



TEST DATA OF SUCS32412

Regulated DC Power Supply
Mar 23, 2005

Approved by : Tetsuo Sugimori
Tetsuo Sugimori Design Manager

Prepared by : Hayato Nakatsubo
Hayato Nakatsubo Design Engineer

COSEL CO.,LTD.

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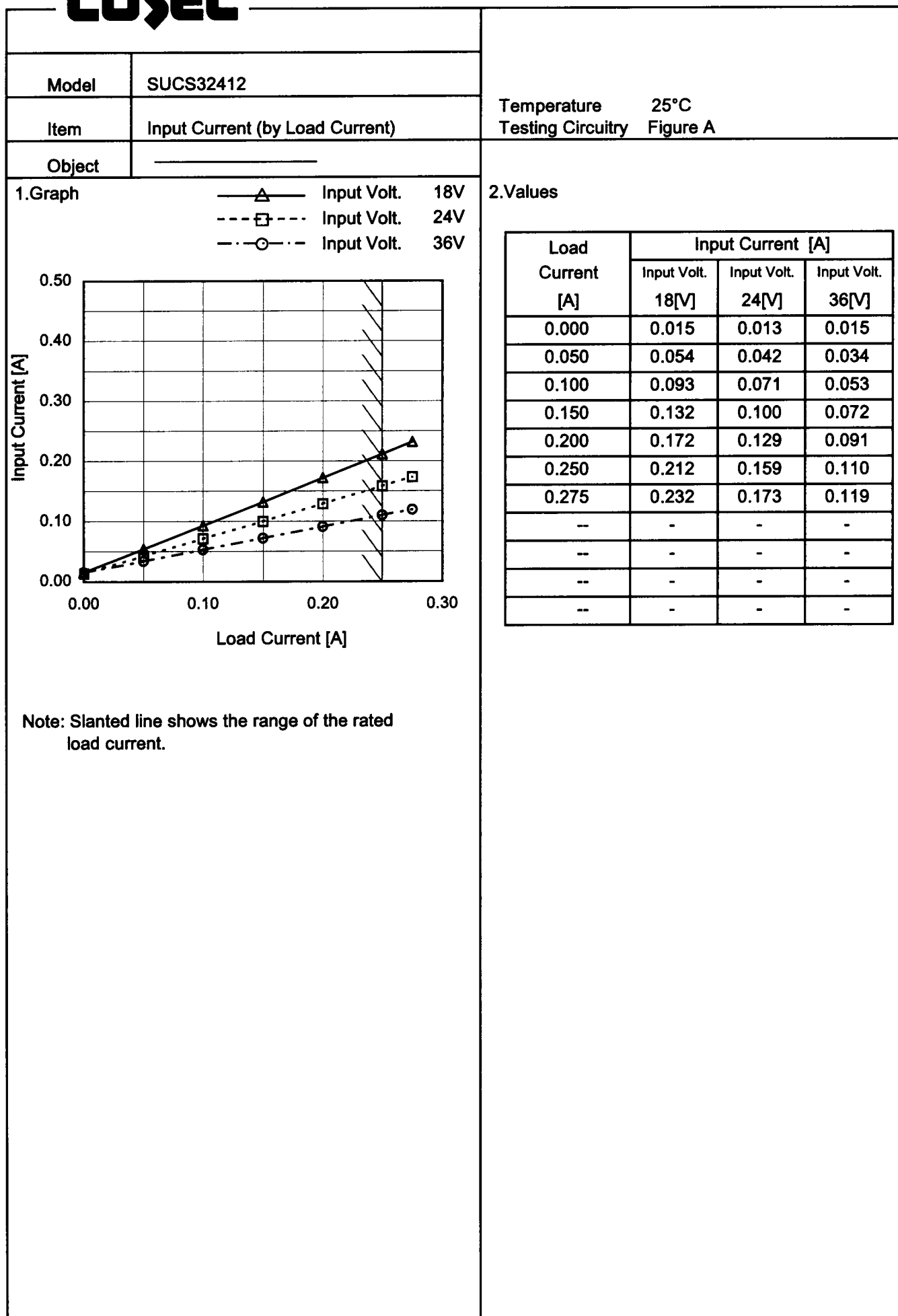
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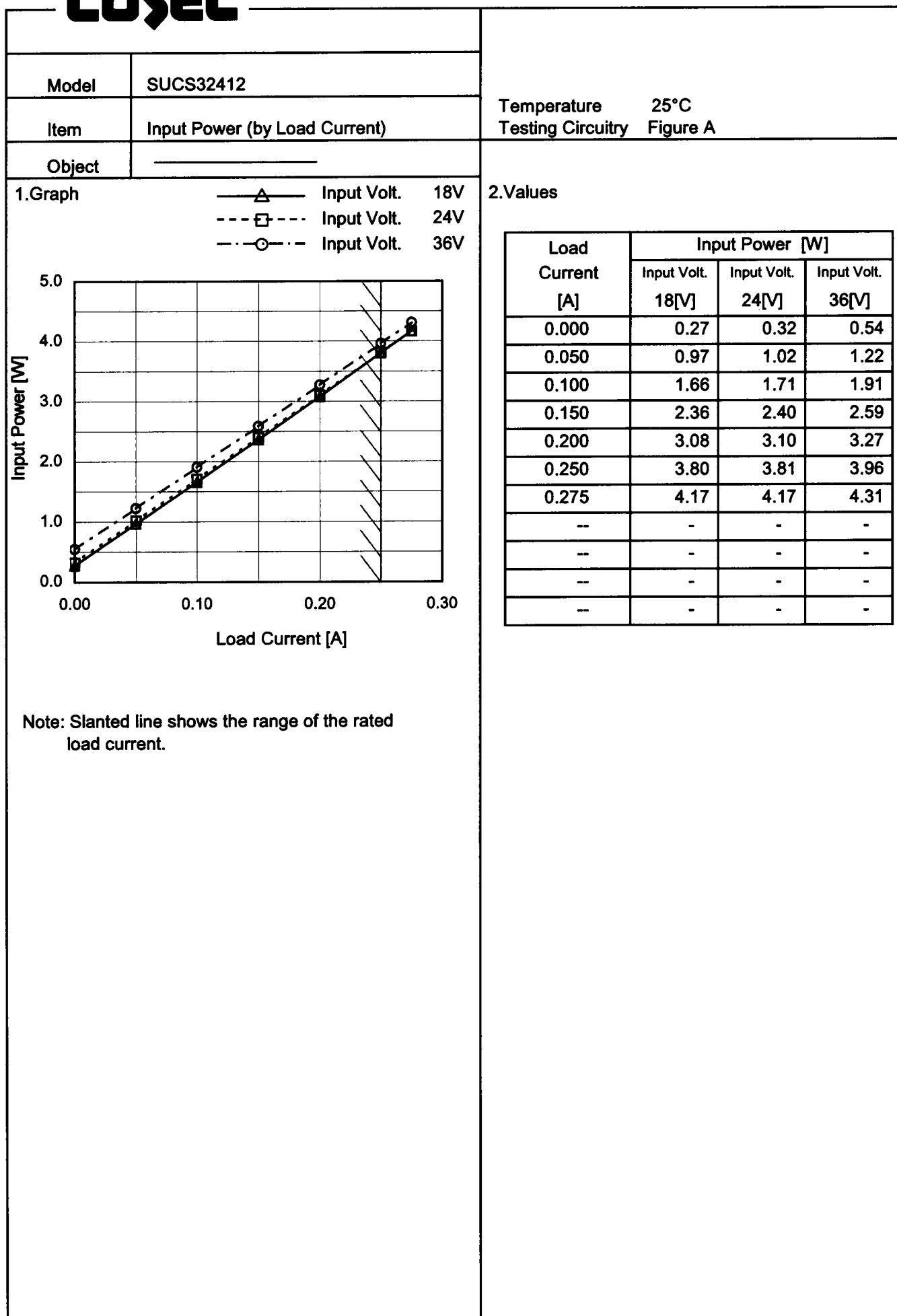
Model		SUCS32412	
Item		Input Current (by Input Voltage)	
Object			
1.Graph		2.Values	

