



# TEST DATA OF LDA30F-12 (100V INPUT)

Regulated DC Power Supply

Date : Aug. 17. 1999

Approved by : *H. Yamaguchi*  
Design Manager

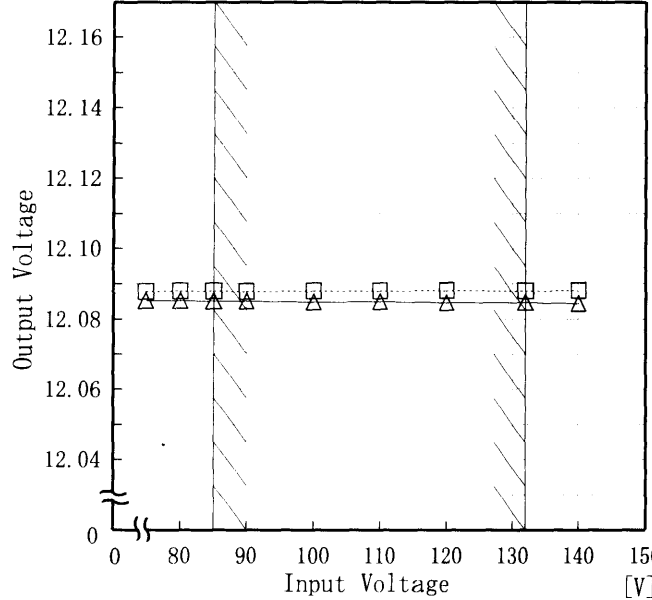
Prepared by : *T. Asahihara*  
Design Engineer

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

**COSEL**

Model		LDA30F-12		Temperature		25℃																																	
Item		Line Regulation  静的入力変動		Testing Circuitry		Figure A																																	
Object		+12.0V2.5A																																					
1. Graph				2. Values																																			
<div><div><div>□</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> <div><div><div>Output Voltage</div><div>[V]</div></div><div><div><div>12.16</div><div>12.14</div><div>12.12</div><div>12.10</div><div>12.08</div><div>12.06</div><div>12.04</div><div>0</div></div><div><div><div>0</div><div>80</div><div>90</div><div>100</div><div>110</div><div>120</div><div>130</div><div>140</div><div>150</div></div><div><div>Input Voltage</div><div>[V]</div></div></div><div></div><div><div>Note: Slanted line shows the range of the rated input voltage.</div><div>(注)斜線は定格入力電圧範囲を示す。</div></div></div></div>				<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Output Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>75</td><td>12.088</td><td>12.085</td></tr><tr><td>80</td><td>12.088</td><td>12.085</td></tr><tr><td>85</td><td>12.088</td><td>12.085</td></tr><tr><td>90</td><td>12.088</td><td>12.085</td></tr><tr><td>100</td><td>12.088</td><td>12.085</td></tr><tr><td>110</td><td>12.088</td><td>12.085</td></tr><tr><td>120</td><td>12.088</td><td>12.085</td></tr><tr><td>132</td><td>12.088</td><td>12.085</td></tr><tr><td>140</td><td>12.088</td><td>12.085</td></tr></table>				Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	75	12.088	12.085	80	12.088	12.085	85	12.088	12.085	90	12.088	12.085	100	12.088	12.085	110	12.088	12.085	120	12.088	12.085	132	12.088	12.085	140	12.088	12.085
Input Voltage [V]	Output Voltage [V]																																						
	Load 50%	Load 100%																																					
75	12.088	12.085																																					
80	12.088	12.085																																					
85	12.088	12.085																																					
90	12.088	12.085																																					
100	12.088	12.085																																					
110	12.088	12.085																																					
120	12.088	12.085																																					
132	12.088	12.085																																					
140	12.088	12.085																																					

- 1 -

BC-4068

**COSEL**

Model		LDA30F-12		Temperature		25℃	
Item		Input Current (by Load Current) 入力電流 (負荷特性)		Testing Circuitry		Figure A	
Output		_____					

1. Graph

△

Input Volt. 85V

□

Input Volt. 100V

○

Input Volt. 132V

Input Current [A]

1

0.8

0.6

0.4

0.2

0

0

1

2

3

Load Current [A]

Load Current [A]	Input Current 85V [A]	Input Current 100V [A]	Input Current 132V [A]
0.00	0.045	0.046	0.049
0.40	0.161	0.149	0.132
0.80	0.263	0.238	0.203
1.20	0.368	0.329	0.274
1.60	0.476	0.423	0.348
2.00	0.586	0.518	0.424
2.40	0.693	0.610	0.497
2.50	0.721	0.636	0.518
2.75	0.788	0.694	0.564

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

Load Current [A]	Input Current [A]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
0.00	0.045	0.046	0.049
0.40	0.161	0.149	0.132
0.80	0.263	0.238	0.203
1.20	0.368	0.329	0.274
1.60	0.476	0.423	0.348
2.00	0.586	0.518	0.424
2.40	0.693	0.610	0.497
2.50	0.721	0.636	0.518
2.75	0.788	0.694	0.564
—	—	—	—
—	—	—	—
—	—	—	—

**COSEL**

Model		LDA30F-12		Temperature		25℃																																																								
Item		Input Power (by Load Current) 入力電力（負荷特性）		Testing Circuitry		Figure A																																																								
Output		_____																																																												
1. Graph				2. Values																																																										
<div><div><div>△</div><div>Input Volt. 85V</div></div><div><div>□</div><div>Input Volt. 100V</div></div><div><div>○</div><div>Input Volt. 132V</div></div></div> <div><div><div>Input Power [W]</div><div>50</div><div>40</div><div>30</div><div>20</div><div>10</div><div>0</div></div><div><div>Load Current [A]</div><div>0</div><div>1</div><div>2</div><div>3</div></div></div>				<table><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><tr><td>0.00</td><td>1.53</td><td>1.77</td><td>2.33</td></tr><tr><td>0.40</td><td>7.35</td><td>7.65</td><td>8.32</td></tr><tr><td>0.80</td><td>13.08</td><td>13.28</td><td>13.89</td></tr><tr><td>1.20</td><td>18.81</td><td>18.93</td><td>19.42</td></tr><tr><td>1.60</td><td>24.71</td><td>24.72</td><td>25.09</td></tr><tr><td>2.00</td><td>30.77</td><td>30.69</td><td>30.97</td></tr><tr><td>2.40</td><td>36.79</td><td>36.65</td><td>36.69</td></tr><tr><td>2.50</td><td>38.34</td><td>38.12</td><td>38.14</td></tr><tr><td>2.75</td><td>42.21</td><td>41.90</td><td>41.86</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr></table>				Load Current [A]	Input Power [W]			Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]	0.00	1.53	1.77	2.33	0.40	7.35	7.65	8.32	0.80	13.08	13.28	13.89	1.20	18.81	18.93	19.42	1.60	24.71	24.72	25.09	2.00	30.77	30.69	30.97	2.40	36.79	36.65	36.69	2.50	38.34	38.12	38.14	2.75	42.21	41.90	41.86	—	—	—	—	—	—	—	—	—	—	—	—
Load Current [A]	Input Power [W]																																																													
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]																																																											
0.00	1.53	1.77	2.33																																																											
0.40	7.35	7.65	8.32																																																											
0.80	13.08	13.28	13.89																																																											
1.20	18.81	18.93	19.42																																																											
1.60	24.71	24.72	25.09																																																											
2.00	30.77	30.69	30.97																																																											
2.40	36.79	36.65	36.69																																																											
2.50	38.34	38.12	38.14																																																											
2.75	42.21	41.90	41.86																																																											
—	—	—	—																																																											
—	—	—	—																																																											
—	—	—	—																																																											
<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>																																																														

**COSEL**

Model		LDA30F-12	
Item	Efficiency	効率	
Object			

1. Graph

□ Load 50%

△ Load 100%

Efficiency [%]

