COSEL

参考資料

TEST DATA OF DHS100A05

Regulated DC Power Supply
April 8, 2010

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COSEL CO.,LTD.

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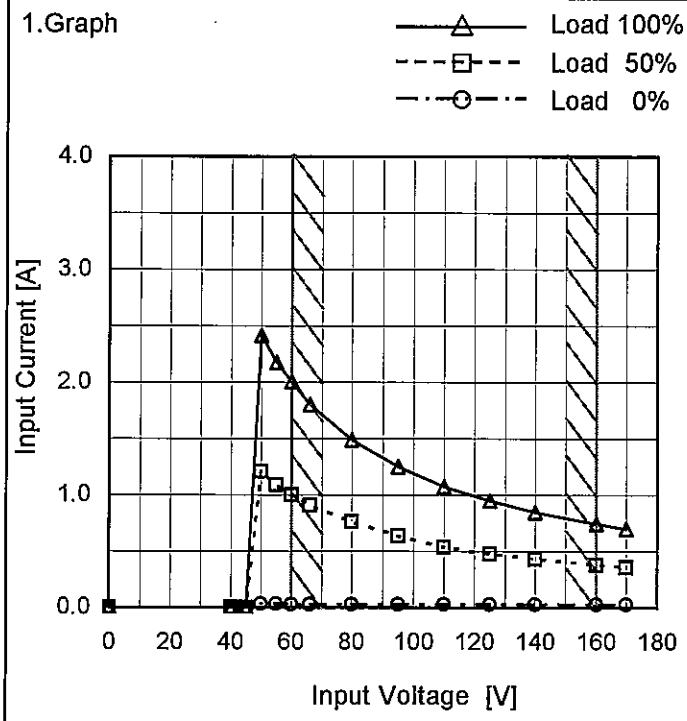
COSEL

Model	DHS100A05
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

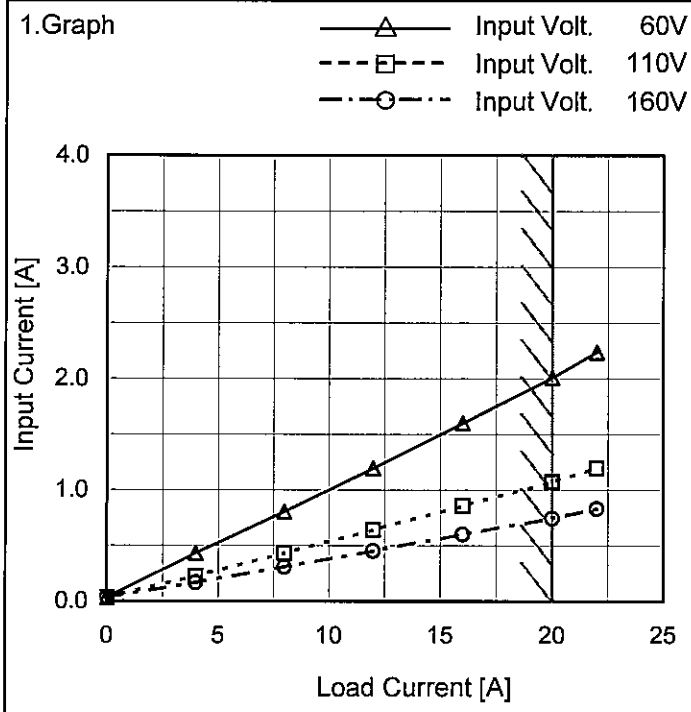
Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0	0.000	0.000	0.000
40	0.001	0.001	0.001
45	0.002	0.002	0.002
50	0.034	1.208	2.417
55	0.035	1.090	2.177
60	0.031	0.998	2.005
66	0.031	0.909	1.803
80	0.030	0.760	1.491
95	0.030	0.636	1.248
110	0.030	0.536	1.071
125	0.030	0.476	0.949
140	0.030	0.429	0.849
160	0.030	0.380	0.744
170	0.030	0.361	0.701
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	DHS100A05
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

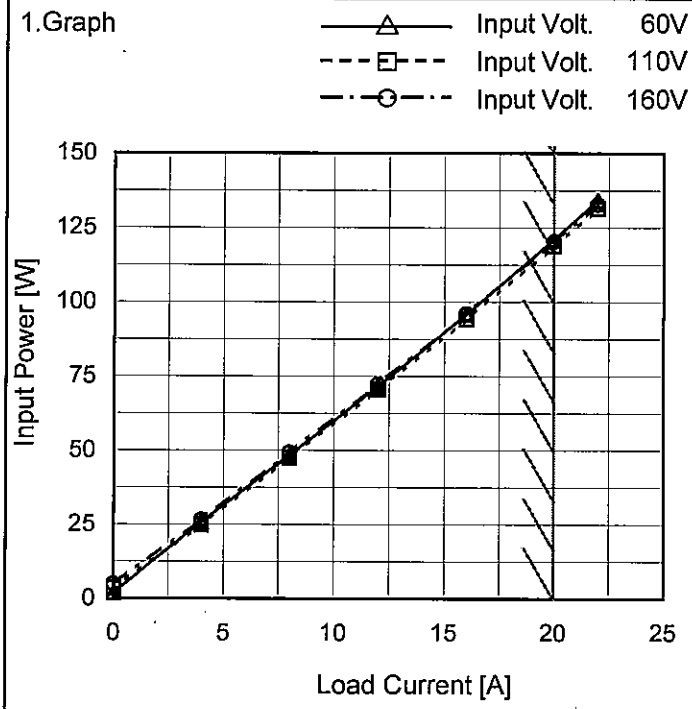
Load Current [A]	Input Current [A]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
0	0.031	0.030	0.030
4	0.430	0.225	0.166
8	0.804	0.431	0.308
12	1.192	0.641	0.452
16	1.596	0.858	0.600
20	2.005	1.071	0.744
22	2.236	1.196	0.829
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	DHS100A05
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

