



TEST DATA OF SUS64815 SUCS64815

Regulated DC Power Supply
Feb 17, 2005

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COSEL CO.,LTD.



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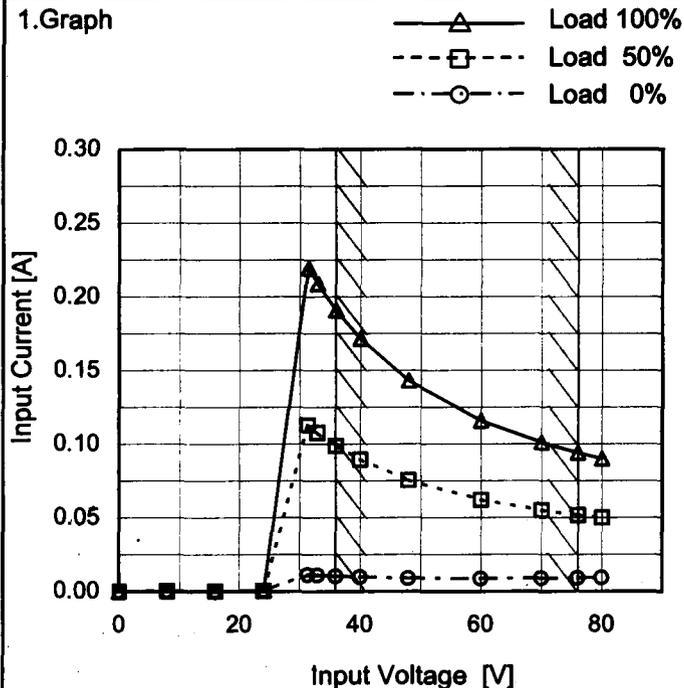
(Final Page 18)



Model	SUS64815/SUCS64815
Item	Input Current (by Input Voltage)
Object	_____

Temperature 25°C
Testing Circuitry Figure A

1. Graph



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

2. Values

Input Voltage [V]	Input Current [A]		
	Load 0%	Load 50%	Load 100%
0.0	0.000	0.000	0.000
8.0	0.000	0.000	0.000
16.0	0.000	0.000	0.000
24.0	0.001	0.001	0.001
31.4	0.011	0.113	0.220
33.0	0.011	0.108	0.209
36.0	0.010	0.099	0.191
40.0	0.010	0.089	0.172
48.0	0.009	0.075	0.143
60.0	0.009	0.062	0.116
70.0	0.009	0.055	0.101
76.0	0.009	0.052	0.094
80.0	0.009	0.050	0.090
--	-	-	-
--	-	-	-
--	-	-	-



Model		SUS64815/SUCS64815		Temperature 25°C																																																				
Item		Input Current (by Load Current)		Testing Circuitry Figure A																																																				
Object		_____																																																						
1. Graph		<p>—△— Input Volt. 36V - - □ - - Input Volt. 48V - - ○ - - Input Volt. 76V</p>		2. Values																																																				
<p>The graph plots Input Current [A] on the y-axis (0.00 to 0.30) against Load Current [A] on the x-axis (0.00 to 0.50). Three data series are shown: 36V (solid line with triangles), 48V (dashed line with squares), and 76V (dash-dot line with circles). A slanted line is drawn from approximately (0.05, 0.05) to (0.45, 0.25), indicating the rated load current range.</p>				<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>Input Volt. 36[V]</th> <th>Input Volt. 48[V]</th> <th>Input Volt. 76[V]</th> </tr> </thead> <tbody> <tr><td>0.00</td><td>0.010</td><td>0.009</td><td>0.009</td></tr> <tr><td>0.08</td><td>0.046</td><td>0.036</td><td>0.027</td></tr> <tr><td>0.16</td><td>0.081</td><td>0.062</td><td>0.044</td></tr> <tr><td>0.24</td><td>0.118</td><td>0.089</td><td>0.061</td></tr> <tr><td>0.32</td><td>0.154</td><td>0.116</td><td>0.077</td></tr> <tr><td>0.40</td><td>0.192</td><td>0.144</td><td>0.095</td></tr> <tr><td>0.44</td><td>0.211</td><td>0.158</td><td>0.103</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> </tbody> </table>		Load Current [A]	Input Current [A]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	0.00	0.010	0.009	0.009	0.08	0.046	0.036	0.027	0.16	0.081	0.062	0.044	0.24	0.118	0.089	0.061	0.32	0.154	0.116	0.077	0.40	0.192	0.144	0.095	0.44	0.211	0.158	0.103	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
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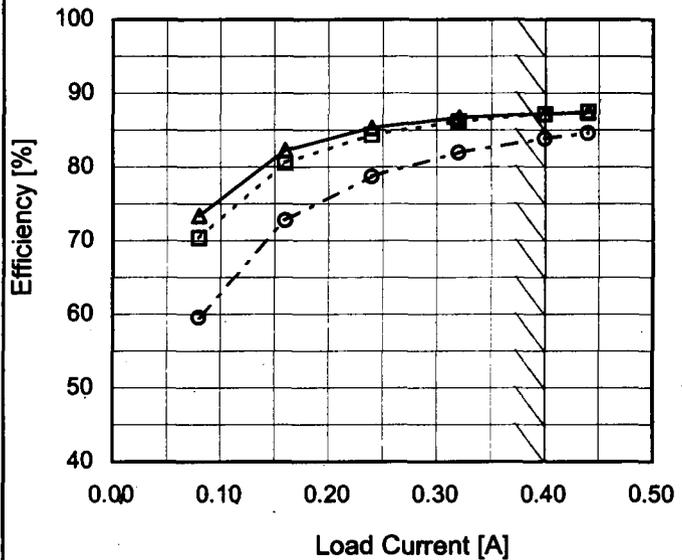
Model		SUS64815/SUCS64815		Temperature 25°C																																	
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<p>Legend: ---□--- Load 50% ---△--- Load 100%</p>			<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="2">Efficiency [%]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>33</td><td>84.3</td><td>87.0</td></tr> <tr><td>36</td><td>84.2</td><td>87.3</td></tr> <tr><td>40</td><td>83.8</td><td>87.3</td></tr> <tr><td>48</td><td>82.8</td><td>87.2</td></tr> <tr><td>55</td><td>81.6</td><td>86.7</td></tr> <tr><td>60</td><td>80.6</td><td>86.2</td></tr> <tr><td>70</td><td>78.0</td><td>84.8</td></tr> <tr><td>76</td><td>76.2</td><td>83.9</td></tr> <tr><td>80</td><td>75.0</td><td>83.2</td></tr> </tbody> </table>			Input Voltage [V]	Efficiency [%]		Load 50%	Load 100%	33	84.3	87.0	36	84.2	87.3	40	83.8	87.3	48	82.8	87.2	55	81.6	86.7	60	80.6	86.2	70	78.0	84.8	76	76.2	83.9	80	75.0	83.2
Input Voltage [V]	Efficiency [%]																																				
	Load 50%	Load 100%																																			
33	84.3	87.0																																			
36	84.2	87.3																																			
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48	82.8	87.2																																			
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<p>Note: Slanted line shows the range of the rated input voltage.</p>																																					



