



TEST DATA OF SUS102415 SUCS102415

Regulated DC Power Supply
Mar 28, 2005

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COSEL CO.,LTD.

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Model		SUS102415/SUCS102415	
Item		Input Current (by Input Voltage)	
Object			

1.Graph

—△—

Load 100%

---□---

Load 50%

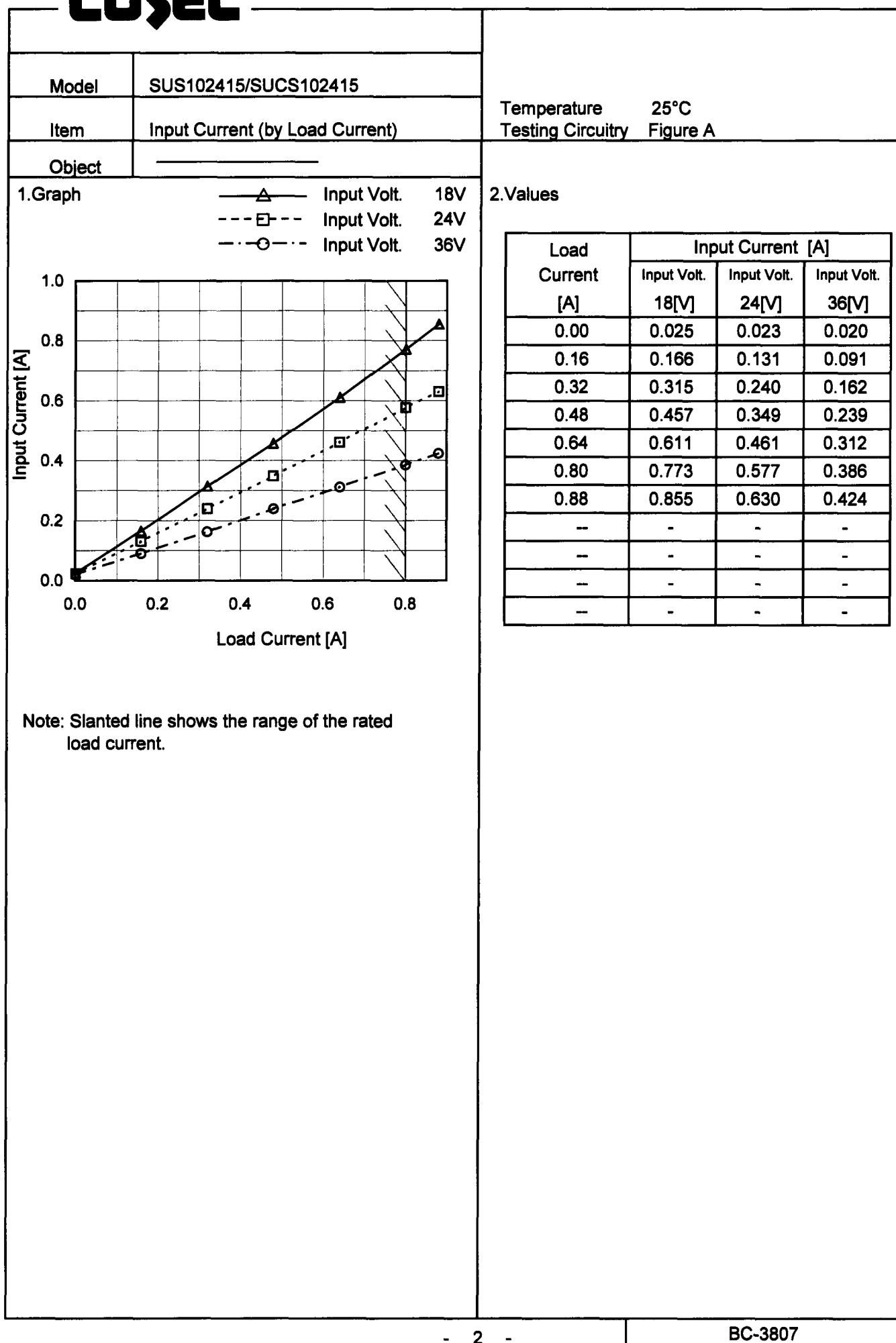
-○-

Load 0%

Input Current [A]

