参考資料

COSEL

TEST DATA OF MGS1R54805

Regulated DC Power Supply
August 9, 2016

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COSEL CO.,LTD.

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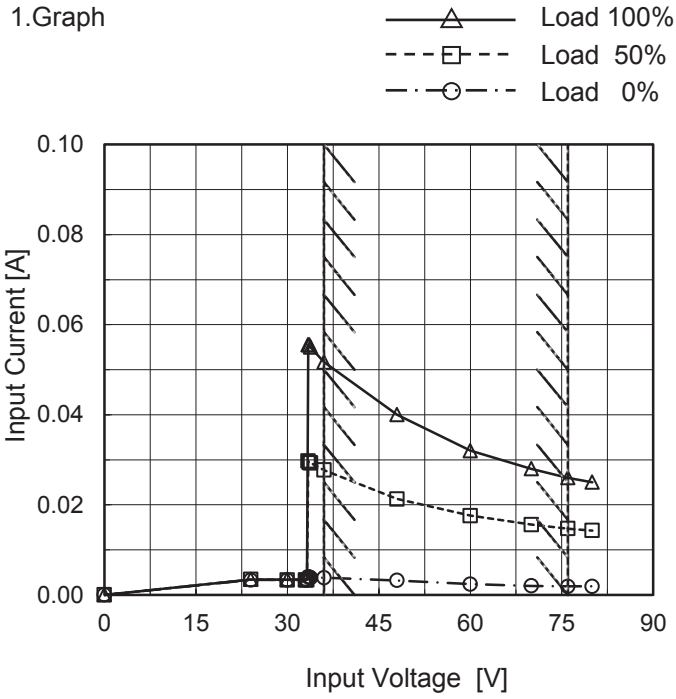
Model	MGS1R54805
Item	Input Current (by Input Voltage)
Object	————————

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
24.0	0.003	0.003	0.003
30.0	0.003	0.003	0.003
33.0	0.003	0.003	0.004
33.2	0.003	0.003	0.004
33.4	0.004	0.030	0.056
33.6	0.004	0.029	0.056
33.8	0.004	0.029	0.055
36.0	0.004	0.028	0.052
48.0	0.003	0.021	0.040
60.0	0.002	0.018	0.032
70.0	0.002	0.016	0.028
76.0	0.002	0.015	0.026
80.0	0.002	0.014	0.025
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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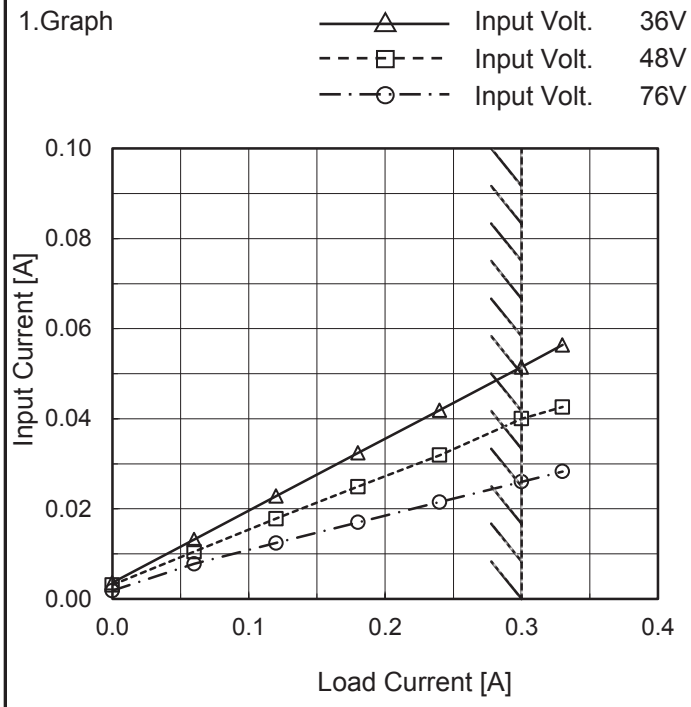
Model	MGS1R54805
Item	Input Current (by Load Current)
Object	————————

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]
0.00	0.004	0.003	0.002
0.06	0.013	0.011	0.008
0.12	0.023	0.018	0.012
0.18	0.032	0.025	0.017
0.24	0.042	0.032	0.022
0.30	0.052	0.040	0.026
0.33	0.056	0.043	0.028
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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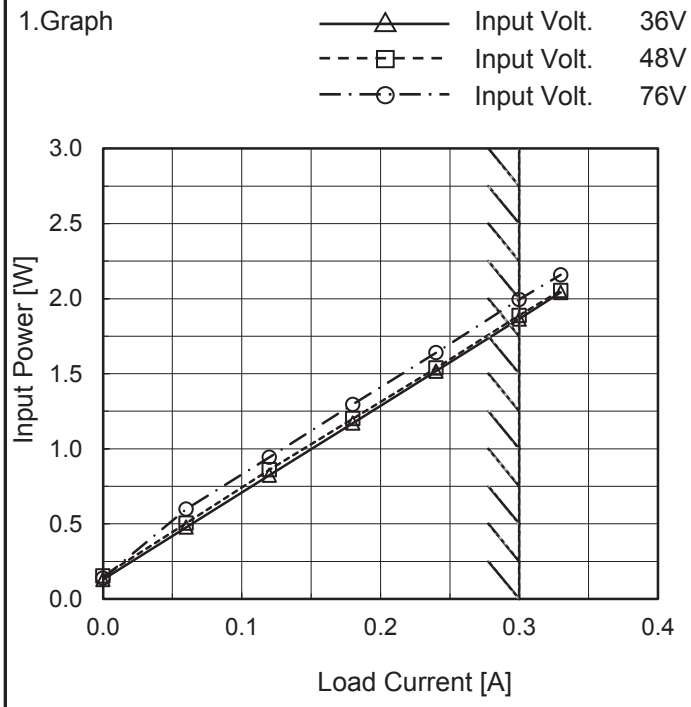
Model	MGS1R54805
Item	Input Power (by Load Current)
Object	————————

