



TEST DATA OF SUW102415 SUCW102415

Regulated DC Power Supply
Mar 28, 2005

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Tetsuo Sugimori Design Manager

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Yoshimichi Hirokawa Design Engineer

COSEL CO.,LTD.

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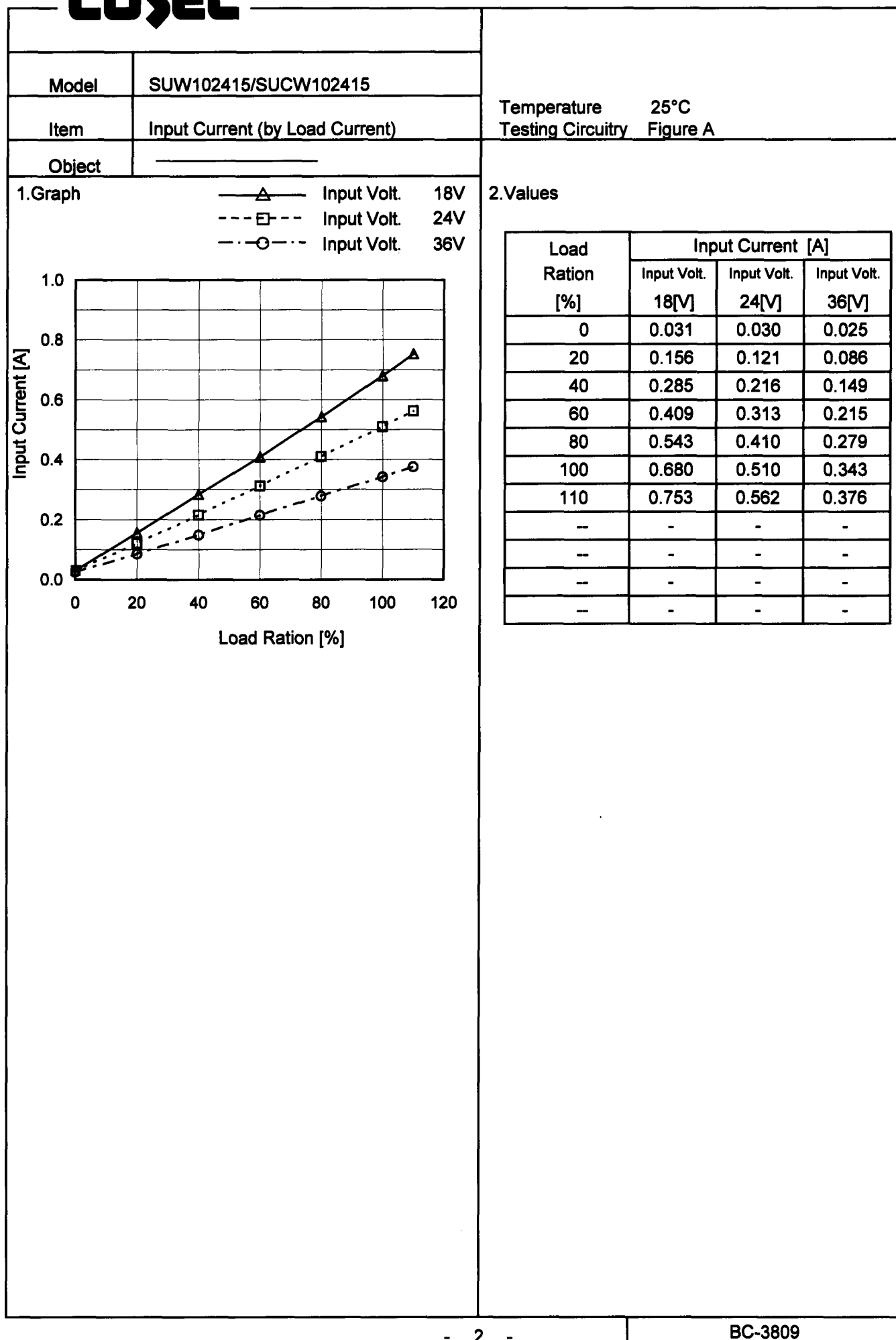
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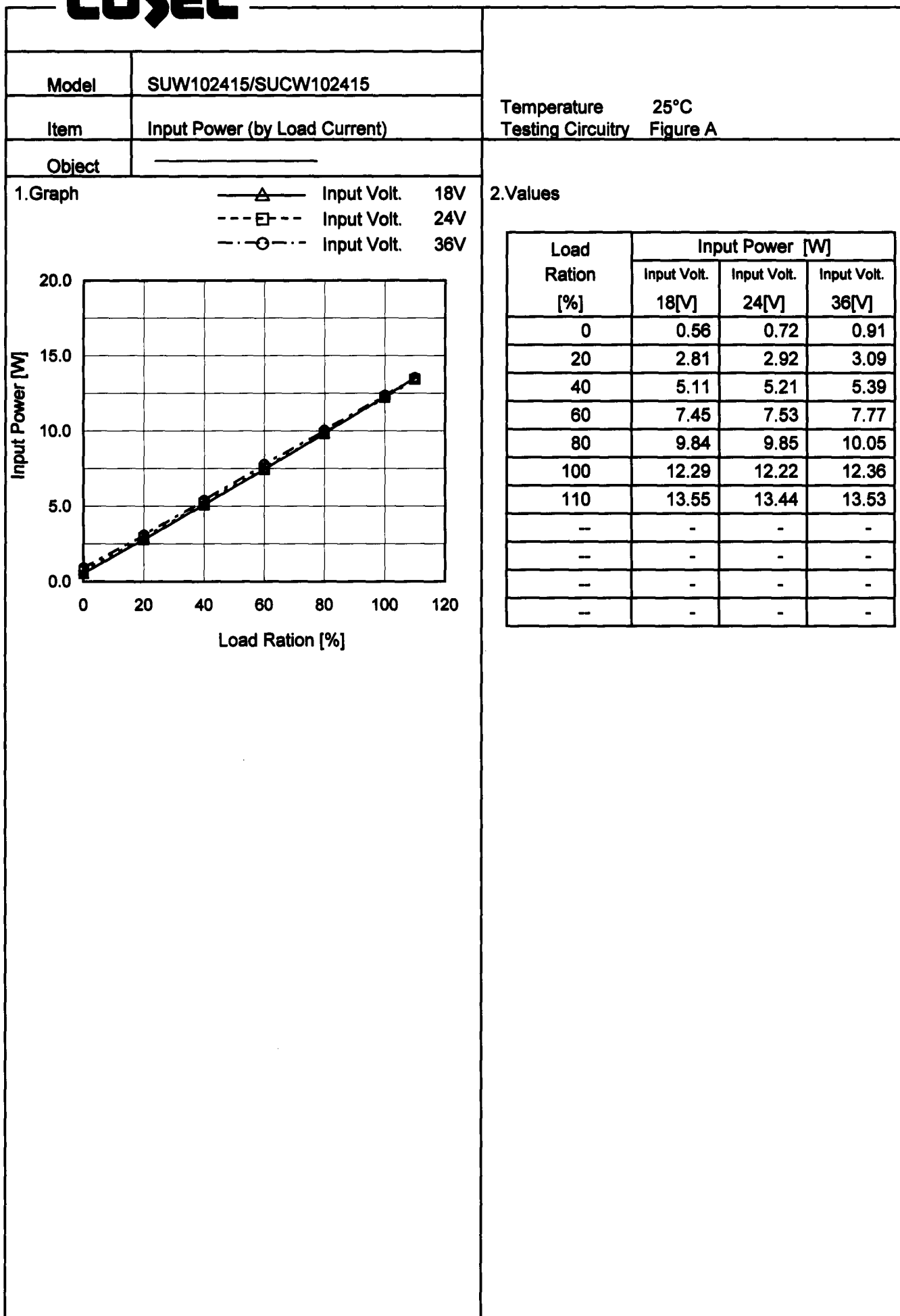
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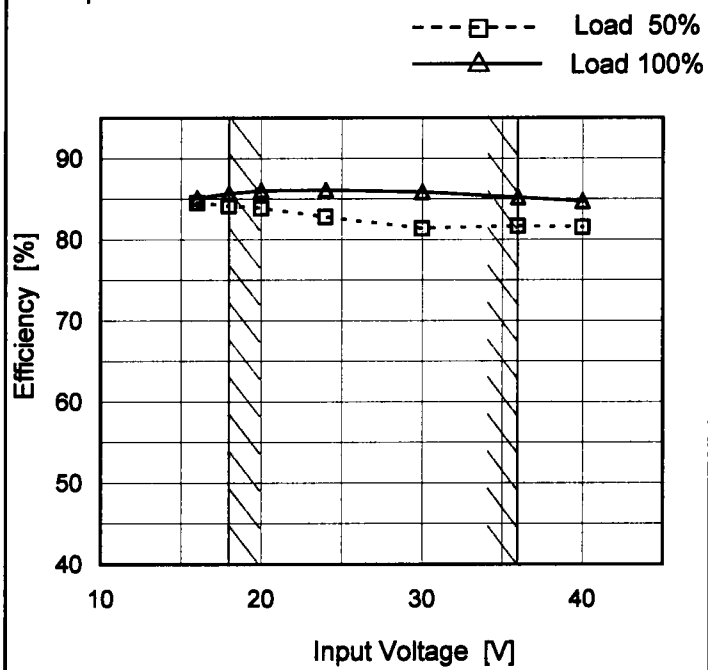
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Model SUW102415/SUCW102415

