

# TEST DATA OF MGXS62405

Regulated DC Power Supply  
February 19, 2018

Approved by : Takayuki Fukuda  
Takayuki Fukuda Design Manager

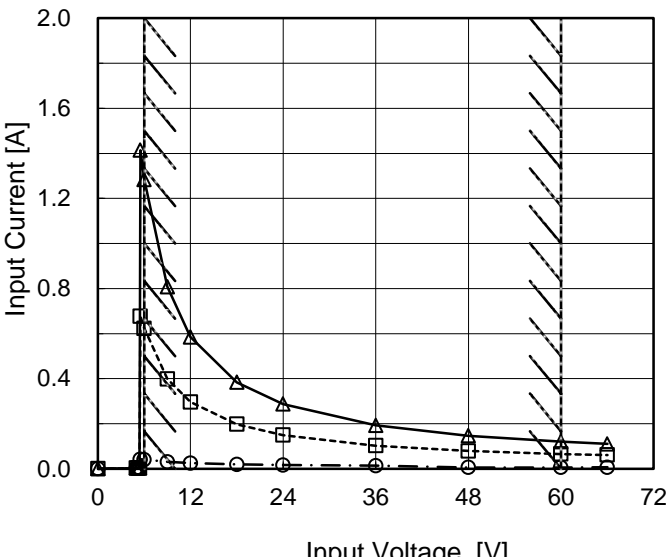
Prepared by : Masumi Kitamura  
Masumi Kitamura Design Engineer

**COSEL CO.,LTD.**

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Model		MGXS62405																																	
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BC-11269

Model		MGXS62405		Temperature 25°C	
Item		Efficiency (by Load Current)		Testing Circuitry Figure A	
Object					
1.Graph		<div> <div>—△—</div>Input Volt. 6V <div>---□---</div>Input Volt. 12V <div>-·-·*-·-</div>Input Volt. 24V <div>-·-○-</div>Input Volt. 48V <div>---◇---</div>Input Volt. 60V </div>		2.Values	
<div> <div>Efficiency [%]</div> <div> <div>90</div> <div>80</div> <div>70</div> <div>60</div> <div>50</div> </div> <div> <div>0.0</div> <div>0.3</div> <div>0.6</div> <div>0.9</div> <div>1.2</div> <div>1.5</div> </div> <div>Load Current [A]</div> </div>		<div> <div> <div>Load Current [A]</div> <div> <div>0.00</div> <div>0.24</div> <div>0.48</div> <div>0.72</div> <div>0.96</div> <div>1.20</div> <div>1.32</div> <div>--</div> <div>--</div> <div>--</div> <div>--</div> <div>--</div> </div> <div> <div>Efficiency [%]</div> <div> <div>Input Volt. 6[V]</div> <div>Input Volt. 12[V]</div> <div>Input Volt. 24[V]</div> <div>Input Volt. 48[V]</div> <div>Input Volt. 60[V]</div> </div> </div> </div> </div>		<div> <div>※ Maximum output current at minimum input Voltage is 70% of rated load current.</div> <div>Refer to instruction manuals for details of input derating.</div> </div>	
<div>Note: Slanted line shows the range of the rated load current.</div>					

Model		MGXS62405	
Item		Line Regulation	
Object		+5V1.2A	
1.Graph		2.Values	

-----□----- Load 50%	
-----△----- Load 100%	

Output Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
5.5	5.063	- ※
6.0	5.063	- ※
9.0	5.063	5.064
12.0	5.063	5.065
24.0	5.063	5.065
36.0	5.063	5.065
48.0	5.063	5.065
60.0	5.064	5.065
66.0	5.064	5.065

Note: Slanted line shows the range of the rated input voltage.

※ Maximum output current at minimum input Voltage is 70% of rated load current. Refer to instruction manuals for details of input derating.



