



# TEST DATA OF LFA100F-24

Regulated DC Power Supply  
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**COSEL CO.,LTD.**

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Model

LFA100F-24

Item

Input Current (by Load Current)

Object

1.Graph

—△—

Input Volt.

100V

---□---

Input Volt.

200V

---○---

Input Volt.

230V

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

Temperature

25°C

Testing Circuitry

Figure A

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.000	0.066	0.080	0.088
0.900	0.319	0.189	0.179
1.800	0.561	0.298	0.270
2.700	0.804	0.413	0.367
3.600	1.046	0.530	0.467
4.300	1.238	0.621	0.546
4.730	1.355	0.678	0.594
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# COSEL

Model LFA100F-24

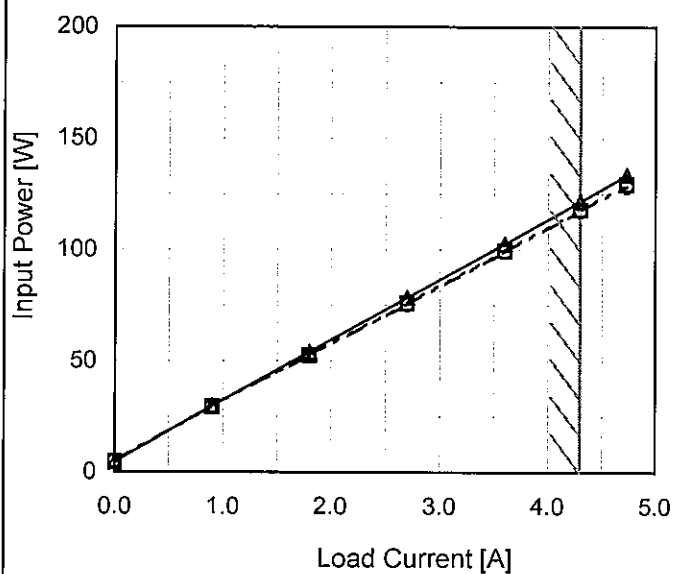
Item Input Power (by Load Current)

Object

Temperature 25°C  
Testing Circuitry Figure A

1.Graph

—△— Input Volt. 100V  
 ---□--- Input Volt. 200V  
 -·-○-·- Input Volt. 230V



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

2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.000	4.5	4.8	4.9
0.900	29.8	29.5	29.8
1.800	54.0	52.4	52.4
2.700	78.4	76.0	75.5
3.600	102.6	99.5	99.1
4.300	121.7	118.0	117.5
4.730	133.6	129.4	128.8
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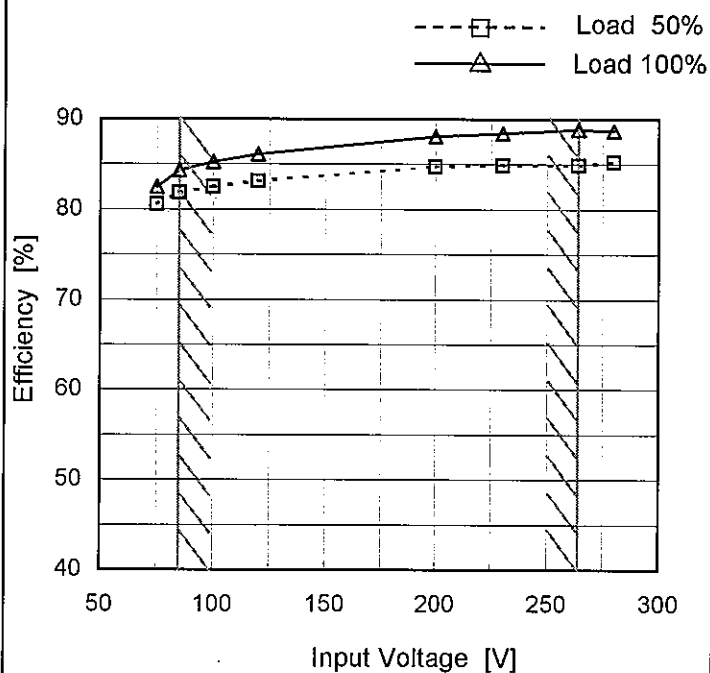
Model LFA100F-24

Item Efficiency (by Input Voltage)

Object

Temperature 25°C  
Testing Circuitry Figure A

1. Graph



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

2. Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
75	80.5	82.5
85	81.8	84.3
100	82.5	85.2
120	83.1	86.1
200	84.8	88.1
230	84.9	88.4
264	84.9	88.9
280	85.2	88.7
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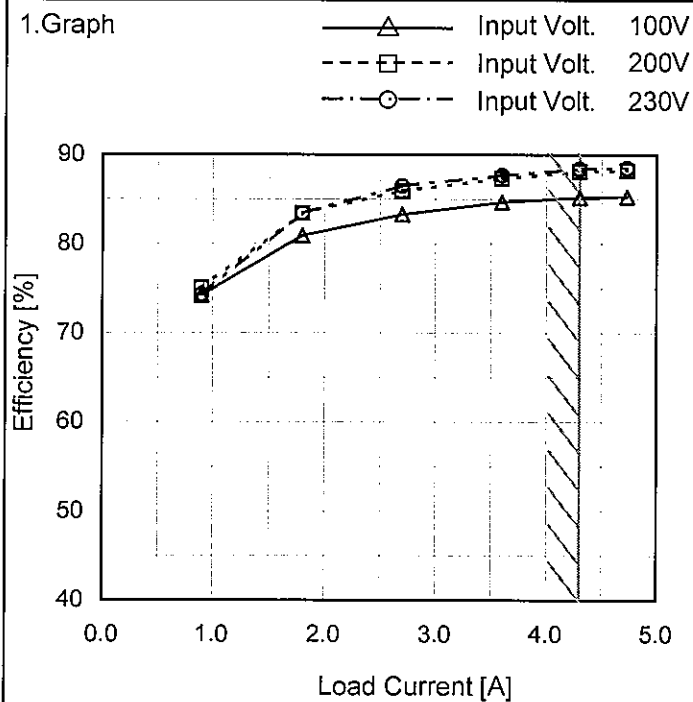
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Model LFA100F-24

Item Efficiency (by Load Current)