**COSEL**

Model		LDA30F-12		Temperature		25℃																																																								
Item		Efficiency (by Load Current) 効率 (負荷電流特性)		Testing Circuitry		Figure A																																																								
Output																																																														
1. Graph				2. Values																																																										
<div><div>△</div>Input Volt. 85V</div> <div><div>□</div>Input Volt. 100V</div> <div><div>○</div>Input Volt. 132V</div> <div><p>Efficiency [%]</p><p>Load Current [A]</p></div> <div>Note: Slanted line shows the range of the rated load current</div> <div>(注)斜線は定格負荷電流範囲を示す。</div>				<table><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><tr><td>0.40</td><td>66.7</td><td>63.9</td><td>58.6</td></tr><tr><td>0.80</td><td>74.5</td><td>73.4</td><td>70.3</td></tr><tr><td>1.20</td><td>77.4</td><td>77.0</td><td>75.0</td></tr><tr><td>1.60</td><td>78.6</td><td>78.8</td><td>77.8</td></tr><tr><td>2.00</td><td>79.4</td><td>79.4</td><td>78.7</td></tr><tr><td>2.40</td><td>79.5</td><td>79.7</td><td>79.6</td></tr><tr><td>2.50</td><td>79.3</td><td>79.8</td><td>79.7</td></tr><tr><td>2.75</td><td>79.3</td><td>79.8</td><td>79.9</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr></table>				Load Current [A]	Efficiency [%]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	0.40	66.7	63.9	58.6	0.80	74.5	73.4	70.3	1.20	77.4	77.0	75.0	1.60	78.6	78.8	77.8	2.00	79.4	79.4	78.7	2.40	79.5	79.7	79.6	2.50	79.3	79.8	79.7	2.75	79.3	79.8	79.9	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—	—
Load Current [A]	Efficiency [%]																																																													
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																											
0.40	66.7	63.9	58.6																																																											
0.80	74.5	73.4	70.3																																																											
1.20	77.4	77.0	75.0																																																											
1.60	78.6	78.8	77.8																																																											
2.00	79.4	79.4	78.7																																																											
2.40	79.5	79.7	79.6																																																											
2.50	79.3	79.8	79.7																																																											
2.75	79.3	79.8	79.9																																																											
—	—	—	—																																																											
—	—	—	—																																																											
—	—	—	—																																																											
—	—	—	—																																																											

# COSEL

Model		LDA30F-12	Temperature		25℃																																
Item		Hold-Up Time 出力保持時間	Testing Circuitry		Figure A																																
Object		+12.0V2.5A																																			
1. Graph			2. Values																																		
<div><div>□ Load 50%</div><div>—△— Load 100%</div></div> <div><p>[mS]</p><p>Hold-Up Time</p><p>Input Voltage [V]</p></div>			<table><tr><th rowspan="2">Input Voltage [V]</th><th colspan="2">Hold-Up Time [mS]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr><tr><td>75</td><td>21</td><td>9</td></tr><tr><td>80</td><td>26</td><td>12</td></tr><tr><td>85</td><td>32</td><td>15</td></tr><tr><td>90</td><td>38</td><td>18</td></tr><tr><td>100</td><td>51</td><td>25</td></tr><tr><td>110</td><td>65</td><td>32</td></tr><tr><td>120</td><td>81</td><td>40</td></tr><tr><td>132</td><td>101</td><td>51</td></tr><tr><td>140</td><td>116</td><td>59</td></tr></table>			Input Voltage [V]	Hold-Up Time [mS]		Load 50%	Load 100%	75	21	9	80	26	12	85	32	15	90	38	18	100	51	25	110	65	32	120	81	40	132	101	51	140	116	59
Input Voltage [V]	Hold-Up Time [mS]																																				
	Load 50%	Load 100%																																			
75	21	9																																			
80	26	12																																			
85	32	15																																			
90	38	18																																			
100	51	25																																			
110	65	32																																			
120	81	40																																			
132	101	51																																			
140	116	59																																			
<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。</p> <p>(注)斜線は定格入力電圧範囲を示す。</p>																																					



# COSEL

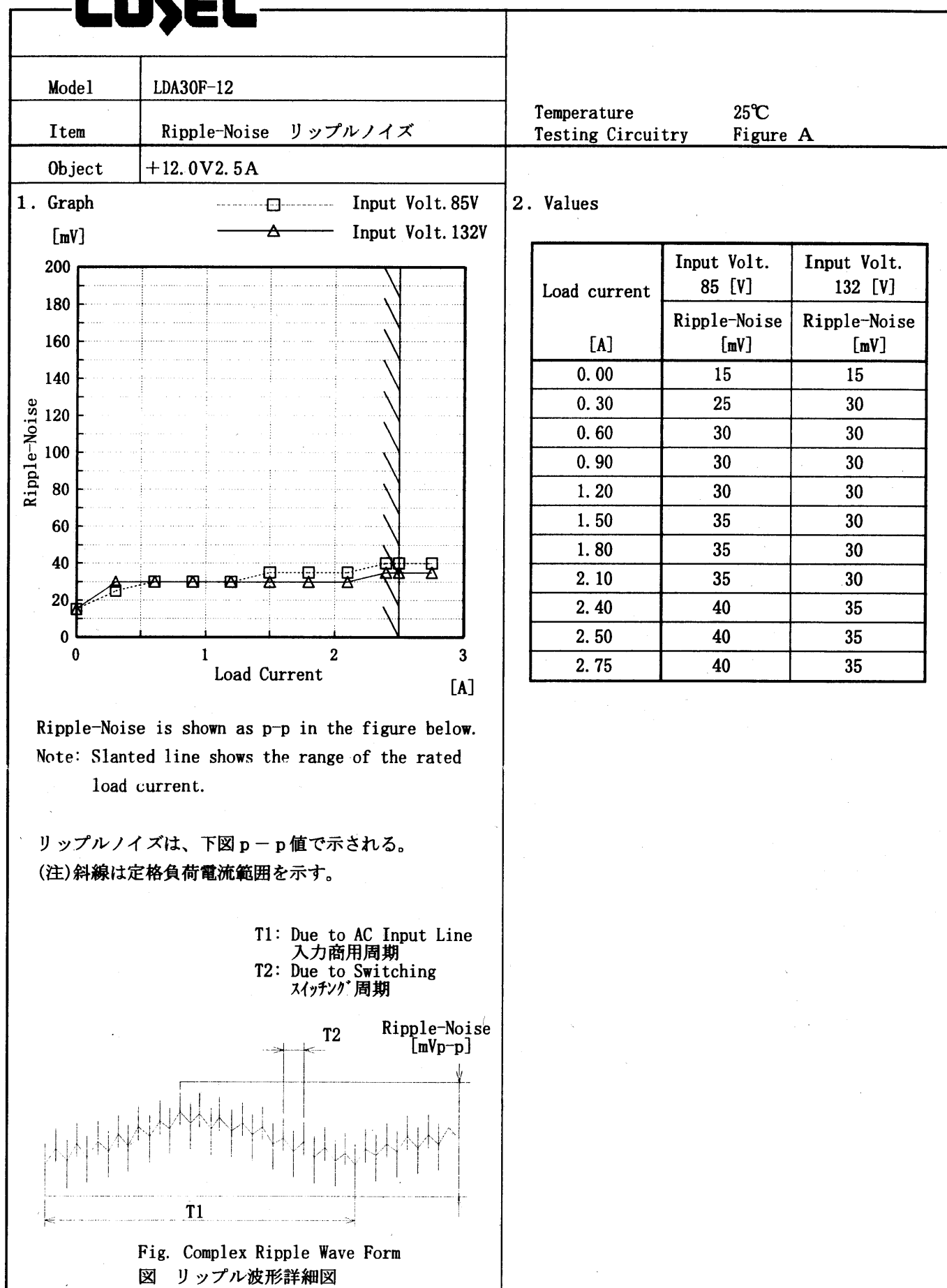
Model		LDA30F-12		Temperature		25℃																																																																																								
Item		Instantaneous Interruption Compensation 瞬時停電保障		Testing Circuitry		Figure A																																																																																								
Object		+12.0V2.5A																																																																																												
1. Graph				2. Values																																																																																										
<div><div><div>△</div><div>□</div><div>○</div></div><div><div>Input Volt. 85 V</div><div>Input Volt. 100 V</div><div>Input Volt. 132 V</div></div></div> <div><div><div>[mS]</div><div>Instantaneous Compensation Time</div><div>1000</div><div>100</div><div>10</div><div>1</div></div><div><table><thead><tr><th>Load Current [A]</th><th>85V [mS]</th><th>100V [mS]</th><th>132V [mS]</th></tr></thead><tbody><tr><td>0.4</td><td>89</td><td>143</td><td>277</td></tr><tr><td>0.8</td><td>47</td><td>79</td><td>157</td></tr><tr><td>1.2</td><td>31</td><td>53</td><td>107</td></tr><tr><td>1.6</td><td>22</td><td>39</td><td>82</td></tr><tr><td>2.0</td><td>18</td><td>31</td><td>65</td></tr><tr><td>2.4</td><td>14</td><td>23</td><td>53</td></tr><tr><td>2.5</td><td>14</td><td>23</td><td>53</td></tr><tr><td>2.75</td><td>12</td><td>21</td><td>46</td></tr></tbody></table><div><div>0</div><div>0.5</div><div>1</div><div>1.5</div><div>2</div><div>2.5</div><div>3</div></div><div>Load Current [A]</div></div></div> <div><div><div>This duration covers from Shut-off of input voltage to the moment when output voltage descends to the rated range of voltage accuracy.</div><div>Note:Slanted line shows the range of the rated load current.</div></div></div> <div><div>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。</div><div>(注)斜線は定格負荷電流範囲を示す。</div></div>				Load Current [A]	85V [mS]	100V [mS]	132V [mS]	0.4	89	143	277	0.8	47	79	157	1.2	31	53	107	1.6	22	39	82	2.0	18	31	65	2.4	14	23	53	2.5	14	23	53	2.75	12	21	46	<table><thead><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [mS]</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>0.00</td><td>—</td><td>—</td><td>—</td></tr><tr><td>0.40</td><td>89</td><td>143</td><td>277</td></tr><tr><td>0.80</td><td>47</td><td>79</td><td>157</td></tr><tr><td>1.20</td><td>31</td><td>53</td><td>107</td></tr><tr><td>1.60</td><td>22</td><td>39</td><td>82</td></tr><tr><td>2.00</td><td>18</td><td>31</td><td>65</td></tr><tr><td>2.40</td><td>14</td><td>23</td><td>53</td></tr><tr><td>2.50</td><td>14</td><td>23</td><td>53</td></tr><tr><td>2.75</td><td>12</td><td>21</td><td>46</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]	Time [mS]			Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]	0.00	—	—	—	0.40	89	143	277	0.80	47	79	157	1.20	31	53	107	1.60	22	39	82	2.00	18	31	65	2.40	14	23	53	2.50	14	23	53	2.75	12	21	46	—	—	—	—	—	—	—	—
Load Current [A]	85V [mS]	100V [mS]	132V [mS]																																																																																											
0.4	89	143	277																																																																																											
0.8	47	79	157																																																																																											
1.2	31	53	107																																																																																											
1.6	22	39	82																																																																																											
2.0	18	31	65																																																																																											
2.4	14	23	53																																																																																											
2.5	14	23	53																																																																																											
2.75	12	21	46																																																																																											
Load Current [A]	Time [mS]																																																																																													
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]																																																																																											
0.00	—	—	—																																																																																											
0.40	89	143	277																																																																																											
0.80	47	79	157																																																																																											
1.20	31	53	107																																																																																											
1.60	22	39	82																																																																																											
2.00	18	31	65																																																																																											
2.40	14	23	53																																																																																											
2.50	14	23	53																																																																																											
2.75	12	21	46																																																																																											
—	—	—	—																																																																																											
—	—	—	—																																																																																											