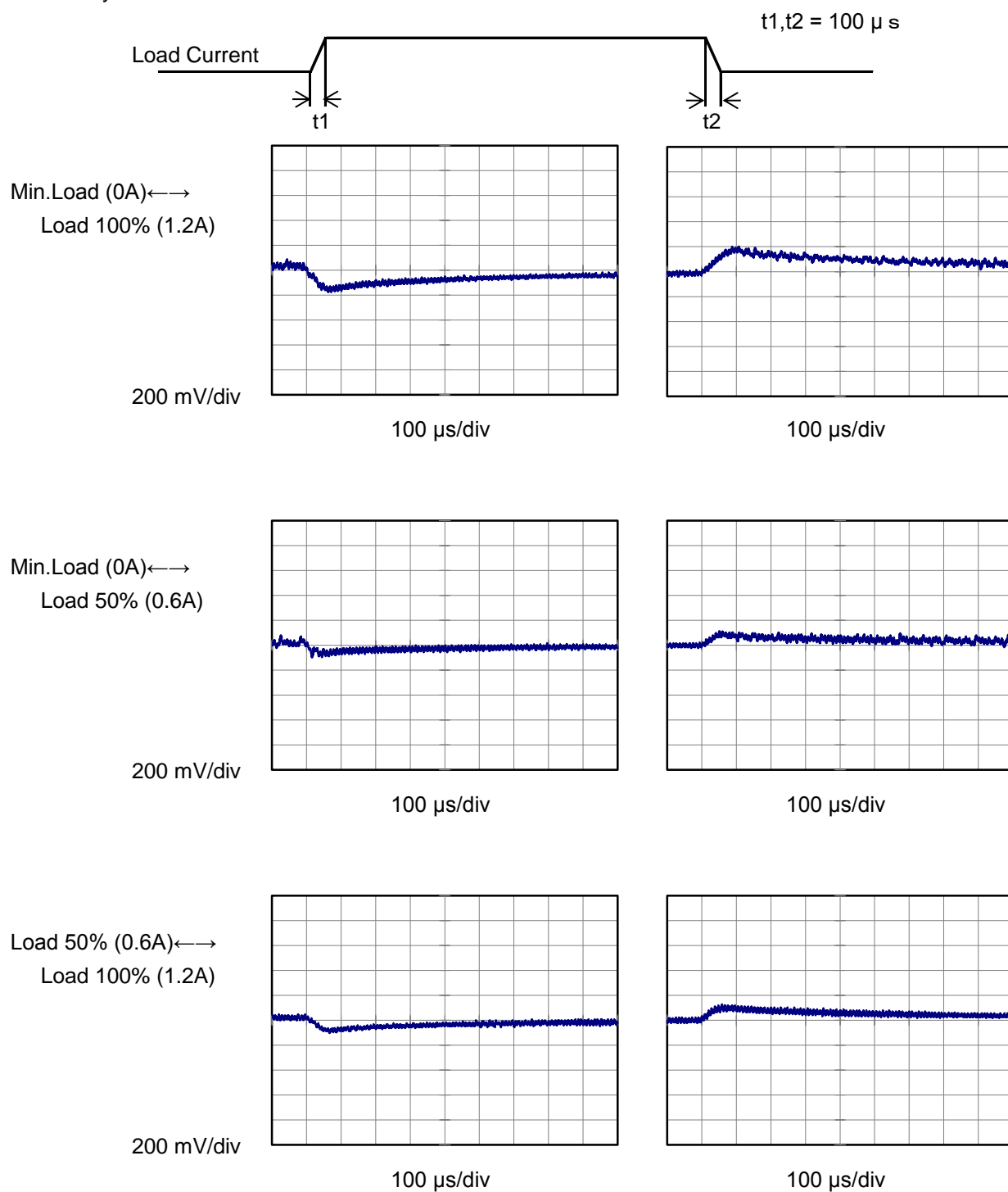
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Model	MGXS62405				
Item	Load Regulation				
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			2.Values		
Load		Output Voltage [V]			
Current	Input Volt.	Input Volt.	Input Volt.	Input Volt.	Input Volt.
[A]	6[V]	12[V]	24[V]	48[V]	60[V]
0.00	5.068	5.068	5.067	5.068	5.067
0.24	5.067	5.067	5.067	5.067	5.067
0.48	5.066	5.066	5.066	5.066	5.066
0.72	5.065	5.066	5.065	5.065	5.065
0.96	5.063	5.065	5.065	5.065	5.064
1.20	- ※	5.064	5.064	5.064	5.064
1.32	- ※	5.064	5.064	5.064	5.064
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-
--	-	-	-	-	-

※ Maximum output current at minimum input Voltage is 70% of rated load current.  
Refer to instruction manuals for details of input derating.