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]
0.00	0.13	0.15	0.14
0.06	0.48	0.50	0.60
0.12	0.82	0.86	0.94
0.18	1.17	1.20	1.30
0.24	1.52	1.54	1.64
0.30	1.86	1.89	1.99
0.33	2.04	2.05	2.16
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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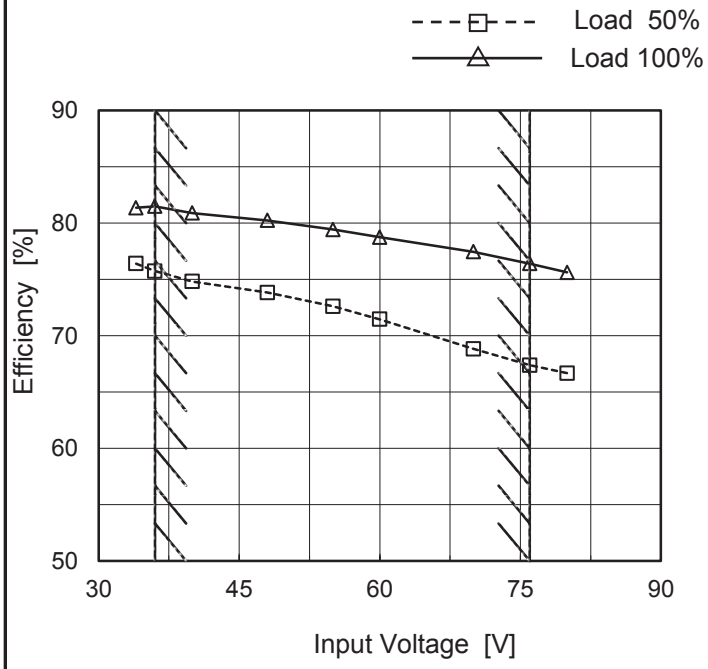
Model	MGS1R54805
Item	Efficiency (by Input Voltage)
Object	————————————

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%
34	76.4	81.4
36	75.7	81.5
40	74.8	80.9
48	73.8	80.2
55	72.6	79.4
60	71.5	78.7
70	68.8	77.5
76	67.4	76.4
80	66.7	75.6

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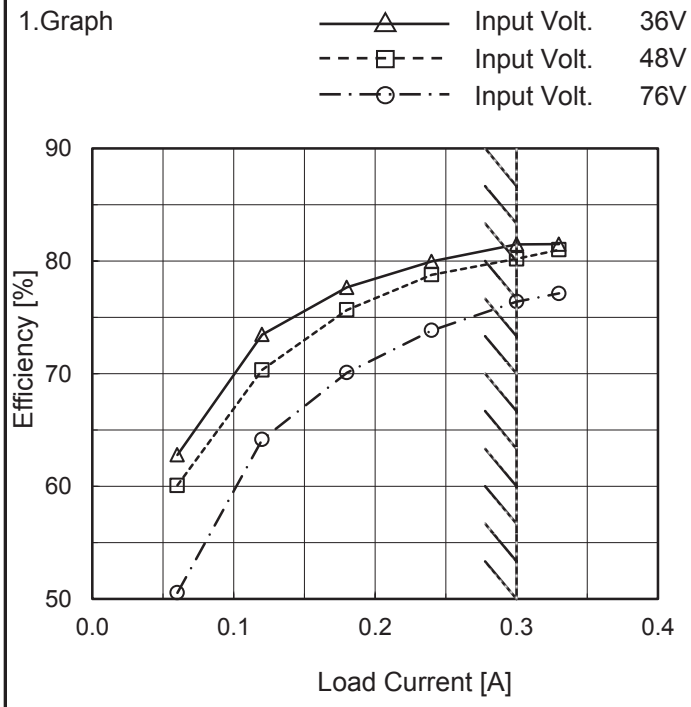
Model	MGS1R54805
Item	Efficiency (by Load Current)
Object	————————

