



TEST DATA OF R50A-5

(100V INPUT)

Regulated DC Power Supply

Date : Sep. 28. 1998

Approved by : Masanori Oshii
Design Manager

Prepared by : Jun Uchiida
Design Engineer

コーセル株式会社

COSEL CO., LTD.



CONTENTS

1. Line Regulation	1
静的入力変動	
2. Input Current (by Load Current)	2
入力電流 (負荷特性)	
3. Input Power (by Load Current)	3
入力電力 (負荷特性)	
4. Efficiency (by Input Voltage)	4
効率 (入力電圧特性)	
5. Efficiency (by Load Current)	5
効率 (負荷特性)	
6. Power Factor (by Input Voltage)	6
力率 (入力電圧特性)	
7. Power Factor (by Load Current)	7
力率 (負荷特性)	
8. Hold-Up Time	8
出力保持時間	
9. Instantaneous Interruption Compensation	9
瞬時停電保障	
10. Load Regulation	10
静的負荷変動	
11. Ripple Voltage (by Load Current)	11
リップル電圧 (負荷特性)	
12. Ripple-Noise	12
リップルノイズ	
13. Overcurrent Protection	13
過電流保護	
14. Overvoltage Protection	14
過電圧保護	
15. Inrush Current	15
突入電流	
16. Dynamic Load Responce	16
動的負荷変動	
17. Rise and Fall Time	17
立上り、立下がり時間	
18. Ambient Temperature Drift	18
周囲温度変動	
19. Minimum Input Voltage for Regulated Output Voltage	19
最低レギュレーション電圧	
20. Ripple Voltage (by Ambient Temperature)	20
リップル電圧 (周囲温度特性)	
21. Time Lapse Drift	21
経時ドリフト	
22. Output Voltage Accuracy	22
定電圧精度	
23. Condensation	23
結露特性	
24. Leakage Current	24
漏洩電流	
25. Line Noise Tolerance	25
入力雑音耐量	
26. Conducted Emission	26
雑音端子電圧	
27. Figure of Testing Circuitry	27
測定回路図	

(Final Page 28)



Model		R50A-5		Temperature	25°C																																
Item		Line Regulation 静的入力変動		Testing Circuitry	Figure A																																
Object		+5.0V10.00A																																			
1. Graph				2. Values																																	
				<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th>Load 50%</th> <th>Load 100%</th> </tr> <tr> <th>Output Volt. [V]</th> <th>Output Volt. [V]</th> </tr> </thead> <tbody> <tr><td>75</td><td>5.015</td><td>5.007</td></tr> <tr><td>80</td><td>5.015</td><td>5.007</td></tr> <tr><td>85</td><td>5.015</td><td>5.007</td></tr> <tr><td>90</td><td>5.015</td><td>5.007</td></tr> <tr><td>100</td><td>5.015</td><td>5.007</td></tr> <tr><td>110</td><td>5.015</td><td>5.007</td></tr> <tr><td>120</td><td>5.015</td><td>5.007</td></tr> <tr><td>132</td><td>5.015</td><td>5.007</td></tr> <tr><td>140</td><td>5.016</td><td>5.007</td></tr> </tbody> </table>		Input Voltage [V]	Load 50%	Load 100%	Output Volt. [V]	Output Volt. [V]	75	5.015	5.007	80	5.015	5.007	85	5.015	5.007	90	5.015	5.007	100	5.015	5.007	110	5.015	5.007	120	5.015	5.007	132	5.015	5.007	140	5.016	5.007
Input Voltage [V]	Load 50%	Load 100%																																			
	Output Volt. [V]	Output Volt. [V]																																			
75	5.015	5.007																																			
80	5.015	5.007																																			
85	5.015	5.007																																			
90	5.015	5.007																																			
100	5.015	5.007																																			
110	5.015	5.007																																			
120	5.015	5.007																																			
132	5.015	5.007																																			
140	5.016	5.007																																			
<p>Note: Slanted line shows the range of the rated input voltage.</p> <p>(注)斜線は定格入力電圧範囲を示す。</p>																																					



Model		R50A-5	Temperature		25°C																																																							
Item		Input Current (by Load Current) 入力電流 (負荷特性)	Testing Circuitry		Figure A																																																							
Output		—————																																																										
1. Graph			2. Values																																																									
<p> </p> <p> △ — Input Volt. 85V □ — Input Volt. 100V ○ — Input Volt. 132V </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. 85[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 132[V]</th> </tr> </thead> <tbody> <tr><td>0</td><td>0.056</td><td>0.060</td><td>0.066</td></tr> <tr><td>2</td><td>0.314</td><td>0.291</td><td>0.257</td></tr> <tr><td>4</td><td>0.553</td><td>0.497</td><td>0.421</td></tr> <tr><td>6</td><td>0.802</td><td>0.714</td><td>0.593</td></tr> <tr><td>8</td><td>1.058</td><td>0.938</td><td>0.770</td></tr> <tr><td>10</td><td>1.317</td><td>1.163</td><td>0.949</td></tr> <tr><td>11</td><td>1.450</td><td>1.278</td><td>1.040</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> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>			Load Current [A]	Input Current [A]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	0	0.056	0.060	0.066	2	0.314	0.291	0.257	4	0.553	0.497	0.421	6	0.802	0.714	0.593	8	1.058	0.938	0.770	10	1.317	1.163	0.949	11	1.450	1.278	1.040	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Load Current [A]	Input Current [A]																																																											
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																									
0	0.056	0.060	0.066																																																									
2	0.314	0.291	0.257																																																									
4	0.553	0.497	0.421																																																									
6	0.802	0.714	0.593																																																									
8	1.058	0.938	0.770																																																									
10	1.317	1.163	0.949																																																									
11	1.450	1.278	1.040																																																									
—	—	—	—																																																									
—	—	—	—																																																									
—	—	—	—																																																									
—	—	—	—																																																									
—	—	—	—																																																									
<p>Note: Slanted line shows the range of the rated load current</p> <p>(注) 斜線は定格負荷電流範囲を示す。</p>																																																												



Model		R50A-5	Temperature		25°C																																																							
Item		Input Power (by Load Current) 入力電力 (負荷特性)	Testing Circuitry		Figure A																																																							
Output		_____																																																										
1. Graph			2. Values																																																									
<p> </p> <p> △ — Input Volt. 85V □ - - - Input Volt. 100V ○ ··· Input Volt. 132V </p>																																																												
			<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Input Power [W]</th> </tr> <tr> <th>Input Volt. 85[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 132[V]</th> </tr> </thead> <tbody> <tr><td>0</td><td>1.70</td><td>2.06</td><td>2.85</td></tr> <tr><td>2</td><td>14.11</td><td>14.61</td><td>15.88</td></tr> <tr><td>4</td><td>26.36</td><td>26.68</td><td>27.76</td></tr> <tr><td>6</td><td>39.16</td><td>39.33</td><td>40.18</td></tr> <tr><td>8</td><td>52.56</td><td>52.49</td><td>53.10</td></tr> <tr><td>10</td><td>66.40</td><td>66.04</td><td>66.30</td></tr> <tr><td>11</td><td>73.53</td><td>73.00</td><td>73.00</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> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>			Load Current [A]	Input Power [W]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	0	1.70	2.06	2.85	2	14.11	14.61	15.88	4	26.36	26.68	27.76	6	39.16	39.33	40.18	8	52.56	52.49	53.10	10	66.40	66.04	66.30	11	73.53	73.00	73.00	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Load Current [A]	Input Power [W]																																																											
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																									
0	1.70	2.06	2.85																																																									
2	14.11	14.61	15.88																																																									
4	26.36	26.68	27.76																																																									
6	39.16	39.33	40.18																																																									
8	52.56	52.49	53.10																																																									
10	66.40	66.04	66.30																																																									
11	73.53	73.00	73.00																																																									
—	—	—	—																																																									
—	—	—	—																																																									
—	—	—	—																																																									
—	—	—	—																																																									
—	—	—	—																																																									
<p>Note: Slanted line shows the range of the rated load current</p> <p>(注) 斜線は定格負荷電流範囲を示す。</p>																																																												



