

TEST DATA OF SUTS101205

Regulated DC Power Supply
February 9, 2009

Approved by : Kazunari Asano
Kazunari Asano Design Manager

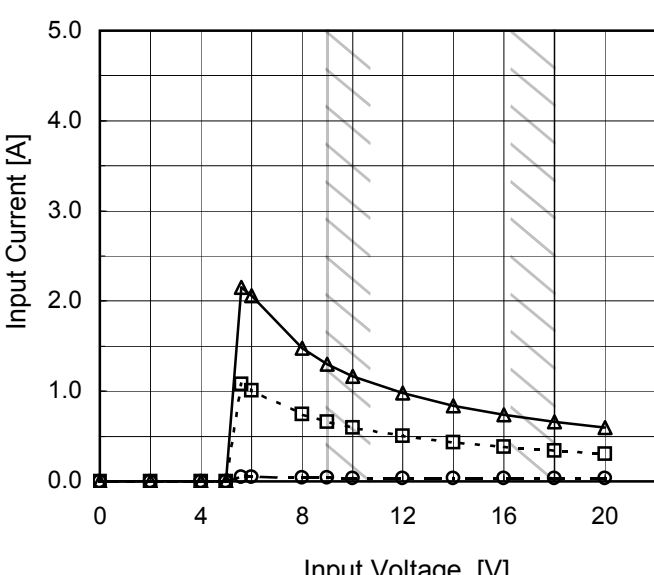
Prepared by : Sho Saito
Sho Saito Design Engineer

COSEL CO.,LTD.

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Model		SUTS101205																																																																																
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<div><div><div>—△—</div><div>---□---</div><div>-·-○-·-</div></div><div>Load 100%</div><div>Load 50%</div><div>Load 0%</div></div>  <p>Note: Slanted line shows the range of the rated input voltage.</p>		<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="3">Input Current [A]</th></tr><tr><th>Load 0%</th><th>Load 50%</th><th>Load 100%</th></tr><tr><td>0.0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>2.0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>4.0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr><tr><td>5.0</td><td>0.000</td><td>0.001</td><td>0.000</td></tr><tr><td>5.6</td><td>0.052</td><td>1.079</td><td>2.154</td></tr><tr><td>6.0</td><td>0.051</td><td>1.007</td><td>2.056</td></tr><tr><td>8.0</td><td>0.044</td><td>0.744</td><td>1.475</td></tr><tr><td>9.0</td><td>0.041</td><td>0.662</td><td>1.301</td></tr><tr><td>10.0</td><td>0.039</td><td>0.598</td><td>1.166</td></tr><tr><td>12.0</td><td>0.037</td><td>0.502</td><td>0.978</td></tr><tr><td>14.0</td><td>0.037</td><td>0.435</td><td>0.839</td></tr><tr><td>16.0</td><td>0.036</td><td>0.381</td><td>0.735</td></tr><tr><td>18.0</td><td>0.035</td><td>0.338</td><td>0.659</td></tr><tr><td>20.0</td><td>0.036</td><td>0.305</td><td>0.596</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>		Input Voltage [V]	Input Current [A]			Load 0%	Load 50%	Load 100%	0.0	0.000	0.000	0.000	2.0	0.000	0.000	0.000	4.0	0.000	0.000	0.000	5.0	0.000	0.001	0.000	5.6	0.052	1.079	2.154	6.0	0.051	1.007	2.056	8.0	0.044	0.744	1.475	9.0	0.041	0.662	1.301	10.0	0.039	0.598	1.166	12.0	0.037	0.502	0.978	14.0	0.037	0.435	0.839	16.0	0.036	0.381	0.735	18.0	0.035	0.338	0.659	20.0	0.036	0.305	0.596	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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<div><div><div>—△—</div><div>Input Volt.</div><div>9V</div></div><div><div>---□---</div><div>Input Volt.</div><div>12V</div></div><div><div>---○---</div><div>Input Volt.</div><div>18V</div></div></div> <p>Input Current [A]</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">Input Current [A]</th></tr><tr><th>Input Volt. 9[V]</th><th>Input Volt. 12[V]</th><th>Input Volt. 18[V]</th></tr><tr><td>0.0</td><td>0.042</td><td>0.038</td><td>0.036</td></tr><tr><td>0.4</td><td>0.289</td><td>0.222</td><td>0.159</td></tr><tr><td>0.8</td><td>0.535</td><td>0.409</td><td>0.281</td></tr><tr><td>1.2</td><td>0.803</td><td>0.600</td><td>0.414</td></tr><tr><td>1.6</td><td>1.042</td><td>0.783</td><td>0.534</td></tr><tr><td>2.0</td><td>1.311</td><td>0.990</td><td>0.665</td></tr><tr><td>2.2</td><td>1.450</td><td>1.070</td><td>0.722</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>		Load Current [A]	Input Current [A]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	0.0	0.042	0.038	0.036	0.4	0.289	0.222	0.159	0.8	0.535	0.409	0.281	1.2	0.803	0.600	0.414	1.6	1.042	0.783	0.534	2.0	1.311	0.990	0.665	2.2	1.450	1.070	0.722	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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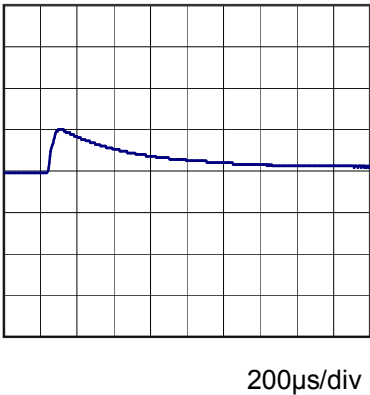
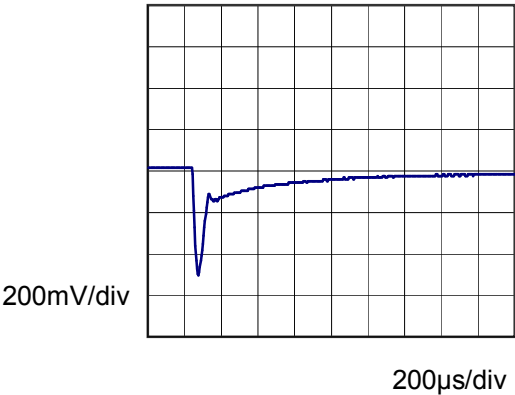