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]
0.00	-	-	-
0.06	62.8	60.1	50.5
0.12	73.5	70.3	64.2
0.18	77.7	75.7	70.1
0.24	80.0	78.8	73.9
0.30	81.5	80.2	76.4
0.33	81.5	81.0	77.1
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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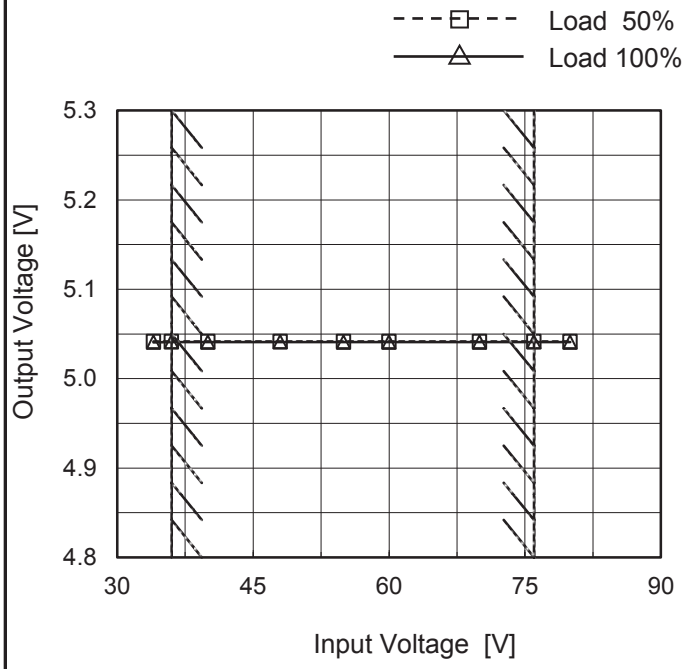
Model	MGS1R54805
Item	Line Regulation
Object	+5V0.3A

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%
34	5.042	5.041
36	5.042	5.041
40	5.042	5.041
48	5.042	5.041
55	5.042	5.041
60	5.042	5.041
70	5.042	5.041
76	5.042	5.041
80	5.042	5.041

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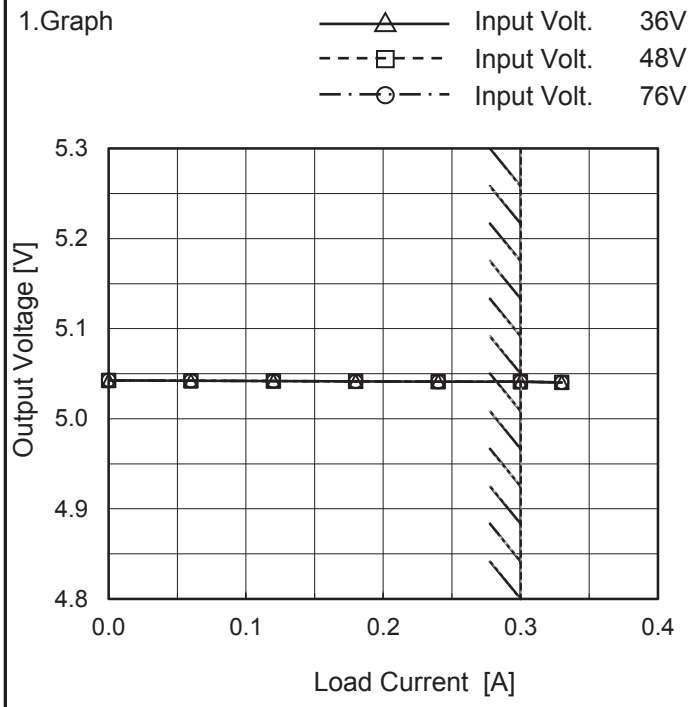
Model	MGS1R54805
Item	Load Regulation
Object	+5V0.3A

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]
0.00	5.043	5.043	5.043
0.06	5.042	5.042	5.042
0.12	5.042	5.042	5.042
0.18	5.042	5.042	5.042
0.24	5.041	5.041	5.041
0.30	5.041	5.041	5.041
0.33	5.040	5.040	5.040
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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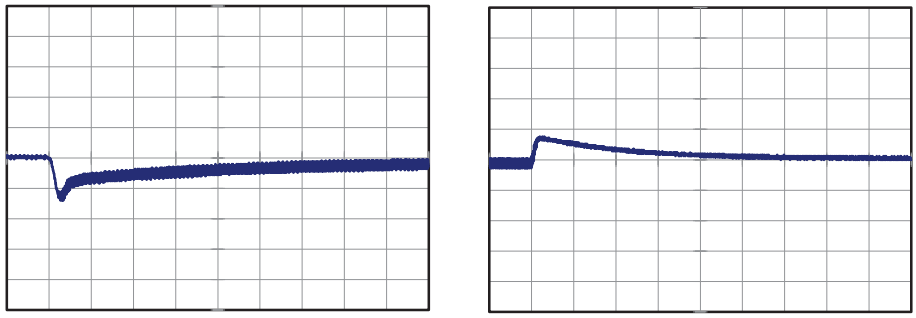
Model	MGS1R54805	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+5V0.3A	

Input Volt. 48 V
Cycle 100 ms

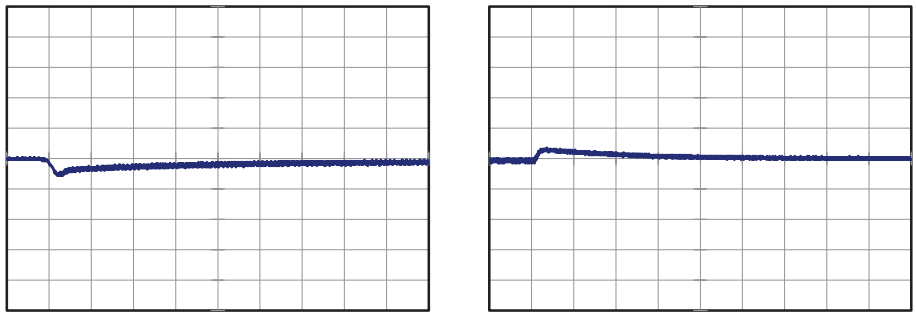
Min.Load (0A)←→
Load 100% (0.3A)