Model		R50A-5	Temperature		25°C																																
Item		Efficiency 効率	Testing Circuitry		Figure A																																
Object		+5V10.00A																																			
1. Graph			2. Values																																		
<p>Legend: □ Load 50% △ Load 100%</p>			<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th>Load 50%</th> <th>Load 100%</th> </tr> <tr> <th>Efficiency [%]</th> <th>Efficiency [%]</th> </tr> </thead> <tbody> <tr><td>75</td><td>80.2</td><td>77.2</td></tr> <tr><td>80</td><td>80.1</td><td>77.9</td></tr> <tr><td>85</td><td>79.9</td><td>78.4</td></tr> <tr><td>90</td><td>79.8</td><td>78.8</td></tr> <tr><td>100</td><td>79.5</td><td>79.1</td></tr> <tr><td>110</td><td>79.1</td><td>79.2</td></tr> <tr><td>120</td><td>78.4</td><td>79.2</td></tr> <tr><td>132</td><td>77.4</td><td>79.0</td></tr> <tr><td>140</td><td>76.7</td><td>78.8</td></tr> </tbody> </table>			Input Voltage [V]	Load 50%	Load 100%	Efficiency [%]	Efficiency [%]	75	80.2	77.2	80	80.1	77.9	85	79.9	78.4	90	79.8	78.8	100	79.5	79.1	110	79.1	79.2	120	78.4	79.2	132	77.4	79.0	140	76.7	78.8
Input Voltage [V]	Load 50%	Load 100%																																			
	Efficiency [%]	Efficiency [%]																																			
75	80.2	77.2																																			
80	80.1	77.9																																			
85	79.9	78.4																																			
90	79.8	78.8																																			
100	79.5	79.1																																			
110	79.1	79.2																																			
120	78.4	79.2																																			
132	77.4	79.0																																			
140	76.7	78.8																																			
<p>Note: Slanted line shows the range of the rated input voltage.</p> <p>(注)斜線は定格入力電圧範囲を示す。</p>																																					



Model		R50A-5	Temperature		25°C																																																											
Item		Efficiency (by Load Current) 効率 (負荷電流特性)	Testing Circuitry		Figure A																																																											
Output		_____																																																														
1. Graph			2. Values																																																													
<p> <input type="checkbox"/> —△— Input Volt. 85V <input type="checkbox"/> - - -□- - - Input Volt. 100V <input type="checkbox"/> - - -○- - - Input Volt. 132V </p> <p>Efficiency [%]</p> <p>Load Current [A]</p>			<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Efficiency [%]</th> </tr> <tr> <th>Input Volt. 85[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 132[V]</th> </tr> </thead> <tbody> <tr><td>2</td><td>71.0</td><td>68.9</td><td>63.5</td></tr> <tr><td>4</td><td>76.0</td><td>75.2</td><td>72.4</td></tr> <tr><td>6</td><td>76.9</td><td>76.7</td><td>75.1</td></tr> <tr><td>8</td><td>76.5</td><td>76.7</td><td>75.8</td></tr> <tr><td>10</td><td>75.6</td><td>76.0</td><td>75.8</td></tr> <tr><td>11</td><td>75.0</td><td>75.6</td><td>75.6</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> <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]	Efficiency [%]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	2	71.0	68.9	63.5	4	76.0	75.2	72.4	6	76.9	76.7	75.1	8	76.5	76.7	75.8	10	75.6	76.0	75.8	11	75.0	75.6	75.6	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Load Current [A]	Efficiency [%]																																																															
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																													
2	71.0	68.9	63.5																																																													
4	76.0	75.2	72.4																																																													
6	76.9	76.7	75.1																																																													
8	76.5	76.7	75.8																																																													
10	75.6	76.0	75.8																																																													
11	75.0	75.6	75.6																																																													
—	—	—	—																																																													
—	—	—	—																																																													
—	—	—	—																																																													
—	—	—	—																																																													
—	—	—	—																																																													
—	—	—	—																																																													
—	—	—	—																																																													
<p>Note: Slanted line shows the range of the rated load current</p> <p>(注) 斜線は定格負荷電流範囲を示す。</p>																																																																



Model		R50A-5	Temperature	25°C																																
Item		Power Factor (by Input Voltage) 力率 (入力電圧特性)			Testing Circuitry	Figure A																														
Object		_____																																		
1. Graph		<p>□ load 50%</p> <p>△ load 100%</p>	2. Values																																	
			<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th>load 50%</th> <th>load 100%</th> </tr> <tr> <th>Power Factor</th> <th>Power Factor</th> </tr> </thead> <tbody> <tr><td>75</td><td>0.57</td><td>0.61</td></tr> <tr><td>80</td><td>0.57</td><td>0.59</td></tr> <tr><td>85</td><td>0.56</td><td>0.59</td></tr> <tr><td>90</td><td>0.55</td><td>0.58</td></tr> <tr><td>100</td><td>0.54</td><td>0.56</td></tr> <tr><td>110</td><td>0.52</td><td>0.55</td></tr> <tr><td>120</td><td>0.51</td><td>0.53</td></tr> <tr><td>132</td><td>0.50</td><td>0.52</td></tr> <tr><td>140</td><td>0.49</td><td>0.51</td></tr> </tbody> </table>		Input Voltage [V]	load 50%	load 100%	Power Factor	Power Factor	75	0.57	0.61	80	0.57	0.59	85	0.56	0.59	90	0.55	0.58	100	0.54	0.56	110	0.52	0.55	120	0.51	0.53	132	0.50	0.52	140	0.49	0.51
Input Voltage [V]	load 50%	load 100%																																		
	Power Factor	Power Factor																																		
75	0.57	0.61																																		
80	0.57	0.59																																		
85	0.56	0.59																																		
90	0.55	0.58																																		
100	0.54	0.56																																		
110	0.52	0.55																																		
120	0.51	0.53																																		
132	0.50	0.52																																		
140	0.49	0.51																																		
Note: Slanted line shows the range of the rated input voltage.																																				
(注)斜線は定格入力電圧範囲を示す。																																				



Model		R50A-5	Temperature		25°C																																																							
Item		Power Factor (by Load Current) 力率 (負荷電流特性)	Testing Circuitry		Figure A																																																							
Output		_____																																																										
1. Graph			2. Values																																																									
<p> <input type="checkbox"/> —△— Input Volt. 85V <input type="checkbox"/> - -□- - Input Volt. 100V <input type="checkbox"/> - -○- - Input Volt. 132V </p> <p>Note: Slanted line shows the range of the rated load current</p> <p>(注)斜線は定格負荷電流範囲を示す。</p>			<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th colspan="3">Power Factor</th> </tr> <tr> <th>Input Volt. 85[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 132[V]</th> </tr> </thead> <tbody> <tr><td>—</td><td>0.36</td><td>0.35</td><td>0.33</td></tr> <tr><td>2</td><td>0.53</td><td>0.50</td><td>0.47</td></tr> <tr><td>4</td><td>0.56</td><td>0.53</td><td>0.50</td></tr> <tr><td>6</td><td>0.57</td><td>0.55</td><td>0.51</td></tr> <tr><td>8</td><td>0.58</td><td>0.56</td><td>0.52</td></tr> <tr><td>10</td><td>0.59</td><td>0.57</td><td>0.53</td></tr> <tr><td>11</td><td>0.59</td><td>0.57</td><td>0.53</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> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>			Load Current [A]	Power Factor			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	—	0.36	0.35	0.33	2	0.53	0.50	0.47	4	0.56	0.53	0.50	6	0.57	0.55	0.51	8	0.58	0.56	0.52	10	0.59	0.57	0.53	11	0.59	0.57	0.53	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Load Current [A]	Power Factor																																																											
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																									
—	0.36	0.35	0.33																																																									
2	0.53	0.50	0.47																																																									
4	0.56	0.53	0.50																																																									
6	0.57	0.55	0.51																																																									
8	0.58	0.56	0.52																																																									
10	0.59	0.57	0.53																																																									
11	0.59	0.57	0.53																																																									
—	—	—	—																																																									
—	—	—	—																																																									
—	—	—	—																																																									
—	—	—	—																																																									
—	—	—	—																																																									