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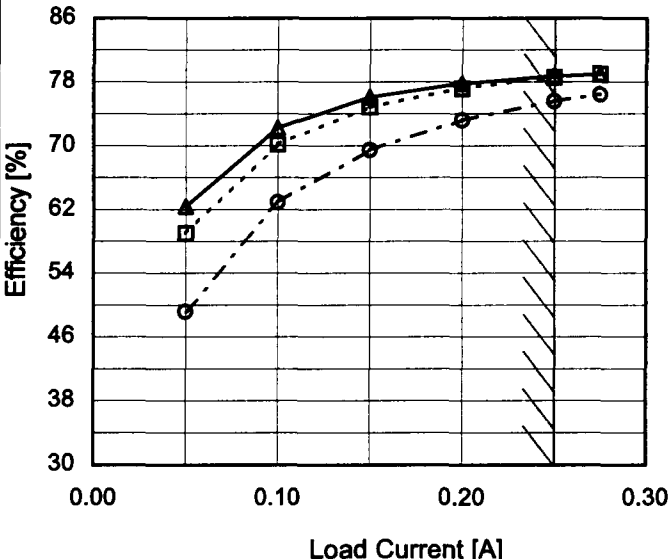
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Model	SUCS32412																																		
Item	Efficiency (by Input Voltage)	Temperature	25°C																																
Object		Testing Circuitry	Figure A																																
1.Graph		2.Values																																	
<div><div>---□--- Load 50%</div><div>—△— Load 100%</div></div> <p>Efficiency [%]</p> <p>Input Voltage [V]</p> <p>Note: Slanted line shows the range of the rated input voltage.</p>		<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Efficiency [%]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>16</td><td>75.0</td><td>78.5</td></tr><tr><td>18</td><td>74.6</td><td>78.8</td></tr><tr><td>20</td><td>74.1</td><td>78.9</td></tr><tr><td>24</td><td>73.0</td><td>78.6</td></tr><tr><td>30</td><td>70.4</td><td>77.5</td></tr><tr><td>36</td><td>66.8</td><td>75.7</td></tr><tr><td>40</td><td>63.9</td><td>74.0</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	16	75.0	78.5	18	74.6	78.8	20	74.1	78.9	24	73.0	78.6	30	70.4	77.5	36	66.8	75.7	40	63.9	74.0	--	-	-	--	-	-
Input Voltage [V]	Efficiency [%]																																		
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16	75.0	78.5																																	
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Model		SUCS32412		Temperature 25°C																																																				
Item		Efficiency (by Load Current)		Testing Circuitry Figure A																																																				
Object																																																								
1.Graph		<div><div>—△—</div>Input Volt. 18V</div> <div><div>- - □ - -</div>Input Volt. 24V</div> <div><div>- - ○ - -</div>Input Volt. 36V</div>  <p>Efficiency [%]</p> <p>Load Current [A]</p>		2.Values																																																				
		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Efficiency [%]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>0.000</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.050</td><td>62.4</td><td>59.1</td><td>49.2</td></tr><tr><td>0.100</td><td>72.3</td><td>70.2</td><td>62.9</td></tr><tr><td>0.150</td><td>76.1</td><td>74.8</td><td>69.5</td></tr><tr><td>0.200</td><td>77.8</td><td>77.2</td><td>73.2</td></tr><tr><td>0.250</td><td>78.8</td><td>78.6</td><td>75.6</td></tr><tr><td>0.275</td><td>78.9</td><td>79.0</td><td>76.4</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]	Efficiency [%]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	0.000	-	-	-	0.050	62.4	59.1	49.2	0.100	72.3	70.2	62.9	0.150	76.1	74.8	69.5	0.200	77.8	77.2	73.2	0.250	78.8	78.6	75.6	0.275	78.9	79.0	76.4	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Efficiency [%]																																																							
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Note: Slanted line shows the range of the rated load current.																																																								