100 mV/div

100 μs/div 200 μs/div

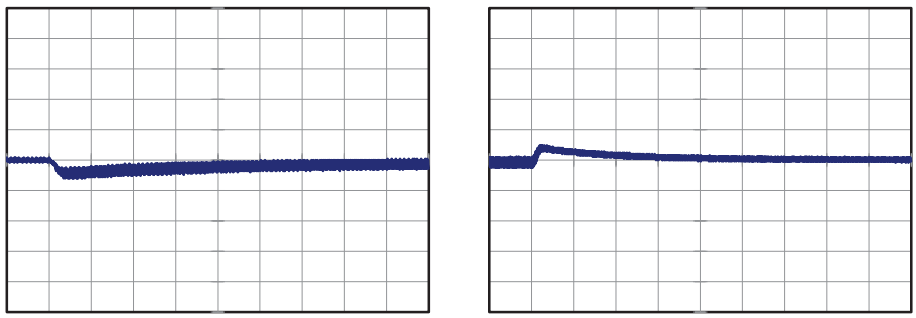
Min.Load (0A)←→
Load 50% (0.15A)



100 mV/div

100 μs/div 200 μs/div

Load 50% (0.15A)←→
Load 100% (0.3A)



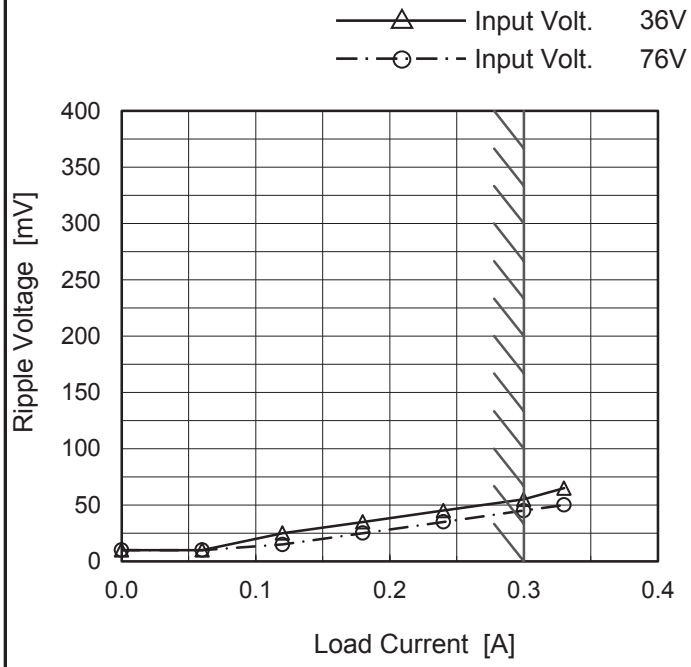
100 mV/div

100 μs/div 200 μs/div

Model	MGS1R54805
Item	Ripple Voltage (by Load Current)
Object	+5V0.3A

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]

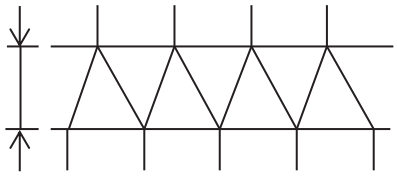


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	10	10
0.06	10	10
0.12	25	15
0.18	35	25
0.24	45	35
0.30	55	45
0.33	65	50
--	-	-
--	-	-
--	-	-
--	-	-

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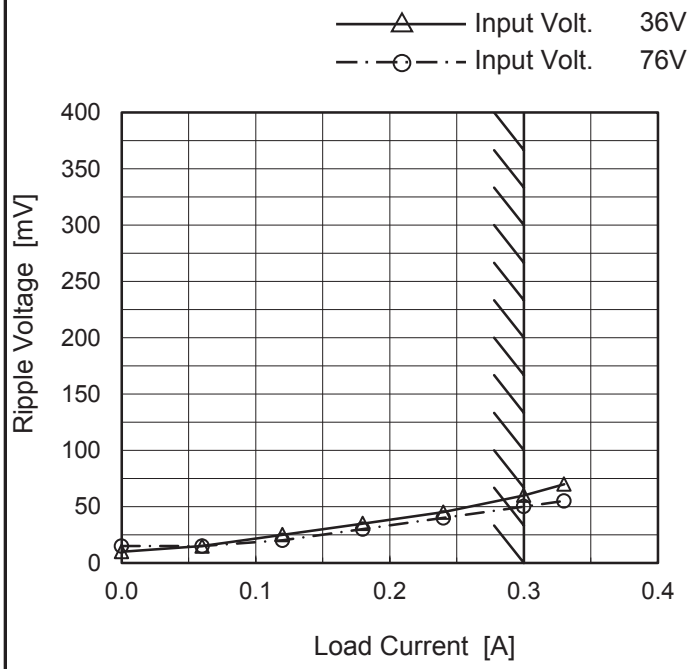
Model	MGS1R54805
Item	Ripple-Noise
Object	+5V0.3A

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]

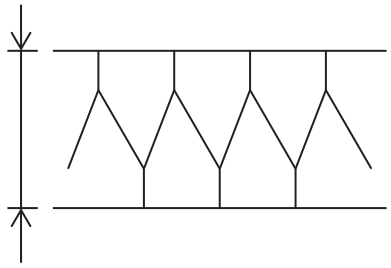


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	10	15
0.06	15	15
0.12	25	20
0.18	35	30
0.24	45	40
0.30	60	50
0.33	70	55
--	-	-
--	-	-
--	-	-
--	-	-

