参考資料

COSEL

TEST DATA OF MGS32405

Regulated DC Power Supply
March 30, 2016

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COSEL CO.,LTD.

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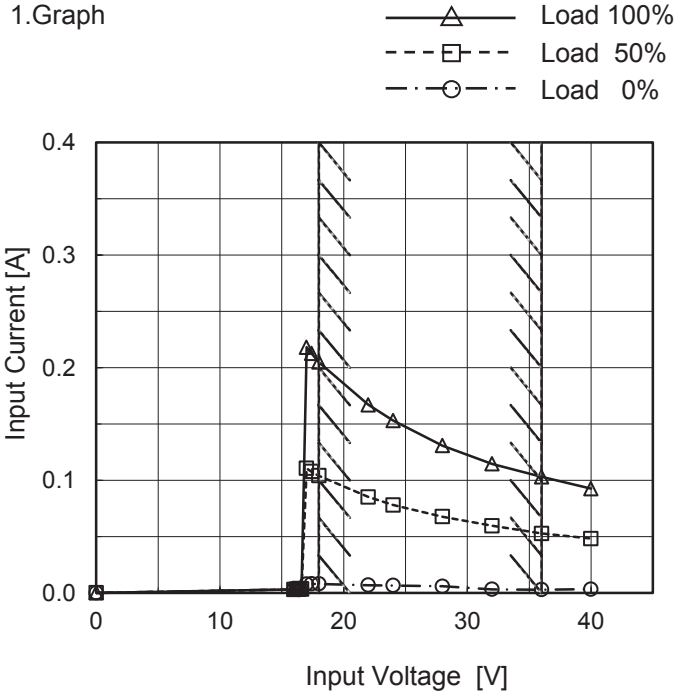
Model	MGS32405
Item	Input Current (by Input Voltage)
Object	————————

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
16.0	0.003	0.003	0.003
16.2	0.003	0.003	0.003
16.4	0.003	0.004	0.003
16.6	0.004	0.003	0.004
17.0	0.008	0.111	0.218
17.4	0.008	0.108	0.213
18.0	0.008	0.104	0.205
22.0	0.007	0.085	0.167
24.0	0.007	0.078	0.153
28.0	0.006	0.068	0.131
32.0	0.003	0.060	0.115
36.0	0.003	0.053	0.103
40.0	0.003	0.048	0.093
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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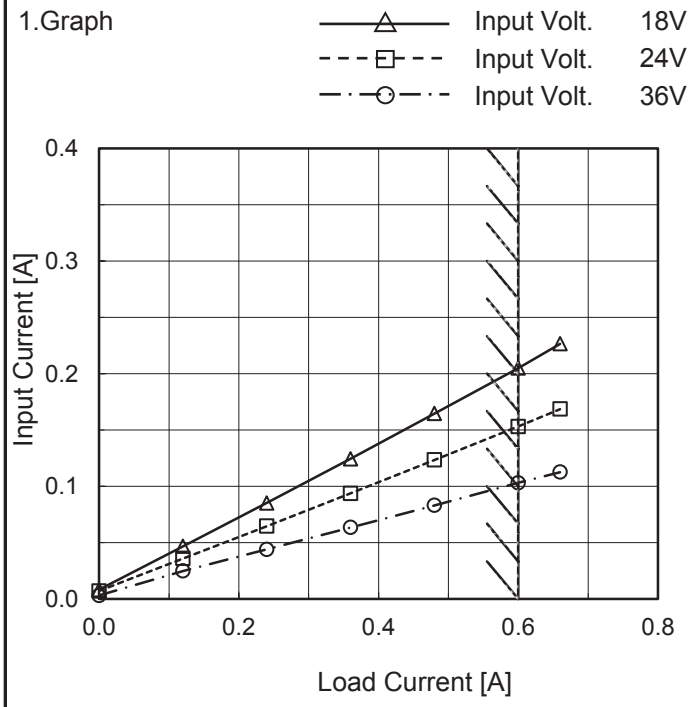
COSEL

Model	MGS32405
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	0.008	0.007	0.003
0.12	0.047	0.036	0.025
0.24	0.085	0.065	0.044
0.36	0.124	0.094	0.063
0.48	0.165	0.123	0.083
0.60	0.205	0.153	0.103
0.66	0.227	0.169	0.113
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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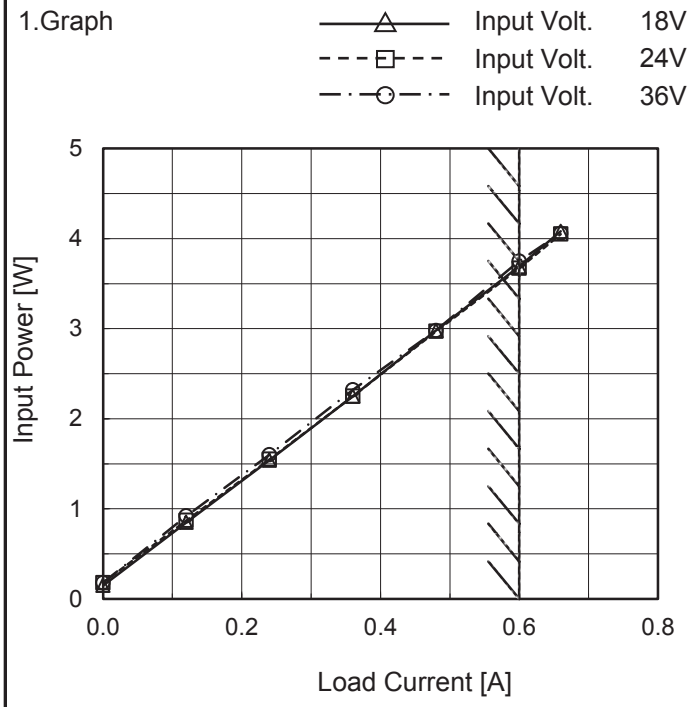
Model	MGS32405
Item	Input Power (by Load Current)
Object	————————

