



# TEST DATA OF LHA150F-36

Regulated DC Power Supply  
September 2, 2019

Approved by : Junya Kaneda  
Junya Kaneda Design Manager

Prepared by : Tomoyuki Sakuma  
Tomoyuki Sakuma Design Engineer

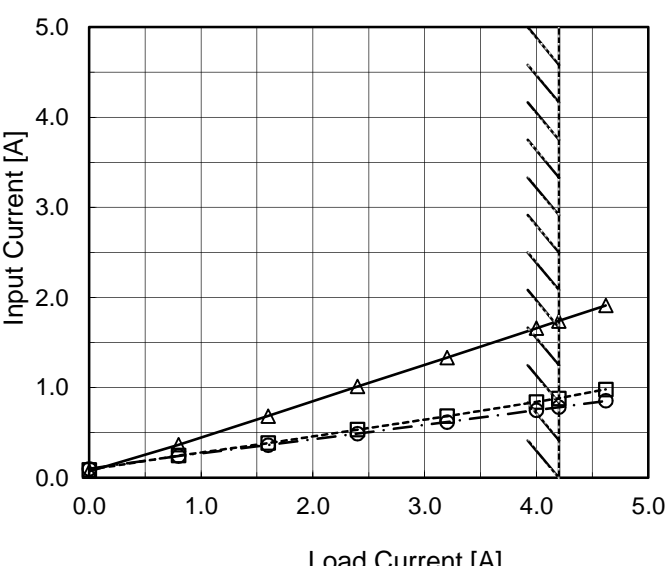
**COSEL CO.,LTD.**

## CONTENTS

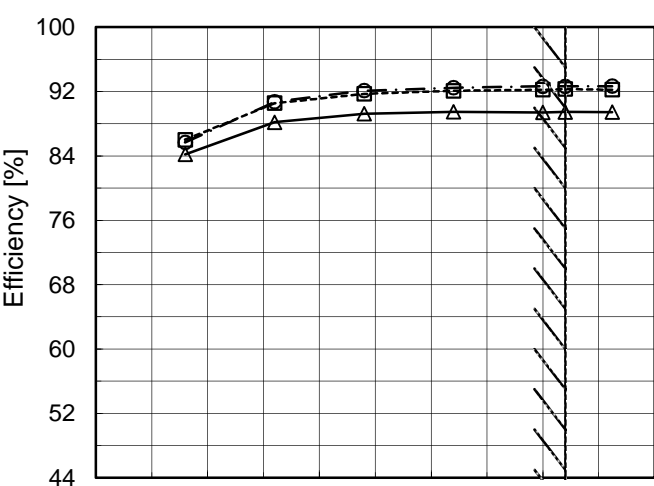
1.Input Current (by Load Current) . . . . .	1
2.Efficiency (by Load Current) . . . . .	2
3.Power Factor (by Load Current) . . . . .	3
4.Inrush Current . . . . .	4
5.Leakage Current . . . . .	5
6.Line Regulation . . . . .	6
7.Load Regulation . . . . .	7
8.Dynamic Load Response . . . . .	8
9.Ripple-Noise (by Load Current) . . . . .	9
10.Ambient Temperature Drift . . . . .	10
11.Rise and Fall Time . . . . .	11
12.Hold-Up Time . . . . .	12
13.Instantaneous Interruption Compensation . . . . .	13
14.Minimum Input Voltage for Regulated Output Voltage . . . . .	14
15.Overcurrent Protection . . . . .	15
16.Overvoltage Protection . . . . .	16
17.Figure of Testing Circuitry . . . . .	17

(Final Page 18)



Model		LHA150F-36	Temperature 25°C Testing Circuitry Figure A																																																				
Item		Input Current (by Load Current)																																																					
Object		_____																																																					
1.Graph		<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>  <p>Note: Slanted line shows the range of the rated load current.</p>	2.Values																																																				
			<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Input Current [A]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>0.00</td><td>0.071</td><td>0.088</td><td>0.098</td></tr><tr><td>0.80</td><td>0.367</td><td>0.246</td><td>0.240</td></tr><tr><td>1.60</td><td>0.685</td><td>0.384</td><td>0.360</td></tr><tr><td>2.40</td><td>1.013</td><td>0.534</td><td>0.489</td></tr><tr><td>3.20</td><td>1.333</td><td>0.682</td><td>0.616</td></tr><tr><td>4.00</td><td>1.660</td><td>0.840</td><td>0.748</td></tr><tr><td>4.20</td><td>1.740</td><td>0.880</td><td>0.781</td></tr><tr><td>4.62</td><td>1.912</td><td>0.979</td><td>0.853</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 Current [A]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.00	0.071	0.088	0.098	0.80	0.367	0.246	0.240	1.60	0.685	0.384	0.360	2.40	1.013	0.534	0.489	3.20	1.333	0.682	0.616	4.00	1.660	0.840	0.748	4.20	1.740	0.880	0.781	4.62	1.912	0.979	0.853	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Input Current [A]																																																						
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																				
0.00	0.071	0.088	0.098																																																				
0.80	0.367	0.246	0.240																																																				
1.60	0.685	0.384	0.360																																																				
2.40	1.013	0.534	0.489																																																				
3.20	1.333	0.682	0.616																																																				
4.00	1.660	0.840	0.748																																																				
4.20	1.740	0.880	0.781																																																				
4.62	1.912	0.979	0.853																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				



Model		LHA150F-36	Temperature 25°C Testing Circuitry Figure A																																																				
Item		Efficiency (by Load Current)																																																					
Object		_____																																																					
1.Graph		<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>  <table><thead><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Efficiency [%]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 230[V]</th></tr></thead><tbody><tr><td>0.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.80</td><td>84.2</td><td>86.0</td><td>85.7</td></tr><tr><td>1.60</td><td>88.2</td><td>90.5</td><td>90.7</td></tr><tr><td>2.40</td><td>89.2</td><td>91.7</td><td>92.1</td></tr><tr><td>3.20</td><td>89.5</td><td>92.1</td><td>92.5</td></tr><tr><td>4.00</td><td>89.4</td><td>92.2</td><td>92.6</td></tr><tr><td>4.20</td><td>89.5</td><td>92.3</td><td>92.6</td></tr><tr><td>4.62</td><td>89.4</td><td>92.2</td><td>92.7</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. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.00	-	-	-	0.80	84.2	86.0	85.7	1.60	88.2	90.5	90.7	2.40	89.2	91.7	92.1	3.20	89.5	92.1	92.5	4.00	89.4	92.2	92.6	4.20	89.5	92.3	92.6	4.62	89.4	92.2	92.7	--	-	-	-	--	-	-	-	--	-	-	-	2.Values	
Load Current [A]	Efficiency [%]																																																						
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																				
0.00	-	-	-																																																				
0.80	84.2	86.0	85.7																																																				
1.60	88.2	90.5	90.7																																																				
2.40	89.2	91.7	92.1																																																				
3.20	89.5	92.1	92.5																																																				
4.00	89.4	92.2	92.6																																																				
4.20	89.5	92.3	92.6																																																				
4.62	89.4	92.2	92.7																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				