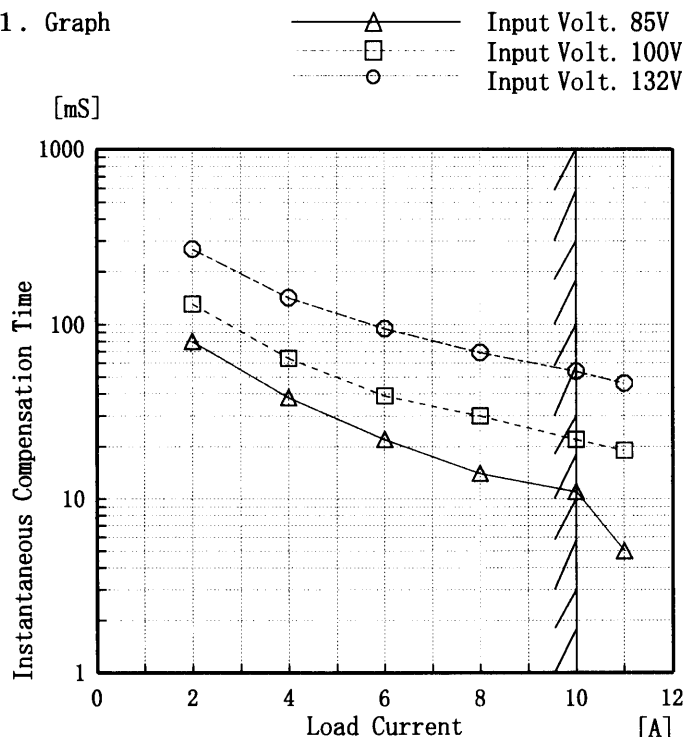
Model		R50A-5	Temperature	25°C																																
Item		Hold-Up Time 出力保持時間	Testing Circuitry	Figure A																																
Object		+5.0V10A																																		
1. Graph			2. Values																																	
			<table border="1"> <thead> <tr> <th rowspan="2">Input Voltage [V]</th> <th>Load 50%</th> <th>Load 100%</th> </tr> <tr> <th>Hold-Up Time [mS]</th> <th>Hold-Up Time [mS]</th> </tr> </thead> <tbody> <tr><td>75</td><td>20</td><td>6</td></tr> <tr><td>80</td><td>26</td><td>9</td></tr> <tr><td>85</td><td>32</td><td>12</td></tr> <tr><td>90</td><td>39</td><td>16</td></tr> <tr><td>100</td><td>55</td><td>23</td></tr> <tr><td>110</td><td>72</td><td>31</td></tr> <tr><td>120</td><td>90</td><td>40</td></tr> <tr><td>132</td><td>115</td><td>52</td></tr> <tr><td>140</td><td>133</td><td>61</td></tr> </tbody> </table>		Input Voltage [V]	Load 50%	Load 100%	Hold-Up Time [mS]	Hold-Up Time [mS]	75	20	6	80	26	9	85	32	12	90	39	16	100	55	23	110	72	31	120	90	40	132	115	52	140	133	61
Input Voltage [V]	Load 50%	Load 100%																																		
	Hold-Up Time [mS]	Hold-Up Time [mS]																																		
75	20	6																																		
80	26	9																																		
85	32	12																																		
90	39	16																																		
100	55	23																																		
110	72	31																																		
120	90	40																																		
132	115	52																																		
140	133	61																																		
		<p>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.</p> <p>Note: Slanted line shows the range of the rated input voltage.</p> <p>出力保持時間とは、入力電圧断から出力電圧が、定電圧精度の規格範囲を保持しているところまでの時間。 (注)斜線は定格入力電圧範囲を示す。</p>																																		



Model	R50A-5
Item	Instantaneous Interruption Compensation 瞬時停電保障
Object	+5.0V10.00A

Testing Circuitry Figure A

1. Graph



2. Values

Load Current [A]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Time [mS]		
0.00	—	—	—
2.00	80	131	270
4.00	38	64	142
6.00	22	39	95
8.00	14	30	69
10.00	11	22	54
11.00	5	19	46
—	—	—	—
—	—	—	—
—	—	—	—
—	—	—	—

This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.

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

瞬時停電保障時間とは、出力電圧が定電圧精度の規格範囲を保持している瞬時停電時間をいう。

(注)斜線は定格負荷電流範囲を示す。



Model		R50A-5	Temperature		25°C																																															
Item		Load Regulation 静的負荷変動	Testing Circuitry		Figure A																																															
Object		+5.0V10.00A																																																		
1. Graph			2. Values																																																	
<p> △ Input Volt. 85V □ Input Volt. 100V ○ Input Volt. 132V </p> <p>Note: Slanted line shows the range of the rated load current.</p> <p>(注)斜線は定格負荷電流範囲を示す。</p>			<table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th>Input Volt. 85[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 132[V]</th> </tr> <tr> <th>Output Volt. [V]</th> <th>Output Volt. [V]</th> <th>Output Volt. [V]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>5.024</td><td>5.024</td><td>5.024</td></tr> <tr><td>2.0</td><td>5.020</td><td>5.020</td><td>5.020</td></tr> <tr><td>4.0</td><td>5.017</td><td>5.017</td><td>5.017</td></tr> <tr><td>6.0</td><td>5.014</td><td>5.014</td><td>5.014</td></tr> <tr><td>8.0</td><td>5.010</td><td>5.010</td><td>5.010</td></tr> <tr><td>10.0</td><td>5.007</td><td>5.007</td><td>5.007</td></tr> <tr><td>11.0</td><td>5.005</td><td>5.005</td><td>5.005</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 Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	Output Volt. [V]	Output Volt. [V]	Output Volt. [V]	0.0	5.024	5.024	5.024	2.0	5.020	5.020	5.020	4.0	5.017	5.017	5.017	6.0	5.014	5.014	5.014	8.0	5.010	5.010	5.010	10.0	5.007	5.007	5.007	11.0	5.005	5.005	5.005	—	—	—	—	—	—	—	—	—	—	—	—
Load Current [A]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																	
	Output Volt. [V]	Output Volt. [V]	Output Volt. [V]																																																	
0.0	5.024	5.024	5.024																																																	
2.0	5.020	5.020	5.020																																																	
4.0	5.017	5.017	5.017																																																	
6.0	5.014	5.014	5.014																																																	
8.0	5.010	5.010	5.010																																																	
10.0	5.007	5.007	5.007																																																	
11.0	5.005	5.005	5.005																																																	
—	—	—	—																																																	
—	—	—	—																																																	
—	—	—	—																																																	



<p>Model R50A-5</p> <p>Item Ripple Voltage (by Load Current) リップル電圧(負荷電流特性)</p> <p>Object +5V 10.00A</p>		<p>Temperature 25°C</p> <p>Testing Circuitry Figure A</p>																																						
<p>1. Graph</p> <p>[mV]</p> <p>-----□----- Input Volt. 85V</p> <p>-----△----- Input Volt. 132V</p>		<p>2. Values</p> <table border="1"> <thead> <tr> <th rowspan="2">Load Current [A]</th> <th>Input Volt. 85 [V]</th> <th>Input Volt. 132 [V]</th> </tr> <tr> <th>Ripple Output Volt. [mV]</th> <th>Ripple Output Volt. [mV]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>20</td><td>20</td></tr> <tr><td>2.0</td><td>30</td><td>30</td></tr> <tr><td>4.0</td><td>40</td><td>40</td></tr> <tr><td>6.0</td><td>40</td><td>40</td></tr> <tr><td>8.0</td><td>40</td><td>40</td></tr> <tr><td>10.0</td><td>40</td><td>50</td></tr> <tr><td>11.0</td><td>50</td><td>50</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]	Input Volt. 85 [V]	Input Volt. 132 [V]	Ripple Output Volt. [mV]	Ripple Output Volt. [mV]	0.0	20	20	2.0	30	30	4.0	40	40	6.0	40	40	8.0	40	40	10.0	40	50	11.0	50	50	—	—	—	—	—	—	—	—	—	—	—	—
Load Current [A]	Input Volt. 85 [V]	Input Volt. 132 [V]																																						
	Ripple Output Volt. [mV]	Ripple Output Volt. [mV]																																						
0.0	20	20																																						
2.0	30	30																																						
4.0	40	40																																						
6.0	40	40																																						
8.0	40	40																																						
10.0	40	50																																						
11.0	50	50																																						
—	—	—																																						
—	—	—																																						
—	—	—																																						
—	—	—																																						
<p>Ripple Voltage is shown as p-p in the figure below.</p> <p>Note: Slanted line shows the range of the rated load current.</p> <p>リップル電圧は、下図 p-p 値で示される。</p> <p>(注) 斜線は定格負荷電流範囲を示す。</p> <p>T1: Due to AC Input Line 入力商用周期</p> <p>T2: Due to Switching スイッチング周期</p> <p>Fig. Complex Ripple Wave Form 図 リップル波形詳細図</p>																																								