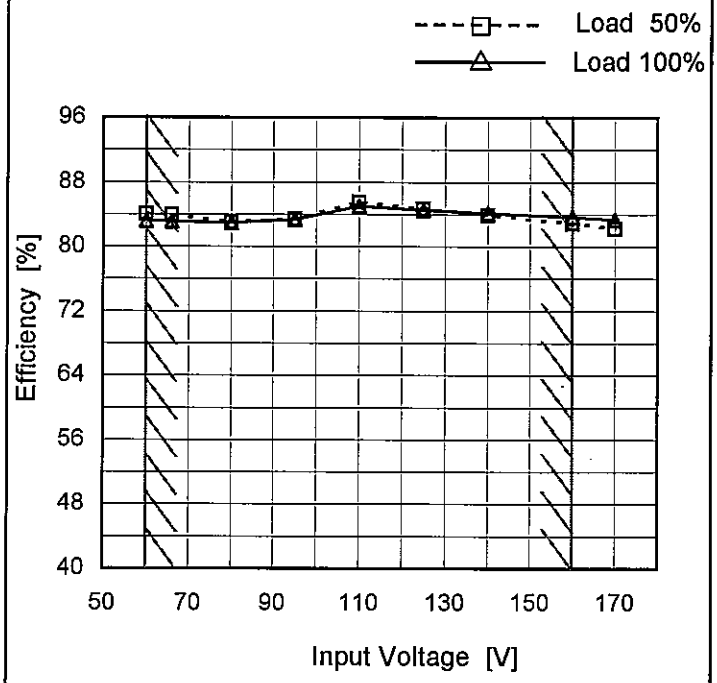
Load Current [A]	Input Power [W]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
0	1.9	3.3	4.8
4	25.8	24.8	26.5
8	48.3	47.4	49.3
12	71.5	70.5	72.3
16	95.8	94.2	96.0
20	121.1	118.9	120.3
22	134.1	131.4	132.8
---	-	-	-
---	-	-	-
---	-	-	-
---	-	-	-

COSEL

Model	DHS100A05
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

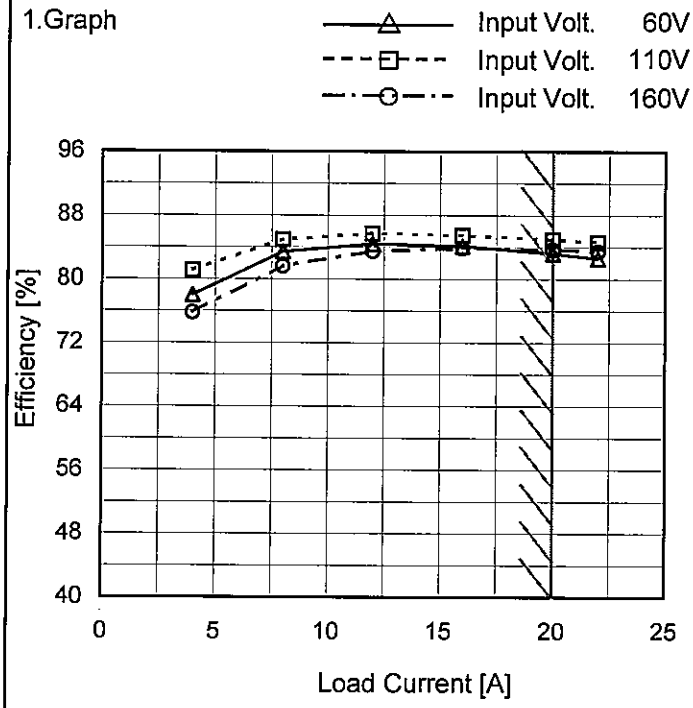
Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
60	84.0	83.2
66	83.9	83.1
80	83.0	83.0
95	83.4	83.4
110	85.5	85.0
125	84.7	84.5
140	83.9	84.2
160	82.8	83.7
170	82.2	83.4

COSEL

Model	DHS100A05
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

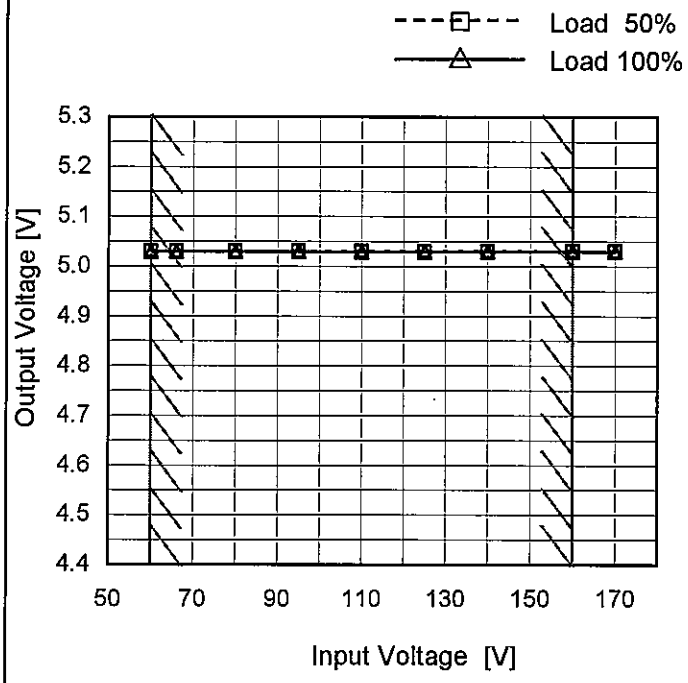
Load Current [A]	Efficiency [%]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
0	-	-	-
4	78.0	81.1	75.8
8	83.4	84.9	81.6
12	84.4	85.7	83.5
16	84.1	85.4	83.9
20	83.2	85.0	83.7
22	82.6	84.6	83.4
---	-	-	-
---	-	-	-
---	-	-	-
---	-	-	-