Object

## 1. Graph

Temperature 25°C  
Testing Circuitry Figure A

## 2. Values

Load Current [A]	Efficiency [%]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.000	-	-	-
0.900	74.2	75.0	74.3
1.800	80.9	83.4	83.4
2.700	83.3	85.9	86.5
3.600	84.7	87.3	87.7
4.300	85.2	88.1	88.4
4.730	85.3	88.2	88.5
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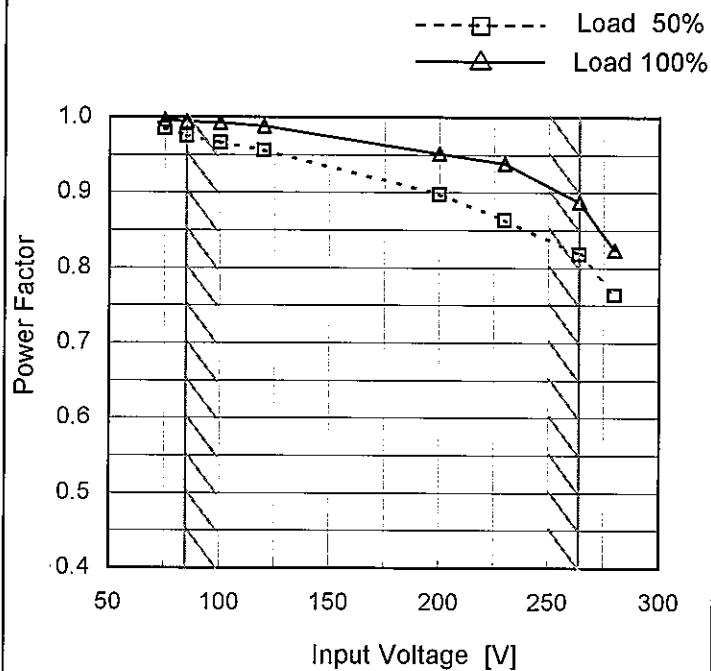
Model LFA100F-24

Item Power Factor (by Input Voltage)

Object

Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



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

## 2. Values

Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
75	0.985	0.997
85	0.975	0.994
100	0.966	0.992
120	0.956	0.988
200	0.898	0.951
230	0.863	0.939
264	0.818	0.887
280	0.764	0.824
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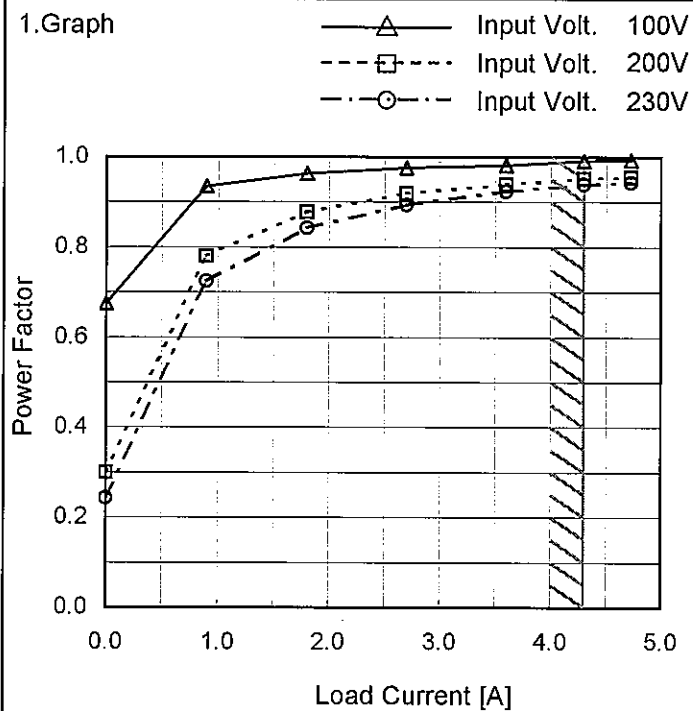
Model LFA100F-24

Item Power Factor (by Load Current)

Object

Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



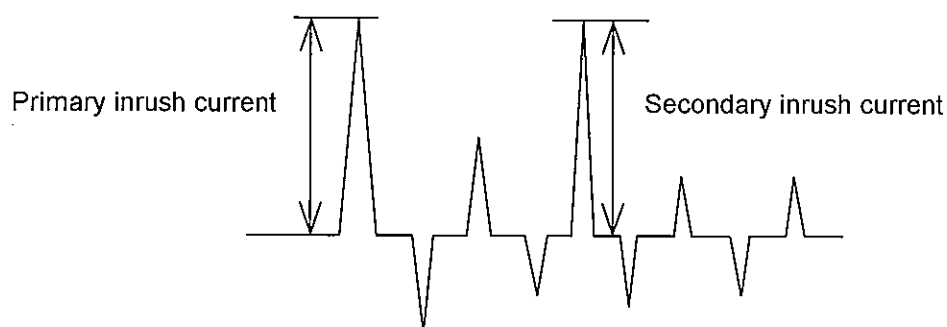
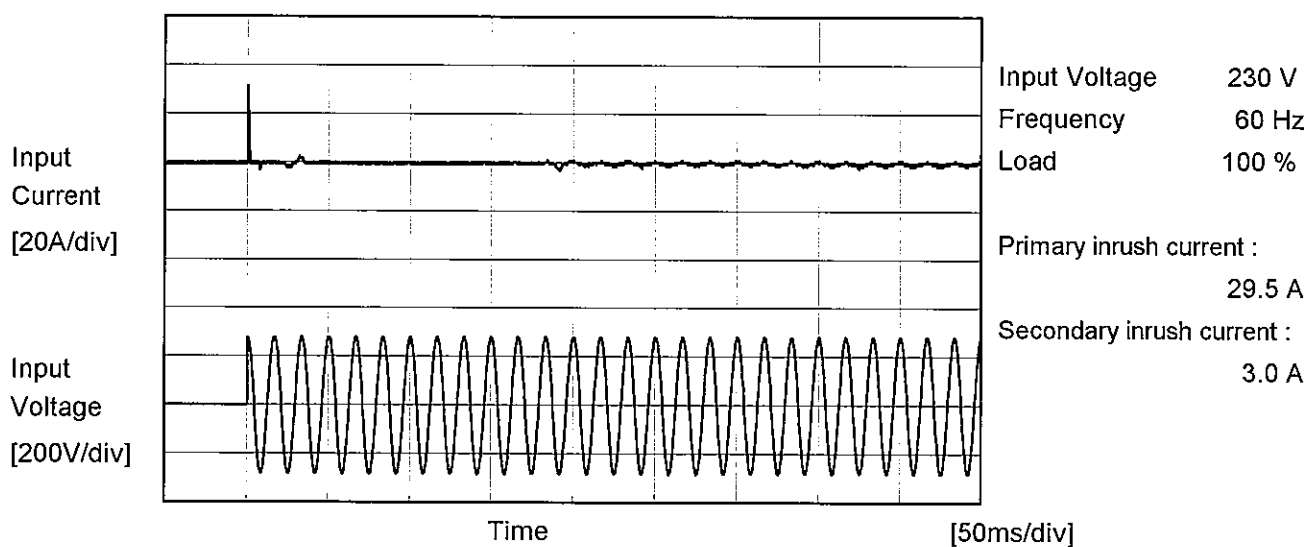
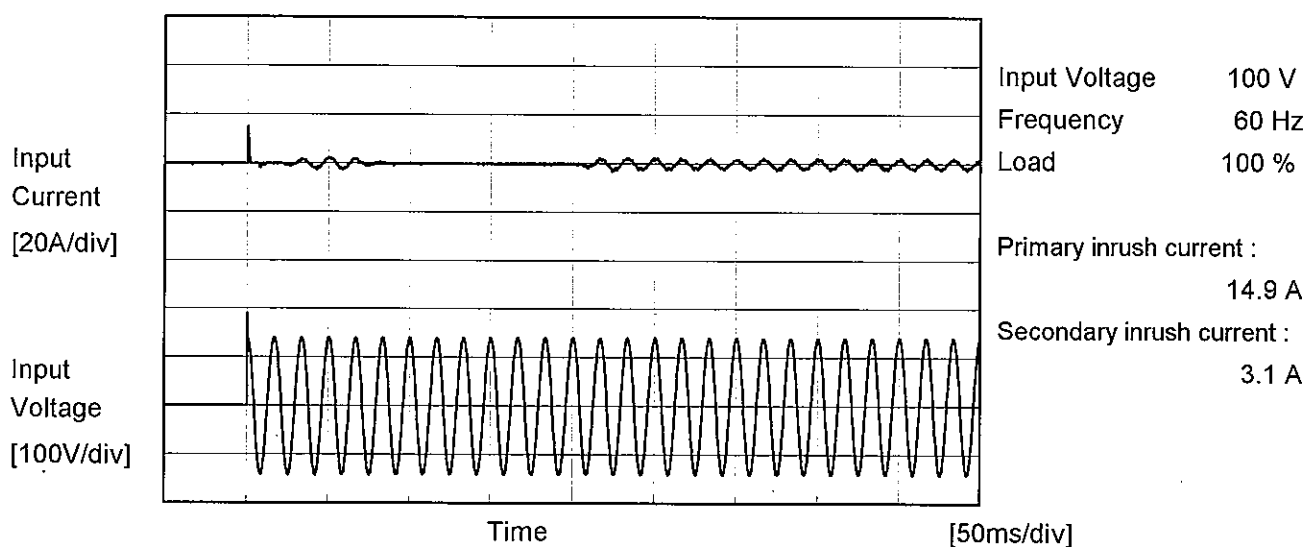
## 2. Values

