

# TEST DATA OF MGS30123R3

Regulated DC Power Supply  
January 6, 2011

Approved by : Kazunari Asano  
Kazunari Asano Design Manager

Prepared by : Sho Saito  
Sho Saito Design Engineer

**COSEL CO.,LTD.**

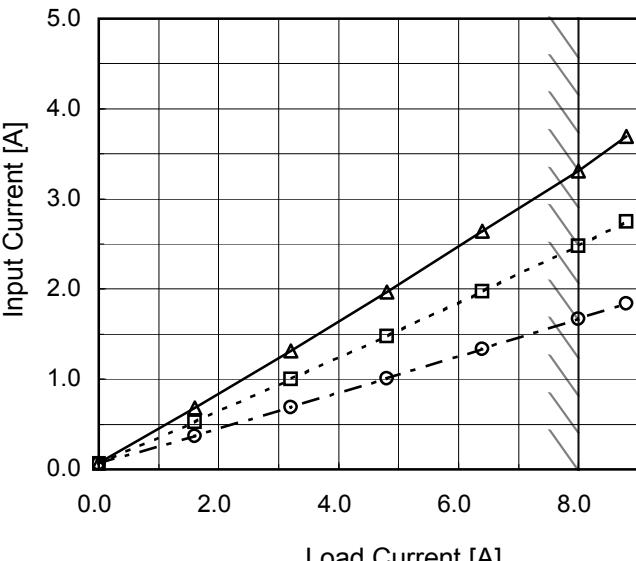
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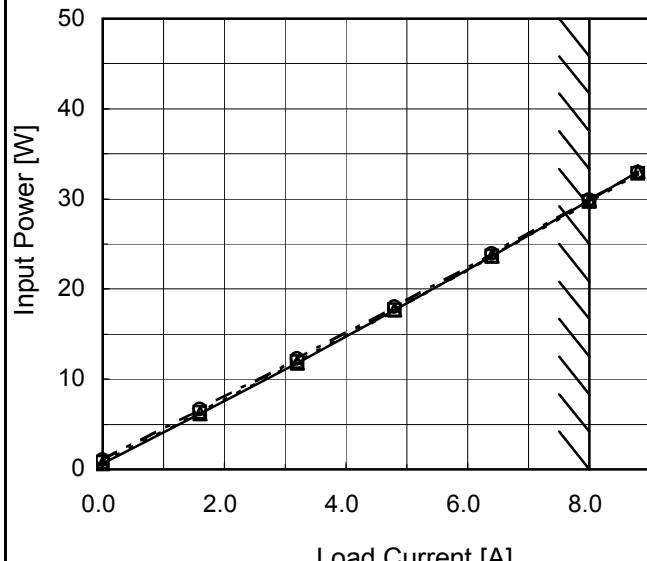
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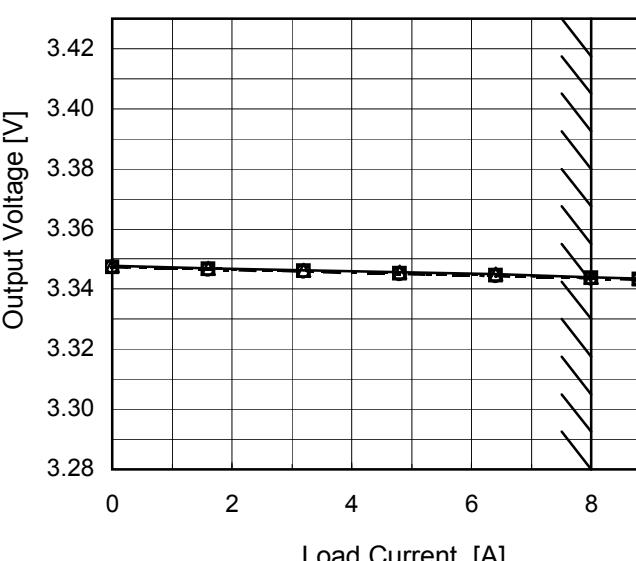
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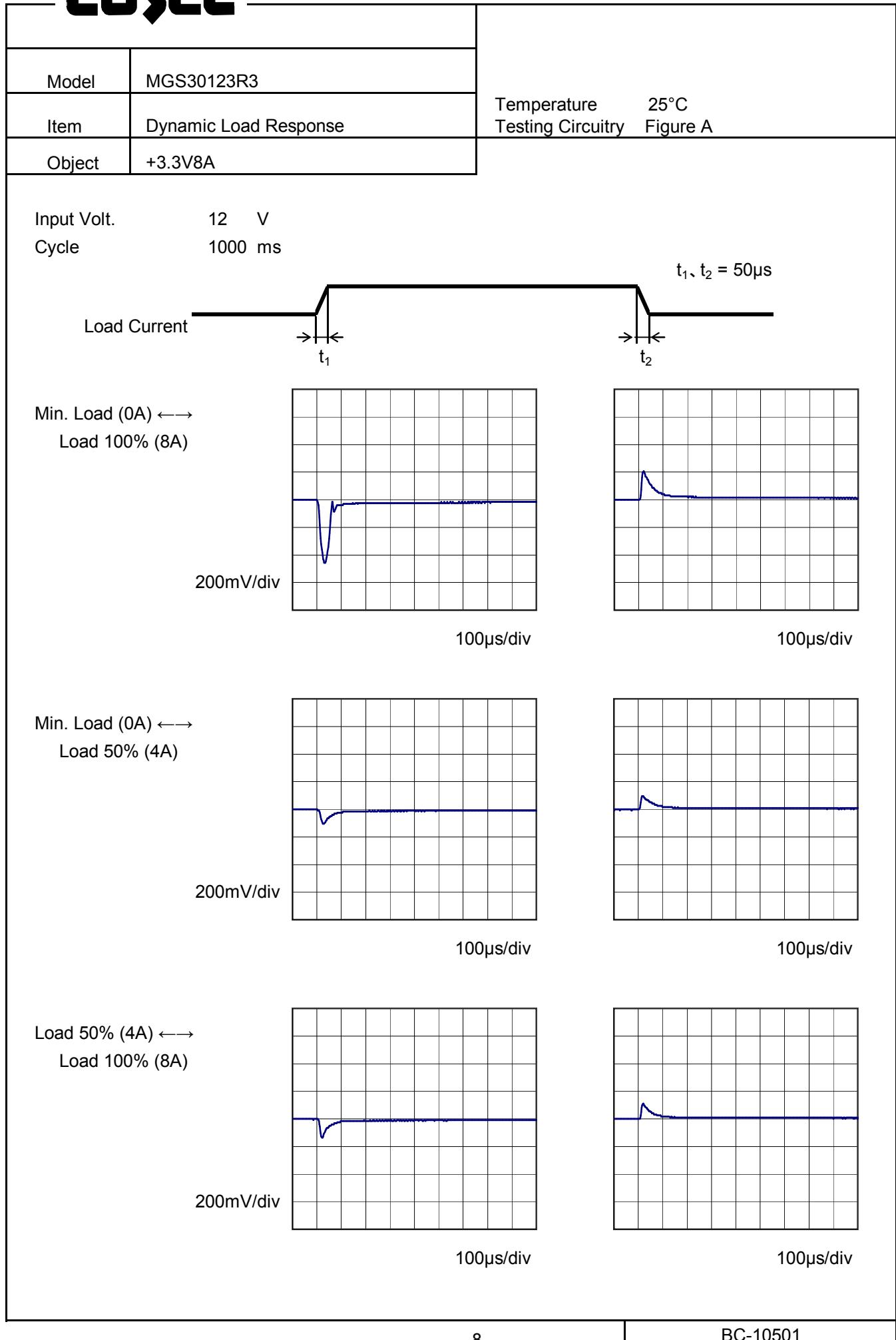
