参考資料

COSEL

TEST DATA OF MGS102405

Regulated DC Power Supply
July 21, 2016

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COSEL CO.,LTD.

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

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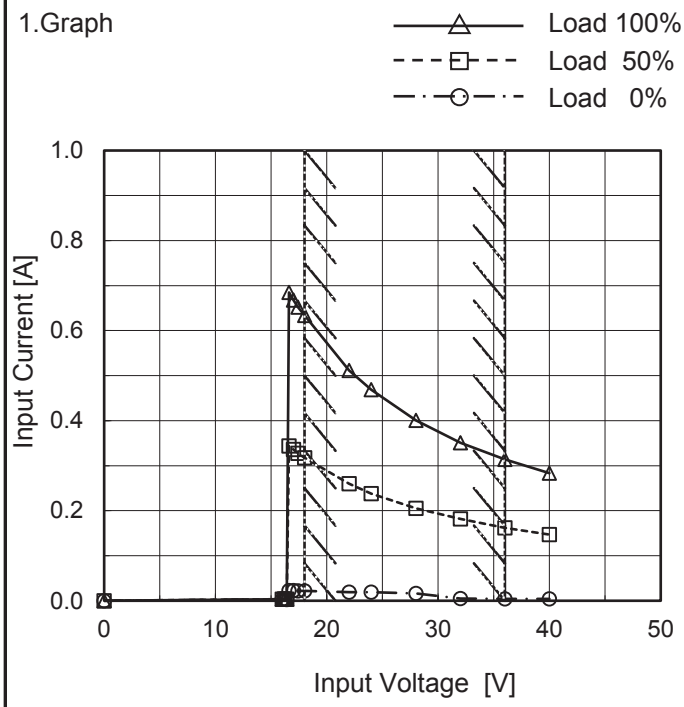

Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
16.0	0.003	0.004	0.004
16.2	0.003	0.004	0.003
16.4	0.003	0.003	0.004
16.6	0.022	0.344	0.685
17.0	0.023	0.336	0.668
17.4	0.022	0.328	0.652
18.0	0.022	0.317	0.634
22.0	0.019	0.260	0.512
24.0	0.019	0.238	0.469
28.0	0.017	0.205	0.401
32.0	0.005	0.182	0.351
36.0	0.004	0.162	0.314
40.0	0.004	0.147	0.283
--	-	-	-
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--	-	-	-
--	-	-	-

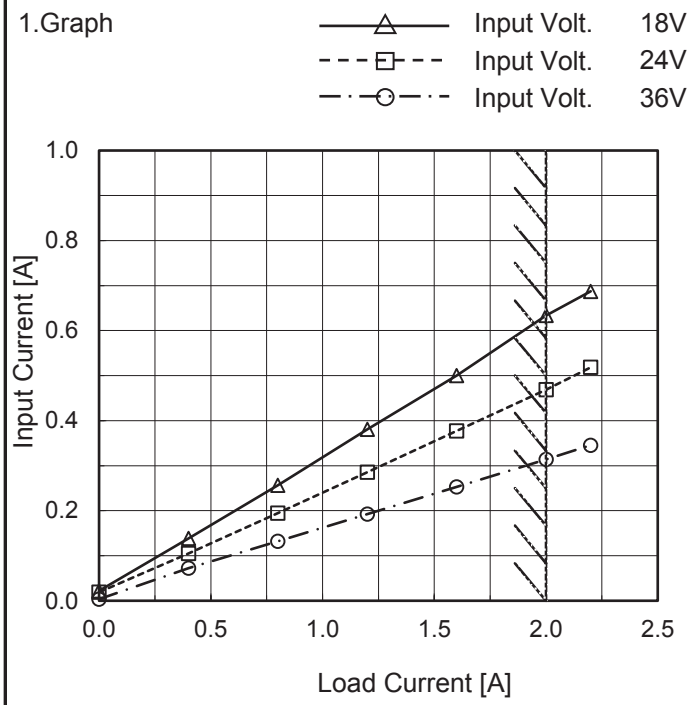
BC-11055

COSEL

Model	MGS102405
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	0.022	0.019	0.004
0.4	0.139	0.105	0.073
0.8	0.257	0.195	0.132
1.2	0.381	0.285	0.192
1.6	0.500	0.377	0.253
2.0	0.634	0.469	0.314
2.2	0.687	0.518	0.346
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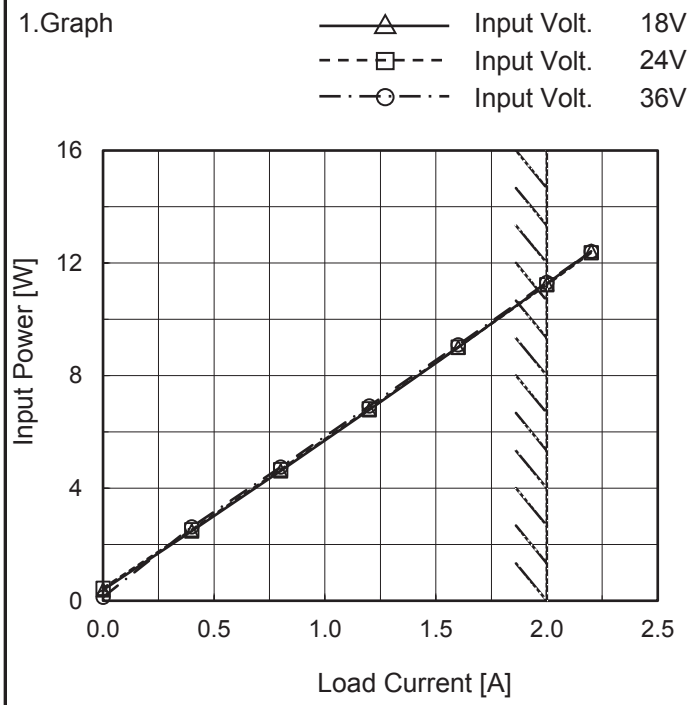
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGS102405
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]
0.0	0.38	0.44	0.13
0.4	2.48	2.53	2.62
0.8	4.61	4.66	4.75
1.2	6.79	6.82	6.92
1.6	9.01	9.01	9.10
2.0	11.27	11.23	11.30
2.2	12.42	12.37	12.42
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