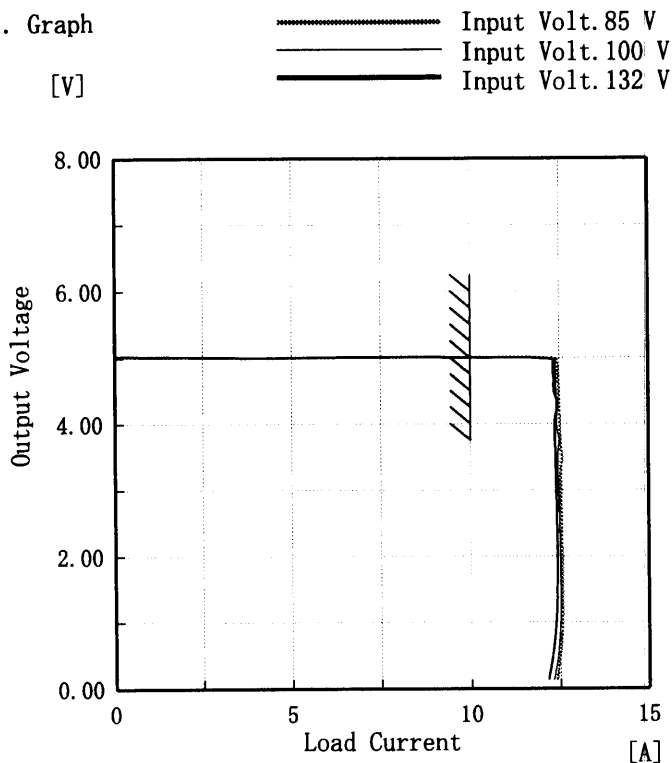
Model		R50A-5	Temperature		25°C																																						
Item		Ripple-Noise リップルノイズ	Testing Circuitry		Figure A																																						
Object		+5V10.00A	2. Values																																								
<p>1. Graph</p> <p>[mV]</p> <p>□----- Input Volt. 85V</p> <p>△----- Input Volt. 132V</p>			<table border="1"> <thead> <tr> <th rowspan="2">Load current [A]</th> <th>Input Volt. 85 [V]</th> <th>Input Volt. 132 [V]</th> </tr> <tr> <th>Ripple-Noise [mV]</th> <th>Ripple-Noise [mV]</th> </tr> </thead> <tbody> <tr><td>0.0</td><td>30</td><td>40</td></tr> <tr><td>2.0</td><td>50</td><td>50</td></tr> <tr><td>4.0</td><td>50</td><td>50</td></tr> <tr><td>6.0</td><td>50</td><td>60</td></tr> <tr><td>8.0</td><td>60</td><td>60</td></tr> <tr><td>10.0</td><td>60</td><td>60</td></tr> <tr><td>11.0</td><td>70</td><td>70</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]	Input Volt. 85 [V]	Input Volt. 132 [V]	Ripple-Noise [mV]	Ripple-Noise [mV]	0.0	30	40	2.0	50	50	4.0	50	50	6.0	50	60	8.0	60	60	10.0	60	60	11.0	70	70	—	—	—	—	—	—	—	—	—	—	—	—
Load current [A]	Input Volt. 85 [V]	Input Volt. 132 [V]																																									
	Ripple-Noise [mV]	Ripple-Noise [mV]																																									
0.0	30	40																																									
2.0	50	50																																									
4.0	50	50																																									
6.0	50	60																																									
8.0	60	60																																									
10.0	60	60																																									
11.0	70	70																																									
—	—	—																																									
—	—	—																																									
—	—	—																																									
—	—	—																																									
<p>Ripple-Noise is shown as p-p in the figure below.</p> <p>Note: Slanted line shows the range of the rated load current.</p> <p>リップルノイズは、下図 p-p 値で示される。</p> <p>(注) 斜線は定格負荷電流範囲を示す。</p> <p>T1: Due to AC Input Line 入力商用周期</p> <p>T2: Due to Switching スイッチング周期</p>			<p>Fig. Complex Ripple Wave Form</p> <p>図 リップル波形詳細図</p>																																								

COSEL

Model	R50A-5
Item	Overcurrent Protection 過電流保護
Object	+5.0V10.00A

Temperature 25°C
Testing Circuitry Figure A

1. Graph



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

(注)斜線は定格負荷電流範囲を示す。

2. Values

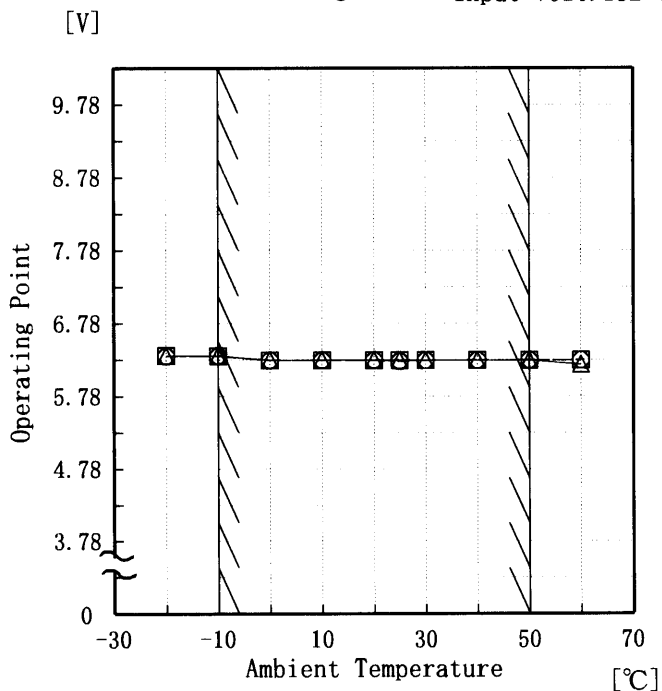
Output Voltage [V]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Load Current [A]	Load Current [A]	Load Current [A]
5.00	12.44	12.37	12.33
4.75	12.46	12.38	12.33
4.50	12.48	12.39	12.33
4.00	12.51	12.42	12.36
3.50	12.57	12.44	12.37
3.00	12.54	12.46	12.39
2.50	12.55	12.48	12.41
2.00	12.56	12.50	12.41
1.50	12.57	12.51	12.40
1.00	12.55	12.49	12.37
0.50	12.50	12.43	12.28
0.00	12.38	12.30	12.15