Model		SUTS101205	Temperature 25°C Testing Circuitry Figure A
Item		Dynamic Load Response	
Object		+5V2A	

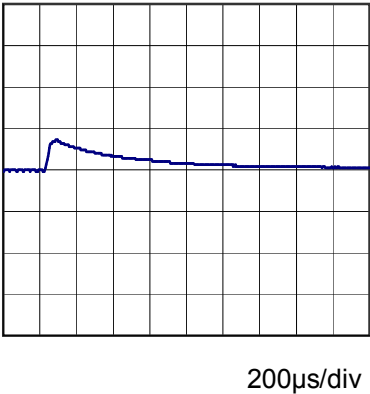
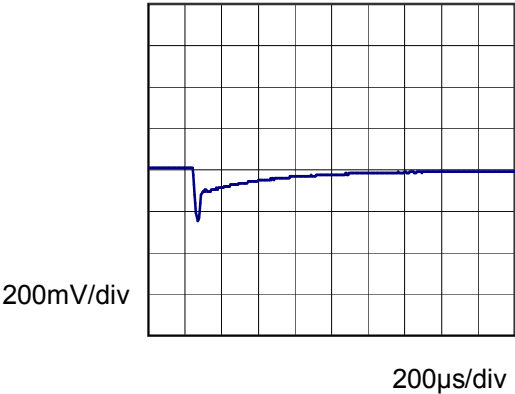
Input Volt. 12 V
Cycle 100 mS



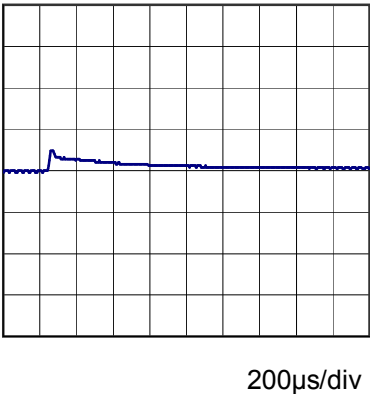
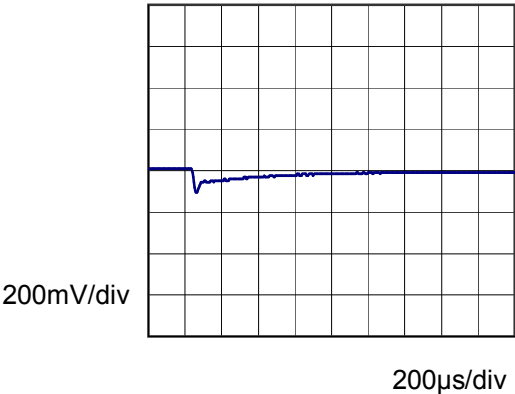
Min. Load (0A) \longleftrightarrow
Load 100% (2A)