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Model		SUS102415/SUCS102415		Temperature 25°C																																																				
Item		Input Power (by Load Current)		Testing Circuitry Figure A																																																				
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1.Graph		<div><div><div>—△—</div><div>---□---</div><div>-○-</div></div><div><div>Input Volt. 18V</div><div>Input Volt. 24V</div><div>Input Volt. 36V</div></div></div>		2.Values																																																				
<div><div>Input Power [W]</div><div><div>20.0</div><div>15.0</div><div>10.0</div><div>5.0</div><div>0.0</div></div><div><div>0.0</div><div>0.2</div><div>0.4</div><div>0.6</div><div>0.8</div></div><div>Load Current [A]</div></div> <div>Note: Slanted line shows the range of the rated load current.</div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Input Power [W]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>0.00</td><td>0.45</td><td>0.55</td><td>0.73</td></tr><tr><td>0.16</td><td>3.00</td><td>3.15</td><td>3.29</td></tr><tr><td>0.32</td><td>5.65</td><td>5.78</td><td>5.86</td></tr><tr><td>0.48</td><td>8.33</td><td>8.39</td><td>8.62</td></tr><tr><td>0.64</td><td>11.07</td><td>11.07</td><td>11.24</td></tr><tr><td>0.80</td><td>13.91</td><td>13.81</td><td>13.89</td></tr><tr><td>0.88</td><td>15.39</td><td>15.20</td><td>15.23</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 Power [W]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	0.00	0.45	0.55	0.73	0.16	3.00	3.15	3.29	0.32	5.65	5.78	5.86	0.48	8.33	8.39	8.62	0.64	11.07	11.07	11.24	0.80	13.91	13.81	13.89	0.88	15.39	15.20	15.23	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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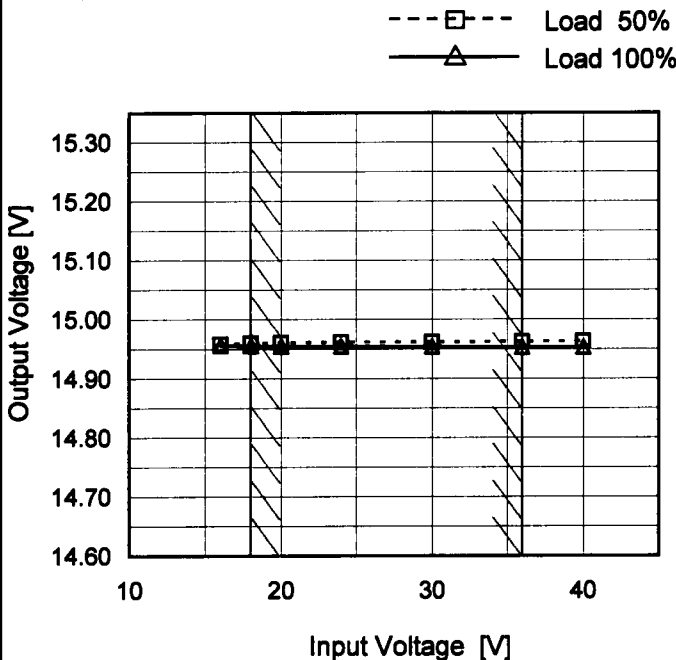
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<div><div><div>—△—</div><div>---□---</div><div>---○---</div></div><div><div>Input Volt.</div><div>Input Volt.</div><div>Input Volt.</div></div><div><div>18V</div><div>24V</div><div>36V</div></div></div> <div><p>Efficiency [%]</p><p>Load Current [A]</p></div>		<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>0.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.16</td><td>80.2</td><td>76.4</td><td>73.3</td></tr><tr><td>0.32</td><td>85.2</td><td>83.2</td><td>82.1</td></tr><tr><td>0.48</td><td>86.6</td><td>86.0</td><td>83.7</td></tr><tr><td>0.64</td><td>86.9</td><td>86.9</td><td>85.6</td></tr><tr><td>0.80</td><td>86.4</td><td>87.0</td><td>86.5</td></tr><tr><td>0.88</td><td>85.9</td><td>87.0</td><td>86.8</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]	0.00	-	-	-	0.16	80.2	76.4	73.3	0.32	85.2	83.2	82.1	0.48	86.6	86.0	83.7	0.64	86.9	86.9	85.6	0.80	86.4	87.0	86.5	0.88	85.9	87.0	86.8	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Efficiency [%]																																																					
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]																																																			
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Note: Slanted line shows the range of the rated load current.																																																						

