

TEST DATA OF SUW62412 SUCW62412

Regulated DC Power Supply
Feb 24, 2005

Approved by : Tetsuo Sugimori
Tetsuo Sugimori Design Manager

Prepared by : Yoshikazu Mizuno
Yoshikazu Mizuno Design Engineer

COSEL CO.,LTD.

CONTENTS

1.Input Current (by Input Voltage)	1
2.Input Current (by Load Current)	2
3.Input Power (by Load Current)	3
4.Efficiency (by Input Voltage)	4
5.Efficiency (by Load Current)	5
6.Line Regulation	6
7.Load Regulation	7
8.Dynamic Load Response	8
9.Ripple Voltage (by Load Current)	10
10.Ripple-Noise	12
11.Ripple Voltage (by Ambient Temperature)	14
12.Ambient Temperature Drift	15
13.Output Voltage Accuracy	16
14.Time Lapse Drift	17
15.Rise and Fall Time	18
16.Minimum Input Voltage for Regulated Output Voltage	20
17.Overcurrent Protection	21
18.Figure of Testing Circuitry	22

(Final Page 22)



Model		SUW62412/SUCW62412		Temperature	25°C																																																																							
Item		Input Current (by Input Voltage)		Testing Circuitry	Figure A																																																																							
Object		_____																																																																										
1. Graph			—△— Load 100% - - □ - - Load 50% - - ○ - - Load 0%	2. Values																																																																								
Input Current [A]				<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>Load 0%</th> <th>Load 50%</th> <th>Load 100%</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>4.0</td><td>0.000</td><td>0.000</td><td>0.000</td></tr> <tr><td>8.0</td><td>0.001</td><td>0.001</td><td>0.001</td></tr> <tr><td>12.0</td><td>0.001</td><td>0.001</td><td>0.001</td></tr> <tr><td>15.2</td><td>0.029</td><td>0.244</td><td>0.476</td></tr> <tr><td>16.0</td><td>0.028</td><td>0.232</td><td>0.450</td></tr> <tr><td>18.0</td><td>0.027</td><td>0.207</td><td>0.399</td></tr> <tr><td>20.0</td><td>0.025</td><td>0.187</td><td>0.358</td></tr> <tr><td>24.0</td><td>0.023</td><td>0.158</td><td>0.299</td></tr> <tr><td>28.0</td><td>0.022</td><td>0.137</td><td>0.258</td></tr> <tr><td>32.0</td><td>0.022</td><td>0.123</td><td>0.227</td></tr> <tr><td>36.0</td><td>0.022</td><td>0.112</td><td>0.204</td></tr> <tr><td>40.0</td><td>0.023</td><td>0.103</td><td>0.186</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>		Input Voltage [V]	Input Current [A]			Load 0%	Load 50%	Load 100%	0.0	0.000	0.000	0.000	4.0	0.000	0.000	0.000	8.0	0.001	0.001	0.001	12.0	0.001	0.001	0.001	15.2	0.029	0.244	0.476	16.0	0.028	0.232	0.450	18.0	0.027	0.207	0.399	20.0	0.025	0.187	0.358	24.0	0.023	0.158	0.299	28.0	0.022	0.137	0.258	32.0	0.022	0.123	0.227	36.0	0.022	0.112	0.204	40.0	0.023	0.103	0.186	--	-	-	-	--	-	-	-	--	-	-	-
	Input Voltage [V]	Input Current [A]																																																																										
		Load 0%	Load 50%	Load 100%																																																																								
	0.0	0.000	0.000	0.000																																																																								
	4.0	0.000	0.000	0.000																																																																								
	8.0	0.001	0.001	0.001																																																																								
	12.0	0.001	0.001	0.001																																																																								
	15.2	0.029	0.244	0.476																																																																								
	16.0	0.028	0.232	0.450																																																																								
	18.0	0.027	0.207	0.399																																																																								
	20.0	0.025	0.187	0.358																																																																								
	24.0	0.023	0.158	0.299																																																																								
	28.0	0.022	0.137	0.258																																																																								
	32.0	0.022	0.123	0.227																																																																								
36.0	0.022	0.112	0.204																																																																									
40.0	0.023	0.103	0.186																																																																									
--	-	-	-																																																																									
--	-	-	-																																																																									
--	-	-	-																																																																									
Note: Slanted line shows the range of the rated input voltage.																																																																												



Model		SUW62412/SUCW62412		Temperature 25°C																																																				
Item		Input Current (by Load Current)		Testing Circuitry Figure A																																																				
Object		_____																																																						
1.Graph		<p> —△— Input Volt. 18V - - - □ - - - Input Volt. 24V - · - ○ - · - - Input Volt. 36V </p>		2.Values																																																				
		<table border="1"> <thead> <tr> <th rowspan="2">Load Ration [%]</th> <th colspan="3">Input Current [A]</th> </tr> <tr> <th>Input Volt. 18[V]</th> <th>Input Volt. 24[V]</th> <th>Input Volt. 36[V]</th> </tr> </thead> <tbody> <tr> <td>0</td> <td>0.027</td> <td>0.023</td> <td>0.022</td> </tr> <tr> <td>20</td> <td>0.099</td> <td>0.077</td> <td>0.059</td> </tr> <tr> <td>40</td> <td>0.170</td> <td>0.131</td> <td>0.094</td> </tr> <tr> <td>60</td> <td>0.244</td> <td>0.185</td> <td>0.130</td> </tr> <tr> <td>80</td> <td>0.319</td> <td>0.240</td> <td>0.166</td> </tr> <tr> <td>100</td> <td>0.396</td> <td>0.296</td> <td>0.202</td> </tr> <tr> <td>110</td> <td>0.434</td> <td>0.324</td> <td>0.220</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 Ration [%]	Input Current [A]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	0	0.027	0.023	0.022	20	0.099	0.077	0.059	40	0.170	0.131	0.094	60	0.244	0.185	0.130	80	0.319	0.240	0.166	100	0.396	0.296	0.202	110	0.434	0.324	0.220	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Ration [%]	Input Current [A]																																																							
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]																																																					
0	0.027	0.023	0.022																																																					
20	0.099	0.077	0.059																																																					
40	0.170	0.131	0.094																																																					
60	0.244	0.185	0.130																																																					
80	0.319	0.240	0.166																																																					
100	0.396	0.296	0.202																																																					
110	0.434	0.324	0.220																																																					
--	-	-	-																																																					
--	-	-	-																																																					
--	-	-	-																																																					
--	-	-	-																																																					

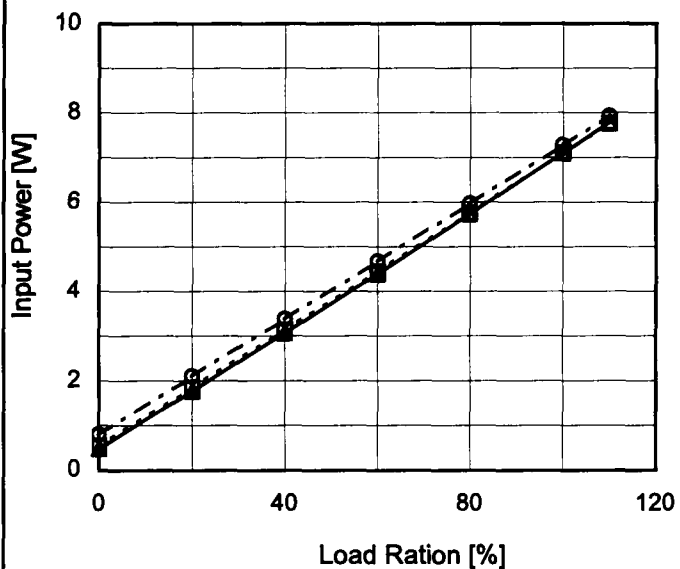


Model	SUW62412/SUCW62412
Item	Input Power (by Load Current)
Object	_____

Temperature 25°C
Testing Circuitry Figure A

1. Graph

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



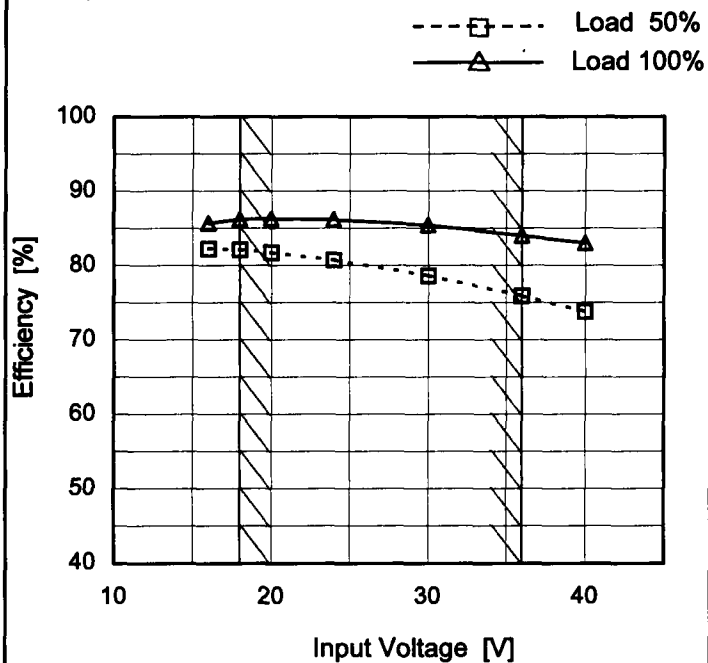
2. Values

Load Ration [%]	Input Power [W]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
0	0.48	0.55	0.80
20	1.77	1.85	2.10
40	3.07	3.14	3.39
60	4.39	4.44	4.68
80	5.73	5.76	5.97
100	7.10	7.10	7.27
110	7.79	7.77	7.93
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-