Min. Load (0A) \longleftrightarrow
Load 50% (1A)



Load 50% (1A) \longleftrightarrow
Load 100% (2A)



Model	SUTS101205																																								
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Load Current [A]	Ripple Voltage [mV]																																								
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<p>Ripple [mVp-p]</p> <p>Fig.Complex Ripple Wave Form</p>																																									

Model	SUTS101205																																								
Item	Ripple-Noise	Temperature	25°C																																						
		Testing Circuitry	Figure B																																						
Object	+5V2A																																								
1.Graph		2.Values																																							
<div><div><div>—△—</div><div>Input Volt.</div><div>9V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>18V</div></div></div> <p>Measured by 150 MHz Oscilloscope. Ripple-Noise 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-Noise [mV]</th></tr><tr><th>Input Volt. 9 [V]</th><th>Input Volt. 18 [V]</th></tr><tr><td>0.0</td><td>6</td><td>10</td></tr><tr><td>0.4</td><td>12</td><td>13</td></tr><tr><td>0.8</td><td>19</td><td>19</td></tr><tr><td>1.2</td><td>24</td><td>23</td></tr><tr><td>1.6</td><td>30</td><td>26</td></tr><tr><td>2.0</td><td>37</td><td>29</td></tr><tr><td>2.2</td><td>40</td><td>31</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. 9 [V]	Input Volt. 18 [V]	0.0	6	10	0.4	12	13	0.8	19	19	1.2	24	23	1.6	30	26	2.0	37	29	2.2	40	31	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																								
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Model	SUTS101205																																								
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry Figure B																																							
Object	+5V2A																																								
1.Graph		2.Values																																							
<div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> <p>Ripple Voltage [mV]</p> <p>Ambient Temperature [°C]</p> <p>Input Volt. 12V</p>		<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>20</td><td>33</td></tr><tr><td>-40</td><td>20</td><td>33</td></tr><tr><td>-20</td><td>20</td><td>31</td></tr><tr><td>0</td><td>18</td><td>31</td></tr><tr><td>25</td><td>17</td><td>31</td></tr><tr><td>55</td><td>16</td><td>24</td></tr><tr><td>60</td><td>16</td><td>24</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	20	33	-40	20	33	-20	20	31	0	18	31	25	17	31	55	16	24	60	16	24	--	-	-	--	-	-	--	-	-	--	-	-
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Measured by 150 MHz Oscilloscope. Note: Slanted line shows the range of the rated ambient temperature.																																									

Model	SUTS101205																																																						
Item	Ambient Temperature Drift	Testing Circuitry Figure A																																																					
Object	+5V2A																																																						
1.Graph		2.Values																																																					
<div><div>—△— Input Volt. 9V</div><div>---□--- Input Volt. 12V</div><div>-·-○-·- Input Volt. 18V</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. 9[V]</th><th>Input Volt. 12[V]</th><th>Input Volt. 18[V]</th></tr><tr><td>-60</td><td>5.021</td><td>5.022</td><td>5.022</td></tr><tr><td>-40</td><td>5.031</td><td>5.033</td><td>5.033</td></tr><tr><td>-20</td><td>5.040</td><td>5.041</td><td>5.041</td></tr><tr><td>0</td><td>5.047</td><td>5.048</td><td>5.048</td></tr><tr><td>25</td><td>5.052</td><td>5.053</td><td>5.053</td></tr><tr><td>55</td><td>5.055</td><td>5.055</td><td>5.055</td></tr><tr><td>60</td><td>5.055</td><td>5.055</td><td>5.055</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. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	-60	5.021	5.022	5.022	-40	5.031	5.033	5.033	-20	5.040	5.041	5.041	0	5.047	5.048	5.048	25	5.052	5.053	5.053	55	5.055	5.055	5.055	60	5.055	5.055	5.055	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																						
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Note: Slanted line shows the range of the rated ambient temperature.																																																							



