参考資料

COSEL

TEST DATA OF MGS34815

Regulated DC Power Supply
August 19, 2016

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COSEL CO.,LTD.

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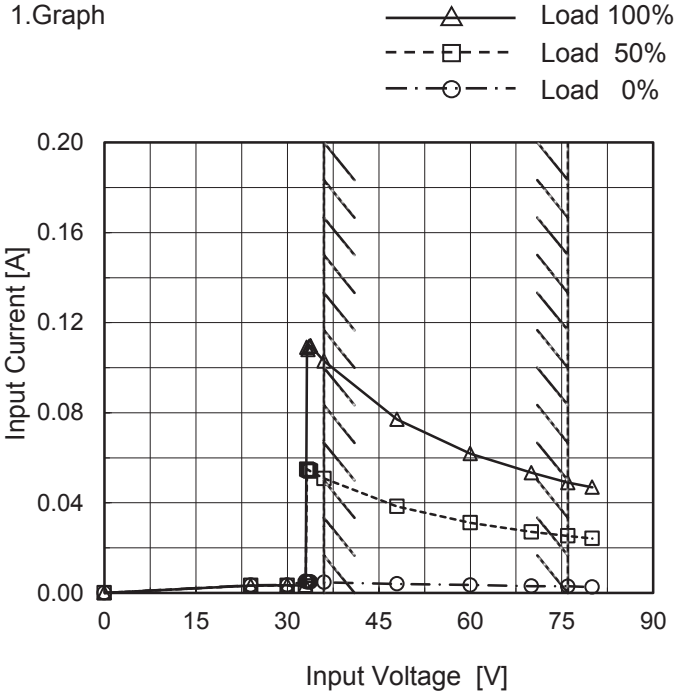
Model	MGS34815
Item	Input Current (by Input Voltage)
Object	————————

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	0.004	0.003	0.003
33.0	0.005	0.003	0.003
33.2	0.005	0.055	0.109
33.4	0.005	0.055	0.108
33.6	0.005	0.054	0.109
33.8	0.005	0.054	0.110
36.0	0.005	0.051	0.103
48.0	0.004	0.038	0.077
60.0	0.004	0.031	0.062
70.0	0.003	0.027	0.053
76.0	0.003	0.025	0.049
80.0	0.003	0.024	0.047
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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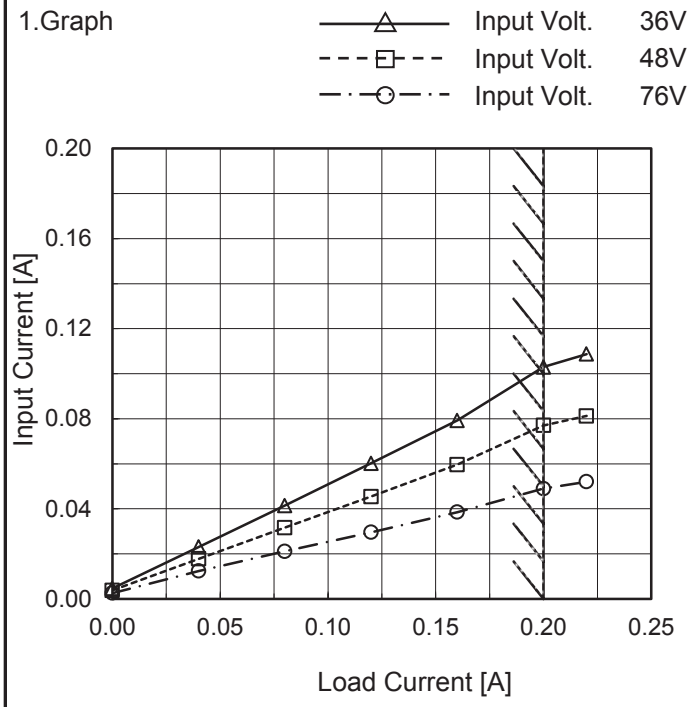
COSEL

Model	MGS34815
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	0.005	0.004	0.003
0.04	0.023	0.018	0.012
0.08	0.041	0.032	0.021
0.12	0.060	0.045	0.030
0.16	0.079	0.060	0.039
0.20	0.103	0.077	0.049
0.22	0.109	0.081	0.052
--	-	-	-
--	-	-	-
--	-	-	-
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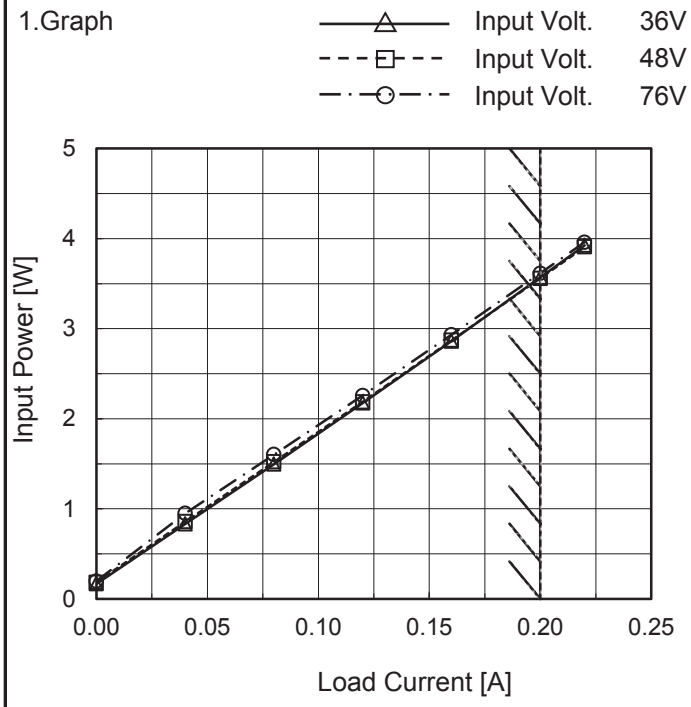
Model	MGS34815
Item	Input Power (by Load Current)
Object	————————