Model	SUW62412/SUCW62412	Temperature	25°C
Item	Efficiency (by Input Voltage)	Testing Circuitry	Figure A
Object	_____		

1. Graph



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

2. Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
16	82.2	85.7
18	82.1	86.2
20	81.7	86.3
24	80.8	86.2
30	78.6	85.4
36	75.9	84.0
40	73.8	83.0
--	-	-
--	-	-



Model		SUW62412/SUCW62412		Temperature 25°C																																																				
Item		Efficiency (by Load Current)		Testing Circuitry Figure A																																																				
Object		_____																																																						
1.Graph			—△— Input Volt. 18V	2.Values																																																				
			- - □ - - Input Volt. 24V																																																					
			- - ○ - - Input Volt. 36V																																																					
			<table border="1"> <thead> <tr> <th rowspan="2">Load Ration [%]</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> </thead> <tbody> <tr><td>0</td><td>-</td><td>-</td><td>-</td></tr> <tr><td>20</td><td>69.4</td><td>66.4</td><td>58.2</td></tr> <tr><td>40</td><td>79.6</td><td>78.0</td><td>72.2</td></tr> <tr><td>60</td><td>83.5</td><td>82.5</td><td>78.4</td></tr> <tr><td>80</td><td>85.3</td><td>84.9</td><td>81.9</td></tr> <tr><td>100</td><td>86.1</td><td>86.1</td><td>84.0</td></tr> <tr><td>110</td><td>86.2</td><td>86.5</td><td>84.8</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> </tbody> </table>			Load Ration [%]	Efficiency [%]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	0	-	-	-	20	69.4	66.4	58.2	40	79.6	78.0	72.2	60	83.5	82.5	78.4	80	85.3	84.9	81.9	100	86.1	86.1	84.0	110	86.2	86.5	84.8	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Ration [%]	Efficiency [%]																																																							
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]																																																					
0	-	-	-																																																					
20	69.4	66.4	58.2																																																					
40	79.6	78.0	72.2																																																					
60	83.5	82.5	78.4																																																					
80	85.3	84.9	81.9																																																					
100	86.1	86.1	84.0																																																					
110	86.2	86.5	84.8																																																					
--	-	-	-																																																					
--	-	-	-																																																					
--	-	-	-																																																					
--	-	-	-																																																					



COSEL																																		
Model	SUW62412/SUCW62412																																	
Item	Line Regulation	Temperature 25°C Testing Circuitry Figure A																																
Object	+12V0.25A																																	
1.Graph		2.Values																																
		<table border="1"> <thead> <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> </thead> <tbody> <tr><td>16</td><td>12.277</td><td>12.211</td></tr> <tr><td>18</td><td>12.275</td><td>12.212</td></tr> <tr><td>20</td><td>12.274</td><td>12.212</td></tr> <tr><td>24</td><td>12.271</td><td>12.212</td></tr> <tr><td>30</td><td>12.268</td><td>12.212</td></tr> <tr><td>36</td><td>12.266</td><td>12.213</td></tr> <tr><td>40</td><td>12.266</td><td>12.213</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>	Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	16	12.277	12.211	18	12.275	12.212	20	12.274	12.212	24	12.271	12.212	30	12.268	12.212	36	12.266	12.213	40	12.266	12.213	--	-	-	--	-	-
Input Voltage [V]	Output Voltage [V]																																	
	Load 50%	Load 100%																																
16	12.277	12.211																																
18	12.275	12.212																																
20	12.274	12.212																																
24	12.271	12.212																																
30	12.268	12.212																																
36	12.266	12.213																																
40	12.266	12.213																																
--	-	-																																
--	-	-																																

Object	-12V0.25A																																	
1.Graph		2.Values																																
		<table border="1"> <thead> <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> </thead> <tbody> <tr><td>16</td><td>-12.291</td><td>-12.224</td></tr> <tr><td>18</td><td>-12.289</td><td>-12.224</td></tr> <tr><td>20</td><td>-12.287</td><td>-12.224</td></tr> <tr><td>24</td><td>-12.282</td><td>-12.223</td></tr> <tr><td>30</td><td>-12.279</td><td>-12.223</td></tr> <tr><td>36</td><td>-12.277</td><td>-12.222</td></tr> <tr><td>40</td><td>-12.276</td><td>-12.222</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> <tr><td>--</td><td>-</td><td>-</td></tr> </tbody> </table>	Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	16	-12.291	-12.224	18	-12.289	-12.224	20	-12.287	-12.224	24	-12.282	-12.223	30	-12.279	-12.223	36	-12.277	-12.222	40	-12.276	-12.222	--	-	-	--	-	-
Input Voltage [V]	Output Voltage [V]																																	
	Load 50%	Load 100%																																
16	-12.291	-12.224																																
18	-12.289	-12.224																																
20	-12.287	-12.224																																
24	-12.282	-12.223																																
30	-12.279	-12.223																																
36	-12.277	-12.222																																
40	-12.276	-12.222																																
--	-	-																																
--	-	-																																
<p>Note: Slanted line shows the range of the rated input voltage.</p>																																		

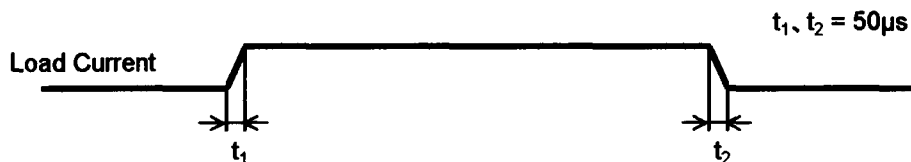


Model SUW62412/SUCW62412		Temperature 25°C Testing Circuitry Figure A																																																				
Item Load Regulation																																																						
Object +12V0.25A																																																						
1.Graph <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="flex: 1;"> </div> <div style="flex: 0.5;"> <p>—△— Input Volt. 18V ---□--- Input Volt. 24V -·-○-·- Input Volt. 36V</p> </div> </div>		2.Values <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th rowspan="2">Load Current [A]</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> </thead> <tbody> <tr><td>0.000</td><td>12.477</td><td>12.464</td><td>12.443</td></tr> <tr><td>0.050</td><td>12.333</td><td>12.328</td><td>12.324</td></tr> <tr><td>0.100</td><td>12.290</td><td>12.285</td><td>12.280</td></tr> <tr><td>0.150</td><td>12.260</td><td>12.256</td><td>12.253</td></tr> <tr><td>0.200</td><td>12.234</td><td>12.233</td><td>12.231</td></tr> <tr><td>0.250</td><td>12.210</td><td>12.211</td><td>12.211</td></tr> <tr><td>0.275</td><td>12.198</td><td>12.201</td><td>12.202</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]	Output Voltage [V]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	0.000	12.477	12.464	12.443	0.050	12.333	12.328	12.324	0.100	12.290	12.285	12.280	0.150	12.260	12.256	12.253	0.200	12.234	12.233	12.231	0.250	12.210	12.211	12.211	0.275	12.198	12.201	12.202	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Output Voltage [V]																																																					
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]																																																			
0.000	12.477	12.464	12.443																																																			
0.050	12.333	12.328	12.324																																																			
0.100	12.290	12.285	12.280																																																			
0.150	12.260	12.256	12.253																																																			
0.200	12.234	12.233	12.231																																																			
0.250	12.210	12.211	12.211																																																			
0.275	12.198	12.201	12.202																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			
Object -12V0.25A																																																						
1.Graph <div style="display: flex; justify-content: space-between; align-items: flex-start;"> <div style="flex: 1;"> </div> <div style="flex: 0.5;"> <p>—△— Input Volt. 18V ---□--- Input Volt. 24V -·-○-·- Input Volt. 36V</p> </div> </div>		2.Values <table border="1" style="width: 100%; text-align: center;"> <thead> <tr> <th rowspan="2">Load Current [A]</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> </thead> <tbody> <tr><td>0.000</td><td>-12.507</td><td>-12.490</td><td>-12.466</td></tr> <tr><td>0.050</td><td>-12.349</td><td>-12.344</td><td>-12.336</td></tr> <tr><td>0.100</td><td>-12.303</td><td>-12.297</td><td>-12.290</td></tr> <tr><td>0.150</td><td>-12.272</td><td>-12.267</td><td>-12.262</td></tr> <tr><td>0.200</td><td>-12.247</td><td>-12.243</td><td>-12.240</td></tr> <tr><td>0.250</td><td>-12.223</td><td>-12.221</td><td>-12.220</td></tr> <tr><td>0.275</td><td>-12.211</td><td>-12.212</td><td>-12.211</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]	Output Voltage [V]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	0.000	-12.507	-12.490	-12.466	0.050	-12.349	-12.344	-12.336	0.100	-12.303	-12.297	-12.290	0.150	-12.272	-12.267	-12.262	0.200	-12.247	-12.243	-12.240	0.250	-12.223	-12.221	-12.220	0.275	-12.211	-12.212	-12.211	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Output Voltage [V]																																																					
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]																																																			
0.000	-12.507	-12.490	-12.466																																																			
0.050	-12.349	-12.344	-12.336																																																			
0.100	-12.303	-12.297	-12.290																																																			
0.150	-12.272	-12.267	-12.262																																																			
0.200	-12.247	-12.243	-12.240																																																			
0.250	-12.223	-12.221	-12.220																																																			
0.275	-12.211	-12.212	-12.211																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			
--	-	-	-																																																			
<p>Note: Slanted line shows the range of the rated load current.</p>																																																						