# COSEL


Model	MGXS62405	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+5V1.2A		

Input Volt. 24 V  
Cycle 100 ms

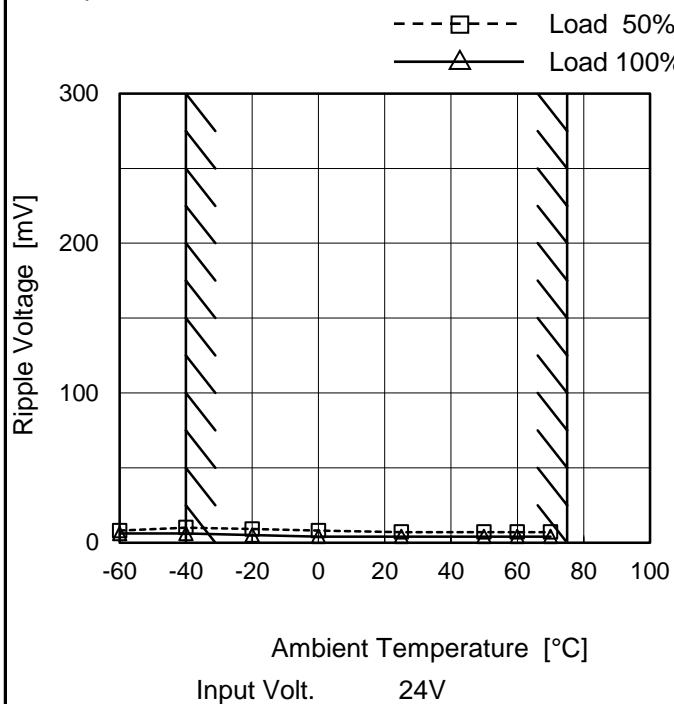


Model		MGXS62405		Temperature 25°C																																							
Item		Ripple Voltage (by Load Current)		Testing Circuitry Figure B																																							
Object		+5V1.2A																																									
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<div><div><div>—△—</div><div>Input Volt.</div><div>6V</div></div><div><div>- -○- -</div><div>Input Volt.</div><div>60V</div></div></div> <p>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.</p>				<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 6 [V]</th><th>Input Volt. 60 [V]</th></tr><tr><td>0.00</td><td>57</td><td>51</td></tr><tr><td>0.24</td><td>5</td><td>172</td></tr><tr><td>0.48</td><td>9</td><td>7</td></tr><tr><td>0.60</td><td>16</td><td>7</td></tr><tr><td>0.72</td><td>24</td><td>6</td></tr><tr><td>0.96</td><td>40</td><td>6</td></tr><tr><td>1.20</td><td>- ※</td><td>8</td></tr><tr><td>1.32</td><td>- ※</td><td>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></table> <p>※ Maximum output current at minimum input Voltage is 70% of rated load current. Refer to instruction manuals for details of input derating.</p>		Load Current [A]	Ripple Voltage [mV]		Input Volt. 6 [V]	Input Volt. 60 [V]	0.00	57	51	0.24	5	172	0.48	9	7	0.60	16	7	0.72	24	6	0.96	40	6	1.20	- ※	8	1.32	- ※	8	--	-	-	--	-	-	--	-	-
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<p>Ripple [mVp-p]</p>																																											
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Model	MGXS62405
Item	Ripple Voltage (by Ambient Temp.)
Object	+5V1.2A

## 1.Graph



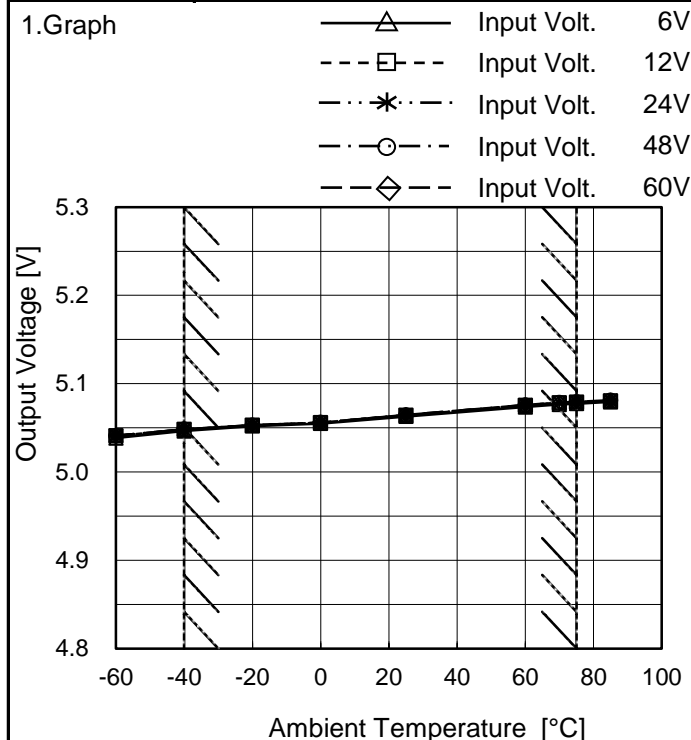
Measured by 100 MHz Oscilloscope.