**COSEL**

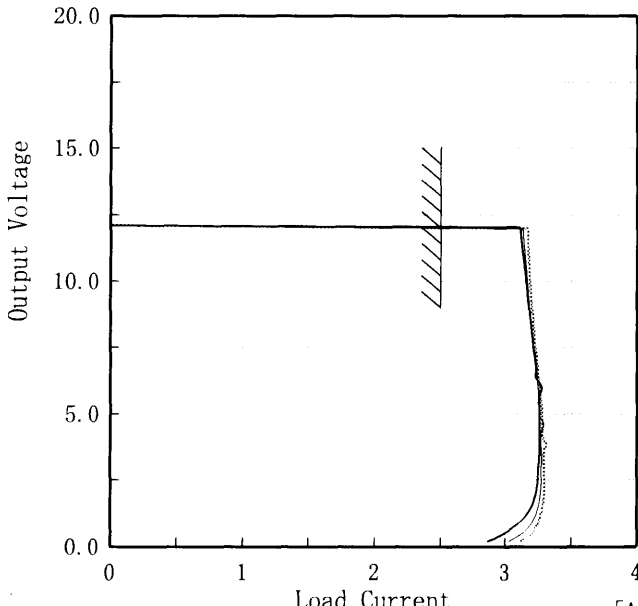
Model		LDA30F-12	Temperature		25°C																																															
Item		Load Regulation 静的負荷変動	Testing Circuitry		Figure A																																															
Object		+12.0V2.5A																																																		
1. Graph		<div><div>△</div> Input Volt. 85 V</div> <div><div>□</div> Input Volt. 100 V</div> <div><div>○</div> Input Volt. 132 V</div> <p>Output Voltage [V]</p> <p>Load Current [A]</p>	2. Values																																																	
			<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>0.00</td><td>12.089</td><td>12.089</td><td>12.089</td></tr><tr><td>0.40</td><td>12.088</td><td>12.088</td><td>12.088</td></tr><tr><td>0.80</td><td>12.087</td><td>12.087</td><td>12.087</td></tr><tr><td>1.20</td><td>12.086</td><td>12.086</td><td>12.087</td></tr><tr><td>1.60</td><td>12.085</td><td>12.086</td><td>12.086</td></tr><tr><td>2.00</td><td>12.085</td><td>12.085</td><td>12.085</td></tr><tr><td>2.40</td><td>12.084</td><td>12.084</td><td>12.084</td></tr><tr><td>2.50</td><td>12.084</td><td>12.084</td><td>12.084</td></tr><tr><td>2.75</td><td>12.083</td><td>12.083</td><td>12.084</td></tr><tr><td>—</td><td>—</td><td>—</td><td>—</td></tr></table>			Load Current [A]	Output Voltage [V]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	0.00	12.089	12.089	12.089	0.40	12.088	12.088	12.088	0.80	12.087	12.087	12.087	1.20	12.086	12.086	12.087	1.60	12.085	12.086	12.086	2.00	12.085	12.085	12.085	2.40	12.084	12.084	12.084	2.50	12.084	12.084	12.084	2.75	12.083	12.083	12.084	—	—	—	—
Load Current [A]	Output Voltage [V]																																																			
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																	
0.00	12.089	12.089	12.089																																																	
0.40	12.088	12.088	12.088																																																	
0.80	12.087	12.087	12.087																																																	
1.20	12.086	12.086	12.087																																																	
1.60	12.085	12.086	12.086																																																	
2.00	12.085	12.085	12.085																																																	
2.40	12.084	12.084	12.084																																																	
2.50	12.084	12.084	12.084																																																	
2.75	12.083	12.083	12.084																																																	
—	—	—	—																																																	
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。																																																				