Model	R50A-5
Item	Overvoltage Protection 過電圧保護
Object	+5.0V10.00A

Testing Circuitry Figure A

1. Graph
- △— Input Volt. 85 V
 - Input Volt. 100 V
 - Input Volt. 132 V



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

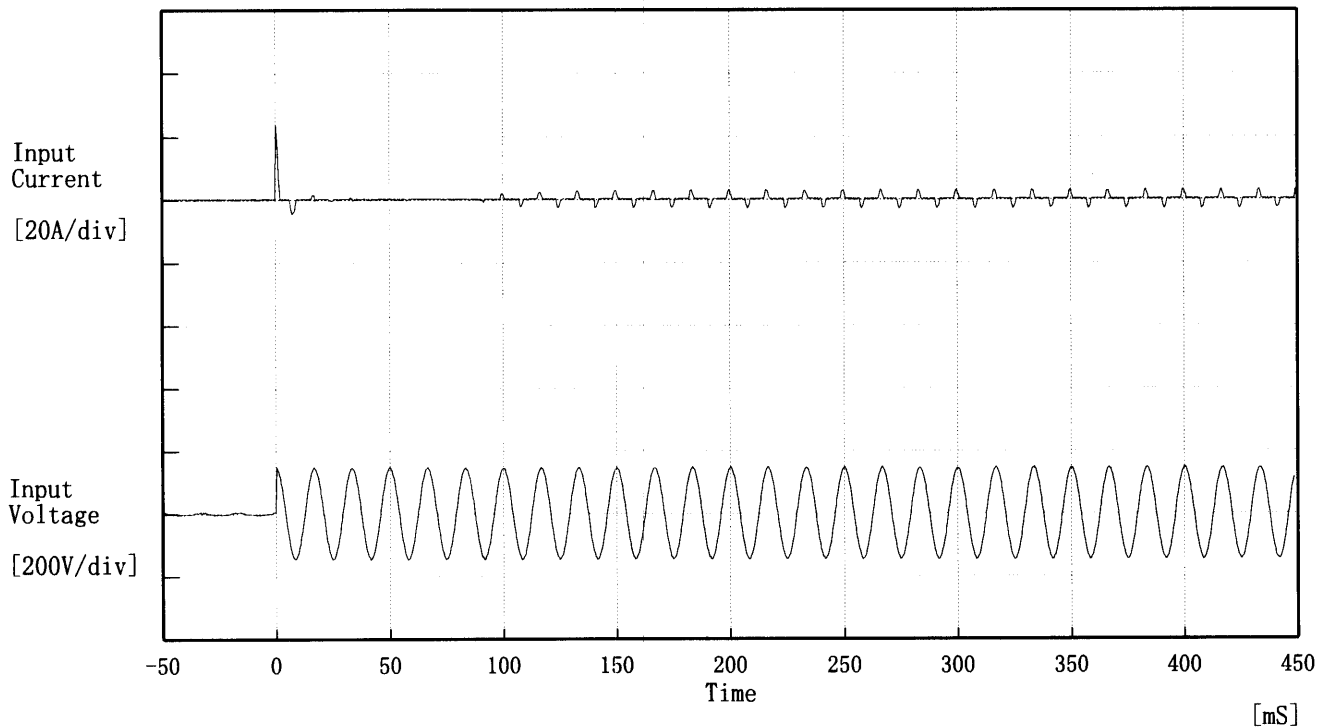
(注)斜線は定格周囲温度範囲を示す。

2. Values

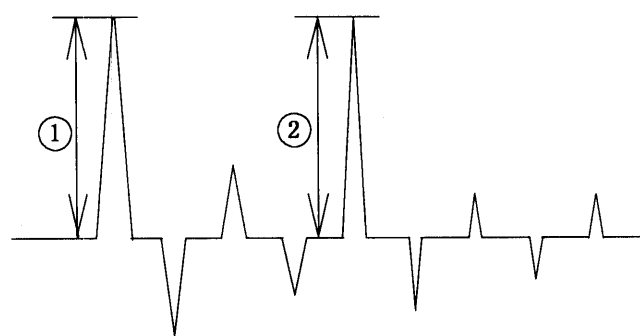
Ambient Temp. [°C]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
	Operating Point [V]		
-20	6.3	6.3	6.3
-10	6.3	6.3	6.3
0	6.3	6.3	6.3
10	6.3	6.3	6.3
20	6.3	6.3	6.3
25	6.3	6.3	6.3
30	6.3	6.3	6.3
40	6.3	6.3	6.3
50	6.3	6.3	6.3
60	6.2	6.3	6.3
—	—	—	—



Model		R50A-5	Temperature 25°C Testing Circuitry Figure A
Item		Inrush Current 突入電流	
Object		_____	



Input Voltage 100 V
 Frequency 60 Hz
 Load 100 %
 Inrush Current
 ① 23.96 [A]
 ② 3.16 [A]



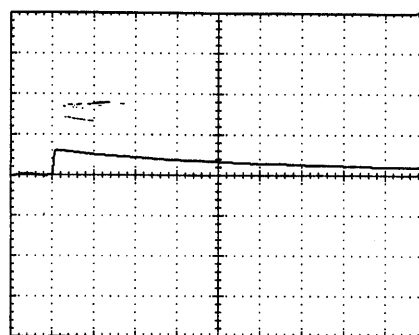
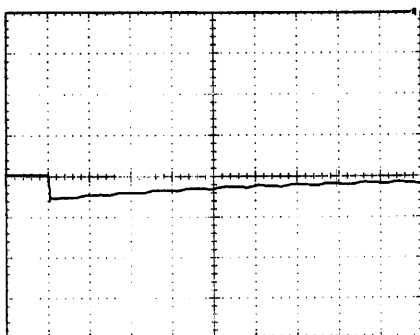
COSEL

Model	R50A-5	Temperature	25°C
Item	Dynamic Load Responce 動的負荷変動	Testing Circuitry	Figure A
Object	+5V10.00A		

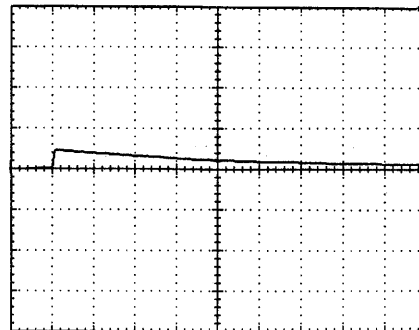
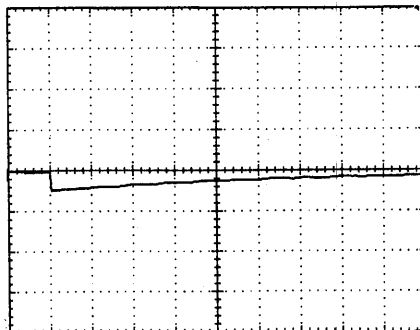
Input Volt. 100 V
Cycle 200 mS



Min. Load ↔
Load 100 %



Min. Load ↔
Load 50 %



100 mV/div

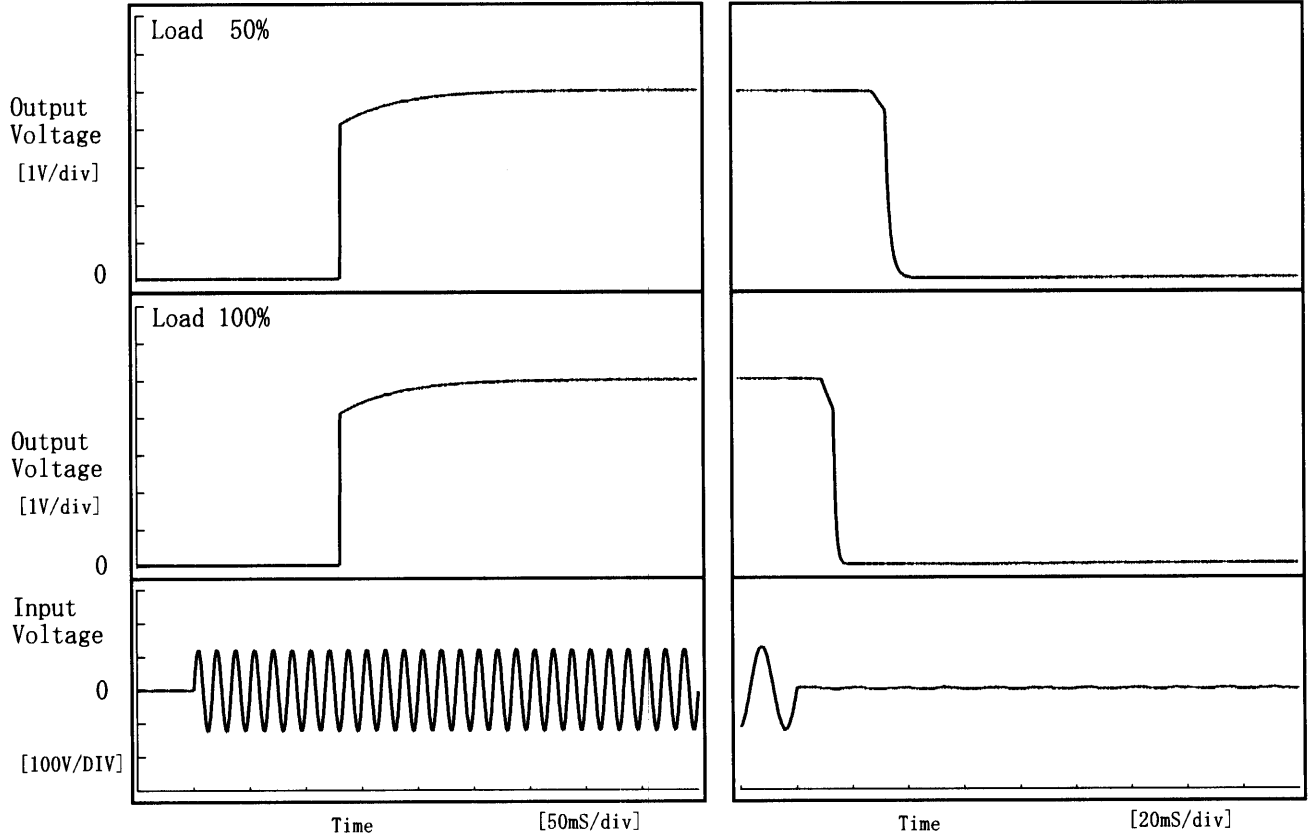
10 mS/div



Model		R50A-5	Temperature		25°C
Item		Rise and Fall Time 立上り、立下り時間	Testing Circuitry		Figure A
Object		+5.0V10.00A			