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Model	SUCS32412	Temperature 25°C Testing Circuitry Figure A																																	
Item	Line Regulation																																		
Object	+12V0.25A																																		
1.Graph		2.Values																																	
<div><div><div>-----□----- Load 50%</div><div>-----△----- Load 100%</div></div><div>Note: Slanted line shows the range of the rated input voltage.</div></div>		<table><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><tr><td>16</td><td>11.949</td><td>11.948</td></tr><tr><td>18</td><td>11.949</td><td>11.948</td></tr><tr><td>20</td><td>11.949</td><td>11.948</td></tr><tr><td>24</td><td>11.949</td><td>11.948</td></tr><tr><td>30</td><td>11.949</td><td>11.948</td></tr><tr><td>36</td><td>11.949</td><td>11.947</td></tr><tr><td>40</td><td>11.949</td><td>11.947</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	16	11.949	11.948	18	11.949	11.948	20	11.949	11.948	24	11.949	11.948	30	11.949	11.948	36	11.949	11.947	40	11.949	11.947	--	-	-	--	-	-
Input Voltage [V]	Output Voltage [V]																																		
	Load 50%	Load 100%																																	
16	11.949	11.948																																	
18	11.949	11.948																																	
20	11.949	11.948																																	
24	11.949	11.948																																	
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40	11.949	11.947																																	
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Model SUCS32412

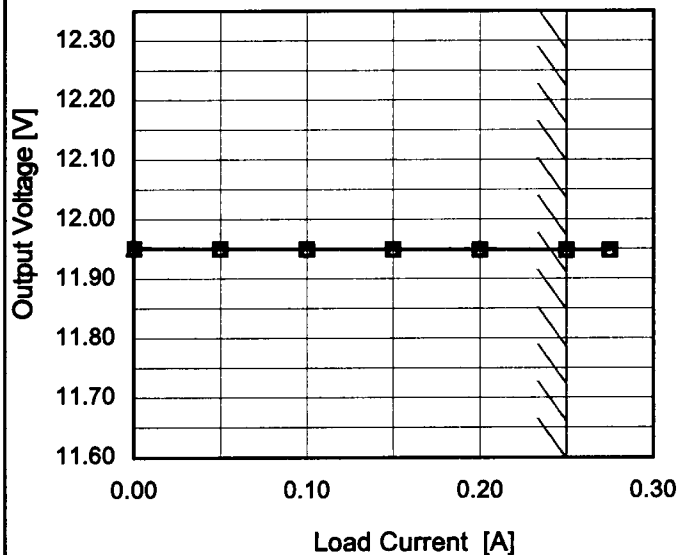
Item Load Regulation

Object +12V0.25A

 Temperature 25°C
 Testing Circuitry Figure A

1.Graph

—△— Input Volt. 18V
 ---□--- Input Volt. 24V
 -·-○-·- Input Volt. 36V



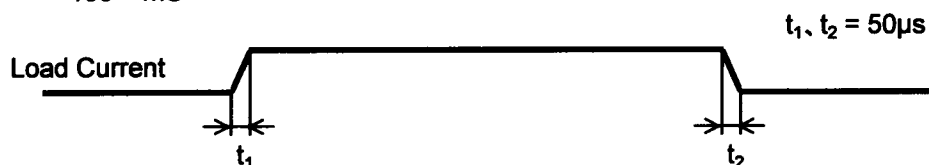
2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.000	11.951	11.951	11.952
0.050	11.950	11.950	11.950
0.100	11.950	11.950	11.950
0.150	11.949	11.949	11.949
0.200	11.949	11.949	11.949
0.250	11.948	11.948	11.948
0.275	11.948	11.948	11.948
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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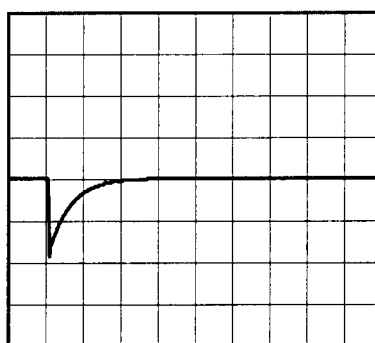
Model	SUCS32412	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+12V0.25A		

Input Volt. 24 V
Cycle 100 mS



Min. Load (0A) \longleftrightarrow
Load 100% (0.25A)

200mV/div



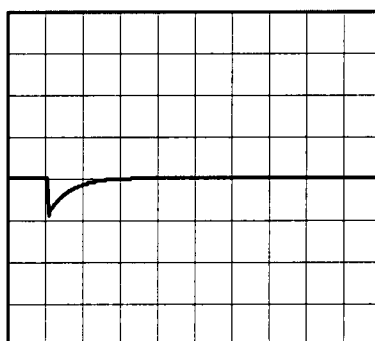
2ms/div



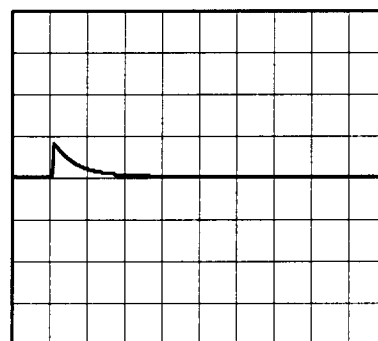
2ms/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.125A)