COSEL

Model	SUS102415/SUCS102415	Temperature 25°C Testing Circuitry Figure A																																	
Item	Line Regulation																																		
Object	+15V0.8A																																		
1.Graph		2.Values																																	
<div><div><div>---□--- Load 50%</div><div>—△— Load 100%</div></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="2">Output Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>16</td><td>14.958</td><td>14.957</td></tr><tr><td>18</td><td>14.960</td><td>14.956</td></tr><tr><td>20</td><td>14.961</td><td>14.955</td></tr><tr><td>24</td><td>14.962</td><td>14.955</td></tr><tr><td>30</td><td>14.962</td><td>14.954</td></tr><tr><td>36</td><td>14.963</td><td>14.953</td></tr><tr><td>40</td><td>14.963</td><td>14.953</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	14.958	14.957	18	14.960	14.956	20	14.961	14.955	24	14.962	14.955	30	14.962	14.954	36	14.963	14.953	40	14.963	14.953	--	-	-	--	-	-
Input Voltage [V]	Output Voltage [V]																																		
	Load 50%	Load 100%																																	
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36	14.963	14.953																																	
40	14.963	14.953																																	
--	-	-																																	
--	-	-																																	

Temperature 25°C
Testing Circuitry Figure A



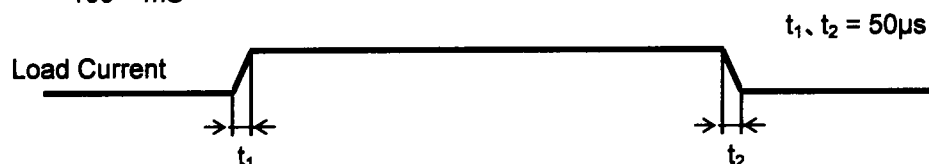
Load Current [A]	Output Voltage [V]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0.00	14.962	14.965	14.967
0.16	14.962	14.964	14.965
0.32	14.960	14.963	14.965
0.48	14.960	14.962	14.962
0.64	14.959	14.961	14.961
0.80	14.957	14.959	14.959
0.88	14.955	14.957	14.958
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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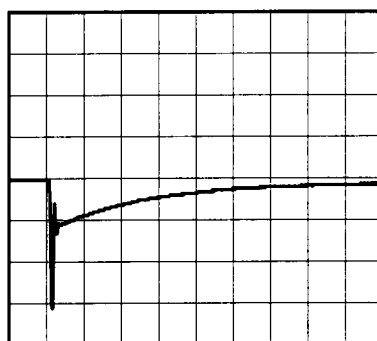
Model	SUS102415/SUCS102415	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+15V0.8A		

Input Volt. 24 V
Cycle 100 mS

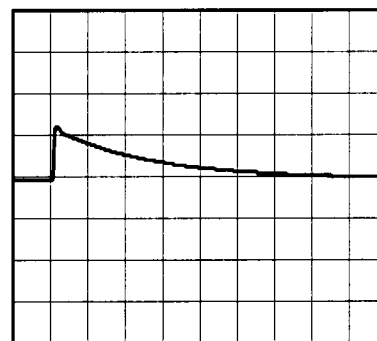


Min. Load (0A) \longleftrightarrow
Load 100% (0.8A)

200mV/div



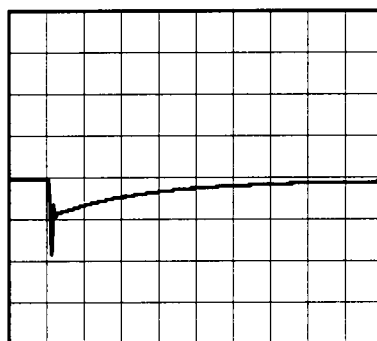
500µs/div



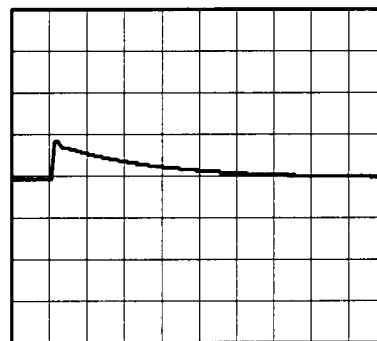
500µs/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.4A)