1. Graph

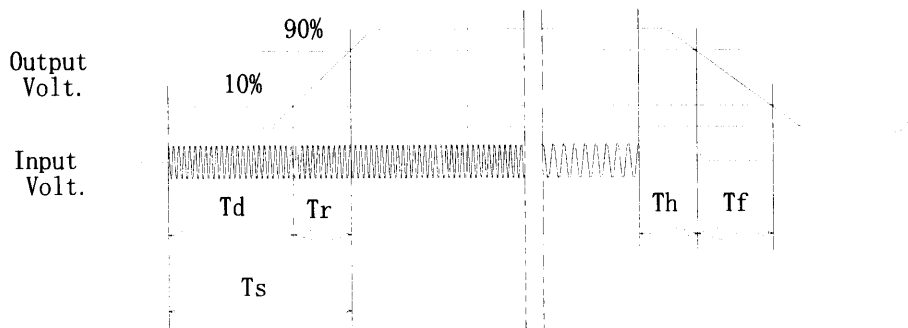
Input Volt. 85 V



2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	130.8	31.0	161.8	32.0	4.2
100 %	130.0	32.3	162.3	12.0	3.7





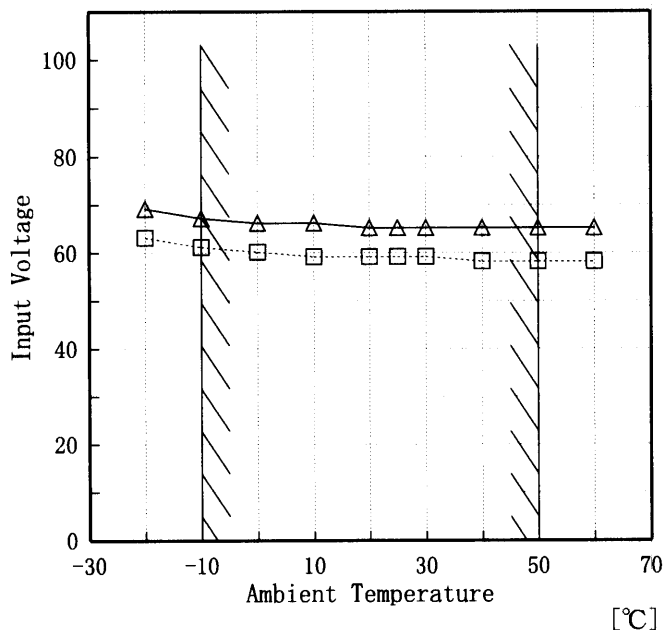
Model		R50A-5		Testing Circuitry Figure A																																																				
Item		Ambient Temperature Drift 周囲温度変動																																																						
Object		+5.0V10.00A																																																						
1. Graph		<p> <input type="checkbox"/> —△— Input Volt. 85V <input type="checkbox"/> - - -□- - - Input Volt. 100V <input type="checkbox"/> ·····○····· Input Volt. 132V </p>		2. Values																																																				
<p>[V]</p> <p>Ambient Temperature [°C]</p> <p>Load 100%</p>		<table border="1"> <thead> <tr> <th rowspan="2">Temperature [°C]</th> <th>Input Volt. 85[V]</th> <th>Input Volt. 100[V]</th> <th>Input Volt. 132[V]</th> </tr> <tr> <th>Output Volt. [V]</th> <th>Output Volt. [V]</th> <th>Output Volt. [V]</th> </tr> </thead> <tbody> <tr><td>-20</td><td>5.012</td><td>5.013</td><td>5.013</td></tr> <tr><td>-10</td><td>5.012</td><td>5.012</td><td>5.012</td></tr> <tr><td>0</td><td>5.011</td><td>5.011</td><td>5.011</td></tr> <tr><td>10</td><td>5.010</td><td>5.010</td><td>5.010</td></tr> <tr><td>20</td><td>5.008</td><td>5.008</td><td>5.008</td></tr> <tr><td>25</td><td>5.007</td><td>5.007</td><td>5.007</td></tr> <tr><td>30</td><td>5.006</td><td>5.006</td><td>5.006</td></tr> <tr><td>40</td><td>5.003</td><td>5.003</td><td>5.003</td></tr> <tr><td>50</td><td>5.000</td><td>5.000</td><td>5.000</td></tr> <tr><td>60</td><td>4.996</td><td>4.996</td><td>4.996</td></tr> <tr><td>—</td><td>—</td><td>—</td><td>—</td></tr> </tbody> </table>		Temperature [°C]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	Output Volt. [V]	Output Volt. [V]	Output Volt. [V]	-20	5.012	5.013	5.013	-10	5.012	5.012	5.012	0	5.011	5.011	5.011	10	5.010	5.010	5.010	20	5.008	5.008	5.008	25	5.007	5.007	5.007	30	5.006	5.006	5.006	40	5.003	5.003	5.003	50	5.000	5.000	5.000	60	4.996	4.996	4.996	—	—	—	—		
Temperature [°C]	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																					
	Output Volt. [V]	Output Volt. [V]	Output Volt. [V]																																																					
-20	5.012	5.013	5.013																																																					
-10	5.012	5.012	5.012																																																					
0	5.011	5.011	5.011																																																					
10	5.010	5.010	5.010																																																					
20	5.008	5.008	5.008																																																					
25	5.007	5.007	5.007																																																					
30	5.006	5.006	5.006																																																					
40	5.003	5.003	5.003																																																					
50	5.000	5.000	5.000																																																					
60	4.996	4.996	4.996																																																					
—	—	—	—																																																					
<p>Note: Slanted line shows the range of the rated ambient temperature.</p> <p>(注)斜線は定格周囲温度範囲を示す。</p>																																																								



Model	R50A-5
Item	Minimum Input Voltage for Regulated Output Voltage 最低レギュレーション電圧
Object	+5.0V10.00A

Testing Circuitry Figure A

1. Graph □ Load 50%
—△— Load 100%



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

(注) 斜線は定格周囲温度範囲を示す。

2. Values

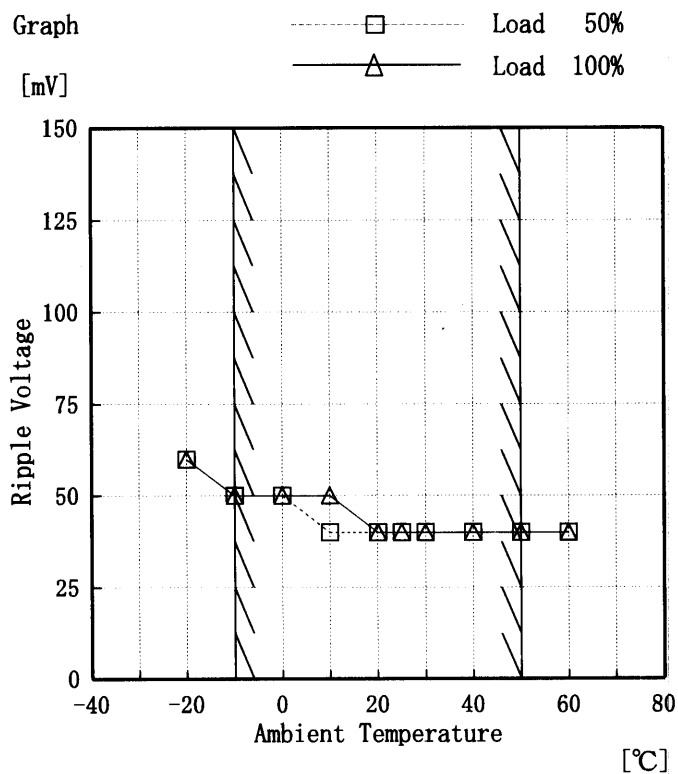
Ambient Temp. [°C]	Load 50%	Load 100%
	Input Volt. [V]	Input Volt. [V]
-20	63	69
-10	61	67
0	60	66
10	59	66
20	59	65
25	59	65
30	59	65
40	58	65
50	58	65
60	58	65
—	—	—



Model	R50A-5
Item	Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)
Object	+5V10.00A

Testing Circuitry Figure A

1. Graph



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

(注)斜線は定格周囲温度範囲を示す。

2. Values

Ambient Temp. [°C]	Load 50%	Load 100%
	Ripple Output Volt. [mV]	Ripple Output Volt. [mV]
-20	60	60
-10	50	50
0	50	50
10	40	50
20	40	40
25	40	40
30	40	40
40	40	40
50	40	40
60	40	40
—	—	—