Item Efficiency (by Input Voltage)

Object
Temperature 25°C
Testing Circuitry Figure A

1. Graph



2. Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
16	84.5	85.1
18	84.1	85.7
20	83.9	86.0
24	82.8	86.1
30	81.4	85.9
36	81.7	85.2
40	81.5	84.7
--	-	-
--	-	-

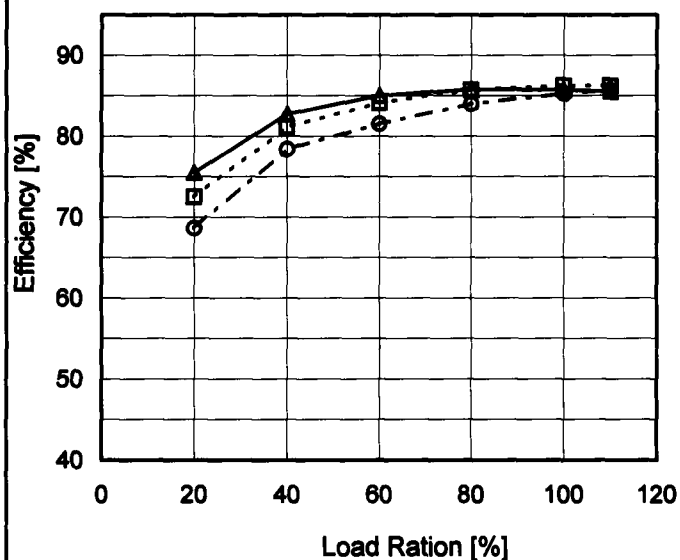
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Model	SUW102415/SUCW102415
Item	Efficiency (by Load Current)
Object	

Temperature 25°C
Testing Circuitry Figure A

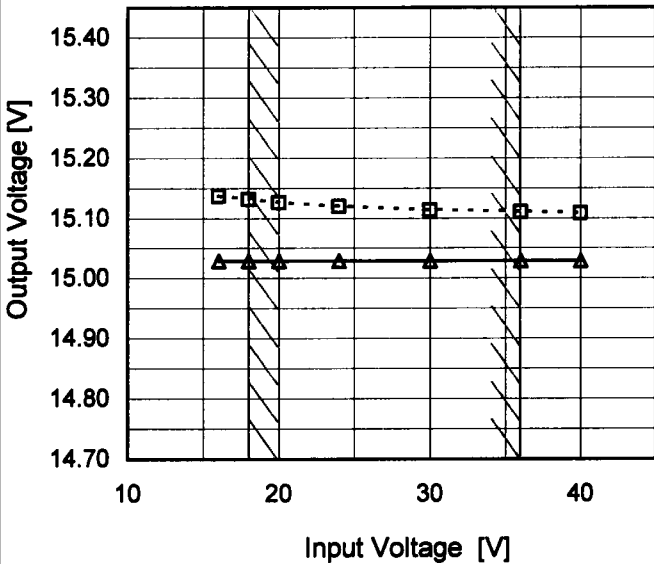
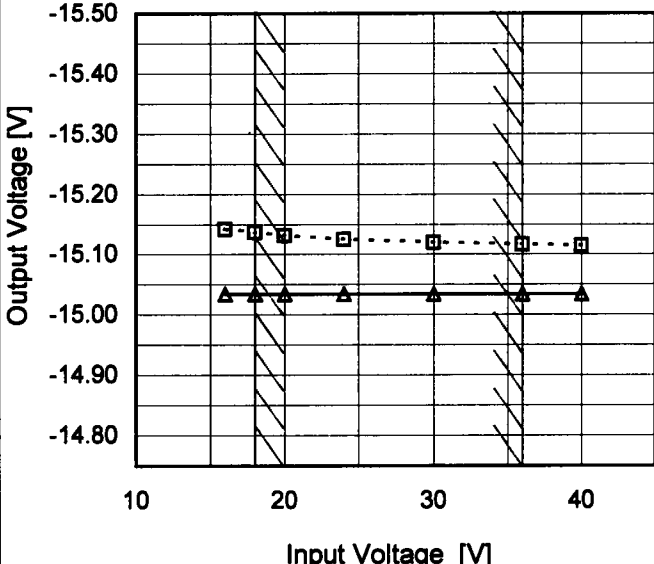
1. Graph