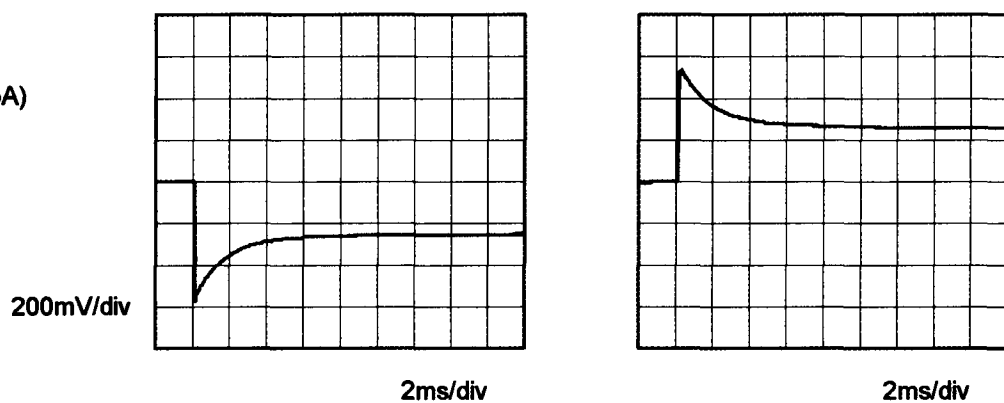


Model	SUW62412/SUCW62412	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+12V0.25A		

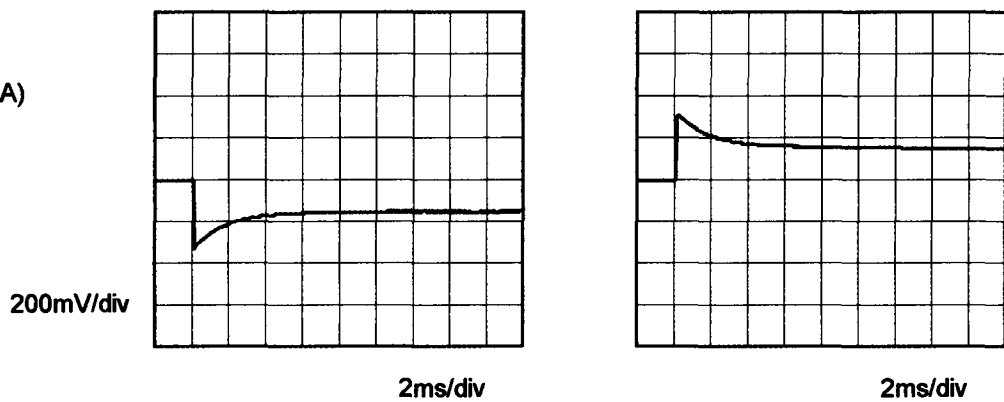
Input Volt. 24 V
 Cycle 100 mS



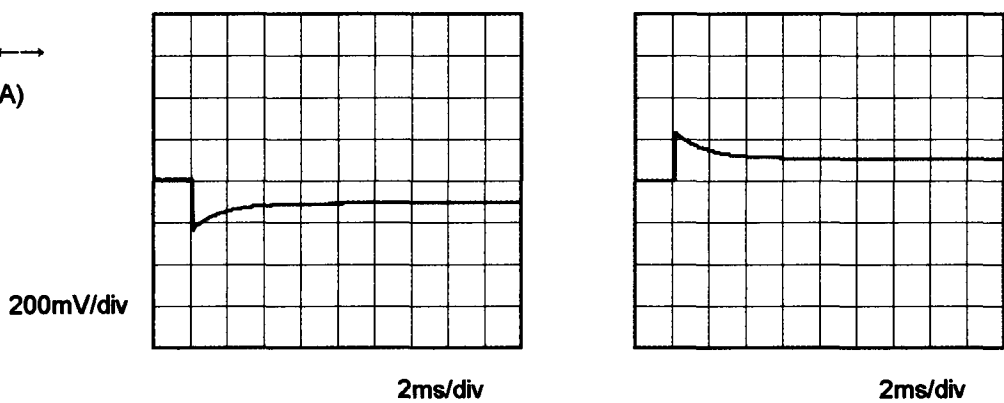
Min. Load (0A) \longleftrightarrow
 Load 100% (0.25A)



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



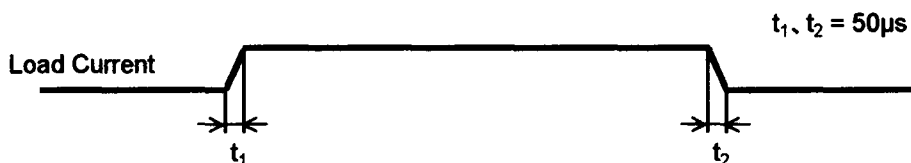
Load 50% (0.125A) \longleftrightarrow
 Load 100% (0.25A)





Model		SUW62412/SUCW62412	
Item		Temperature	25°C
Object		Testing Circuitry	Figure A
		-12V0.25A	

Input Volt. 24 V
Cycle 100 mS

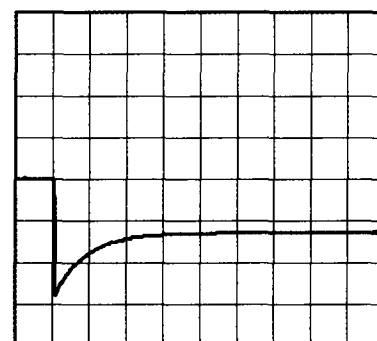


Min. Load (0A) ←→
Load 100% (0.25A)

200mV/div



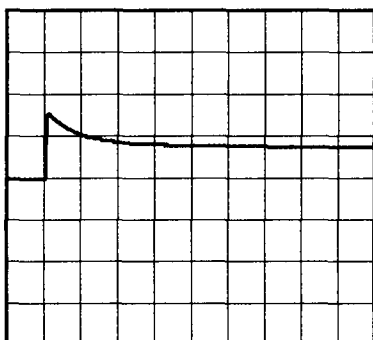
2ms/div



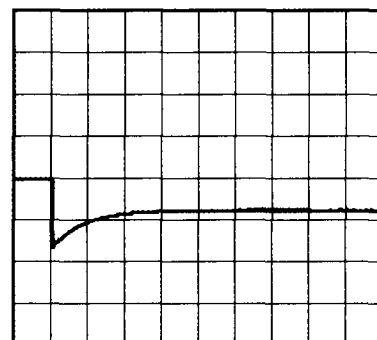
2ms/div

Min. Load (0A) ←→
Load 50% (0.125A)