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	0.17	0.18	0.20
0.04	0.83	0.86	0.95
0.08	1.50	1.52	1.60
0.12	2.17	2.19	2.26
0.16	2.86	2.87	2.93
0.20	3.57	3.56	3.62
0.22	3.93	3.91	3.96
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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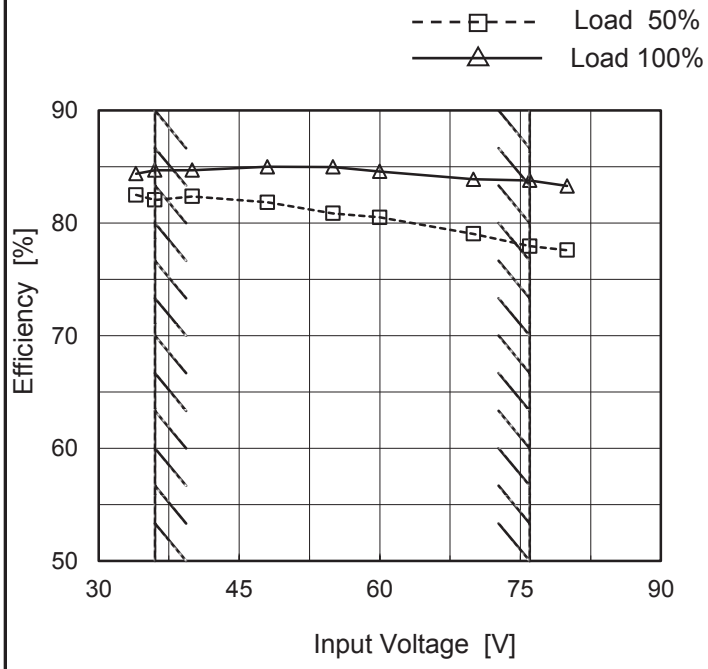
Model	MGS34815
Item	Efficiency (by Input Voltage)
Object	————————————

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	82.5	84.4
36	82.1	84.7
40	82.4	84.7
48	81.9	85.0
55	80.9	85.0
60	80.5	84.6
70	79.0	83.9
76	78.0	83.8
80	77.6	83.3

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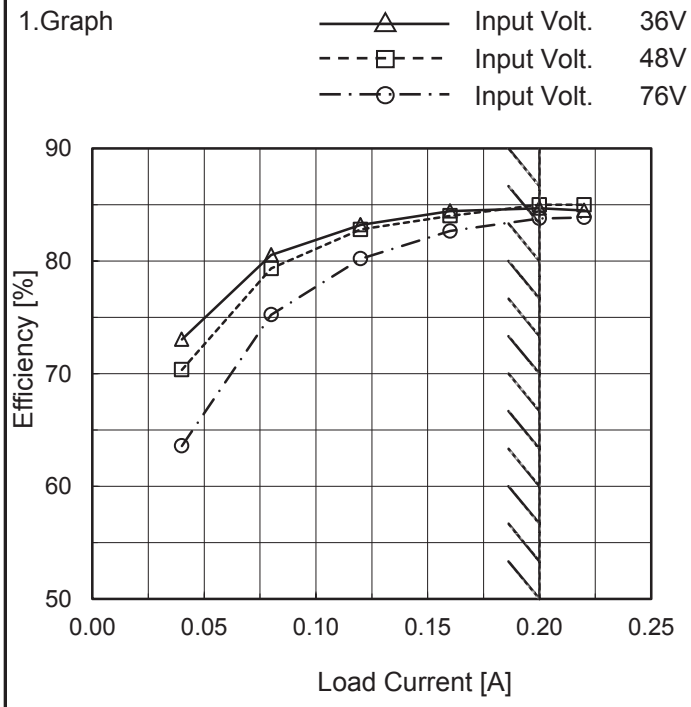
Model	MGS34815
Item	Efficiency (by Load Current)
Object	————————