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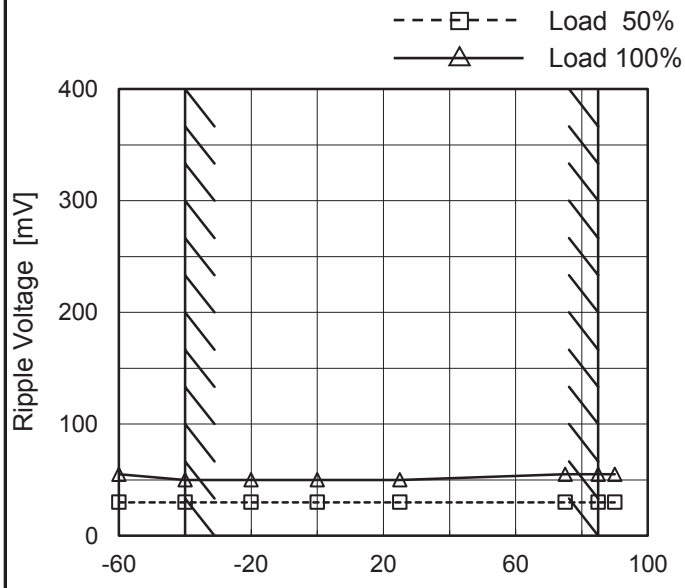
Model	MGS1R54805
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V0.3A

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

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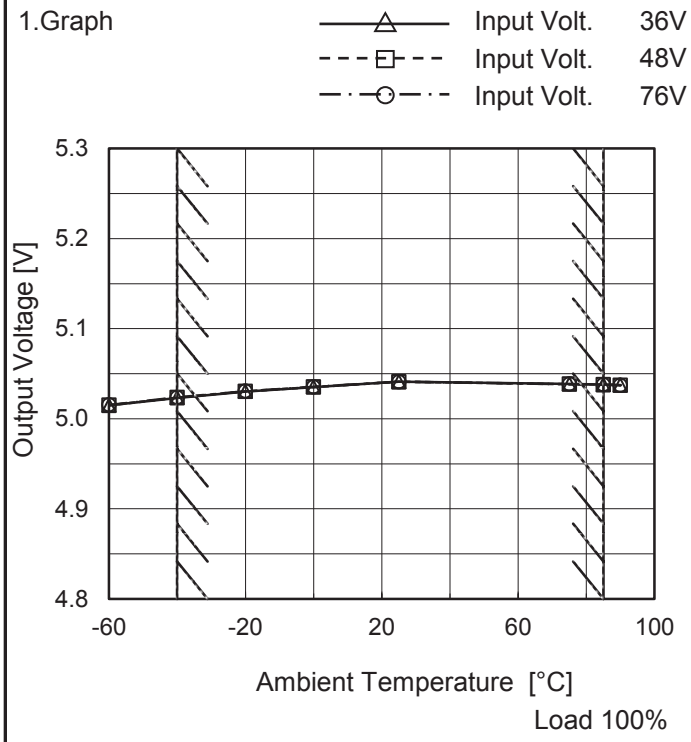
Model	MGS1R54805
Item	Ambient Temperature Drift
Object	+5V0.3A

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]
-60	5.015	5.015	5.015
-40	5.023	5.024	5.024
-20	5.030	5.031	5.031
0	5.035	5.035	5.035
25	5.041	5.041	5.041
75	5.039	5.039	5.038
85	5.038	5.038	5.038
90	5.037	5.037	5.037
--	-	-	-
--	-	-	-
--	-	-	-

Model	MGS1R54805	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+5V0.3A	

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 : 36 - 76V
Load Current : 0 - 0.3A

* 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	75	76	0	5.041	±9	±0.2
Minimum Voltage	-40	36	0.3	5.023		

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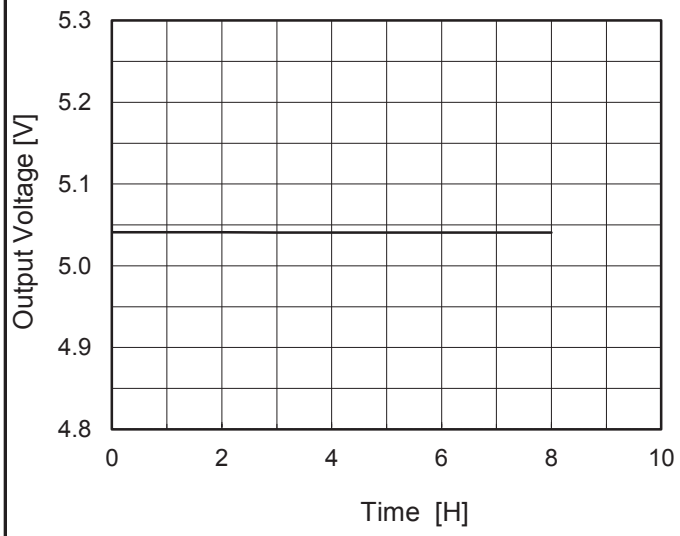
Model	MGS1R54805
Item	Time Lapse Drift
Object	+5V0.3A