200mV/div



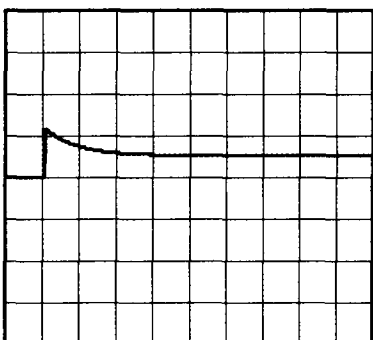
2ms/div



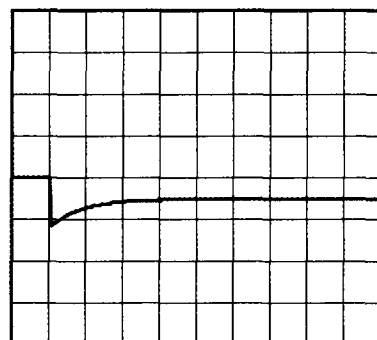
2ms/div

Load 50% (0.125A) ←→
Load 100% (0.25A)

200mV/div



2ms/div



2ms/div



<p>Model SUW62412/SUCW62412</p>		<p>Temperature 25°C Testing Circuitry Figure B</p>																																						
<p>Item Ripple Voltage (by Load Current)</p>																																								
<p>Object +12V0.25A</p>																																								
<p>1.Graph</p> <div style="text-align: center;"> <p>—△— Input Volt. 18V</p> <p>- -○- - Input Volt. 36V</p> </div> <p style="text-align: center;">Load Current [A]</p>		<p>2.Values</p> <table border="1"> <thead> <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> </thead> <tbody> <tr><td>0.000</td><td>2</td><td>2</td></tr> <tr><td>0.050</td><td>2</td><td>2</td></tr> <tr><td>0.100</td><td>3</td><td>3</td></tr> <tr><td>0.150</td><td>4</td><td>3</td></tr> <tr><td>0.200</td><td>5</td><td>4</td></tr> <tr><td>0.250</td><td>8</td><td>5</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>	Load Current [A]	Ripple Voltage [mV]		Input Volt. 18 [V]	Input Volt. 36 [V]	0.000	2	2	0.050	2	2	0.100	3	3	0.150	4	3	0.200	5	4	0.250	8	5	0.275	8	5	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																							
	Input Volt. 18 [V]	Input Volt. 36 [V]																																						
0.000	2	2																																						
0.050	2	2																																						
0.100	3	3																																						
0.150	4	3																																						
0.200	5	4																																						
0.250	8	5																																						
0.275	8	5																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
<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>																																								
<p>Ripple [mVp-p]</p> <p style="text-align: center;">Fig.Complex Ripple Wave Form</p>																																								



<p>Model SUW62412/SUCW62412</p>		<p>Temperature 25°C Testing Circuitry Figure B</p>																																							
<p>Item Ripple Voltage (by Load Current)</p>																																									
<p>Object -12V0.25A</p>																																									
<p>1.Graph</p> <div style="text-align: right;"> <p>—△— Input Volt. 18V -·-○-·- Input Volt. 36V</p> </div> <p style="text-align: center;">Ripple Voltage [mV]</p> <p style="text-align: center;">Load Current [A]</p>		<p>2.Values</p> <table border="1"> <thead> <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> </thead> <tbody> <tr><td>0.000</td><td>3</td><td>3</td></tr> <tr><td>0.050</td><td>3</td><td>3</td></tr> <tr><td>0.100</td><td>3</td><td>3</td></tr> <tr><td>0.150</td><td>3</td><td>3</td></tr> <tr><td>0.200</td><td>4</td><td>3</td></tr> <tr><td>0.250</td><td>5</td><td>4</td></tr> <tr><td>0.275</td><td>7</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> </tbody> </table>		Load Current [A]	Ripple Voltage [mV]		Input Volt. 18 [V]	Input Volt. 36 [V]	0.000	3	3	0.050	3	3	0.100	3	3	0.150	3	3	0.200	4	3	0.250	5	4	0.275	7	4	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple Voltage [mV]																																								
	Input Volt. 18 [V]	Input Volt. 36 [V]																																							
0.000	3	3																																							
0.050	3	3																																							
0.100	3	3																																							
0.150	3	3																																							
0.200	4	3																																							
0.250	5	4																																							
0.275	7	4																																							
--	-	-																																							
--	-	-																																							
--	-	-																																							
--	-	-																																							
<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>																																									
<p>Ripple [mVp-p]</p> <p style="text-align: center;">Fig.Complex Ripple Wave Form</p>																																									



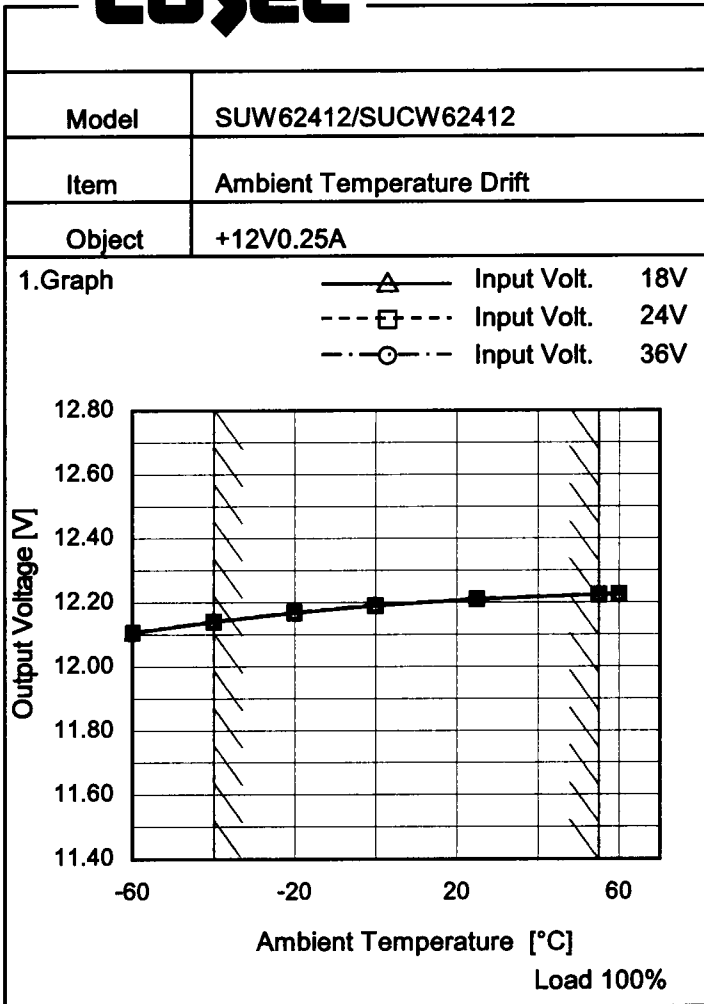
COSEL																																									
Model	SUW62412/SUCW62412	Temperature	25°C																																						
Item	Ripple-Noise	Testing Circuitry	Figure B																																						
Object	+12V0.25A																																								
<p>1.Graph</p> <div style="text-align: right;"> <p>—△— Input Volt. 18V</p> <p>- - -○- - - Input Volt. 36V</p> </div> <p style="text-align: center;">Load Current [A]</p>		<p>2.Values</p> <table border="1"> <thead> <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> </thead> <tbody> <tr><td>0.000</td><td>3</td><td>3</td></tr> <tr><td>0.050</td><td>4</td><td>4</td></tr> <tr><td>0.100</td><td>5</td><td>5</td></tr> <tr><td>0.150</td><td>5</td><td>6</td></tr> <tr><td>0.200</td><td>6</td><td>6</td></tr> <tr><td>0.250</td><td>8</td><td>6</td></tr> <tr><td>0.275</td><td>10</td><td>7</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>		Load Current [A]	Ripple-Noise [mV]		Input Volt. 18 [V]	Input Volt. 36 [V]	0.000	3	3	0.050	4	4	0.100	5	5	0.150	5	6	0.200	6	6	0.250	8	6	0.275	10	7	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																								
	Input Volt. 18 [V]	Input Volt. 36 [V]																																							
0.000	3	3																																							
0.050	4	4																																							
0.100	5	5																																							
0.150	5	6																																							
0.200	6	6																																							
0.250	8	6																																							
0.275	10	7																																							
--	-	-																																							
--	-	-																																							
--	-	-																																							
--	-	-																																							
<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>																																									
<p style="text-align: center;">Ripple Noise[mVp-p]</p> <p style="text-align: center;">Fig.Complex Ripple Noise Wave Form</p>																																									



