

# TEST DATA OF SUTS30515

Regulated DC Power Supply  
February 13, 2009

Approved by : Kazunari Asano  
Kazunari Asano Design Manager

Prepared by : Sho Saito  
Sho Saito Design Engineer

**COSEL CO.,LTD.**

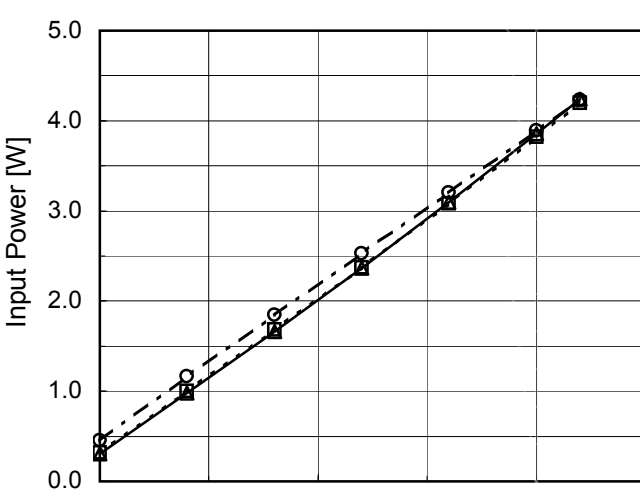
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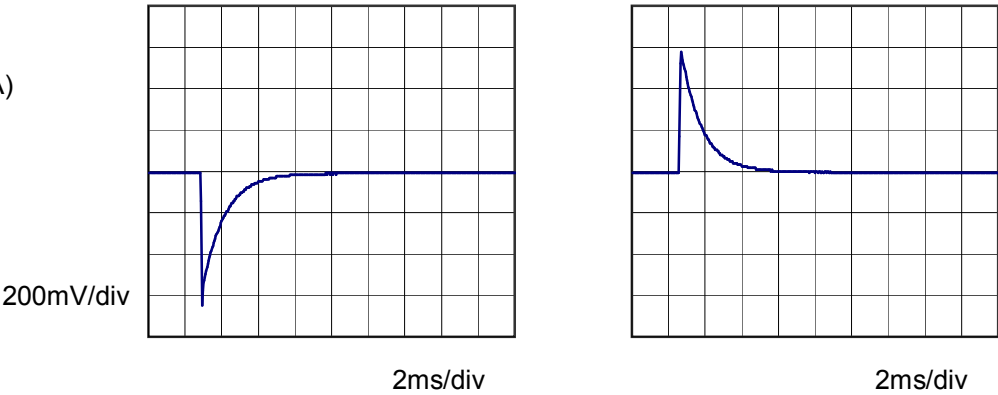


Model		SUTS30515	Temperature 25°C Testing Circuitry Figure A
Item		Dynamic Load Response	
Object		+15V0.2A	