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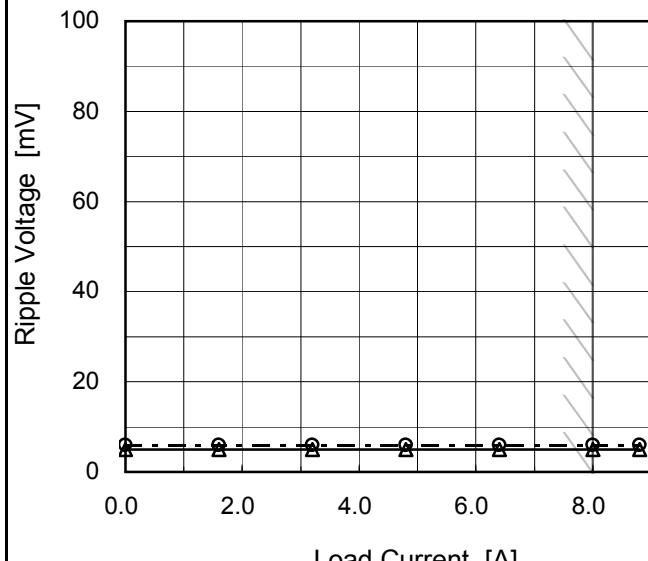
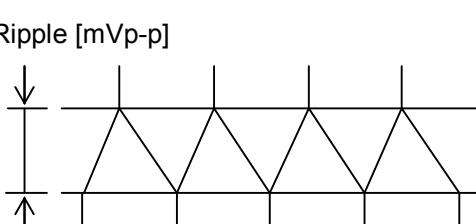
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Model	MGS30123R3																																	
Item	Line Regulation	Temperature Testing Circuitry      25°C Figure A																																
Object	+3.3V8A																																	
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**COSEL**