200mV/div



2ms/div



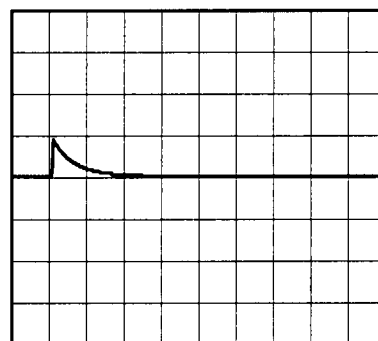
2ms/div

Load 50% (0.125A) \longleftrightarrow
Load 100% (0.25A)

200mV/div



2ms/div



2ms/div

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Model	SUCS32412																																						
Item	Ripple Voltage (by Load Current)	Temperature	25°C																																				
Object	+12V0.25A	Testing Circuitry	Figure B																																				
1.Graph		2.Values																																					
<div><div><div><div><div></div><div>—△—</div><div>Input Volt. 18V</div></div><div><div>---○---</div><div>Input Volt. 36V</div></div></div><div><table><thead><tr><th>Load Current [A]</th><th>Input Volt. 18 [V] [mV]</th><th>Input Volt. 36 [V] [mV]</th></tr></thead><tbody><tr><td>0.000</td><td>1</td><td>1</td></tr><tr><td>0.050</td><td>2</td><td>1</td></tr><tr><td>0.100</td><td>3</td><td>1</td></tr><tr><td>0.150</td><td>5</td><td>2</td></tr><tr><td>0.200</td><td>6</td><td>3</td></tr><tr><td>0.250</td><td>7</td><td>4</td></tr><tr><td>0.275</td><td>8</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></tbody></table></div></div></div>		Load Current [A]	Input Volt. 18 [V] [mV]	Input Volt. 36 [V] [mV]	0.000	1	1	0.050	2	1	0.100	3	1	0.150	5	2	0.200	6	3	0.250	7	4	0.275	8	5	--	-	-	--	-	-	--	-	-	--	-	-		
Load Current [A]	Input Volt. 18 [V] [mV]	Input Volt. 36 [V] [mV]																																					
0.000	1	1																																					
0.050	2	1																																					
0.100	3	1																																					
0.150	5	2																																					
0.200	6	3																																					
0.250	7	4																																					
0.275	8	5																																					
--	-	-																																					
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<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> <div><div><div><div></div><div>Ripple [mVp-p]</div></div><div></div></div><div><div>Fig.Complex Ripple Wave Form</div></div></div> <td colspan="2"></td>																																							

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Model	SUCS32412	Temperature 25°C Testing Circuitry Figure B	
Item	Ripple-Noise		
Object	+12V0.25A		
1.Graph		2.Values	
<div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <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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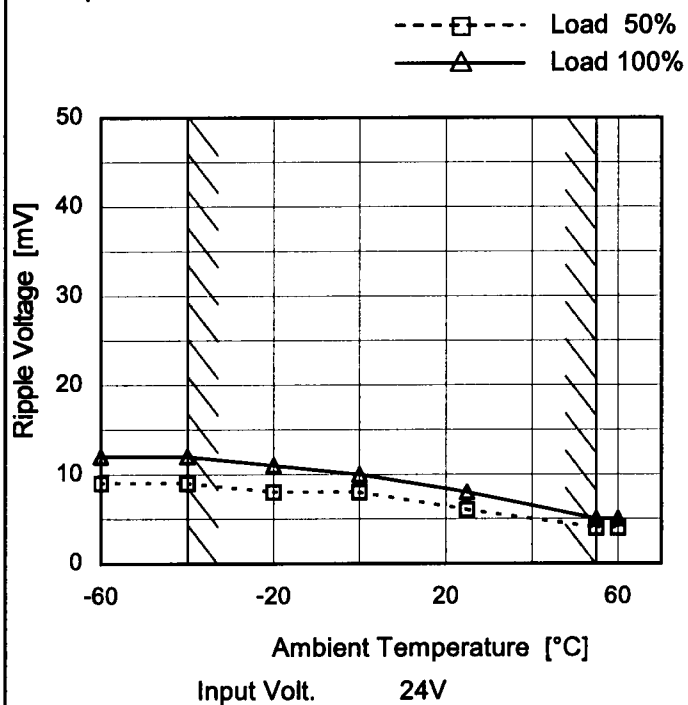
Model SUCS32412

Item Ripple Voltage (by Ambient Temp.)