- 9 -

# COSEL



**COSEL**

Model		LDA30F-12	Temperature25℃ Testing CircuitryFigure A																																																							
Item		Overcurrent Protection 過電流保護																																																								
Object		+12.0V2.5A																																																								
1. Graph																																																										
[V]		-----Input Volt. 85 V ____Input Volt. 100 V ____Input Volt. 132 V	2. Values																																																							
			<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="3">Load Current [A]</th></tr><tr><th>Input Volt. 85[V]</th><th>Input Volt. 100[V]</th><th>Input Volt. 132[V]</th></tr><tr><td>12.00</td><td>3.18</td><td>3.13</td><td>3.11</td></tr><tr><td>11.40</td><td>3.17</td><td>3.14</td><td>3.13</td></tr><tr><td>10.80</td><td>3.18</td><td>3.15</td><td>3.14</td></tr><tr><td>9.60</td><td>3.20</td><td>3.17</td><td>3.17</td></tr><tr><td>8.40</td><td>3.22</td><td>3.20</td><td>3.19</td></tr><tr><td>7.20</td><td>3.24</td><td>3.23</td><td>3.22</td></tr><tr><td>6.00</td><td>3.27</td><td>3.25</td><td>3.28</td></tr><tr><td>4.80</td><td>3.28</td><td>3.27</td><td>3.26</td></tr><tr><td>3.60</td><td>3.30</td><td>3.28</td><td>3.26</td></tr><tr><td>2.40</td><td>3.30</td><td>3.28</td><td>3.25</td></tr><tr><td>1.20</td><td>3.28</td><td>3.24</td><td>3.17</td></tr><tr><td>0.00</td><td>3.12</td><td>3.03</td><td>2.86</td></tr></table>	Output Voltage [V]	Load Current [A]			Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]	12.00	3.18	3.13	3.11	11.40	3.17	3.14	3.13	10.80	3.18	3.15	3.14	9.60	3.20	3.17	3.17	8.40	3.22	3.20	3.19	7.20	3.24	3.23	3.22	6.00	3.27	3.25	3.28	4.80	3.28	3.27	3.26	3.60	3.30	3.28	3.26	2.40	3.30	3.28	3.25	1.20	3.28	3.24	3.17	0.00	3.12	3.03	2.86
Output Voltage [V]	Load Current [A]																																																									
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]																																																							
12.00	3.18	3.13	3.11																																																							
11.40	3.17	3.14	3.13																																																							
10.80	3.18	3.15	3.14																																																							
9.60	3.20	3.17	3.17																																																							
8.40	3.22	3.20	3.19																																																							
7.20	3.24	3.23	3.22																																																							
6.00	3.27	3.25	3.28																																																							
4.80	3.28	3.27	3.26																																																							
3.60	3.30	3.28	3.26																																																							
2.40	3.30	3.28	3.25																																																							
1.20	3.28	3.24	3.17																																																							
0.00	3.12	3.03	2.86																																																							
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。																																																										

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。

# COSEL

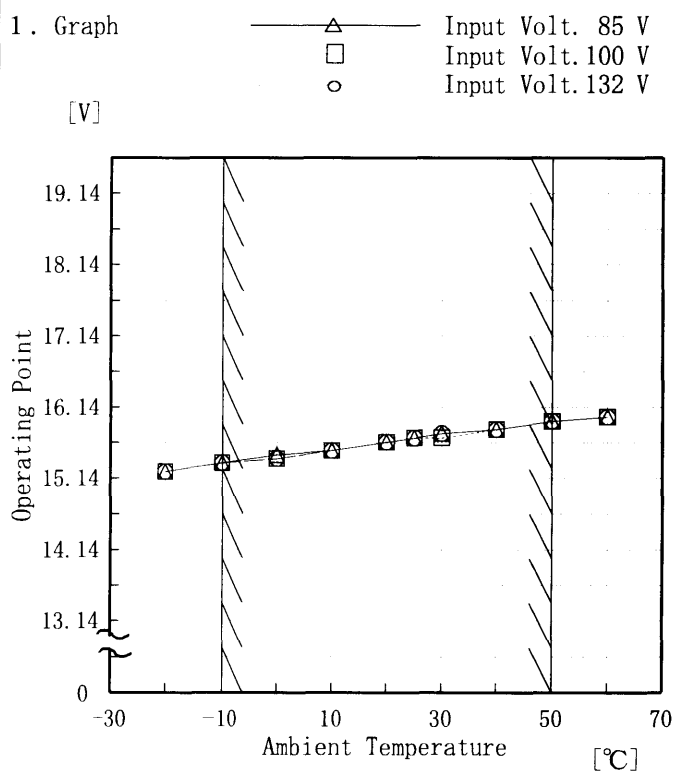
Model LDA30F-12

Item Overvoltage Protection  
過電圧保護

Object +12.0V2.5A

Testing Circuitry Figure A

## 1. Graph



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

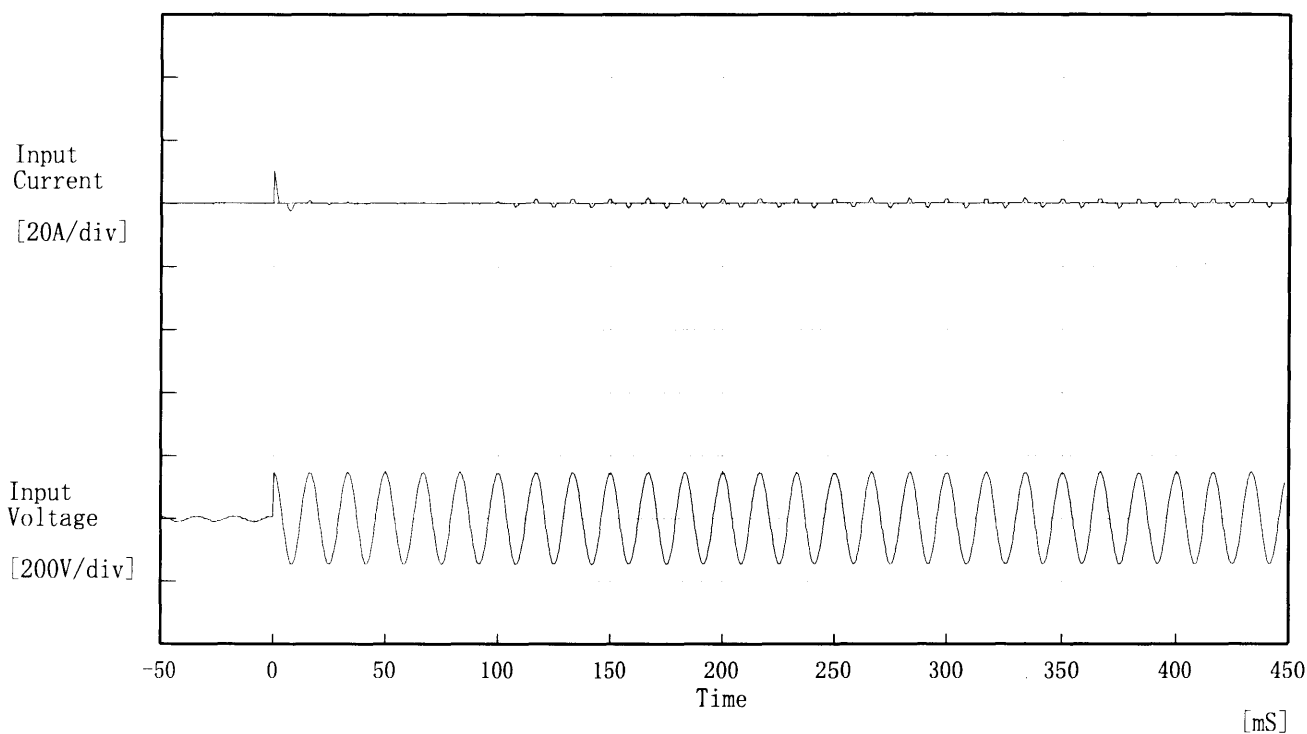
(注)斜線は定格周囲温度範囲を示す。

## 2. Values

Ambient Temperature [°C]	Operating Point [V]		
	Input Volt. 85[V]	Input Volt. 100[V]	Input Volt. 132[V]
-20	15.23	15.23	15.23
-10	15.35	15.35	15.35
0	15.47	15.41	15.41
10	15.53	15.53	15.53
20	15.65	15.65	15.65
25	15.71	15.71	15.71
30	15.77	15.71	15.77
40	15.83	15.83	15.83
50	15.94	15.94	15.94
60	16.00	16.00	16.00
—	—	—	—

**COSEL**

Model	LDA30F-12	Temperature	25°C
Item	Inrush Current 突入電流	Testing Circuitry	Figure A
Object	_____		