COSEL																								
Model	R50A-5	Temperature 25 °C																						
Item	Time Lapse Drift 経時ドリフト	Testing Circuitry Figure A																						
Object	+5.0V10.00A																							
<p>1. Graph</p> <p>[V]</p> <p>Output Voltage</p> <p>Time [H]</p> <p>Input Volt. 100V 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>5.009</td></tr> <tr><td>0.5</td><td>5.007</td></tr> <tr><td>1.0</td><td>5.007</td></tr> <tr><td>2.0</td><td>5.007</td></tr> <tr><td>3.0</td><td>5.007</td></tr> <tr><td>4.0</td><td>5.007</td></tr> <tr><td>5.0</td><td>5.007</td></tr> <tr><td>6.0</td><td>5.007</td></tr> <tr><td>7.0</td><td>5.007</td></tr> <tr><td>8.0</td><td>5.007</td></tr> </tbody> </table>	Time since start [H]	Output Voltage [V]	0.0	5.009	0.5	5.007	1.0	5.007	2.0	5.007	3.0	5.007	4.0	5.007	5.0	5.007	6.0	5.007	7.0	5.007	8.0	5.007
Time since start [H]	Output Voltage [V]																							
0.0	5.009																							
0.5	5.007																							
1.0	5.007																							
2.0	5.007																							
3.0	5.007																							
4.0	5.007																							
5.0	5.007																							
6.0	5.007																							
7.0	5.007																							
8.0	5.007																							



Model		R50A-5	Testing Circuitry Figure A
Item	Output Voltage Accuracy 定電圧精度		
Object	+5.0V10.00A		

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 : -10~50 °C

Input Voltage : 85~132 V

Load Current : 0.00~10.00 A

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

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

定電圧精度

周囲温度、入力電圧、負荷を下記仕様内で、任意に変動させたときの出力電圧の変動をいう。

周囲温度 -10~50 °C

入力電圧 85~132 V

負荷電流 0.00~10.00 A

* 定電圧精度(変動値) = $\pm (\text{出力電圧の最高値} - \text{出力電圧の最低値}) / 2$

* 定電圧精度(変動率) = $\frac{\text{変動値}}{\text{定格出力電圧}} \times 100$

Item	Temperature [°C]	Input Voltage [V]	Output Current [A]	Output Voltage [V]	Output Voltage Accuracy [mV]	Output Voltage Accuracy(Ration) [%]
Maximum Voltage	-10	132	0.00	5.029	±16	±0.4
Minimum Voltage	50	132	10.00	4.999		



Model		R50A-5	Testing Circuitry Figure A
Item		Condensation 結露特性	
Object		+5V10.00A	

1. Condensation test

Testing procedure is as follows.

- ① Keeping and cooling the unit in a tank at -10°C for an hour with the input off.
- ② Taking it out of the tank and dewing itself in a room where the temperature is 25°C and the humidity is 40%RH.
- ③ Testing electrical characteristics (Output Voltage, Ripple Voltage, Ripple noise) of the unit to confirm there be no fault.
- ④ Repeating ①, ② and ③ three times.

1. 結露特性試験

入力を切った状態で、恒温槽で-10°Cに冷却しておき、約1時間後に恒温槽から取り出し、室温25°C、湿度40%RHの状態におき結露させ、その電気的特性（出力電圧、リップル、リップルノイズ）の測定を3度行い、異常のないことを確認する。

2. Values

	Times	Output Voltage [V]	Ripple Voltage [mV]	Ripple Noise [mV]
Load 50%	1	5.029	40	50
	2	5.029	40	50
	3	5.029	40	50
Load 100%	1	5.013	40	50
	2	5.013	40	50
	3	5.013	40	50

Input Volt. 100 V



Model		R50A-5	Testing Circuitry	Figure A
Item		Leakage Current 漏洩電流		
Object		+5.0V10.00A		

1. Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132[V]
(A) DENTORI	0.20	0.24	0.31
(B) UL	0.20	0.24	0.30
(C) CSA	0.20	0.24	0.30

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 220 [V]	Input Volt. 264 [V]
(D) VDE	-	-	-

2. Condition

Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.

交流入力 of 両相について測定し、その大きい方を漏洩電流測定値とする。

Load 100 %

(A) Input Resistance :1KΩ

(B) Input Resistance :1.5KΩ
Input Capacitance :0.15 μF

(C) Input Resistance :1.5KΩ
Input Capacitance :0.15 μF

(D) Input Resistance :2KΩ
Input Capacitance :0.1 μF



COSEL		
Model	R50A-5	
Item	Line Noise Tolerance 入力雑音耐量	Testing Circuitry Figure A
Object	+5V10.00A	

1. Results

Pulse Width [n S]	MODE	Operating Point of Overvoltage Protection [V] 過電圧保護動作値	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	6.5	no regulation
	NORMAL	6.5	no regulation
1000	COMMON	6.5	no regulation
	NORMAL	6.5	no regulation

Conditions

Input Voltage : 100 V
 Pulse Voltage : 2000 V
 Pulse Cycle : 10 mS
 Pulse Input Duration: 1 min. or more
 Load : 100 %

COSEL

Model	R50A-5	Testing Circuitry Figure D
Item	Conducted Emission 雑音端子電圧	
Object	+5V10.00A	

1. Graph

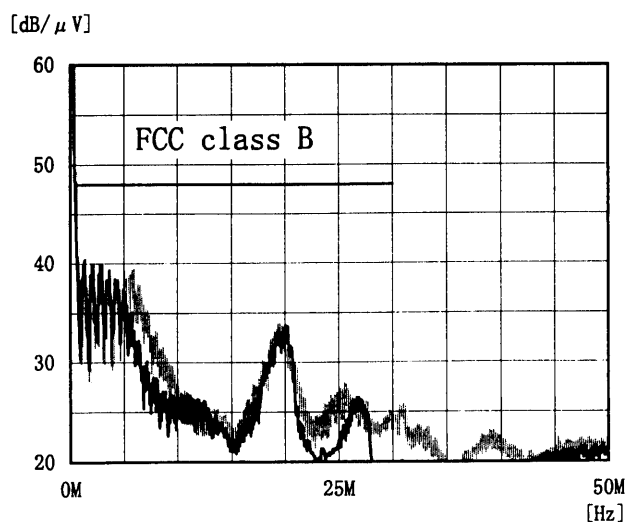
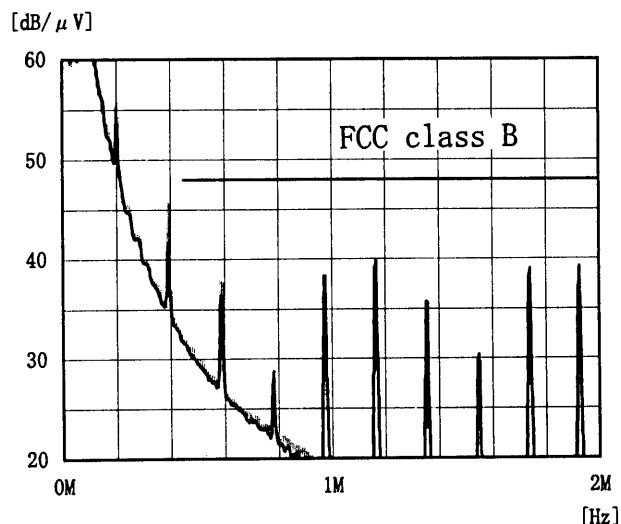
Remarks

Input Volt. 120 V
Load 100 %

Note: Slanted line shows the range of Tolerance.