<p>Model SUW62412/SUCW62412</p>		<p>Temperature 25°C Testing Circuitry Figure B</p>																																						
<p>Item Ripple-Noise</p>																																								
<p>Object -12V0.25A</p>																																								
<p>1.Graph</p> <div style="text-align: center;"> <p>—△— Input Volt. 18V - -○- - Input Volt. 36V</p> </div> <p style="text-align: center;">Load Current [A]</p>		<p>2.Values</p> <table border="1"> <thead> <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> </thead> <tbody> <tr><td>0.000</td><td>5</td><td>5</td></tr> <tr><td>0.050</td><td>6</td><td>6</td></tr> <tr><td>0.100</td><td>7</td><td>7</td></tr> <tr><td>0.150</td><td>7</td><td>7</td></tr> <tr><td>0.200</td><td>8</td><td>8</td></tr> <tr><td>0.250</td><td>9</td><td>9</td></tr> <tr><td>0.275</td><td>10</td><td>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>	Load Current [A]	Ripple-Noise [mV]		Input Volt. 18 [V]	Input Volt. 36 [V]	0.000	5	5	0.050	6	6	0.100	7	7	0.150	7	7	0.200	8	8	0.250	9	9	0.275	10	9	--	-	-	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																							
	Input Volt. 18 [V]	Input Volt. 36 [V]																																						
0.000	5	5																																						
0.050	6	6																																						
0.100	7	7																																						
0.150	7	7																																						
0.200	8	8																																						
0.250	9	9																																						
0.275	10	9																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
--	-	-																																						
<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>																																								
<p style="text-align: center;">Fig.Complex Ripple Noise Wave Form</p>																																								



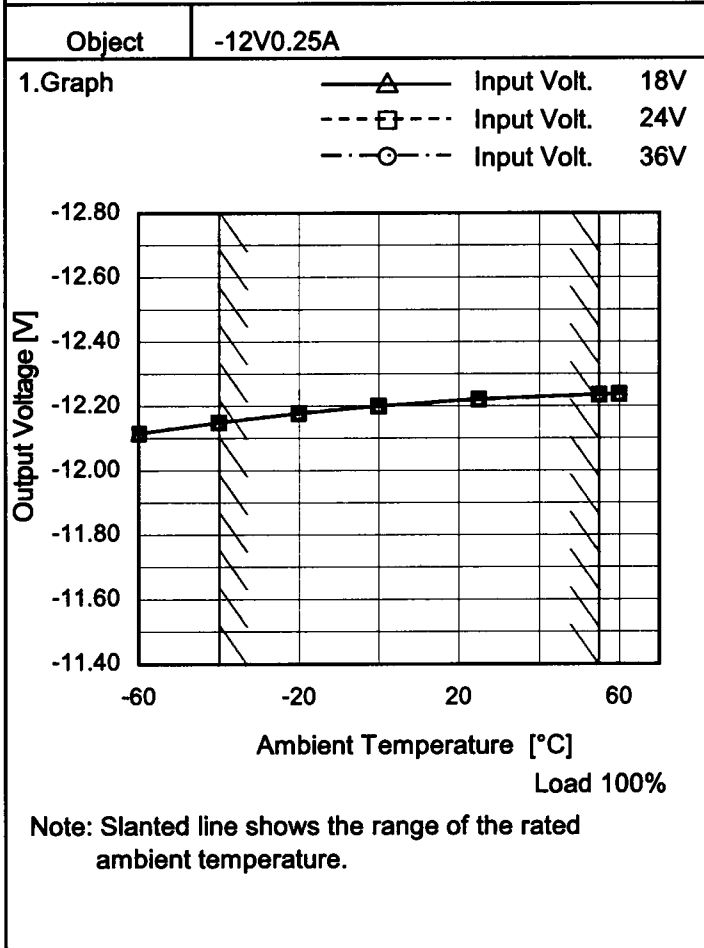
Model SUW62412/SUCW62412		Testing Circuitry Figure B																																							
Item	Ripple Voltage (by Ambient Temp.)																																								
Object	+12V0.25A																																								
<p>1.Graph</p> <div style="text-align: right; margin-bottom: 5px;"> ---□--- Load 50% —△— Load 100% </div> <p style="text-align: center;">Ambient Temperature [°C]</p> <p style="text-align: center;">Input Volt. 24V</p>		<p>2.Values</p> <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <thead> <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> </thead> <tbody> <tr><td>-60</td><td>5</td><td>7</td></tr> <tr><td>-40</td><td>5</td><td>7</td></tr> <tr><td>-20</td><td>5</td><td>7</td></tr> <tr><td>0</td><td>4</td><td>6</td></tr> <tr><td>25</td><td>3</td><td>5</td></tr> <tr><td>55</td><td>2</td><td>4</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> </tbody> </table>	Ambient Temperature [°C]	Ripple Voltage [mV]		Load 50%	Load 100%	-60	5	7	-40	5	7	-20	5	7	0	4	6	25	3	5	55	2	4	60	2	4	--	-	-	--	-	-	--	-	-	--	-	-	
Ambient Temperature [°C]	Ripple Voltage [mV]																																								
	Load 50%	Load 100%																																							
-60	5	7																																							
-40	5	7																																							
-20	5	7																																							
0	4	6																																							
25	3	5																																							
55	2	4																																							
60	2	4																																							
--	-	-																																							
--	-	-																																							
--	-	-																																							
--	-	-																																							
Object -12V0.25A		Testing Circuitry Figure B																																							
<p>1.Graph</p> <div style="text-align: right; margin-bottom: 5px;"> ---□--- Load 50% —△— Load 100% </div> <p style="text-align: center;">Ambient Temperature [°C]</p> <p style="text-align: center;">Input Volt. 24V</p>			<p>2.Values</p> <table border="1" style="width:100%; border-collapse: collapse; text-align: center;"> <thead> <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> </thead> <tbody> <tr><td>-60</td><td>4</td><td>4</td></tr> <tr><td>-40</td><td>4</td><td>4</td></tr> <tr><td>-20</td><td>4</td><td>4</td></tr> <tr><td>0</td><td>3</td><td>3</td></tr> <tr><td>25</td><td>3</td><td>3</td></tr> <tr><td>55</td><td>2</td><td>2</td></tr> <tr><td>60</td><td>2</td><td>2</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]	Ripple Voltage [mV]		Load 50%	Load 100%	-60	4	4	-40	4	4	-20	4	4	0	3	3	25	3	3	55	2	2	60	2	2	--	-	-	--	-	-	--	-	-	--	-	-
Ambient Temperature [°C]	Ripple Voltage [mV]																																								
	Load 50%	Load 100%																																							
-60	4	4																																							
-40	4	4																																							
-20	4	4																																							
0	3	3																																							
25	3	3																																							
55	2	2																																							
60	2	2																																							
--	-	-																																							
--	-	-																																							
--	-	-																																							
--	-	-																																							
<p>Measured by 100 MHz Oscilloscope.</p> <p>Note: Slanted line shows the range of the rated ambient temperature.</p>																																									



Testing Circuitry Figure A

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	12.106	12.107	12.107
-40	12.140	12.141	12.141
-20	12.168	12.169	12.169
0	12.190	12.191	12.192
25	12.210	12.211	12.211
55	12.224	12.225	12.225
60	12.225	12.226	12.226
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-



2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]
-60	-12.115	-12.115	-12.114
-40	-12.149	-12.149	-12.149
-20	-12.177	-12.178	-12.178
0	-12.200	-12.200	-12.200
25	-12.222	-12.221	-12.220
55	-12.236	-12.235	-12.234
60	-12.238	-12.237	-12.236
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-



COSEL		Testing Circuitry Figure A
Model	SUW62412/SUCW62412	
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 - 0.25A (AVR 2): 0 - 0.25A

* Other Output : Rated Load

* 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

Object		+12V0.25A		Output Voltage Accuracy		
Item	Temperature [°C]	Input Voltage[V]	Output		Value [mV]	Ration [%]
			Current[A]	Voltage[V]		
Maximum Voltage	55	18	0	12.502	±181	±1.5
Minimum Voltage	-40	18	0.25	12.140		

Object		-12V0.25A		Output Voltage Accuracy		
Item	Temperature [°C]	Input Voltage[V]	Output		Value [mV]	Ration [%]
			Current[A]	Voltage[V]		
Maximum Voltage	55	18	0	-12.528	±190	±1.6
Minimum Voltage	-40	18	0.25	-12.149		



