

# TEST DATA OF MGS30243R3

Regulated DC Power Supply  
November 25, 2010

Approved by : Kazunari Asano  
Kazunari Asano Design Manager

Prepared by : Sho Saito  
Sho Saito Design Engineer

**COSEL CO.,LTD.**

## CONTENTS

1.Input Current (by Input Voltage) . . . . .	1
2.Input Current (by Load Current) . . . . .	2
3.Input Power (by Load Current) . . . . .	3
4.Efficiency (by Input Voltage) . . . . .	4
5.Efficiency (by Load Current) . . . . .	5
6.Line Regulation . . . . .	6
7.Load Regulation . . . . .	7
8.Dynamic Load Response . . . . .	8
9.Ripple Voltage (by Load Current) . . . . .	9
10.Ripple-Noise . . . . .	10
11.Ripple Voltage (by Ambient Temperature) . . . . .	11
12.Ambient Temperature Drift . . . . .	12
13.Output Voltage Accuracy . . . . .	13
14.Time Lapse Drift . . . . .	14
15.Rise and Fall Time . . . . .	15
16.Minimum Input Voltage for Regulated Output Voltage . . . . .	16
17.Overcurrent Protection . . . . .	17
18.Overvoltage Protection . . . . .	18
19.Figure of Testing Circuitry . . . . .	19

(Final Page 19)

