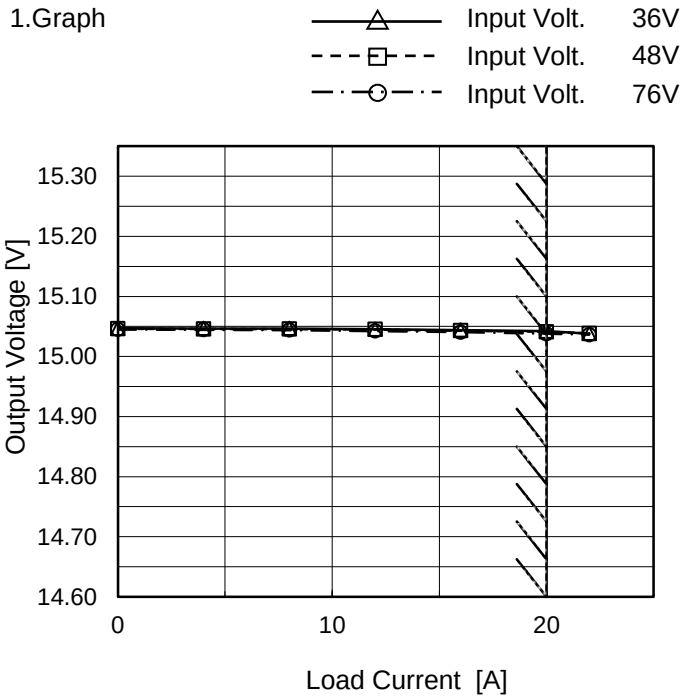
Model	CHS3004815
Item	Load Regulation
Object	+15V20A

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	15.047	15.046	15.045
4	15.047	15.046	15.045
8	15.047	15.046	15.044
12	15.045	15.045	15.042
16	15.044	15.043	15.040
20	15.042	15.041	15.038
22	15.038	15.038	15.036
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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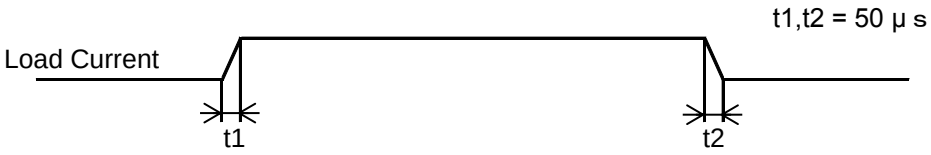
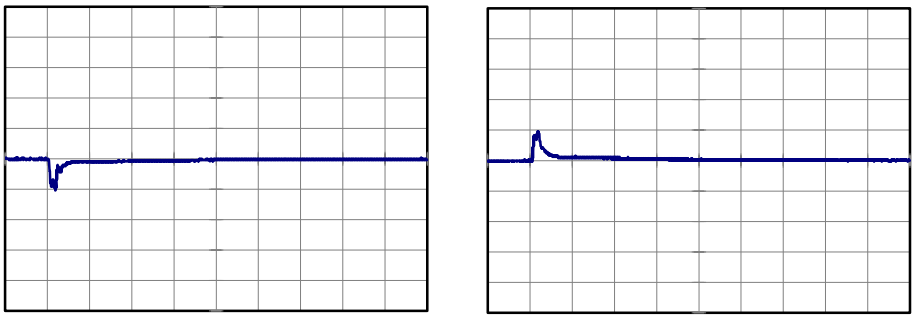
Model	CHS3004815		
Item	Dynamic Load Response	Temperature	25°C
		Testing Circuitry	Figure A
Object	+15V20A		