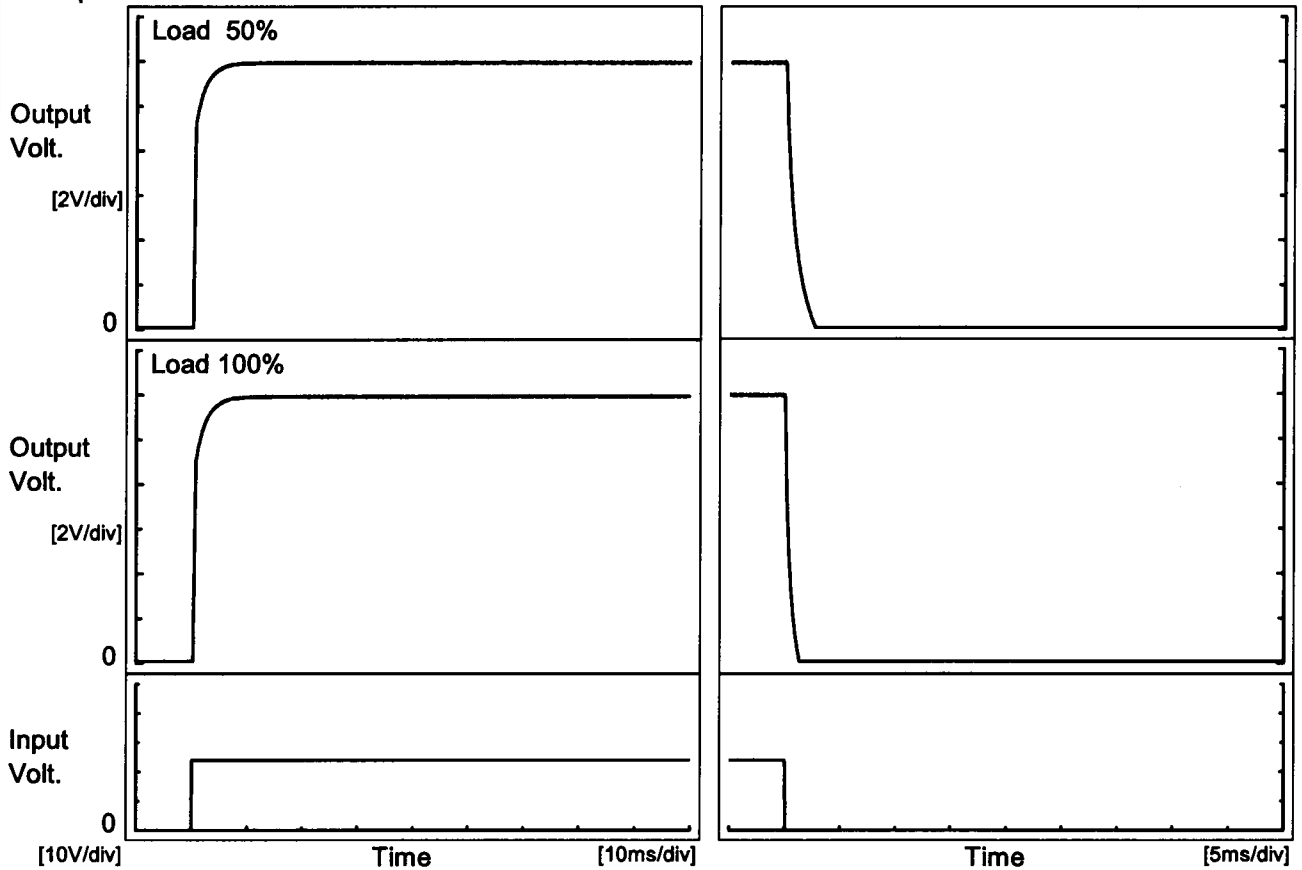
COSEL																								
Model	SUW62412/SUCW62412																							
Item	Time Lapse Drift	Temperature 25°C Testing Circuitry Figure A																						
Object	+12V0.25A																							
<p>1.Graph</p> <p style="text-align: center;">Time [H]</p> <p style="text-align: center;">Input Volt. 24V Load 100%</p>		<p>2.Values</p> <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>12.213</td></tr> <tr><td>0.5</td><td>12.211</td></tr> <tr><td>1.0</td><td>12.211</td></tr> <tr><td>2.0</td><td>12.211</td></tr> <tr><td>3.0</td><td>12.211</td></tr> <tr><td>4.0</td><td>12.211</td></tr> <tr><td>5.0</td><td>12.211</td></tr> <tr><td>6.0</td><td>12.211</td></tr> <tr><td>7.0</td><td>12.211</td></tr> <tr><td>8.0</td><td>12.211</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	12.213	0.5	12.211	1.0	12.211	2.0	12.211	3.0	12.211	4.0	12.211	5.0	12.211	6.0	12.211	7.0	12.211	8.0	12.211
Time since start [H]	Output Voltage [V]																							
0.0	12.213																							
0.5	12.211																							
1.0	12.211																							
2.0	12.211																							
3.0	12.211																							
4.0	12.211																							
5.0	12.211																							
6.0	12.211																							
7.0	12.211																							
8.0	12.211																							
Object	-12V0.25A																							
<p>1.Graph</p> <p style="text-align: center;">Time [H]</p> <p style="text-align: center;">Input Volt. 24V Load 100%</p>		<p>2.Values</p> <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>-12.223</td></tr> <tr><td>0.5</td><td>-12.222</td></tr> <tr><td>1.0</td><td>-12.221</td></tr> <tr><td>2.0</td><td>-12.221</td></tr> <tr><td>3.0</td><td>-12.221</td></tr> <tr><td>4.0</td><td>-12.221</td></tr> <tr><td>5.0</td><td>-12.221</td></tr> <tr><td>6.0</td><td>-12.221</td></tr> <tr><td>7.0</td><td>-12.221</td></tr> <tr><td>8.0</td><td>-12.221</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	-12.223	0.5	-12.222	1.0	-12.221	2.0	-12.221	3.0	-12.221	4.0	-12.221	5.0	-12.221	6.0	-12.221	7.0	-12.221	8.0	-12.221
Time since start [H]	Output Voltage [V]																							
0.0	-12.223																							
0.5	-12.222																							
1.0	-12.221																							
2.0	-12.221																							
3.0	-12.221																							
4.0	-12.221																							
5.0	-12.221																							
6.0	-12.221																							
7.0	-12.221																							
8.0	-12.221																							



Model		SUW62412/SUCW62412	
Item		Rise and Fall Time	
Object		+12V0.25A	
		Temperature 25°C Testing Circuitry Figure A	

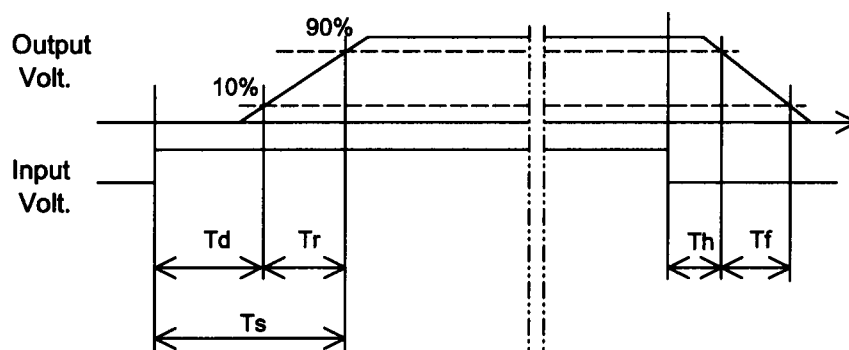
1. Graph

Input Volt. 24 V



2. Values

		[ms]				
Load	Time	Td	Tr	Ts	Th	Tf
	50 %	0.3	2.1	2.4	0.1	1.8
	100 %	0.3	2.4	2.7	0.1	0.9