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	0.15	0.18	0.18
0.12	0.85	0.87	0.92
0.24	1.54	1.55	1.60
0.36	2.25	2.25	2.32
0.48	2.98	2.97	2.98
0.60	3.69	3.67	3.75
0.66	4.08	4.05	4.06
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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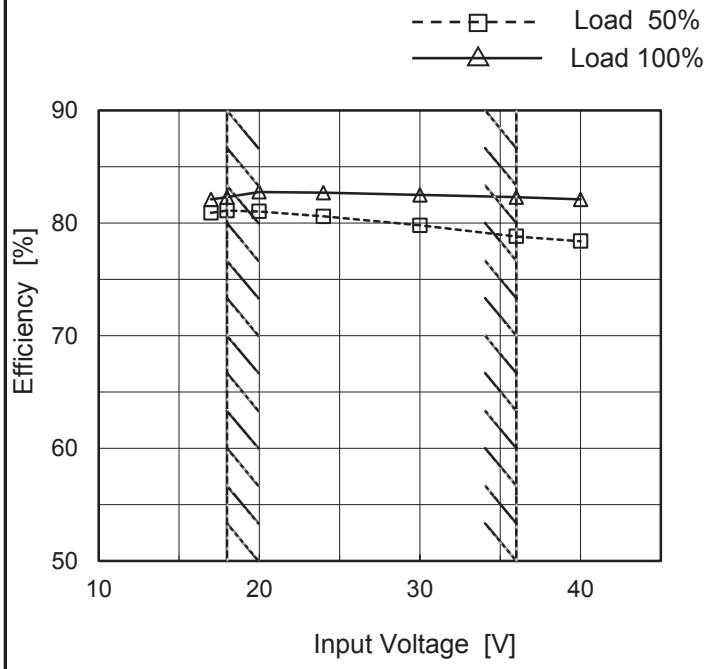
Model	MGS32405
Item	Efficiency (by Input Voltage)
Object	――――――――――

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	80.9	82.1
18	81.1	82.3
20	81.0	82.8
24	80.6	82.7
30	79.8	82.5
36	78.8	82.3
40	78.4	82.1
--	-	-
--	-	-

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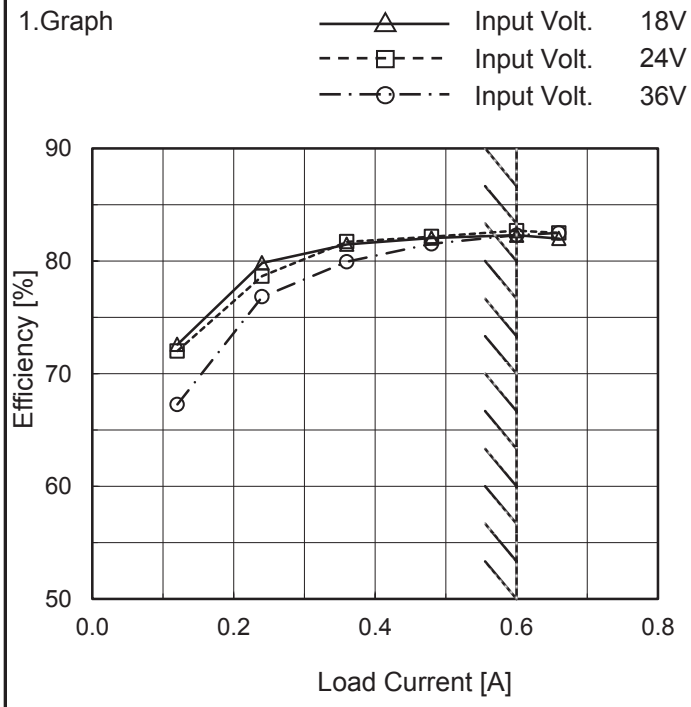
Model	MGS32405
Item	Efficiency (by Load Current)
Object	————————

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	-	-	-
0.12	72.6	72.0	67.3
0.24	79.8	78.7	76.8
0.36	81.5	81.7	79.9
0.48	82.0	82.2	81.5
0.60	82.3	82.7	82.3
0.66	82.0	82.5	82.5
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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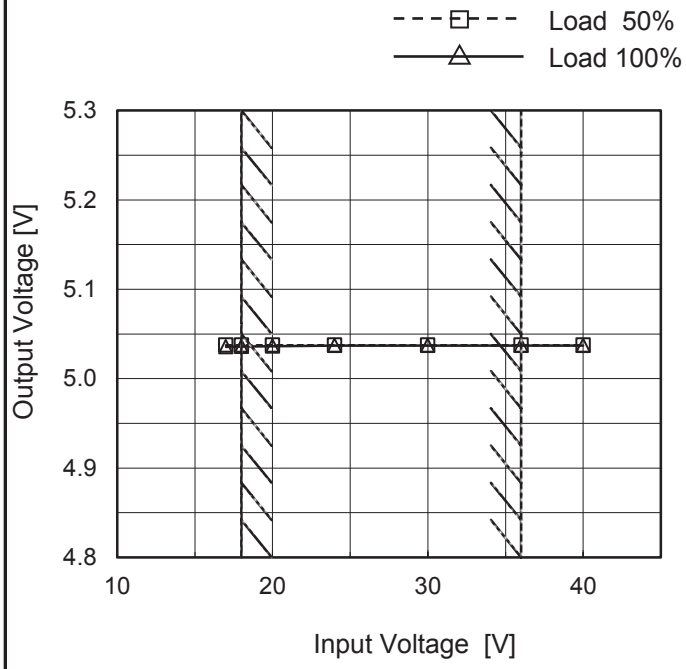
Model	MGS32405
Item	Line Regulation
Object	+5V0.6A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

