

TEST DATA OF MGS304805

Regulated DC Power Supply
November 24, 2010

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COSEL CO.,LTD.

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Model	MGS304805		
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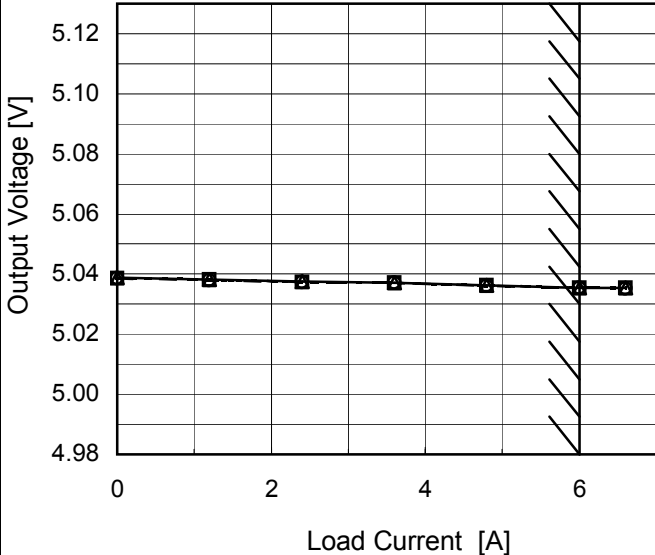
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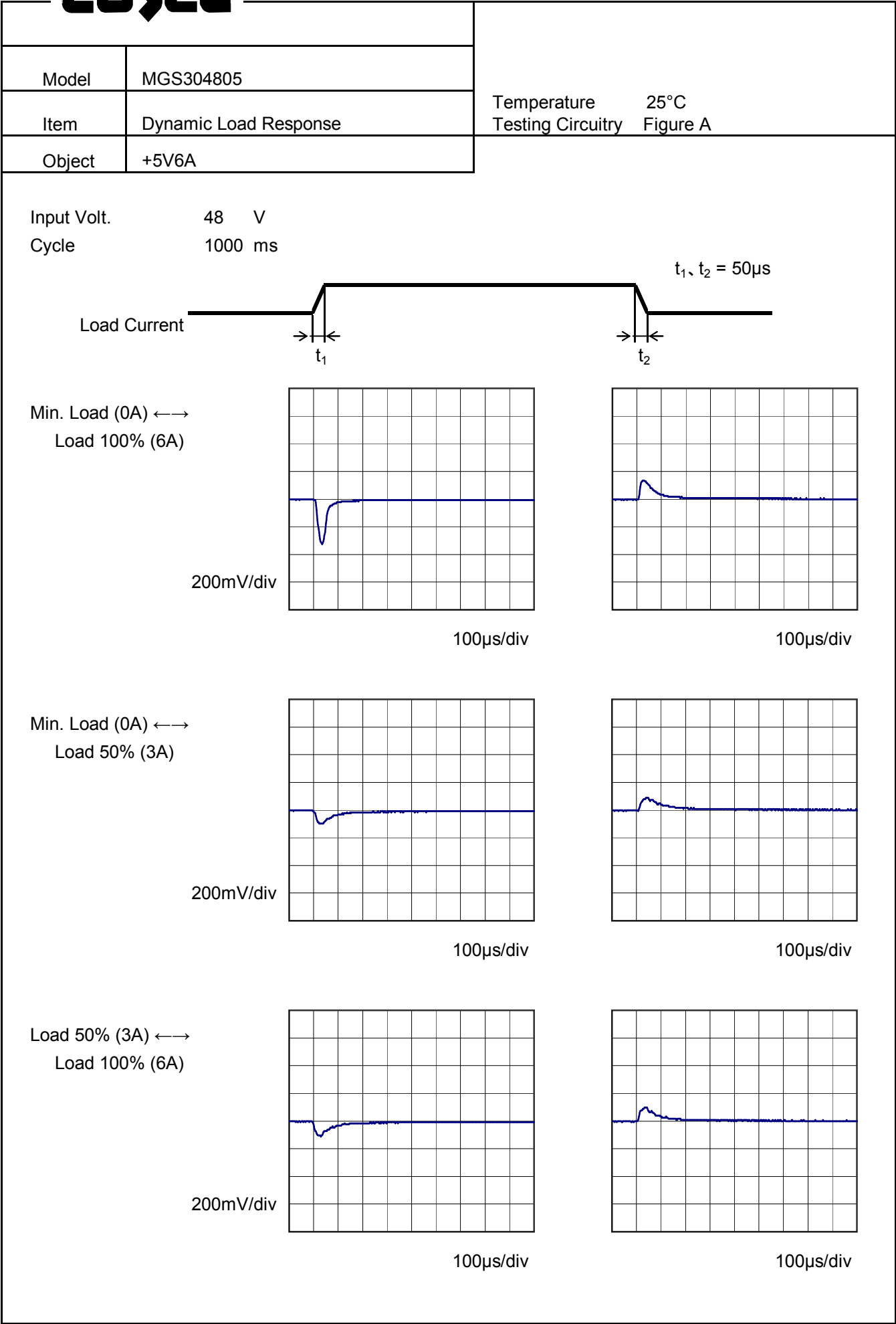
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<div><div><div>—△—</div><div>Input Volt.</div><div>36V</div></div><div><div>---□---</div><div>Input Volt.</div><div>48V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>76V</div></div></div> <p>Efficiency [%]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Efficiency [%]</th></tr><tr><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>0.0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>1.0</td><td>83.9</td><td>83.0</td><td>76.7</td></tr><tr><td>2.0</td><td>89.8</td><td>89.5</td><td>85.4</td></tr><tr><td>3.0</td><td>91.5</td><td>91.3</td><td>88.6</td></tr><tr><td>4.0</td><td>92.1</td><td>92.0</td><td>90.0</td></tr><tr><td>5.0</td><td>92.0</td><td>92.2</td><td>90.6</td></tr><tr><td>6.0</td><td>91.8</td><td>92.1</td><td>90.8</td></tr><tr><td>6.6</td><td>91.5</td><td>91.9</td><td>90.9</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>		Load Current [A]	Efficiency [%]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	0.0	-	-	-	1.0	83.9	83.0	76.7	2.0	89.8	89.5	85.4	3.0	91.5	91.3	88.6	4.0	92.1	92.0	90.0	5.0	92.0	92.2	90.6	6.0	91.8	92.1	90.8	6.6	91.5	91.9	90.9	--	-	-	-	--	-	-	-	--	-	-	-
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6.0	91.8	92.1	90.8																																																			
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Model	MGS304805	Temperature25°C Testing CircuitryFigure A																																	
Item	Line Regulation																																		
Object	+5V6A																																		
1.Graph		2.Values																																	
<div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> <table><thead><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Output Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr></thead><tbody><tr><td>33</td><td>5.037</td><td>5.036</td></tr><tr><td>36</td><td>5.037</td><td>5.036</td></tr><tr><td>40</td><td>5.037</td><td>5.036</td></tr><tr><td>48</td><td>5.037</td><td>5.036</td></tr><tr><td>55</td><td>5.037</td><td>5.036</td></tr><tr><td>60</td><td>5.037</td><td>5.037</td></tr><tr><td>70</td><td>5.037</td><td>5.037</td></tr><tr><td>76</td><td>5.037</td><td>5.037</td></tr><tr><td>80</td><td>5.037</td><td>5.037</td></tr></tbody></table> <p>Note: Slanted line shows the range of the rated input voltage.</p>		Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	33	5.037	5.036	36	5.037	5.036	40	5.037	5.036	48	5.037	5.036	55	5.037	5.036	60	5.037	5.037	70	5.037	5.037	76	5.037	5.037	80	5.037	5.037		