Object +12V0.25A

Testing Circuitry Figure B

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	9	12
-40	9	12
-20	8	11
0	8	10
25	6	8
55	4	5
60	4	5
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model		SUCS32412																																																				
Item		Ambient Temperature Drift																																																				
Object		+12V0.25A																																																				
1.Graph		<div><div><div>—△—</div><div>Input Volt.</div><div>18V</div></div><div><div>---□---</div><div>Input Volt.</div><div>24V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>36V</div></div></div> <div><p>Output Voltage [V]</p><p>Ambient Temperature [°C]</p><p>Load 100%</p></div>																																																				
2.Values		<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>11.924</td><td>11.925</td><td>11.926</td></tr><tr><td>-40</td><td>11.939</td><td>11.940</td><td>11.941</td></tr><tr><td>-20</td><td>11.948</td><td>11.949</td><td>11.949</td></tr><tr><td>0</td><td>11.952</td><td>11.952</td><td>11.952</td></tr><tr><td>25</td><td>11.949</td><td>11.949</td><td>11.949</td></tr><tr><td>55</td><td>11.937</td><td>11.936</td><td>11.935</td></tr><tr><td>60</td><td>11.933</td><td>11.932</td><td>11.932</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	11.924	11.925	11.926	-40	11.939	11.940	11.941	-20	11.948	11.949	11.949	0	11.952	11.952	11.952	25	11.949	11.949	11.949	55	11.937	11.936	11.935	60	11.933	11.932	11.932	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Note: Slanted line shows the range of the rated ambient temperature.																																																						



		Testing Circuitry Figure A
Model	SUCS32412	
Item	Output Voltage Accuracy	
Object	+12V0.25A	

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 : 18 - 36V

Load Current : 0 - 0.25A

* 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	0	36	0	11.955	±10	±0.1
Minimum Voltage	55	36	0.25	11.935		