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



2. Values

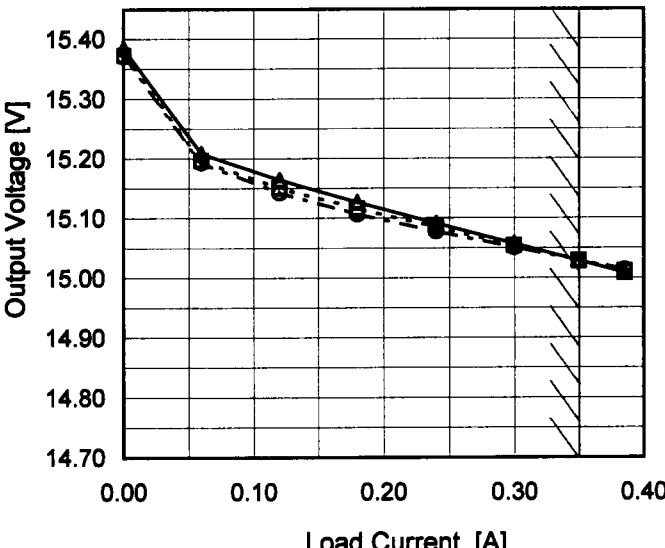
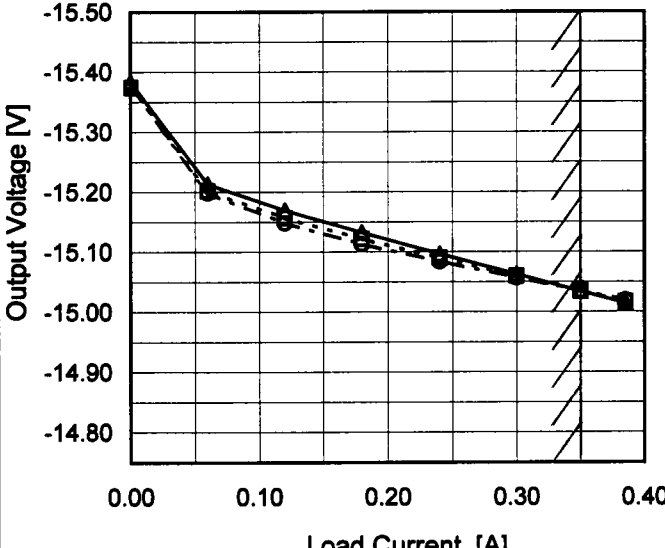
Load Ration [%]	Efficiency [%]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	-	-	-
20	75.5	72.5	68.6
40	82.7	81.1	78.4
60	85.0	84.1	81.5
80	85.8	85.7	84.0
100	85.7	86.2	85.3
110	85.5	86.2	85.7
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

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Item	Line Regulation																																		
Object	+15V0.35A																																		
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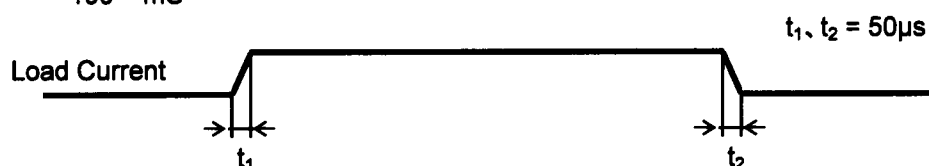
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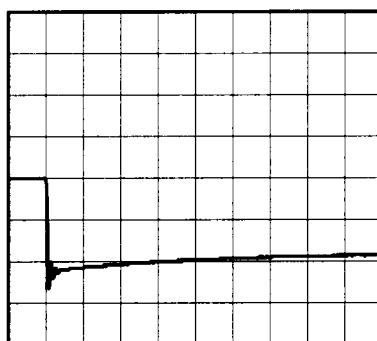
Model	SUW102415/SUCW102415	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+15V0.35A		

Input Volt. 24 V
Cycle 100 mS

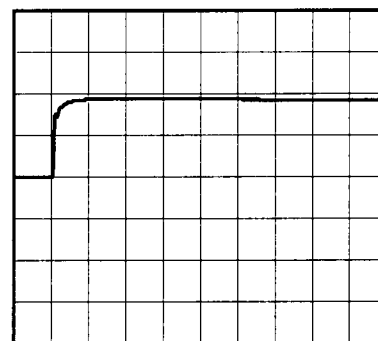


Min. Load (0A) \longleftrightarrow
Load 100% (0.35A)

200mV/div



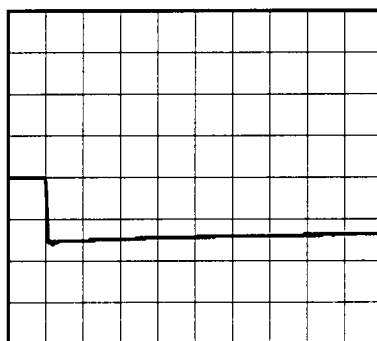
500µs/div



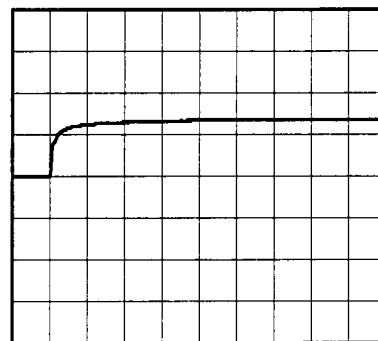
500µs/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.175A)

200mV/div



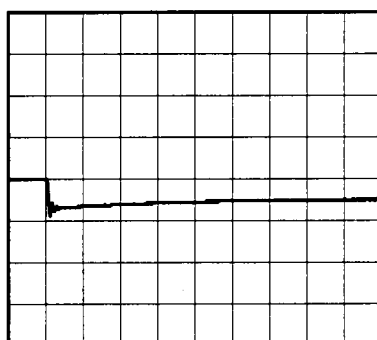
500µs/div



500µs/div

Load 50% (0.175A) \longleftrightarrow
Load 100% (0.35A)

200mV/div



500µs/div

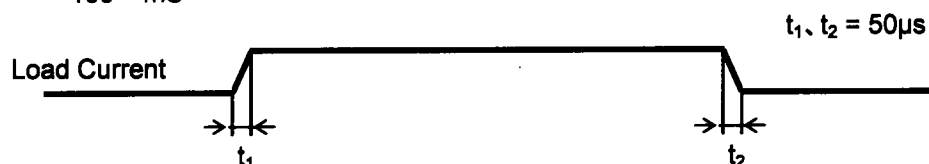


500µs/div

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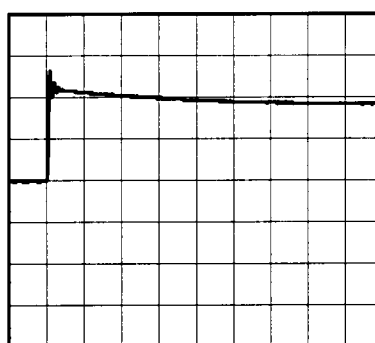
Model	SUW102415/SUCW102415	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	-15V0.35A		