Model	MGS30243R3																																																																																	
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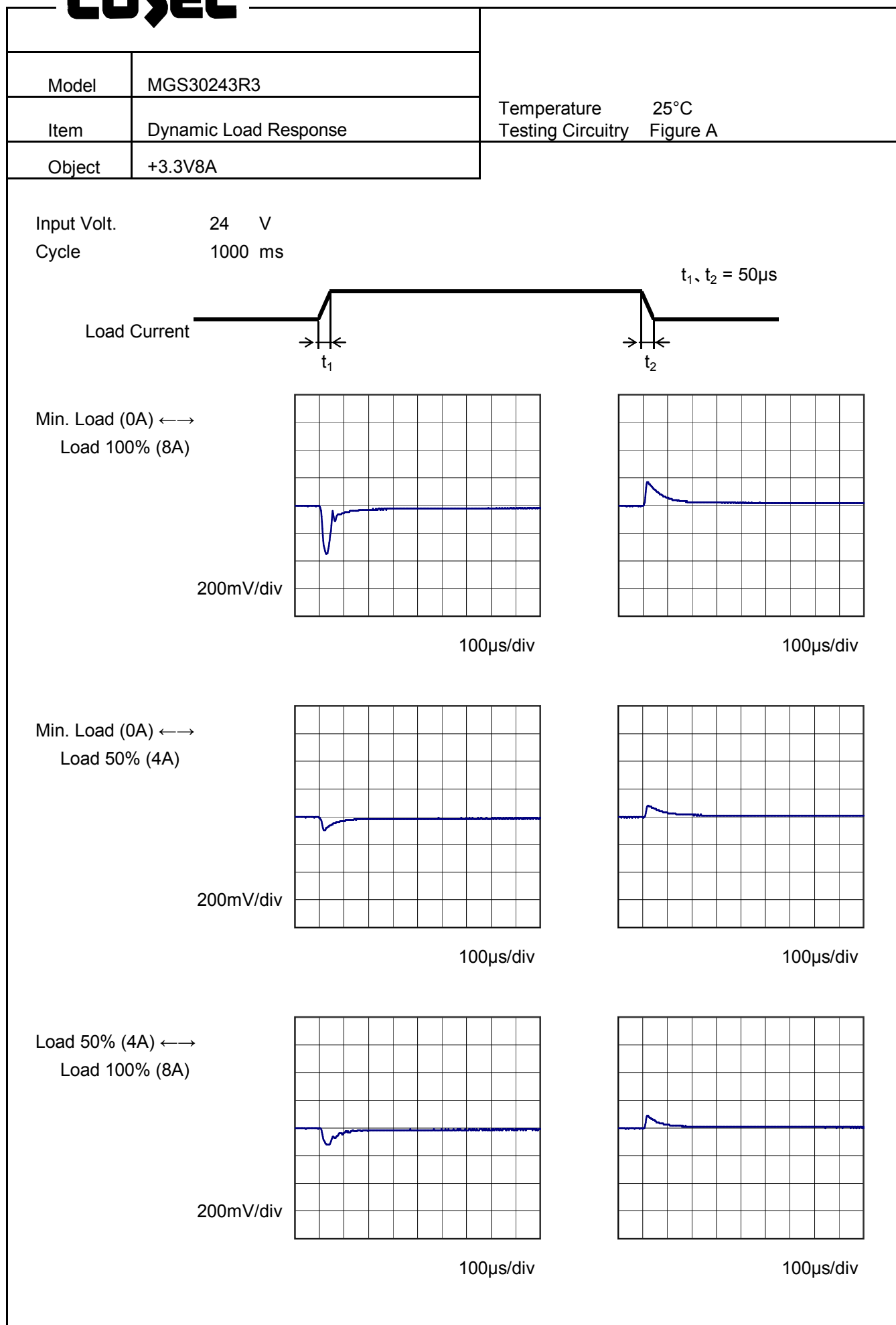
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		Testing Circuitry	Figure B
Object	+3.3V8A		
1.Graph		2.Values	
<div><div><div><div></div><div>—△—</div><div>Input Volt.</div><div>18V</div></div><div><div></div><div>-.-○-.-</div><div>Input Volt.</div><div>36V</div></div></div><div><div><div>100</div><div>80</div><div>60</div><div>40</div><div>20</div><div>0</div></div><div><div>Ripple Voltage [mV]</div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></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Model	MGS30243R3																																								
Item	Ripple-Noise	Temperature	25°C																																						
		Testing Circuitry	Figure B																																						
Object	+3.3V8A																																								
1.Graph		2.Values																																							
<div><div><div><div></div><div>—△—</div><div>Input Volt.</div><div>18V</div></div><div><div></div><div>-.-○-.-</div><div>Input Volt.</div><div>36V</div></div></div><div><div><div><div>120</div><div>100</div><div>80</div><div>60</div><div>40</div><div>20</div><div>0</div></div><div><div>Ripple Voltage [mV]</div></div></div><div><div><div><div>0</div><div>2</div><div>4</div><div>6</div><div>8</div></div><div><div>Load Current [A]</div></div></div><div></div></div></div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 18 [V]</th><th>Input Volt. 36 [V]</th></tr><tr><td>0.0</td><td>10</td><td>10</td></tr><tr><td>1.6</td><td>10</td><td>10</td></tr><tr><td>3.2</td><td>10</td><td>10</td></tr><tr><td>4.8</td><td>10</td><td>10</td></tr><tr><td>6.4</td><td>10</td><td>10</td></tr><tr><td>8.0</td><td>10</td><td>10</td></tr><tr><td>8.8</td><td>10</td><td>10</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Load Current [A]	Ripple-Noise [mV]		Input Volt. 18 [V]	Input Volt. 36 [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	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																								
	Input Volt. 18 [V]	Input Volt. 36 [V]																																							
0.0	10	10																																							
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3.2	10	10																																							
4.8	10	10																																							
6.4	10	10																																							
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<div><div><div><div></div><div>Ripple-Noise is shown as p-p in the figure below.</div><div>Note: Slanted line shows the range of the rated load current.</div></div></div></div>																																									
<div><div><div><div></div><div>Ripple Noise[mVp-p]</div></div><div><div></div></div></div></div>																																									
Fig.Complex Ripple Noise Wave Form																																									