Input Voltage [V]	Output Voltage [V]																																		
	Load 50%	Load 100%																																	
33	5.037	5.036																																	
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Model	MGS304805																																																					
Item	Load Regulation	Temperature	25°C																																																			
Object	+5V6A	Testing Circuitry	Figure A																																																			
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Load Current [A]	Output Voltage [V]																																																					
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]																																																			
0.0	5.039	5.039	5.039																																																			
1.2	5.038	5.038	5.038																																																			
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Model	MGS304805																																								
Item	Ripple Voltage (by Load Current)	Temperature	25°C																																						
		Testing Circuitry	Figure B																																						
Object	+5V6A																																								
1.Graph		2.Values																																							
<div><div><div>—△— Input Volt. 36V</div><div>-.-○-.- Input Volt. 76V</div></div><p>Ripple Voltage [mV]</p><p>Load Current [A]</p></div> <p>Ripple Voltage is shown as p-p in the figure below.</p> <p>Note: Slanted line shows the range of the rated load current.</p> <div><p>Ripple [mVp-p]</p><p>Fig.Complex Ripple Wave Form</p></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 36 [V]</th><th>Input Volt. 76 [V]</th></tr><tr><td>0.0</td><td>4</td><td>5</td></tr><tr><td>1.2</td><td>4</td><td>5</td></tr><tr><td>2.4</td><td>4</td><td>5</td></tr><tr><td>3.6</td><td>4</td><td>5</td></tr><tr><td>4.8</td><td>4</td><td>5</td></tr><tr><td>6.0</td><td>4</td><td>5</td></tr><tr><td>6.6</td><td>4</td><td>5</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 Voltage [mV]		Input Volt. 36 [V]	Input Volt. 76 [V]	0.0	4	5	1.2	4	5	2.4	4	5	3.6	4	5	4.8	4	5	6.0	4	5	6.6	4	5	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																								
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Model	MGS304805	Temperature25°C Testing CircuitryFigure B																																							
Item	Ripple-Noise																																								
Object	+5V6A																																								
1.Graph		2.Values																																							
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Load Current [A]	Ripple-Noise [mV]																																								
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<p>Ripple-Noise is shown as p-p in the figure below. Note: Slanted line shows the range of the rated load current.</p> <p>Ripple Noise[mVp-p]</p>																																									
Fig.Complex Ripple Noise Wave Form																																									