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

## 2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	8	6
-40	10	6
-20	9	5
0	8	4
25	7	4
50	7	4
60	7	4
70	7	4
--	-	-
--	-	-
--	-	-

Model	MGXS62405
Item	Ambient Temperature Drift
Object	+5V1.2A



Testing Circuitry Figure A

## 2.Values

Ambient Temperature [°C]	Output Voltage [V]				
	Input Volt. 6[V]	Input Volt. 12[V]	Input Volt. 24[V]	Input Volt. 48[V]	Input Volt. 60[V]
-60	5.038	5.041	5.041	5.041	5.041
-40	5.046	5.048	5.048	5.048	5.048
-20	5.052	5.053	5.053	5.053	5.053
0	5.055	5.056	5.056	5.056	5.056
25	5.063	5.064	5.064	5.065	5.065
60	5.074	5.075	5.076	5.076	5.076
70	5.076	5.078	5.078	5.079	5.079
75	5.077	5.079	5.079	5.079	5.079
85	5.079	5.080	5.081	5.081	5.081
--	-	-	-	-	-
--	-	-	-	-	-

Note: In case of input Volt. 6V, Load 70%.  
 Other case Load 100%.



Model		MGXS62405	Testing Circuitry Figure A
Item		Output Voltage Accuracy	
Object		+5V1.2A	

### 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 - 75°C

Input Voltage : 6 - 60V

Load Current : 0 - 1.2A

\* 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	75	48	0	5.079	±17	±0.3
Minimum Voltage	-40	6	0.84 ※	5.046		

※ Maximum output current at minimum input Voltage is 70% of rated load current.  
Refer to instruction manuals for details of input derating.