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	-	-	-
0.04	73.1	70.3	63.6
0.08	80.6	79.3	75.2
0.12	83.2	82.8	80.2
0.16	84.5	84.0	82.7
0.20	84.7	85.0	83.8
0.22	84.5	85.0	83.9
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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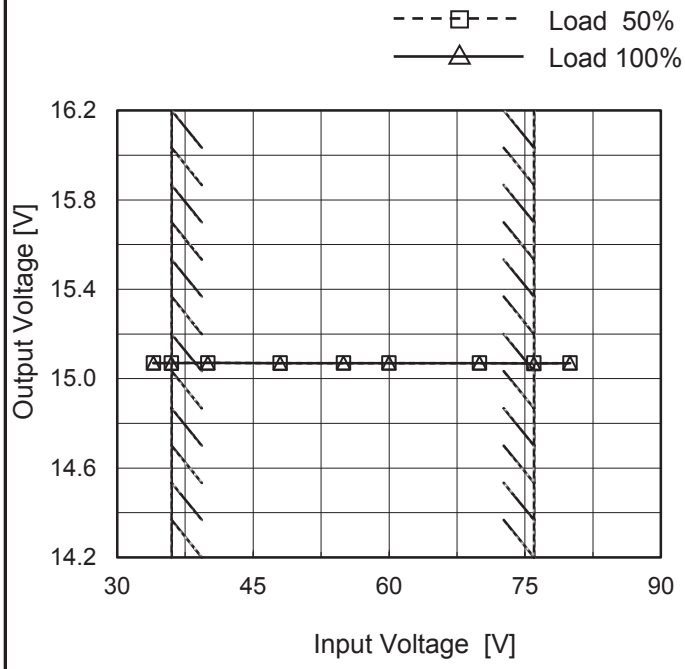
Model	MGS34815
Item	Line Regulation
Object	+15V0.2A

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	15.070	15.069
36	15.070	15.069
40	15.070	15.070
48	15.070	15.069
55	15.070	15.070
60	15.069	15.070
70	15.069	15.070
76	15.069	15.067
80	15.069	15.070

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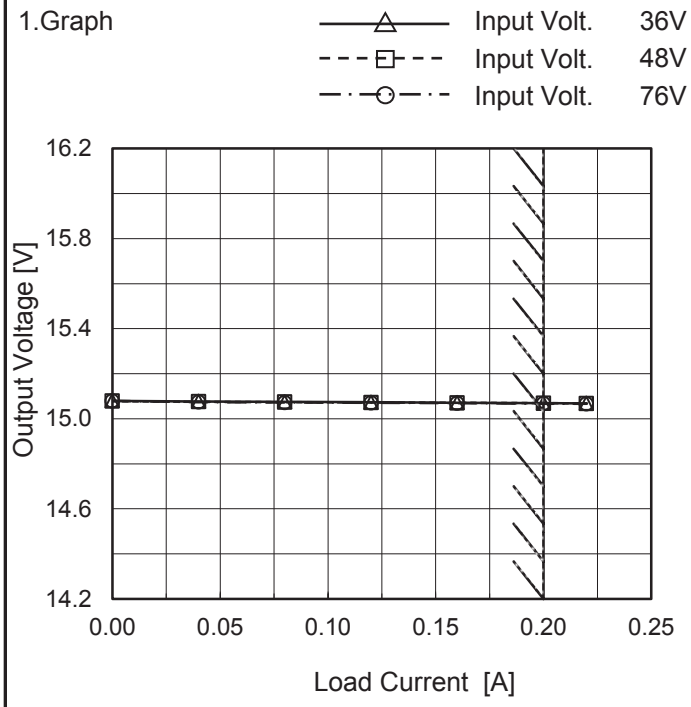
Model	MGS34815
Item	Load Regulation
Object	+15V0.2A

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	15.080	15.079	15.079
0.04	15.077	15.076	15.074
0.08	15.075	15.074	15.072
0.12	15.074	15.072	15.070
0.16	15.071	15.070	15.069
0.20	15.069	15.069	15.067
0.22	15.068	15.068	15.067
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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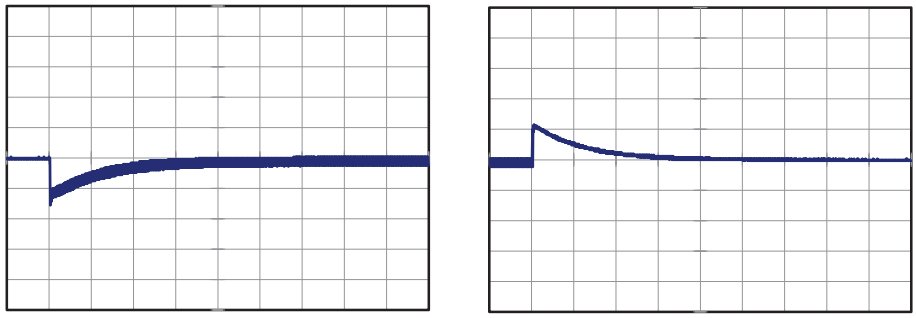
Model	MGS34815	
Item	Dynamic Load Response	Temperature 25°C Testing Circuitry Figure A
Object	+15V0.2A	

Input Volt. 48 V
Cycle 100 ms

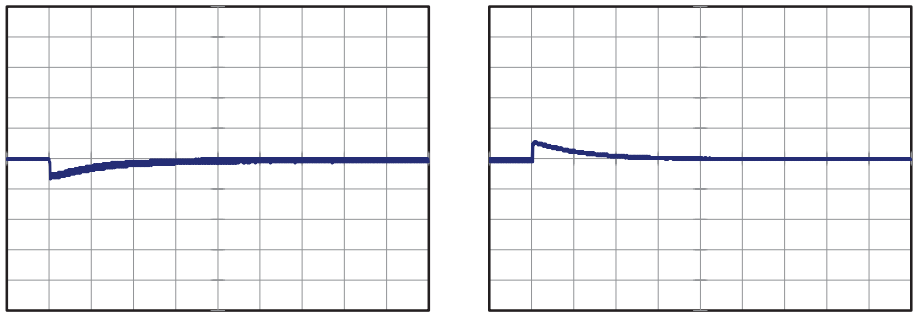
Min.Load (0A)←→
Load 100% (0.2A)