Model	SUS64815/SUCS64815
Item	Efficiency (by Load Current)
Object	_____

Temperature 25°C
Testing Circuitry Figure A

1.Graph
 —△— Input Volt. 36V
 - - □ - - Input Volt. 48V
 - - ○ - - Input Volt. 76V



2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	-	-	-
0.08	73.4	70.4	59.6
0.16	82.3	80.6	72.8
0.24	85.3	84.3	78.7
0.32	86.7	86.1	81.9
0.40	87.2	87.2	83.8
0.44	87.4	87.5	84.6
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

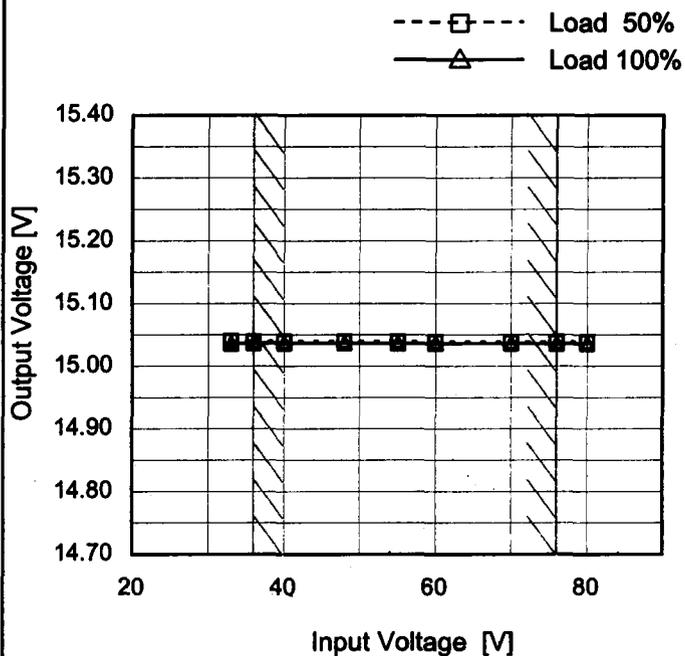
Note: Slanted line shows the range of the rated load current.