Input Volt. 24 V
Cycle 100 mS

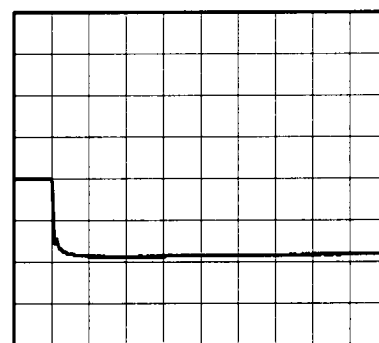


Min. Load (0A) \longleftrightarrow
Load 100% (0.35A)

200mV/div



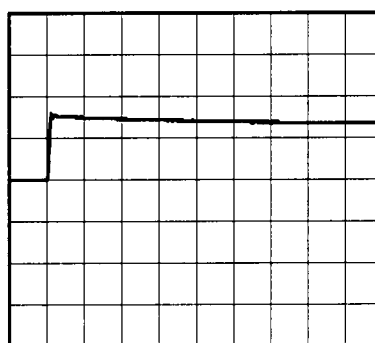
500µs/div



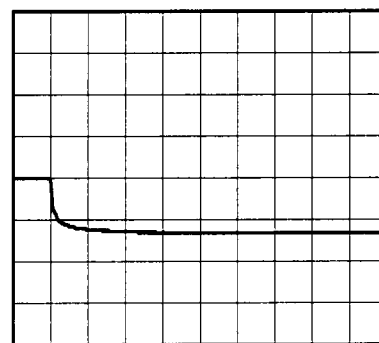
500µs/div

Min. Load (0A) \longleftrightarrow
Load 50% (0.175A)

200mV/div



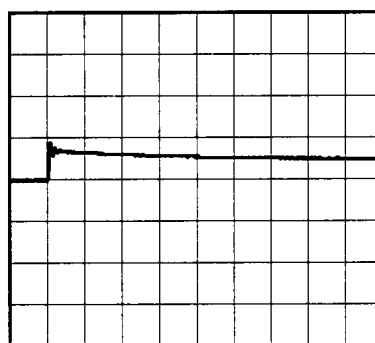
500µs/div



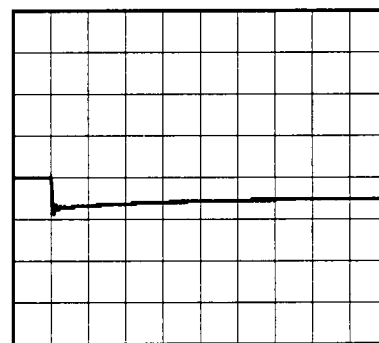
500µs/div

Load 50% (0.175A) \longleftrightarrow
Load 100% (0.35A)

200mV/div



500µs/div



500µs/div

COSEL

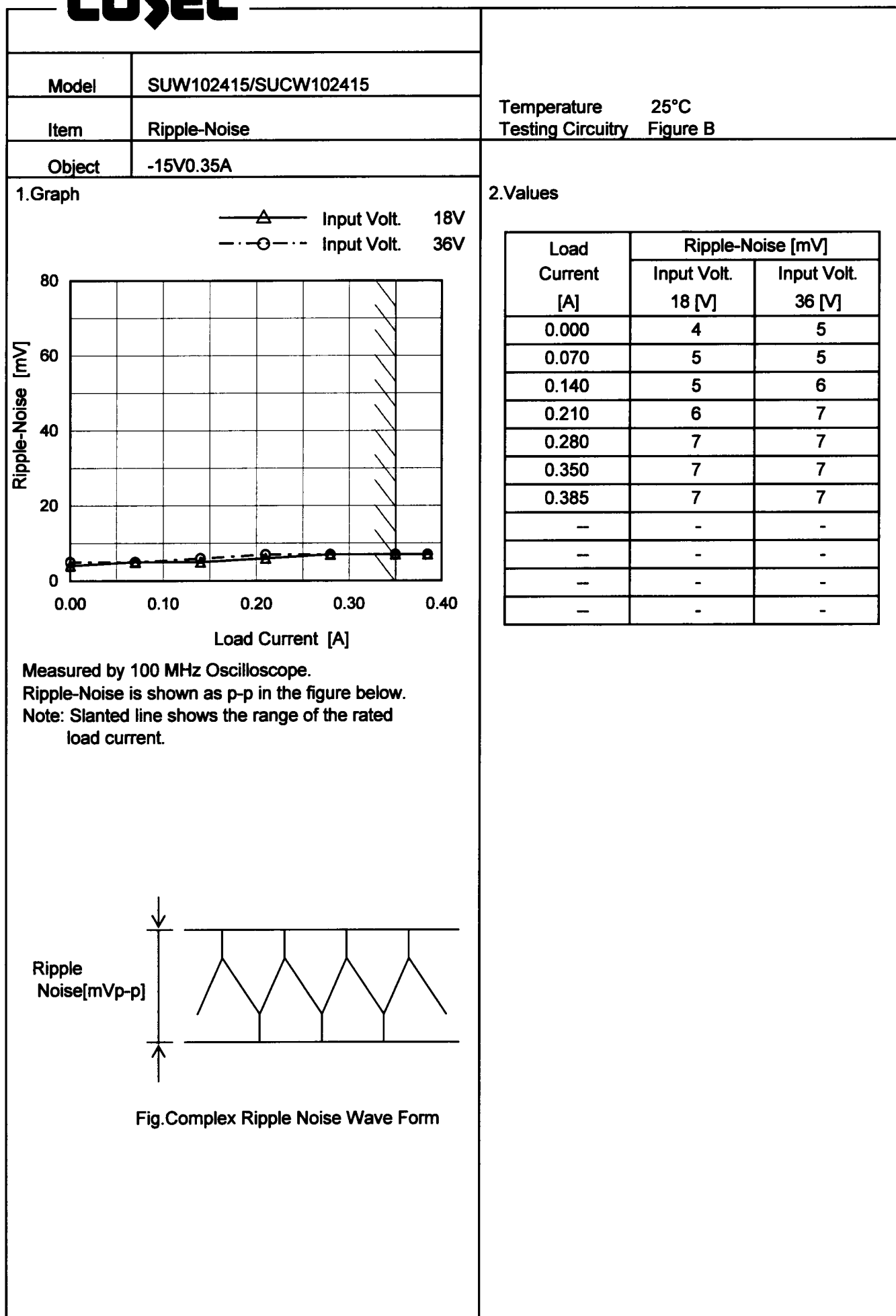
Model		SUW102415/SUCW102415		Temperature 25°C																																							
Item		Ripple Voltage (by Load Current)		Testing Circuitry Figure B																																							
Object		+15V0.35A																																									
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<div><div><div>—△— Input Volt. 18V</div><div>- - -○- - - Input Volt. 36V</div></div><div>Ripple Voltage [mV]</div><div>Load Current [A]</div></div>				<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple Voltage [mV]</th></tr><tr><th>Input Volt. 18 [V]</th><th>Input Volt. 36 [V]</th></tr><tr><td>0.000</td><td>2</td><td>2</td></tr><tr><td>0.070</td><td>3</td><td>3</td></tr><tr><td>0.140</td><td>3</td><td>3</td></tr><tr><td>0.210</td><td>3</td><td>3</td></tr><tr><td>0.280</td><td>4</td><td>4</td></tr><tr><td>0.350</td><td>5</td><td>4</td></tr><tr><td>0.385</td><td>6</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></table>		Load Current [A]	Ripple Voltage [mV]		Input Volt. 18 [V]	Input Volt. 36 [V]	0.000	2	2	0.070	3	3	0.140	3	3	0.210	3	3	0.280	4	4	0.350	5	4	0.385	6	5	—	-	-	—	-	-	—	-	-	—	-	-
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Model	SUW102415/SUCW102415																																								
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Item		Ripple-Noise	
Object		+15V0.35A	
1.Graph		2.Values	
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COSEL