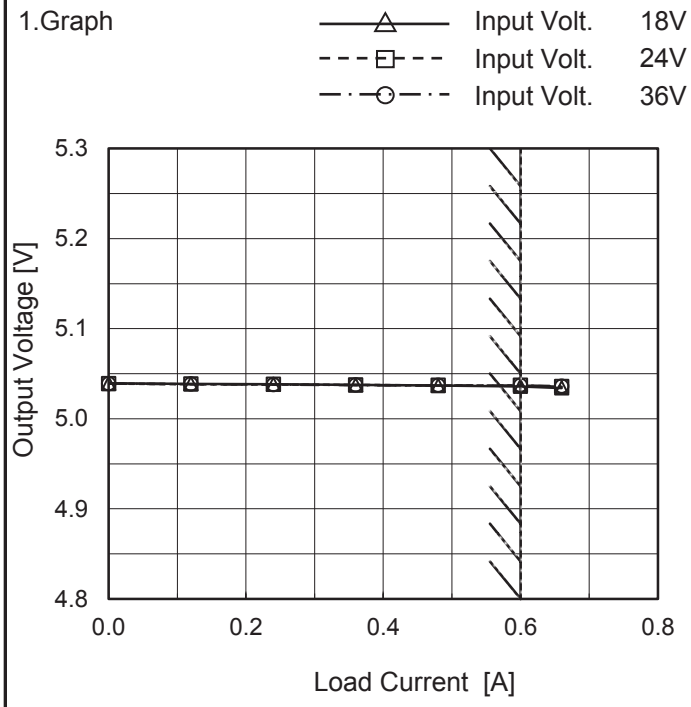
Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
17	5.037	5.036
18	5.037	5.036
20	5.037	5.036
24	5.037	5.037
30	5.037	5.037
36	5.037	5.037
40	5.037	5.037
--	-	-
--	-	-

COSEL

Model	MGS32405
Item	Load Regulation
Object	+5V0.6A

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	5.039	5.039	5.039
0.12	5.039	5.039	5.038
0.24	5.038	5.038	5.038
0.36	5.038	5.038	5.037
0.48	5.037	5.037	5.037
0.60	5.036	5.037	5.037
0.66	5.034	5.036	5.036
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Model	MGS32405
Item	Dynamic Load Response
Object	+5V0.6A

Temperature 25°C
Testing Circuitry Figure A

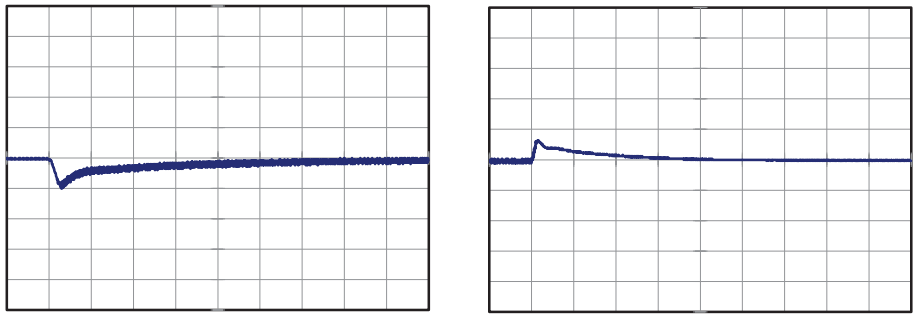
Input Volt. 24 V
Cycle 1000 ms

t1,t2 = 50 μs

Load Current

t1 t2

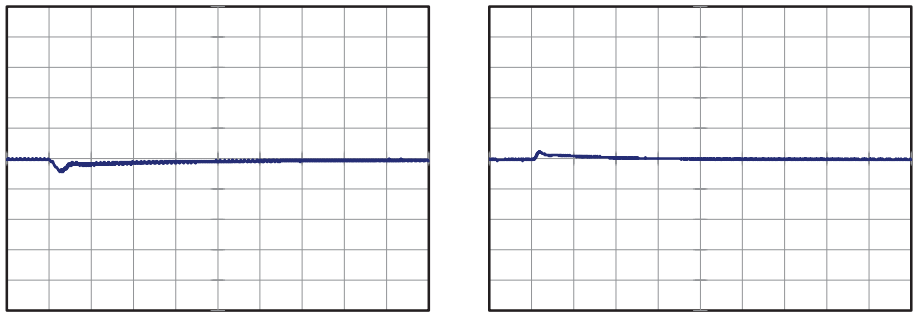
Min.Load (0A)←→
Load 100% (0.6A)