COSEL

Model	DHS100A05
Item	Line Regulation
Object	+5V20A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

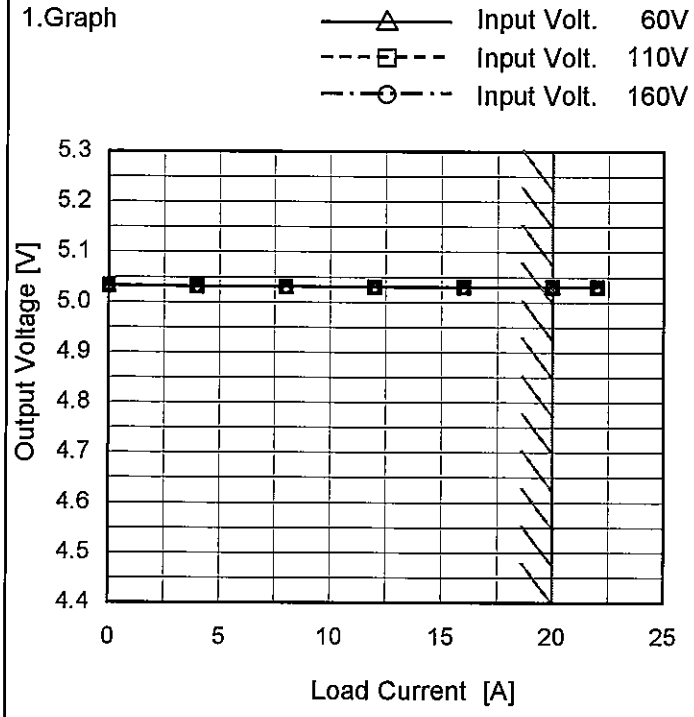
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
60	5.031	5.030
66	5.031	5.030
80	5.031	5.030
95	5.031	5.030
110	5.030	5.030
125	5.030	5.030
140	5.030	5.030
160	5.030	5.030
170	5.030	5.030

COSEL

Model	DHS100A05
Item	Load Regulation
Object	+5V20A

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. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
0	5.033	5.033	5.033
4	5.031	5.031	5.031
8	5.031	5.031	5.031
12	5.031	5.030	5.030
16	5.030	5.030	5.030
20	5.030	5.030	5.030
22	5.030	5.030	5.030
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

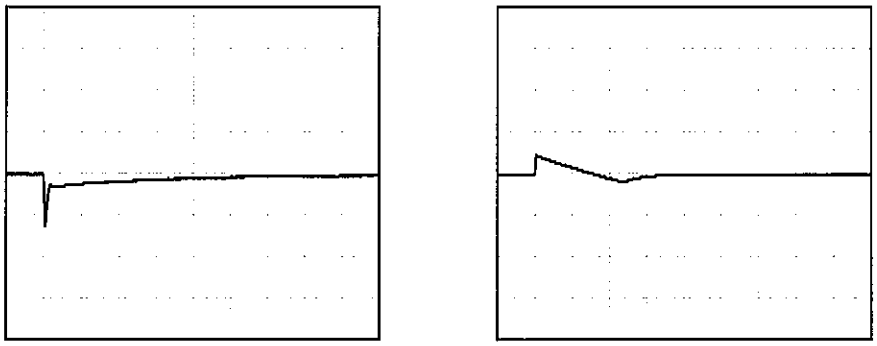
Model	DHS100A05
Item	Dynamic Load Response
Object	+5V20A

Temperature 25°C
Testing Circuitry Figure A

Input Volt. 110 V
Cycle 1000 ms

Load Current
20A / 20 μs

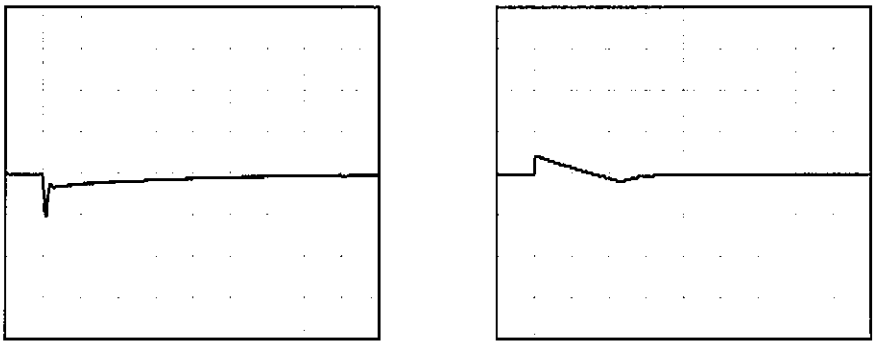
Min. Load (0A) ⟷
Load 100% (20A)