Model		SUW102415/SUCW102415																																																				
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Note: Slanted line shows the range of the rated ambient temperature.																																																						

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		Testing Circuitry Figure A
Model	SUW102415/SUCW102415	
Item	Output Voltage Accuracy	

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 (AVR 1) : 0 - 0.35A (AVR 2) : 0 - 0.35A

* Other Output : Rated Load

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

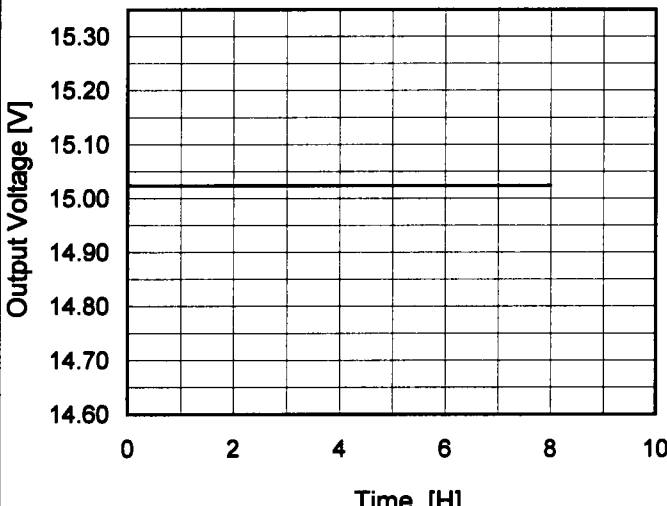
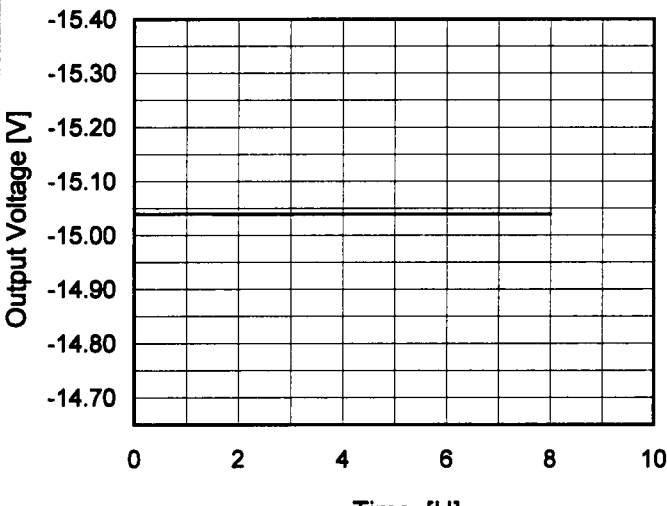
* Output Voltage Accuracy (Ratio) = $\frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$

2. Values

Object		+15V0.35A			
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy
			Current[A]	Voltage[V]	Value [mV] Ration [%]
Maximum Voltage	55	18	0	15.388	±189 ±1.3
Minimum Voltage	55	36	0.35	15.011	

Object		-15V0.35A			
Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy
			Current[A]	Voltage[V]	Value [mV] Ration [%]
Maximum Voltage	55	18	0	-15.389	±187 ±1.2
Minimum Voltage	55	36	0.35	-15.016	