(注)斜線は許容値を示す。

NO	Standards	Standards Complied	Frequency [MHz]	Tolerance [dB/μV]
1	FCC class A		0.45~1.6	60
			1.6~30	69.5
2	FCC class B	○	0.45~30	48
3	VCCI -1		0.15~0.5	79
			0.5~30	73
4	VCCI -2	○	0.15~0.5	66-56
			0.5~5	56
			5~30	60
5	CISPR22-A		0.01~0.15	91-69.5
			0.15~0.5	66
			0.5~30	60
6	CISPR22-B		0.01~0.05	110
			0.05~0.15	90-80
			0.15~0.5	66-56
			0.5~5	56
			5~30	60



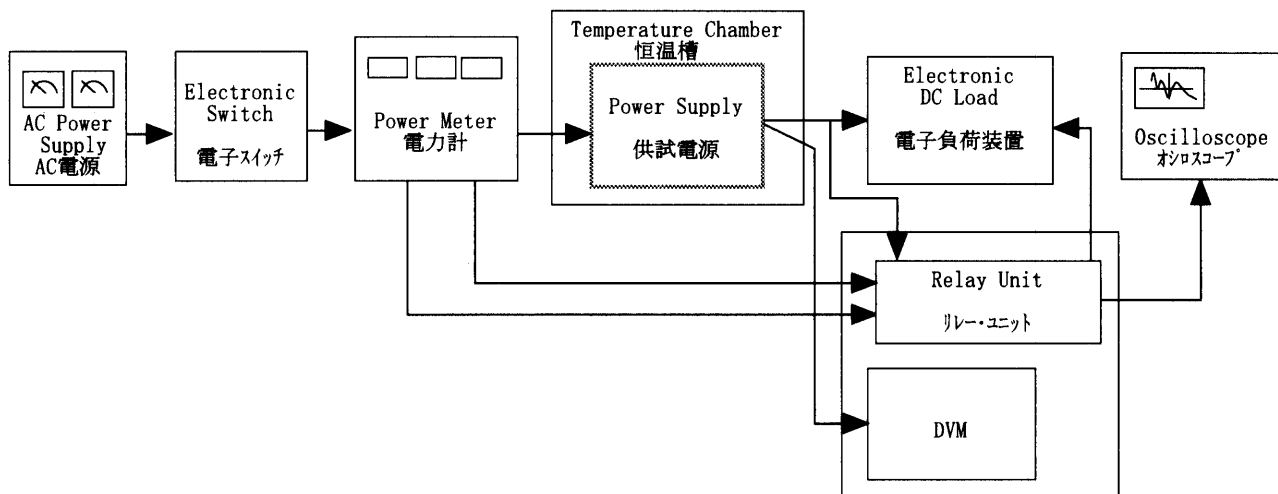


Figure A

Data Acquisition/Control Unit
データ集録システム

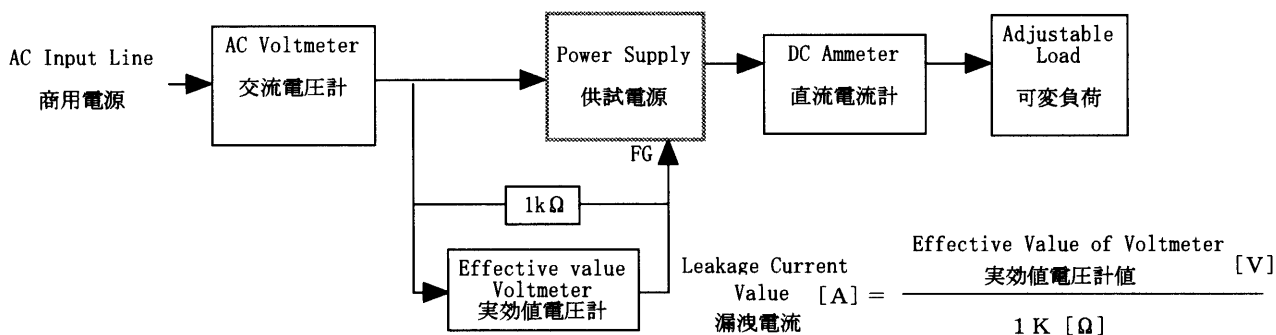


Figure B (DENTORI)

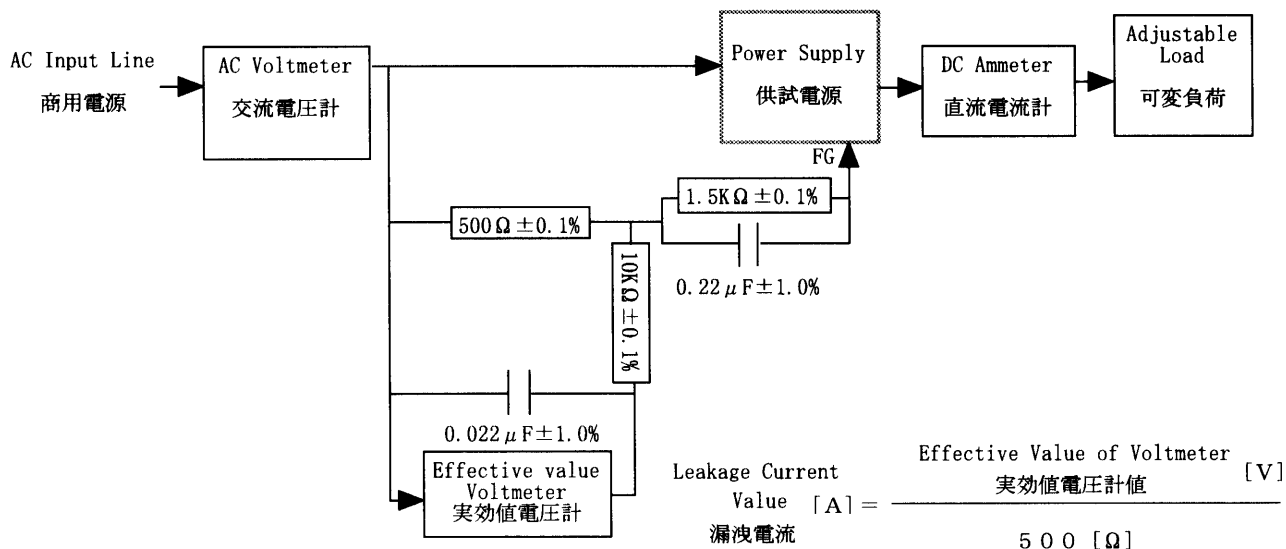


Figure B (UL, CSA, VDE)

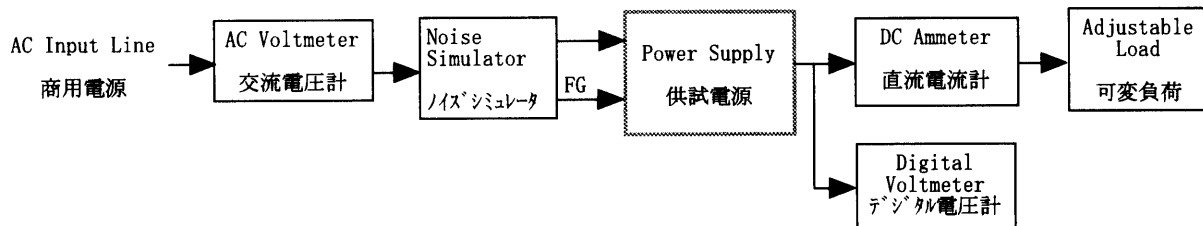


Figure C

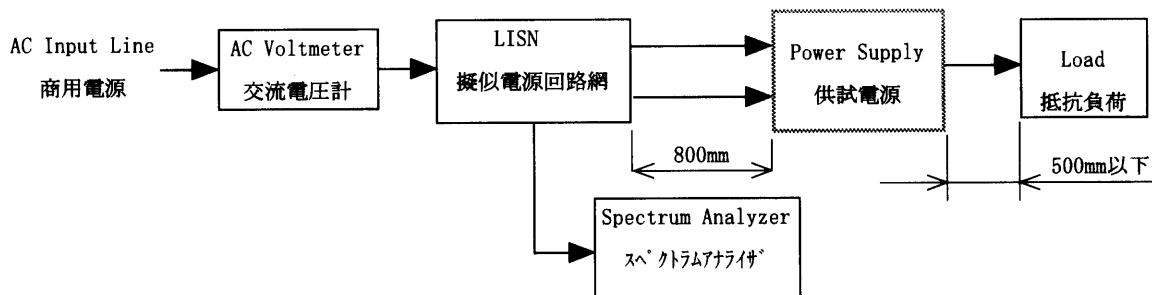


Figure D

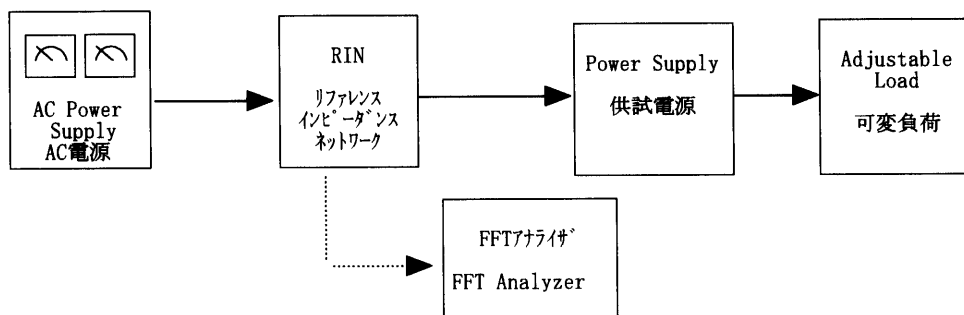


Figure E