200mV/div



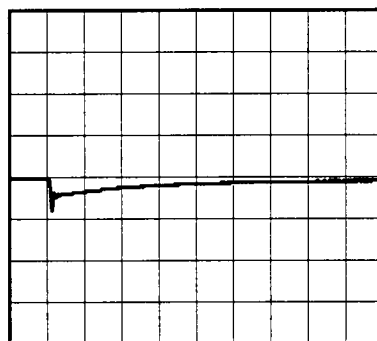
500µs/div



500µs/div

Load 50% (0.4A) \longleftrightarrow
Load 100% (0.8A)

200mV/div



500µs/div



500µs/div

COSEL

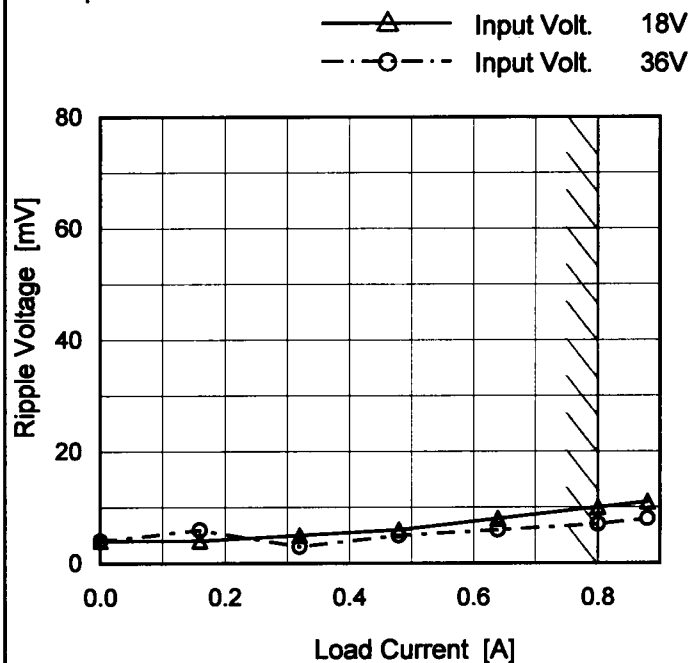
Model SUS102415/SUCS102415

Item Ripple Voltage (by Load Current)

Object +15V0.8A

Temperature 25°C
Testing Circuitry Figure B

1. Graph



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.

Ripple [mVp-p]

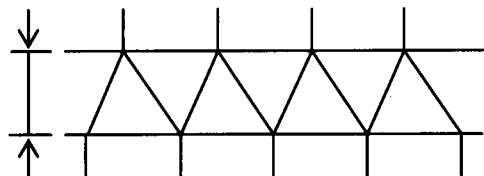


Fig. Complex Ripple Wave Form

2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 18 [V]	Input Volt. 36 [V]
0.00	4	4
0.16	4	6
0.32	5	3
0.48	6	5
0.64	8	6
0.80	10	7
0.88	11	8
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model	SUS102415/SUCS102415																																								
Item	Ripple-Noise																																								
Object	+15V0.8A																																								
1.Graph		2.Values																																							
<div><div><div><div></div><div>Input Volt. 18V</div></div><div><div></div><div>Input Volt. 36V</div></div></div><div><div><div><div></div><div>80</div></div><div><div></div><div>60</div></div><div><div></div><div>40</div></div><div><div></div><div>20</div></div><div><div></div><div>0</div></div></div><div><div><div></div><div>0.0</div></div><div><div></div><div>0.2</div></div><div><div></div><div>0.4</div></div><div><div></div><div>0.6</div></div><div><div></div><div>0.8</div></div></div><div><div></div><div>Load Current [A]</div></div><div><div></div><div>Ripple-Noise [mV]</div></div></div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 18 [V]</th><th>Input Volt. 36 [V]</th></tr><tr><td>0.00</td><td>7</td><td>8</td></tr><tr><td>0.16</td><td>7</td><td>9</td></tr><tr><td>0.32</td><td>9</td><td>9</td></tr><tr><td>0.48</td><td>12</td><td>11</td></tr><tr><td>0.64</td><td>15</td><td>14</td></tr><tr><td>0.80</td><td>19</td><td>16</td></tr><tr><td>0.88</td><td>20</td><td>17</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. 18 [V]	Input Volt. 36 [V]	0.00	7	8	0.16	7	9	0.32	9	9	0.48	12	11	0.64	15	14	0.80	19	16	0.88	20	17	—	-	-	—	-	-	—	-	-	—	-	-
Load Current [A]	Ripple-Noise [mV]																																								
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<div><div><div>Measured by 100 MHz Oscilloscope.</div><div>Ripple-Noise is shown as p-p in the figure below.</div><div>Note: Slanted line shows the range of the rated load current.</div></div><div><div><div><div></div><div>Ripple Noise[mVp-p]</div></div><div><div></div><div></div></div></div><div><div></div><div>Fig.Complex Ripple Noise Wave Form</div></div></div></div>																																									