Input Volt. 48 V
Cycle 10 ms



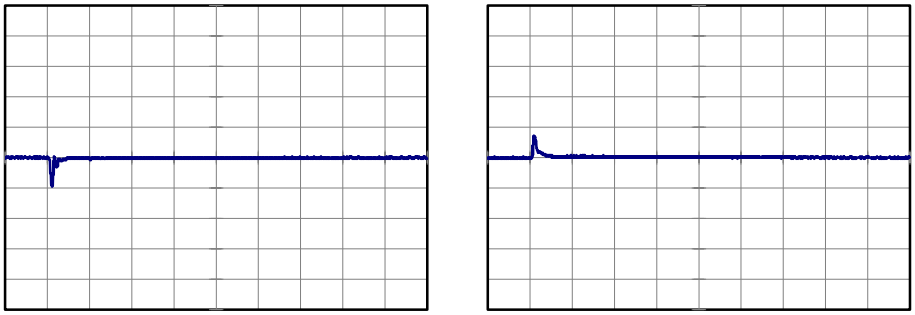
Min.Load (0A)←→
Load 100% (20A)



1 V/div

400 us/div 400 us/div

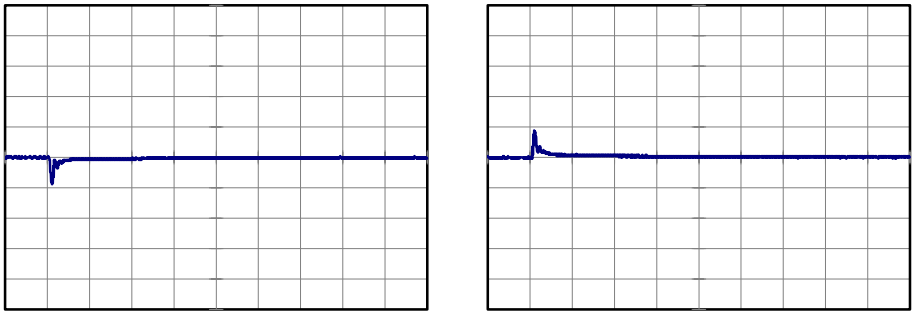
Min.Load (0A)←→
Load 50% (10A)



1 V/div

400 us/div 400 us/div

Load 50% (10A)←→
Load 100% (20A)



1 V/div

400 us/div 400 us/div

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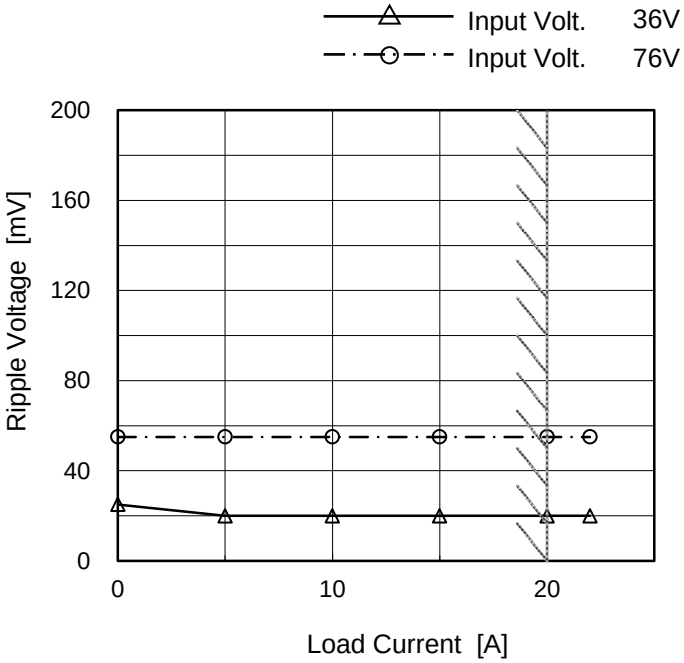
Model	CHS3004815
Item	Ripple Voltage (by Load Current)
Object	+15V20A

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.