BC-10505

Model	MGS30243R3																																																						
Item	Ambient Temperature Drift	Testing Circuitry    Figure A																																																					
Object	+3.3V8A																																																						
1.Graph		2.Values																																																					
<div><div>—△—    Input Volt.    18V</div><div>---□---    Input Volt.    24V</div><div>-·-○-·-    Input Volt.    36V</div></div> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p>		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>-60</td><td>3.353</td><td>3.353</td><td>3.352</td></tr><tr><td>-40</td><td>3.352</td><td>3.351</td><td>3.351</td></tr><tr><td>-20</td><td>3.349</td><td>3.348</td><td>3.347</td></tr><tr><td>0</td><td>3.346</td><td>3.346</td><td>3.345</td></tr><tr><td>25</td><td>3.344</td><td>3.344</td><td>3.344</td></tr><tr><td>60</td><td>3.340</td><td>3.339</td><td>3.339</td></tr><tr><td>65</td><td>3.339</td><td>3.338</td><td>3.338</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>			Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	-60	3.353	3.353	3.352	-40	3.352	3.351	3.351	-20	3.349	3.348	3.347	0	3.346	3.346	3.345	25	3.344	3.344	3.344	60	3.340	3.339	3.339	65	3.339	3.338	3.338	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																						
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0	3.346	3.346	3.345																																																				
25	3.344	3.344	3.344																																																				
60	3.340	3.339	3.339																																																				
65	3.339	3.338	3.338																																																				
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Note: Slanted line shows the range of the rated ambient temperature.																																																							



Model		MGS30243R3	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 : 18 - 36V

Load Current : 0 - 8A

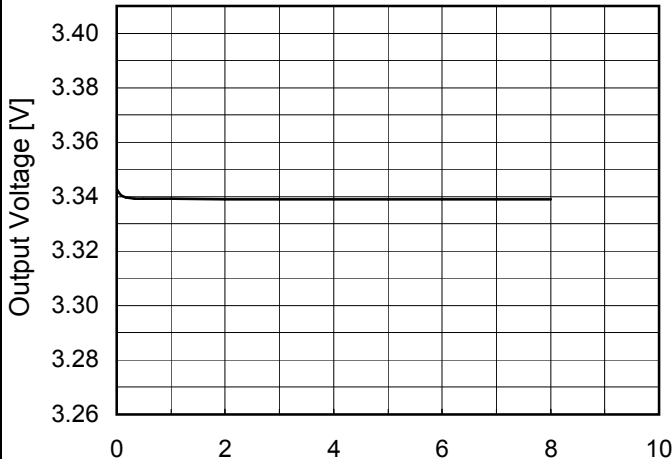
\* Output Voltage Accuracy =  $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

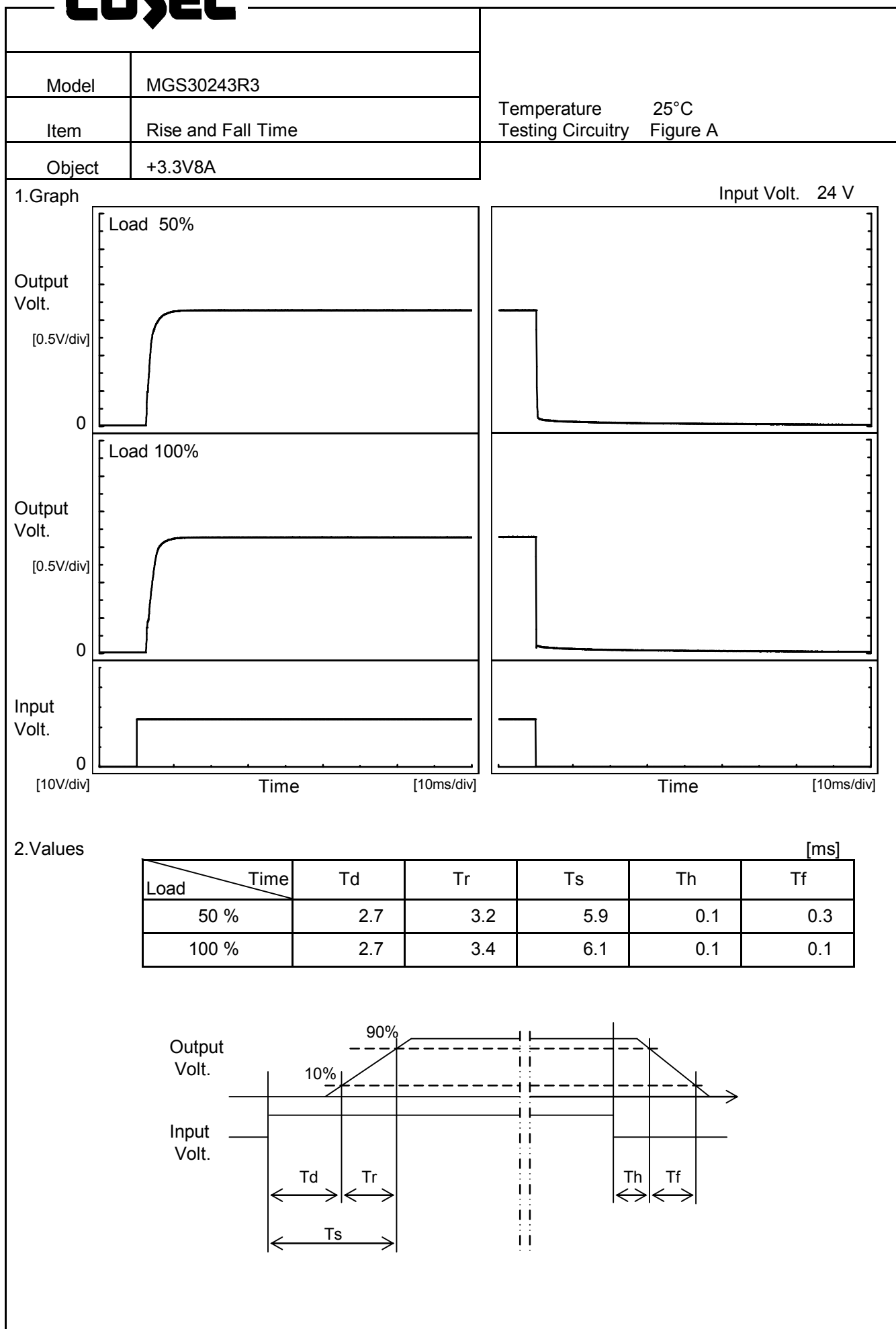
### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	-40	18	0	3.355	±8	±0.2
Minimum Voltage	60	36	8	3.339		