**COSSEL**

Model	MGS30123R3	Temperature Testing Circuitry 25°C Figure B																																						
Item	Ripple Voltage (by Load Current)																																							
Object	+3.3V8A																																							
1.Graph	<p style="text-align: center;"> <span style="display: inline-block; width: 15px; height: 10px; border-left: 2px solid black; border-bottom: 2px solid black; transform: rotate(-45deg); margin-right: 5px;"></span> Input Volt. 9V  <span style="display: inline-block; width: 15px; height: 10px; border-top: 2px solid black; border-bottom: 2px solid black; transform: rotate(45deg); margin-right: 5px;"></span> Input Volt. 18V         </p> 	2.Values																																						
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	<p>Ripple Voltage is shown as p-p in the figure below.        Note: Slanted line shows the range of the rated load current.</p> <p>Ripple [mVp-p]</p> 																																							
	Fig.Complex Ripple Wave Form																																							

**COSSEL**

Model	MGS30123R3
Item	Ripple-Noise
Object	+3.3V8A
1.Graph	
<p>Graph showing Ripple Voltage [mV] vs Load Current [A]. The Y-axis ranges from 0 to 120 mV with increments of 20. The X-axis ranges from 0.0 to 8.0 A with increments of 2.0. Two data series are plotted: Input Volt. 9V (solid line with open circles) and Input Volt. 18V (dashed line with open circles). Both series show a constant ripple noise level of approximately 10 mV across the entire load current range. A slanted line indicates the rated load current range from approximately 2.0 A to 6.4 A.</p>	
Ripple-Noise is shown as p-p in the figure below. Note: Slanted line shows the range of the rated load current.	
<p>Fig.Complex Ripple Noise Wave Form</p>	

Temperature 25°C  
Testing Circuitry Figure B

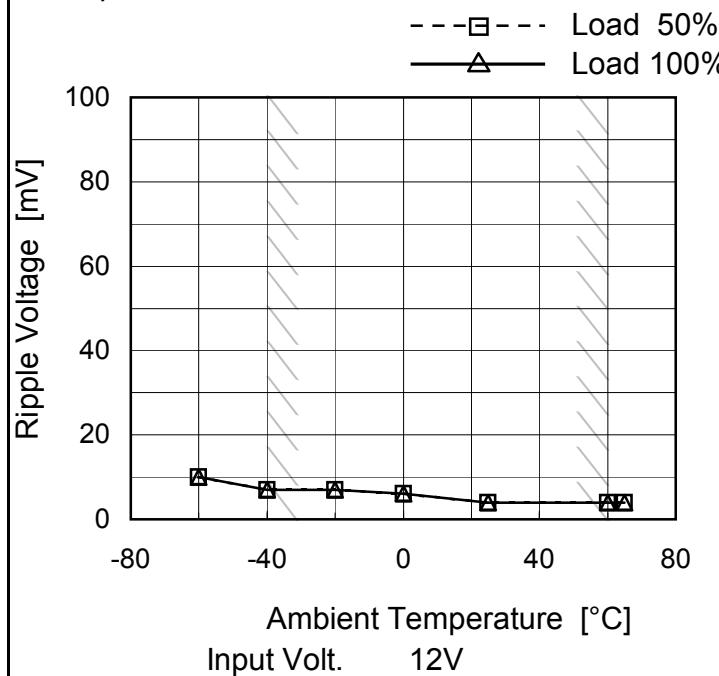
## 2.Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 9 [V]	Input Volt. 18 [V]
0.0	10	10
1.6	10	10
3.2	10	10
4.8	10	10
6.4	10	10
8.0	10	10
8.8	10	10
--	-	-
--	-	-
--	-	-
--	-	-