Model	MGS304805																																							
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry Figure B																																						
Object	+5V6A																																							
1.Graph		2.Values																																						
<div><div><div>---□--- Load 50%</div><div>—△— Load 100%</div></div><div><p style="text-align: center;">Ambient Temperature [°C] Input Volt. 48V</p></div></div>		<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>-60</td><td>13</td><td>13</td></tr><tr><td>-40</td><td>9</td><td>9</td></tr><tr><td>-20</td><td>7</td><td>7</td></tr><tr><td>0</td><td>6</td><td>6</td></tr><tr><td>25</td><td>5</td><td>5</td></tr><tr><td>60</td><td>4</td><td>4</td></tr><tr><td>65</td><td>4</td><td>4</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]	Ripple Voltage [mV]		Load 50%	Load 100%	-60	13	13	-40	9	9	-20	7	7	0	6	6	25	5	5	60	4	4	65	4	4	--	-	-	--	-	-	--	-	-	--	-	-
Ambient Temperature [°C]	Ripple Voltage [mV]																																							
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--	-	-																																						
Measured by 100 MHz Oscilloscope. Note: Slanted line shows the range of the rated ambient temperature.																																								

- 11 -

BC-10510

Model	MGS304805																																																					
Item	Ambient Temperature Drift	Testing Circuitry Figure A																																																				
Object	+5V6A																																																					
1.Graph		2.Values																																																				
<div><div>—△— Input Volt. 36V</div><div>---□--- Input Volt. 48V</div><div>---○--- Input Volt. 76V</div></div> <p>Output Voltage [V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</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="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>-60</td><td>5.003</td><td>5.004</td><td>5.005</td></tr><tr><td>-40</td><td>5.015</td><td>5.016</td><td>5.016</td></tr><tr><td>-20</td><td>5.024</td><td>5.024</td><td>5.025</td></tr><tr><td>0</td><td>5.030</td><td>5.031</td><td>5.031</td></tr><tr><td>25</td><td>5.036</td><td>5.036</td><td>5.035</td></tr><tr><td>60</td><td>5.037</td><td>5.037</td><td>5.036</td></tr><tr><td>65</td><td>5.036</td><td>5.036</td><td>5.036</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. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	-60	5.003	5.004	5.005	-40	5.015	5.016	5.016	-20	5.024	5.024	5.025	0	5.030	5.031	5.031	25	5.036	5.036	5.035	60	5.037	5.037	5.036	65	5.036	5.036	5.036	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																					
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-20	5.024	5.024	5.025																																																			
0	5.030	5.031	5.031																																																			
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Model		MGS304805	Testing Circuitry Figure A
Item		Output Voltage Accuracy	
Object		+5V6A	