COSEL

Model	SUW102415/SUCW102415																								
Item	Time Lapse Drift																								
Object	+15V0.35A																								
1.Graph		2.Values																							
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 24V</p><p>Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>15.029</td></tr><tr><td>0.5</td><td>15.024</td></tr><tr><td>1.0</td><td>15.024</td></tr><tr><td>2.0</td><td>15.024</td></tr><tr><td>3.0</td><td>15.024</td></tr><tr><td>4.0</td><td>15.024</td></tr><tr><td>5.0</td><td>15.024</td></tr><tr><td>6.0</td><td>15.024</td></tr><tr><td>7.0</td><td>15.024</td></tr><tr><td>8.0</td><td>15.024</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	15.029	0.5	15.024	1.0	15.024	2.0	15.024	3.0	15.024	4.0	15.024	5.0	15.024	6.0	15.024	7.0	15.024	8.0	15.024
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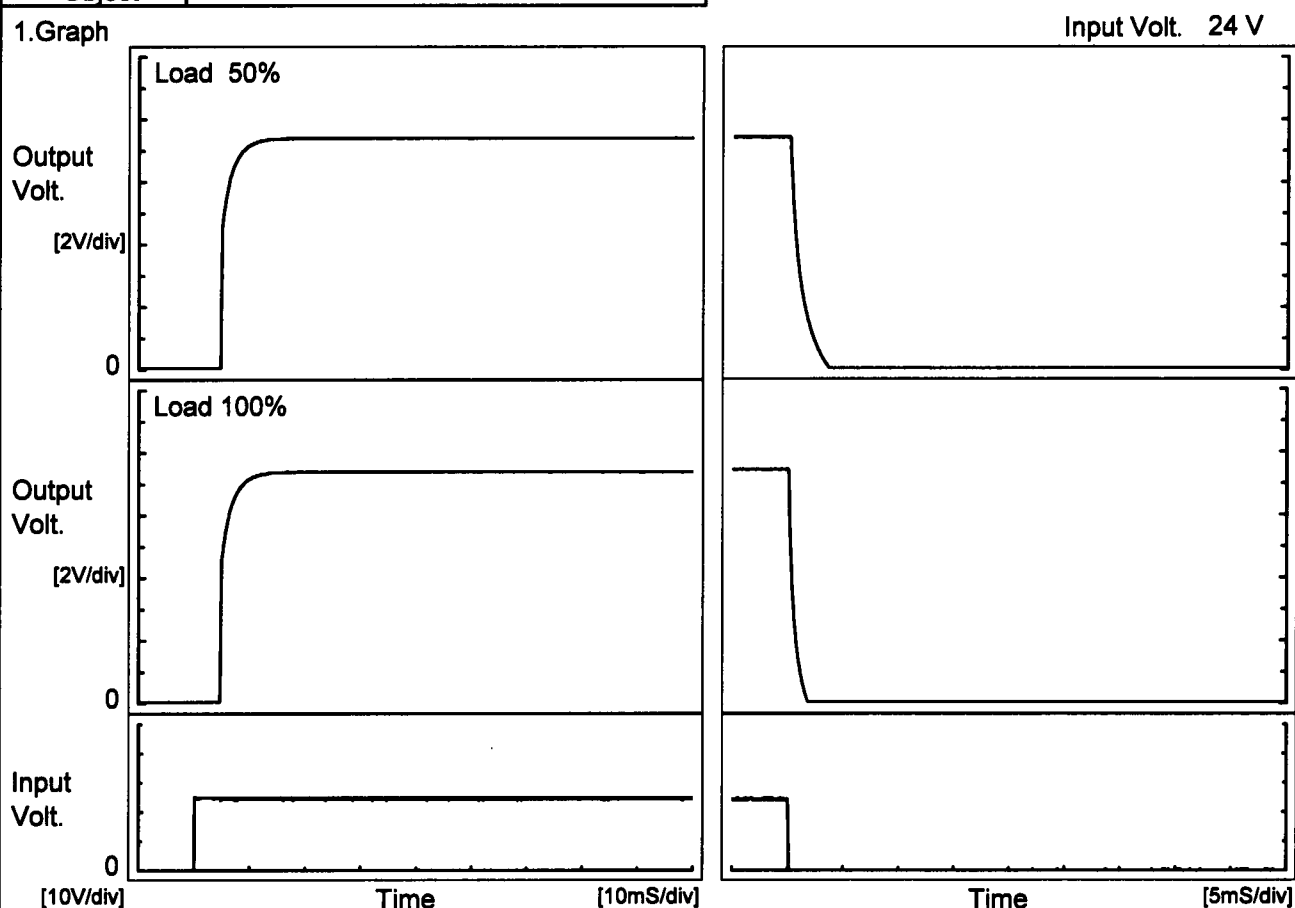
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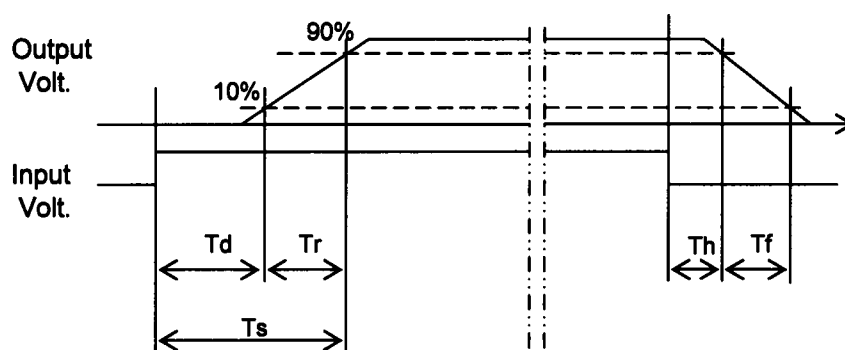
Model	SUW102415/SUCW102415	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+15V0.35A		

1. Graph



2. Values

		[mS]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		4.7	3.2	7.9	0.2	2.3
100 %		4.6	3.4	8.0	0.1	1.1

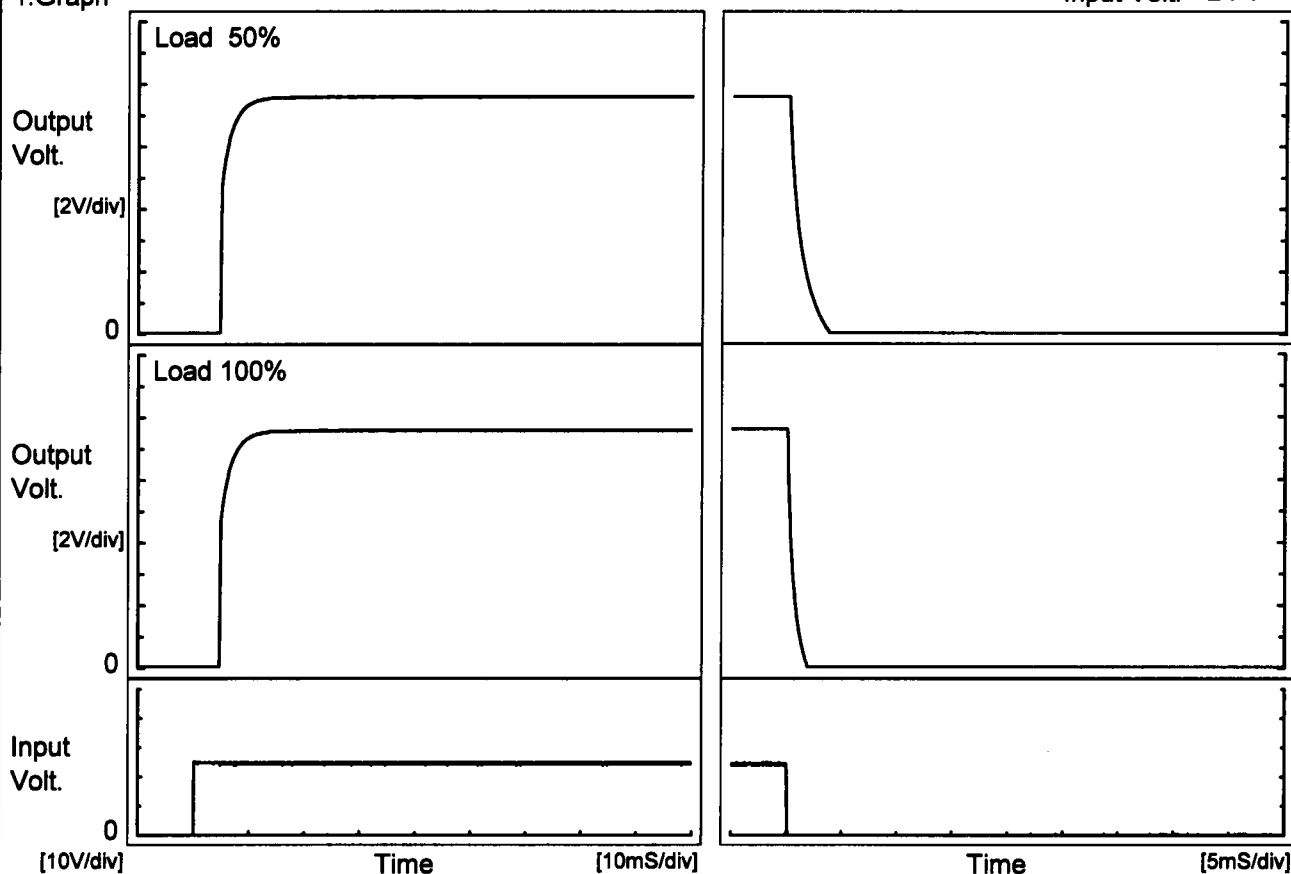


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Model	SUW102415/SUCW102415	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	-15V0.35A		