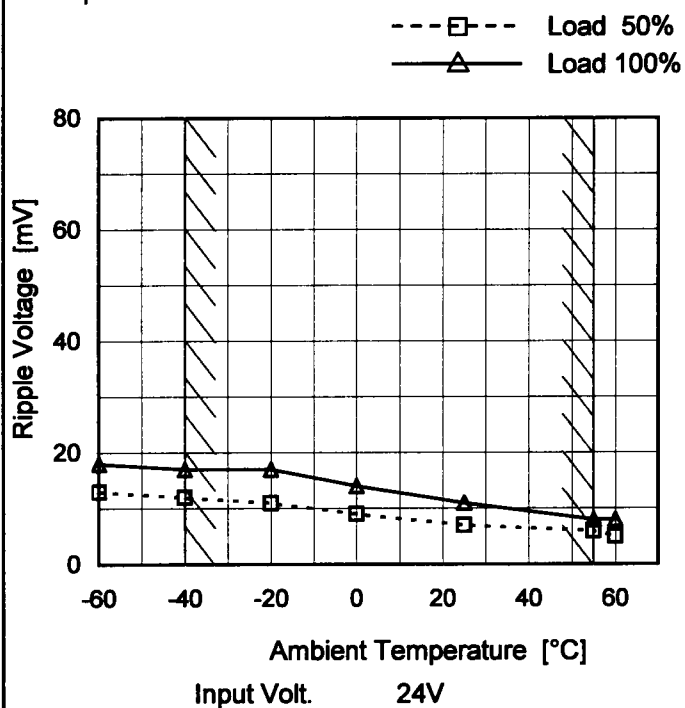
COSEL

Model SUS102415/SUCS102415

Item Ripple Voltage (by Ambient Temp.)

Object +15V0.8A

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	13	18
-40	12	17
-20	11	17
0	9	14
25	7	11
55	6	8
60	5	8
—	—	—
—	—	—
—	—	—
—	—	—

COSEL

Model SUS102415/SUCS102415

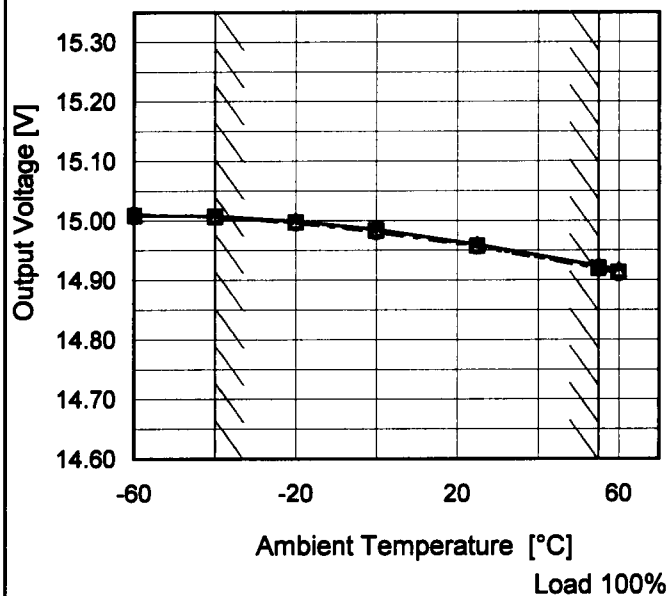
Item Ambient Temperature Drift

Object +15V0.8A

Testing Circuitry Figure A

1. Graph

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



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

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	15.009	15.009	15.010
-40	15.008	15.007	15.007
-20	14.999	14.997	14.996
0	14.985	14.983	14.981
25	14.960	14.957	14.956
55	14.924	14.920	14.919
60	14.917	14.913	14.911
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—



		Testing Circuitry Figure A
Model	SUS102415/SUCS102415	
Item	Output Voltage Accuracy	
Object	+15V0.8A	