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 : 36 - 76V

Load Current : 0 - 6A

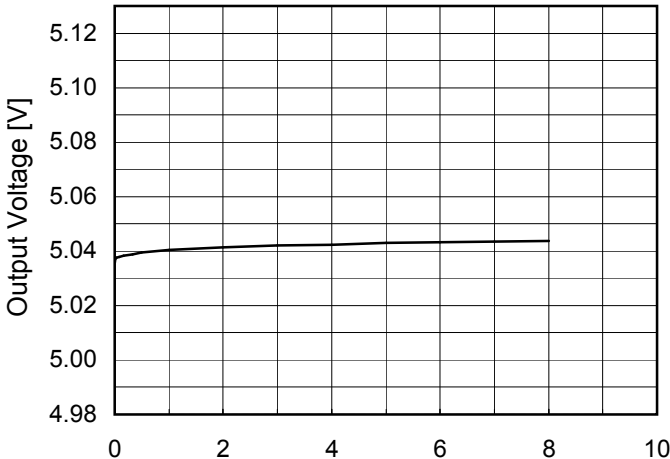
* Output Voltage Accuracy = $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

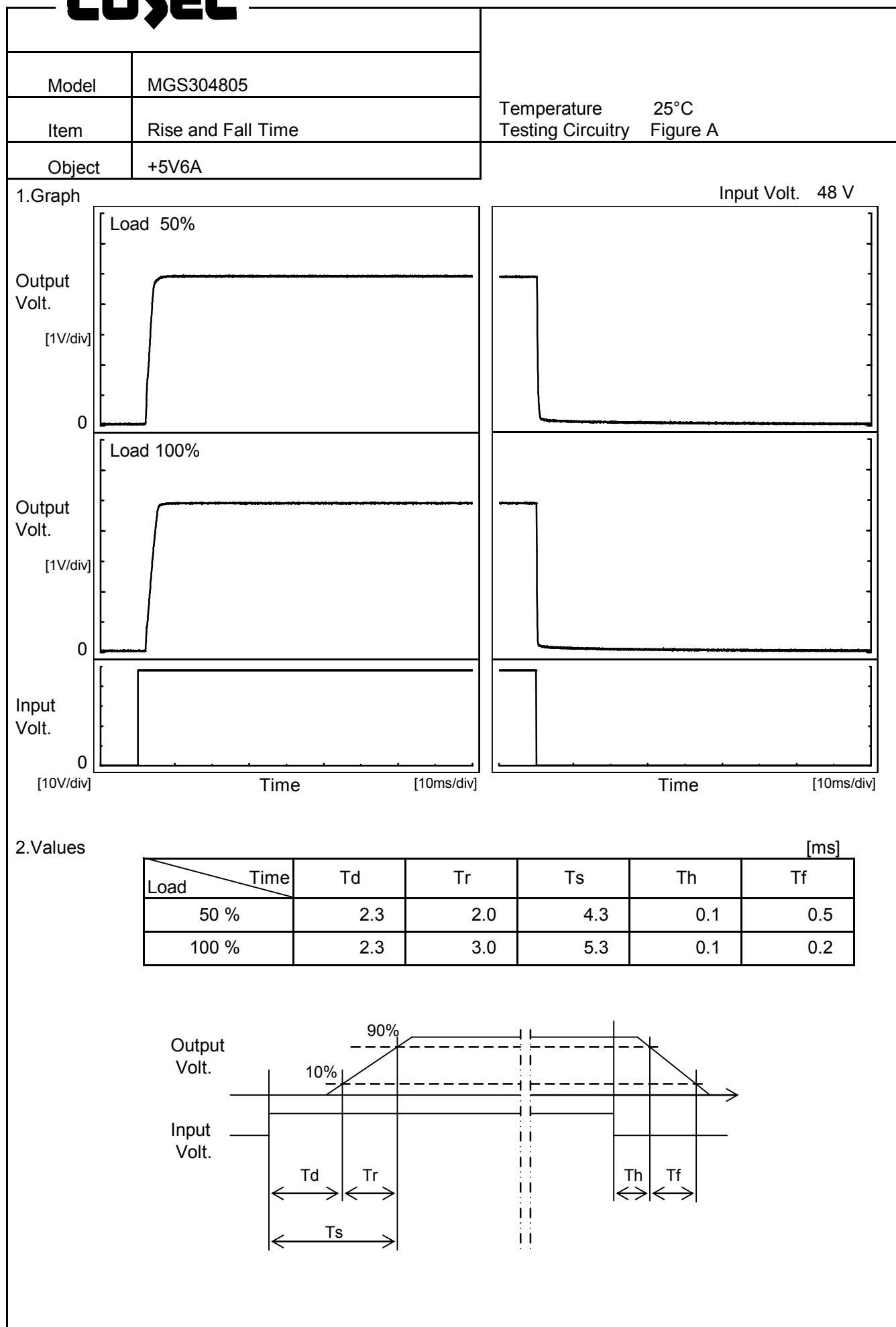
* Output Voltage Accuracy (Ratio) = $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	60	36	0	5.040	±13	±0.3
Minimum Voltage	-40	36	6	5.015		