Input Voltage 100 V

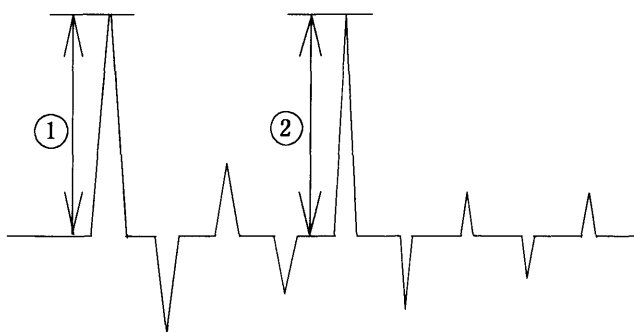
Frequency 60 Hz

Load 100 %

Inrush Current

① 10.06 [A]

② 1.66 [A]



**COSEL**

Model	LDA30F-12	Temperature 25°C Testing Circuitry Figure A
Item	Dynamic Load Responce 動的負荷変動	
Object	+12.0V 2.5A	

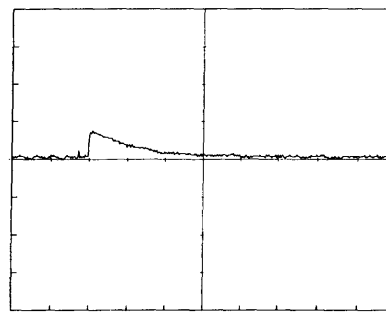
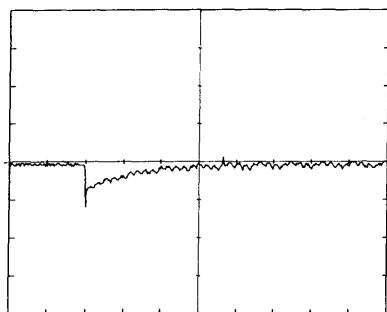
Input Volt. 100 V

Cycle 1000 mS

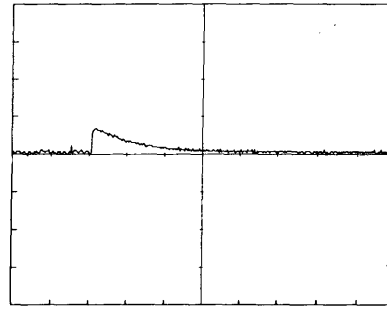
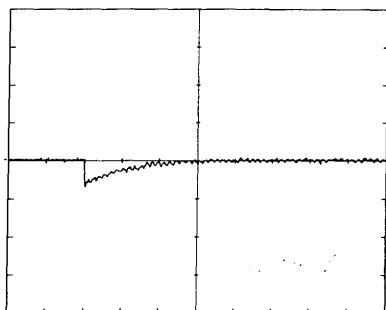
Load Current

Load 0%  $\longleftrightarrow$ 

Load 100 %

Load 0%  $\longleftrightarrow$ 

Load 50 %



100 mV/div

10 mS/div

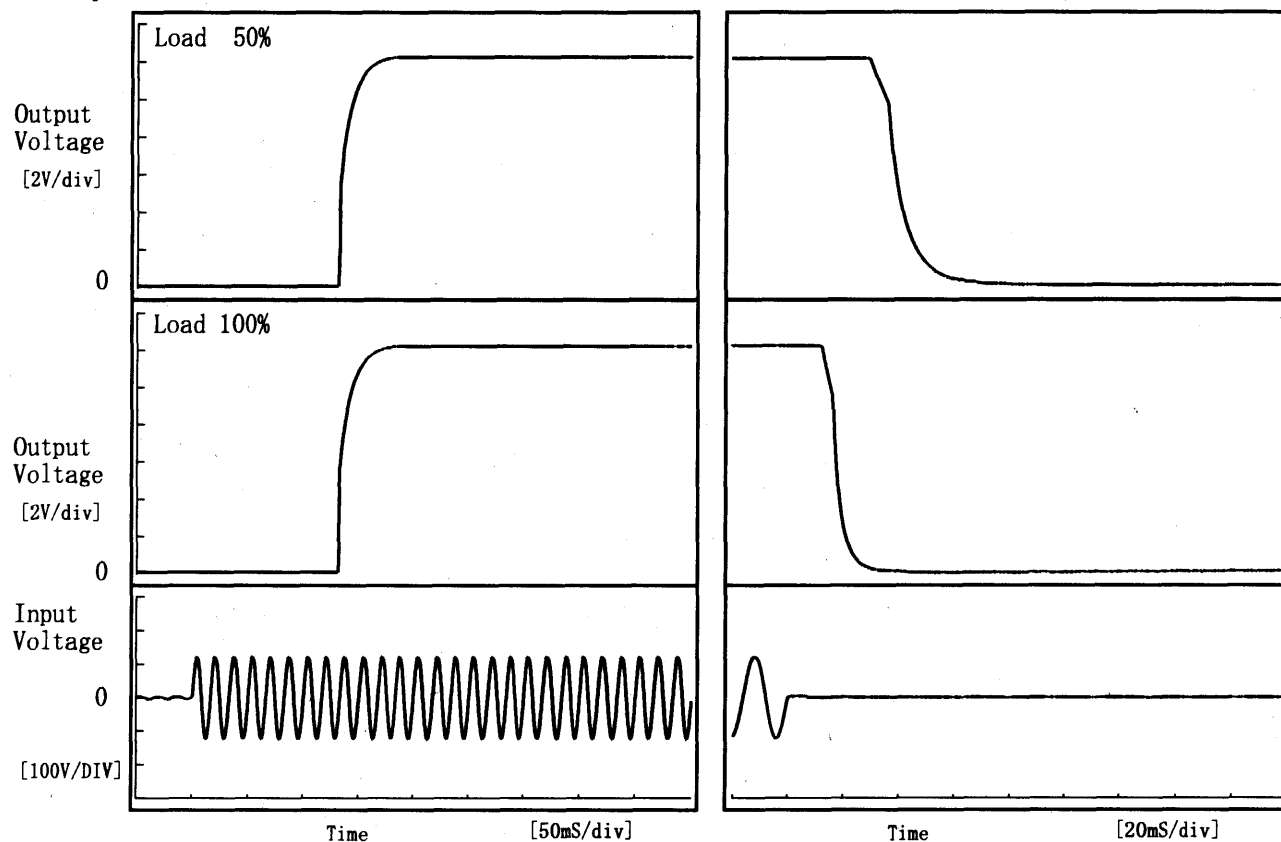


**COSEL**

Model	LDA30F-12	Temperature	25°C
Item	Rise and Fall Time 立上り、立下り時間	Testing Circuitry	Figure A
Object	+12.0V2.5A		

## 1. Graph

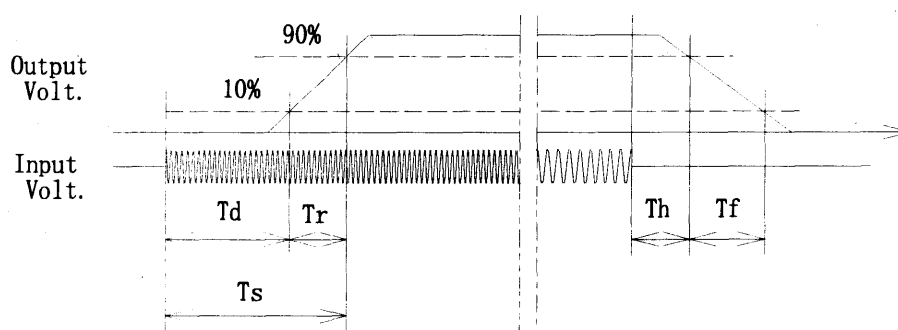
Input Volt. 85 V



## 2. Values

[mS]

Load \ Time	T d	T r	T s	T h	T f
50 %	132.0	17.5	149.5	32.9	17.4
100 %	131.8	17.8	149.5	14.3	8.9



# COSEL

COSEL	
Model	LDA30F-12
Item	Ambient Temperature Drift 周囲温度変動
Object	+12.0V2.5A
1. Graph	
<div><div><div>△</div><div>□</div><div>○</div></div><div><div>Input Volt. 85V</div><div>Input Volt. 100V</div><div>Input Volt. 132V</div></div></div> <div><div><div>Output Voltage [V]</div><div><div><div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div><div></div>&lt;</div></div></div></div></div>	