Model	SUS64815/SUCS64815
Item	Line Regulation
Object	+15V0.4A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



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

2. Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
33	15.040	15.036
36	15.040	15.037
40	15.040	15.037
48	15.040	15.037
55	15.039	15.037
60	15.039	15.037
70	15.039	15.037
76	15.039	15.036
80	15.039	15.036

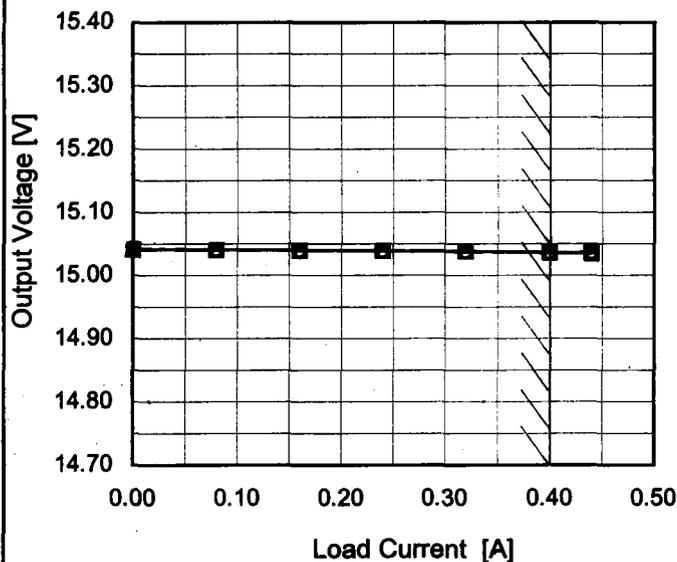


Model	SUS64815/SUCS64815
Item	Load Regulation
Object	+15V0.4A

Temperature 25°C
Testing Circuitry Figure A

1.Graph

- △— Input Volt. 36V
- Input Volt. 48V
- Input Volt. 76V



Note: Slanted line shows the range of the rated load current.

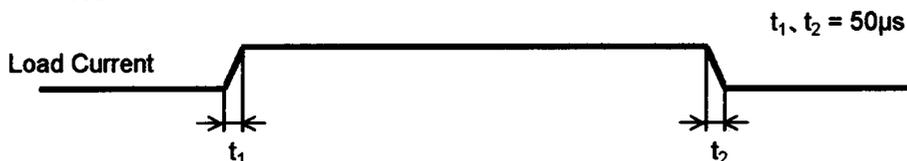
2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
0.00	15.042	15.042	15.043
0.08	15.041	15.041	15.040
0.16	15.040	15.040	15.039
0.24	15.039	15.039	15.038
0.32	15.039	15.038	15.037
0.40	15.037	15.037	15.036
0.44	15.035	15.036	15.035
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-

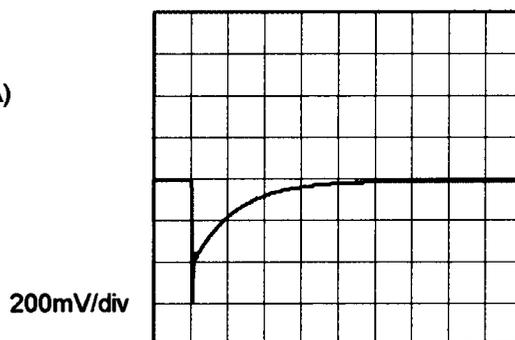


Model	SUS64815/SUCS64815	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Response	
Object	+15V0.4A	

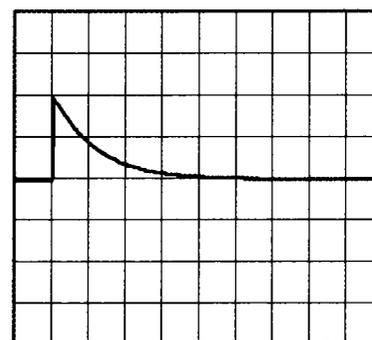
Input Volt. 48 V
Cycle 100 mS



Min. Load (0A) \longleftrightarrow
Load 100% (0.4A)

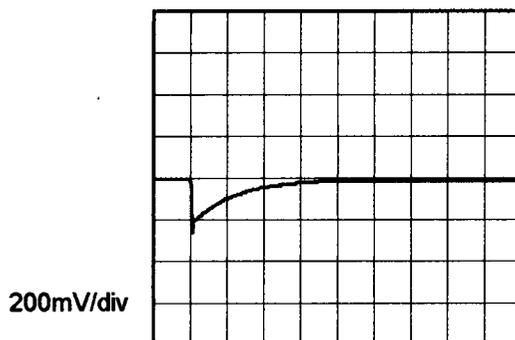


1ms/div

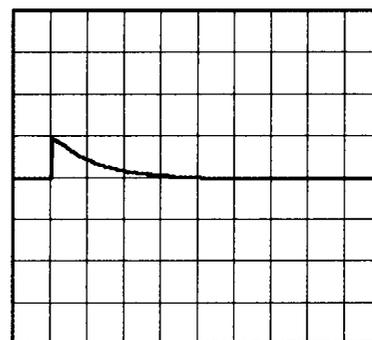


1ms/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.2A)