Model	MGS30243R3																								
Item	Time Lapse Drift	Temperature	25°C																						
		Testing Circuitry	Figure A																						
Object	+3.3V8A																								
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 24V</p><p>Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>3.343</td></tr><tr><td>0.5</td><td>3.339</td></tr><tr><td>1.0</td><td>3.339</td></tr><tr><td>2.0</td><td>3.339</td></tr><tr><td>3.0</td><td>3.339</td></tr><tr><td>4.0</td><td>3.339</td></tr><tr><td>5.0</td><td>3.339</td></tr><tr><td>6.0</td><td>3.339</td></tr><tr><td>7.0</td><td>3.339</td></tr><tr><td>8.0</td><td>3.339</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	3.343	0.5	3.339	1.0	3.339	2.0	3.339	3.0	3.339	4.0	3.339	5.0	3.339	6.0	3.339	7.0	3.339	8.0	3.339
Time since start [H]	Output Voltage [V]																								
0.0	3.343																								
0.5	3.339																								
1.0	3.339																								
2.0	3.339																								
3.0	3.339																								
4.0	3.339																								
5.0	3.339																								
6.0	3.339																								
7.0	3.339																								
8.0	3.339																								





Model	MGS30243R3	Testing Circuitry    Figure A																																							
Item	Minimum Input Voltage for Regulated Output Voltage																																								
Object	+3.3V8A																																								
1.Graph		2.Values																																							
<div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> <p>Note: Slanted line shows the range of the rated ambient temperature.</p>		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Input Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>-60</td><td>15.7</td><td>15.7</td></tr><tr><td>-40</td><td>15.8</td><td>15.7</td></tr><tr><td>-20</td><td>15.8</td><td>15.8</td></tr><tr><td>0</td><td>15.6</td><td>15.7</td></tr><tr><td>25</td><td>15.7</td><td>15.7</td></tr><tr><td>60</td><td>15.6</td><td>15.6</td></tr><tr><td>65</td><td>15.6</td><td>15.7</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Input Voltage [V]		Load 50%	Load 100%	-60	15.7	15.7	-40	15.8	15.7	-20	15.8	15.8	0	15.6	15.7	25	15.7	15.7	60	15.6	15.6	65	15.6	15.7	--	-	-	--	-	-	--	-	-	--	-	-
Ambient Temperature [°C]	Input Voltage [V]																																								
	Load 50%	Load 100%																																							
-60	15.7	15.7																																							
-40	15.8	15.7																																							
-20	15.8	15.8																																							
0	15.6	15.7																																							
25	15.7	15.7																																							
60	15.6	15.6																																							
65	15.6	15.7																																							