200 mV/div

4 ms/div 4 ms/div

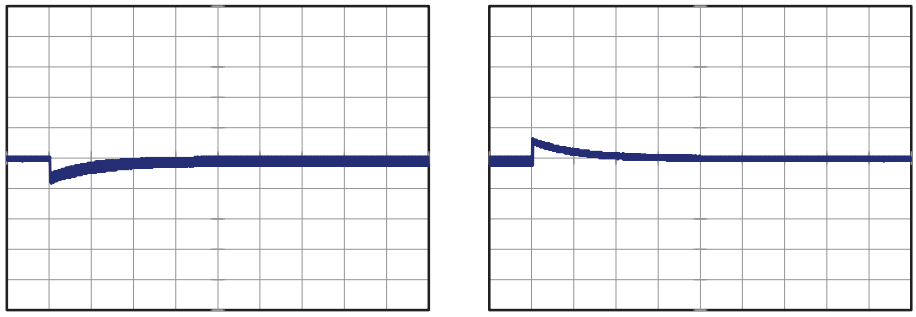
Min.Load (0A)←→
Load 50% (0.1A)



200 mV/div

4 ms/div 4 ms/div

Load 50% (0.1A)←→
Load 100% (0.2A)



200 mV/div

4 ms/div 4 ms/div

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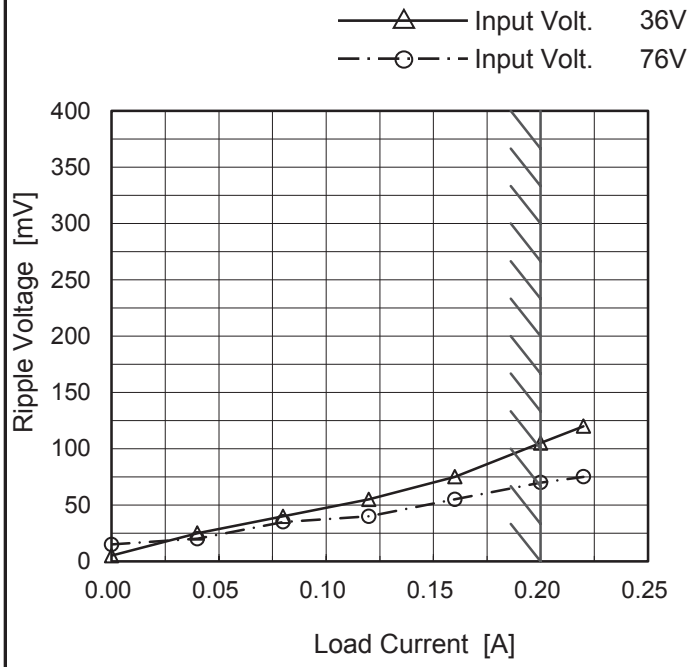
Model	MGS34815
Item	Ripple Voltage (by Load Current)
Object	+15V0.2A

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]

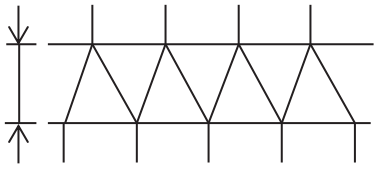


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	5	15
0.04	25	20
0.08	40	35
0.12	55	40
0.16	75	55
0.20	105	70
0.22	120	75
--	-	-
--	-	-
--	-	-
--	-	-

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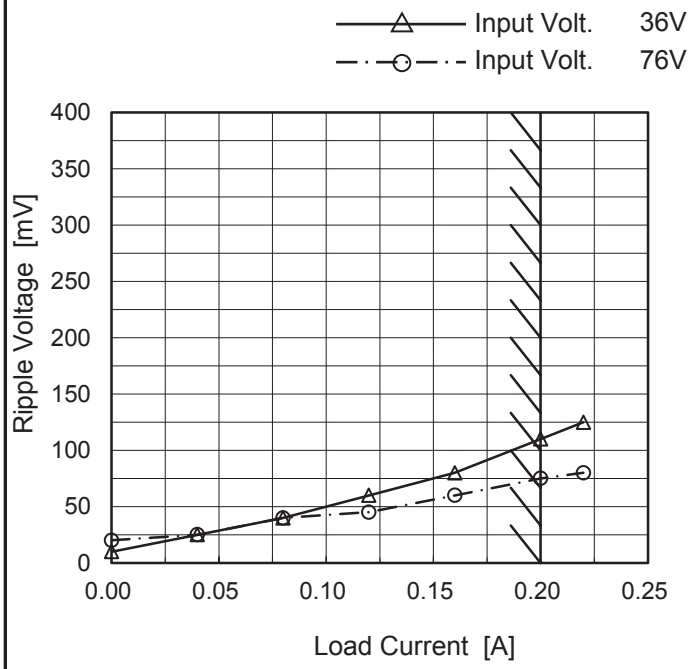
Model	MGS34815
Item	Ripple-Noise
Object	+15V0.2A

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]

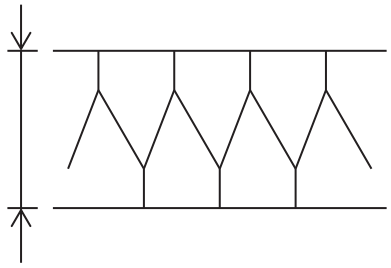


Fig.Complex Ripple Noise Wave Form

2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	10	20
0.04	25	25
0.08	40	40
0.12	60	45
0.16	80	60
0.20	110	75
0.22	125	80
--	-	-
--	-	-
--	-	-
--	-	-