Model		SUTS101205	Testing Circuitry Figure A
Item		Output Voltage Accuracy	
Object		+5V2A	

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 - 55°C

Input Voltage : 9 - 18V

Load Current : 0 - 2A

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

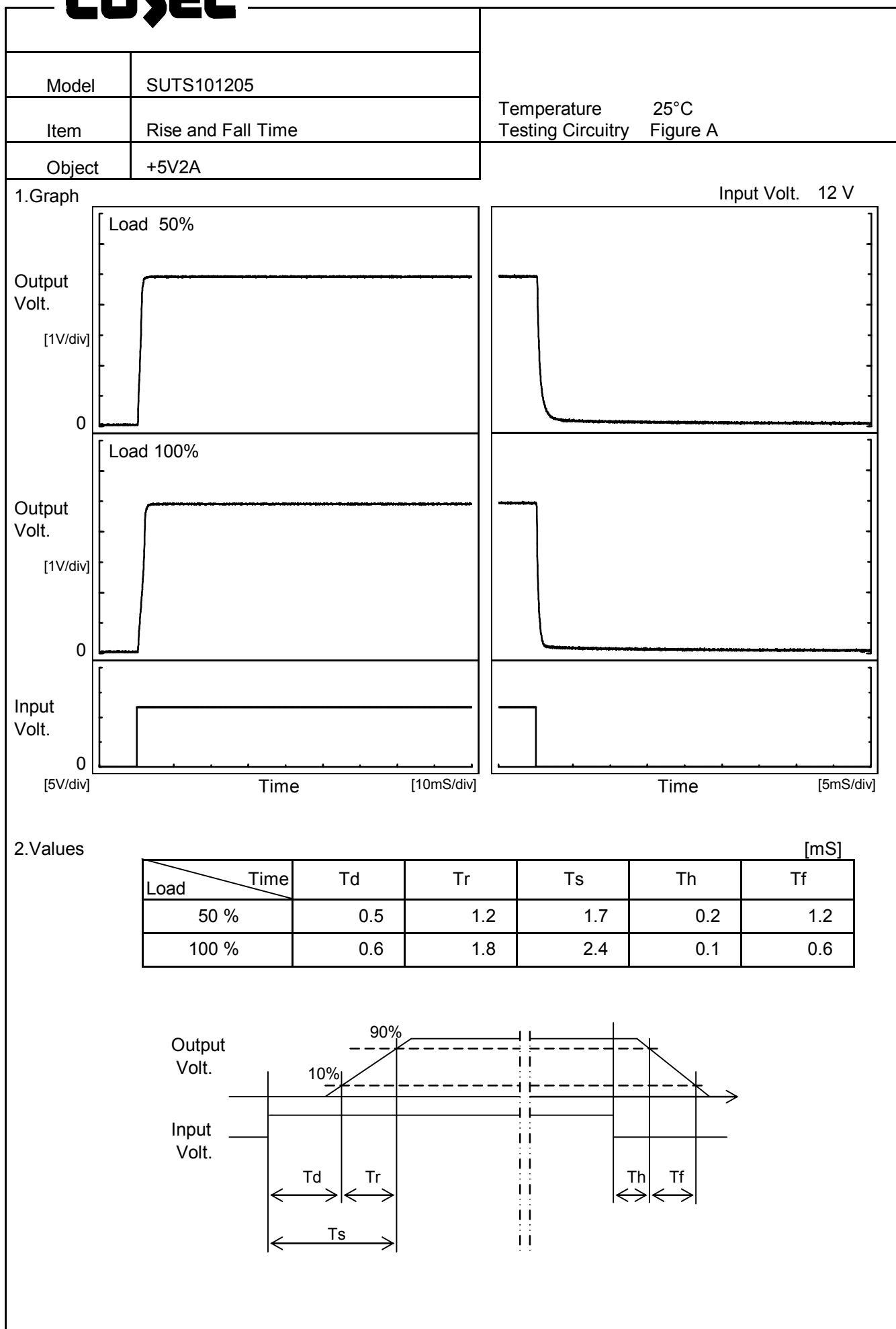
* Output Voltage Accuracy (Ration) = $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	55	18	0	5.071	±20	±0.4
Minimum Voltage	-40	9	2	5.031		