Model	MGS304805																								
Item	Time Lapse Drift	Temperature	25°C																						
		Testing Circuitry	Figure A																						
Object	+5V6A																								
1.Graph		2.Values																							
<div></div> <div>Time [H]</div> <div>Input Volt. 48V</div> <div>Load 100%</div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>5.036</td></tr><tr><td>0.5</td><td>5.039</td></tr><tr><td>1.0</td><td>5.040</td></tr><tr><td>2.0</td><td>5.041</td></tr><tr><td>3.0</td><td>5.042</td></tr><tr><td>4.0</td><td>5.042</td></tr><tr><td>5.0</td><td>5.043</td></tr><tr><td>6.0</td><td>5.043</td></tr><tr><td>7.0</td><td>5.044</td></tr><tr><td>8.0</td><td>5.044</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	5.036	0.5	5.039	1.0	5.040	2.0	5.041	3.0	5.042	4.0	5.042	5.0	5.043	6.0	5.043	7.0	5.044	8.0	5.044
Time since start [H]	Output Voltage [V]																								
0.0	5.036																								
0.5	5.039																								
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Model	MGS304805	Testing Circuitry Figure A																																							
Item	Minimum Input Voltage for Regulated Output Voltage																																								
Object	+5V6A																																								
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>31.2</td><td>31.1</td></tr><tr><td>-40</td><td>31.2</td><td>31.1</td></tr><tr><td>-20</td><td>31.2</td><td>31.1</td></tr><tr><td>0</td><td>31.0</td><td>31.1</td></tr><tr><td>25</td><td>31.0</td><td>31.1</td></tr><tr><td>60</td><td>30.8</td><td>30.8</td></tr><tr><td>65</td><td>30.8</td><td>30.8</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	31.2	31.1	-40	31.2	31.1	-20	31.2	31.1	0	31.0	31.1	25	31.0	31.1	60	30.8	30.8	65	30.8	30.8	--	-	-	--	-	-	--	-	-	--	-	-
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Object	+5V6A	Testing Circuitry	Figure A																																																							
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<div><div><div>—△</div><div>Input Volt.</div><div>36V</div></div><div><div>—□</div><div>Input Volt.</div><div>48V</div></div><div><div>—○</div><div>Input Volt.</div><div>76V</div></div></div> <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. 36[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 76[V]</th></tr><tr><td>5.00</td><td>7.31</td><td>7.26</td><td>7.25</td></tr><tr><td>4.75</td><td>-</td><td>-</td><td>-</td></tr><tr><td>4.50</td><td>-</td><td>-</td><td>-</td></tr><tr><td>4.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>3.50</td><td>-</td><td>-</td><td>-</td></tr><tr><td>3.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>2.50</td><td>-</td><td>-</td><td>-</td></tr><tr><td>2.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>1.50</td><td>-</td><td>-</td><td>-</td></tr><tr><td>1.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.50</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. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	5.00	7.31	7.26	7.25	4.75	-	-	-	4.50	-	-	-	4.00	-	-	-	3.50	-	-	-	3.00	-	-	-	2.50	-	-	-	2.00	-	-	-	1.50	-	-	-	1.00	-	-	-	0.50	-	-	-	0.00	-	-	-
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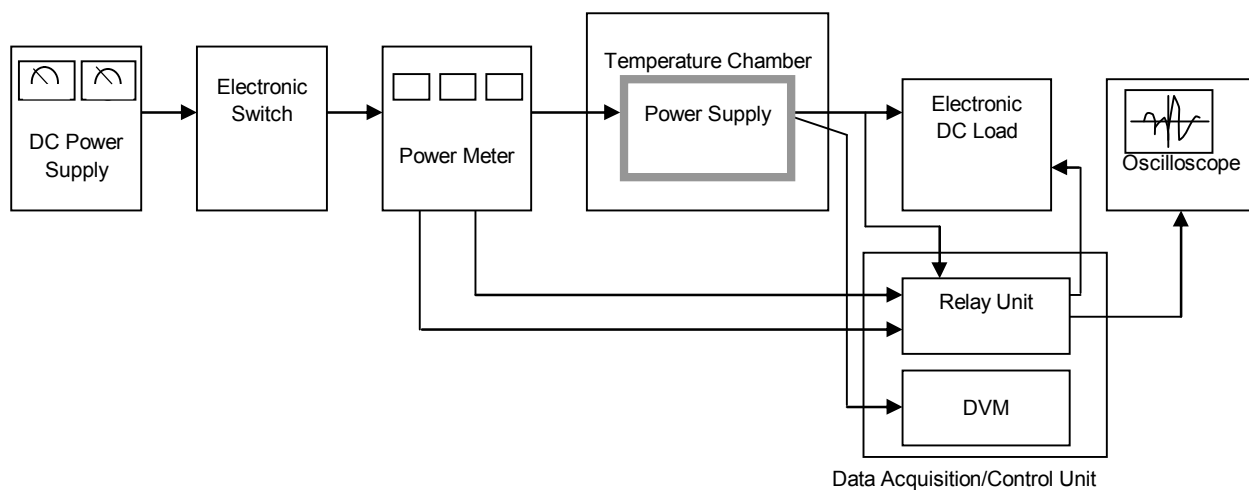