Model		LHA150F-36	Temperature		25°C																																																			
Item		Power Factor (by Load Current)	Testing Circuitry		Figure A																																																			
Object		_____																																																						
1.Graph			2.Values																																																					
<div><div><div>—△—</div><div>Input Volt.</div><div>100V</div></div><div><div>---□---</div><div>Input Volt.</div><div>200V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>230V</div></div></div> <div><div>Power Factor</div><div>Load Current [A]</div></div> <p>Note: Slanted line shows the range of the rated load current.</p>			<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Power Factor</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>0.00</td><td>0.389</td><td>0.121</td><td>0.096</td></tr><tr><td>0.80</td><td>0.940</td><td>0.688</td><td>0.617</td></tr><tr><td>1.60</td><td>0.964</td><td>0.839</td><td>0.776</td></tr><tr><td>2.40</td><td>0.973</td><td>0.899</td><td>0.850</td></tr><tr><td>3.20</td><td>0.983</td><td>0.931</td><td>0.893</td></tr><tr><td>4.00</td><td>0.987</td><td>0.944</td><td>0.918</td></tr><tr><td>4.20</td><td>0.988</td><td>0.945</td><td>0.923</td></tr><tr><td>4.62</td><td>0.989</td><td>0.935</td><td>0.929</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]	Power Factor			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.00	0.389	0.121	0.096	0.80	0.940	0.688	0.617	1.60	0.964	0.839	0.776	2.40	0.973	0.899	0.850	3.20	0.983	0.931	0.893	4.00	0.987	0.944	0.918	4.20	0.988	0.945	0.923	4.62	0.989	0.935	0.929	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Power Factor																																																							
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																					
0.00	0.389	0.121	0.096																																																					
0.80	0.940	0.688	0.617																																																					
1.60	0.964	0.839	0.776																																																					
2.40	0.973	0.899	0.850																																																					
3.20	0.983	0.931	0.893																																																					
4.00	0.987	0.944	0.918																																																					
4.20	0.988	0.945	0.923																																																					
4.62	0.989	0.935	0.929																																																					
--	-	-	-																																																					
--	-	-	-																																																					
--	-	-	-																																																					

-

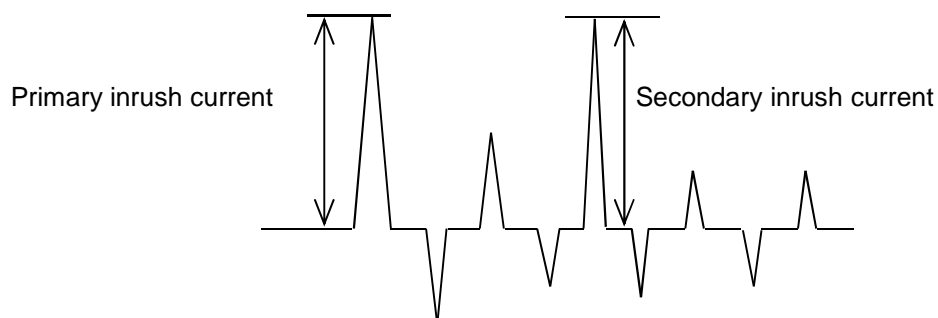
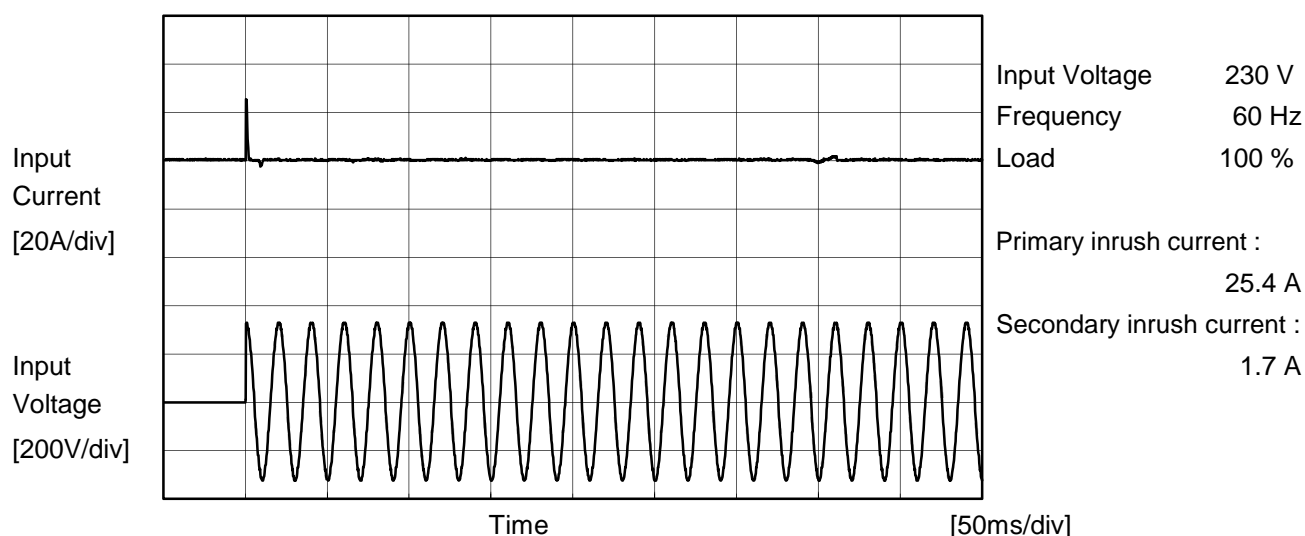
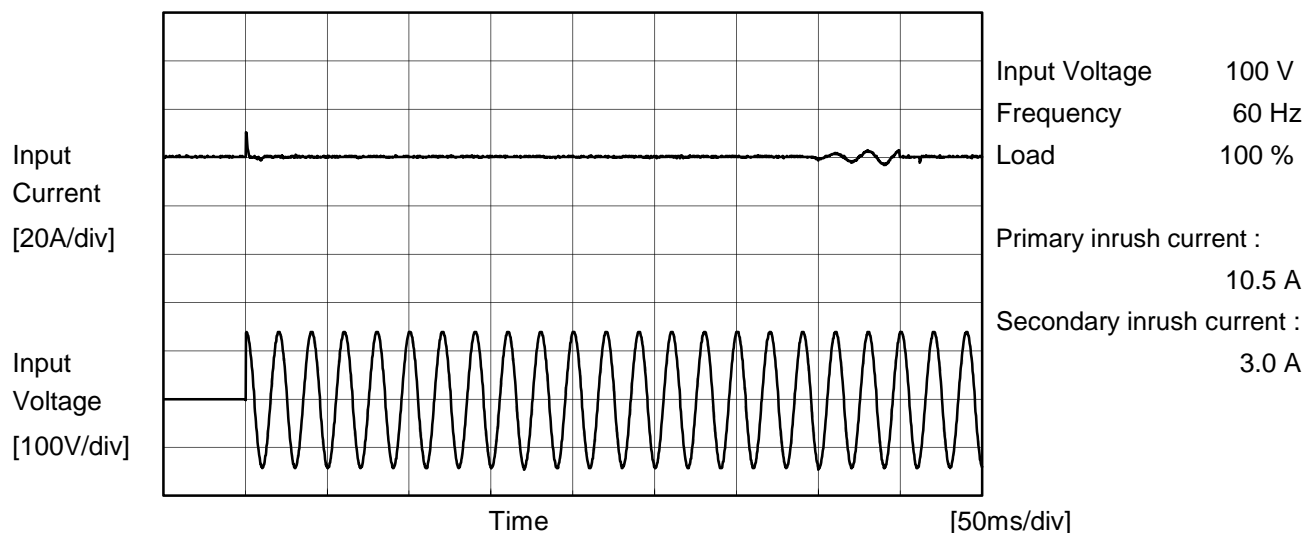
3