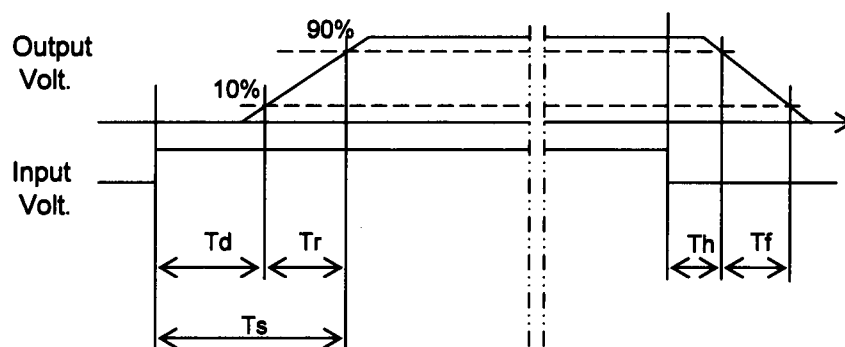
1. Graph

Input Volt. 24 V

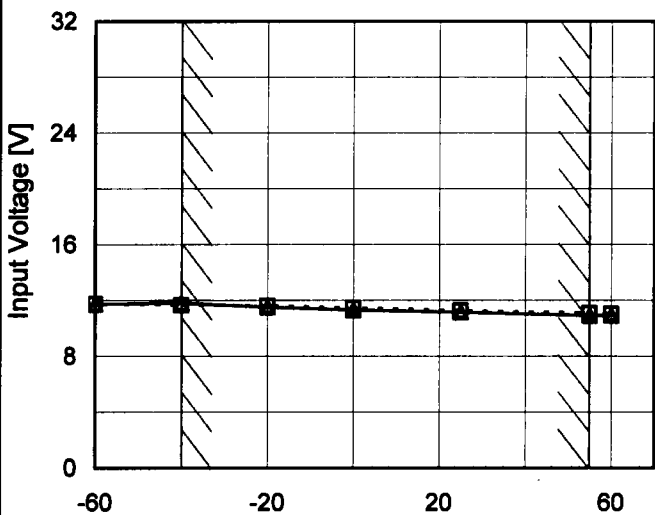


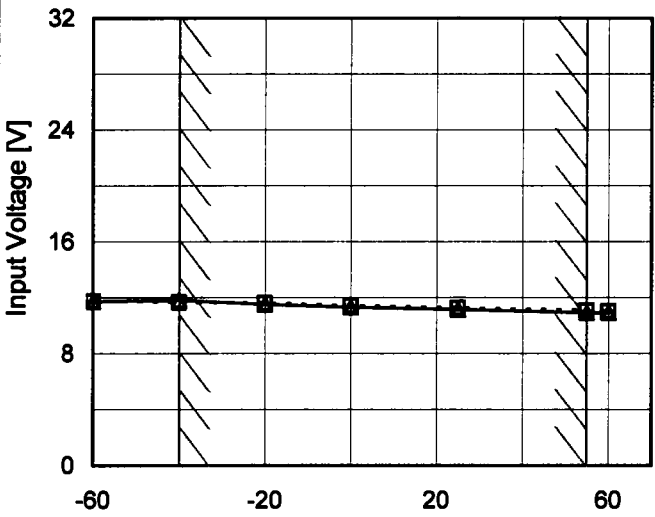
2. Values

		[mS]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		4.7	2.7	7.4	0.2	2.4
100 %		4.6	2.8	7.4	0.1	1.2



COSEL

Model		SUW102415/SUCW102415	
Item		Minimum Input Voltage for Regulated Output Voltage	
Object		+15V0.35A	
1.Graph			
<div><div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div><div>Input Voltage [V]</div><div>Ambient Temperature [°C]</div></div>			
2.Values			
Ambient Temperature [°C]		Input Voltage [V]	
		Load 50%	Load 100%
-60		11.8	11.8
-40		11.7	11.9
-20		11.7	11.6
0		11.5	11.4
25		11.3	11.2
55		11.1	11.0
60		11.1	11.0
--		-	-
--		-	-
--		-	-
--		-	-

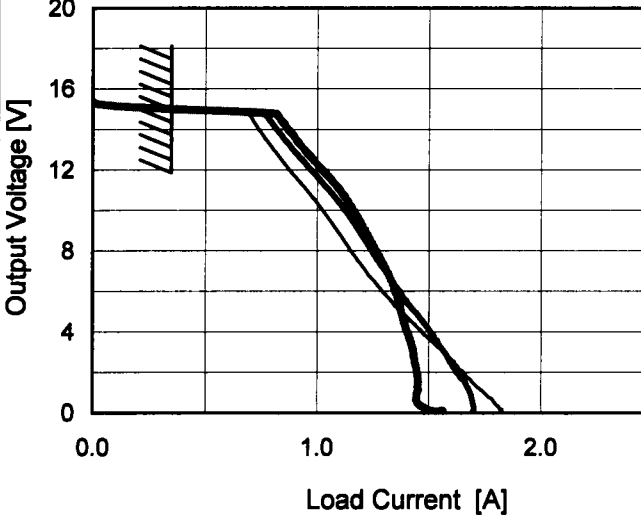
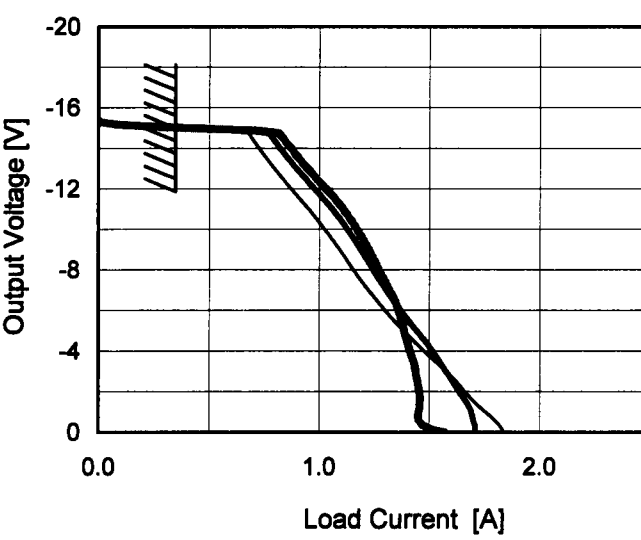
Object		-15V0.35A	
1.Graph			
<div><div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div><div>Input Voltage [V]</div><div>Ambient Temperature [°C]</div></div>			
2.Values			
Ambient Temperature [°C]		Input Voltage [V]	
		Load 50%	Load 100%
-60		11.8	11.8
-40		11.7	11.9
-20		11.7	11.6
0		11.5	11.4
25		11.3	11.2
55		11.1	11.0
60		11.1	11.0
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Note: Slanted line shows the range of the rated ambient temperature.