**COSEL**

Model	MGS30123R3
Item	Ripple Voltage (by Ambient Temp.)
Object	+3.3V8A

1. Graph



Measured by 100 MHz Oscilloscope.

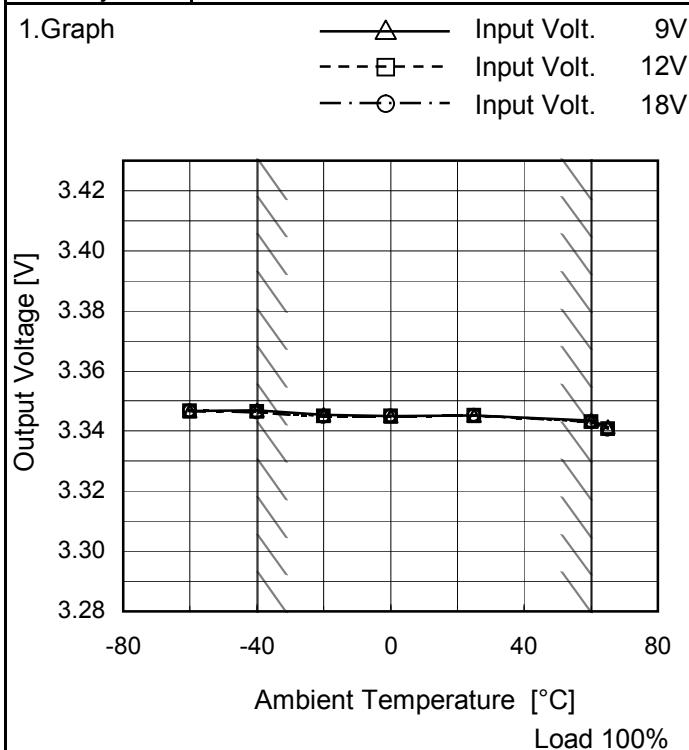
Note: Slanted line shows the range of the rated ambient temperature.

Testing Circuitry Figure B

2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	10	10
-40	7	7
-20	7	7
0	6	6
25	4	4
60	4	4
65	4	4
--	-	-
--	-	-
--	-	-
--	-	-

Model	MGS30123R3
Item	Ambient Temperature Drift
Object	+3.3V8A



Testing Circuitry Figure A

## 2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]
-60	3.347	3.347	3.347
-40	3.347	3.347	3.346
-20	3.346	3.345	3.345
0	3.345	3.345	3.345
25	3.345	3.345	3.345
60	3.344	3.343	3.343
65	3.341	3.341	3.341
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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



Model	MGS30123R3	Testing Circuitry Figure A
Item	Output Voltage Accuracy	
Object	+3.3V8A	

### 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 - 60°C

Input Voltage : 9 - 18V

Load Current : 0 - 8A

\* Output Voltage Accuracy =  $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

$$\text{* Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

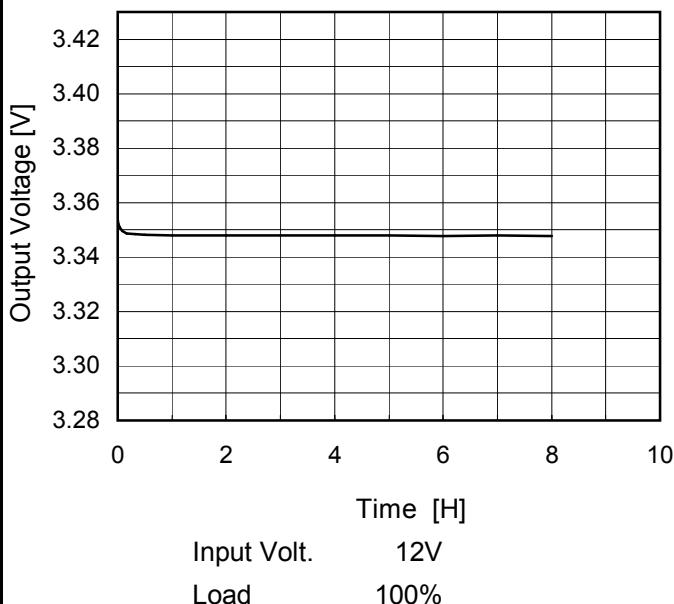
### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-40	12	0	3.350	$\pm 4$	$\pm 0.1$
Minimum Voltage	60	18	8	3.343		