-

BC-11404

**COSEL**

Model	LHA150F-36	Temperature	25°C
Item	Inrush Current	Testing Circuitry	Figure A
Object	_____		





LOREL		Temperature 25°C Testing Circuitry Figure B
Model	LHA150F-36	
Item	Leakage Current	
Object	_____	

## 1.Results

Standards	Testing Circuitry	Measuring Method	Input Volt.			Note
			100 [V]	230 [V]	240 [V]	
DEN-AN	Figure B-1	Both phases	0.16	0.39	0.41	Operation
		One of phases	0.27	0.69	0.72	Stand by
IEC62368-1	Figure B-2	Both phases	0.16	0.38	0.39	Operation
		One of phases	0.27	0.67	0.70	Stand by
	Figure B-3	Both phases	0.16	0.38	0.39	Operation
		One of phases	0.27	0.66	0.70	Stand by

The value for "One of phases" is the reference value only.

## 2.Condition

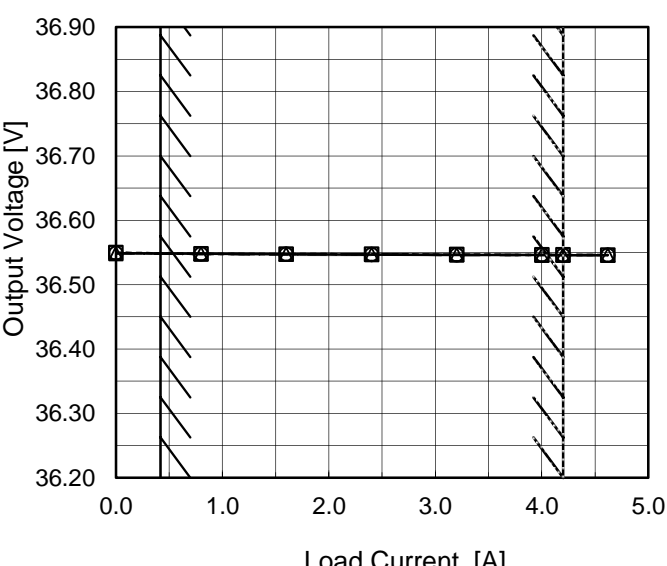
Leakage current value is concluded after measuring both phases of AC input and by choosing the larger one.



Model	LHA150F-36																																
Item	Line Regulation	Temperature	25°C																														
Object	+36V4.2A	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>85</td><td>36.541</td><td>-</td></tr><tr><td>90</td><td>36.545</td><td>36.545</td></tr><tr><td>100</td><td>36.545</td><td>36.544</td></tr><tr><td>120</td><td>36.545</td><td>36.545</td></tr><tr><td>200</td><td>36.547</td><td>36.546</td></tr><tr><td>230</td><td>36.546</td><td>36.546</td></tr><tr><td>264</td><td>36.547</td><td>36.546</td></tr><tr><td>280</td><td>36.547</td><td>36.546</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%	85	36.541	-	90	36.545	36.545	100	36.545	36.544	120	36.545	36.545	200	36.547	36.546	230	36.546	36.546	264	36.547	36.546	280	36.547	36.546	--	-	-		
Input Voltage [V]	Output Voltage [V] Load 50%	Output Voltage [V] Load 100%																															
85	36.541	-																															
90	36.545	36.545																															
100	36.545	36.544																															
120	36.545	36.545																															
200	36.547	36.546																															
230	36.546	36.546																															
264	36.547	36.546																															
280	36.547	36.546																															
--	-	-																															