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	5.041
0.5	5.041
1.0	5.041
2.0	5.041
3.0	5.041
4.0	5.041
5.0	5.041
6.0	5.041
7.0	5.041
8.0	5.041

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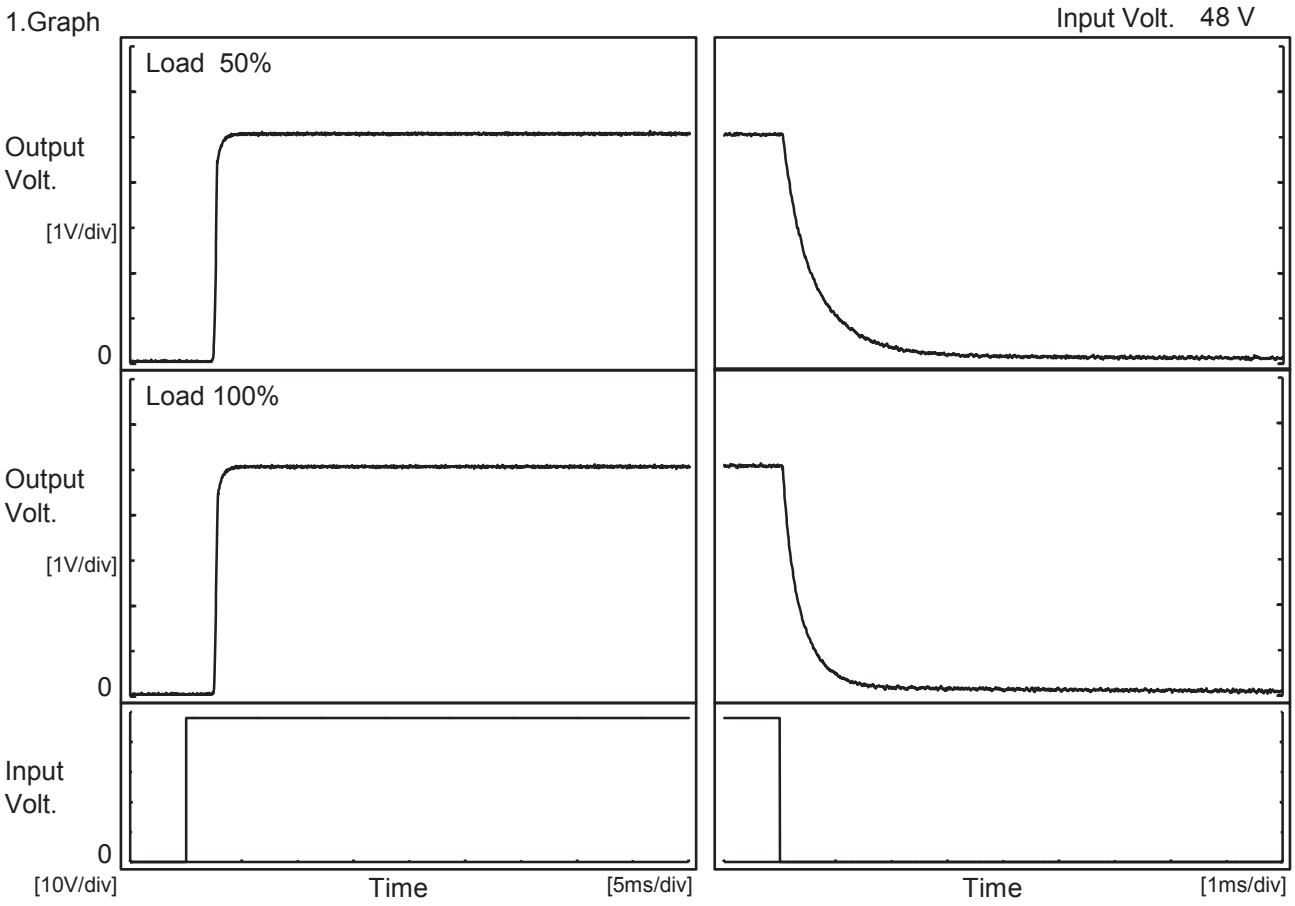
Model	MGS1R54805	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+5V0.3A	

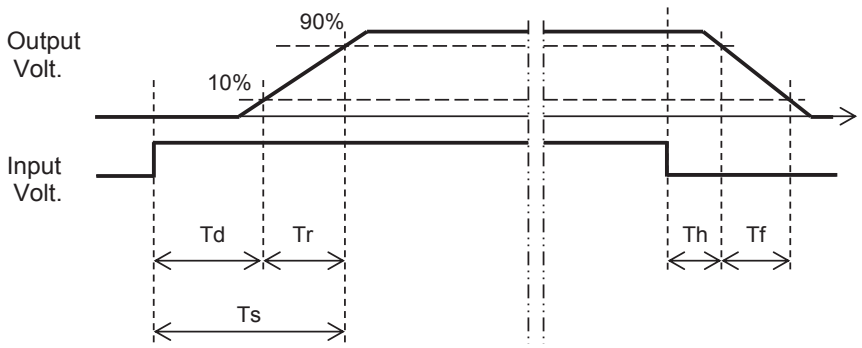
1.Graph



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	2.5	0.4	2.9	0.1	1.5
100 %	2.6	0.4	3.0	0.1	0.9