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 - 0.8A

* 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	-40	36	0	15.018	±50	±0.3
Minimum Voltage	55	36	0.8	14.919		

COSEL

Model	SUS102415/SUCS102415	Temperature 25°C Testing Circuitry Figure A																							
Item	Time Lapse Drift																								
Object	+15V0.8A																								
1.Graph		2.Values																							
<div><div><div>15.20</div><div>15.10</div><div>15.00</div><div>14.90</div><div>14.80</div><div>14.70</div><div>14.60</div><div>14.50</div></div><div><div>0</div><div>2</div><div>4</div><div>6</div><div>8</div><div>10</div></div><div><div>Output Voltage [V]</div><div>Time [H]</div></div><div><div>Input Volt. 24V</div><div>Load 100%</div></div></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>14.973</td></tr><tr><td>0.5</td><td>14.941</td></tr><tr><td>1.0</td><td>14.941</td></tr><tr><td>2.0</td><td>14.941</td></tr><tr><td>3.0</td><td>14.941</td></tr><tr><td>4.0</td><td>14.941</td></tr><tr><td>5.0</td><td>14.942</td></tr><tr><td>6.0</td><td>14.941</td></tr><tr><td>7.0</td><td>14.942</td></tr><tr><td>8.0</td><td>14.941</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	14.973	0.5	14.941	1.0	14.941	2.0	14.941	3.0	14.941	4.0	14.941	5.0	14.942	6.0	14.941	7.0	14.942	8.0	14.941
Time since start [H]	Output Voltage [V]																								
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0.5	14.941																								
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2.0	14.941																								
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6.0	14.941																								
7.0	14.942																								
8.0	14.941																								