500mV/div

1ms/div 10 ms/div

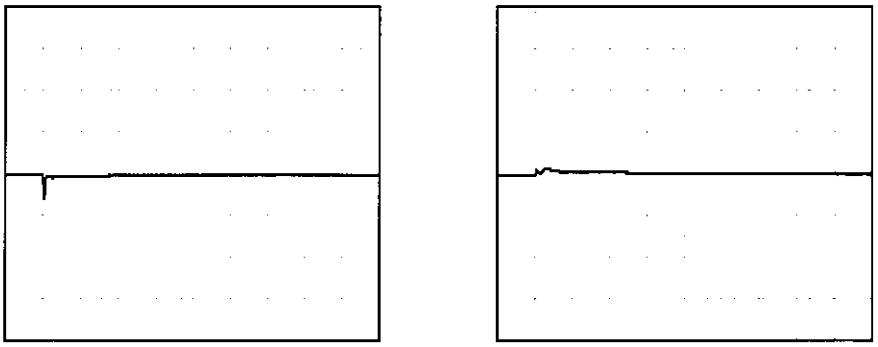
Min. Load (0A) ⟷
Load 50% (10A)



500mV/div

1ms/div 10 ms/div

Load 10% (2A) ⟷
Load 100% (20A)



500mV/div

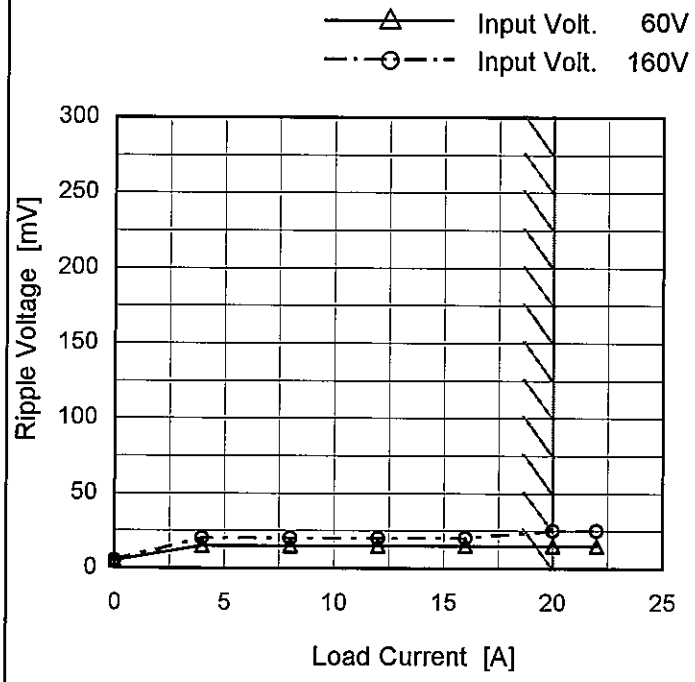
1ms/div 10 ms/div

COSEL

Model	DHS100A05
Item	Ripple Voltage (by Load Current)
Object	+5V20A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 500 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]

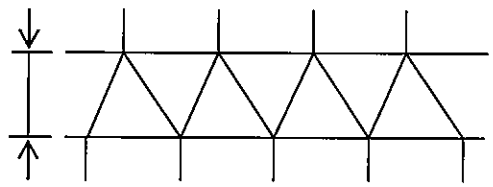


Fig.Complex Ripple Wave Form

2.Values

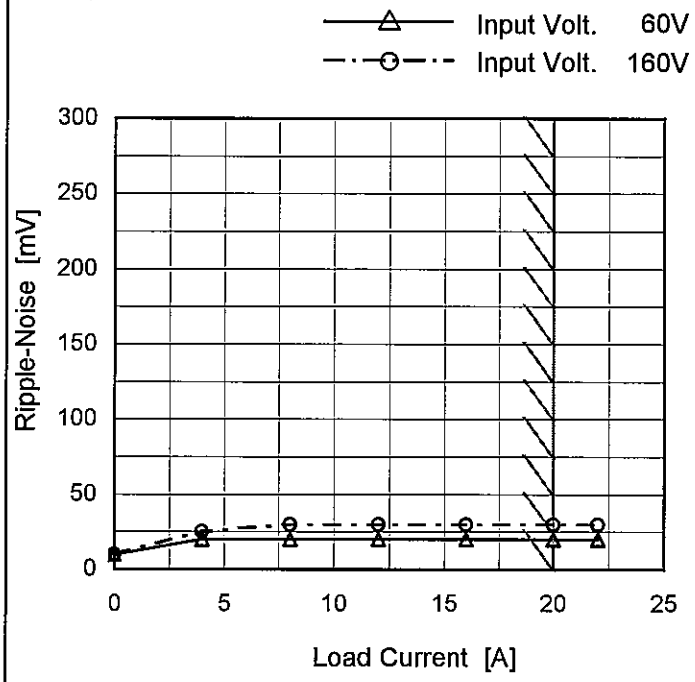
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 60 [V]	Input Volt. 160 [V]
0	5	5
4	15	20
8	15	20
12	15	20
16	15	20
20	15	25
22	15	25
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	DHS100A05
Item	Ripple-Noise
Object	+5V20A

Temperature 25°C
Testing Circuitry Figure B

1.Graph



Measured by 500 MHz Oscilloscope.
Ripple-Noise is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