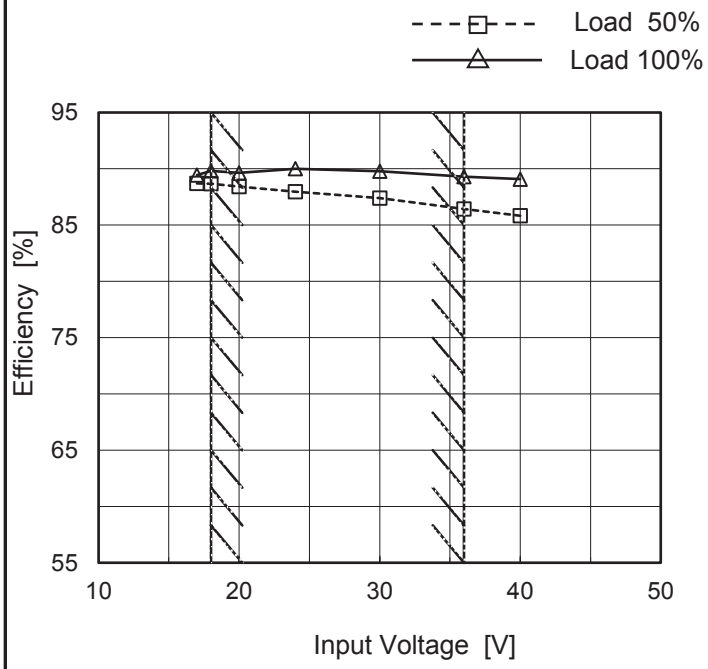
BC-11055

COSEL

Model	MGS102405
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	88.7	89.4
18	88.7	89.8
20	88.4	89.6
24	88.0	90.0
30	87.4	89.8
36	86.4	89.3
40	85.8	89.1
--	-	-
--	-	-

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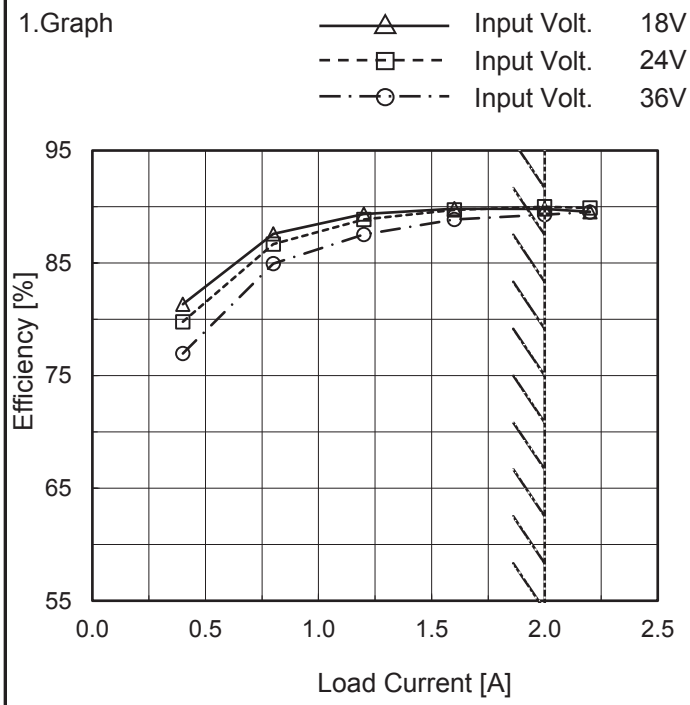
Model	MGS102405
Item	Efficiency (by Load Current)
Object	———————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

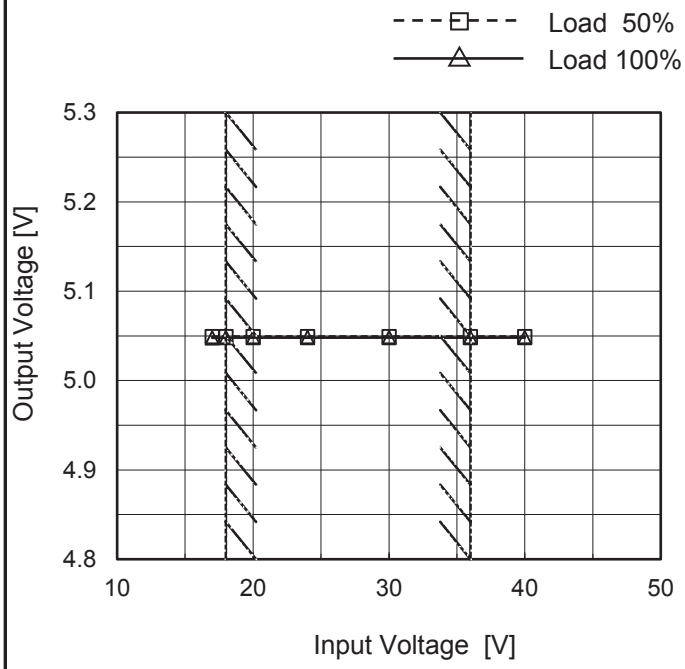
Load Current [A]	Efficiency [%]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	-	-	-
0.4	81.3	79.8	77.0
0.8	87.6	86.7	84.9
1.2	89.4	88.9	87.5
1.6	89.8	89.7	88.9
2.0	89.8	90.0	89.3
2.2	89.6	89.9	89.5
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	MGS102405
Item	Line Regulation
Object	+5V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