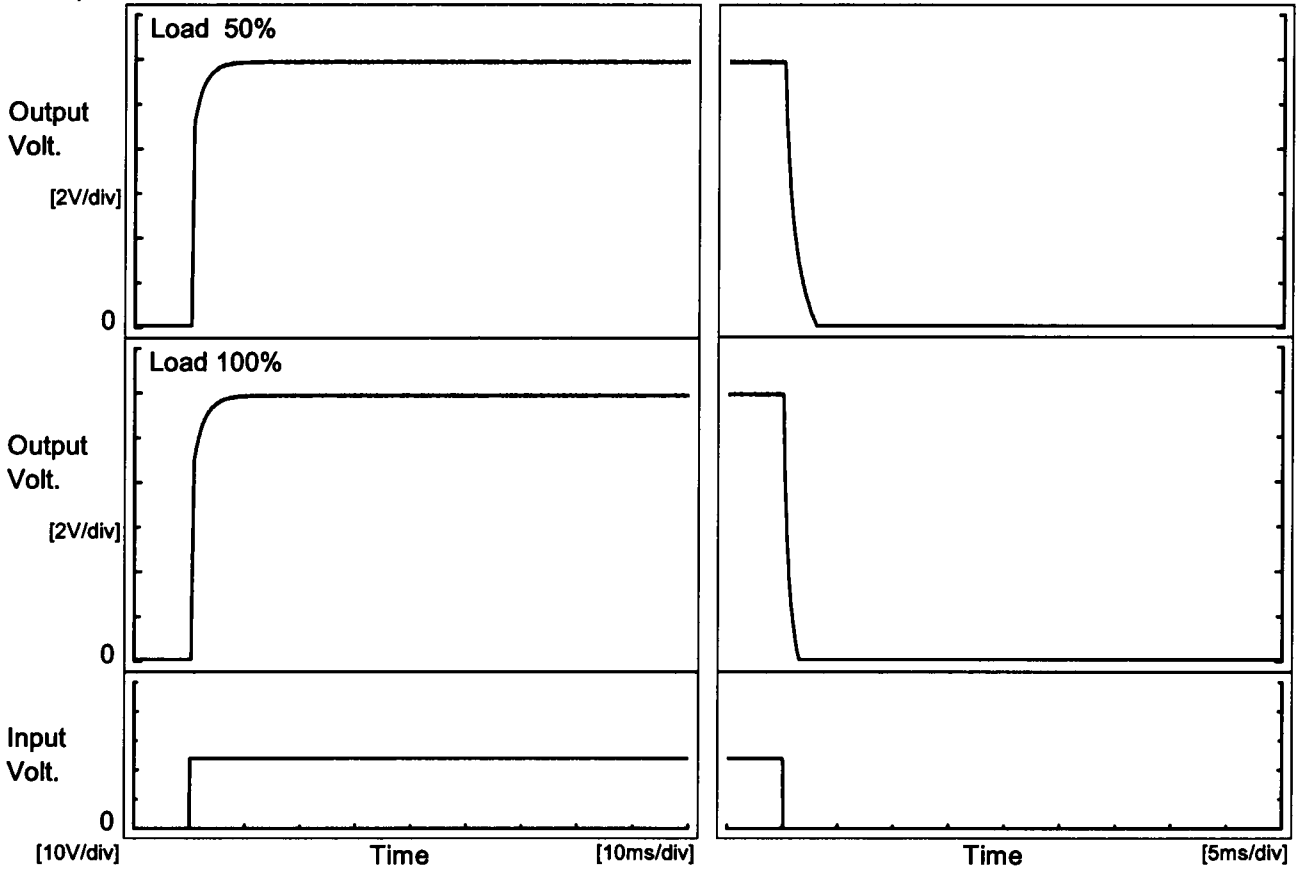




Model		SUW62412/SUCW62412	
Item		Rise and Fall Time	
Object		-12V0.25A	
		Temperature 25°C Testing Circuitry Figure A	

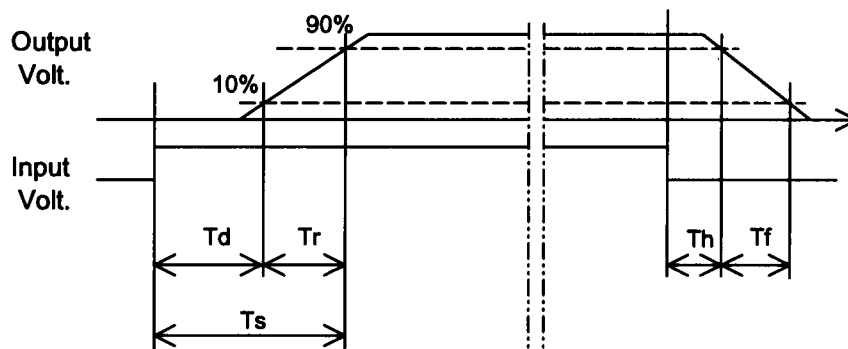
1. Graph

Input Volt. 24 V



2. Values

		[ms]				
Load	Time	Td	Tr	Ts	Th	Tf
50 %		0.3	2.2	2.5	0.1	2.0
100 %		0.3	2.5	2.8	0.1	1.0

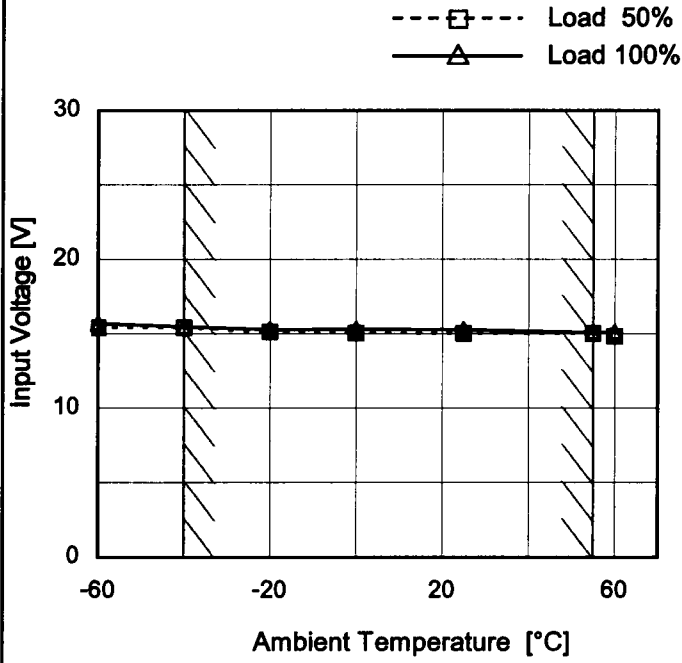




Model	SUW62412/SUCW62412
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V0.25A

Testing Circuitry Figure A

1.Graph

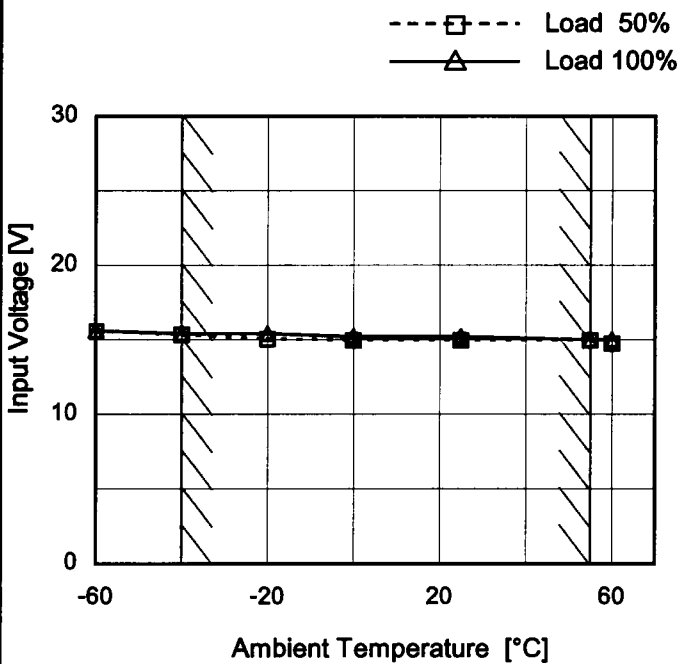


2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.5	15.7
-40	15.5	15.5
-20	15.2	15.3
0	15.1	15.3
25	15.1	15.3
55	15.1	15.1
60	14.9	15.1
--	-	-
--	-	-
--	-	-
--	-	-

Object	-12V0.25A
--------	-----------

1.Graph



2.Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-60	15.6	15.6
-40	15.4	15.4
-20	15.1	15.5
0	15.0	15.3
25	15.0	15.3
55	15.0	15.0
60	14.8	15.0
--	-	-
--	-	-
--	-	-
--	-	-