Model	SUTS101205																								
Item	Time Lapse Drift	Temperature	25°C																						
		Testing Circuitry	Figure A																						
Object	+5V2A																								
1.Graph		2.Values																							
<div><div><div><div>5.10</div><div>5.08</div><div>5.06</div><div>5.04</div><div>5.02</div><div>5.00</div><div>4.98</div><div>4.96</div></div><div><div>0</div><div>2</div><div>4</div><div>6</div><div>8</div><div>10</div></div></div><div><div>Output Voltage [V]</div><div>Time [H]</div></div><div><div>Input Volt.</div><div>12V</div></div><div><div>Load</div><div>100%</div></div></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>5.050</td></tr><tr><td>0.5</td><td>5.054</td></tr><tr><td>1.0</td><td>5.054</td></tr><tr><td>2.0</td><td>5.054</td></tr><tr><td>3.0</td><td>5.054</td></tr><tr><td>4.0</td><td>5.054</td></tr><tr><td>5.0</td><td>5.054</td></tr><tr><td>6.0</td><td>5.054</td></tr><tr><td>7.0</td><td>5.054</td></tr><tr><td>8.0</td><td>5.054</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	5.050	0.5	5.054	1.0	5.054	2.0	5.054	3.0	5.054	4.0	5.054	5.0	5.054	6.0	5.054	7.0	5.054	8.0	5.054
Time since start [H]	Output Voltage [V]																								
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7.0	5.054																								
8.0	5.054																								



Model

SUTS101205

Item

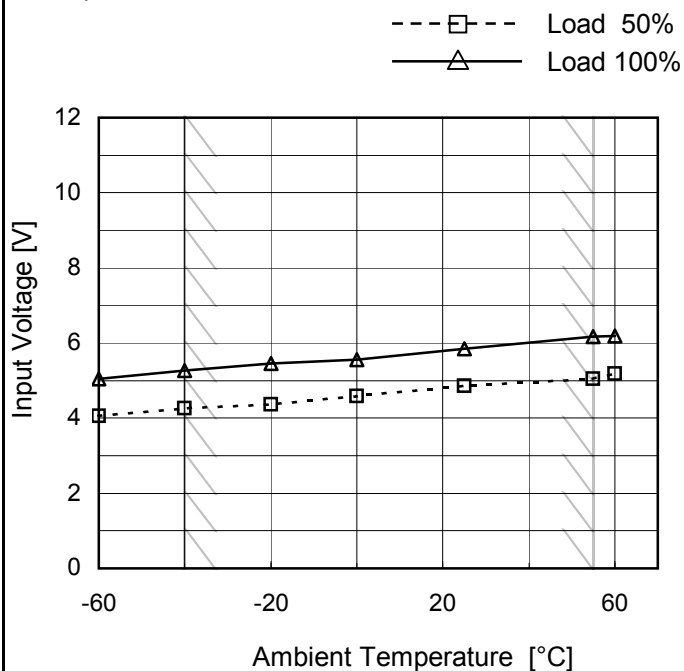
Minimum Input Voltage
for Regulated Output Voltage

Object

+5V2A

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	4.1	5.1
-40	4.3	5.3
-20	4.4	5.5
0	4.6	5.6
25	4.9	5.9
55	5.1	6.2
60	5.2	6.2
--	-	-
--	-	-
--	-	-
--	-	-