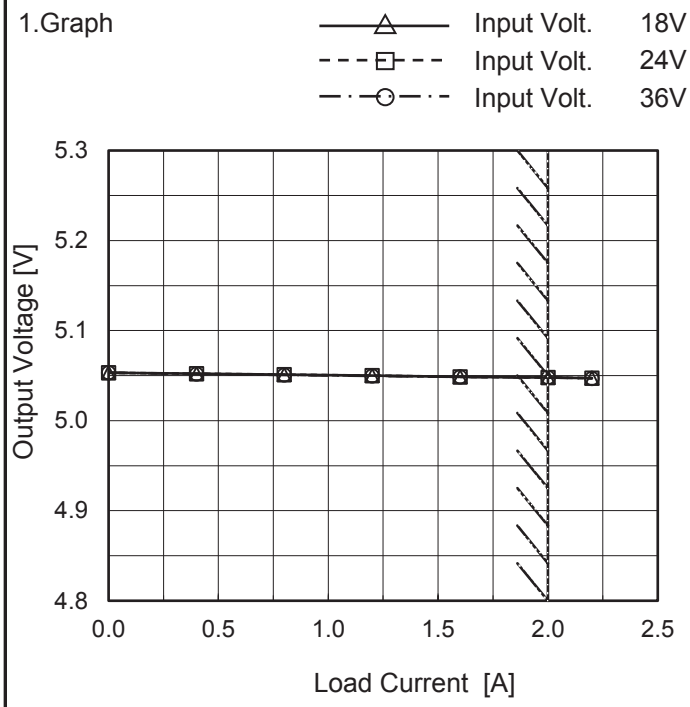
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	5.049	5.048
18	5.049	5.048
20	5.049	5.048
24	5.049	5.048
30	5.049	5.048
36	5.049	5.048
40	5.049	5.048
--	-	-
--	-	-

COSEL

Model	MGS102405
Item	Load Regulation
Object	+5V2A

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]
0.0	5.053	5.053	5.053
0.4	5.052	5.052	5.052
0.8	5.051	5.051	5.051
1.2	5.050	5.050	5.050
1.6	5.049	5.049	5.049
2.0	5.048	5.048	5.048
2.2	5.047	5.047	5.047
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	MGS102405
Item	Dynamic Load Response
Object	+5V2A

Temperature 25°C
Testing Circuitry Figure A

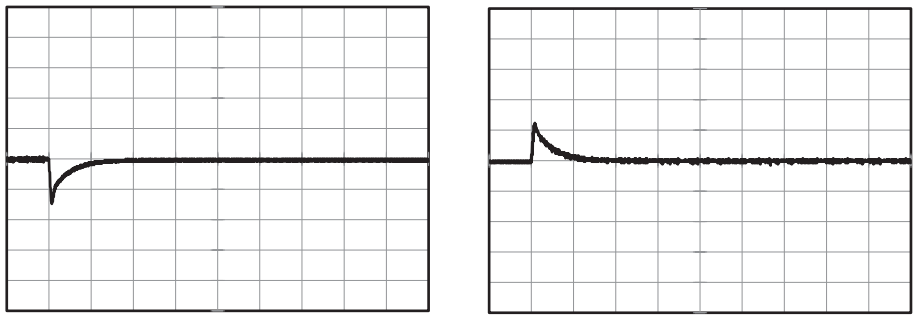
Input Volt. 24 V
Cycle 100 ms

t1,t2 = 100 μ s

Load Current

t1 t2

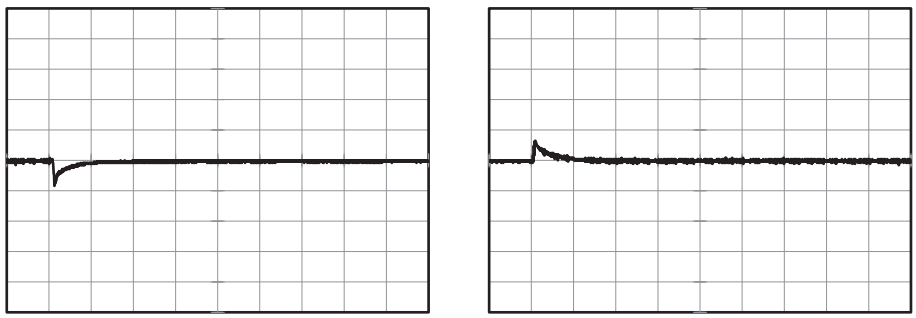
Min.Load (0A)←→
Load 100% (2A)