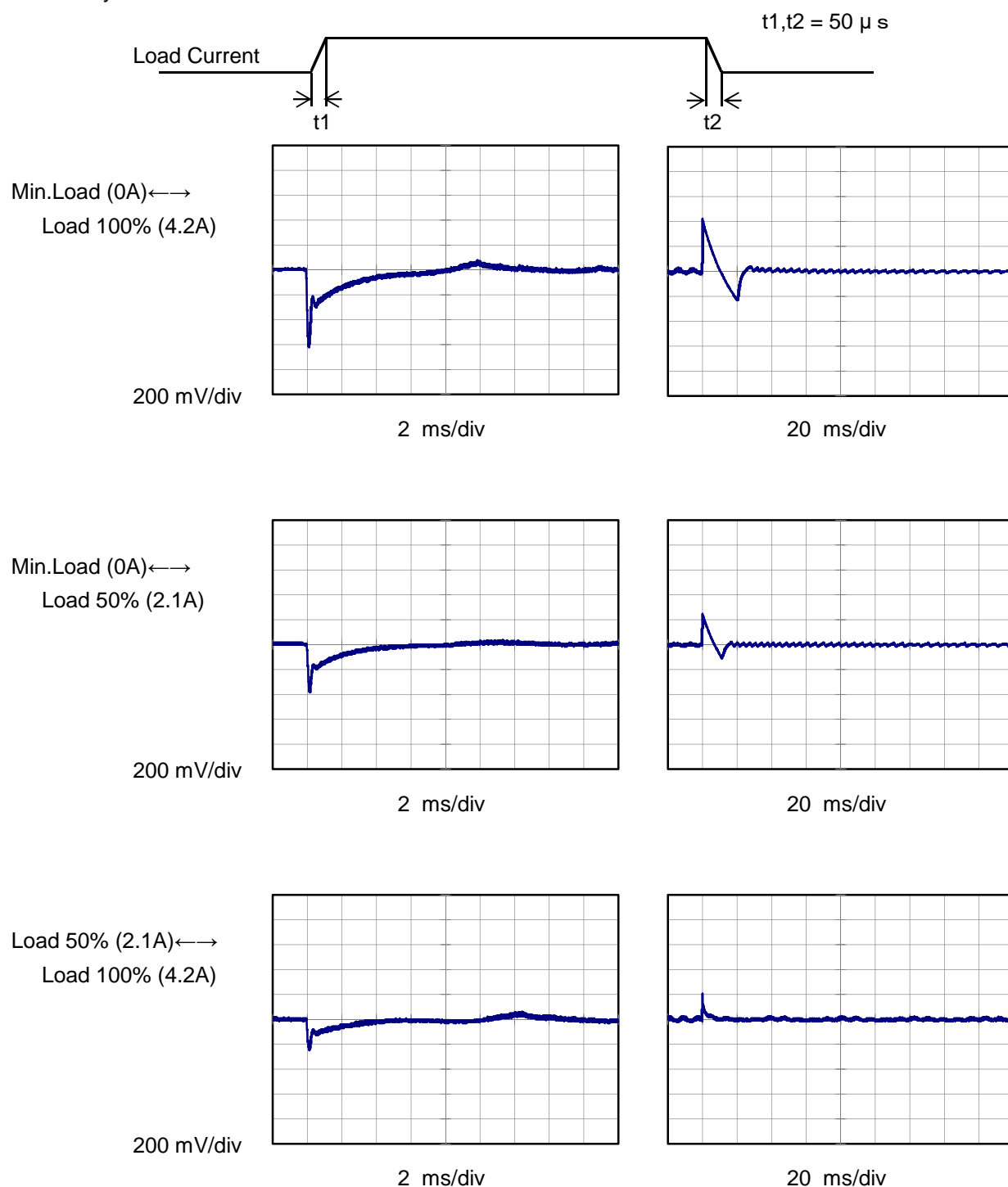


Model		LHA150F-36	Temperature25°C Testing CircuitryFigure A																																																		
Item		Load Regulation																																																			
Object		+36V4.2A																																																			
1.Graph		<div><div><div>—△—</div><div>---□---</div><div>---○---</div></div><div><div>Input Volt. 100V</div><div>Input Volt. 200V</div><div>Input Volt. 230V</div></div></div> 	2.Values																																																		
		<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>0.00</td><td>36.549</td><td>36.550</td><td>36.549</td></tr><tr><td>0.80</td><td>36.548</td><td>36.548</td><td>36.548</td></tr><tr><td>1.60</td><td>36.547</td><td>36.548</td><td>36.547</td></tr><tr><td>2.40</td><td>36.547</td><td>36.547</td><td>36.547</td></tr><tr><td>3.20</td><td>36.546</td><td>36.547</td><td>36.546</td></tr><tr><td>4.00</td><td>36.546</td><td>36.546</td><td>36.546</td></tr><tr><td>4.20</td><td>36.546</td><td>36.546</td><td>36.546</td></tr><tr><td>4.62</td><td>36.546</td><td>36.546</td><td>36.546</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]	0.00	36.549	36.550	36.549	0.80	36.548	36.548	36.548	1.60	36.547	36.548	36.547	2.40	36.547	36.547	36.547	3.20	36.546	36.547	36.546	4.00	36.546	36.546	36.546	4.20	36.546	36.546	36.546	4.62	36.546	36.546	36.546	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Output Voltage [V]																																																				
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																		
0.00	36.549	36.550	36.549																																																		
0.80	36.548	36.548	36.548																																																		
1.60	36.547	36.548	36.547																																																		
2.40	36.547	36.547	36.547																																																		
3.20	36.546	36.547	36.546																																																		
4.00	36.546	36.546	36.546																																																		
4.20	36.546	36.546	36.546																																																		
4.62	36.546	36.546	36.546																																																		
--	-	-	-																																																		
--	-	-	-																																																		
--	-	-	-																																																		
Note: Slanted line shows the range of the rated load current.																																																					

**COSEL**

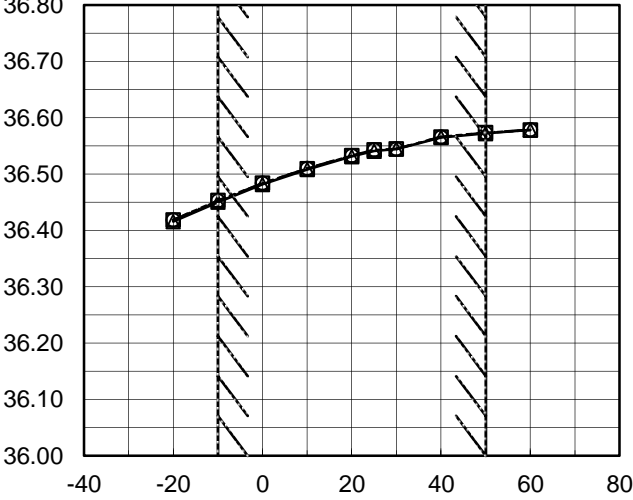
Model	LHA150F-36	Temperature	25°C
Item	Dynamic Load Response	Testing Circuitry	Figure A
Object	+36V4.2A		