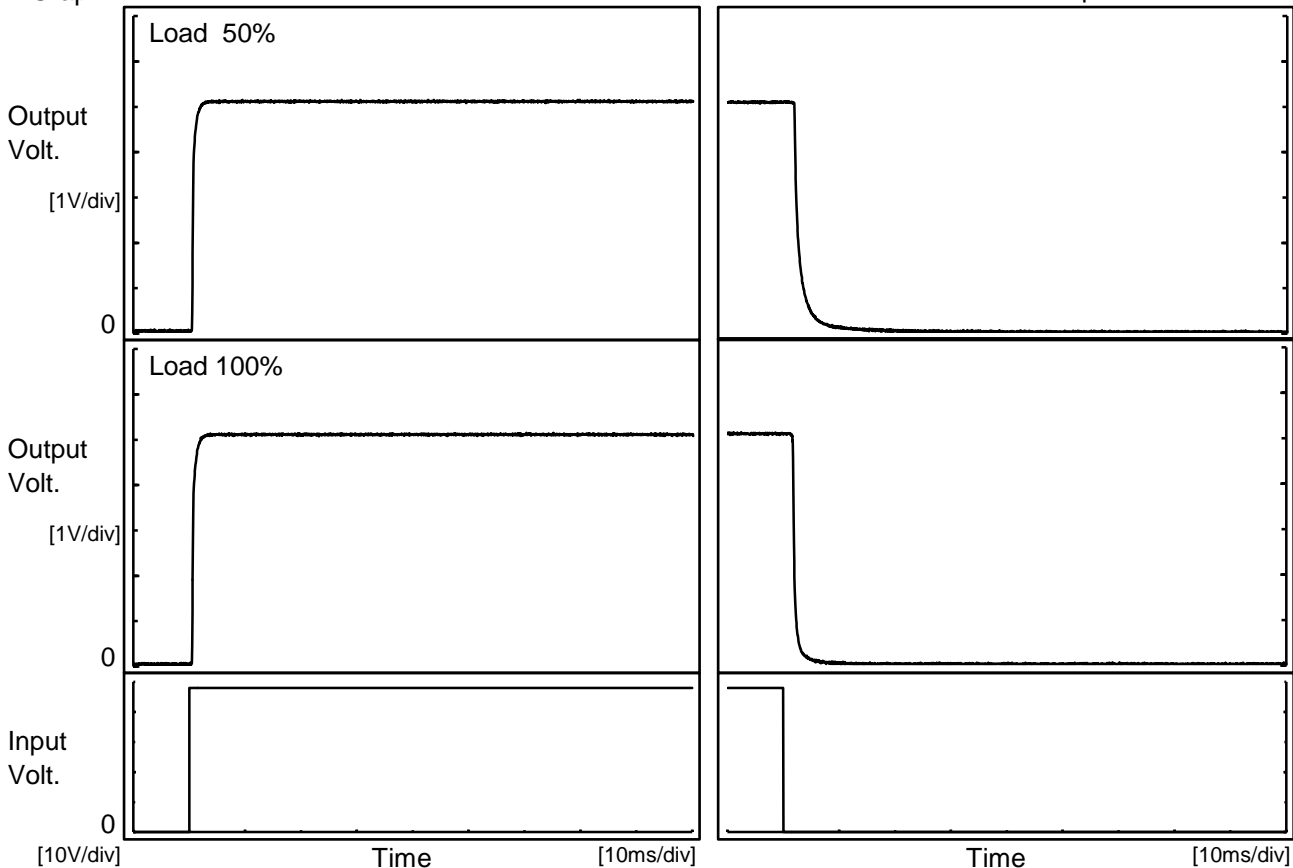
COSEL																									
Model	MGXS62405																								
Item	Time Lapse Drift	Temperature	25°C																						
Object	+5V1.2A	Testing Circuitry	Figure A																						
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 24V</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>5.060</td></tr><tr><td>0.5</td><td>5.064</td></tr><tr><td>1.0</td><td>5.064</td></tr><tr><td>2.0</td><td>5.064</td></tr><tr><td>3.0</td><td>5.064</td></tr><tr><td>4.0</td><td>5.064</td></tr><tr><td>5.0</td><td>5.064</td></tr><tr><td>6.0</td><td>5.064</td></tr><tr><td>7.0</td><td>5.064</td></tr><tr><td>8.0</td><td>5.064</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	5.060	0.5	5.064	1.0	5.064	2.0	5.064	3.0	5.064	4.0	5.064	5.0	5.064	6.0	5.064	7.0	5.064	8.0	5.064
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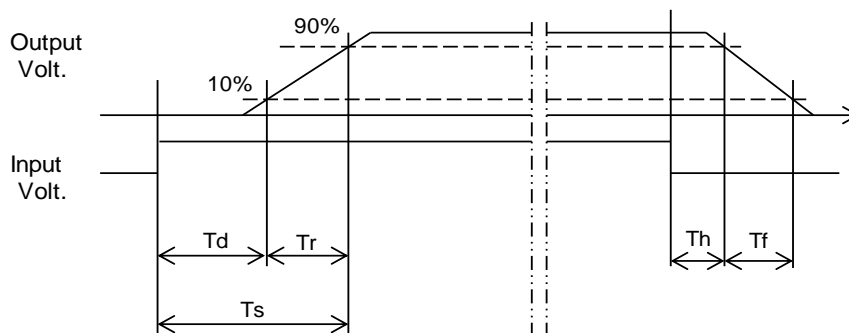
Model	MGXS62405	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+5V1.2A		

# 1.Graph



# 2.Values

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	0.6	0.7	1.3	2.0	2.7
100 %	0.6	0.7	1.3	1.8	0.9