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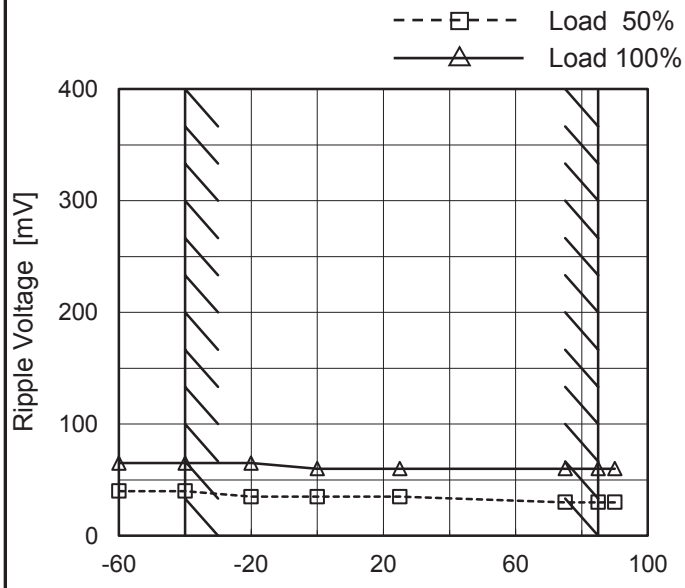
Model	MGS34815
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V0.2A

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	40	65
-40	40	65
-20	35	65
0	35	60
25	35	60
75	30	60
85	30	60
90	30	60
--	-	-
--	-	-
--	-	-

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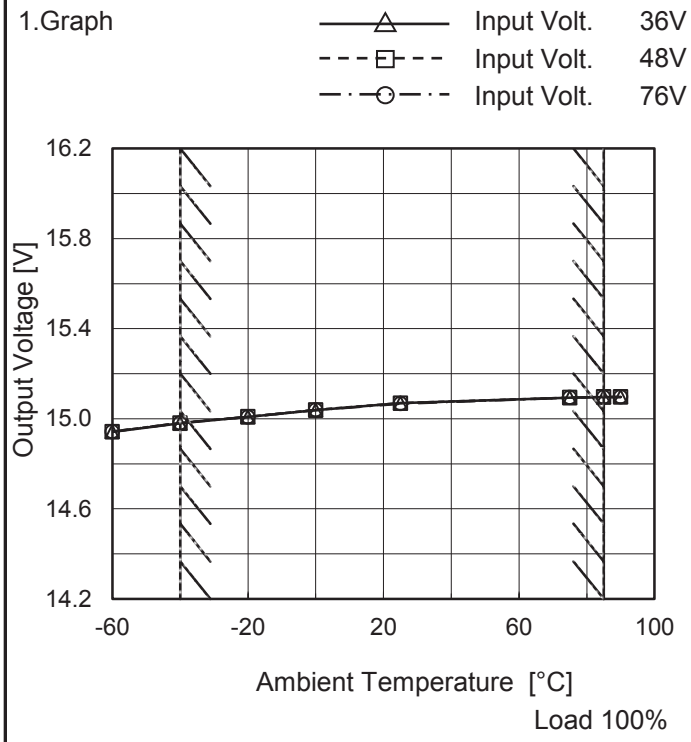
Model	MGS34815
Item	Ambient Temperature Drift
Object	+15V0.2A

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	14.942	14.943	14.943
-40	14.980	14.981	14.981
-20	15.008	15.008	15.008
0	15.038	15.039	15.039
25	15.069	15.069	15.067
75	15.093	15.094	15.094
85	15.096	15.097	15.096
90	15.097	15.097	15.097
--	-	-	-
--	-	-	-
--	-	-	-

Model	MGS34815	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+15V0.2A	

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 - 0.2A

* 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	85	76	0	15.110	±65	±0.4
Minimum Voltage	-40	36	0.2	14.980		

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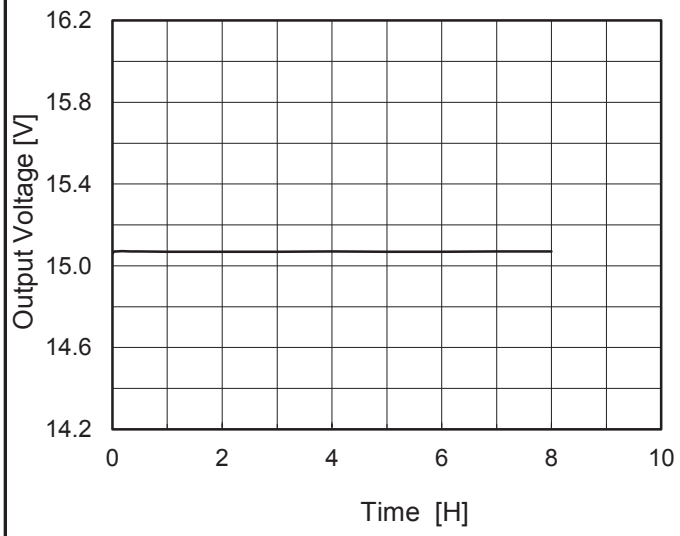
Model	MGS34815
Item	Time Lapse Drift
Object	+15V0.2A