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Model	MGS30243R3																																																									
Item	Overcurrent Protection	Temperature	25°C																																																							
		Testing Circuitry	Figure A																																																							
Object	+3.3V8A																																																									
1.Graph		2.Values																																																								
<div><div><div></div>Input Volt. 18V</div><div><div></div>Input Volt. 24V</div><div><div></div>Input Volt. 36V</div></div> <p>Output Voltage [V]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p> <p>Intermittent operation occurs when overcurrent protection is activated.</p>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>3.30</td><td>10.28</td><td>9.98</td><td>9.45</td></tr><tr><td>3.14</td><td>-</td><td>-</td><td>-</td></tr><tr><td>2.97</td><td>-</td><td>-</td><td>-</td></tr><tr><td>2.64</td><td>-</td><td>-</td><td>-</td></tr><tr><td>2.31</td><td>-</td><td>-</td><td>-</td></tr><tr><td>1.98</td><td>-</td><td>-</td><td>-</td></tr><tr><td>1.65</td><td>-</td><td>-</td><td>-</td></tr><tr><td>1.32</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.99</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.66</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.33</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr></table>		Output Voltage [V]	Load Current [A]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	3.30	10.28	9.98	9.45	3.14	-	-	-	2.97	-	-	-	2.64	-	-	-	2.31	-	-	-	1.98	-	-	-	1.65	-	-	-	1.32	-	-	-	0.99	-	-	-	0.66	-	-	-	0.33	-	-	-	0.00	-	-	-
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1.Graph		2.Values																																							
<div><div><div>—△—</div><div>Input Volt.</div><div>24V</div></div><div><div>---□---</div><div>Input Volt.</div><div>36V</div></div></div> <p>Operating Point [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 0%</p> <p>Note: Slanted line shows the range of the rated ambient temperature.</p>		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Operating Point [V]</th></tr><tr><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>-60</td><td>4.98</td><td>4.96</td></tr><tr><td>-40</td><td>4.90</td><td>4.89</td></tr><tr><td>-20</td><td>4.83</td><td>4.81</td></tr><tr><td>0</td><td>4.76</td><td>4.75</td></tr><tr><td>25</td><td>4.68</td><td>4.67</td></tr><tr><td>60</td><td>4.58</td><td>4.57</td></tr><tr><td>65</td><td>4.57</td><td>4.56</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Operating Point [V]		Input Volt. 24[V]	Input Volt. 36[V]	-60	4.98	4.96	-40	4.90	4.89	-20	4.83	4.81	0	4.76	4.75	25	4.68	4.67	60	4.58	4.57	65	4.57	4.56	--	-	-	--	-	-	--	-	-	--	-	-
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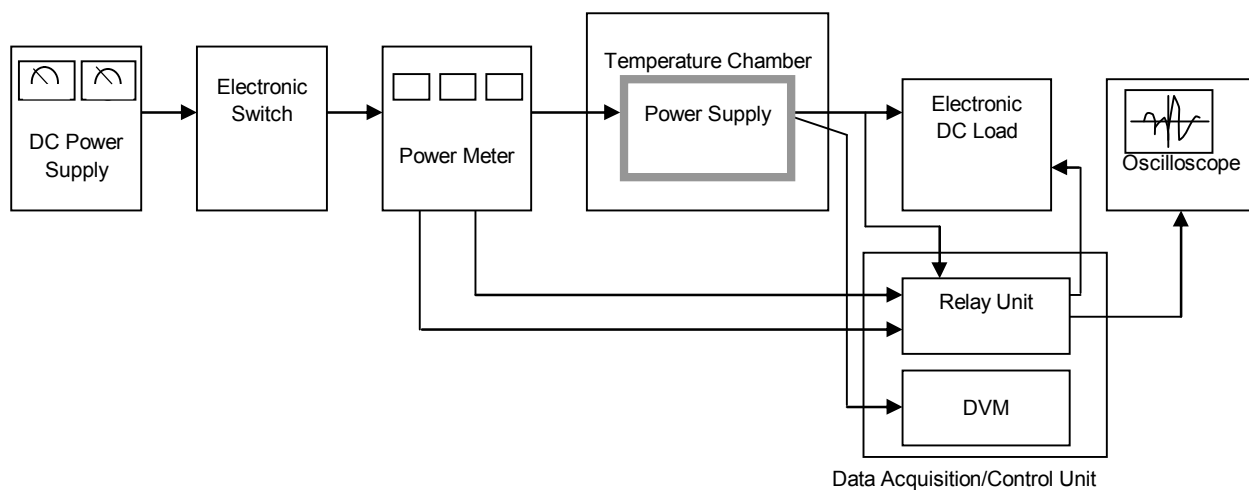