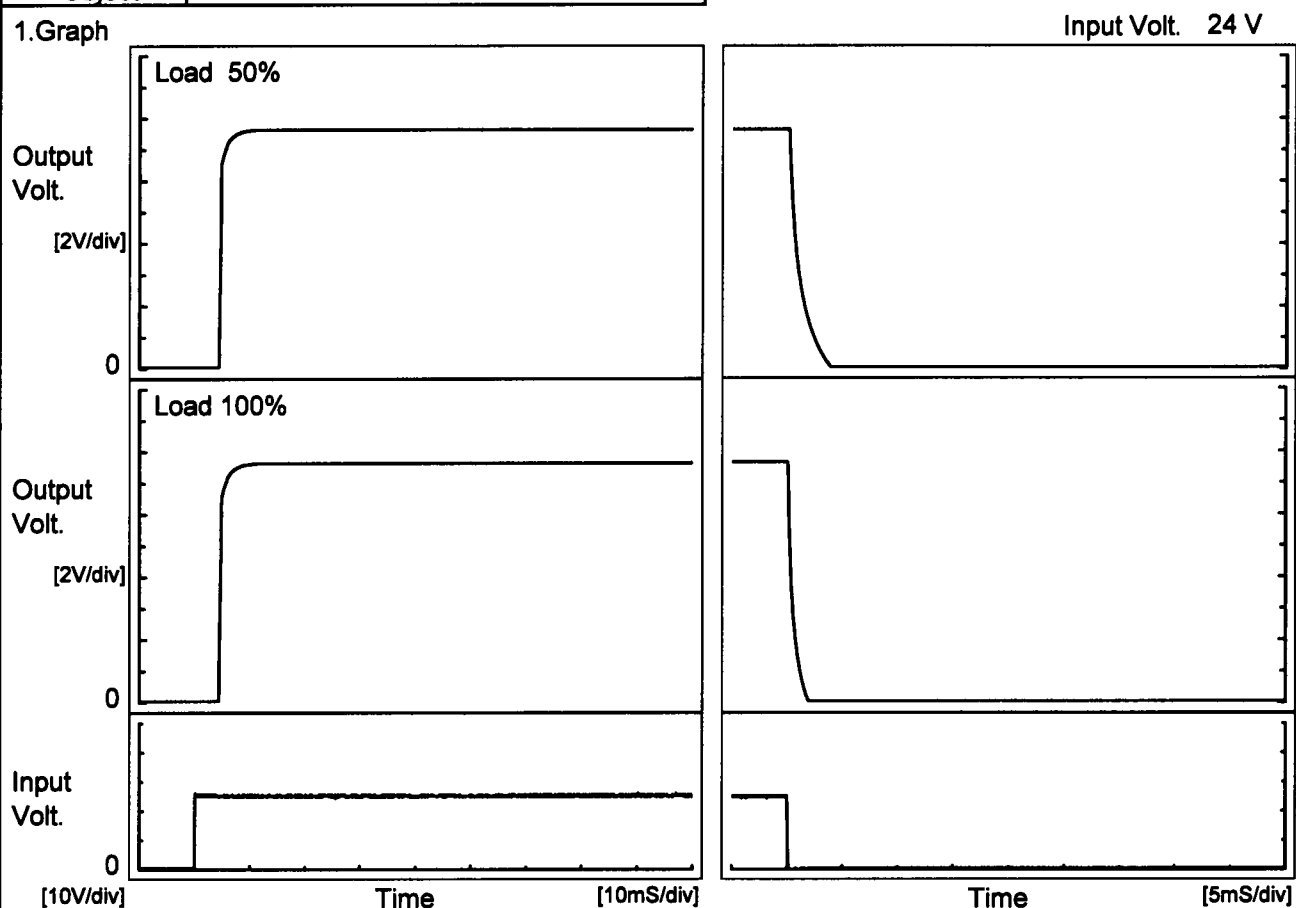
- 14 -

BC-3807

COSEL

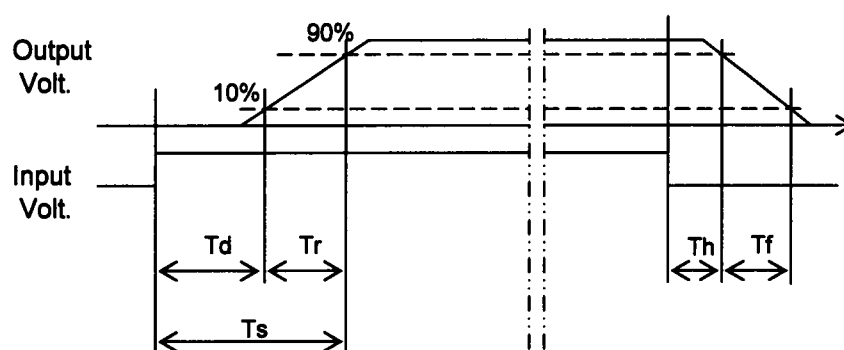
Model	SUS102415/SUCS102415	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+15V0.8A		

1. Graph



2. Values

		[mS]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		4.4	0.8	5.2	0.2	2.4
100 %		4.4	0.9	5.3	0.1	1.2



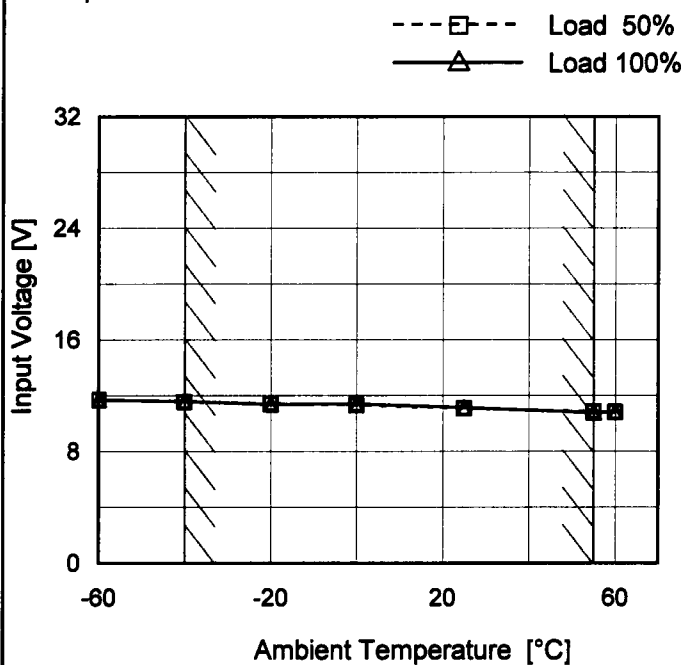
Model SUS102415/SUCS102415

Item Minimum Input Voltage
for Regulated Output Voltage

Object +15V0.8A

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	11.7	11.8
-40	11.6	11.6
-20	11.5	11.4
0	11.3	11.4
25	11.1	11.2
55	10.9	10.8
60	10.9	10.9
--	-	-
--	-	-
--	-	-
--	-	-