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COSEL

Model		SUW102415/SUCW102415																																																								
Item		Overcurrent Protection																																																								
Object		+15V0.35A																																																								
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Output Voltage [V]	Load Current [A]																																																									
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1.Graph		<div><div><div></div>Input Volt. 18V</div><div><div></div>Input Volt. 24V</div><div><div></div>Input Volt. 36V</div></div> 																																																								
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		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 18[V]</th><th>Input Volt. 24[V]</th><th>Input Volt. 36[V]</th></tr><tr><td>-15.00</td><td>0.48</td><td>0.49</td><td>0.51</td></tr><tr><td>-14.25</td><td>0.71</td><td>0.81</td><td>0.85</td></tr><tr><td>-13.50</td><td>0.76</td><td>0.86</td><td>0.91</td></tr><tr><td>-12.00</td><td>0.87</td><td>0.98</td><td>1.04</td></tr><tr><td>-10.50</td><td>0.99</td><td>1.09</td><td>1.14</td></tr><tr><td>-9.00</td><td>1.09</td><td>1.19</td><td>1.22</td></tr><tr><td>-7.50</td><td>1.19</td><td>1.28</td><td>1.30</td></tr><tr><td>-6.00</td><td>1.30</td><td>1.37</td><td>1.36</td></tr><tr><td>-4.50</td><td>1.44</td><td>1.49</td><td>1.40</td></tr><tr><td>-3.00</td><td>1.57</td><td>1.57</td><td>1.44</td></tr><tr><td>-1.50</td><td>1.70</td><td>1.67</td><td>1.46</td></tr><tr><td>0.00</td><td>1.84</td><td>1.70</td><td>1.58</td></tr></table>		Output Voltage [V]	Load Current [A]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	-15.00	0.48	0.49	0.51	-14.25	0.71	0.81	0.85	-13.50	0.76	0.86	0.91	-12.00	0.87	0.98	1.04	-10.50	0.99	1.09	1.14	-9.00	1.09	1.19	1.22	-7.50	1.19	1.28	1.30	-6.00	1.30	1.37	1.36	-4.50	1.44	1.49	1.40	-3.00	1.57	1.57	1.44	-1.50	1.70	1.67	1.46	0.00	1.84	1.70	1.58
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Note: Slanted line shows the range of the rated load current.																																																										

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BC-3809

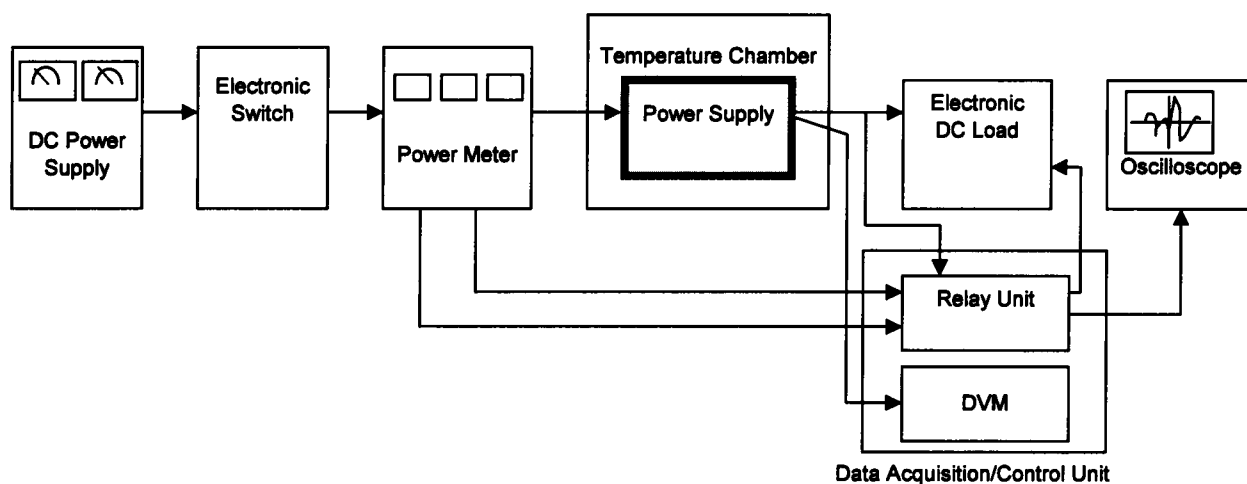


Figure A

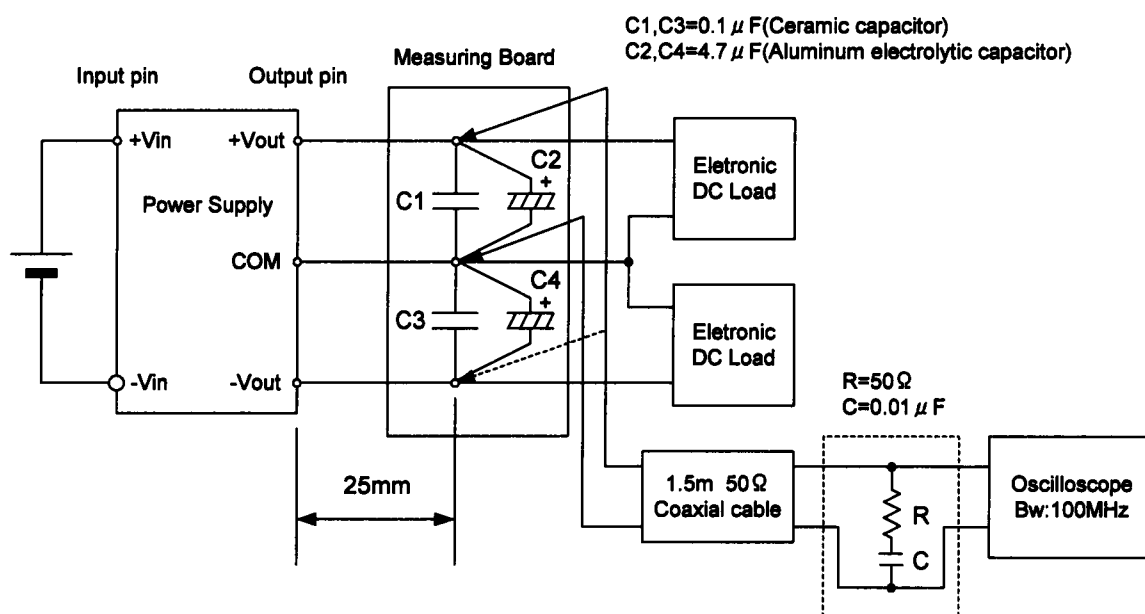


Figure B (Ripple and Ripple noise Characteristic)