200 mV/div

100 μs/div 200 μs/div

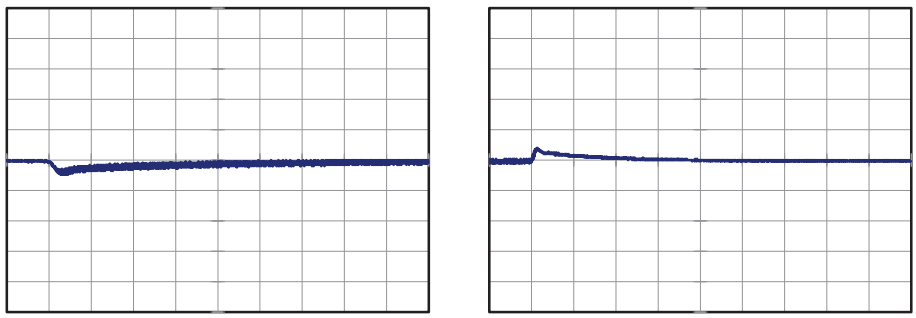
Min.Load (0A)←→
Load 50% (0.3A)



200 mV/div

100 μs/div 200 μs/div

Load 50% (0.3A)←→
Load 100% (0.6A)



200 mV/div

100 μs/div 200 μs/div

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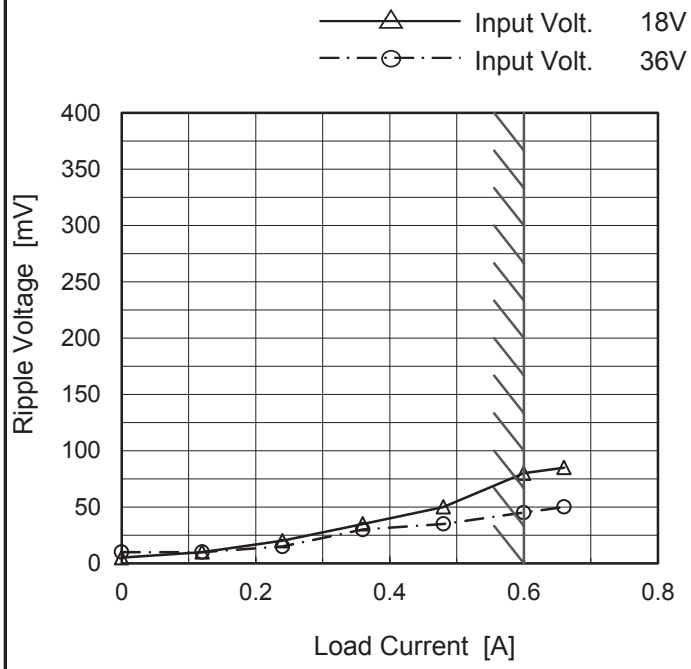
Model	MGS32405
Item	Ripple Voltage (by Load Current)
Object	+5V0.6A

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.

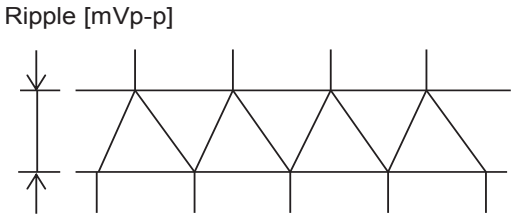


Fig.Complex Ripple Wave Form

2.Values

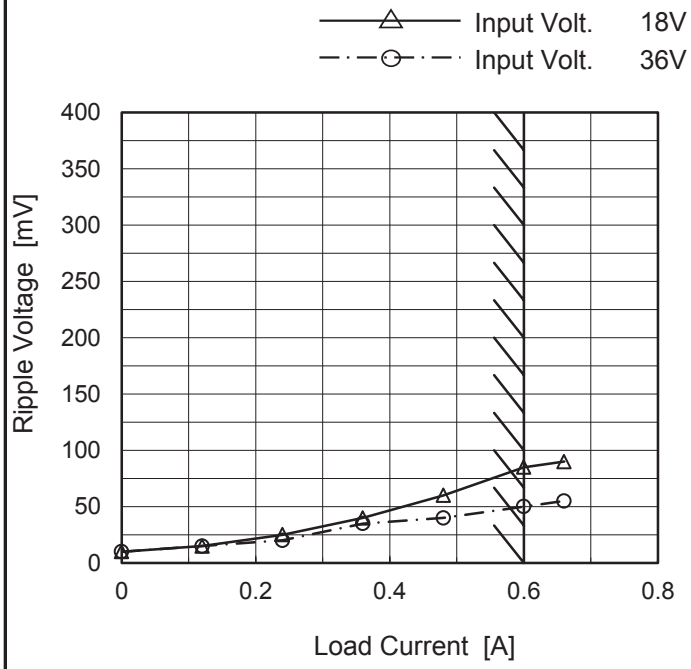
Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.00	5	10
0.12	10	10
0.24	20	15
0.36	35	30
0.48	50	35
0.60	80	45
0.66	85	50
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS32405
Item	Ripple-Noise
Object	+5V0.6A

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.