200 mV/div

1 ms/div 1 ms/div

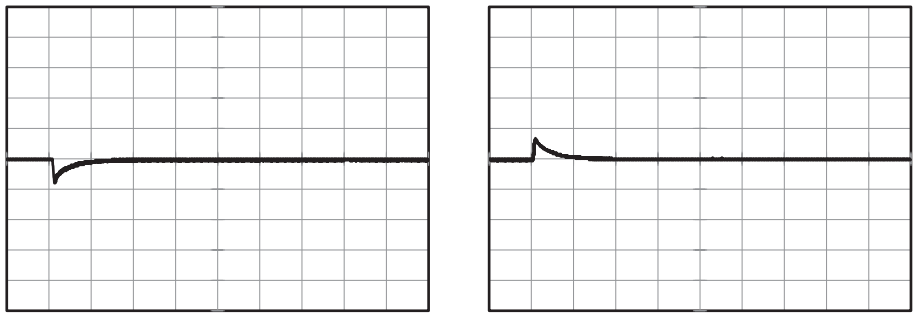
Min.Load (0A)←→
Load 50% (1A)



200 mV/div

1 ms/div 1 ms/div

Load 50% (1A)←→
Load 100% (2A)



200 mV/div

1 ms/div 1 ms/div

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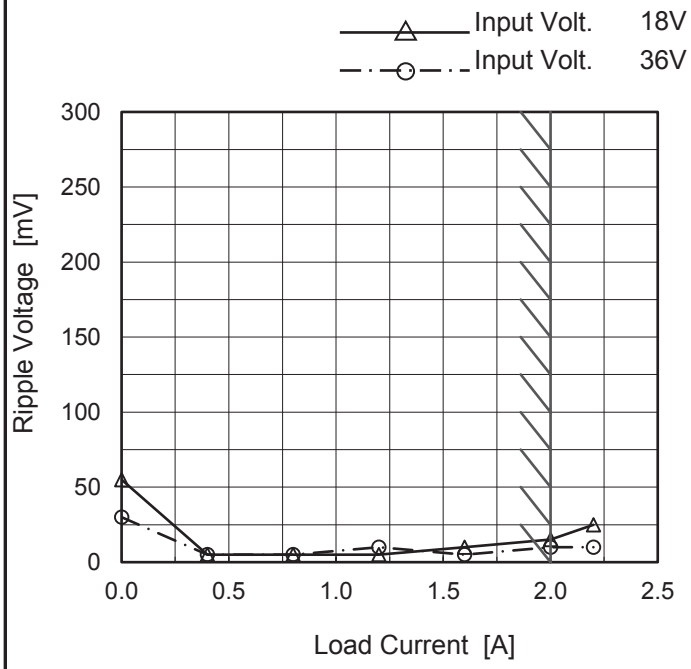
Model	MGS102405
Item	Ripple Voltage (by Load Current)
Object	+5V2A

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]

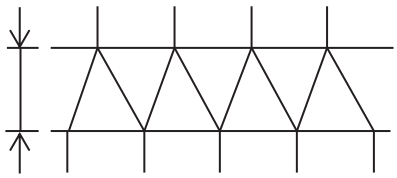


Fig.Complex Ripple Wave Form

2.Values

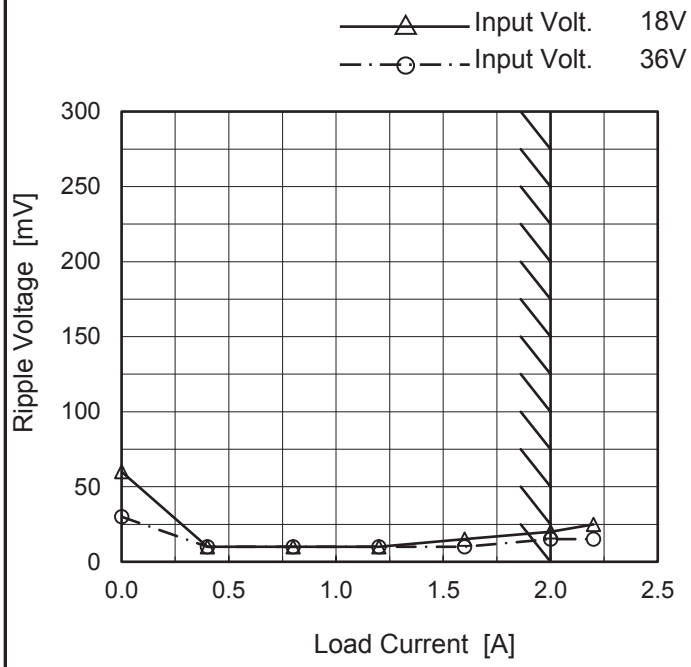
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	55	30
0.4	5	5
0.8	5	5
1.2	5	10
1.6	10	5
2.0	15	10
2.2	25	10
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS102405
Item	Ripple-Noise
Object	+5V2A

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.