Input Volt. 230 V  
Cycle 1000 ms



Model		LHA150F-36	Temperature		25°C																																						
Item		Ripple-Noise(by Load Current)	Testing Circuitry		Figure C																																						
Object		+36V4.2A																																									
1.Graph			2.Values																																								
<div><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><p>Measured by 20 MHz Oscilloscope. Ripple-Noise is shown as p-p in the figure below. Note: Slanted line shows the range of the rated load current.</p></div>			<table><tr><th rowspan="2">Load Current [A]</th><th colspan="2">Ripple-Noise [mV]</th></tr><tr><th>Input Volt. 100 [V]</th><th>Input Volt. 230 [V]</th></tr><tr><td>0.00</td><td>140</td><td>140</td></tr><tr><td>0.80</td><td>85</td><td>85</td></tr><tr><td>1.60</td><td>90</td><td>90</td></tr><tr><td>2.40</td><td>90</td><td>90</td></tr><tr><td>3.20</td><td>110</td><td>110</td></tr><tr><td>4.00</td><td>110</td><td>110</td></tr><tr><td>4.20</td><td>110</td><td>110</td></tr><tr><td>4.62</td><td>120</td><td>120</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>			Load Current [A]	Ripple-Noise [mV]		Input Volt. 100 [V]	Input Volt. 230 [V]	0.00	140	140	0.80	85	85	1.60	90	90	2.40	90	90	3.20	110	110	4.00	110	110	4.20	110	110	4.62	120	120	--	-	-	--	-	-	--	-	-
Load Current [A]	Ripple-Noise [mV]																																										
	Input Volt. 100 [V]	Input Volt. 230 [V]																																									
0.00	140	140																																									
0.80	85	85																																									
1.60	90	90																																									
2.40	90	90																																									
3.20	110	110																																									
4.00	110	110																																									
4.20	110	110																																									
4.62	120	120																																									
--	-	-																																									
--	-	-																																									
--	-	-																																									
<div><div><div>T1: Due to AC Input Line</div><div>T2: Due to Switching</div></div><p>Fig. Complex Ripple Wave Form</p></div>																																											