**COSEL**

Model	MGS30123R3
Item	Time Lapse Drift
Object	+3.3V8A

1. Graph



Temperature 25°C  
Testing Circuitry Figure A

2. Values

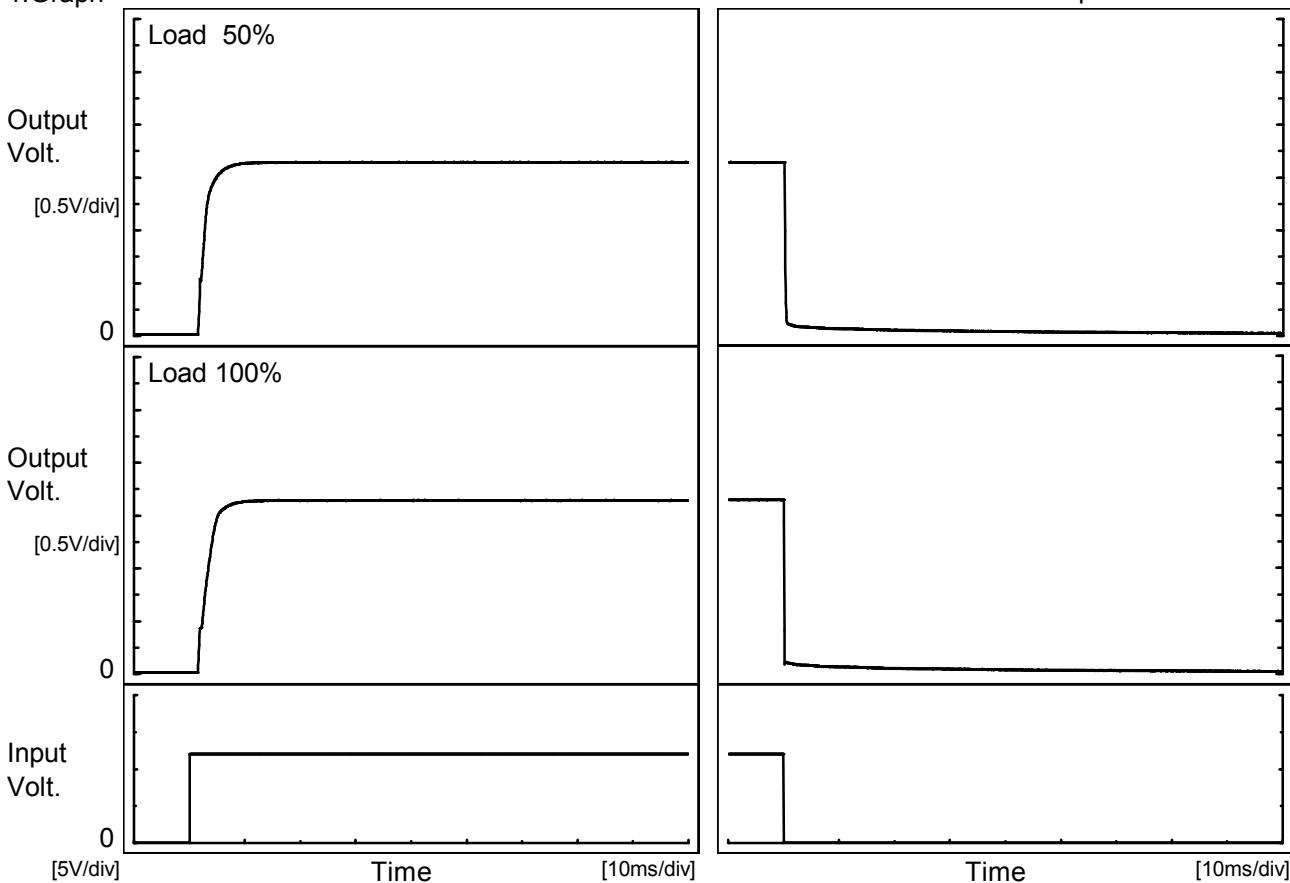
Time since start [H]	Output Voltage [V]
0.0	3.354
0.5	3.348
1.0	3.348
2.0	3.348
3.0	3.348
4.0	3.348
5.0	3.348
6.0	3.348
7.0	3.348
8.0	3.348