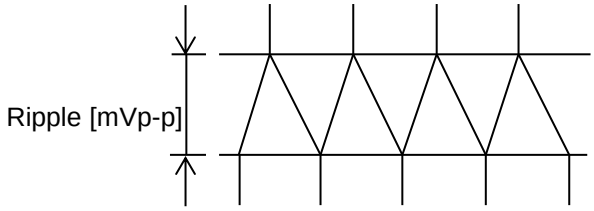


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0	25	55
5	20	55
10	20	55
15	20	55
20	20	55
22	20	55
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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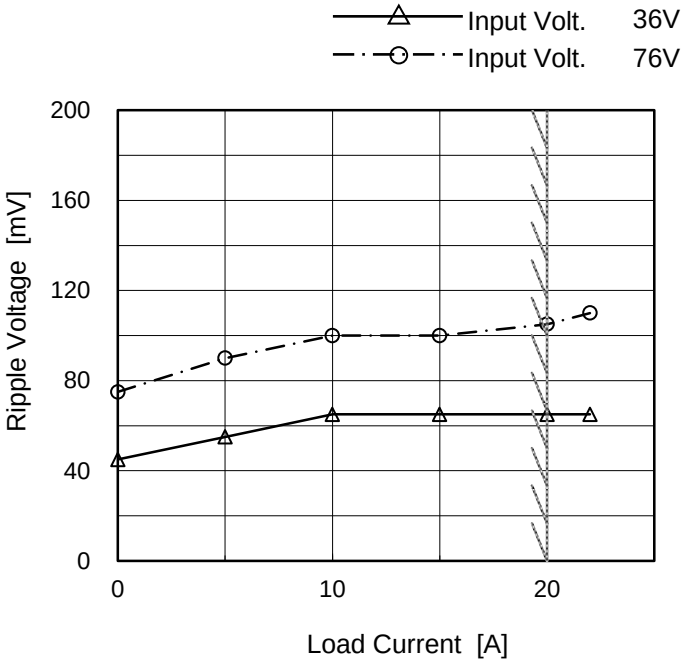
Model	CHS3004815
Item	Ripple-Noise
Object	+15V20A

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.

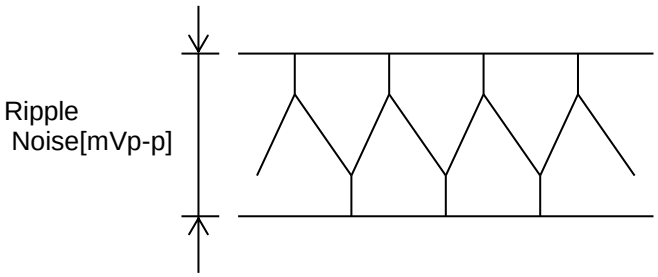


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0	45	75
5	55	90
10	65	100
15	65	100
20	65	105
22	65	110
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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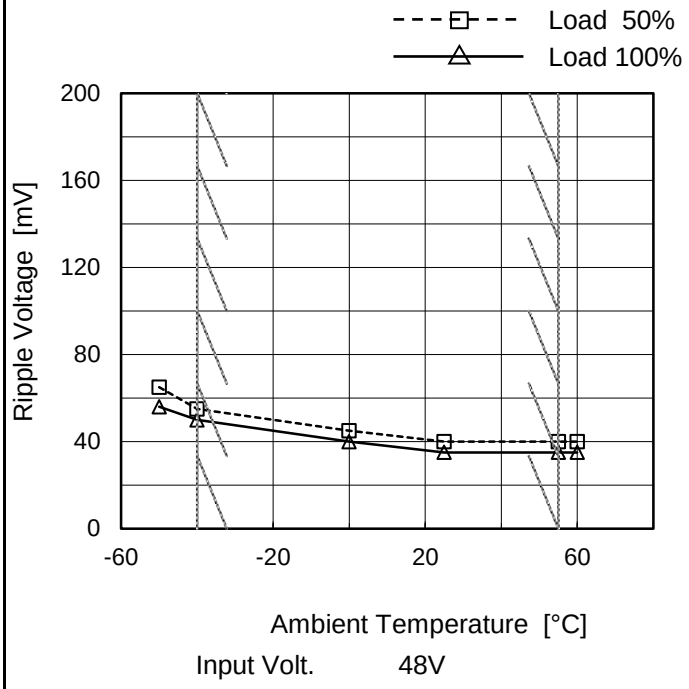
Model	CHS3004815
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V20A