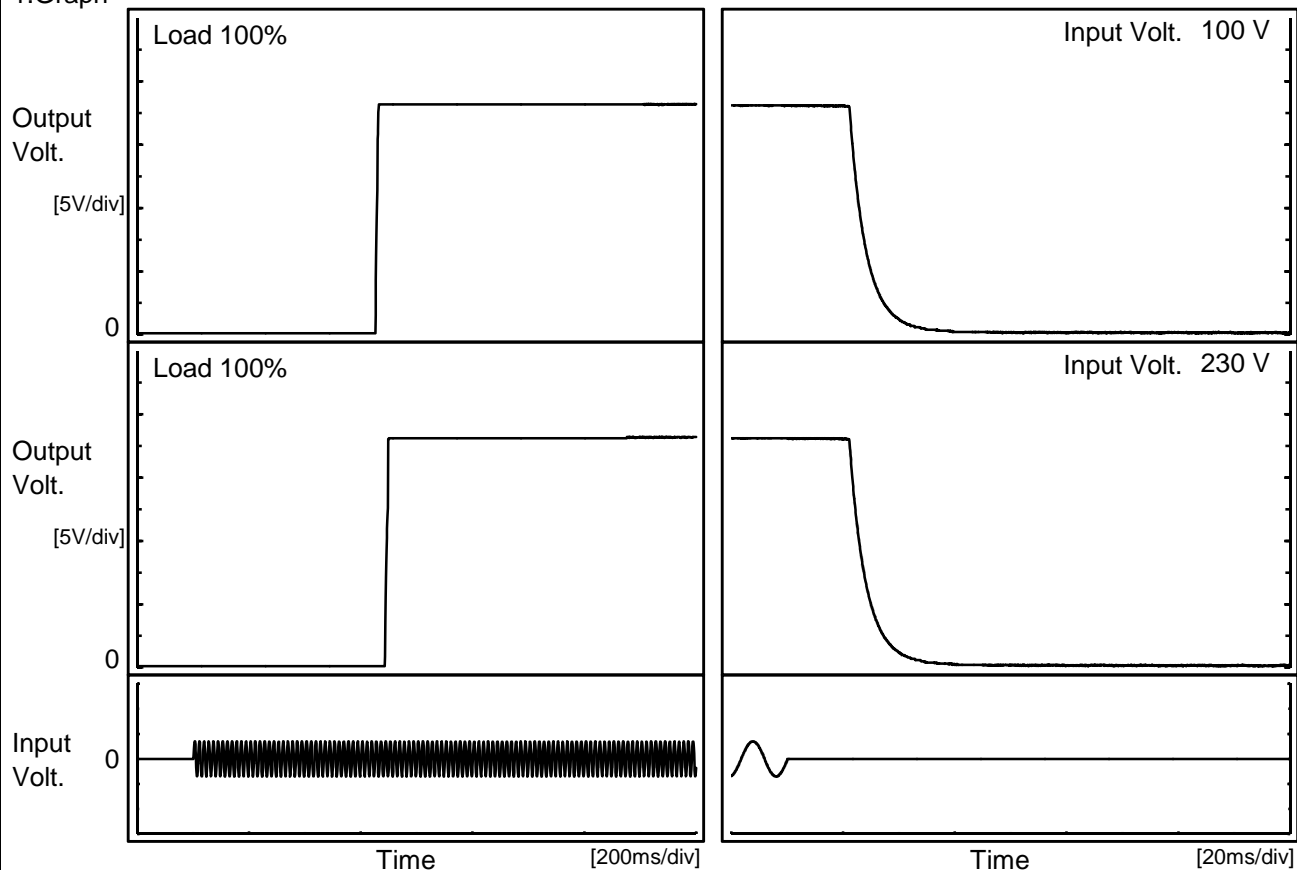


Model		LHA150F-36	Testing Circuitry    Figure A																																																			
Item		Ambient Temperature Drift																																																				
Object		+36V4.2A																																																				
1.Graph																																																						
		<div><div><div>—△—</div><div>Input Volt.    100V</div></div><div><div>---□---</div><div>Input Volt.    200V</div></div><div><div>---○---</div><div>Input Volt.    230V</div></div></div>	2.Values																																																			
<div><div><div>Output Voltage [V]</div><div></div><div>Ambient Temperature [°C]</div><div>Load 100%</div></div></div>		<table><tr><th rowspan="2">Ambient Temperature [°C]</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>-20</td><td>36.416</td><td>36.419</td><td>36.419</td></tr><tr><td>-10</td><td>36.450</td><td>36.453</td><td>36.453</td></tr><tr><td>0</td><td>36.482</td><td>36.484</td><td>36.484</td></tr><tr><td>10</td><td>36.508</td><td>36.510</td><td>36.510</td></tr><tr><td>20</td><td>36.531</td><td>36.533</td><td>36.533</td></tr><tr><td>25</td><td>36.541</td><td>36.543</td><td>36.543</td></tr><tr><td>30</td><td>36.545</td><td>36.545</td><td>36.545</td></tr><tr><td>40</td><td>36.565</td><td>36.566</td><td>36.566</td></tr><tr><td>50</td><td>36.572</td><td>36.574</td><td>36.573</td></tr><tr><td>60</td><td>36.579</td><td>36.578</td><td>36.579</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>		Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	-20	36.416	36.419	36.419	-10	36.450	36.453	36.453	0	36.482	36.484	36.484	10	36.508	36.510	36.510	20	36.531	36.533	36.533	25	36.541	36.543	36.543	30	36.545	36.545	36.545	40	36.565	36.566	36.566	50	36.572	36.574	36.573	60	36.579	36.578	36.579	--	-	-	-
Ambient Temperature [°C]	Output Voltage [V]																																																					
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																			
-20	36.416	36.419	36.419																																																			
-10	36.450	36.453	36.453																																																			
0	36.482	36.484	36.484																																																			
10	36.508	36.510	36.510																																																			
20	36.531	36.533	36.533																																																			
25	36.541	36.543	36.543																																																			
30	36.545	36.545	36.545																																																			
40	36.565	36.566	36.566																																																			
50	36.572	36.574	36.573																																																			
60	36.579	36.578	36.579																																																			
--	-	-	-																																																			
<div>Note: Slanted line shows the range of the rated ambient temperature.</div>																																																						



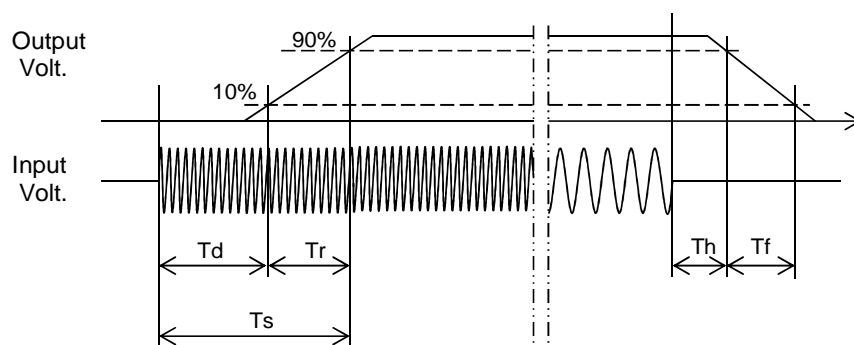
Model	LHA150F-36	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+36V4.2A		

# 1.Graph



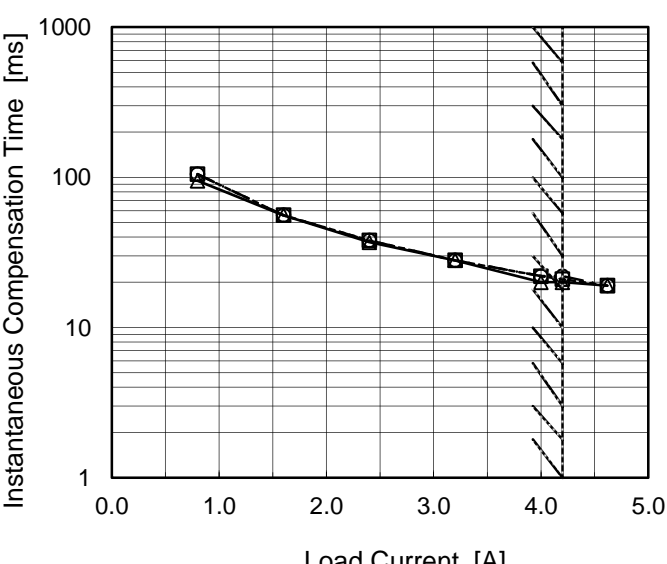
# 2.Values

Input Volt.	Time	Td	Tr	Ts	Th	Tf
100 V		653.0	10.5	663.5	22.8	13.7
230 V		687.0	11.0	698.0	22.8	13.7



Model	LHA150F-36																																		
Item	Hold-Up Time	Temperature	25°C																																
Object	+36V4.2A	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 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></thead><tbody><tr><td>85</td><td>44</td><td>-</td></tr><tr><td>90</td><td>44</td><td>22</td></tr><tr><td>100</td><td>44</td><td>22</td></tr><tr><td>120</td><td>44</td><td>22</td></tr><tr><td>200</td><td>44</td><td>22</td></tr><tr><td>230</td><td>44</td><td>22</td></tr><tr><td>264</td><td>44</td><td>22</td></tr><tr><td>280</td><td>45</td><td>23</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table>		Input Voltage [V]	Hold-Up Time [ms]		Load 50%	Load 100%	85	44	-	90	44	22	100	44	22	120	44	22	200	44	22	230	44	22	264	44	22	280	45	23	--	-	-		
Input Voltage [V]	Hold-Up Time [ms]																																		
	Load 50%	Load 100%																																	
85	44	-																																	
90	44	22																																	
100	44	22																																	
120	44	22																																	
200	44	22																																	
230	44	22																																	
264	44	22																																	
280	45	23																																	
--	-	-																																	
<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>																																			



Model		LHA150F-36	Temperature 25°C Testing Circuitry Figure A																																																				
Item		Instantaneous Interruption Compensation																																																					
Object		+36V4.2A																																																					
1.Graph		<div><div><div>—△—</div><div>Input Volt. 100V</div></div><div><div>---□---</div><div>Input Volt. 200V</div></div><div><div>---○---</div><div>Input Volt. 230V</div></div></div> 	2.Values																																																				
		<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>0.00</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.80</td><td>95</td><td>105</td><td>105</td></tr><tr><td>1.60</td><td>56</td><td>56</td><td>56</td></tr><tr><td>2.40</td><td>37</td><td>38</td><td>38</td></tr><tr><td>3.20</td><td>28</td><td>28</td><td>28</td></tr><tr><td>4.00</td><td>20</td><td>22</td><td>22</td></tr><tr><td>4.20</td><td>20</td><td>21</td><td>22</td></tr><tr><td>4.62</td><td>19</td><td>19</td><td>19</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]	0.00	-	-	-	0.80	95	105	105	1.60	56	56	56	2.40	37	38	38	3.20	28	28	28	4.00	20	22	22	4.20	20	21	22	4.62	19	19	19	--	-	-	-	--	-	-	-	--	-	-	-		
Load Current [A]	Time [ms]																																																						
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																				
0.00	-	-	-																																																				
0.80	95	105	105																																																				
1.60	56	56	56																																																				
2.40	37	38	38																																																				
3.20	28	28	28																																																				
4.00	20	22	22																																																				
4.20	20	21	22																																																				
4.62	19	19	19																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				
Note: Slanted line shows the range of the rated load current.																																																							