Figure A

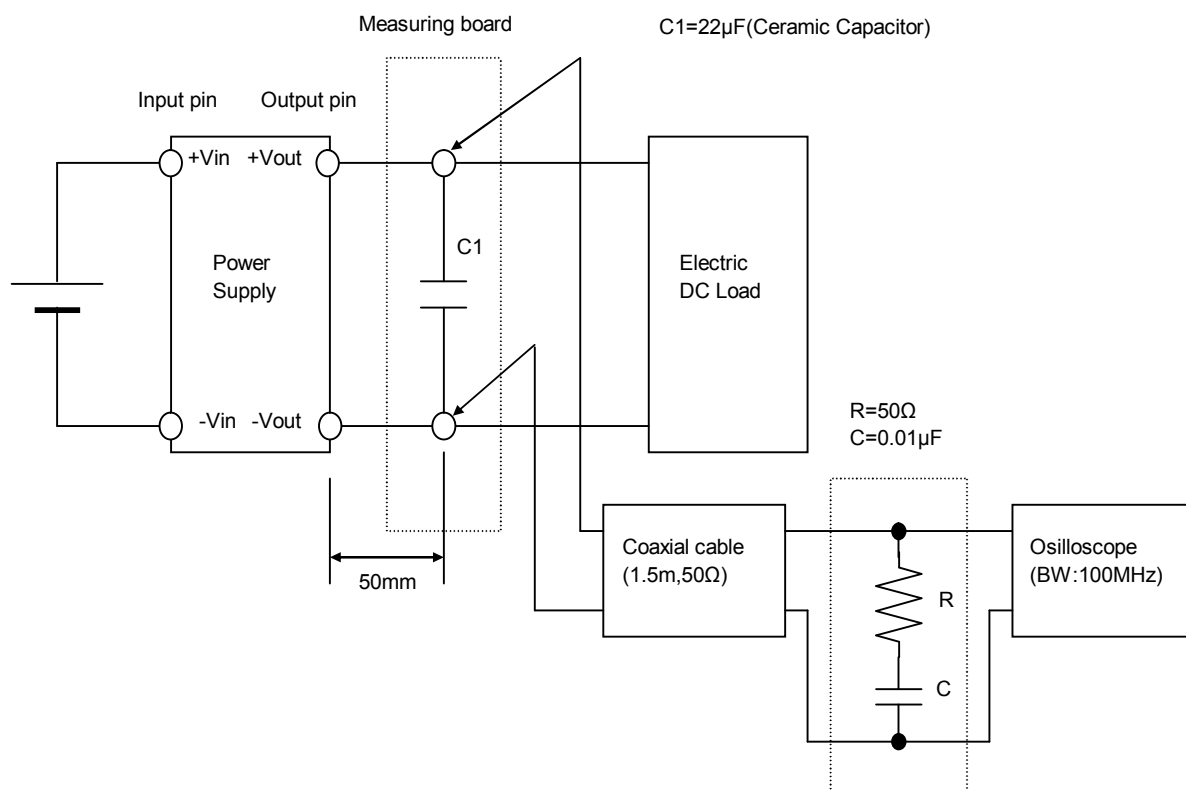


Figure B (Ripple and Ripple noise Characteristic)