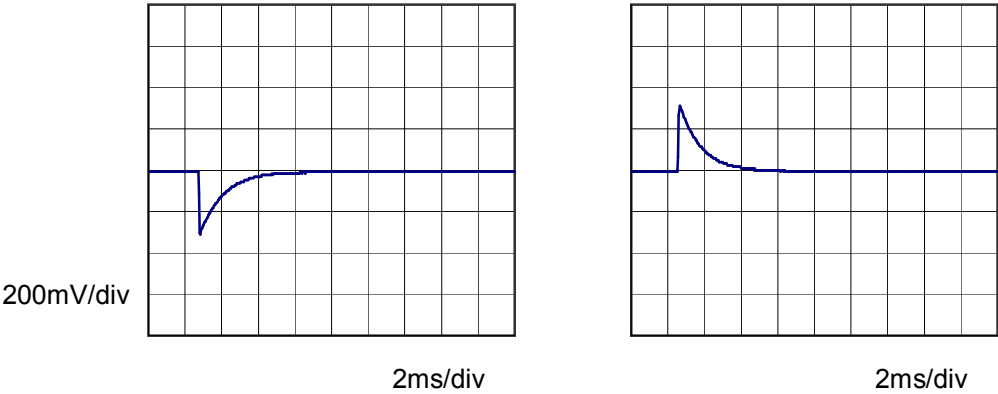
Input Volt. 5 V  
Cycle 100 mS



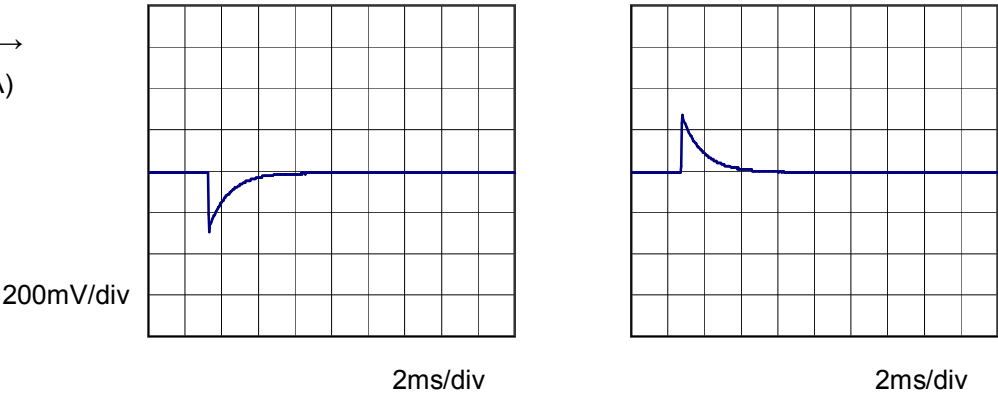
Min. Load (0A)  $\longleftrightarrow$   
Load 100% (0.2A)



Min. Load (0A)  $\longleftrightarrow$   
Load 50% (0.1A)



Load 50% (0.1A)  $\longleftrightarrow$   
Load 100% (0.2A)



Model	SUTS30515																																								
Item	Ripple Voltage (by Load Current)	Temperature	25°C																																						
		Testing Circuitry	Figure B																																						
Object	+15V0.2A																																								
1.Graph		2.Values																																							
<div><div><div>—△— Input Volt. 9V</div><div>-·-○-·- Input Volt. 18V</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. 9 [V]</th><th>Input Volt. 18 [V]</th></tr><tr><td>0.00</td><td>4</td><td>4</td></tr><tr><td>0.04</td><td>5</td><td>5</td></tr><tr><td>0.08</td><td>6</td><td>6</td></tr><tr><td>0.12</td><td>7</td><td>7</td></tr><tr><td>0.16</td><td>8</td><td>7</td></tr><tr><td>0.20</td><td>9</td><td>8</td></tr><tr><td>0.22</td><td>11</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><tr><td>--</td><td>-</td><td>-</td></tr></table>		Load Current [A]	Ripple Voltage [mV]		Input Volt. 9 [V]	Input Volt. 18 [V]	0.00	4	4	0.04	5	5	0.08	6	6	0.12	7	7	0.16	8	7	0.20	9	8	0.22	11	8	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																								
	Input Volt. 9 [V]	Input Volt. 18 [V]																																							
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Model	SUTS30515																																								
Item	Ripple-Noise	Temperature	25°C																																						
Object	+15V0.2A	Testing Circuitry	Figure B																																						
1.Graph		2.Values																																							
<div><div><div>—△— Input Volt. 9V</div><div>- -○- - Input Volt. 18V</div></div><p>Measured by 100 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></div>		<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>0.00</td><td>5</td><td>5</td></tr><tr><td>0.04</td><td>6</td><td>6</td></tr><tr><td>0.08</td><td>8</td><td>7</td></tr><tr><td>0.12</td><td>10</td><td>9</td></tr><tr><td>0.16</td><td>12</td><td>10</td></tr><tr><td>0.20</td><td>14</td><td>11</td></tr><tr><td>0.22</td><td>15</td><td>12</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]	0.00	5	5	0.04	6	6	0.08	8	7	0.12	10	9	0.16	12	10	0.20	14	11	0.22	15	12	--	-	-	--	-	-	--	-	-	--	-	-
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<div><div><div><div></div><div></div></div><div>Ripple Noise[mVp-p]</div></div><p>Fig.Complex Ripple Noise Wave Form</p></div>																																									