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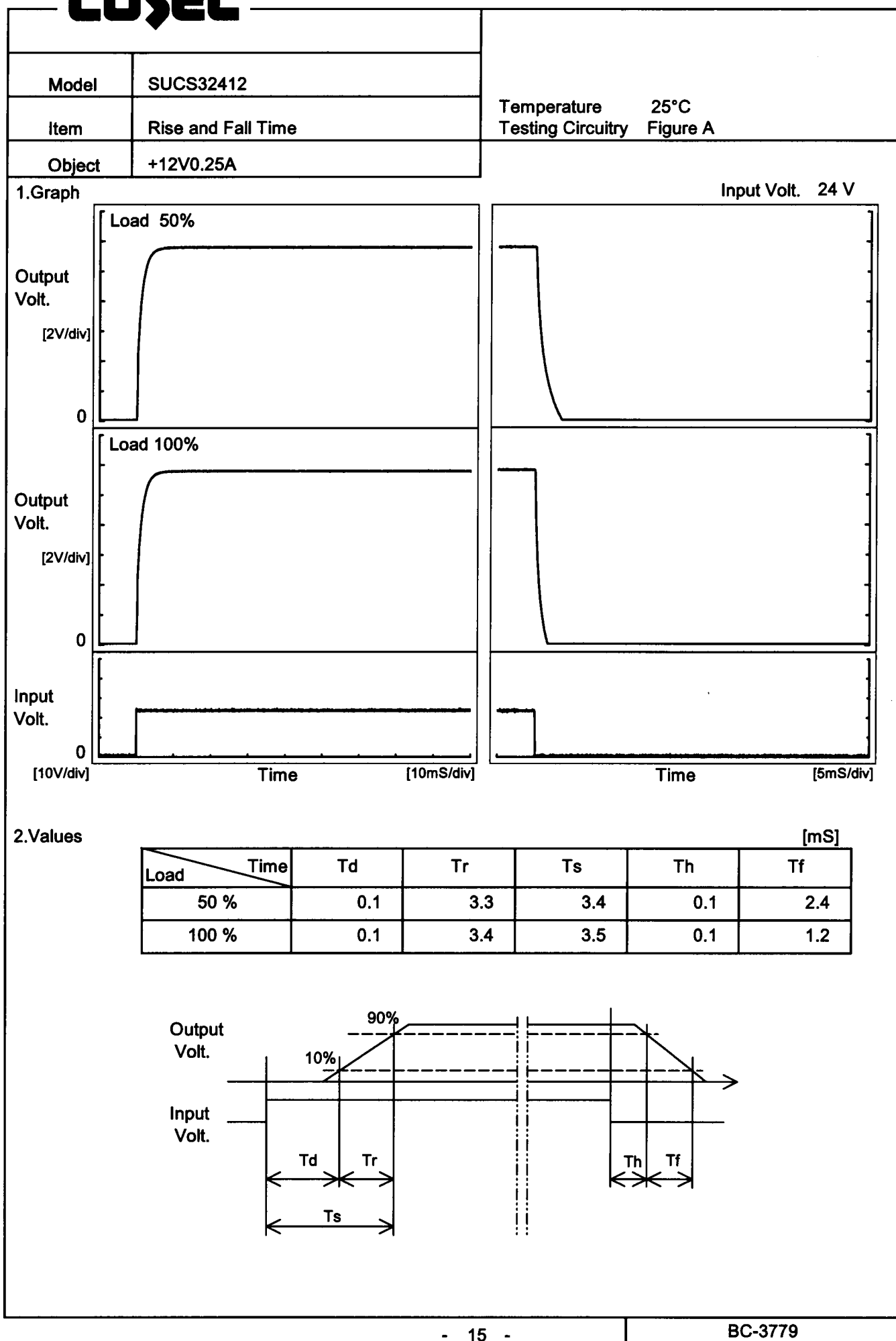
Model		SUCS32412	
Item		Time Lapse Drift	
Object		+12V0.25A	

1.Graph

Output Voltage [V]

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Model

SUCS32412

Item

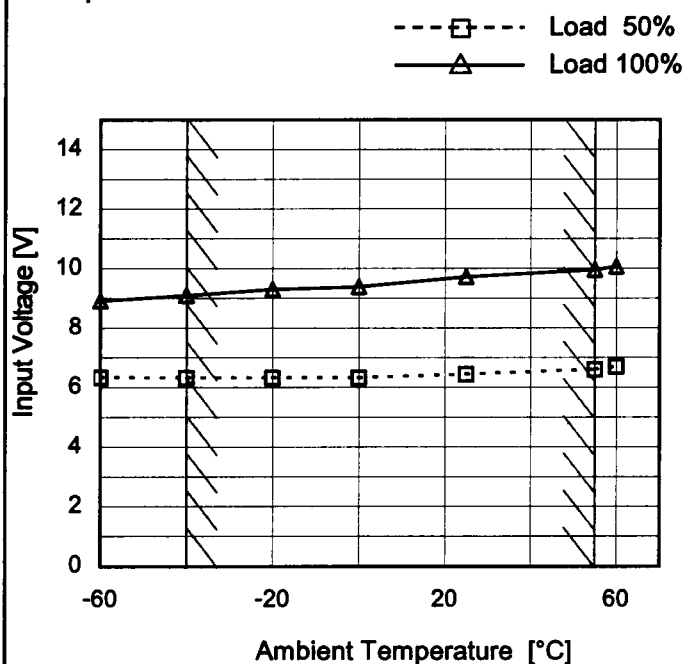
Minimum Input Voltage
for Regulated Output Voltage

Object

+12V0.25A

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	6.4	9.0
-40	6.4	9.1
-20	6.4	9.3
0	6.4	9.4
25	6.5	9.8
55	6.7	10.0
60	6.7	10.1
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--	-	-
--	-	-
--	-	-