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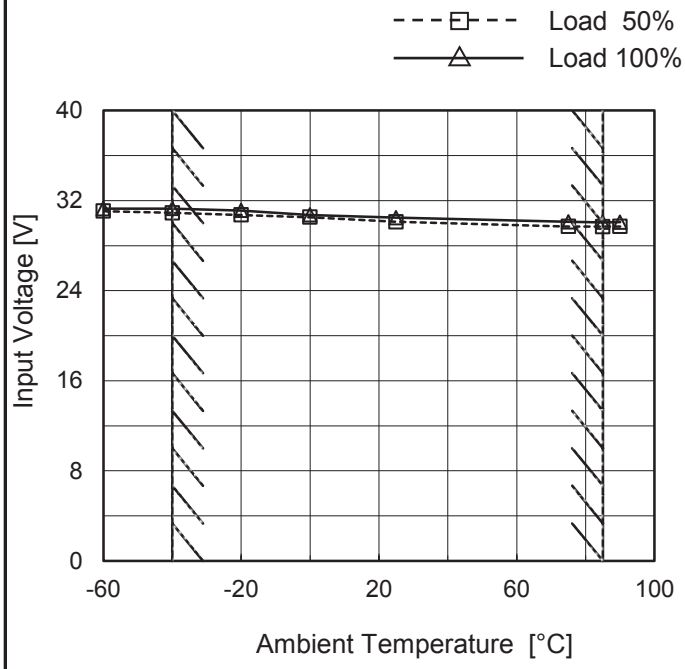
Model	MGS1R54805
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+5V0.3A

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	31.1	31.3
-40	31.0	31.3
-20	30.8	31.2
0	30.6	30.8
25	30.2	30.5
75	29.7	30.2
85	29.7	30.1
90	29.7	30.1
--	-	-
--	-	-
--	-	-

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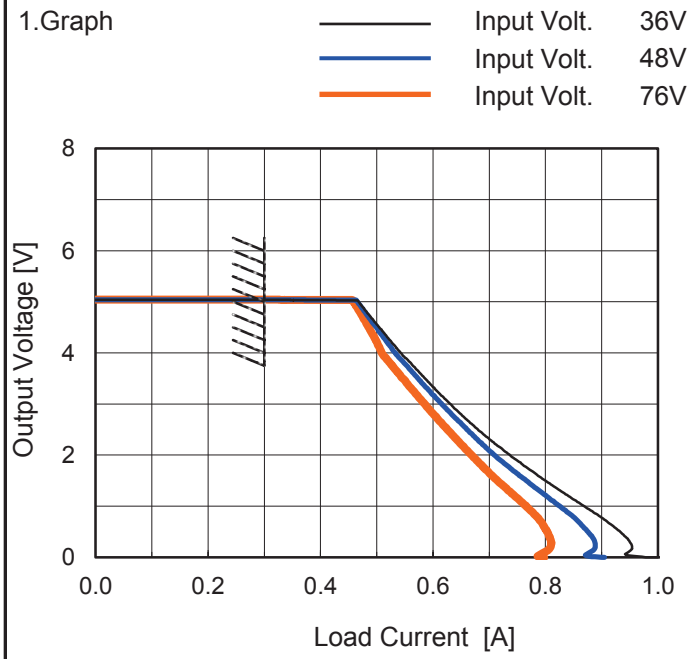
Model	MGS1R54805
Item	Overcurrent Protection
Object	+5V0.3A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

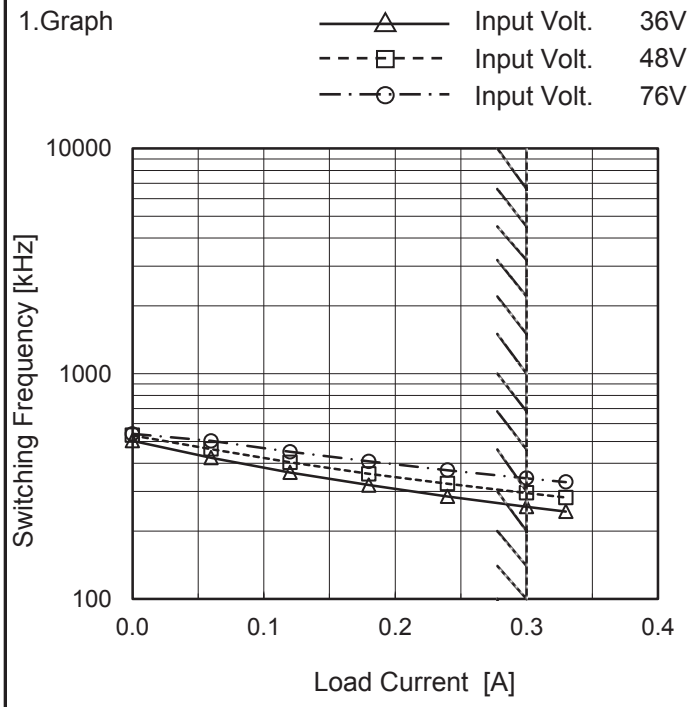
Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
5.00	0.31	0.31	0.31
4.75	0.49	0.48	0.47
4.50	0.50	0.50	0.49
4.00	0.54	0.53	0.51
3.50	0.58	0.57	0.55
3.00	0.63	0.61	0.58
2.50	0.68	0.66	0.63
2.00	0.74	0.71	0.67
1.50	0.80	0.77	0.71
1.00	0.87	0.82	0.77
0.50	0.93	0.87	0.80
0.00	0.98	0.91	0.80