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	65	56
-40	55	50
0	45	40
25	40	35
55	40	35
60	40	35
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

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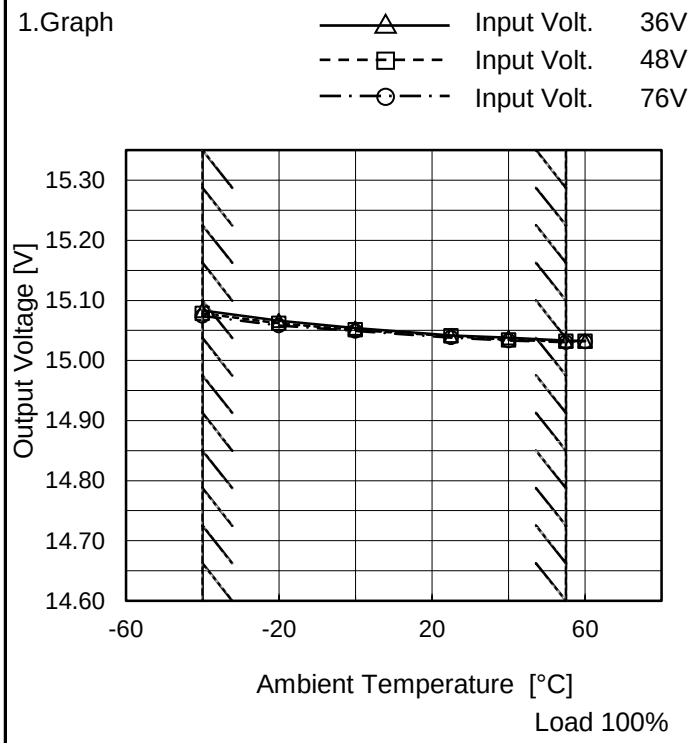
Model	CHS3004815
Item	Ambient Temperature Drift
Object	+15V20A

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	15.083	15.078	15.074
-20	15.066	15.062	15.058
0	15.054	15.051	15.049
25	15.042	15.041	15.038
40	15.038	15.034	15.033
55	15.033	15.032	15.030
60	15.033	15.032	15.031
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	CHS3004815	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+15V20A	

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 : 36 - 76V
Load Current : 0 - 20A

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

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

2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	-40	36	0	15.088	±29	±0.2
Minimum Voltage	55	76	20	15.030		

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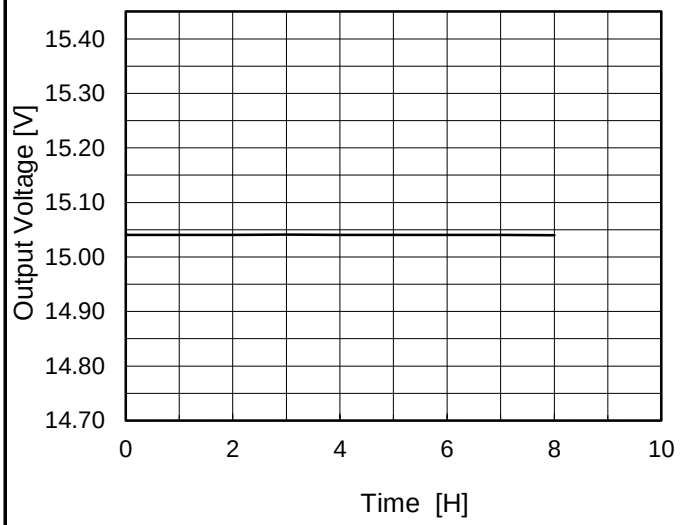
Model	CHS3004815
Item	Time Lapse Drift
Object	+15V20A