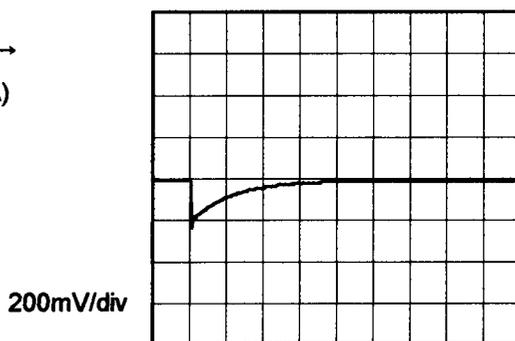


1ms/div

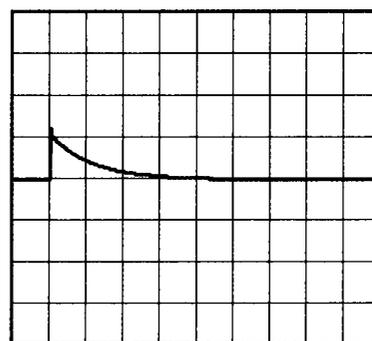


1ms/div

Load 50% (0.2A) \longleftrightarrow
Load 100% (0.4A)



1ms/div



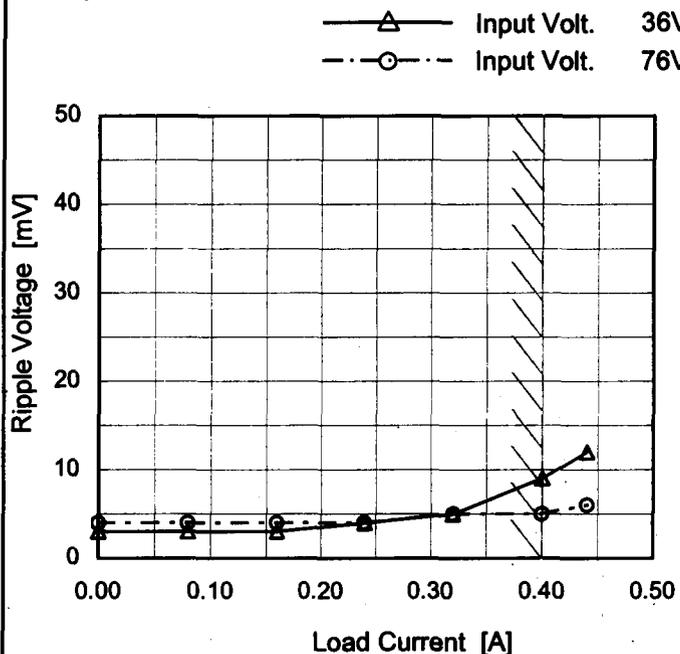
1ms/div



Model	SUS64815/SUCS64815
Item	Ripple Voltage (by Load Current)
Object	+15V0.4A

Temperature 25°C
Testing Circuitry Figure B

1. Graph



2. Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	3	4
0.08	3	4
0.16	3	4
0.24	4	4
0.32	5	5
0.40	9	5
0.44	12	6
--	-	-
--	-	-
--	-	-
--	-	-

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]

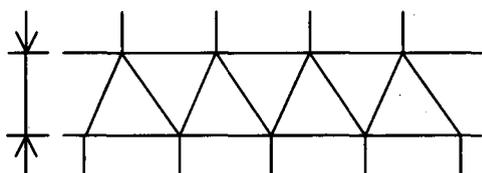


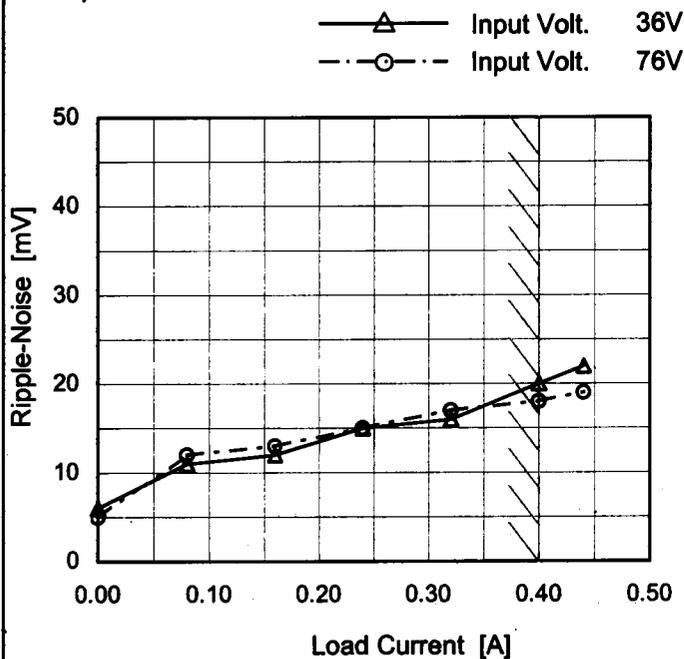
Fig. Complex Ripple Wave Form



Model	SUS64815/SUCS64815
Item	Ripple-Noise
Object	+15V0.4A

Temperature 25°C
Testing Circuitry Figure B

1. Graph



2. Values

Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 36 [V]	Input Volt. 76 [V]
0.00	6	5
0.08	11	12
0.16	12	13
0.24	15	15
0.32	16	17
0.40	20	18
0.44	22	19
--	-	-
--	-	-
--	-	-
--	-	-

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.