Load Current [A]	Power Factor		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
0.000	0.675	0.300	0.243
0.900	0.935	0.780	0.725
1.800	0.963	0.878	0.842
2.700	0.976	0.919	0.893
3.600	0.982	0.940	0.923
4.300	0.992	0.951	0.939
4.730	0.993	0.954	0.944
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Model	LFA100F-24	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	_____		





		Temperature 25°C Testing Circuitry Figure B
Model	LFA100F-24	
Item	Leakage Current	
Object	_____	

### 1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	200 [V]	240 [V]	
DEN-AN	Both phases	0.27	0.34	0.37	Operation
	One of phase	0.25	0.55	0.67	stand by
IEC60950-1	Both phases	0.13	0.28	0.33	Operation
	One of phase	0.25	0.52	0.64	stand by

The value for "One phase" is the reference value only.

### 2.Condition

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

Model	LFA100F-24																																
Item	Line Regulation	Temperature	25°C																														
Object	+24V4.3A	Testing Circuitry	Figure A																														
1.Graph		2.Values																															
<div><div><div>---□---</div><div>Load 50%</div></div><div><div>—△—</div><div>Load 100%</div></div></div> <table><thead><tr><th>Input Voltage [V]</th><th>Output Voltage [V] Load 50%</th><th>Output Voltage [V] Load 100%</th></tr></thead><tbody><tr><td>75</td><td>24.033</td><td>24.028</td></tr><tr><td>85</td><td>24.033</td><td>24.028</td></tr><tr><td>100</td><td>24.033</td><td>24.028</td></tr><tr><td>120</td><td>24.033</td><td>24.028</td></tr><tr><td>200</td><td>24.033</td><td>24.028</td></tr><tr><td>230</td><td>24.033</td><td>24.028</td></tr><tr><td>264</td><td>24.033</td><td>24.028</td></tr><tr><td>280</td><td>24.033</td><td>24.028</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table> <p>Note: Slanted line shows the range of the rated input voltage.</p>		Input Voltage [V]	Output Voltage [V] Load 50%	Output Voltage [V] Load 100%	75	24.033	24.028	85	24.033	24.028	100	24.033	24.028	120	24.033	24.028	200	24.033	24.028	230	24.033	24.028	264	24.033	24.028	280	24.033	24.028	--	-	-		
Input Voltage [V]	Output Voltage [V] Load 50%	Output Voltage [V] Load 100%																															
75	24.033	24.028																															
85	24.033	24.028																															
100	24.033	24.028																															
120	24.033	24.028																															
200	24.033	24.028																															
230	24.033	24.028																															
264	24.033	24.028																															
280	24.033	24.028																															
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# COSEL