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	15.062
0.5	15.070
1.0	15.069
2.0	15.069
3.0	15.069
4.0	15.071
5.0	15.069
6.0	15.069
7.0	15.071
8.0	15.070

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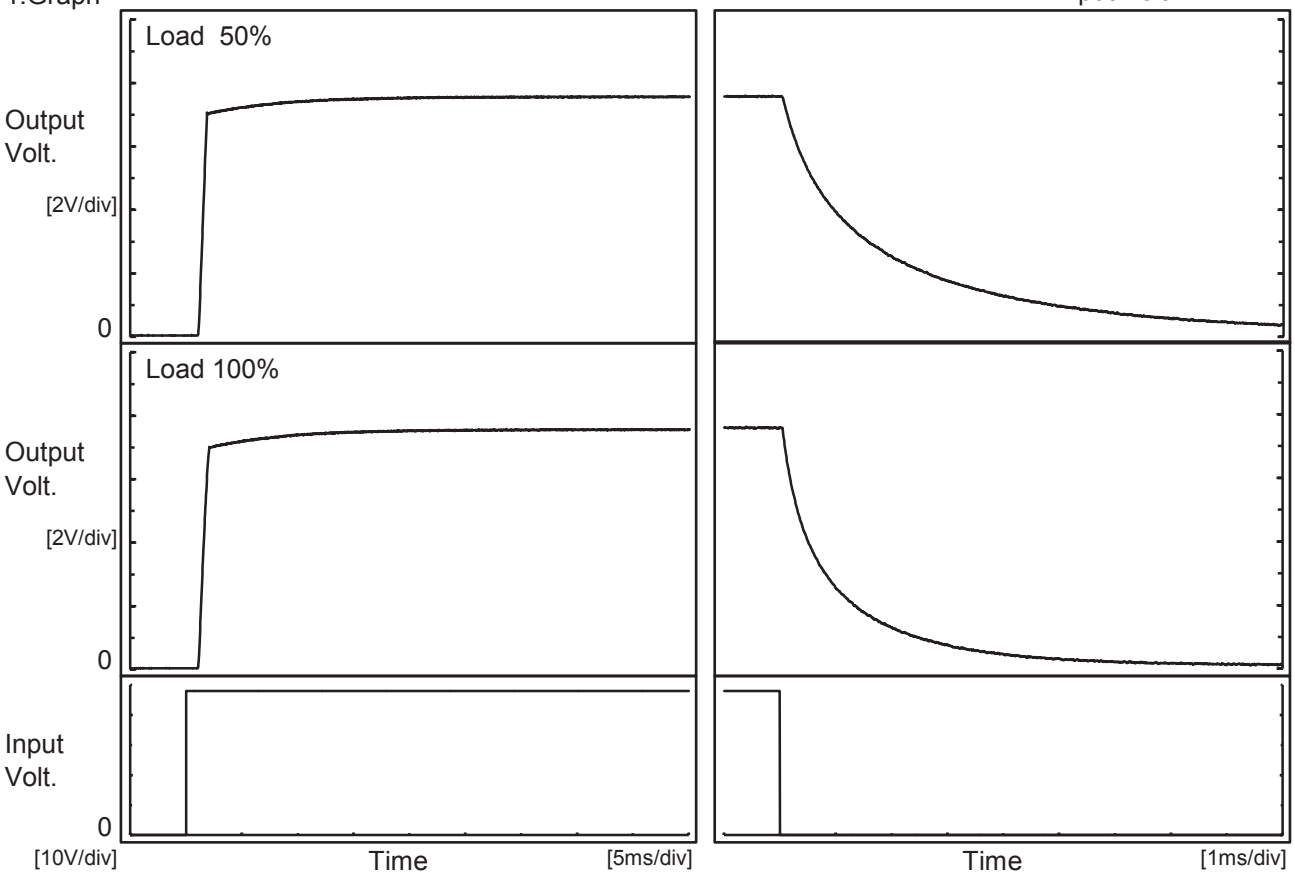
Model	MGS34815	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+15V0.2A	

1.Graph

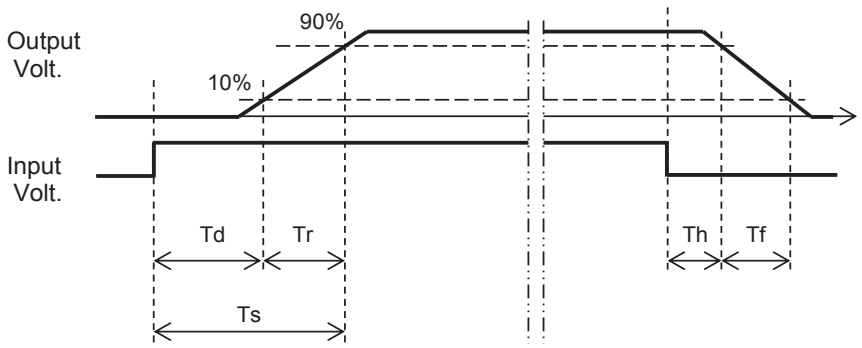
Input Volt. 48 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	1.2	0.7	1.9	0.2	5.7
100 %	1.2	0.8	2.0	0.1	2.8