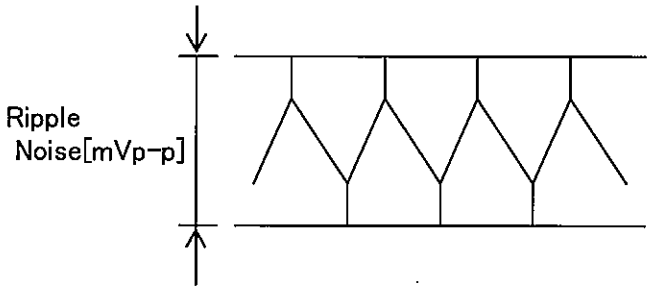


Fig.Complex Ripple Noise Wave Form

2.Values

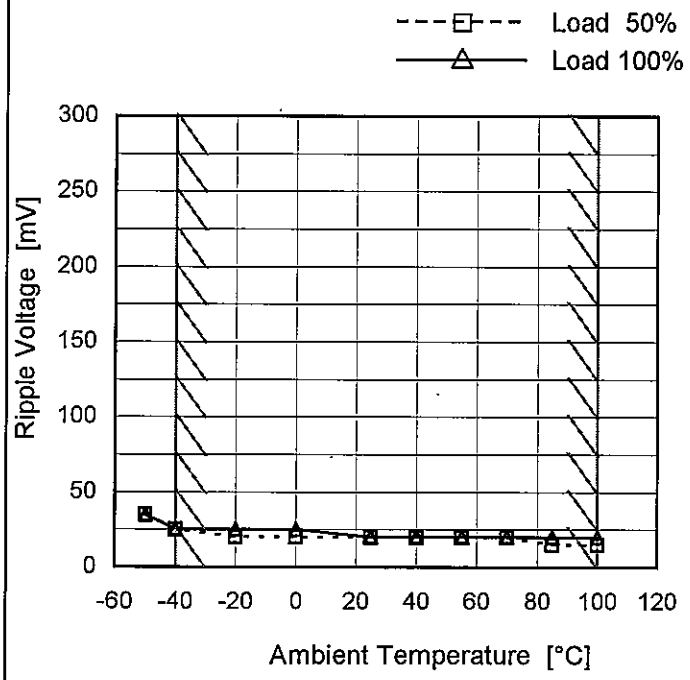
Load Current [A]	Ripple-Noise [mV] Input Volt. 60 [V]	Ripple-Noise [mV] Input Volt. 160 [V]
0	10	10
4	20	25
8	20	30
12	20	30
16	20	30
20	20	30
22	20	30
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	DHS100A05
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V20A

Testing Circuitry Figure B

1.Graph



Input Volt. 110V

Measured by 500 MHz Oscilloscope.

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

Ripple [mVp-p]

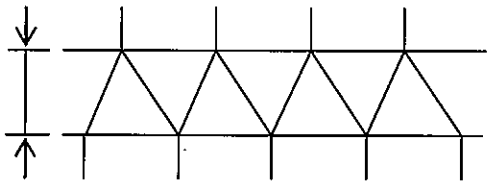


Fig.Complex Ripple Wave Form

2.Values

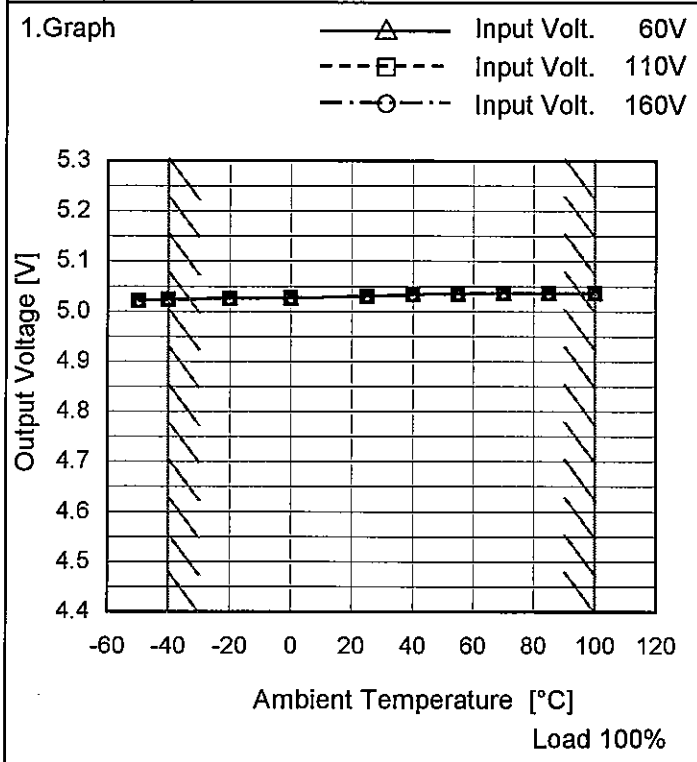
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-50	35	35
-40	25	25
-20	20	25
0	20	25
25	20	20
40	20	20
55	20	20
70	20	20
85	15	20
100	15	20
--	-	-

COSEL

Model	DHS100A05
Item	Ambient Temperature Drift
Object	+5V20A

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. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
-50	5.021	5.021	5.021
-40	5.024	5.024	5.023
-20	5.026	5.026	5.025
0	5.026	5.026	5.026
25	5.030	5.030	5.030
40	5.034	5.034	5.034
55	5.036	5.036	5.036
70	5.037	5.037	5.037
85	5.036	5.037	5.037
100	5.036	5.037	5.037
--	-	-	-

COSEL

Model	DHS100A05	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V20A	

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 : 60 - 160V
Load Current : 0 - 20A