Model	SUTS30515																																								
Item	Ripple Voltage (by Ambient Temp.)	Testing Circuitry    Figure B																																							
Object	+15V0.2A																																								
1.Graph		2.Values																																							
<div><div>---□---    Load 50%</div><div>—△—    Load 100%</div></div> <p>Measured by 100 MHz Oscilloscope. Note: Slanted line shows the range of the rated ambient temperature.</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>4</td><td>6</td></tr><tr><td>-40</td><td>3</td><td>6</td></tr><tr><td>-20</td><td>3</td><td>6</td></tr><tr><td>0</td><td>3</td><td>6</td></tr><tr><td>25</td><td>3</td><td>5</td></tr><tr><td>55</td><td>2</td><td>5</td></tr><tr><td>60</td><td>2</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	4	6	-40	3	6	-20	3	6	0	3	6	25	3	5	55	2	5	60	2	4	--	-	-	--	-	-	--	-	-	--	-	-
Ambient Temperature [°C]	Ripple Voltage [mV]																																								
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Model	SUTS30515																																																						
Item	Ambient Temperature Drift	Testing Circuitry    Figure A																																																					
Object	+15V0.2A																																																						
1.Graph		2.Values																																																					
<div><div>—△—</div>Input Volt.    4.5V</div> <div><div>---□---</div>Input Volt.    5V</div> <div><div>-·-○-·-</div>Input Volt.    9V</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. 4.5[V]</th><th>Input Volt. 5[V]</th><th>Input Volt. 9[V]</th></tr><tr><td>-60</td><td>14.996</td><td>14.997</td><td>14.998</td></tr><tr><td>-40</td><td>15.022</td><td>15.023</td><td>15.023</td></tr><tr><td>-20</td><td>15.043</td><td>15.043</td><td>15.044</td></tr><tr><td>0</td><td>15.058</td><td>15.059</td><td>15.059</td></tr><tr><td>25</td><td>15.070</td><td>15.070</td><td>15.070</td></tr><tr><td>55</td><td>15.074</td><td>15.074</td><td>15.074</td></tr><tr><td>60</td><td>15.074</td><td>15.074</td><td>15.074</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. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]	-60	14.996	14.997	14.998	-40	15.022	15.023	15.023	-20	15.043	15.043	15.044	0	15.058	15.059	15.059	25	15.070	15.070	15.070	55	15.074	15.074	15.074	60	15.074	15.074	15.074	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Model		SUTS30515	Testing Circuitry Figure A
Item		Output Voltage Accuracy	
Object		+15V0.2A	