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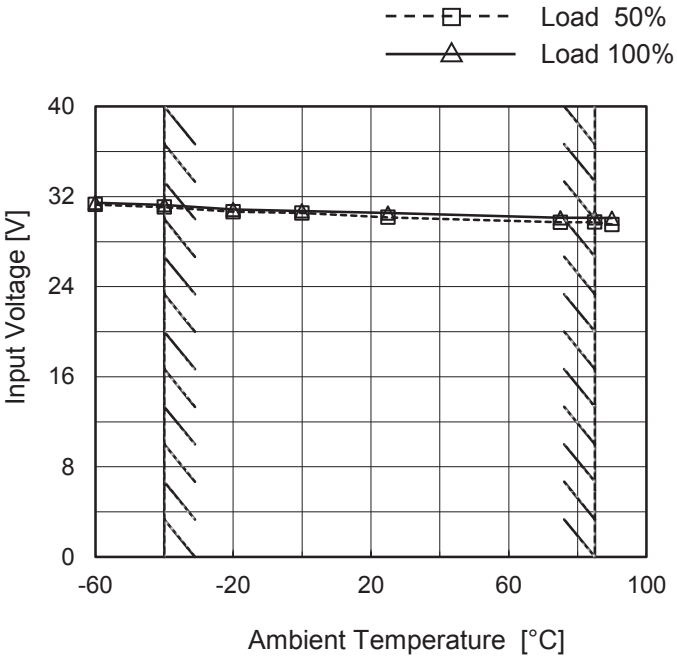
Model	MGS34815
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+15V0.2A

Testing Circuitry Figure A

1.Graph



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

2.Values

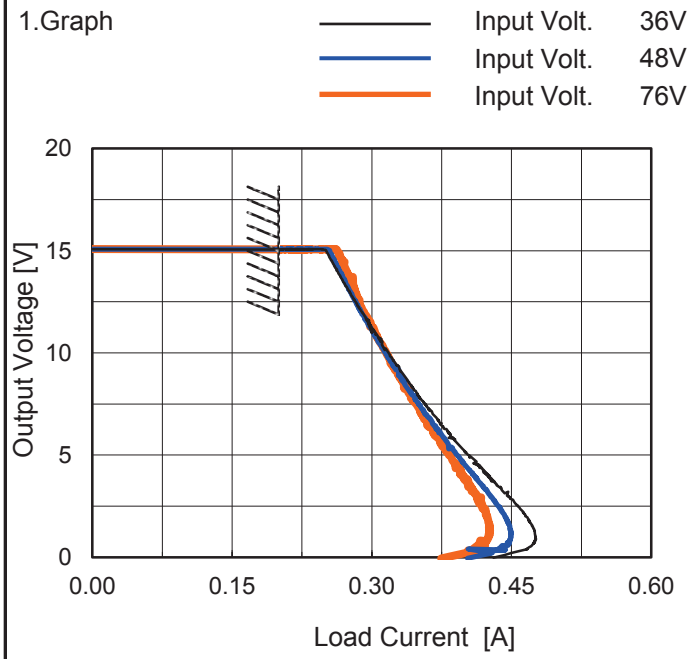
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	31.3	31.5
-40	31.1	31.3
-20	30.7	30.9
0	30.6	30.8
25	30.2	30.6
75	29.8	30.2
85	29.8	30.2
90	29.6	30.1
--	-	-
--	-	-
--	-	-

COSEL

Model	MGS34815
Item	Overcurrent Protection
Object	+15V0.2A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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

2.Values

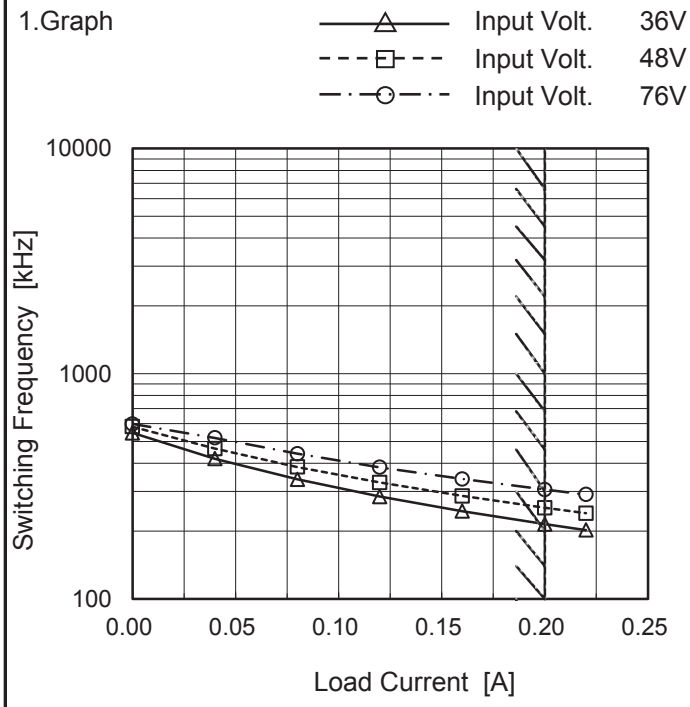
Output Voltage [V]	Load Current [A]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
15.0	0.20	0.20	0.20
14.3	0.26	0.26	0.27
13.5	0.27	0.27	0.28
12.0	0.29	0.29	0.29
10.5	0.31	0.31	0.31
9.0	0.33	0.33	0.33
7.5	0.36	0.35	0.34
6.0	0.38	0.37	0.37
4.5	0.41	0.40	0.39
3.0	0.44	0.43	0.41
1.5	0.47	0.45	0.43
0.0	0.43	0.40	0.37