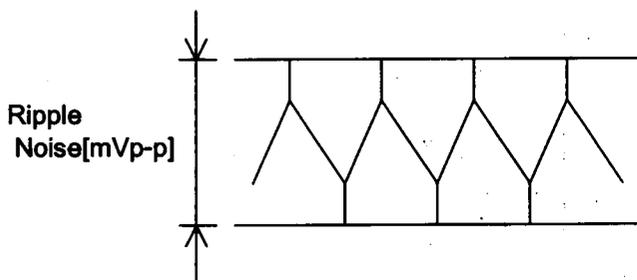


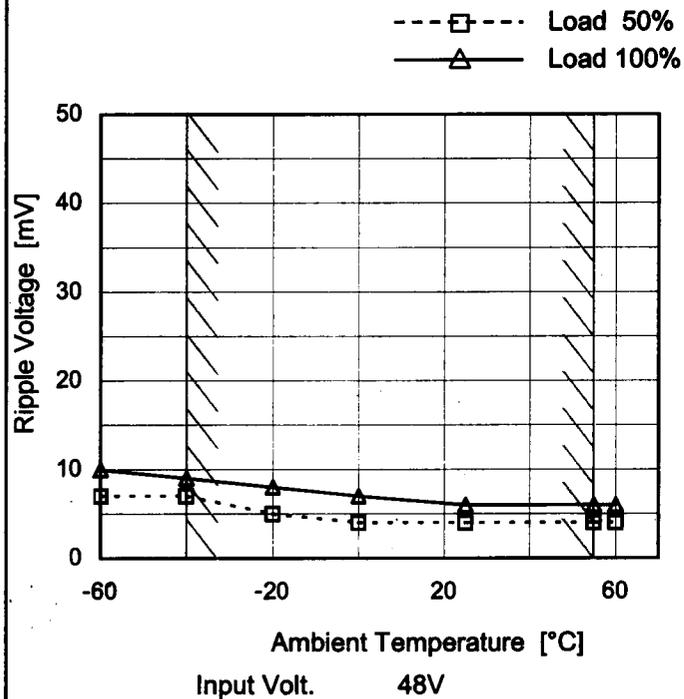
Fig. Complex Ripple Noise Wave Form



Model	SUS64815/SUCS64815
Item	Ripple Voltage (by Ambient Temp.)
Object	+15V0.4A

Testing Circuitry Figure B

1.Graph



2.Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Load 50%	Load 100%
-60	7	10
-40	7	9
-20	5	8
0	4	7
25	4	6
55	4	6
60	4	6
-	-	-
-	-	-
-	-	-
-	-	-

Measured by 100 MHz Oscilloscope.

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

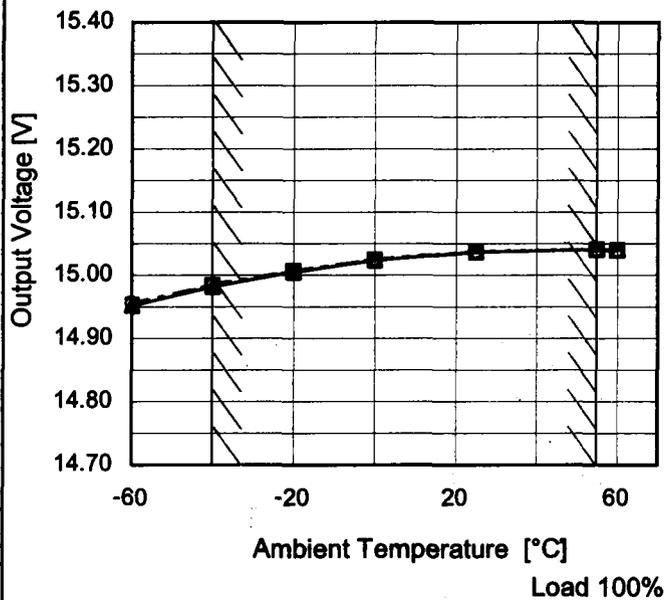


Model	SUS64815/SUCS64815
Item	Ambient Temperature Drift
Object	+15V0.4A

Testing Circuitry Figure A

1. Graph

—△— Input Volt. 36V
 - - - □ - - - Input Volt. 48V
 - · - ○ - · - - Input Volt. 76V



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

2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]
-60	14.952	14.953	14.955
-40	14.982	14.984	14.985
-20	15.005	15.007	15.007
0	15.024	15.025	15.025
25	15.037	15.038	15.037
55	15.041	15.041	15.040
60	15.040	15.040	15.039
-	-	-	-
-	-	-	-
-	-	-	-
-	-	-	-



COSEL		
Model	SUS64815/SUCS64815	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+15V0.4A	