Figure A

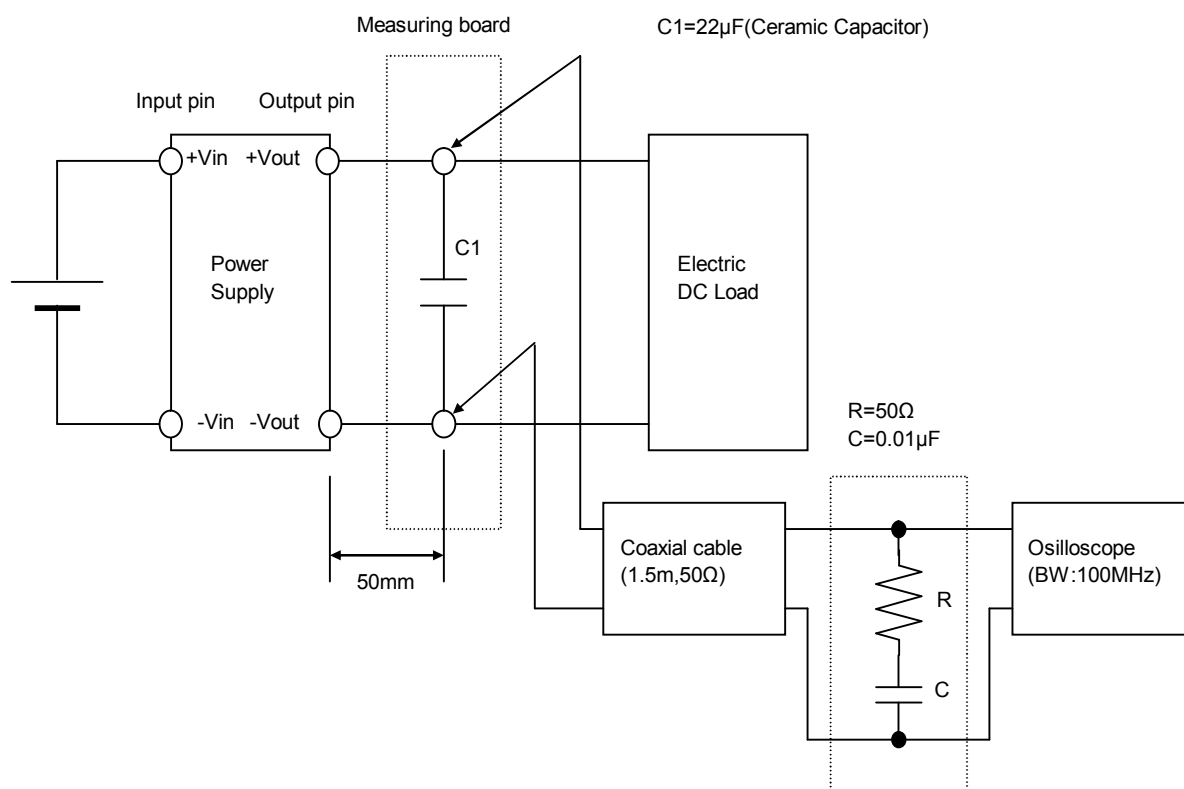


Figure B (Ripple and Ripple noise Characteristic)