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	15.041
0.5	15.041
1.0	15.040
2.0	15.040
3.0	15.041
4.0	15.040
5.0	15.041
6.0	15.040
7.0	15.040
8.0	15.040

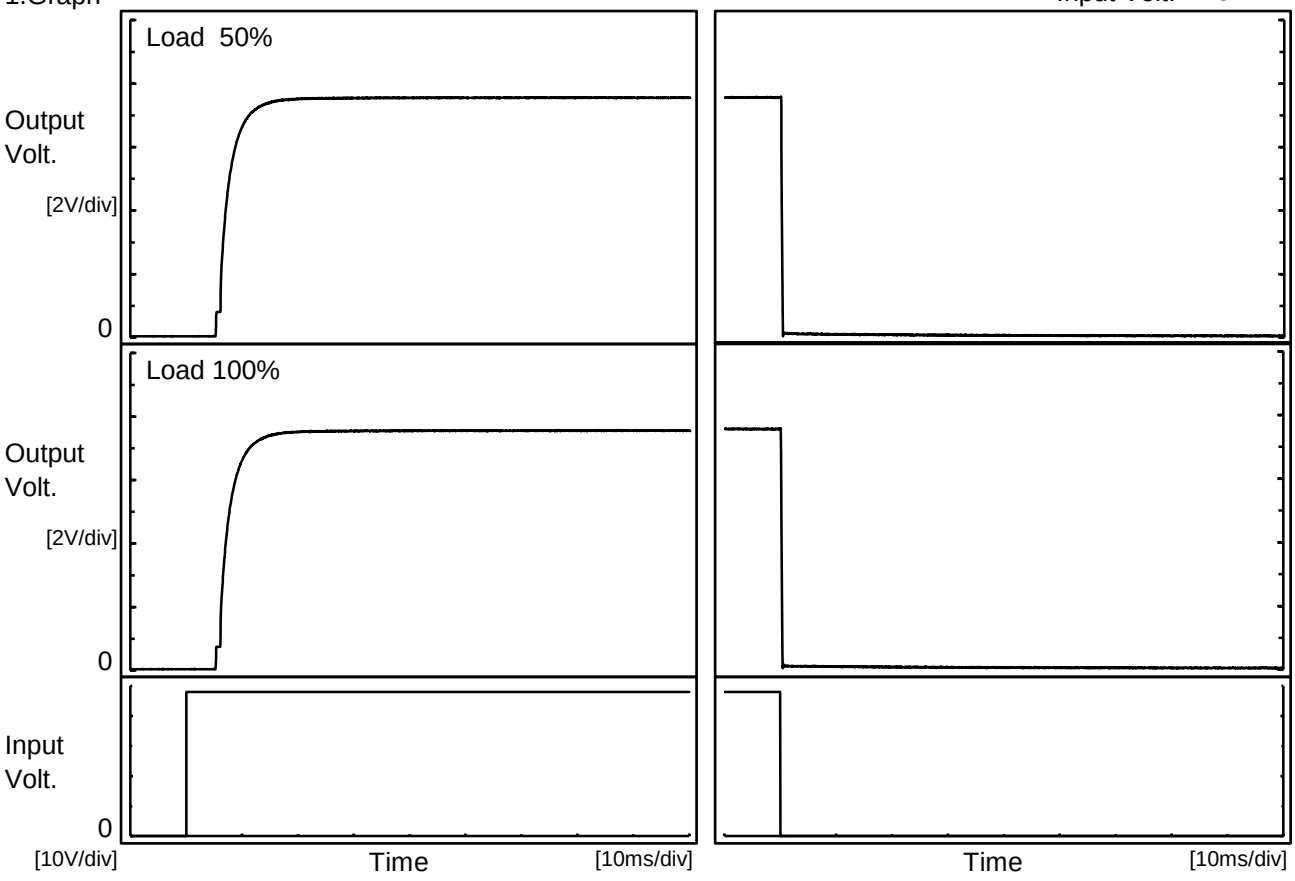
COSEL

Model	CHS3004815
Item	Rise and Fall Time
Object	+15V20A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