### 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 - 55°C

Input Voltage : 4.5 - 9V

Load Current : 0 - 0.2A

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

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

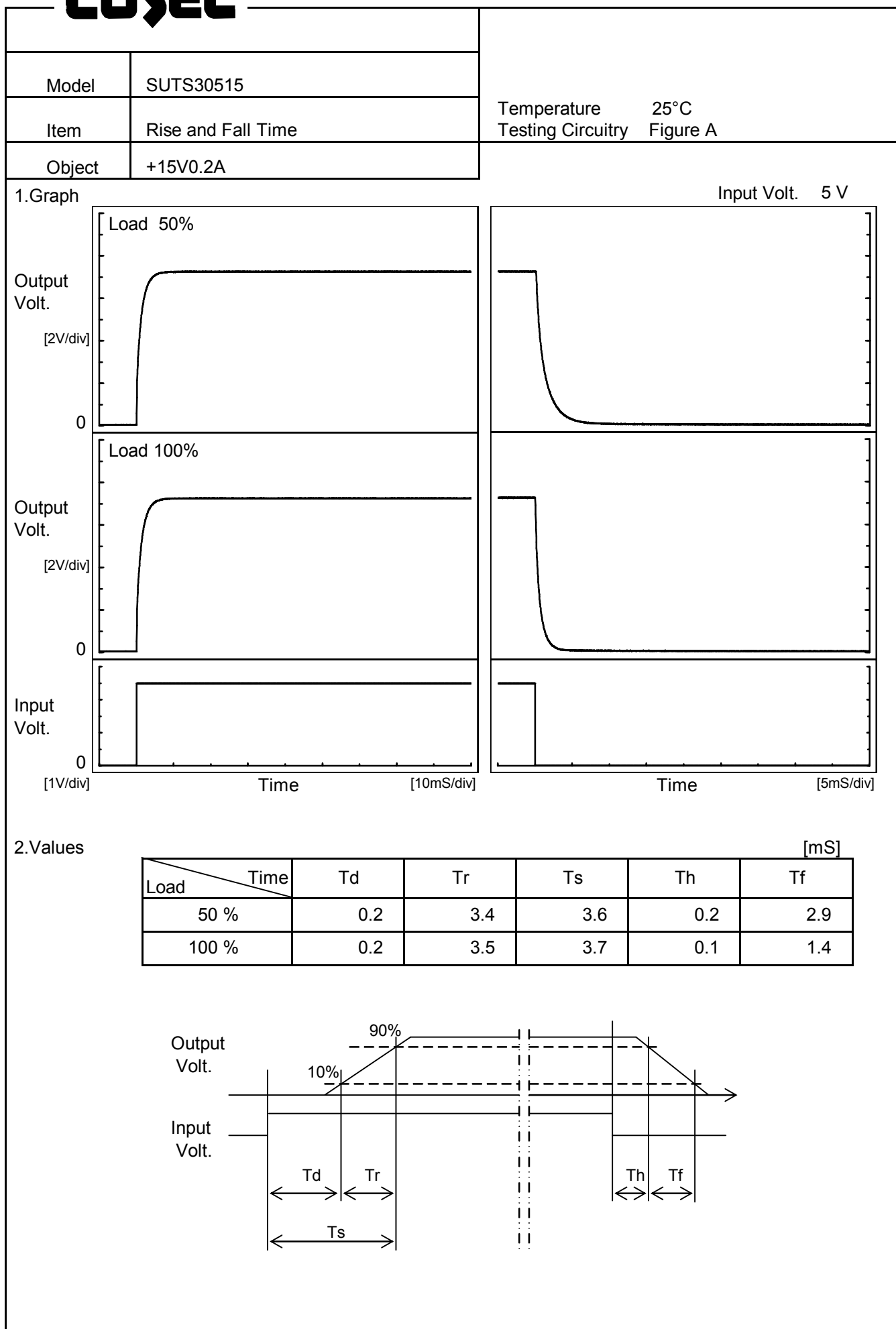
### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ratio [%]
Maximum Voltage	55	5	0	15.078	±28	±0.2
Minimum Voltage	-40	4.5	0.2	15.022		