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 : 36 - 76V

Load Current : 0 - 0.4A

* 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	76	0	15.047	±33	±0.2
Minimum Voltage	-40	36	0.4	14.982		

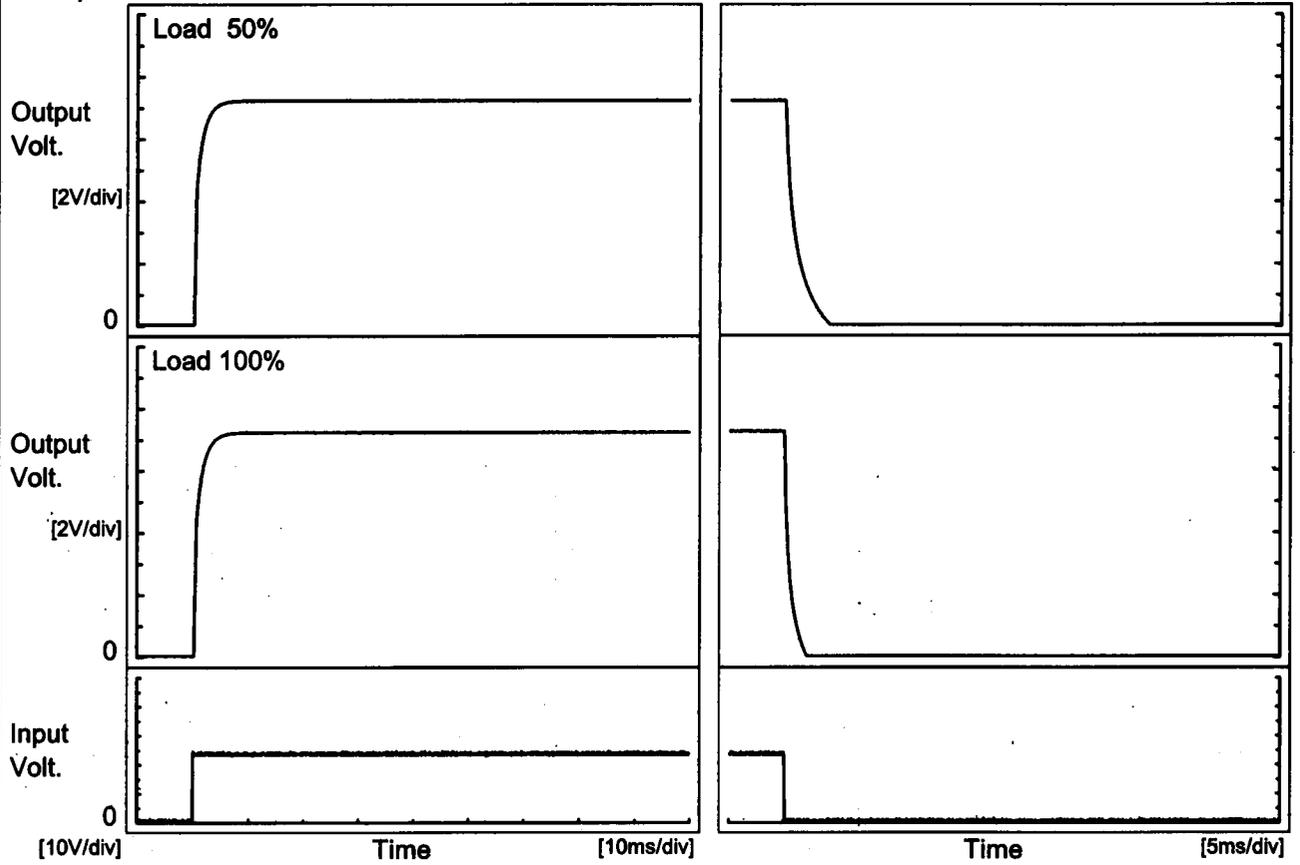


Model SUS64815/SUCS64815		Temperature 25°C Testing Circuitry Figure A																						
Item	Time Lapse Drift																							
Object	+15V0.4A																							
1.Graph <p style="text-align: center;">Time [H]</p> <p>Input Volt. 48V Load 100%</p>		2.Values <table border="1"> <thead> <tr> <th>Time since start [H]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>15.039</td></tr> <tr><td>0.5</td><td>15.037</td></tr> <tr><td>1.0</td><td>15.037</td></tr> <tr><td>2.0</td><td>15.037</td></tr> <tr><td>3.0</td><td>15.037</td></tr> <tr><td>4.0</td><td>15.037</td></tr> <tr><td>5.0</td><td>15.037</td></tr> <tr><td>6.0</td><td>15.037</td></tr> <tr><td>7.0</td><td>15.037</td></tr> <tr><td>8.0</td><td>15.037</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	15.039	0.5	15.037	1.0	15.037	2.0	15.037	3.0	15.037	4.0	15.037	5.0	15.037	6.0	15.037	7.0	15.037	8.0	15.037
Time since start [H]	Output Voltage [V]																							
0.0	15.039																							
0.5	15.037																							
1.0	15.037																							
2.0	15.037																							
3.0	15.037																							
4.0	15.037																							
5.0	15.037																							
6.0	15.037																							
7.0	15.037																							
8.0	15.037																							