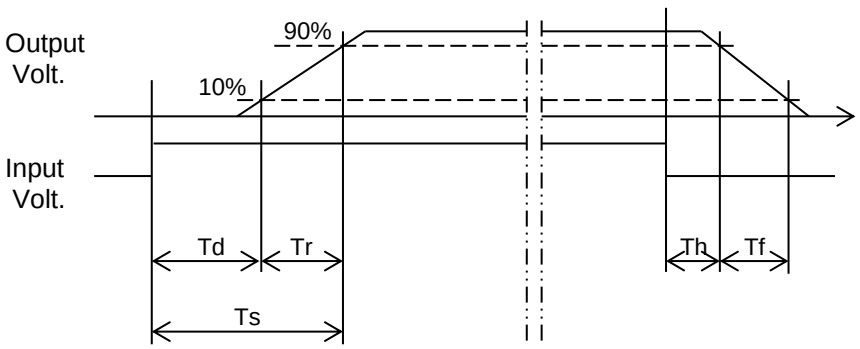
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	5.5	5.0	10.5	0.2	0.3
100 %	6.1	4.4	10.5	0.1	0.2



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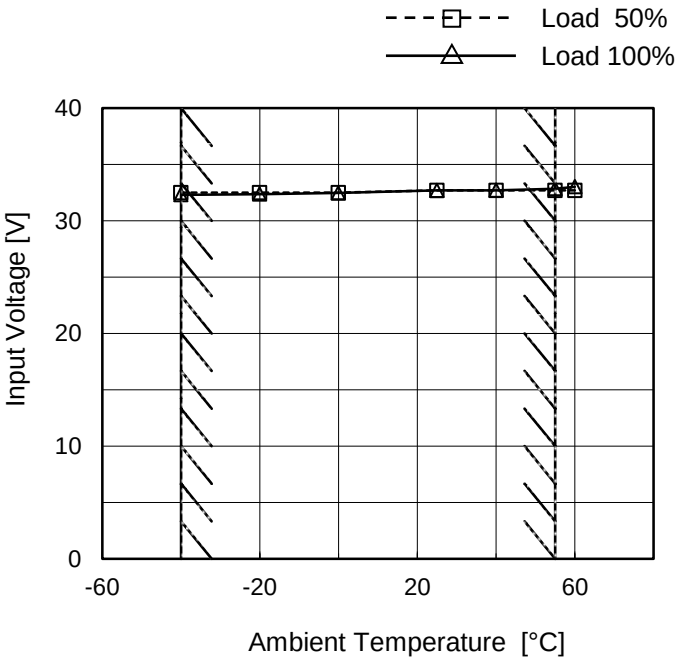
Model	CHS3004815
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V20A