COSEL

Model	MGS1R54805
Item	Switching Frequency (by Load Current)
Object	+5V0.3A

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. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	504	533	541
0.06	424	463	503
0.12	364	404	450
0.18	320	359	408
0.24	285	325	373
0.30	257	296	344
0.33	244	282	330
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

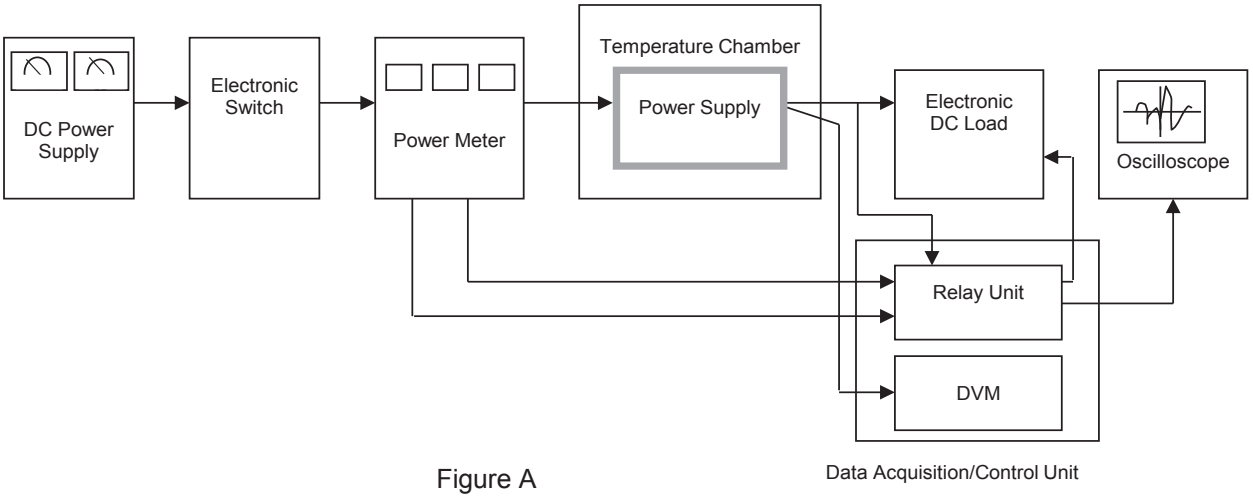


Figure A

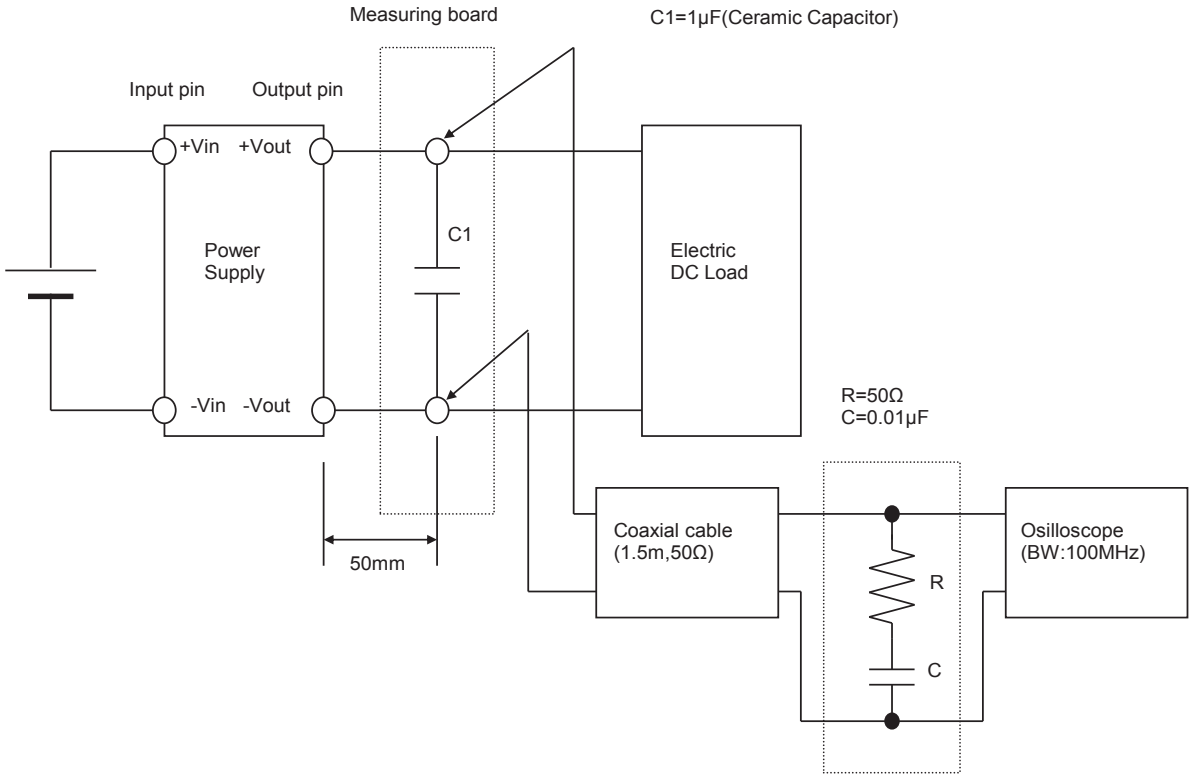


Figure B（Ripple and Ripple noise Characteristic）