Model	LFA100F-24																																																					
Item	Load Regulation	Temperature	25°C																																																			
Object	+24V4.3A	Testing Circuitry	Figure A																																																			
1.Graph		2.Values																																																				
<div><div>—△—</div>Input Volt. 100V</div> <div><div>---□---</div>Input Volt. 200V</div> <div><div>-·-○-·-</div>Input Volt. 230V</div> <p>Output Voltage [V]</p> <p>Load Current [A]</p>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>0.000</td><td>24.038</td><td>24.038</td><td>24.038</td></tr><tr><td>0.900</td><td>24.036</td><td>24.036</td><td>24.036</td></tr><tr><td>1.800</td><td>24.034</td><td>24.034</td><td>24.034</td></tr><tr><td>2.700</td><td>24.032</td><td>24.032</td><td>24.032</td></tr><tr><td>3.600</td><td>24.030</td><td>24.030</td><td>24.030</td></tr><tr><td>4.300</td><td>24.028</td><td>24.028</td><td>24.028</td></tr><tr><td>4.730</td><td>24.027</td><td>24.027</td><td>24.027</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]	Output Voltage [V]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.000	24.038	24.038	24.038	0.900	24.036	24.036	24.036	1.800	24.034	24.034	24.034	2.700	24.032	24.032	24.032	3.600	24.030	24.030	24.030	4.300	24.028	24.028	24.028	4.730	24.027	24.027	24.027	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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3.600	24.030	24.030	24.030																																																			
4.300	24.028	24.028	24.028																																																			
4.730	24.027	24.027	24.027																																																			
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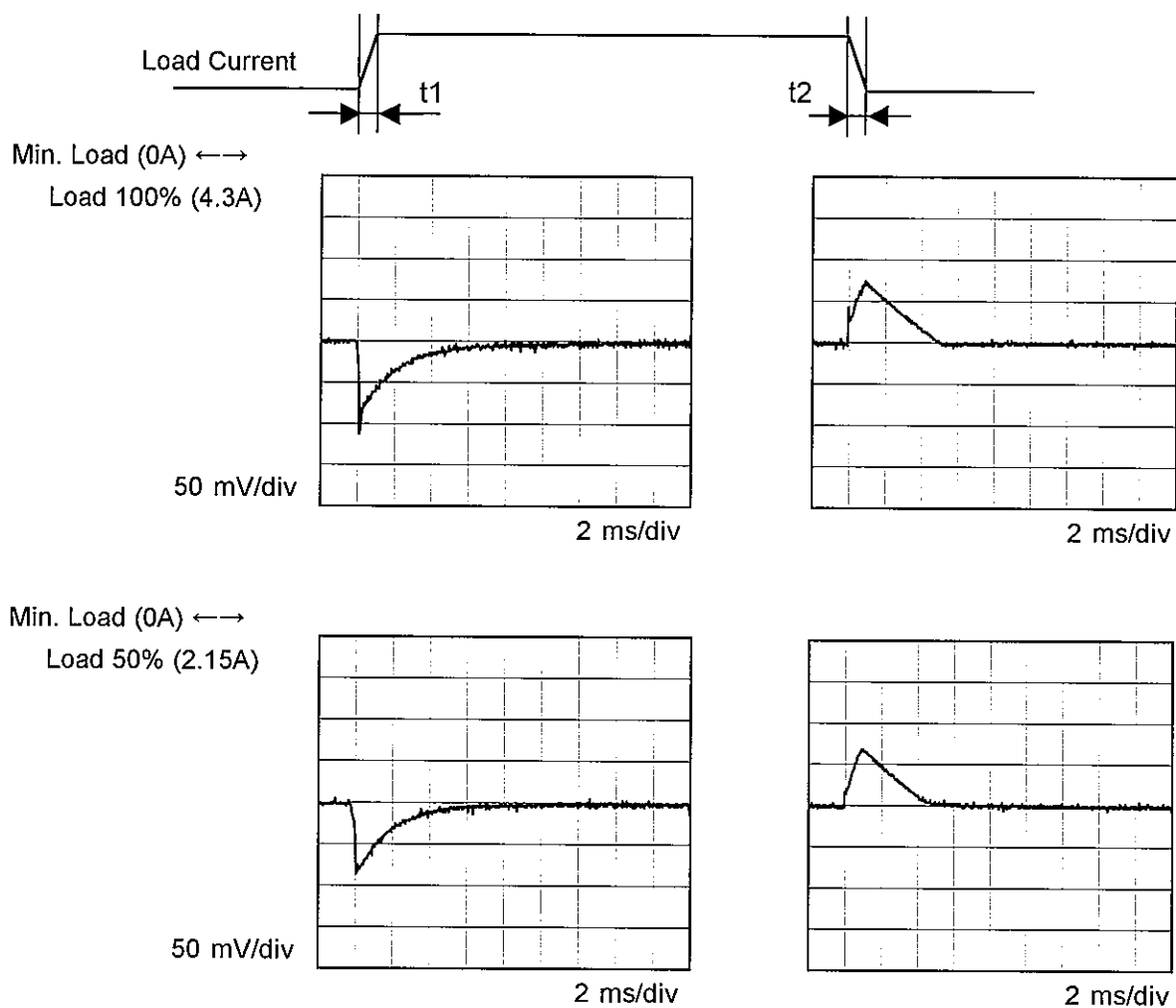
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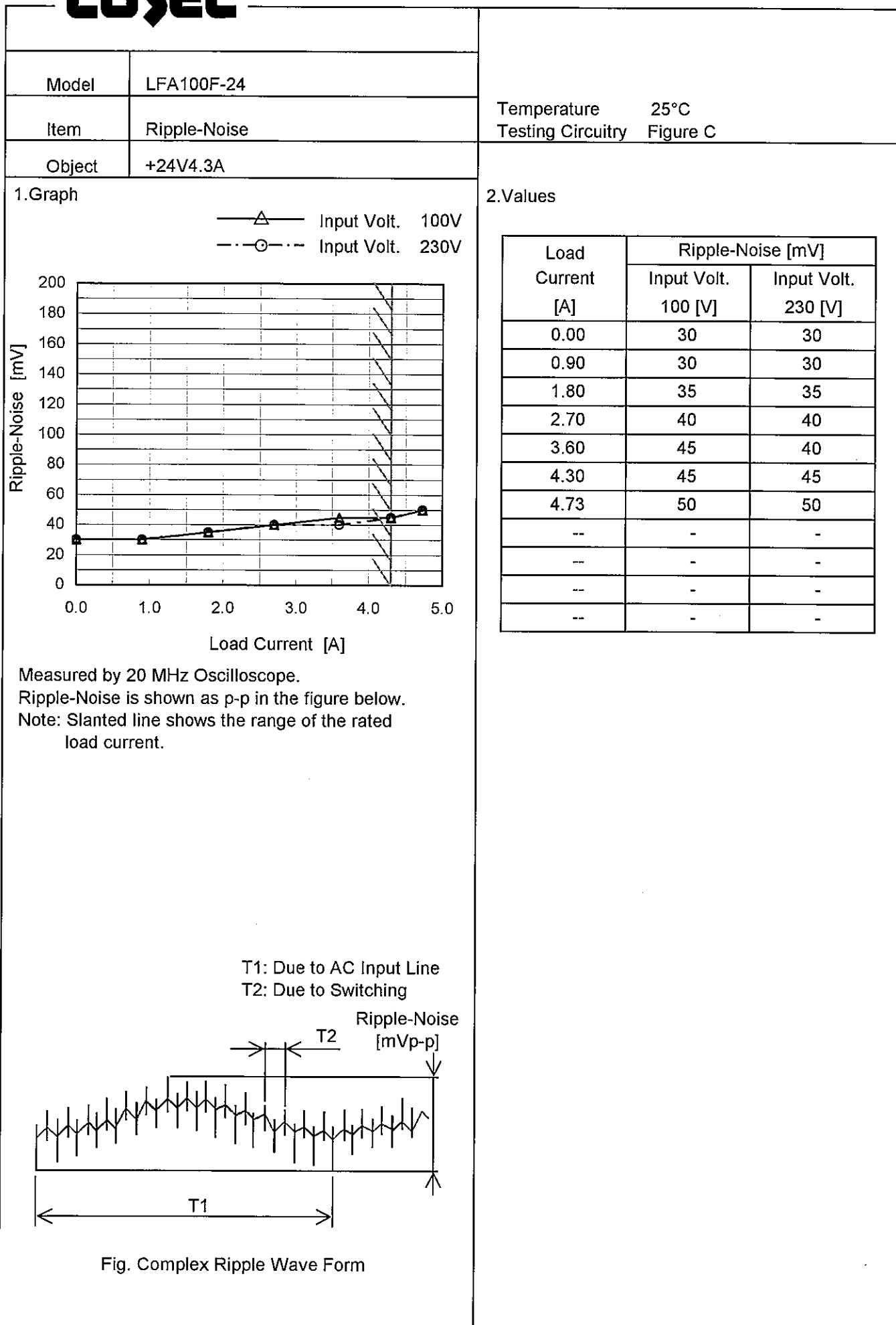
Model	LFA100F-24	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+24V4.3A		