Ripple Noise[mVp-p]

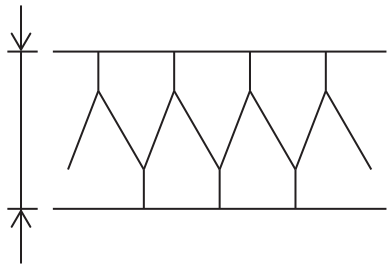


Fig.Complex Ripple Noise Wave Form

2.Values

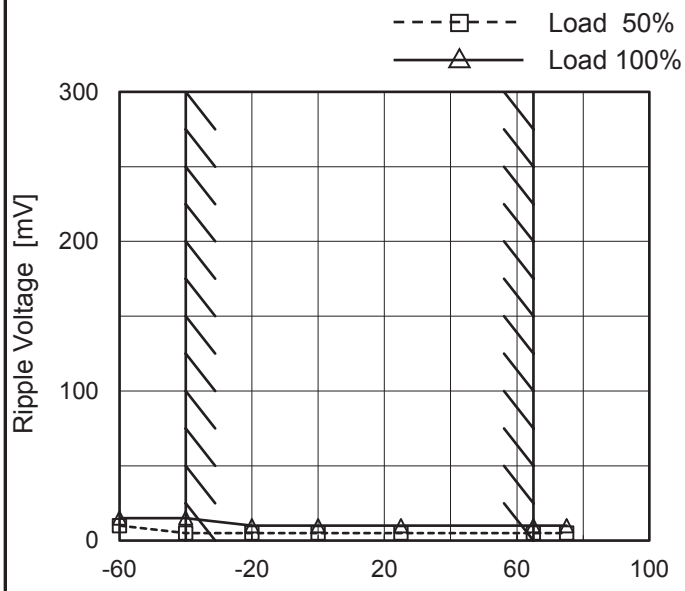
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.0	60	30
0.4	10	10
0.8	10	10
1.2	10	10
1.6	15	10
2.0	20	15
2.2	25	15
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS102405
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V2A

Testing Circuitry Figure B

1.Graph



Input Volt. 24V

Measured by 100 MHz Oscilloscope.

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

2.Values

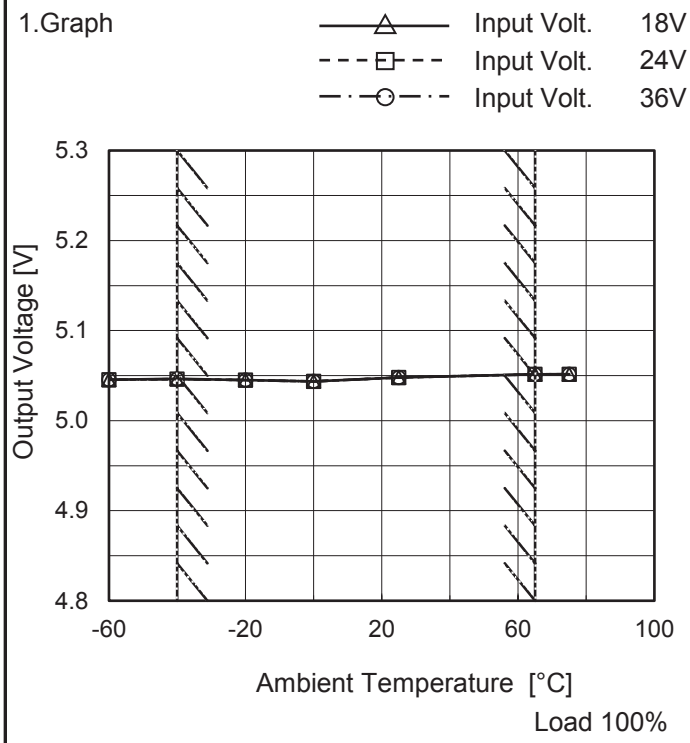
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	10	15
-40	5	15
-20	5	10
0	5	10
25	5	10
65	5	10
75	5	10
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS102405
Item	Ambient Temperature Drift
Object	+5V2A

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]
-60	5.045	5.046	5.046
-40	5.046	5.046	5.046
-20	5.045	5.045	5.045
0	5.044	5.044	5.044
25	5.048	5.048	5.048
65	5.051	5.051	5.051
75	5.052	5.052	5.052
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

Model	MGS102405	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V2A	

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 - 65°C
Input Voltage : 18 - 36V
Load Current : 0 - 2A

* 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	65	36	0	5.057	±7	±0.1
Minimum Voltage	0	36	2	5.044		

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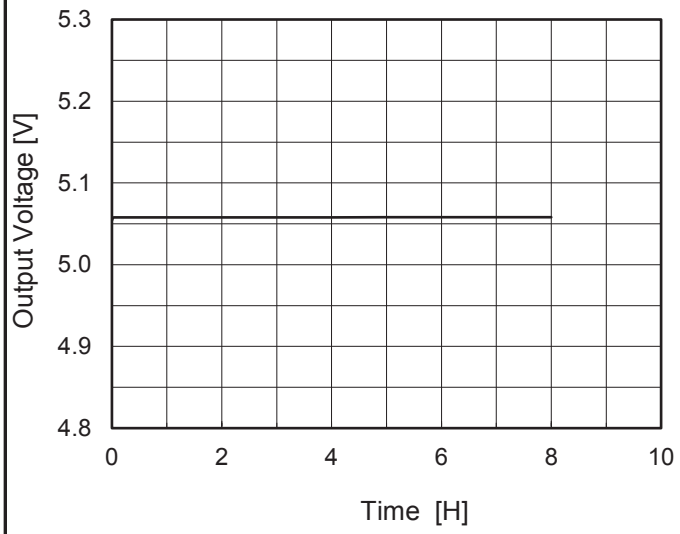
Model	MGS102405
Item	Time Lapse Drift
Object	+5V2A