**COSEL**

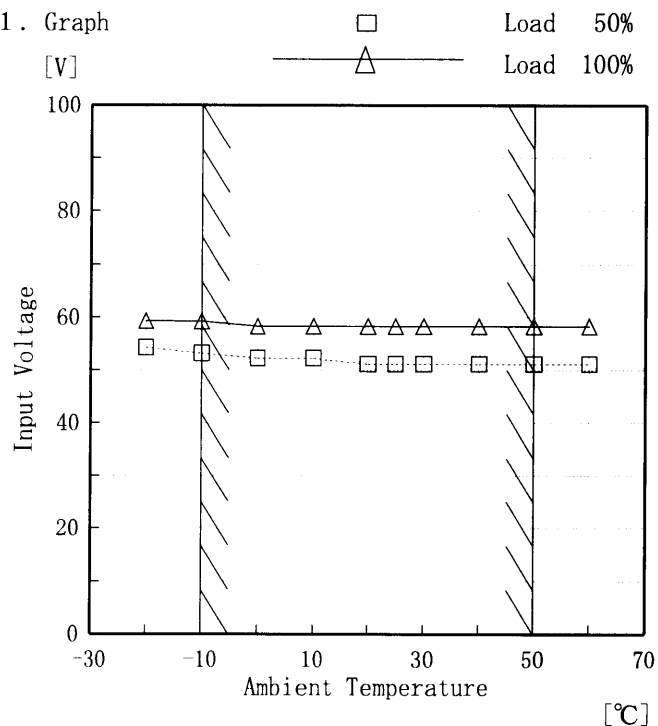
Model LDA30F-12

Item Minimum Input Voltage for Regulated Output Voltage  
最低レギュレーション電圧

Object +12.0V2.5A

Testing Circuitry Figure A

## 1. Graph



(注) 斜線は定格周囲温度範囲を示す。

## 2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	54	59
-10	53	59
0	52	58
10	52	58
20	51	58
25	51	58
30	51	58
40	51	58
50	51	58
60	51	58
—	—	—

**COSEL**

Model		LDA30F-12	Testing Circuitry      Figure A																																					
Item		Ripple Voltage (by Ambient Temp.) リップル電圧 (周囲温度特性)																																						
Object		+12.0V2.5A																																						
1. Graph		<div><div>□ Load 50%</div><div>—△— Load 100%</div></div> <div><div>[mV]</div><div>Ambient Temperature [°C]</div></div>	2. Values																																					
			<table><tr><th>Ambient Temp. [°C]</th><th>Load 50% Ripple Output Volt. [mV]</th><th>Load 100% Ripple Output Volt. [mV]</th></tr><tr><td>-20</td><td>45</td><td>50</td></tr><tr><td>-10</td><td>35</td><td>40</td></tr><tr><td>0</td><td>30</td><td>35</td></tr><tr><td>10</td><td>25</td><td>30</td></tr><tr><td>20</td><td>25</td><td>30</td></tr><tr><td>25</td><td>25</td><td>25</td></tr><tr><td>30</td><td>20</td><td>25</td></tr><tr><td>40</td><td>20</td><td>25</td></tr><tr><td>50</td><td>20</td><td>20</td></tr><tr><td>60</td><td>15</td><td>20</td></tr><tr><td>—</td><td>—</td><td>—</td></tr></table>		Ambient Temp. [°C]	Load 50% Ripple Output Volt. [mV]	Load 100% Ripple Output Volt. [mV]	-20	45	50	-10	35	40	0	30	35	10	25	30	20	25	30	25	25	25	30	20	25	40	20	25	50	20	20	60	15	20	—	—	—
Ambient Temp. [°C]	Load 50% Ripple Output Volt. [mV]	Load 100% Ripple Output Volt. [mV]																																						
-20	45	50																																						
-10	35	40																																						
0	30	35																																						
10	25	30																																						
20	25	30																																						
25	25	25																																						
30	20	25																																						
40	20	25																																						
50	20	20																																						
60	15	20																																						
—	—	—																																						
		<div>Input Volt. 100 V</div> <div>Note: Slanted line shows the range of the rated ambient temperature.</div> <div>(注)斜線は定格周囲温度範囲を示す。</div>																																						

**COSEL**

Model

LDA30F-12

Item

Time Lapse Drift 経時ドリフト

Object

+12.0V2.5A

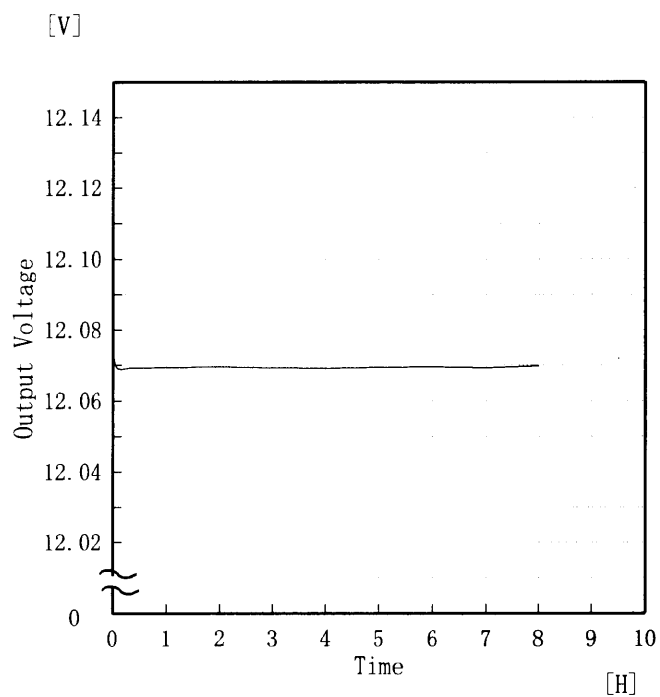
Temperature

25°C

Testing Circuitry

Figure A

## 1. Graph



## 2. Values

Time since start [H]	Output Voltage [V]
0.0	12.077
0.5	12.069
1.0	12.069
2.0	12.069
3.0	12.069
4.0	12.069
5.0	12.069
6.0	12.070
7.0	12.069
8.0	12.070

# COSEL

Model	LDA30F-12	Testing Circuitry Figure A
Item	Output Voltage Accuracy 定電圧精度	
Object	+12.0V2.5A	

## 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 : 0~2.5 A

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

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

## 定電圧精度

周囲温度、入力電圧、負荷電流を下記仕様内で、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 : 0~2.5 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	0.0	12.099	±17	±0.2
Minimum Voltage	50	132	2.5	12.066		

**COSEL**

Model		LDA30F-12														
Item	Condensation	結露特性	Testing Circuitry	Figure A												
Object	+12.0V2.5A															
1. Condensation test																
Testing procedure is as follows.																
① Keeping and cooling the unit in a tank at -10℃ 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℃ and the humidity is 40%RH.																
③ Testing electrical characteristics of the unit to confirm there be no fault.																
1. 結露特性試験																
入力を切った状態で、恒温槽で-10℃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℃、湿度40%RHの状態におき結露させ、その電気的特性の測定を行い、異常のないことを確認する。																
2. Values																
<table><tr><td>Item</td><td>Data</td><td>Testing Conditions</td></tr><tr><td>Output Voltage [V]</td><td>12.084</td><td>Input Volt.: 100V, Load Current:2.5A</td></tr><tr><td>Line Regulation [mV]</td><td>4</td><td>Input Volt.: 85~132V, Load Current:2.5A</td></tr><tr><td>Load Regulation [mV]</td><td>6</td><td>Input Volt.: 100V, Load Current:0.0~2.5A</td></tr></table>					Item	Data	Testing Conditions	Output Voltage [V]	12.084	Input Volt.: 100V, Load Current:2.5A	Line Regulation [mV]	4	Input Volt.: 85~132V, Load Current:2.5A	Load Regulation [mV]	6	Input Volt.: 100V, Load Current:0.0~2.5A
Item	Data	Testing Conditions														
Output Voltage [V]	12.084	Input Volt.: 100V, Load Current:2.5A														
Line Regulation [mV]	4	Input Volt.: 85~132V, Load Current:2.5A														
Load Regulation [mV]	6	Input Volt.: 100V, Load Current:0.0~2.5A														