Input Volt. 100 V  
Cycle 1000 ms

Response.  $t_1=t_2=50\mu\text{s}$ . Typ



Model		LFA100F-24	Temperature 25°C Testing Circuitry Figure C
Item		Ripple Voltage (by Load Current)	
Object		+24V4.3A	
1.Graph			
<div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div>Input Volt. 100V</div><div>Input Volt. 230V</div></div></div> <div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> <div><div></div><div></div></div> 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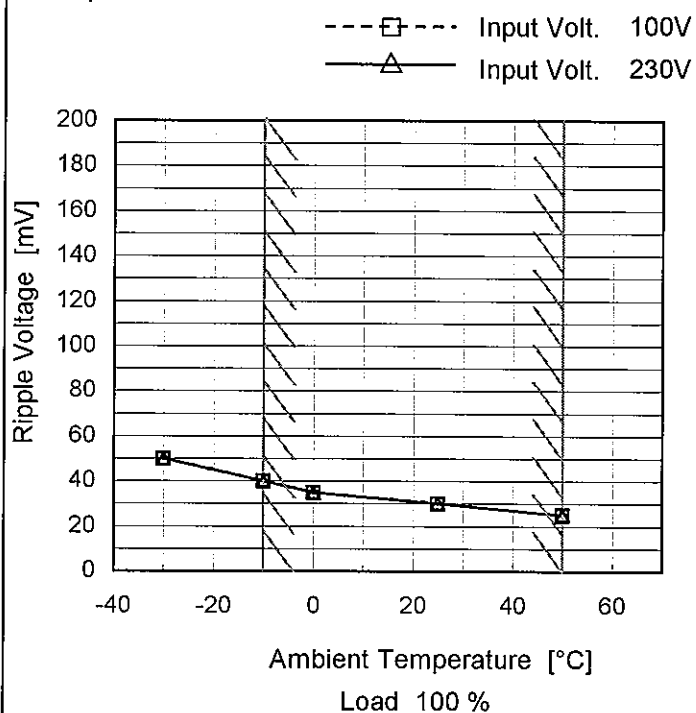
Model LFA100F-24

Item Ripple Voltage (by Ambient Temp.)

Object +24V4.3A

Testing Circuitry Figure C

## 1. Graph



Measured by 20 MHz Oscilloscope.

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

## 2. Values

Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 100 [V]	Input Volt. 230 [V]
-30	50	50
-10	40	40
0	35	35
25	30	30
50	25	25
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-



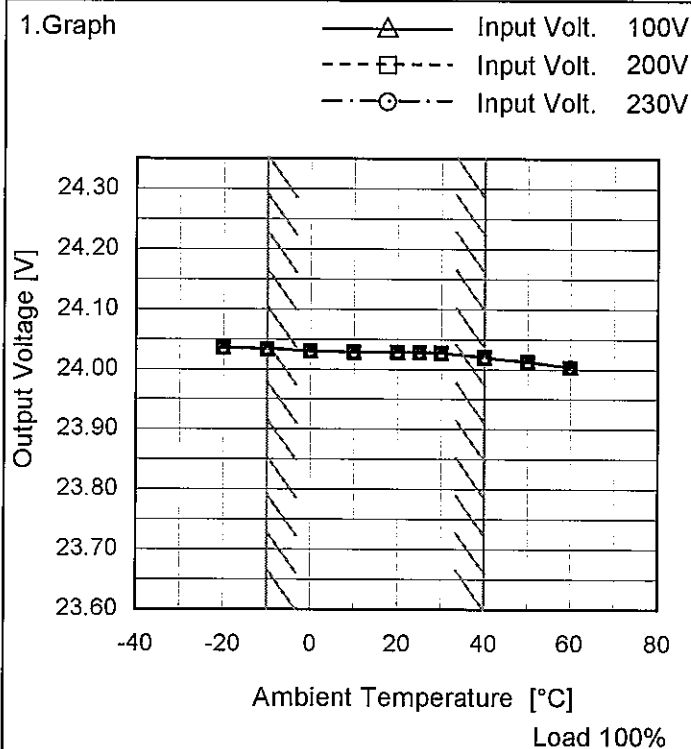
Model LFA100F-24

Item Ambient Temperature Drift

Object +24V4.3A

Testing Circuitry Figure A

## 1. Graph



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

## 2. Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]
-20	24.035	24.036	24.036
-10	24.034	24.034	24.034
0	24.031	24.030	24.030
10	24.028	24.029	24.029
20	24.029	24.029	24.029
25	24.028	24.028	24.028
30	24.027	24.027	24.027
40	24.020	24.020	24.020
50	24.013	24.013	24.012
60	24.004	24.003	24.003
--	-	-	-

		Testing Circuitry Figure A
Model	LFA100F-24	
Item	Output Voltage Accuracy	
Object	+24V4.3A	

### 1. Output Voltage Accuracy

This is defined as the value of the output voltage, regulation load, ambient temperature and input voltage varied at random in the range as specified below.

Temperature : -10 - 50°C

Input Voltage : 85 - 264V

Load Current : 0 - 4.3A

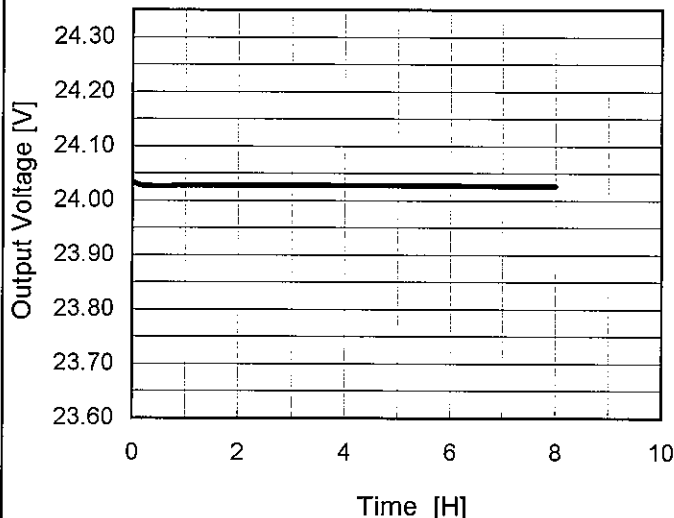
\* Output Voltage Accuracy =  $\pm(\text{Maximum of Output Voltage} - \text{Minimum of Output Voltage}) / 2$

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

### 2. Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	-10	85	0	24.038	±9	±0.1
Minimum Voltage	40	264	4.3	24.020		

# COSEL

LUXEL																								
Model	LFA100F-24	Temperature 25°C Testing Circuitry Figure A																						
Item	Time Lapse Drift																							
Object	+24V4.3A																							
1.Graph		2.Values																						
<div><p>Output Voltage [V]</p><p>Time [H]</p><p>Input Volt. 100V Load 100%</p></div>		<table><tr><th>Time since start [H]</th><th>Output Voltage [V]</th></tr><tr><td>0.0</td><td>24.035</td></tr><tr><td>0.5</td><td>24.027</td></tr><tr><td>1.0</td><td>24.028</td></tr><tr><td>2.0</td><td>24.028</td></tr><tr><td>3.0</td><td>24.028</td></tr><tr><td>4.0</td><td>24.028</td></tr><tr><td>5.0</td><td>24.028</td></tr><tr><td>6.0</td><td>24.028</td></tr><tr><td>7.0</td><td>24.028</td></tr><tr><td>8.0</td><td>24.027</td></tr></table>		Time since start [H]	Output Voltage [V]	0.0	24.035	0.5	24.027	1.0	24.028	2.0	24.028	3.0	24.028	4.0	24.028	5.0	24.028	6.0	24.028	7.0	24.028	8.0
Time since start [H]	Output Voltage [V]																							
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5.0	24.028																							
6.0	24.028																							
7.0	24.028																							
8.0	24.027																							
* The characteristic of AC230V is equal.																								