Model		LHA150F-36	Testing Circuitry    Figure A																																						
Item		Minimum Input Voltage for Regulated Output Voltage																																							
Object		+36V4.2A																																							
1.Graph			2.Values																																						
<div><div><div><div><div></div><div></div></div><div><div></div><div></div></div></div><div><div></div><div></div></div><div><div></div><div></div></div></div><div>Load 50%</div><div>Load 100%</div></div> <table><thead><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Input Voltage [V]</th></tr><tr><th>Load 50%</th><th>Load 100%</th></tr></thead><tbody><tr><td>-20</td><td>62</td><td>62</td></tr><tr><td>-10</td><td>62</td><td>62</td></tr><tr><td>0</td><td>62</td><td>62</td></tr><tr><td>10</td><td>62</td><td>62</td></tr><tr><td>20</td><td>62</td><td>63</td></tr><tr><td>25</td><td>62</td><td>63</td></tr><tr><td>30</td><td>62</td><td>63</td></tr><tr><td>40</td><td>62</td><td>63</td></tr><tr><td>50</td><td>62</td><td>63</td></tr><tr><td>60</td><td>62</td><td>63</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table> <p>Note: Slanted line shows the range of the rated ambient temperature.</p>			Ambient Temperature [°C]	Input Voltage [V]		Load 50%	Load 100%	-20	62	62	-10	62	62	0	62	62	10	62	62	20	62	63	25	62	63	30	62	63	40	62	63	50	62	63	60	62	63	--	-	-	
Ambient Temperature [°C]	Input Voltage [V]																																								
	Load 50%	Load 100%																																							
-20	62	62																																							
-10	62	62																																							
0	62	62																																							
10	62	62																																							
20	62	63																																							
25	62	63																																							
30	62	63																																							
40	62	63																																							
50	62	63																																							
60	62	63																																							
--	-	-																																							





Model	LHA150F-36																																																	
Item	Overcurrent Protection	Temperature	25°C																																															
Object	+36V4.2A	Testing Circuitry	Figure A																																															
1.Graph		2.Values																																																
<div><div><div></div>Input Volt. 100V</div><div><div></div>Input Volt. 230V</div></div> <p>Note: Slanted line shows the range of the rated load current.</p> <p>Overcurrent protection is Hiccup mode.</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>36</td><td>6.77</td><td>6.77</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><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><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><tr><td>--</td><td>-</td><td>-</td></tr></table>		Output Voltage [V]	Load Current [A]		Input Volt. 100[V]	Input Volt. 230[V]	36	6.77	6.77	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-	--	-	-
Output Voltage [V]	Load Current [A]																																																	
	Input Volt. 100[V]	Input Volt. 230[V]																																																
36	6.77	6.77																																																
--	-	-																																																
--	-	-																																																
--	-	-																																																
--	-	-																																																
--	-	-																																																
--	-	-																																																
--	-	-																																																
--	-	-																																																
--	-	-																																																
--	-	-																																																
--	-	-																																																
--	-	-																																																
--	-	-																																																

Model		LHA150F-36
Item		Overvoltage Protection
Object		+36V4.2A

1.Graph

—△—

Input Volt. 100V

---□---

Input Volt. 230V

Operating Point [V]

Ambient Temperature [°C]

Load 0%

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	43.54	43.54
-10	43.95	43.95
0	44.24	44.24
10	44.65	44.65
20	44.94	44.94
25	45.18	45.18
30	45.36	45.36
40	45.65	45.65
50	46.06	46.06
60	46.35	46.35
--	-	-

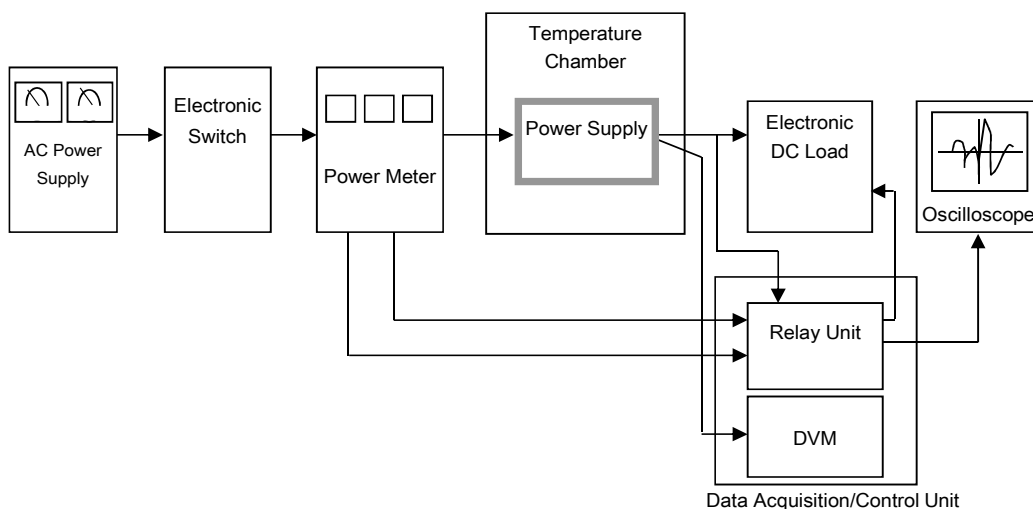


Figure A

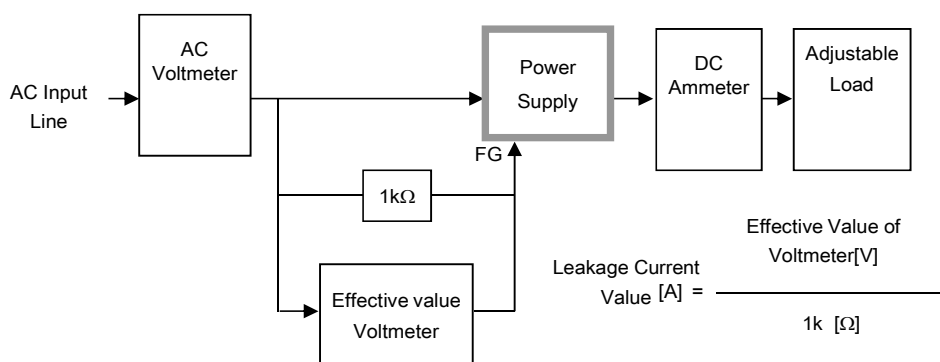


Figure B-1 ( DEN-AN )