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	5.054
0.5	5.058
1.0	5.058
2.0	5.058
3.0	5.058
4.0	5.058
5.0	5.058
6.0	5.058
7.0	5.058
8.0	5.058

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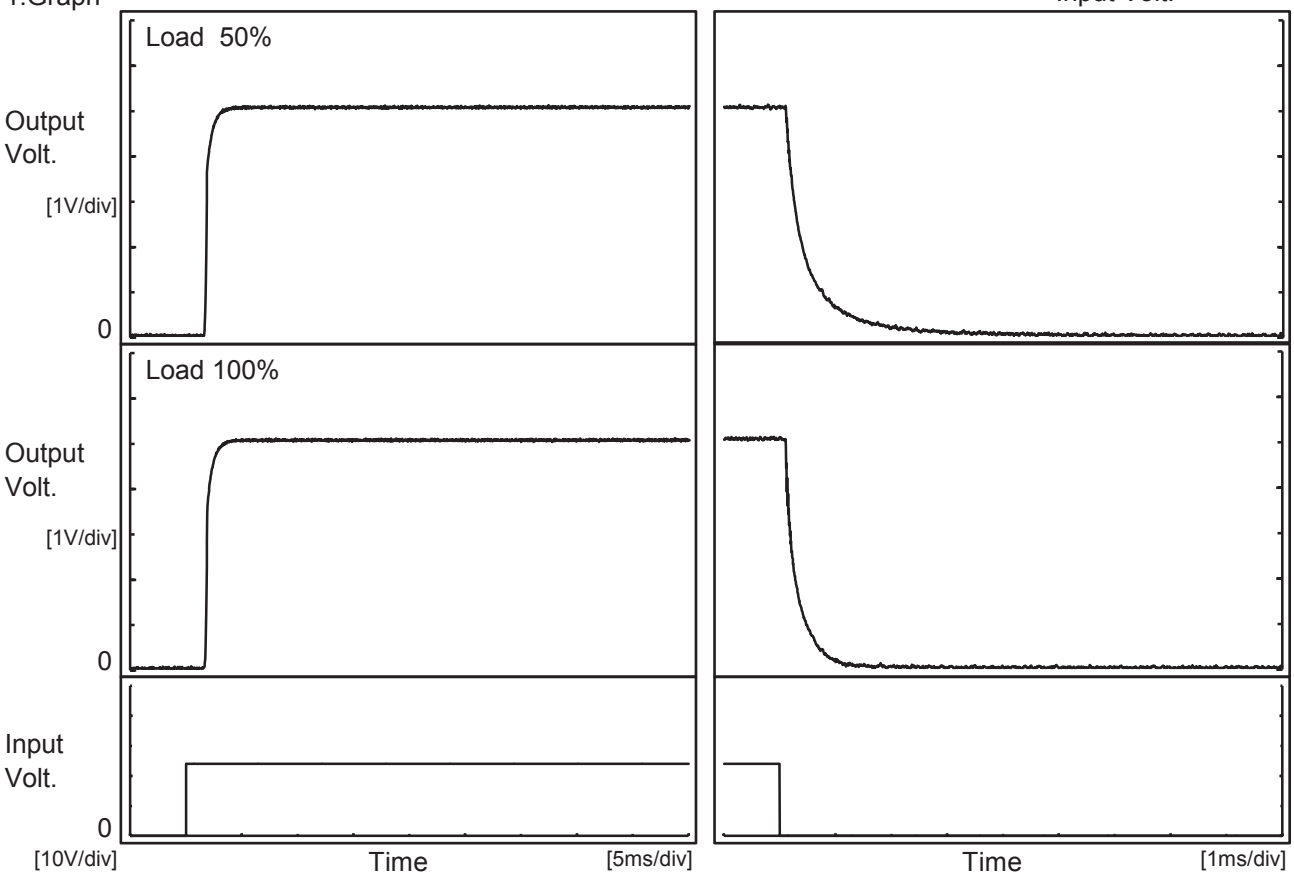
Model	MGS102405
Item	Rise and Fall Time
Object	+5V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

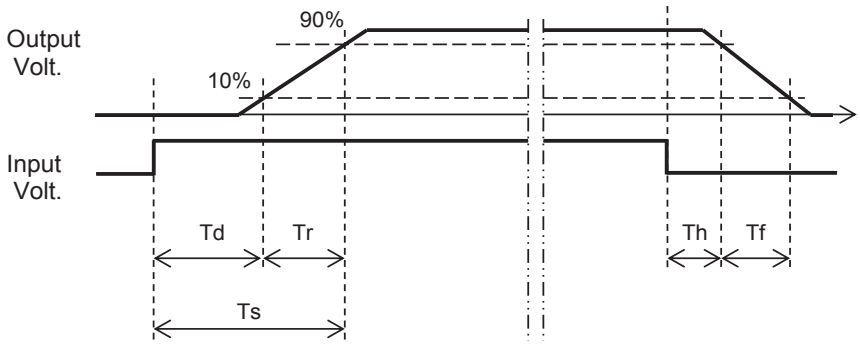
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.7	0.6	2.3	0.1	1.0
100 %	1.8	0.7	2.5	0.1	0.5