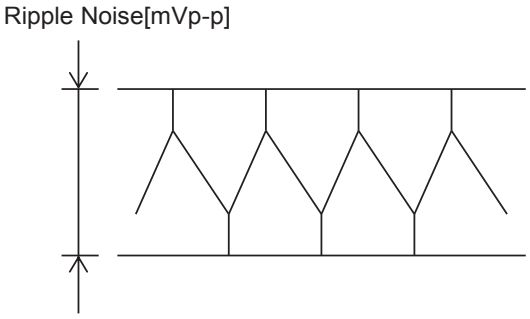


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.00	10	10
0.12	15	15
0.24	25	20
0.36	40	35
0.48	60	40
0.60	85	50
0.66	90	55
--	-	-
--	-	-
--	-	-
--	-	-

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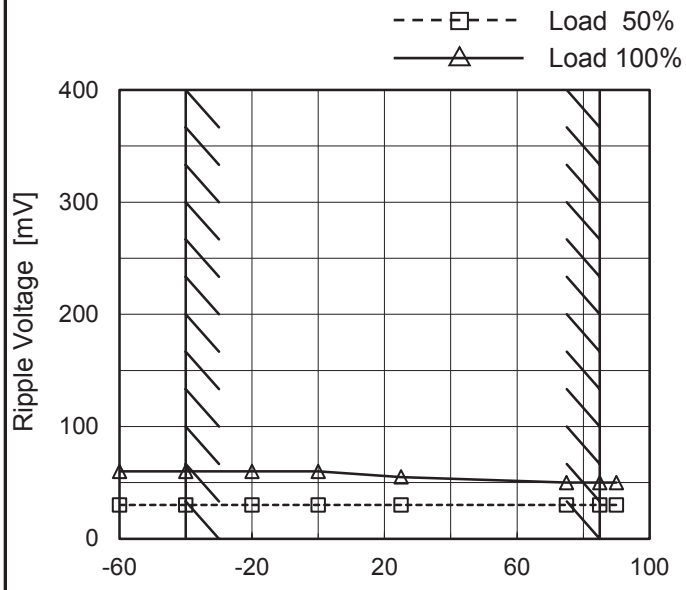
Model	MGS32405
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V0.6A

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	30	60
-40	30	60
-20	30	60
0	30	60
25	30	55
75	30	50
85	30	50
90	30	50
--	-	-
--	-	-
--	-	-

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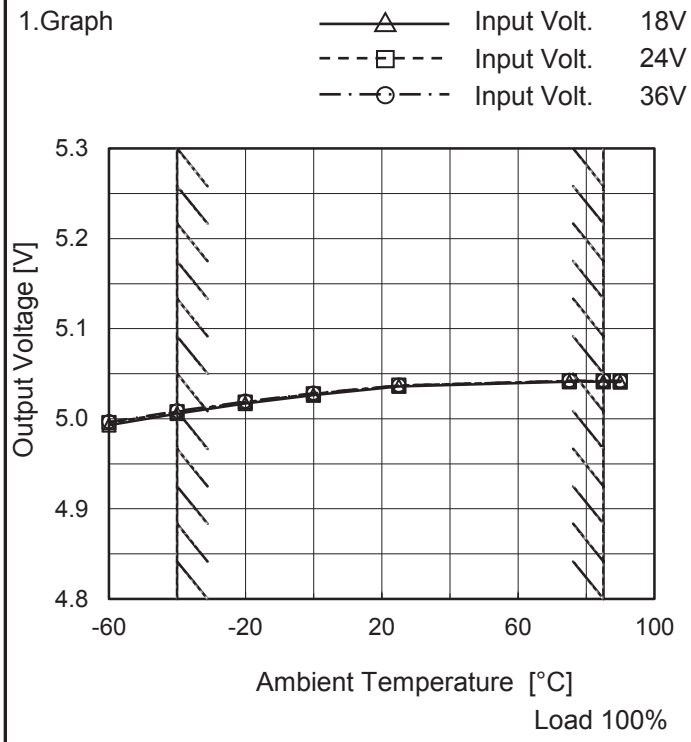
Model	MGS32405
Item	Ambient Temperature Drift
Object	+5V0.6A

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	4.993	4.995	4.997
-40	5.006	5.008	5.009
-20	5.017	5.018	5.019
0	5.026	5.028	5.028
25	5.036	5.037	5.037
75	5.041	5.042	5.042
85	5.041	5.042	5.042
90	5.041	5.042	5.042
--	-	-	-
--	-	-	-
--	-	-	-

Model	MGS32405	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V0.6A	

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 - 85°C
Input Voltage : 18 - 36V
Load Current : 0 - 0.6A

* 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	85	36	0	5.046	±20	±0.4
Minimum Voltage	-40	18	0.6	5.006		

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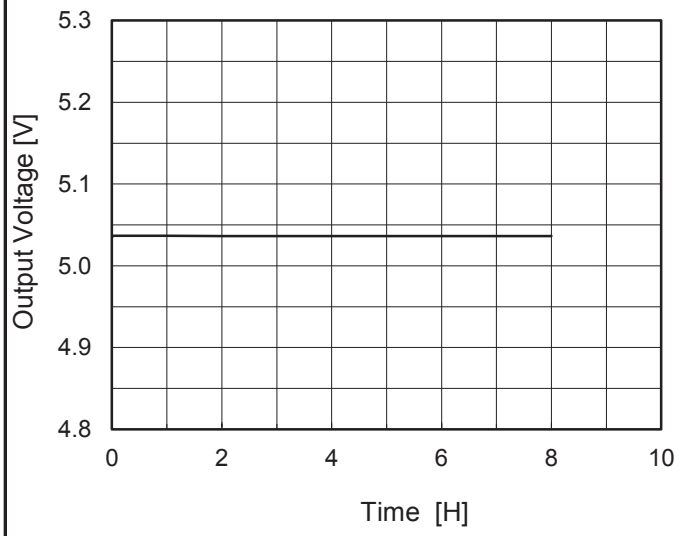
Model	MGS32405
Item	Time Lapse Drift
Object	+5V0.6A