* 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

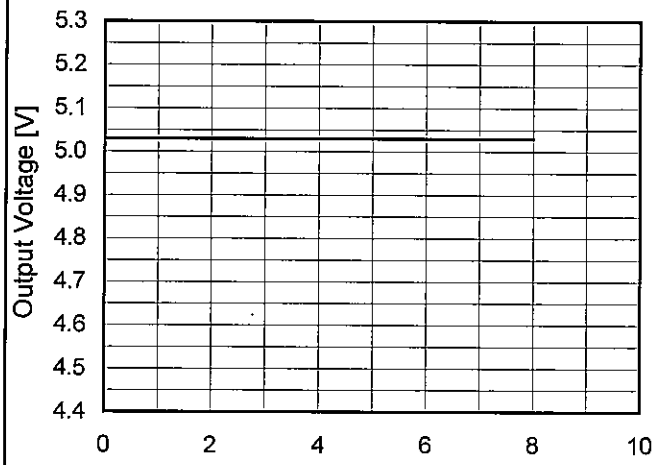
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	70	60	0	5.040	±9	±0.2
Minimum Voltage	-40	160	20	5.023		

COSEL

Model	DHS100A05
Item	Time Lapse Drift
Object	+5V20A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 110V
Load 100%

2.Values

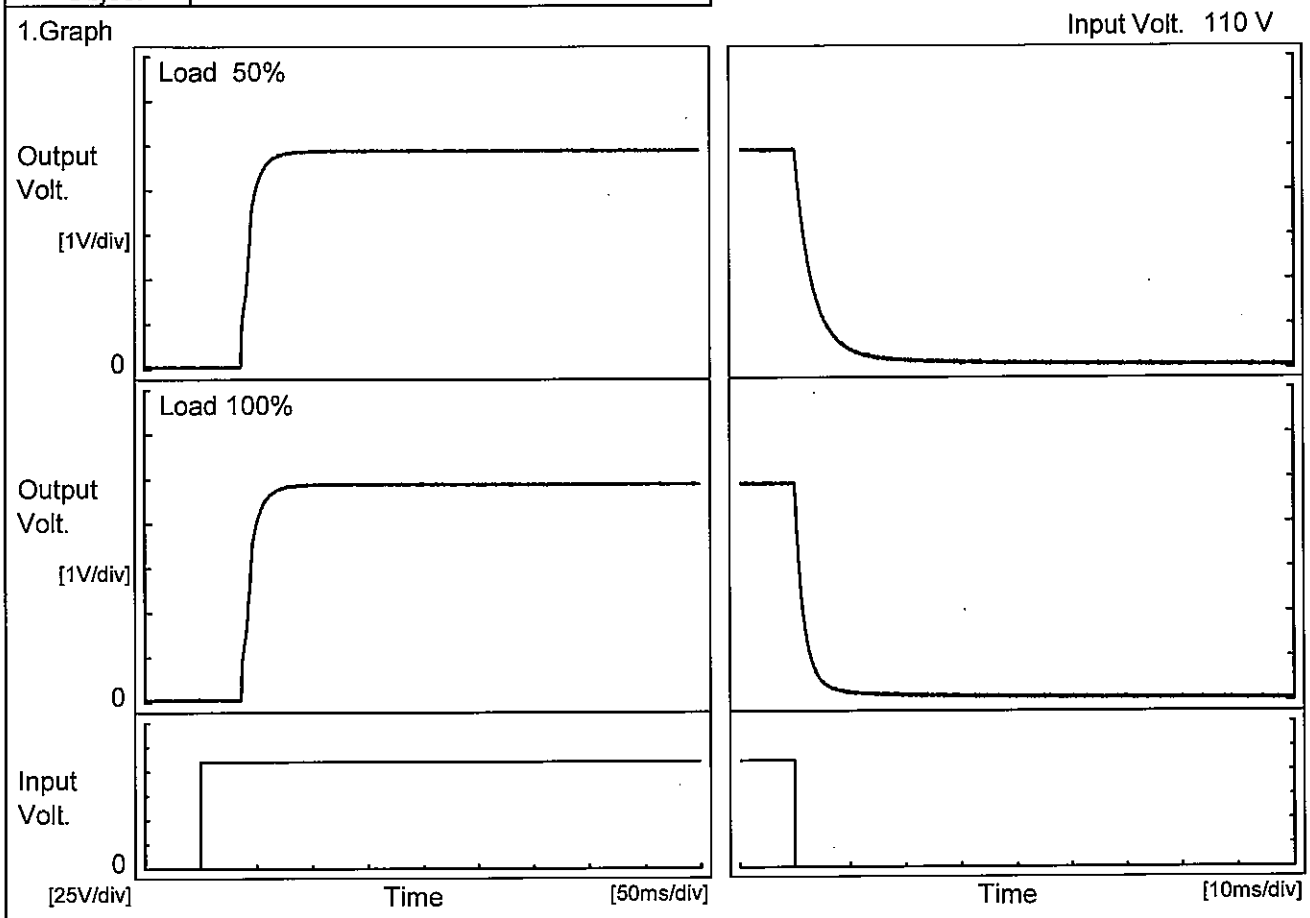
Time since start [H]	Output Voltage [V]
0.0	5.030
0.5	5.030
1.0	5.030
2.0	5.030
3.0	5.030
4.0	5.030
5.0	5.030
6.0	5.030
7.0	5.030
8.0	5.030