Model	MGXS62405																																								
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry    Figure A																																							
Object	+5V1.2A																																								
1.Graph		2.Values																																							
<div><div>---□---    Load 50%</div><div>—△—    Load 70%</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 70%</th></tr><tr><td>-60</td><td>5.1</td><td>5.2</td></tr><tr><td>-40</td><td>5.0</td><td>5.0</td></tr><tr><td>-20</td><td>5.0</td><td>5.0</td></tr><tr><td>0</td><td>4.9</td><td>5.0</td></tr><tr><td>25</td><td>4.8</td><td>5.0</td></tr><tr><td>60</td><td>4.8</td><td>5.0</td></tr><tr><td>70</td><td>4.8</td><td>5.0</td></tr><tr><td>75</td><td>4.8</td><td>5.0</td></tr><tr><td>85</td><td>4.6</td><td>4.8</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 70%	-60	5.1	5.2	-40	5.0	5.0	-20	5.0	5.0	0	4.9	5.0	25	4.8	5.0	60	4.8	5.0	70	4.8	5.0	75	4.8	5.0	85	4.6	4.8	--	-	-	--	-	-
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Model		MGXS62405		Temperature		25°C																																																																																				
Item		Overcurrent Protection		Testing Circuitry		Figure A																																																																																				
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<div><div><div></div><div>Input Volt.</div><div>6V</div></div><div><div></div><div>Input Volt.</div><div>12V</div></div><div><div></div><div>Input Volt.</div><div>24V</div></div><div><div></div><div>Input Volt.</div><div>48V</div></div><div><div></div><div>Input Volt.</div><div>60V</div></div></div> <div><div><div>Output Voltage [V]</div><div>8</div><div>6</div><div>4</div><div>2</div><div>0</div><div>0</div><div>1</div><div>2</div><div>3</div><div>4</div><div>5</div><div>Load Current [A]</div></div></div>				<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="5">Load Current [A]</th></tr><tr><th>Input Volt. 6[V]</th><th>Input Volt. 12[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 48[V]</th><th>Input Volt. 60[V]</th></tr><tr><td>4.75</td><td>1.182</td><td>1.591</td><td>1.714</td><td>1.703</td><td>1.694</td></tr><tr><td>4.50</td><td>1.233</td><td>1.648</td><td>1.781</td><td>1.751</td><td>1.735</td></tr><tr><td>4.00</td><td>1.316</td><td>1.797</td><td>1.924</td><td>1.851</td><td>1.828</td></tr><tr><td>3.50</td><td>1.394</td><td>1.962</td><td>2.077</td><td>1.952</td><td>1.922</td></tr><tr><td>3.00</td><td>1.515</td><td>2.151</td><td>2.220</td><td>2.056</td><td>2.025</td></tr><tr><td>2.50</td><td>1.673</td><td>2.350</td><td>2.360</td><td>2.163</td><td>2.125</td></tr><tr><td>2.00</td><td>1.750</td><td>2.464</td><td>2.430</td><td>2.227</td><td>2.192</td></tr><tr><td>1.50</td><td>1.946</td><td>2.641</td><td>2.545</td><td>2.321</td><td>2.283</td></tr><tr><td>1.00</td><td>2.261</td><td>2.847</td><td>2.695</td><td>2.444</td><td>2.405</td></tr><tr><td>0.50</td><td>2.622</td><td>3.113</td><td>2.881</td><td>2.573</td><td>2.520</td></tr><tr><td>0.00</td><td>3.079</td><td>3.055</td><td>2.921</td><td>2.588</td><td>2.530</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td></tr></table>				Output Voltage [V]	Load Current [A]					Input Volt. 6[V]	Input Volt. 12[V]	Input Volt. 24[V]	Input Volt. 48[V]	Input Volt. 60[V]	4.75	1.182	1.591	1.714	1.703	1.694	4.50	1.233	1.648	1.781	1.751	1.735	4.00	1.316	1.797	1.924	1.851	1.828	3.50	1.394	1.962	2.077	1.952	1.922	3.00	1.515	2.151	2.220	2.056	2.025	2.50	1.673	2.350	2.360	2.163	2.125	2.00	1.750	2.464	2.430	2.227	2.192	1.50	1.946	2.641	2.545	2.321	2.283	1.00	2.261	2.847	2.695	2.444	2.405	0.50	2.622	3.113	2.881	2.573	2.520	0.00	3.079	3.055	2.921	2.588	2.530	--	-	-	-	-	-
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Item		Switching frequency (by Load Current)		Testing Circuitry Figure A																																																																														
Object		+5V1.2A																																																																																
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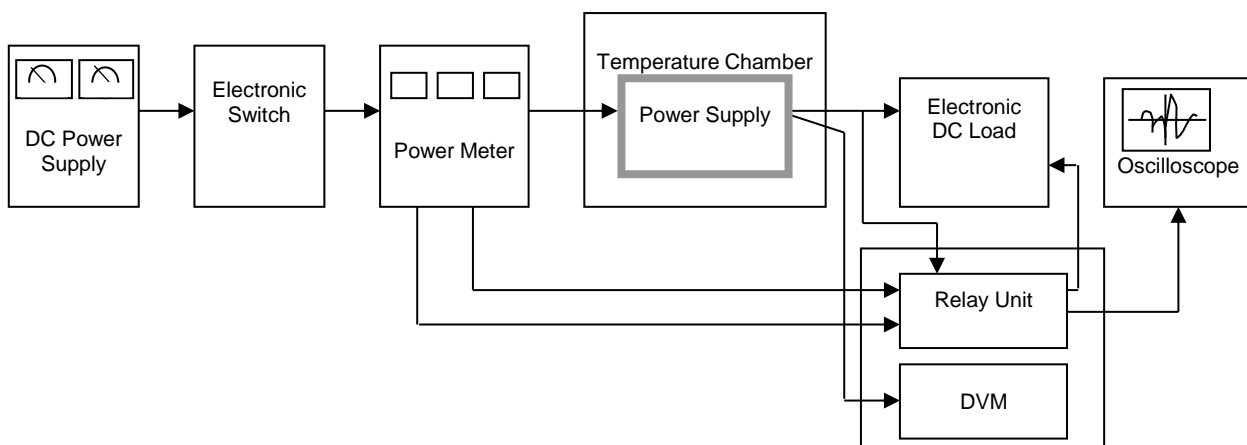