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	5.035
0.5	5.037
1.0	5.037
2.0	5.037
3.0	5.036
4.0	5.036
5.0	5.036
6.0	5.036
7.0	5.036
8.0	5.036

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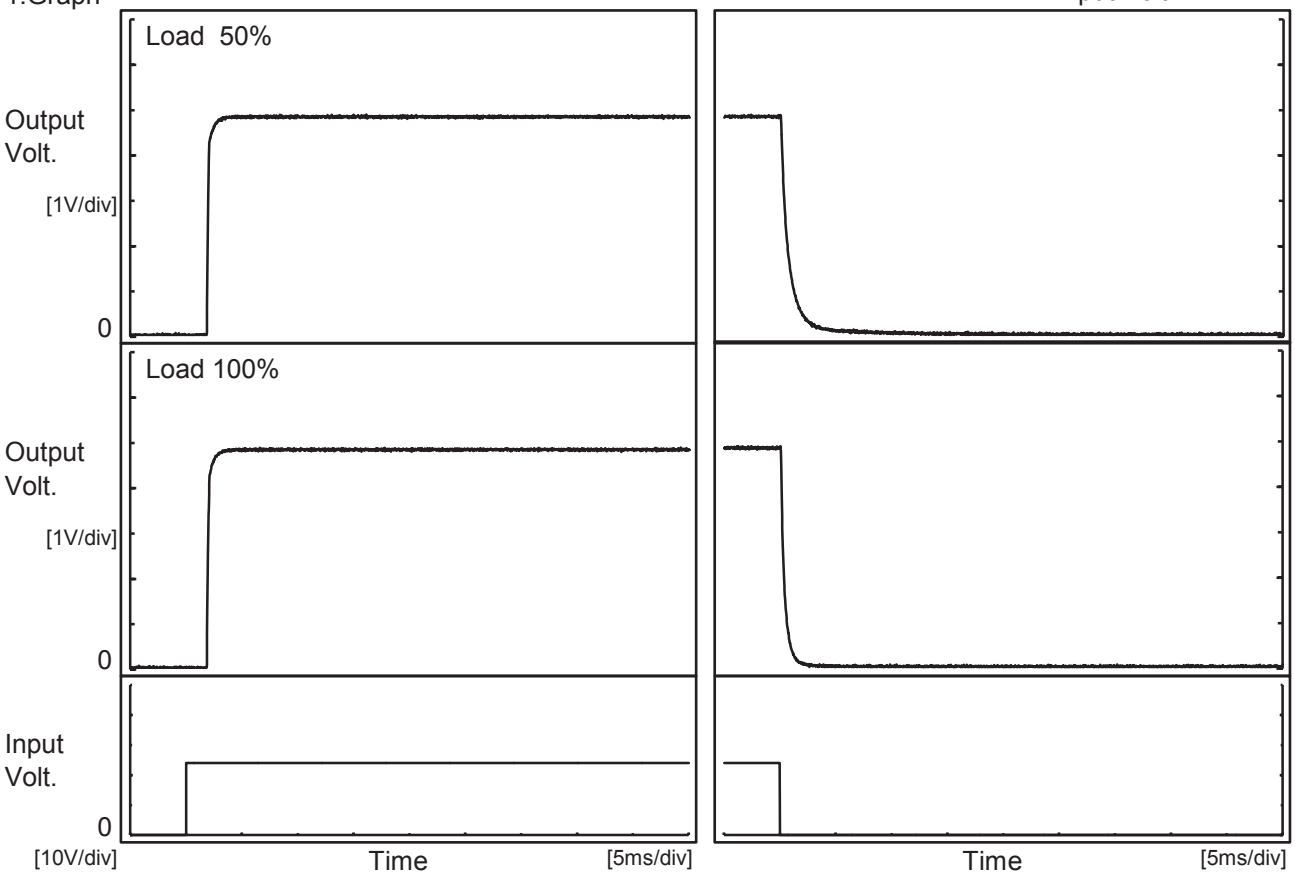
Model	MGS32405
Item	Rise and Fall Time
Object	+5V0.6A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

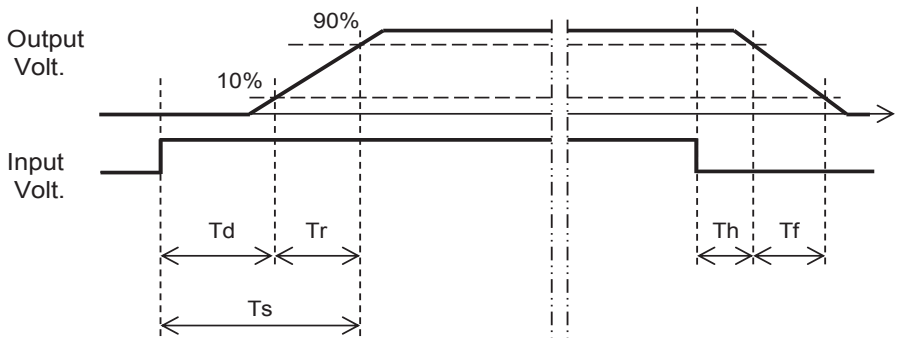
Input Volt. 24 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.9	0.5	2.4	0.1	1.8
100 %	1.9	0.5	2.4	0.1	0.8