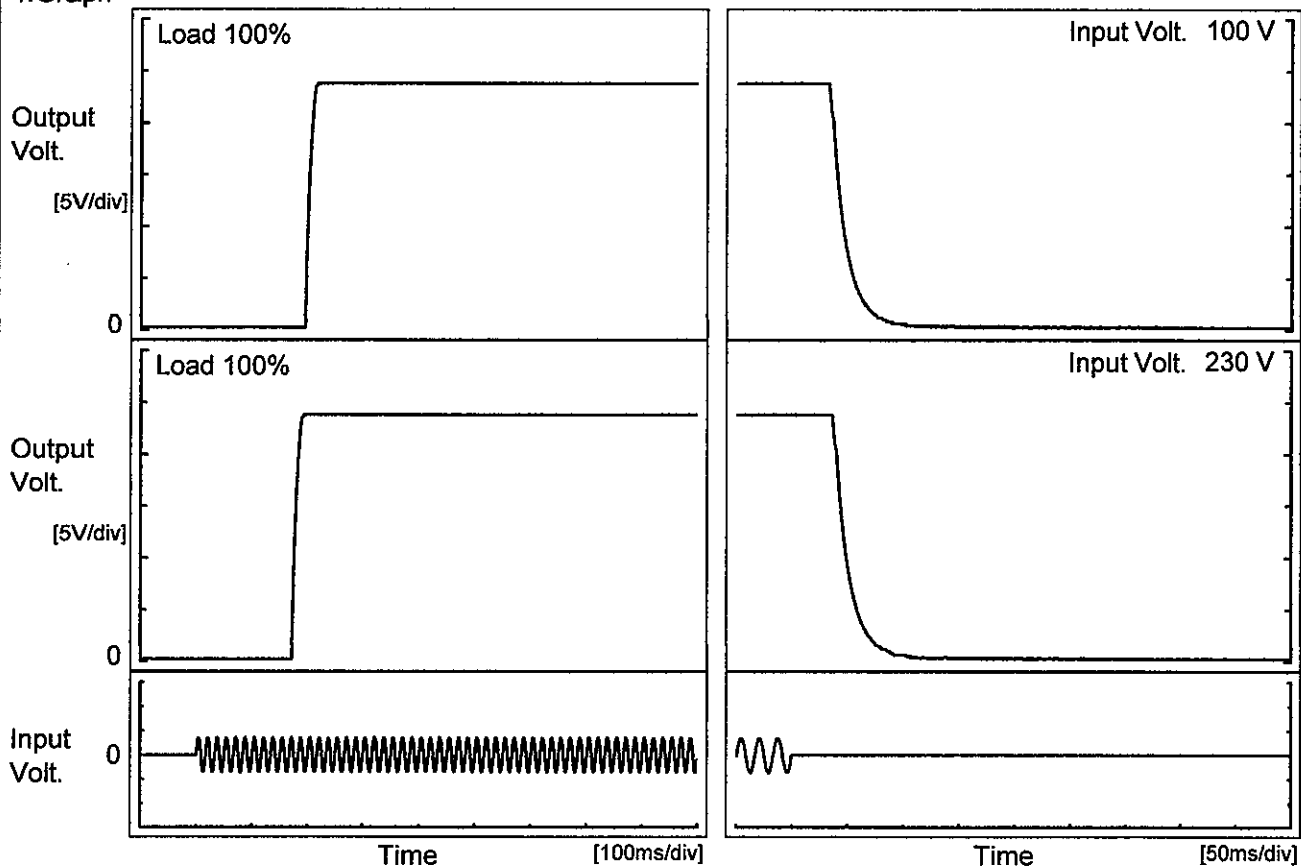
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BC-10478

# COSEL

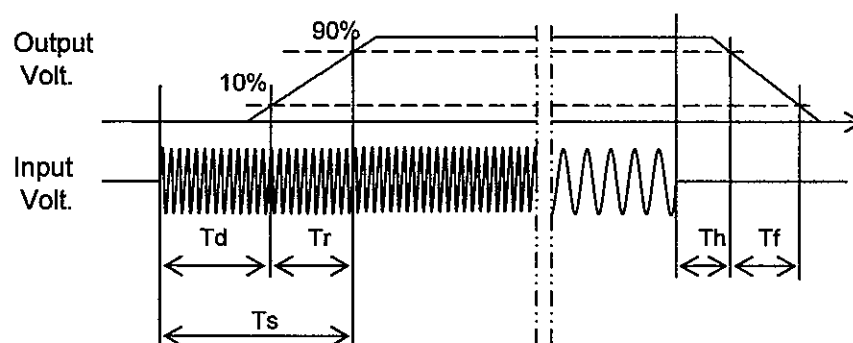
Model	LFA100F-24	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+24V4.3A		

## 1. Graph



## 2. Values

Input Volt.	Time	Td	Tr	Ts	Th	Tf
100 V		196.5	13.5	210.0	34.5	31.0
230 V		173.0	13.5	186.5	38.0	31.0



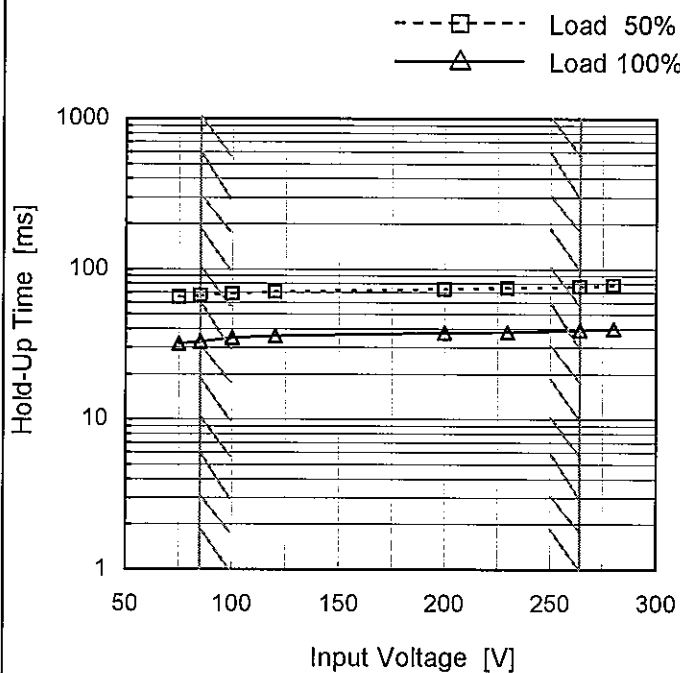
Model LFA100F-24

Item Hold-Up Time

Object +24V4.3A

Temperature 25°C  
Testing Circuitry Figure A

## 1. Graph



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 input voltage.