BC-3807

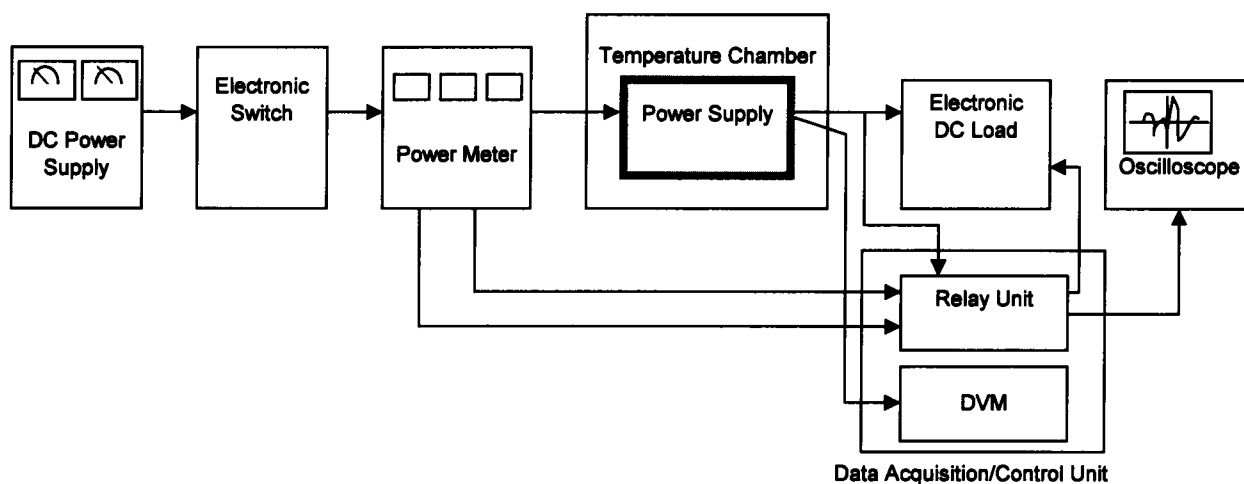


Figure A

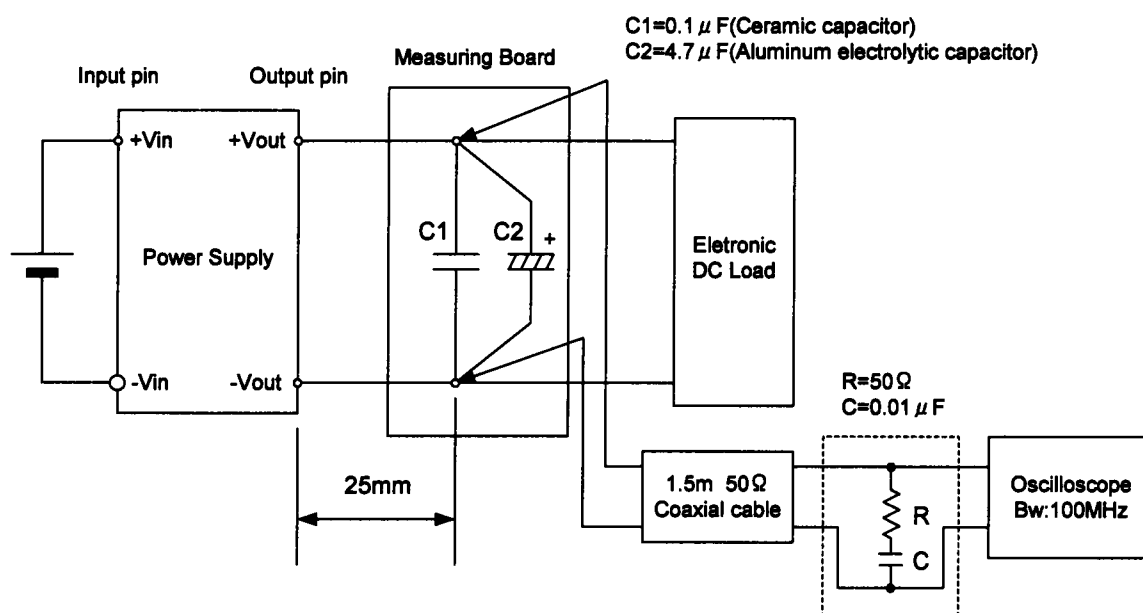


Figure B (Ripple and Ripple noise Characteristic)