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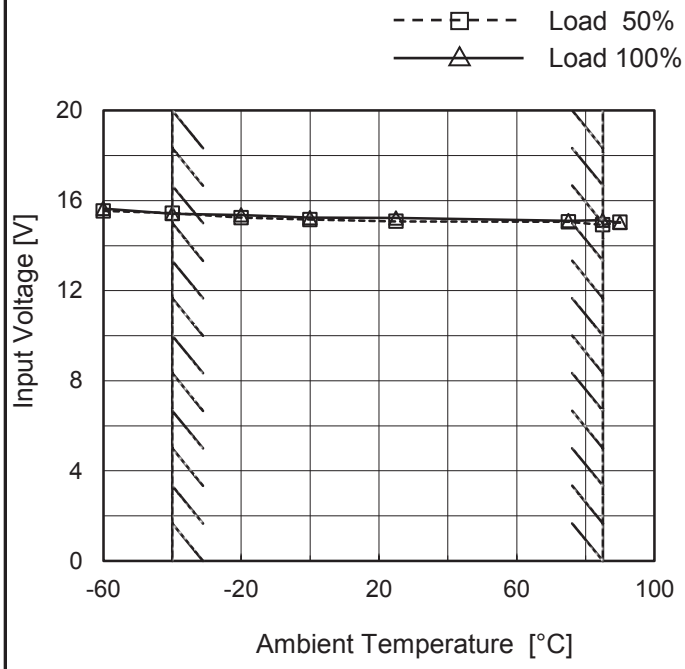
Model	MGS32405
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V0.6A

Testing Circuitry Figure A

1.Graph



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

2.Values

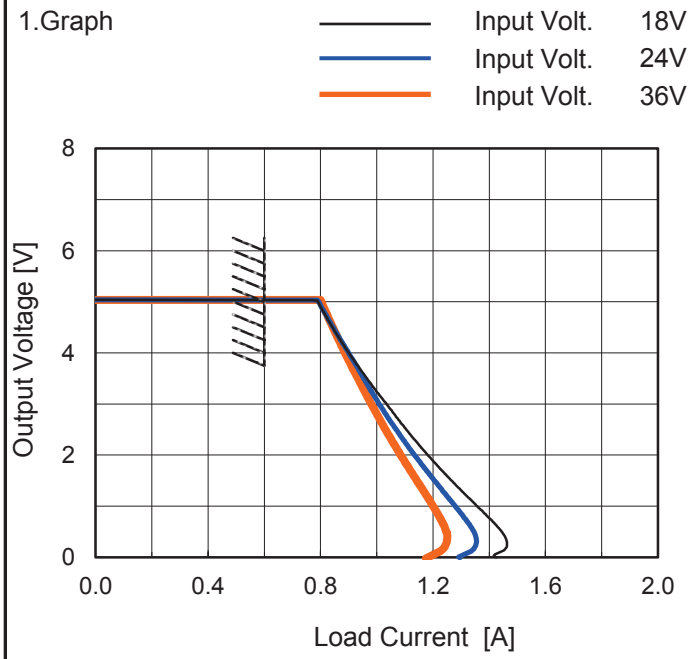
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.6	15.7
-40	15.5	15.5
-20	15.3	15.4
0	15.2	15.3
25	15.1	15.3
75	15.1	15.2
85	15.0	15.2
90	15.1	15.1
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS32405
Item	Overcurrent Protection
Object	+5V0.6A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

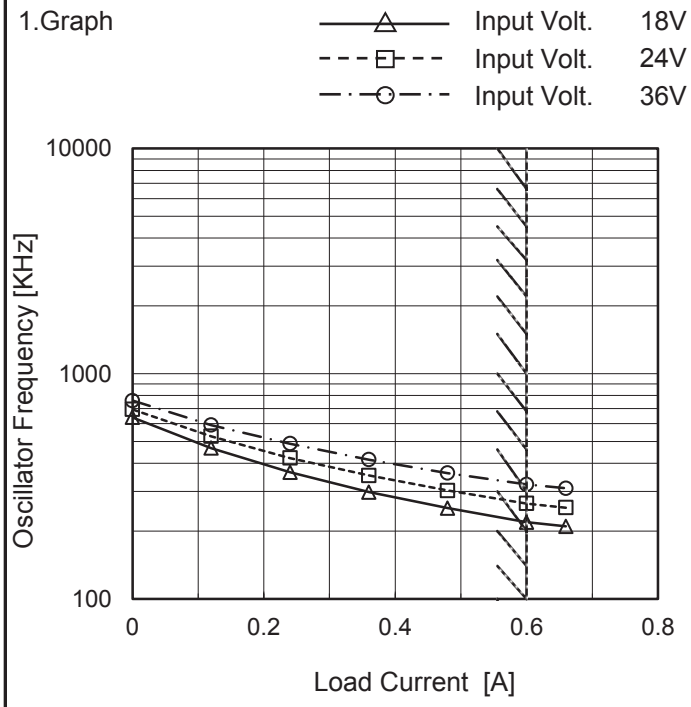
Output Voltage [V]	Load Current [A]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
5.00	0.62	0.62	0.62
4.75	0.82	0.82	0.82
4.50	0.84	0.84	0.84
4.00	0.90	0.90	0.89
3.50	0.96	0.95	0.93
3.00	1.03	1.01	0.98
2.50	1.10	1.07	1.03
2.00	1.18	1.13	1.09
1.50	1.26	1.20	1.14
1.00	1.36	1.28	1.20
0.50	1.44	1.35	1.25
0.00	1.43	1.30	1.17