Model	SUTS101205																																																									
Item	Overcurrent Protection	Temperature	25°C																																																							
Object	+5V2A	Testing Circuitry	Figure A																																																							
1.Graph		2.Values																																																								
<div><div><div></div>Input Volt.9V</div><div><div></div>Input Volt.12V</div><div><div></div>Input Volt.18V</div></div> <p>Note: Slanted line shows the range of the rated load current.</p>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 9[V]</th><th>Input Volt. 12[V]</th><th>Input Volt. 18[V]</th></tr><tr><td>5.00</td><td>2.01</td><td>2.00</td><td>2.00</td></tr><tr><td>4.75</td><td>2.68</td><td>2.88</td><td>3.06</td></tr><tr><td>4.50</td><td>2.69</td><td>2.90</td><td>3.06</td></tr><tr><td>4.00</td><td>2.66</td><td>2.85</td><td>2.99</td></tr><tr><td>3.50</td><td>2.62</td><td>2.80</td><td>2.90</td></tr><tr><td>3.00</td><td>2.61</td><td>2.75</td><td>2.79</td></tr><tr><td>2.50</td><td>2.59</td><td>2.71</td><td>2.71</td></tr><tr><td>2.00</td><td>2.58</td><td>2.68</td><td>2.64</td></tr><tr><td>1.50</td><td>2.60</td><td>2.66</td><td>2.57</td></tr><tr><td>1.00</td><td>2.66</td><td>2.68</td><td>2.46</td></tr><tr><td>0.50</td><td>2.73</td><td>2.68</td><td>2.51</td></tr><tr><td>0.00</td><td>3.29</td><td>3.29</td><td>3.48</td></tr></table>		Output Voltage [V]	Load Current [A]			Input Volt. 9[V]	Input Volt. 12[V]	Input Volt. 18[V]	5.00	2.01	2.00	2.00	4.75	2.68	2.88	3.06	4.50	2.69	2.90	3.06	4.00	2.66	2.85	2.99	3.50	2.62	2.80	2.90	3.00	2.61	2.75	2.79	2.50	2.59	2.71	2.71	2.00	2.58	2.68	2.64	1.50	2.60	2.66	2.57	1.00	2.66	2.68	2.46	0.50	2.73	2.68	2.51	0.00	3.29	3.29	3.48
Output Voltage [V]	Load Current [A]																																																									
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Figure A

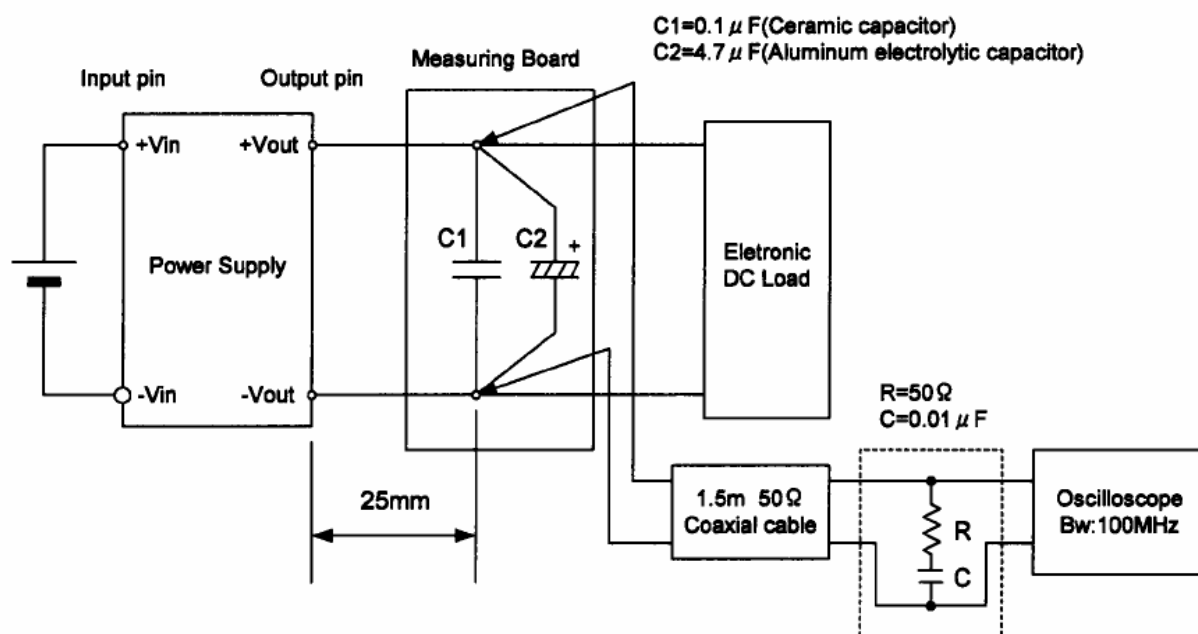


Figure B (Ripple and Ripple noise Characteristic)