- 21 -

BC-4068

**COSEL**

Model	LDA30F-12	Temperature	25℃
Item	Leakage Current 漏洩電流	Testing Circuitry	Figure B
Object	_____		

## 1. Results

Standards	Leakage Current [mA]		
	Input Volt. 85 [V]	Input Volt. 100 [V]	Input Volt. 132 [V]
(A) DENTORI	0.15	0.20	0.26
(B) IEC60950	0.15	0.20	0.26

Standards	Leakage Current [mA]		
	Input Volt. 170 [V]	Input Volt. 230 [V]	Input Volt. 264 [V]
(B) IEC60950	—	—	—

## 2. Condition

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

交流入力の一相について測定し、その大きい方を漏洩電流測定値とする。



# COSEL

Model	LDA30F-12	Temperature 25°C Testing Circuitry Figure C
Item	Line Noise Tolerance 入力雑音耐量	
Object	+12.0V2.5A	

## 1. Results

Pulse Width [ nS ]	MODE	No protection failure should occur 保護回路の誤動作がない	DC-like Regulation of Output Voltage 出力電圧の直流的変動
50	COMMON	OK	no fluctuation
	NORMAL	OK	no fluctuation
1000	COMMON	OK	no fluctuation
	NORMAL	OK	no fluctuation

## 2. Conditions

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

**COSEL**

Model	LDA30F-12	Temperature	25℃
Item	Conducted Emission 雑音端子電圧	Testing Circuitry	Figure D
Object	_____		

## 1. Graph

## Remarks

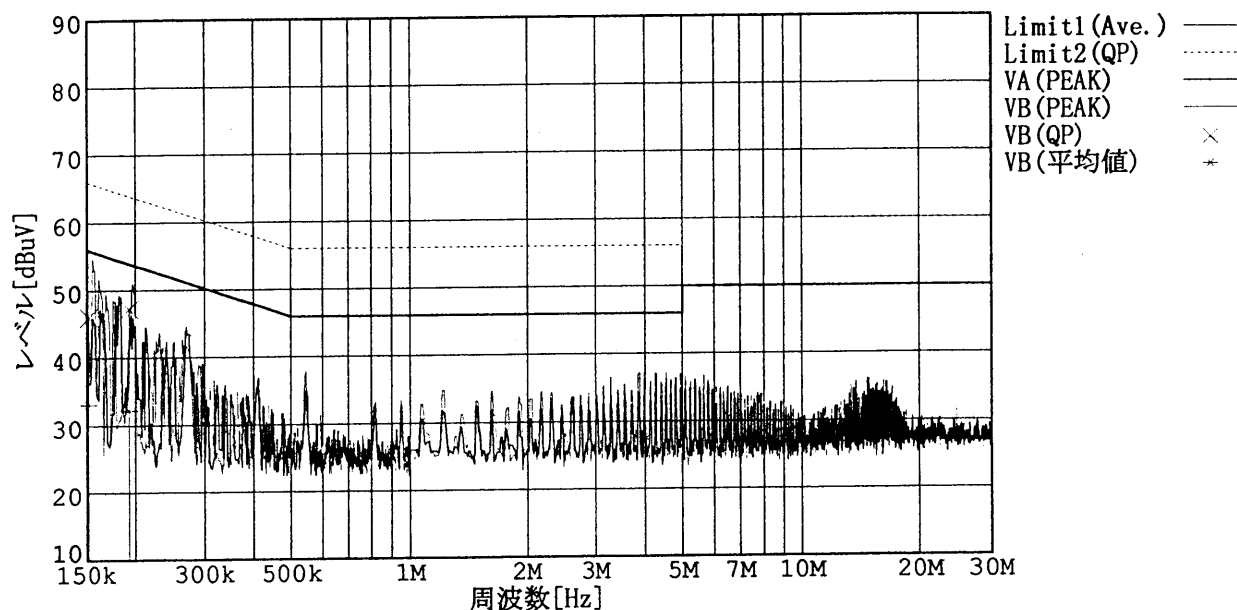
Input Volt. 100 V (VCCI Class B)

120 V (FCC Class B)

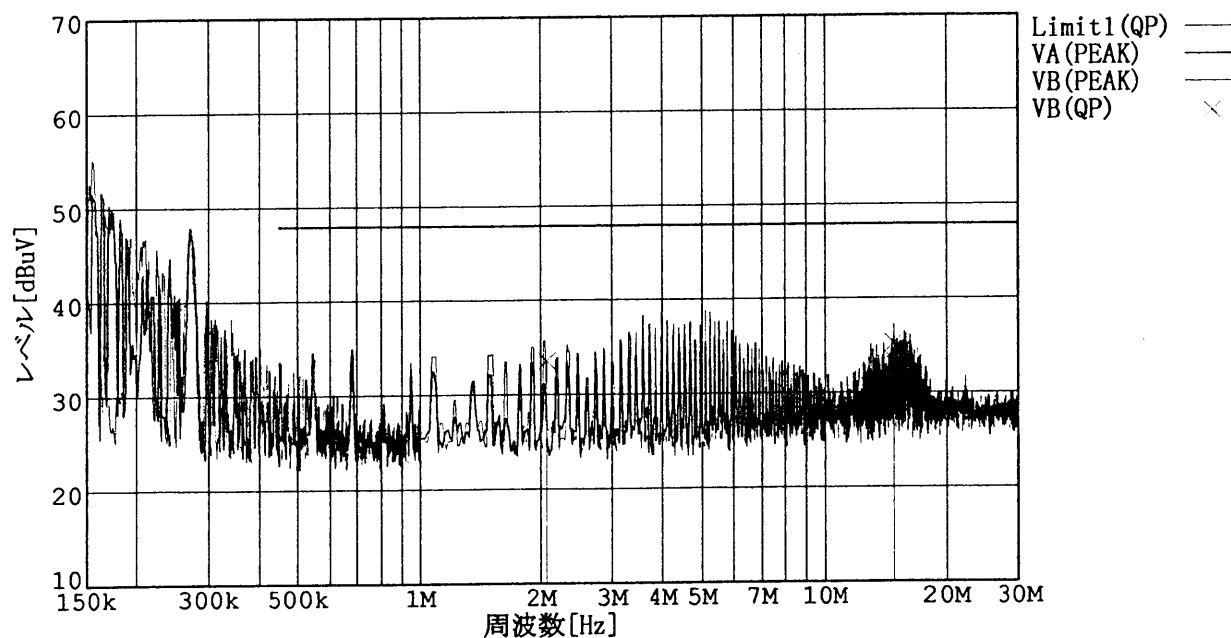
Load 100 %

規格 1: [VCCI] Class B(平均値)

規格 2: [VCCI] Class B(QP)