**COSEL**

Model	MGS30123R3
Item	Rise and Fall Time
Object	+3.3V8A

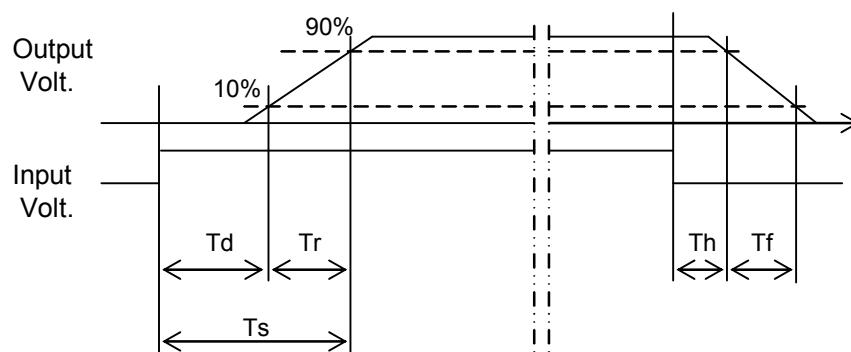
Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



## 2. Values

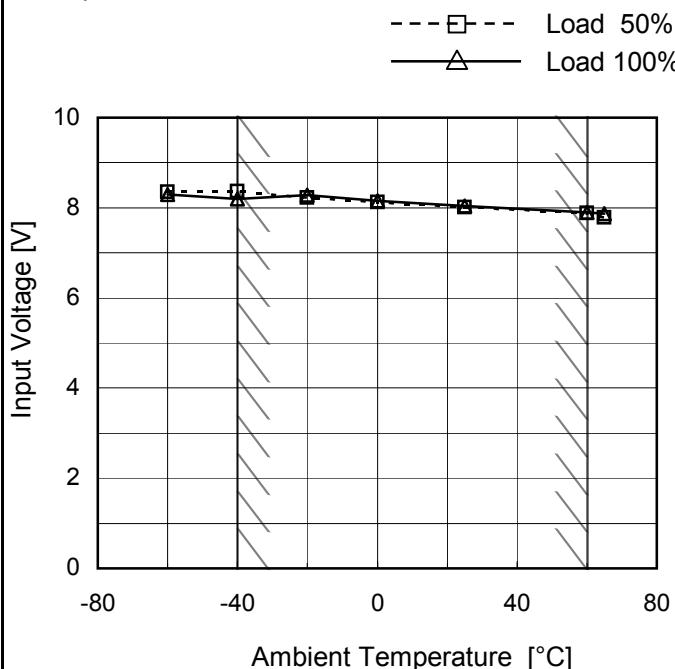
Load	Time	Td	Tr	Ts	Th	Tf
50 %		1.8	3.1	4.9	0.1	0.3
100 %		1.7	3.5	5.2	0.1	0.1