COSEL

Model	DHS100A05
Item	Rise and Fall Time
Object	+5V20A

Temperature 25°C
Testing Circuitry Figure A

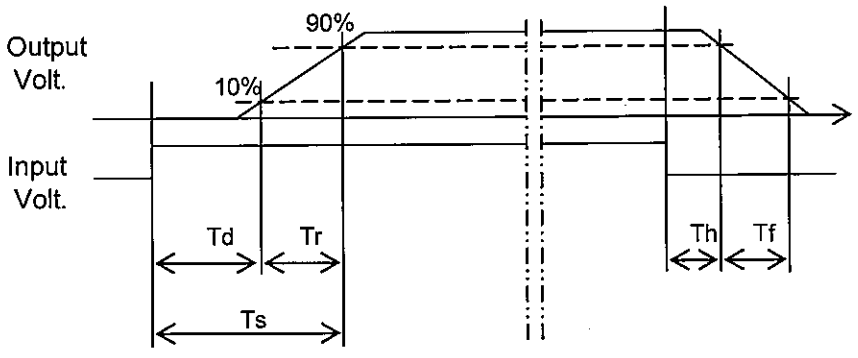
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	36.8	21.8	58.6	0.3	9.1
100 %	36.8	22.0	58.8	0.2	4.4

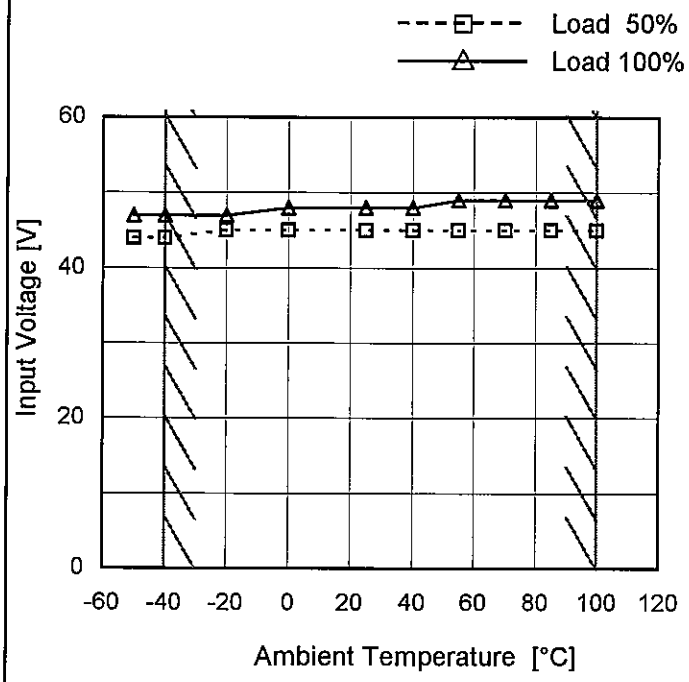


COSEL

Model	DHS100A05
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V20A

Testing Circuitry Figure A

1.Graph



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

2.Values

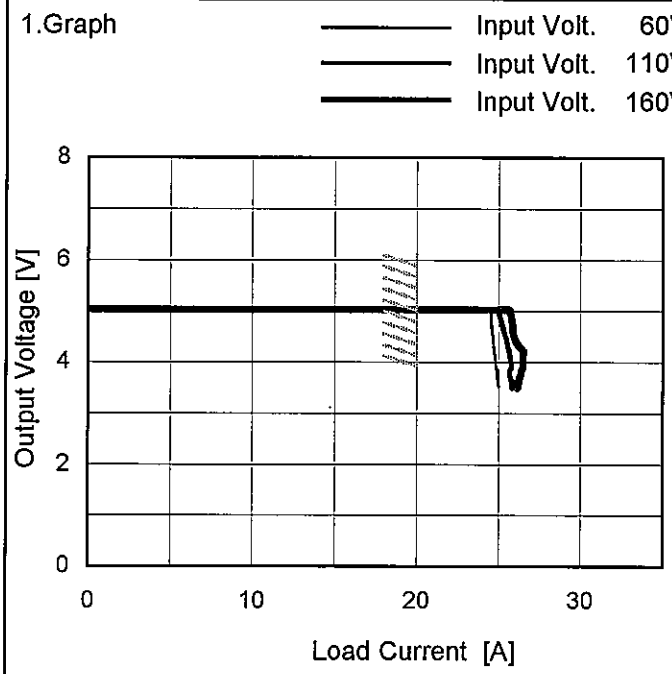
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-50	44	47
-40	44	47
-20	45	47
0	45	48
25	45	48
40	45	48
55	45	49
70	45	49
85	45	49
100	45	49
--	-	-

COSEL

Model	DHS100A05
Item	Overcurrent Protection
Object	+5V20A

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 3.5V to 0V.