COSEL

Model	MGS32405
Item	Switching frequency (by Load Current)
Object	+5V0.6A

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]
0.00	640	694	760
0.12	467	527	591
0.24	365	422	489
0.36	298	353	415
0.48	253	303	362
0.60	219	265	322
0.66	210	254	310
--	-	-	-
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--	-	-	-
--	-	-	-

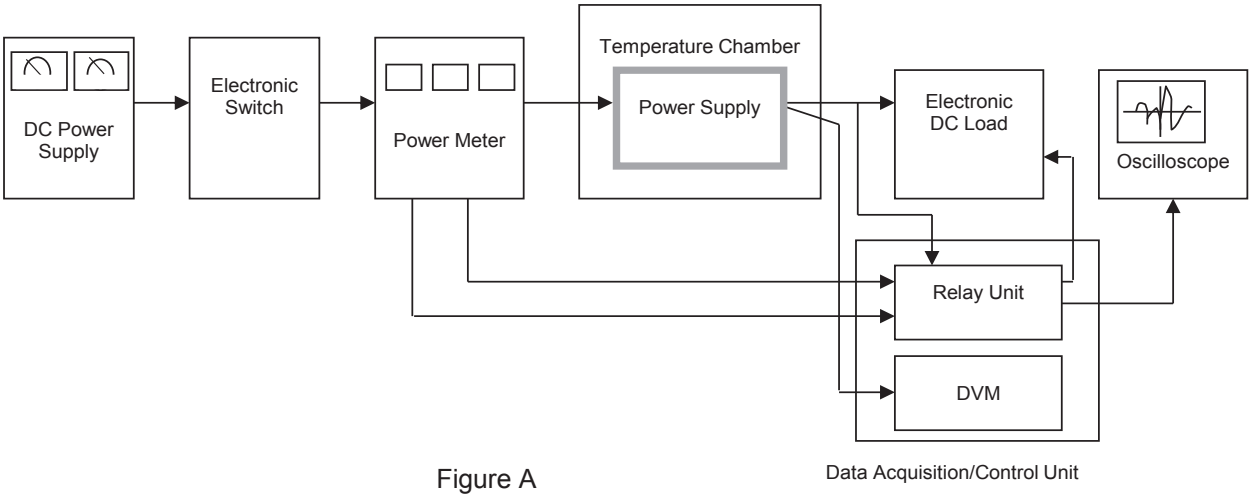

Figure A

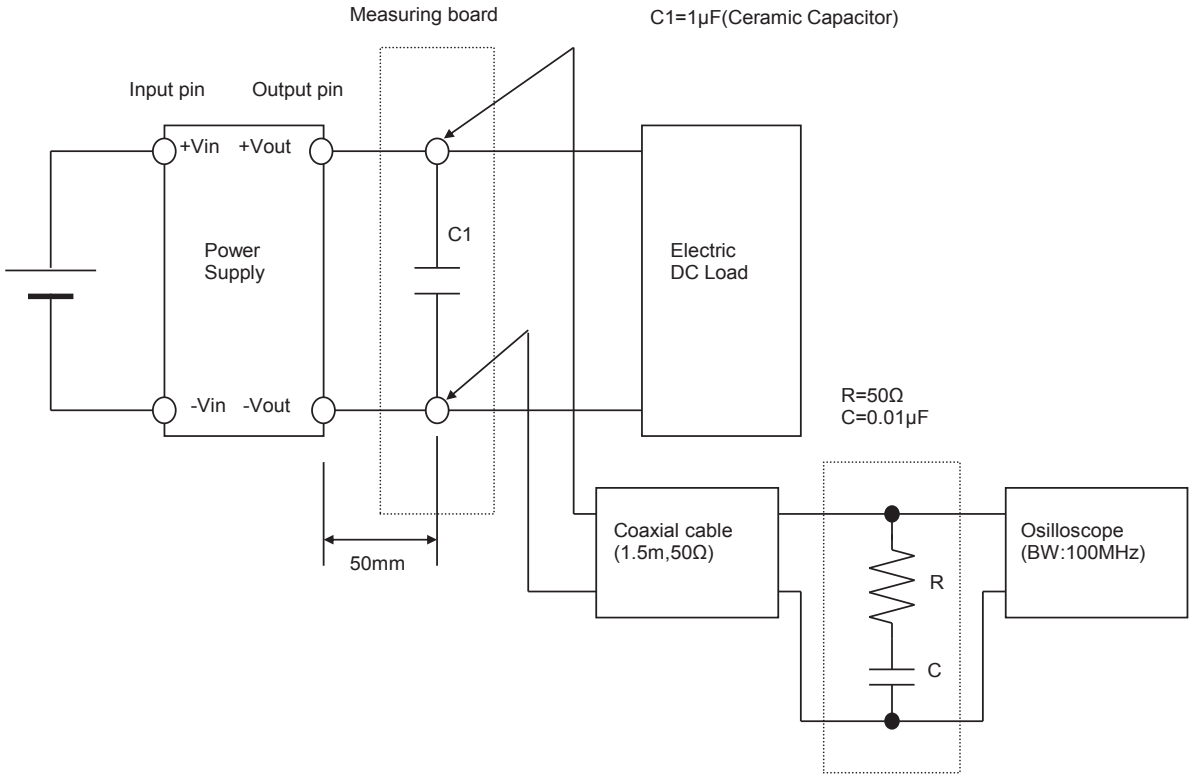

Figure B（Ripple and Ripple noise Characteristic）