Model	MGS30123R3
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+3.3V8A

Testing Circuitry Figure A

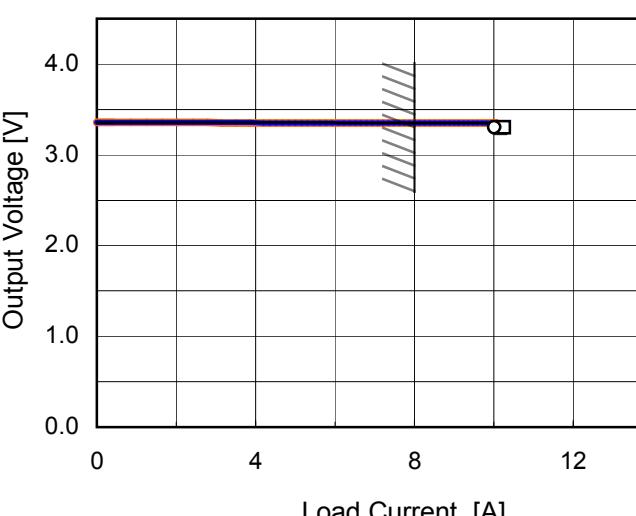
## 1. Graph



## 2. Values

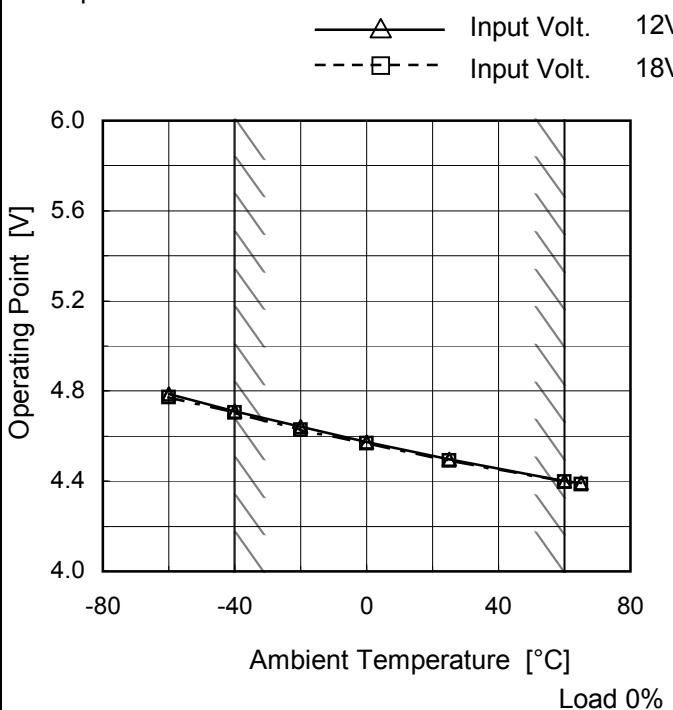
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	8.4	8.3
-40	8.4	8.2
-20	8.3	8.3
0	8.2	8.2
25	8.1	8.1
60	7.9	7.9
65	7.8	7.9
--	-	-
--	-	-
--	-	-
--	-	-

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

Model	MGS30123R3	Temperature Testing Circuitry 25°C Figure A																																																							
Item	Overshoot Protection																																																								
Object	+3.3V8A																																																								
1. Graph	<p>—△— Input Volt. 9V      —□— Input Volt. 12V      —○— Input Volt. 18V</p>  <p>Note: Slanted line shows the range of the rated load current.</p> <p>Intermittent operation occurs when overshoot protection is activated.</p>	2. Values																																																							
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Model	MGS30123R3
Item	Oversupply Protection
Object	+3.3V8A

## 1. Graph



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

## Testing Circuitry Figure A

## 2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 12[V]	Input Volt. 18[V]
-60	4.79	4.77
-40	4.71	4.70
-20	4.64	4.63
0	4.57	4.57
25	4.50	4.49
60	4.40	4.40
65	4.39	4.39
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