規格 1: [FCC Part15] Class B



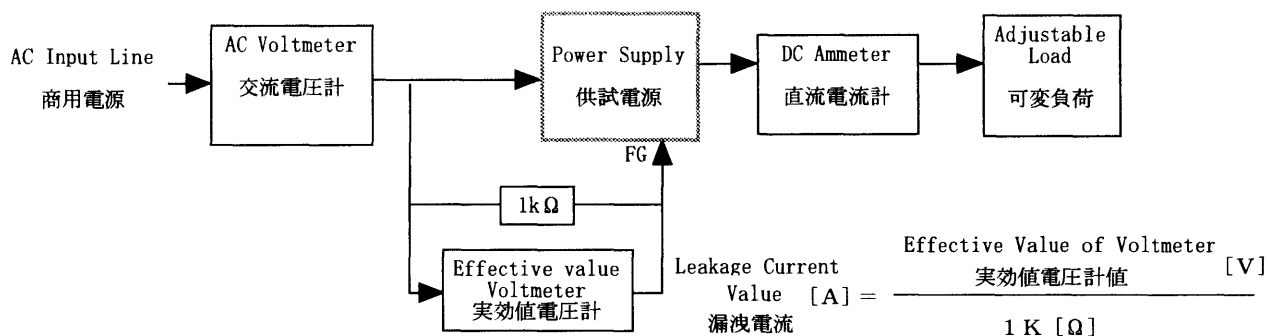
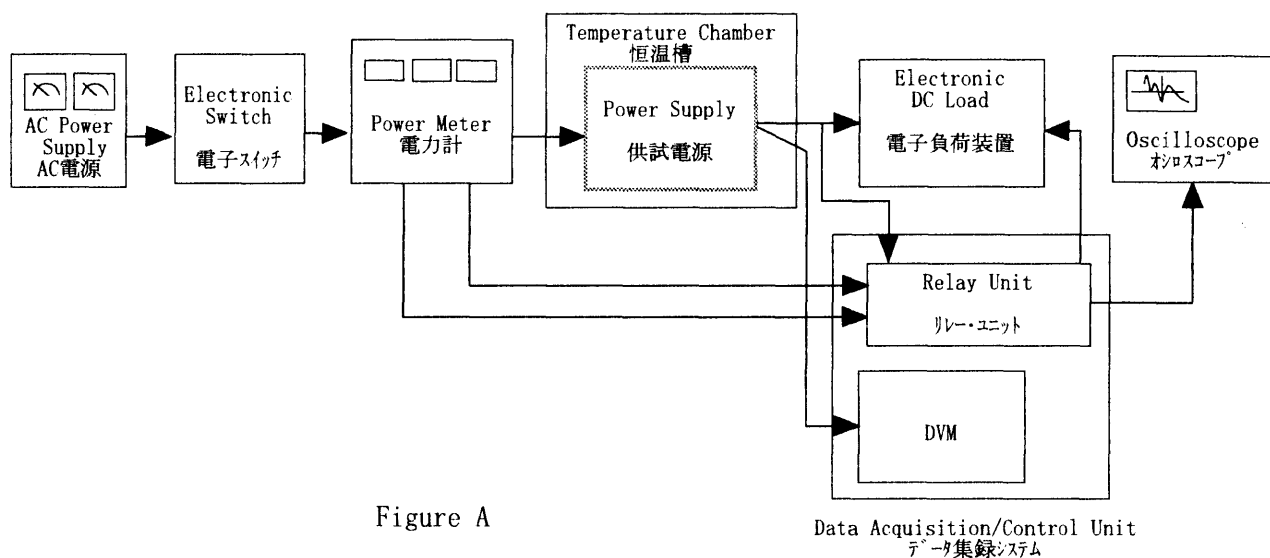


Figure B (DENTORI)

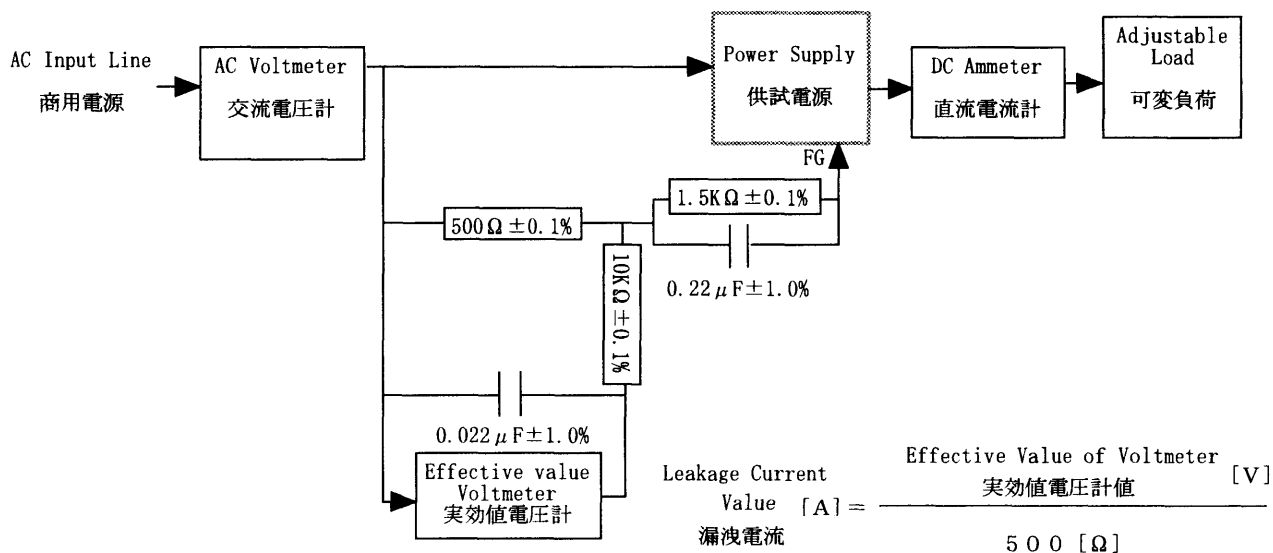


Figure B (IEC 60950)

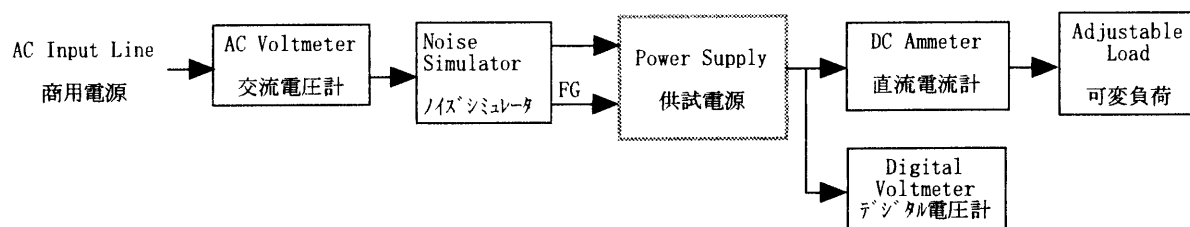


Figure C

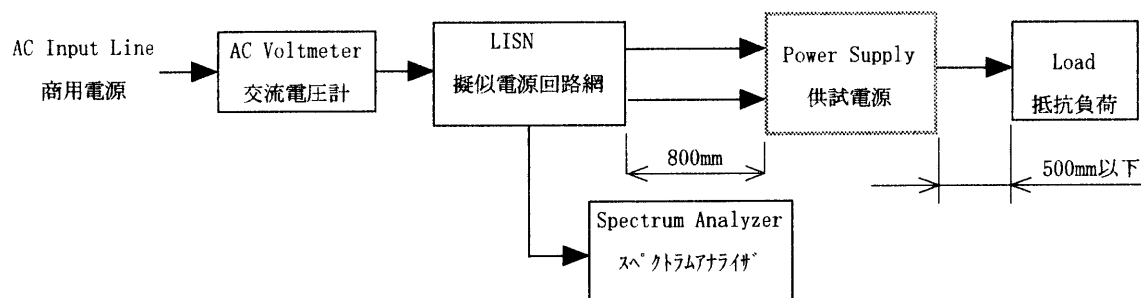


Figure D

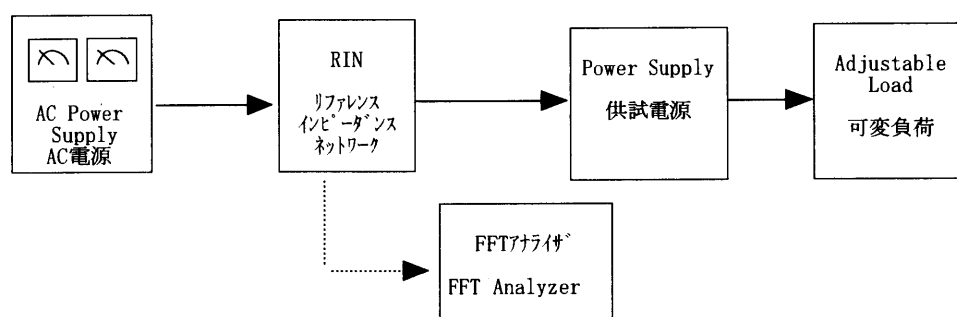


Figure E