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



Model		SUW62412/SUCW62412		Temperature 25°C Testing Circuitry Figure A																																																								
Item		Overcurrent Protection																																																										
Object		+12V0.25A																																																										
1.Graph		<p> Input Volt. 18V Input Volt. 24V Input Volt. 36V </p>		2.Values																																																								
				<table border="1"> <thead> <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> </thead> <tbody> <tr><td>12.0</td><td>0.25</td><td>0.25</td><td>0.25</td></tr> <tr><td>11.4</td><td>0.45</td><td>0.47</td><td>0.44</td></tr> <tr><td>10.8</td><td>0.47</td><td>0.49</td><td>0.46</td></tr> <tr><td>9.6</td><td>0.55</td><td>0.55</td><td>0.49</td></tr> <tr><td>8.4</td><td>0.61</td><td>0.61</td><td>0.55</td></tr> <tr><td>7.2</td><td>0.67</td><td>0.66</td><td>0.59</td></tr> <tr><td>6.0</td><td>0.72</td><td>0.70</td><td>0.63</td></tr> <tr><td>4.8</td><td>0.77</td><td>0.74</td><td>0.66</td></tr> <tr><td>3.6</td><td>0.80</td><td>0.75</td><td>0.68</td></tr> <tr><td>2.4</td><td>0.80</td><td>0.74</td><td>0.68</td></tr> <tr><td>1.2</td><td>0.75</td><td>0.69</td><td>0.65</td></tr> <tr><td>0.0</td><td>0.91</td><td>0.84</td><td>0.80</td></tr> </tbody> </table>		Output Voltage [V]	Load Current [A]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	12.0	0.25	0.25	0.25	11.4	0.45	0.47	0.44	10.8	0.47	0.49	0.46	9.6	0.55	0.55	0.49	8.4	0.61	0.61	0.55	7.2	0.67	0.66	0.59	6.0	0.72	0.70	0.63	4.8	0.77	0.74	0.66	3.6	0.80	0.75	0.68	2.4	0.80	0.74	0.68	1.2	0.75	0.69	0.65	0.0	0.91	0.84	0.80
Output Voltage [V]	Load Current [A]																																																											
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]																																																									
12.0	0.25	0.25	0.25																																																									
11.4	0.45	0.47	0.44																																																									
10.8	0.47	0.49	0.46																																																									
9.6	0.55	0.55	0.49																																																									
8.4	0.61	0.61	0.55																																																									
7.2	0.67	0.66	0.59																																																									
6.0	0.72	0.70	0.63																																																									
4.8	0.77	0.74	0.66																																																									
3.6	0.80	0.75	0.68																																																									
2.4	0.80	0.74	0.68																																																									
1.2	0.75	0.69	0.65																																																									
0.0	0.91	0.84	0.80																																																									
Object		-12V0.25A		2.Values																																																								
1.Graph		<p> Input Volt. 18V Input Volt. 24V Input Volt. 36V </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. 18[V]</th> <th>Input Volt. 24[V]</th> <th>Input Volt. 36[V]</th> </tr> </thead> <tbody> <tr><td>-12.0</td><td>0.25</td><td>0.25</td><td>0.25</td></tr> <tr><td>-11.4</td><td>0.45</td><td>0.47</td><td>0.44</td></tr> <tr><td>-10.8</td><td>0.47</td><td>0.49</td><td>0.46</td></tr> <tr><td>-9.6</td><td>0.54</td><td>0.55</td><td>0.50</td></tr> <tr><td>-8.4</td><td>0.61</td><td>0.61</td><td>0.55</td></tr> <tr><td>-7.2</td><td>0.67</td><td>0.66</td><td>0.59</td></tr> <tr><td>-6.0</td><td>0.72</td><td>0.70</td><td>0.63</td></tr> <tr><td>-4.8</td><td>0.77</td><td>0.74</td><td>0.66</td></tr> <tr><td>-3.6</td><td>0.80</td><td>0.76</td><td>0.68</td></tr> <tr><td>-2.4</td><td>0.80</td><td>0.75</td><td>0.68</td></tr> <tr><td>-1.2</td><td>0.76</td><td>0.69</td><td>0.65</td></tr> <tr><td>0.0</td><td>0.89</td><td>0.82</td><td>0.78</td></tr> </tbody> </table>		Output Voltage [V]	Load Current [A]			Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]	-12.0	0.25	0.25	0.25	-11.4	0.45	0.47	0.44	-10.8	0.47	0.49	0.46	-9.6	0.54	0.55	0.50	-8.4	0.61	0.61	0.55	-7.2	0.67	0.66	0.59	-6.0	0.72	0.70	0.63	-4.8	0.77	0.74	0.66	-3.6	0.80	0.76	0.68	-2.4	0.80	0.75	0.68	-1.2	0.76	0.69	0.65	0.0	0.89	0.82	0.78
Output Voltage [V]	Load Current [A]																																																											
	Input Volt. 18[V]	Input Volt. 24[V]	Input Volt. 36[V]																																																									
-12.0	0.25	0.25	0.25																																																									
-11.4	0.45	0.47	0.44																																																									
-10.8	0.47	0.49	0.46																																																									
-9.6	0.54	0.55	0.50																																																									
-8.4	0.61	0.61	0.55																																																									
-7.2	0.67	0.66	0.59																																																									
-6.0	0.72	0.70	0.63																																																									
-4.8	0.77	0.74	0.66																																																									
-3.6	0.80	0.76	0.68																																																									
-2.4	0.80	0.75	0.68																																																									
-1.2	0.76	0.69	0.65																																																									
0.0	0.89	0.82	0.78																																																									
		<p>Note: Slanted line shows the range of the rated load current.</p>																																																										

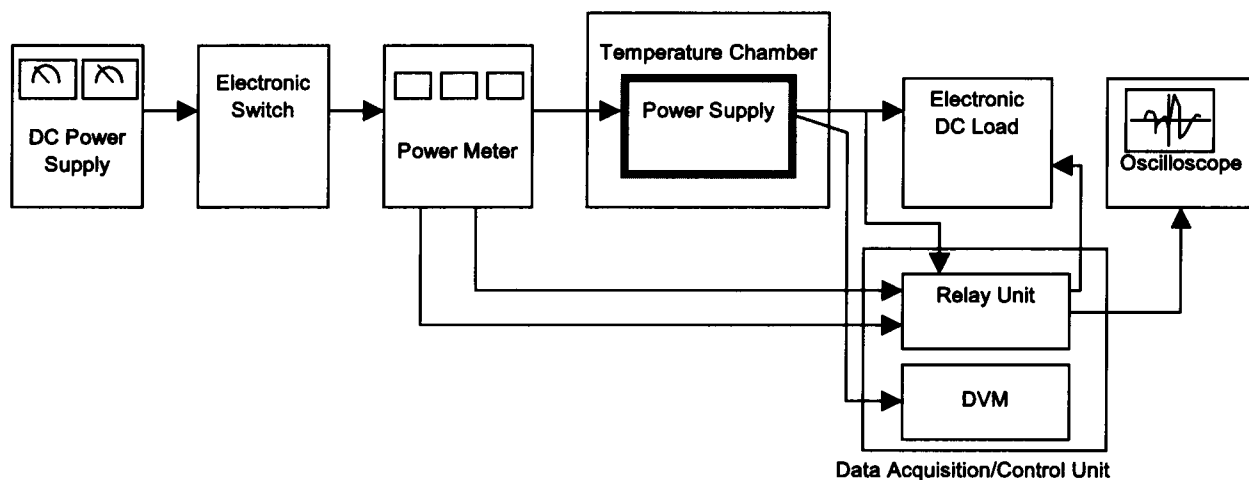


Figure A

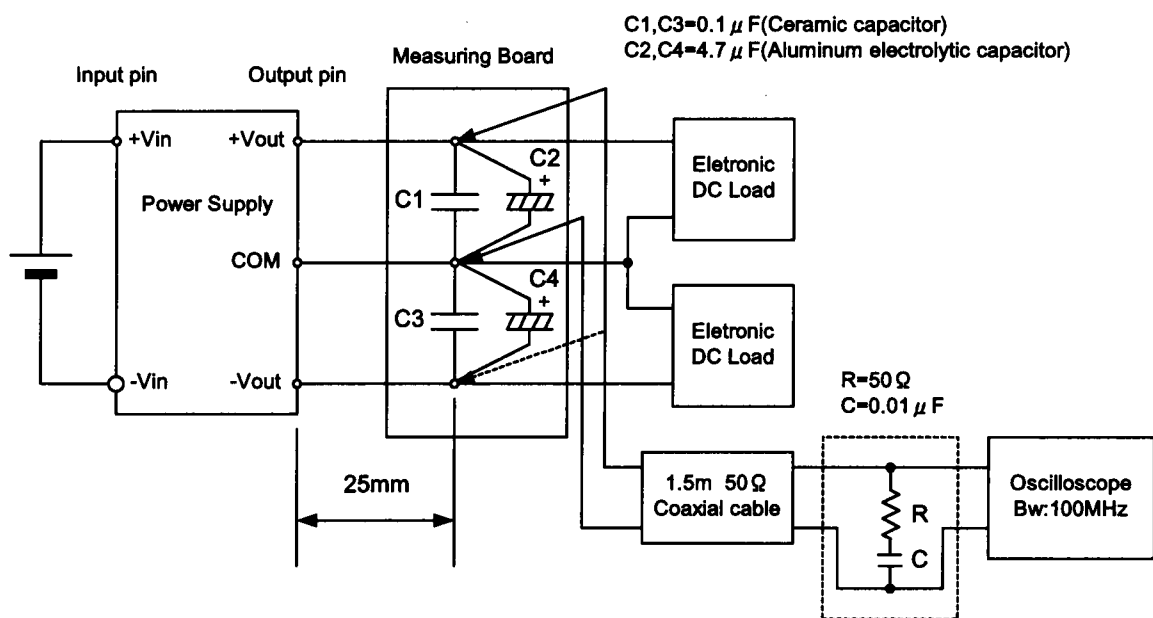


Figure B (Ripple and Ripple noise Characteristic)