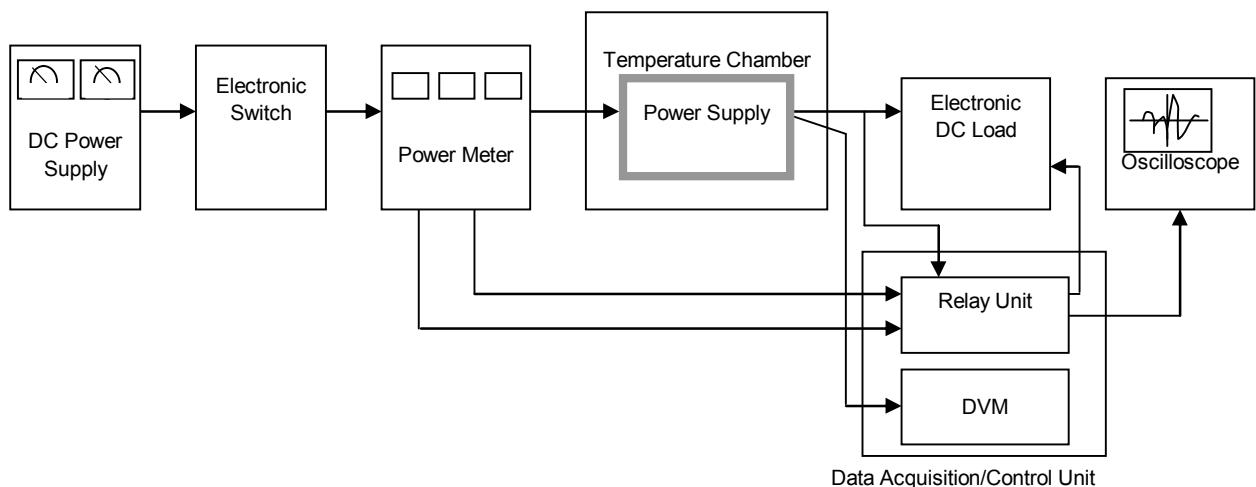


Figure A

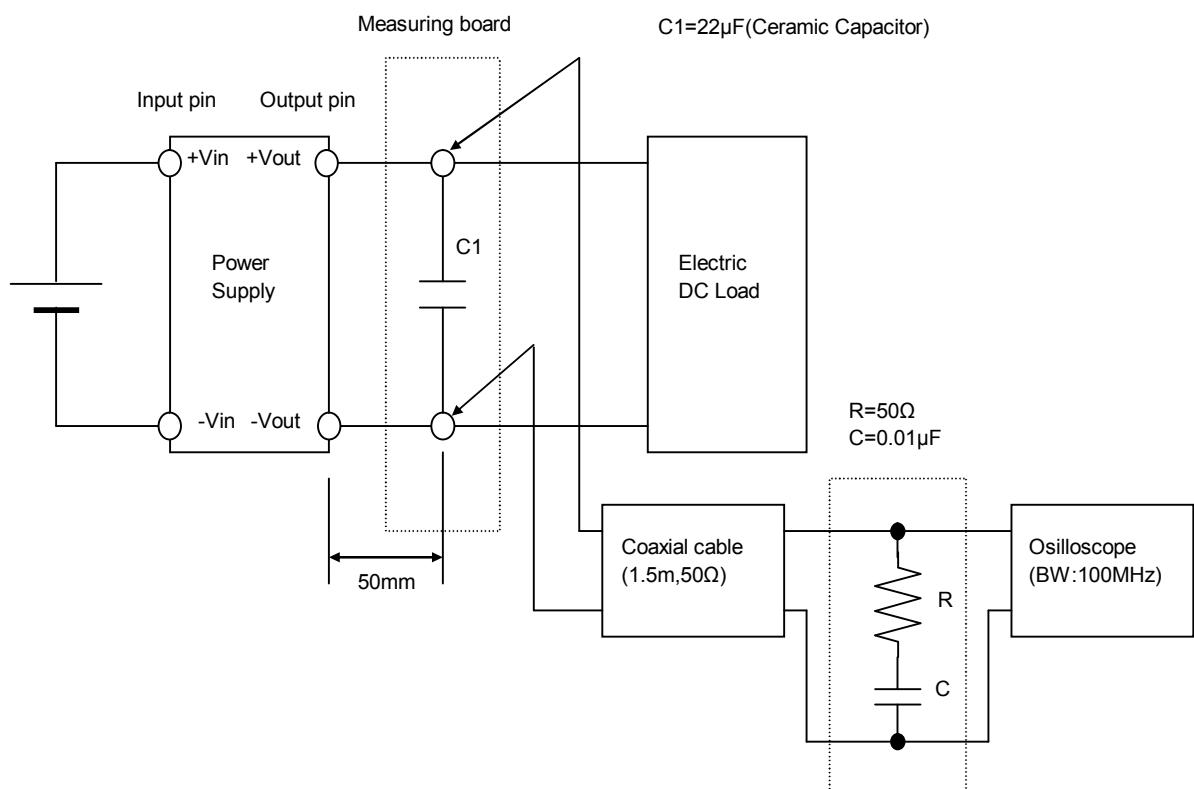


Figure B (Ripple and Ripple noise Characteristic)