Testing Circuitry Figure A

1.Graph



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

2.Values

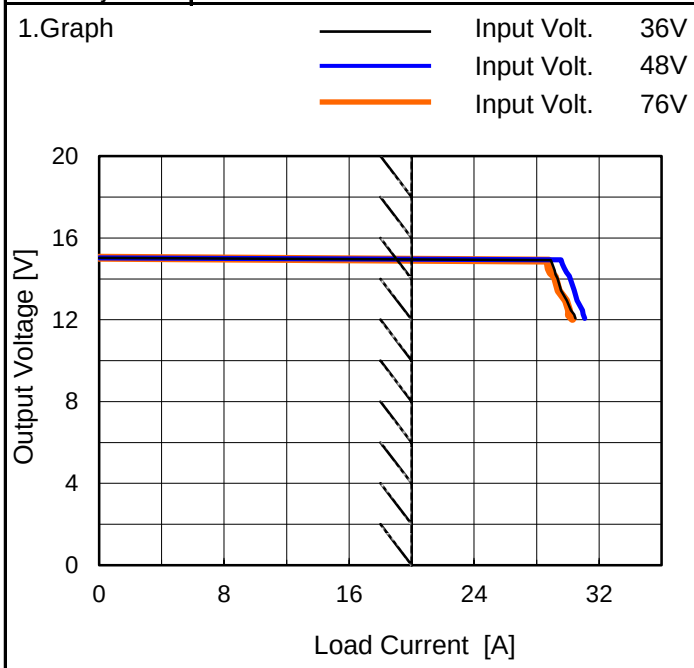
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-40	32.5	32.4
-20	32.5	32.4
0	32.5	32.5
25	32.7	32.7
40	32.7	32.8
55	32.7	32.9
60	32.7	33.1
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	CHS3004815
Item	Overcurrent Protection
Object	+15V20A

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. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
14.25	29.21	29.91	28.89
13.50	29.57	30.40	29.41
12.75	30.04	30.74	29.96
12.00	30.49	31.08	30.29
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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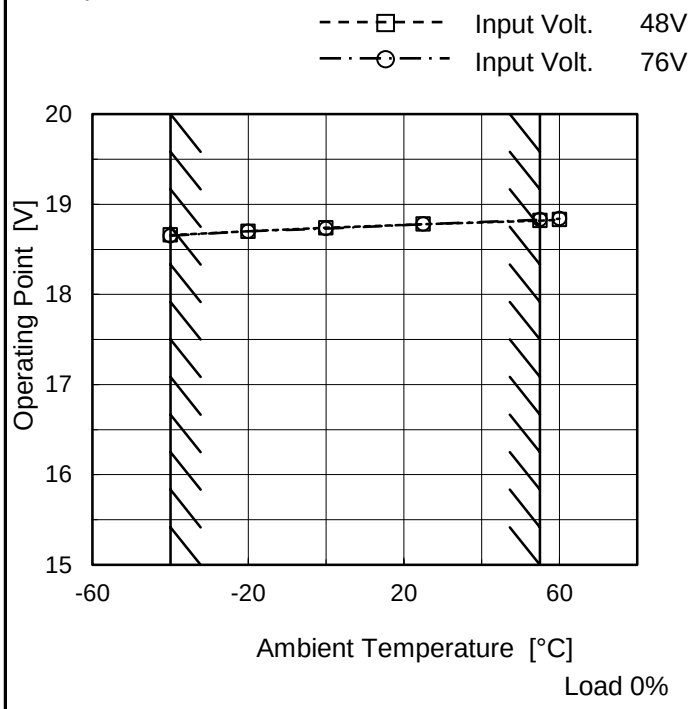
COSEL

Model	CHS3004815
Item	Overvoltage Protection
Object	+15V20A

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	18.66	18.65
-20	18.70	18.70
0	18.74	18.73
25	18.78	18.78
55	18.82	18.83
60	18.83	18.84
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