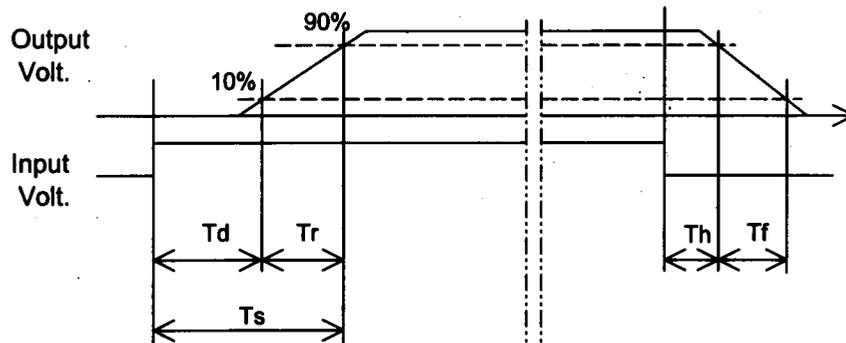
Model	SUS64815/SUCS64815	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+15V0.4A		

1. Graph



2. Values

Load	Time	[ms]				
		Td	Tr	Ts	Th	Tf
50 %		0.3	2.8	3.1	0.1	2.5
100 %		0.3	2.9	3.2	0.1	1.3





COSEL																																								
Model	SUS64815/SUCS64815																																							
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A																																						
Object	+15V0.4A																																							
<p>1. Graph</p> <div style="text-align: right;"> <p>---□--- Load 50%</p> <p>—△— Load 100%</p> </div> <p style="text-align: center;">Input Voltage [V]</p> <p style="text-align: center;">Ambient Temperature [°C]</p>		<p>2. Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Ambient Temperature [°C]</th> <th colspan="2">Input Voltage [V]</th> </tr> <tr> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>-60</td><td>30.7</td><td>30.7</td></tr> <tr><td>-40</td><td>30.5</td><td>30.6</td></tr> <tr><td>-20</td><td>30.4</td><td>30.5</td></tr> <tr><td>0</td><td>30.2</td><td>30.3</td></tr> <tr><td>25</td><td>30.0</td><td>30.0</td></tr> <tr><td>55</td><td>29.8</td><td>29.9</td></tr> <tr><td>60</td><td>29.8</td><td>29.9</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>	Ambient Temperature [°C]	Input Voltage [V]		Load 50%	Load 100%	-60	30.7	30.7	-40	30.5	30.6	-20	30.4	30.5	0	30.2	30.3	25	30.0	30.0	55	29.8	29.9	60	29.8	29.9	-	-	-	-	-	-	-	-	-	-	-	-
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<p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																								