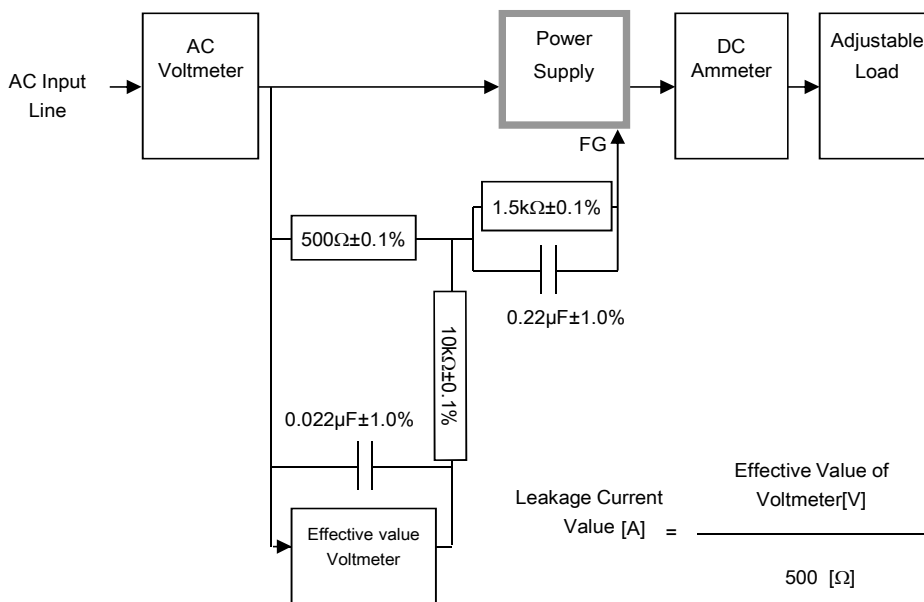


Figure B-2 ( IEC62368-1 refer to IEC60990 Fig.4 )

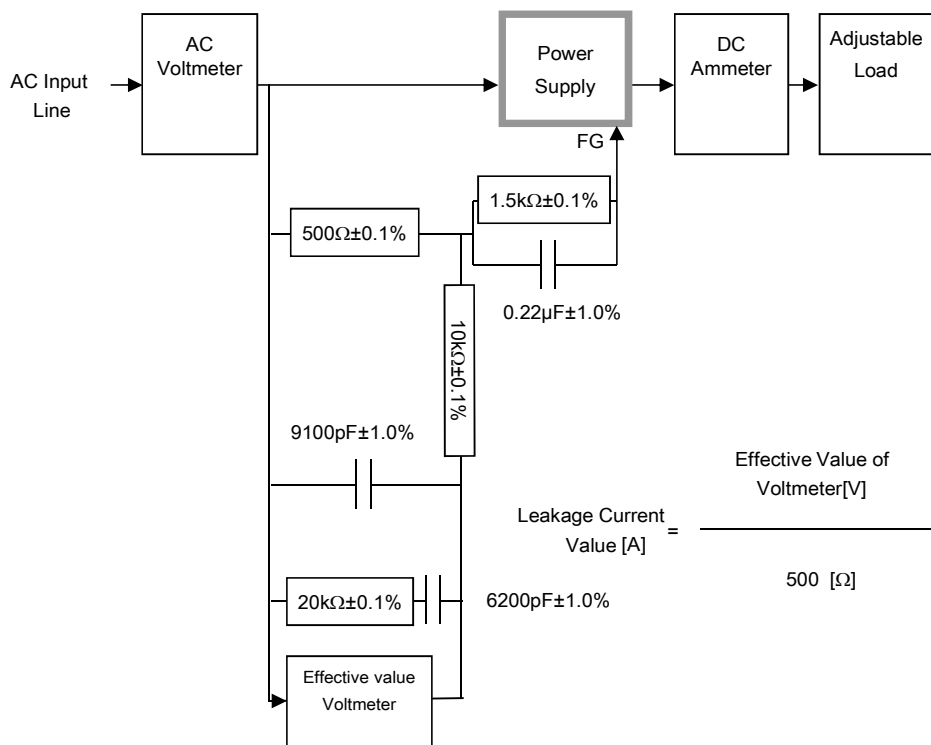


Figure B-3 ( IEC62368-1 refer to IEC60990 Fig.5 )

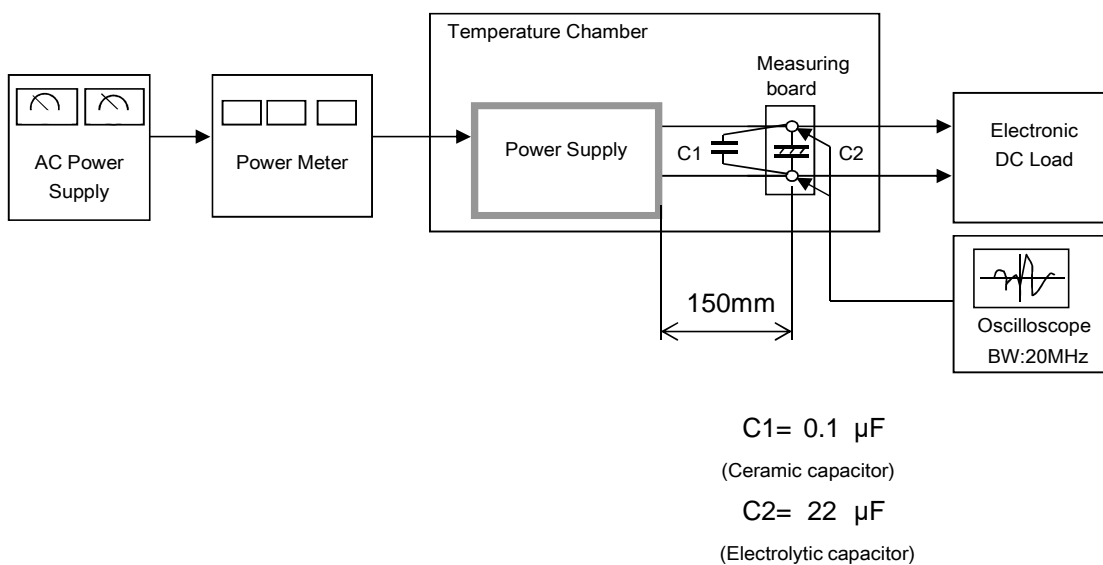


Figure C