## 2. Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
75	65	32
85	67	33
100	68	35
120	70	36
200	74	38
230	75	38
264	77	39
280	78	40
--	-	-

Model	LFA100F-24																																																					
Item	Instantaneous Interruption Compensation	Temperature	25°C																																																			
Object	+24V4.3A	Testing Circuitry	Figure A																																																			
1.Graph		2.Values																																																				
<div><div>Instantaneous Compensation Time [ms]</div><div><div><div>—△—</div><div>---□---</div><div>---○---</div></div><div><div>Input Volt. 100V</div><div>Input Volt. 200V</div><div>Input Volt. 230V</div></div></div><div><div>Load Current [A]</div></div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>0.000</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.900</td><td>151</td><td>165</td><td>170</td></tr><tr><td>1.800</td><td>82</td><td>90</td><td>89</td></tr><tr><td>2.700</td><td>58</td><td>62</td><td>64</td></tr><tr><td>3.600</td><td>42</td><td>48</td><td>47</td></tr><tr><td>4.300</td><td>35</td><td>38</td><td>38</td></tr><tr><td>4.730</td><td>32</td><td>36</td><td>35</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]	Time [ms]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.000	-	-	-	0.900	151	165	170	1.800	82	90	89	2.700	58	62	64	3.600	42	48	47	4.300	35	38	38	4.730	32	36	35	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Time [ms]																																																					
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																			
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Note: Slanted line shows the range of the rated load current.																																																						

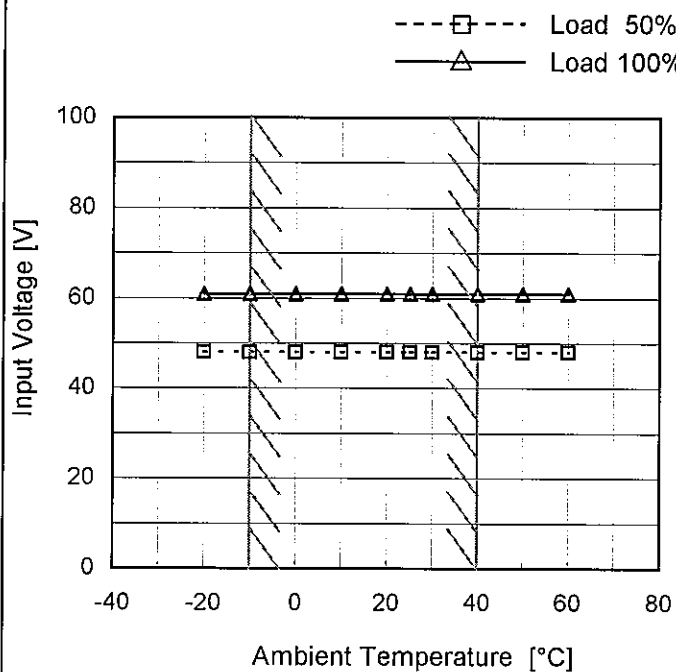
Model LFA100F-24

Item Minimum Input Voltage  
for Regulated Output Voltage

Object +24V4.3A

Testing Circuitry Figure A

## 1. Graph



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

## 2. Values

Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	48	61
-10	48	61
0	48	61
10	48	61
20	48	61
25	48	61
30	48	61
40	48	61
50	48	61
60	48	61
--	-	-

Model	LFA100F-24																																											
Item	Overcurrent Protection	Temperature	25°C																																									
Object	+24V4.3A	Testing Circuitry	Figure A																																									
1.Graph		2.Values																																										
<div><div>— Input Volt. 100V</div><div>— Input Volt. 230V</div></div> <p>Note: Slanted line shows the range of the rated load current.</p>		<table><tr><th rowspan="2">Output Voltage [V]</th><th colspan="2">Load Current [A]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>24.0</td><td>5.55</td><td>5.58</td></tr><tr><td>22.8</td><td>5.57</td><td>5.61</td></tr><tr><td>21.6</td><td>5.55</td><td>5.58</td></tr><tr><td>19.2</td><td>5.63</td><td>5.64</td></tr><tr><td>16.8</td><td>5.71</td><td>5.74</td></tr><tr><td>14.4</td><td>5.65</td><td>5.69</td></tr><tr><td>12.0</td><td>5.85</td><td>5.89</td></tr><tr><td>9.6</td><td>5.94</td><td>6.03</td></tr><tr><td>7.2</td><td>6.04</td><td>6.08</td></tr><tr><td>4.8</td><td>5.96</td><td>6.02</td></tr><tr><td>2.4</td><td>5.91</td><td>5.99</td></tr><tr><td>0.0</td><td>8.10</td><td>8.38</td></tr></table>		Output Voltage [V]	Load Current [A]		Input Volt. 100[V]	Input Volt. 230[V]	24.0	5.55	5.58	22.8	5.57	5.61	21.6	5.55	5.58	19.2	5.63	5.64	16.8	5.71	5.74	14.4	5.65	5.69	12.0	5.85	5.89	9.6	5.94	6.03	7.2	6.04	6.08	4.8	5.96	6.02	2.4	5.91	5.99	0.0	8.10	8.38
Output Voltage [V]	Load Current [A]																																											
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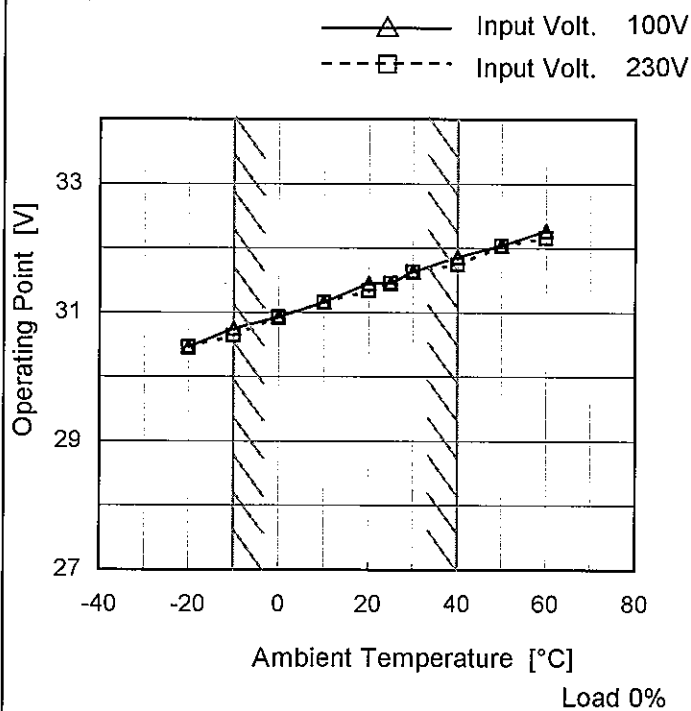
Model LFA100F-24

Item Overvoltage Protection

Object +24V4.3A

Testing Circuitry Figure A

## 1.Graph



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

## 2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 100[V]	Input Volt. 230[V]
-20	30.46	30.46
-10	30.75	30.64
0	30.93	30.93
10	31.16	31.16
20	31.45	31.34
25	31.45	31.45
30	31.63	31.63
40	31.86	31.74
50	32.04	32.04
60	32.27	32.16
--	-	-