Model	SUTS30515		
Item	Time Lapse Drift	Temperature	25°C
Object	+15V0.2A	Testing Circuitry	Figure A
1.Graph		2.Values	
<div><div><div>Output Voltage [V]</div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></di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<div><div><div></div><div></div><div></div></div><div><div>Input Volt. 4.5V</div><div>Input Volt. 5V</div><div>Input Volt. 9V</div></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. 4.5[V]</th><th>Input Volt. 5[V]</th><th>Input Volt. 9[V]</th></tr><tr><td>15.0</td><td>0.20</td><td>0.20</td><td>0.20</td></tr><tr><td>14.3</td><td>0.35</td><td>0.36</td><td>0.37</td></tr><tr><td>13.5</td><td>0.36</td><td>0.37</td><td>0.37</td></tr><tr><td>12.0</td><td>0.38</td><td>0.39</td><td>0.38</td></tr><tr><td>10.5</td><td>0.41</td><td>0.41</td><td>0.39</td></tr><tr><td>9.0</td><td>0.43</td><td>0.43</td><td>0.41</td></tr><tr><td>7.5</td><td>0.45</td><td>0.44</td><td>0.41</td></tr><tr><td>6.0</td><td>0.46</td><td>0.46</td><td>0.42</td></tr><tr><td>4.5</td><td>0.47</td><td>0.46</td><td>0.41</td></tr><tr><td>3.0</td><td>0.47</td><td>0.45</td><td>0.40</td></tr><tr><td>1.5</td><td>0.43</td><td>0.41</td><td>0.37</td></tr><tr><td>0.0</td><td>0.38</td><td>0.38</td><td>0.37</td></tr></table>		Output Voltage [V]	Load Current [A]			Input Volt. 4.5[V]	Input Volt. 5[V]	Input Volt. 9[V]	15.0	0.20	0.20	0.20	14.3	0.35	0.36	0.37	13.5	0.36	0.37	0.37	12.0	0.38	0.39	0.38	10.5	0.41	0.41	0.39	9.0	0.43	0.43	0.41	7.5	0.45	0.44	0.41	6.0	0.46	0.46	0.42	4.5	0.47	0.46	0.41	3.0	0.47	0.45	0.40	1.5	0.43	0.41	0.37	0.0	0.38	0.38	0.37
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Figure A

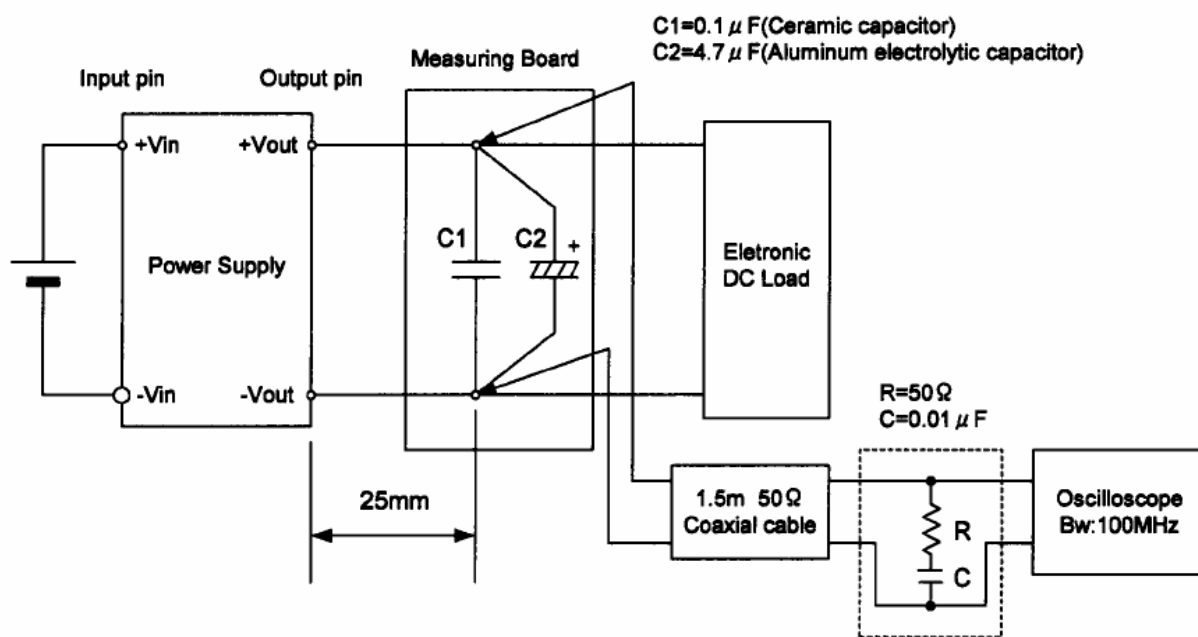


Figure B (Ripple and Ripple noise Characteristic)