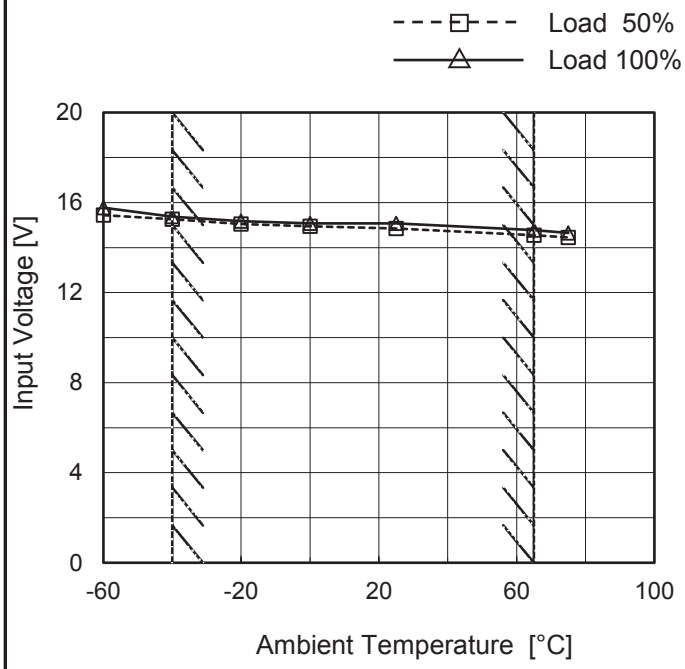


COSEL

Model	MGS102405
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V2A

Testing Circuitry Figure A

1.Graph



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

2.Values

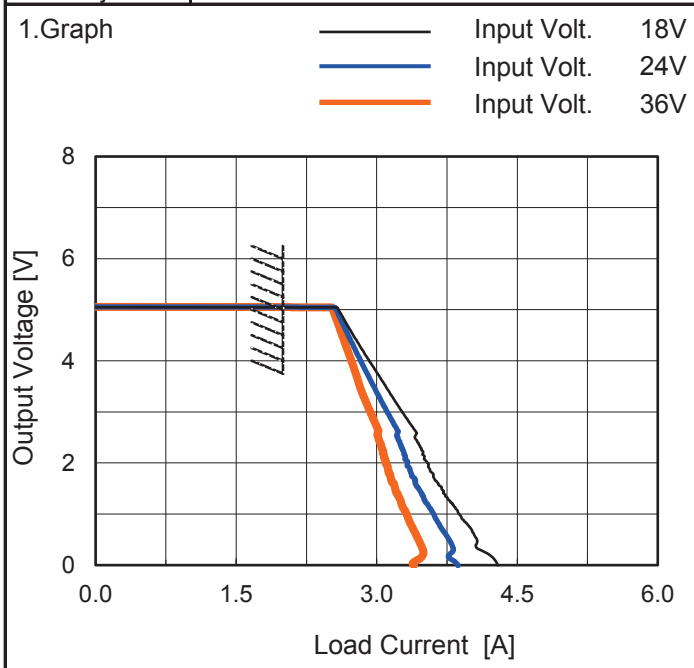
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.5	15.8
-40	15.3	15.4
-20	15.1	15.2
0	15.0	15.1
25	14.9	15.1
65	14.6	14.8
75	14.5	14.7
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS102405
Item	Overcurrent Protection
Object	+5V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

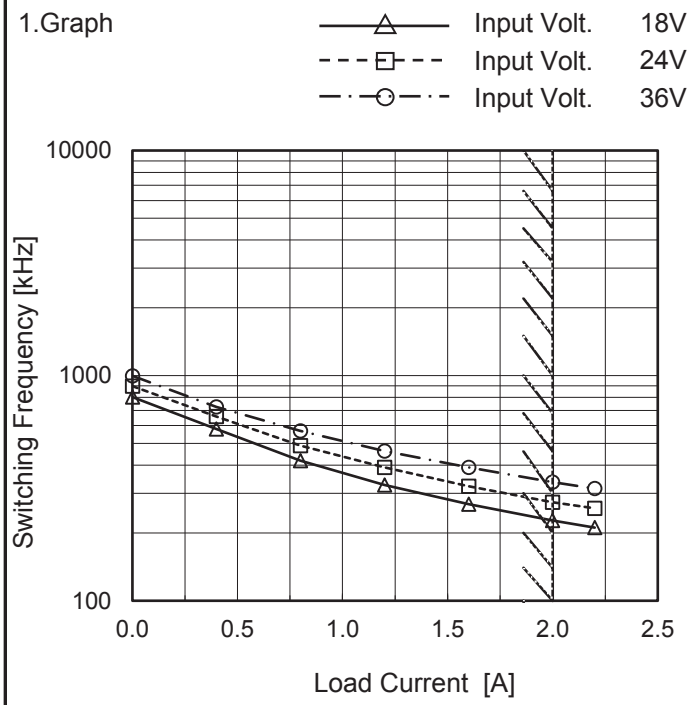
Output Voltage [V]	Load Current [A]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
5.00	2.01	2.01	2.01
4.75	2.67	2.63	2.58
4.50	2.75	2.70	2.63
4.00	2.92	2.83	2.73
3.50	3.09	2.96	2.82
3.00	3.27	3.11	2.93
2.50	3.41	3.21	3.01
2.00	3.54	3.33	3.10
1.50	3.70	3.44	3.20
1.00	3.88	3.60	3.32
0.50	2.75	2.70	3.44
0.00	4.29	3.87	3.40

COSEL

Model	MGS102405
Item	Switching Frequency (by Load Current)
Object	+5V2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

-When load current is low, MG operates intermittently, so switching frequency would not become constant.