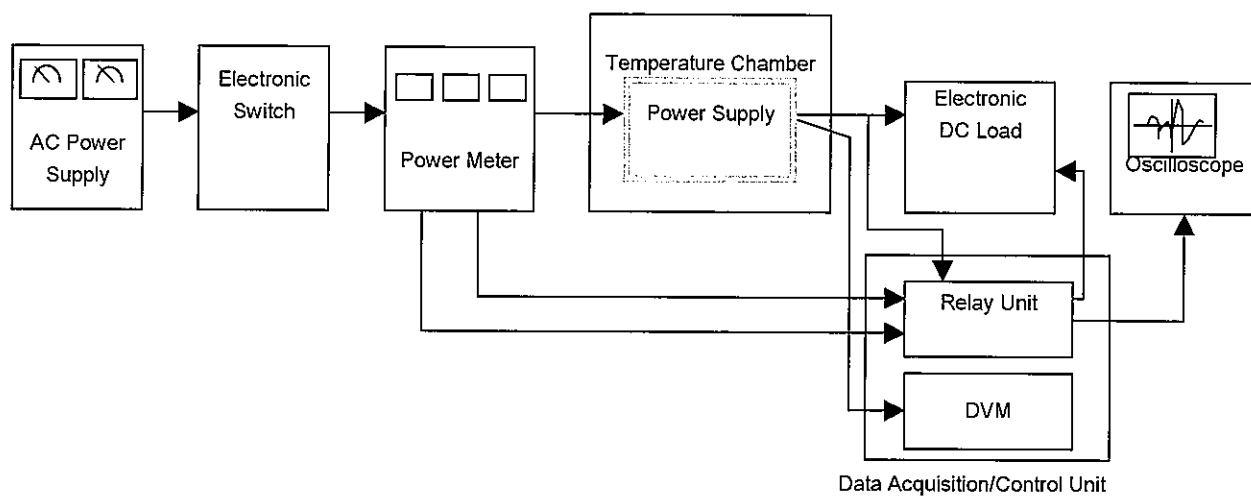


Figure A

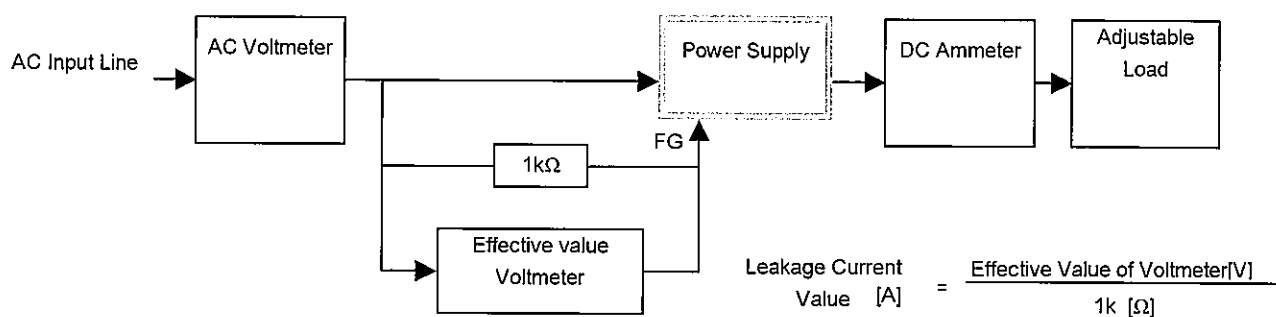


Figure B ( DEN-AN )

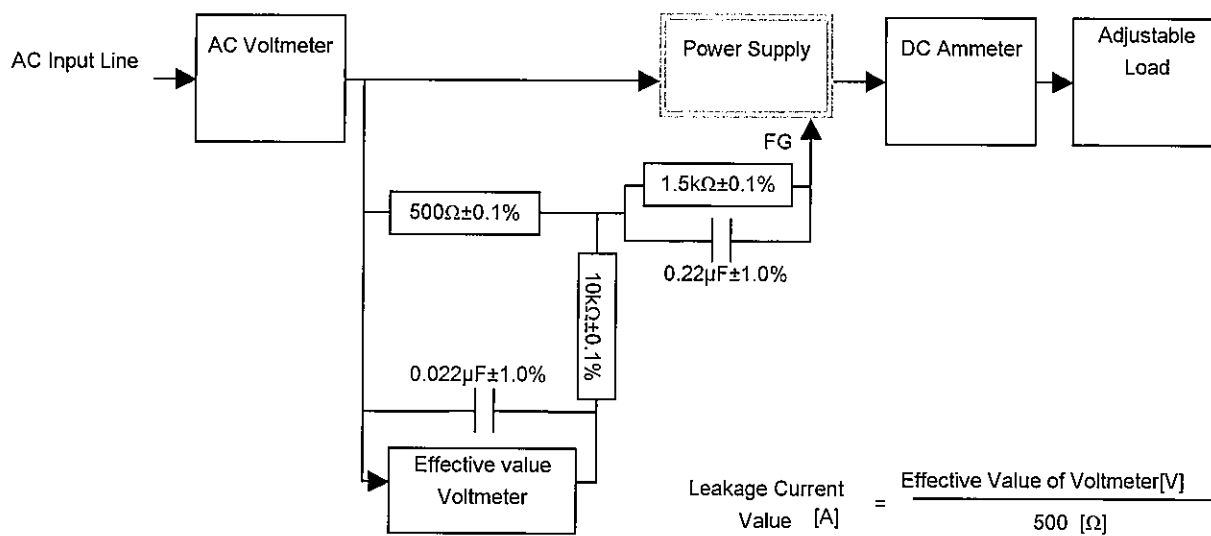


Figure B ( IEC60950-1 )

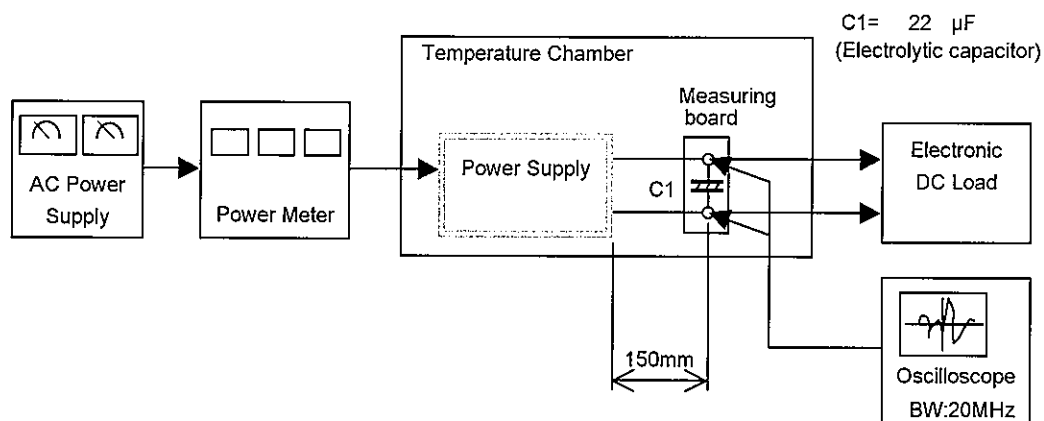


Figure C