Model SUS64815/SUCS64815		Temperature 25°C Testing Circuitry Figure A																																																							
Item	Overcurrent Protection																																																								
Object	+15V0.4A																																																								
<p>1.Graph</p> <p> Input Volt. 36V Input Volt. 48V Input Volt. 76V </p> <p>Output Voltage [V]</p> <p>Load Current [A]</p> <p>Note: Slanted line shows the range of the rated load current.</p>		<p>2.Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Output Voltage [V]</th> <th colspan="3">Load Current [A]</th> </tr> <tr> <th>Input Volt. 36[V]</th> <th>Input Volt. 48[V]</th> <th>Input Volt. 76[V]</th> </tr> </thead> <tbody> <tr><td>15.0</td><td>0.40</td><td>0.40</td><td>0.40</td></tr> <tr><td>14.3</td><td>0.53</td><td>0.56</td><td>0.56</td></tr> <tr><td>13.5</td><td>0.54</td><td>0.57</td><td>0.57</td></tr> <tr><td>12.0</td><td>0.60</td><td>0.63</td><td>0.58</td></tr> <tr><td>10.5</td><td>0.64</td><td>0.67</td><td>0.66</td></tr> <tr><td>9.0</td><td>0.68</td><td>0.71</td><td>0.68</td></tr> <tr><td>7.5</td><td>0.71</td><td>0.73</td><td>0.70</td></tr> <tr><td>6.0</td><td>0.75</td><td>0.75</td><td>0.73</td></tr> <tr><td>4.5</td><td>0.76</td><td>0.76</td><td>0.74</td></tr> <tr><td>3.0</td><td>0.76</td><td>0.75</td><td>0.73</td></tr> <tr><td>1.5</td><td>0.72</td><td>0.71</td><td>0.70</td></tr> <tr><td>0.0</td><td>1.41</td><td>1.40</td><td>1.40</td></tr> </tbody> </table>	Output Voltage [V]	Load Current [A]			Input Volt. 36[V]	Input Volt. 48[V]	Input Volt. 76[V]	15.0	0.40	0.40	0.40	14.3	0.53	0.56	0.56	13.5	0.54	0.57	0.57	12.0	0.60	0.63	0.58	10.5	0.64	0.67	0.66	9.0	0.68	0.71	0.68	7.5	0.71	0.73	0.70	6.0	0.75	0.75	0.73	4.5	0.76	0.76	0.74	3.0	0.76	0.75	0.73	1.5	0.72	0.71	0.70	0.0	1.41	1.40	1.40
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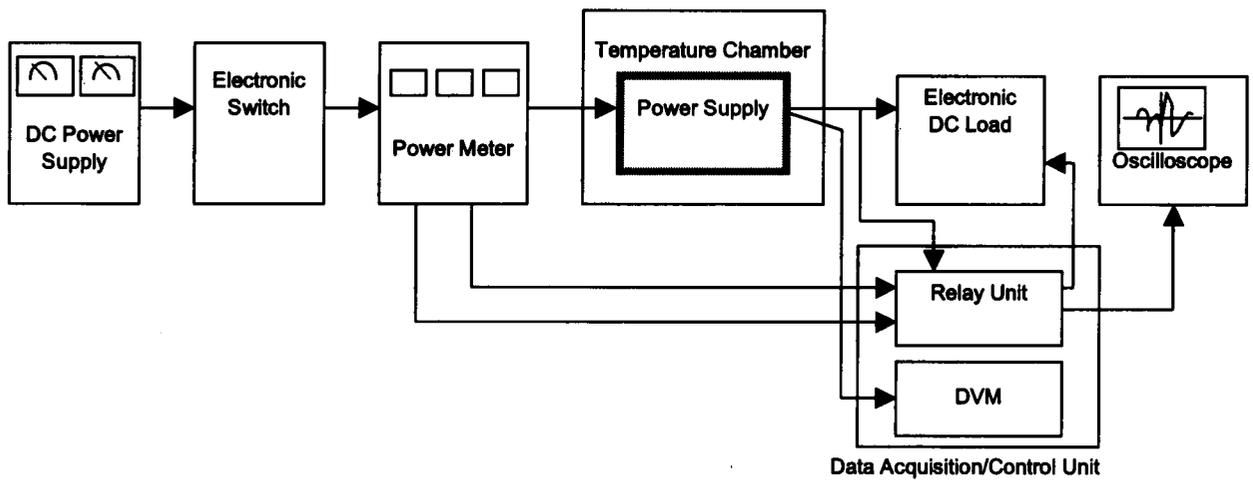


Figure A

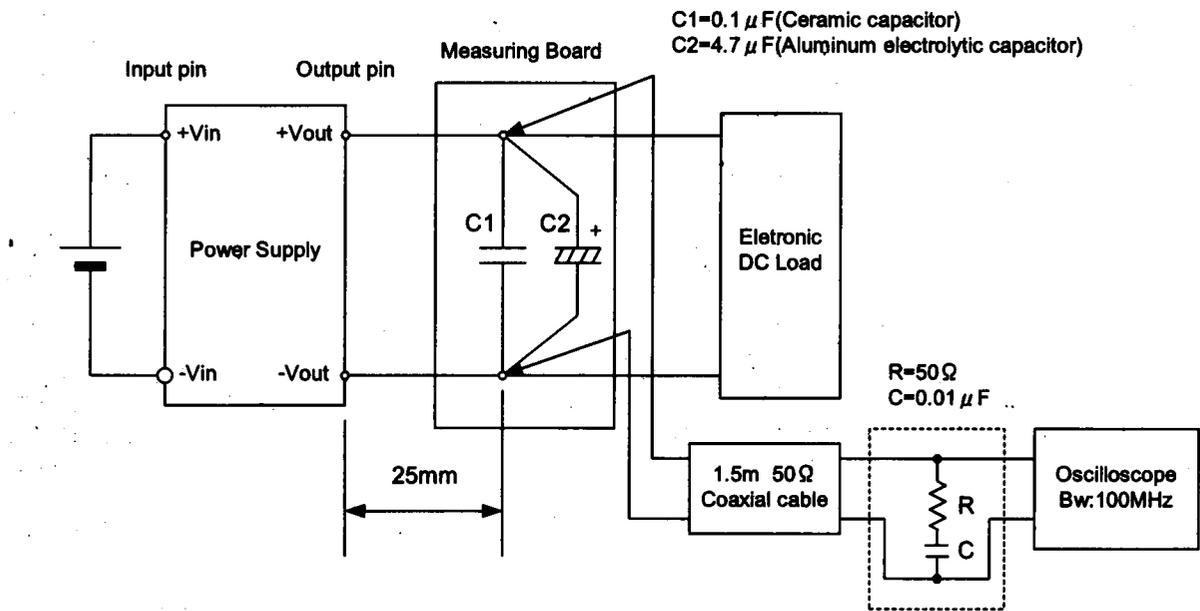


Figure B (Ripple and Ripple noise Characteristic)