Figure A

Data Acquisition/Control Unit

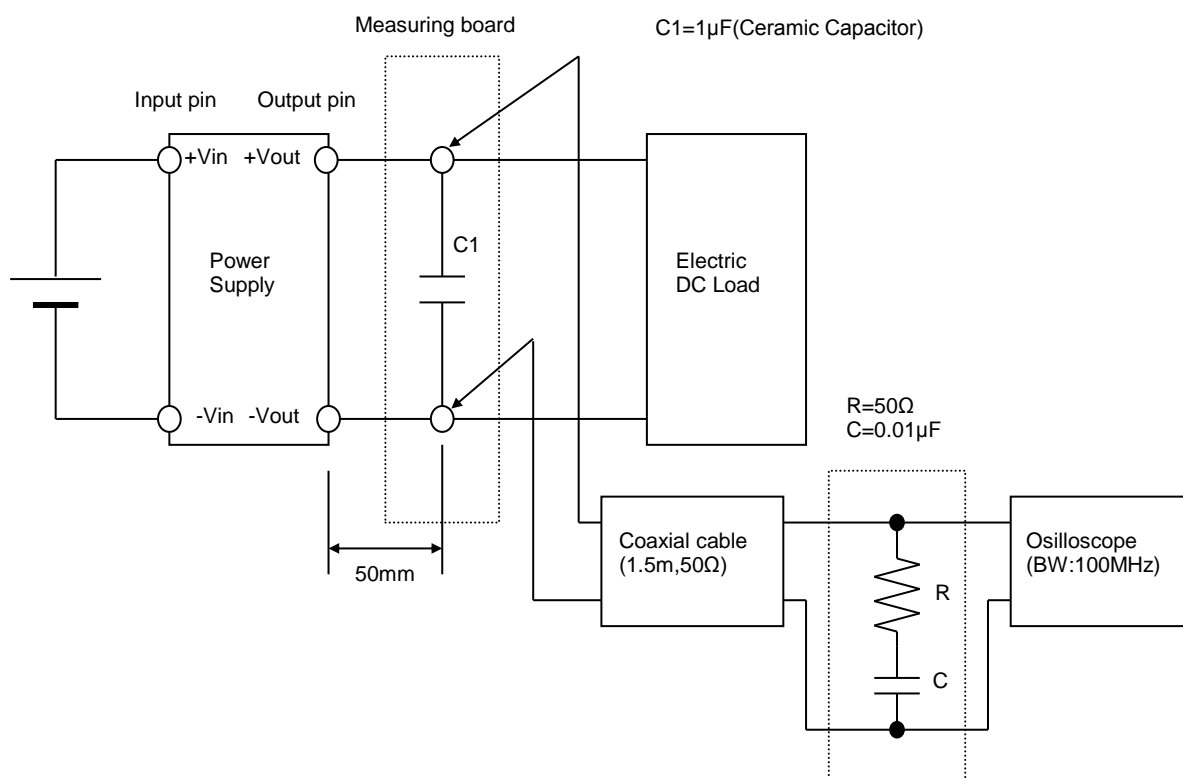


Figure B (Ripple and Ripple noise Characteristic)