2.Values

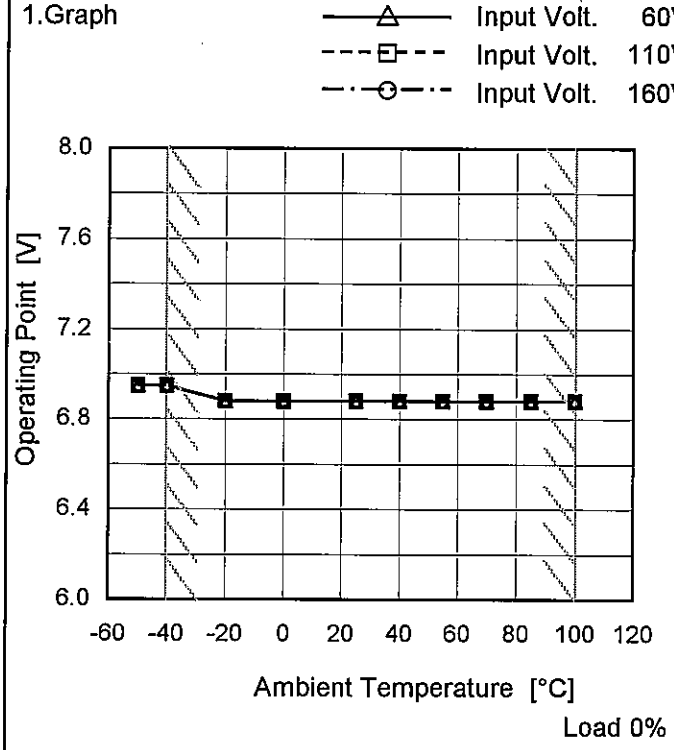
Output Voltage [V]	Load Current [A]		
	Input Volt. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
5.00	20.01	20.04	20.06
4.75	24.54	25.20	25.85
4.50	24.65	25.39	25.91
4.00	24.81	25.76	26.48
3.50	25.00	25.82	26.14
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	DHS100A05
Item	Overvoltage Protection
Object	+5V20A

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. 60[V]	Input Volt. 110[V]	Input Volt. 160[V]
-50	6.95	6.95	6.95
-40	6.95	6.95	6.95
-20	6.88	6.88	6.88
0	6.88	6.88	6.88
25	6.88	6.88	6.88
40	6.88	6.88	6.88
55	6.88	6.88	6.88
70	6.88	6.88	6.88
85	6.88	6.88	6.88
100	6.88	6.88	6.88
---	-	-	-

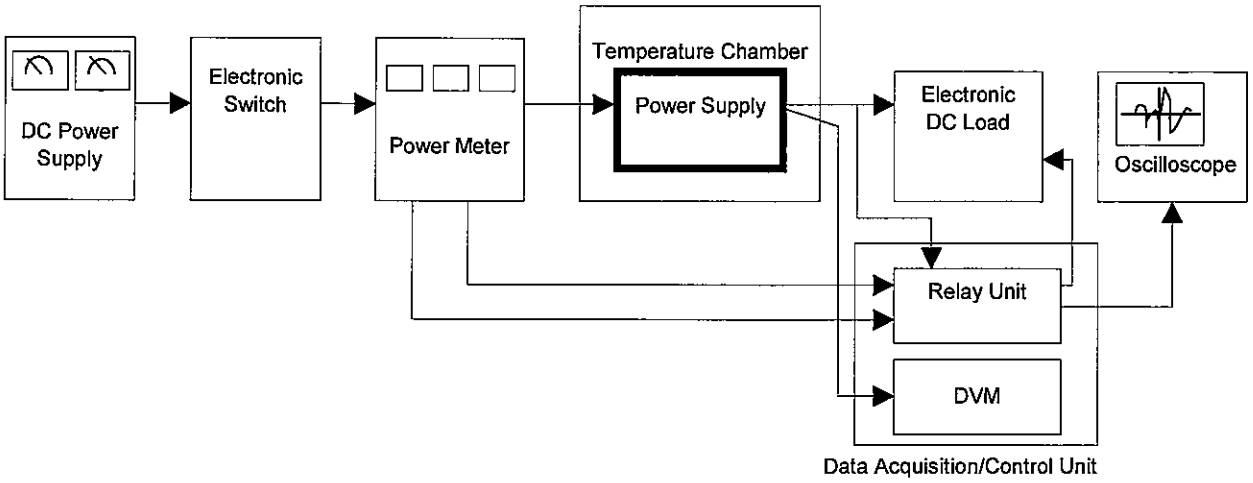
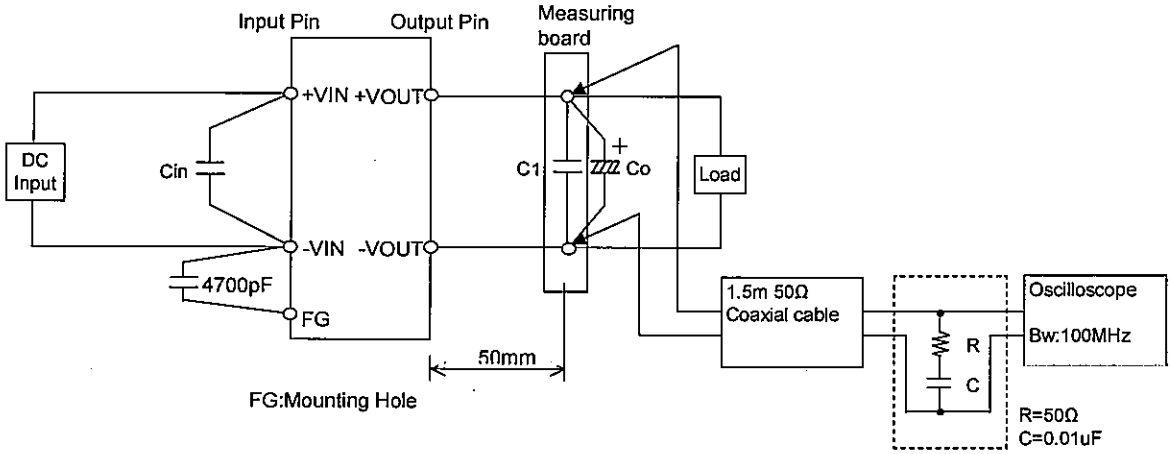


Figure A



C1 : DHS100A24 4.7uF
Others 10uF
Co : DHS100A05 2200uF
DHS100A12 470uF
DHS100A15 470uF
DHS100A24 220uF

Figure B