COSEL

Model	MGS34815
Item	Switching Frequency (by Load Current)
Object	+15V0.2A

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	546	582	598
0.04	420	465	519
0.08	340	385	441
0.12	285	329	384
0.16	245	286	341
0.20	215	254	306
0.22	202	240	291
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

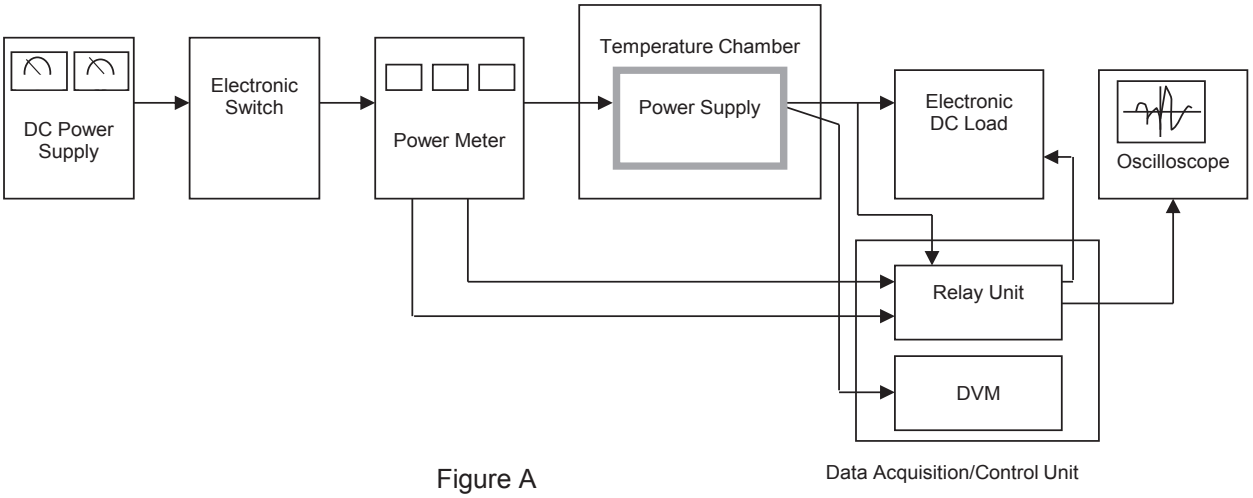


Figure A

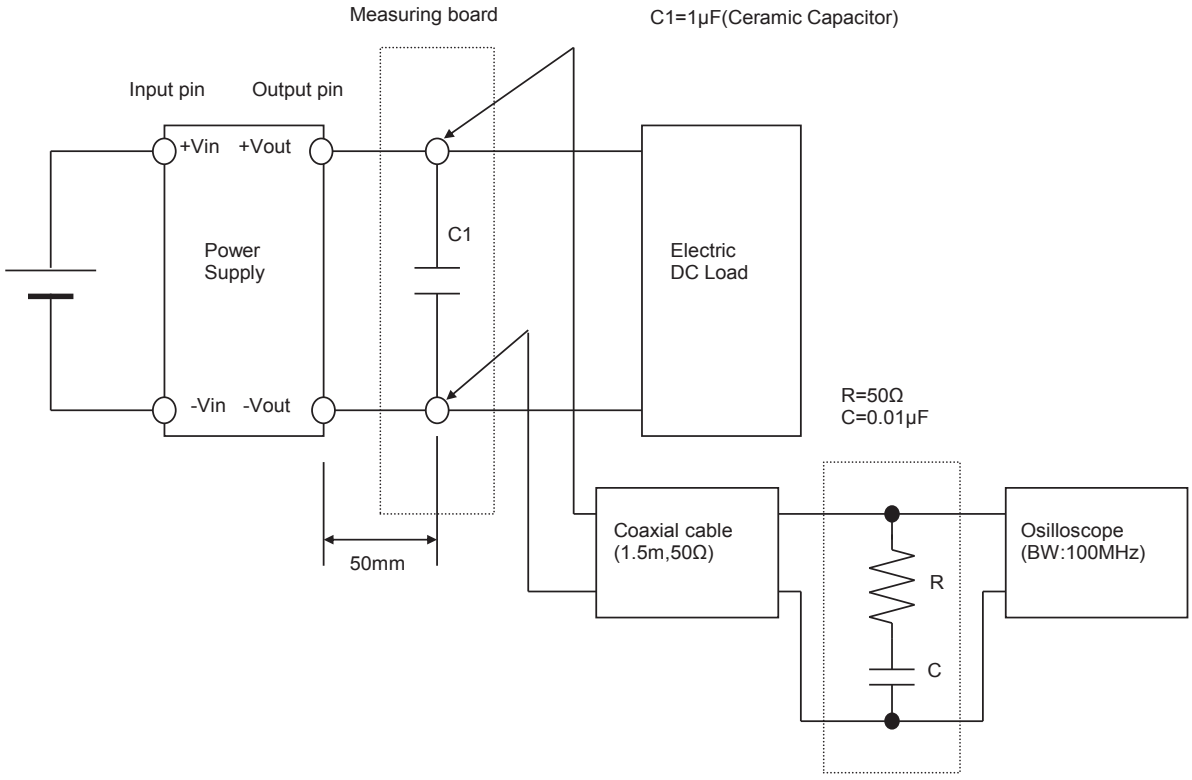


Figure B（Ripple and Ripple noise Characteristic）