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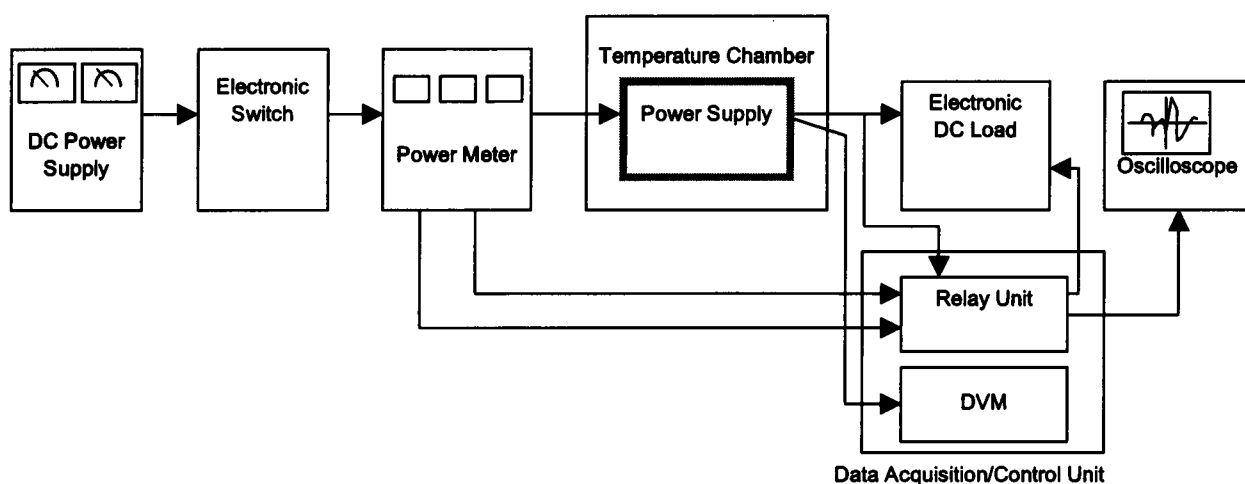


Figure A

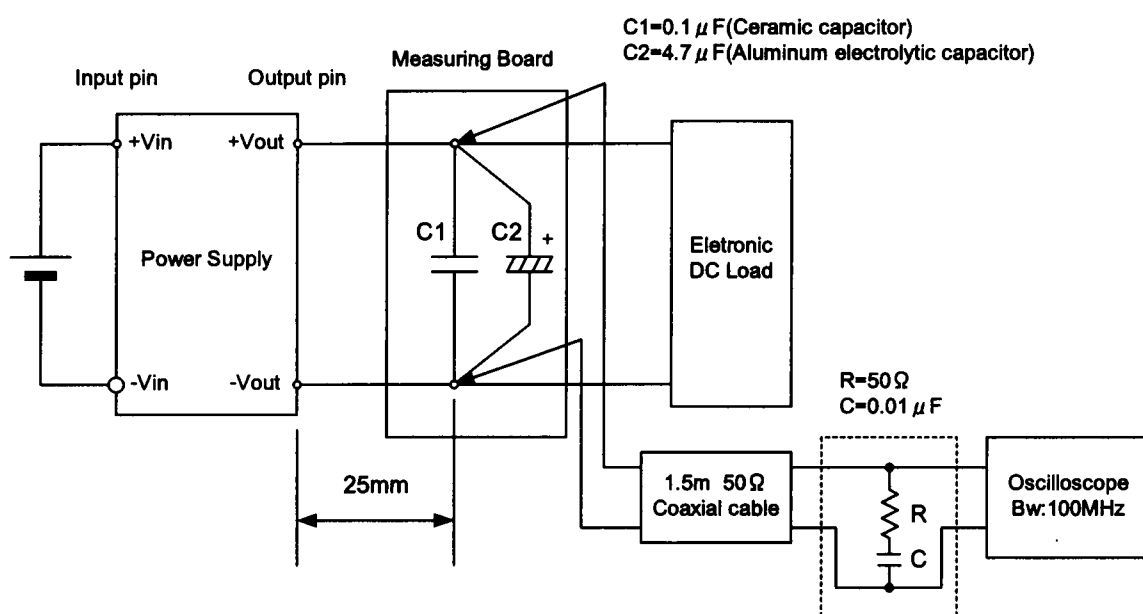


Figure B (Ripple and Ripple noise Characteristic)