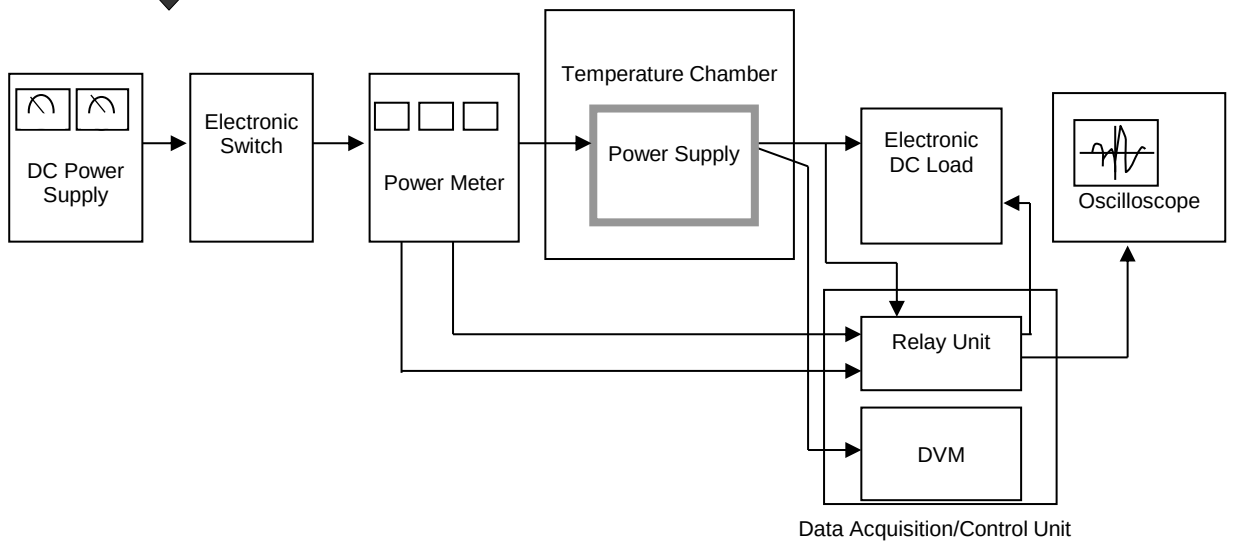


Figure A

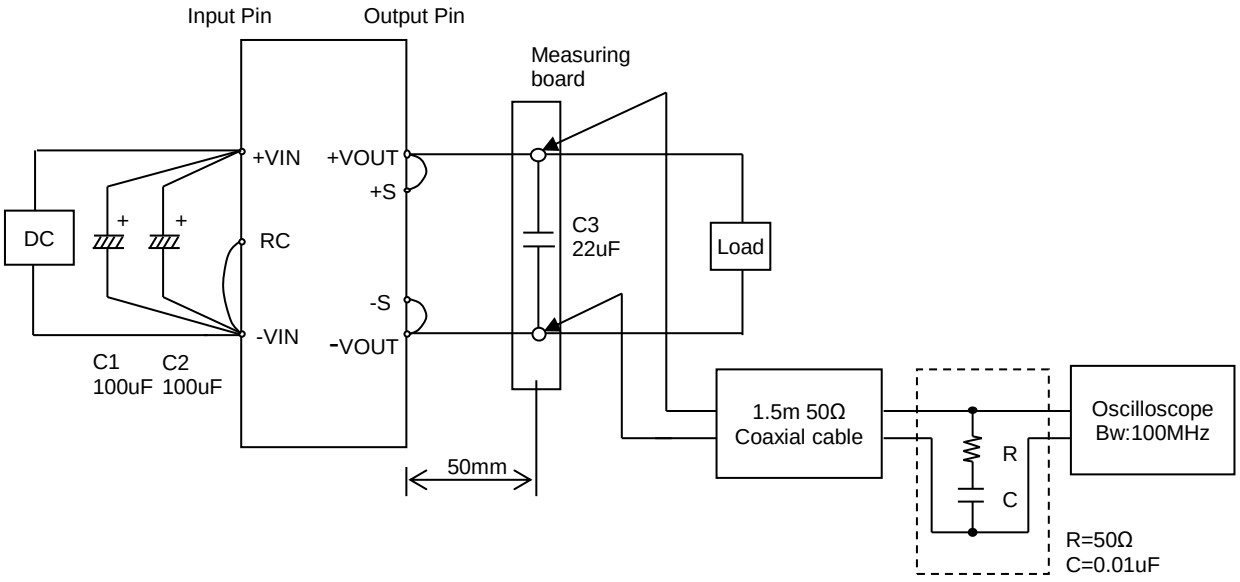


Figure B