2.Values

Load Current [A]	Frequency [kHz]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.0	803	898	998
0.4	580	658	727
0.8	419	489	568
1.2	327	391	462
1.6	268	322	391
2.0	227	274	336
2.2	211	257	315
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

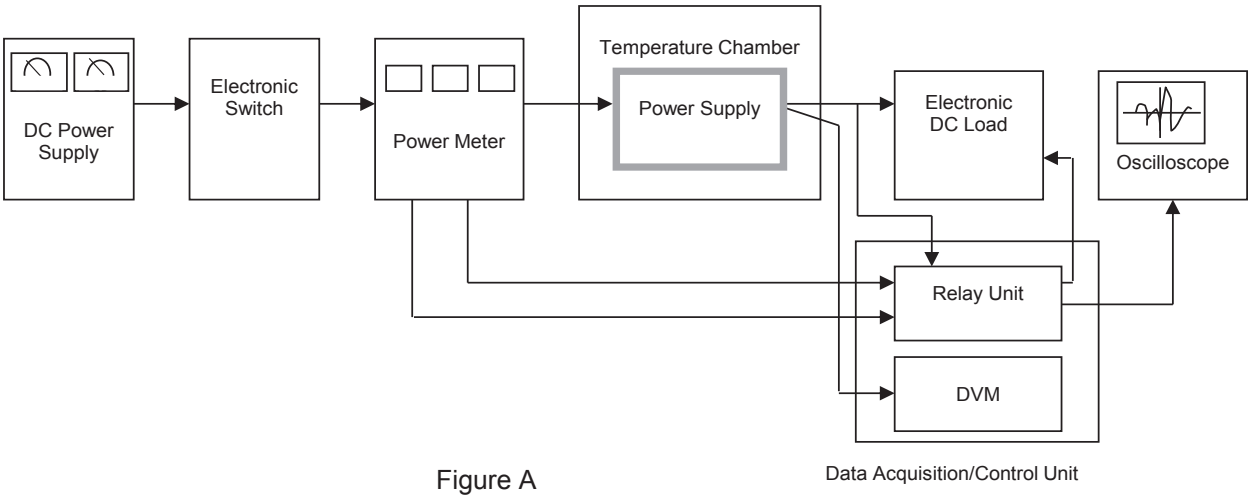


Figure A

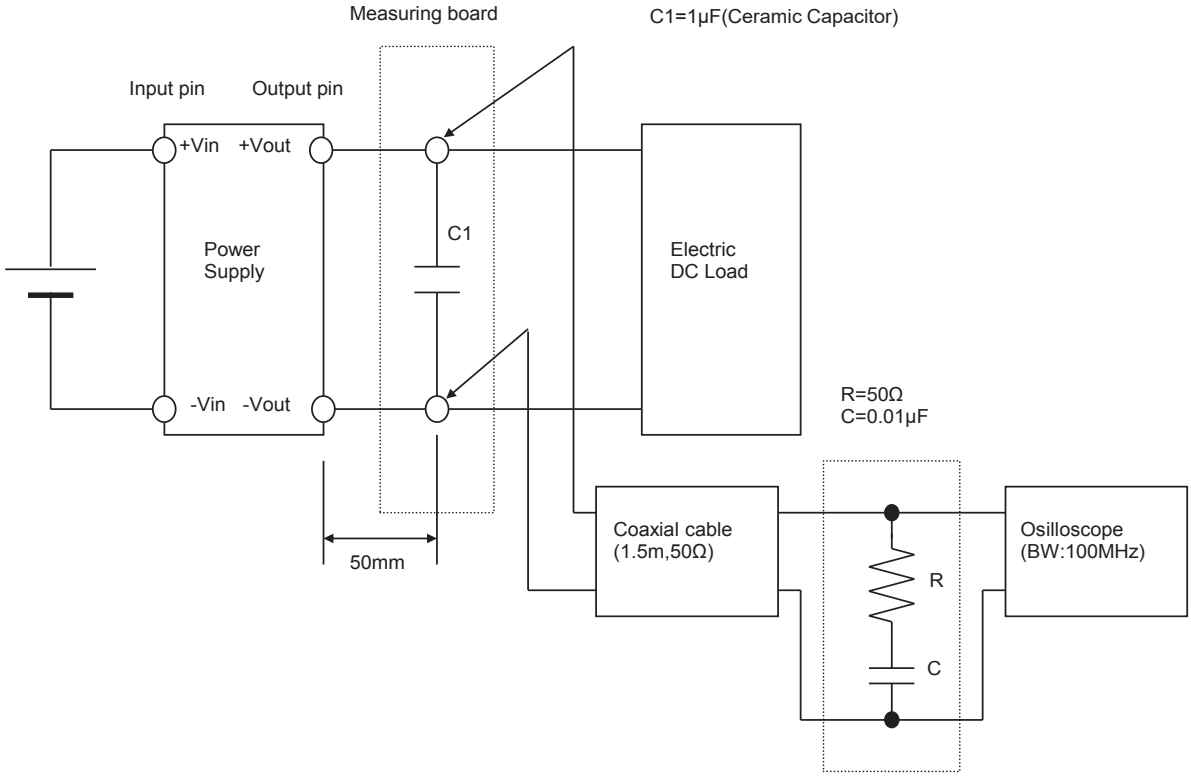


Figure B（Ripple and Ripple noise Characteristic）