



TEST DATA OF UMA30F-5

Regulated DC Power Supply
January 19, 2023

Approved by : Takashi Kajii
Design Manager

Prepared by : Jeonghoon Yi
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.Ripple-Noise	7
9.Dynamic Load Response	8
10.Rise and Fall Time	9
11.Hold-Up Time	10
12.Instantaneous Interruption Compensation	11
13.Overcurrent Protection	12
14.Ambient Temperature Drift	13
15.Minimum Input Voltage for Regulated Output Voltage	13
16.Overvoltage Protection	13
17.Figure of Testing Circuitry	14

(Final Page 15)

Model		UMA30F-5		Temperature 25°C																																																				
Item		Input Current (by Load Current)		Testing Circuitry Figure A																																																				
Object		+5V3A																																																						
1.Graph		<div><div><div><div><div></div></div><div></div></div><div><div></div></div><div><div></div></div></div><div><div>Input Volt. 115V</div><div>Input Volt. 230V</div><div>Input Volt. 264V</div></div></div>		2.Values																																																				
<div><div><div><div><div></div></div><div></div></div><div><div></div></div><div><div></div></div></div><div><div>Input Volt. 115V</div><div>Input Volt. 230V</div><div>Input Volt. 264V</div></div></div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Input Current [A]</th></tr><tr><th>Input Volt. 115[V]</th><th>Input Volt. 230[V]</th><th>Input Volt. 264[V]</th></tr><tr><td>0.0</td><td>0.010</td><td>0.019</td><td>0.022</td></tr><tr><td>0.6</td><td>0.076</td><td>0.051</td><td>0.048</td></tr><tr><td>1.2</td><td>0.134</td><td>0.087</td><td>0.080</td></tr><tr><td>1.8</td><td>0.191</td><td>0.120</td><td>0.112</td></tr><tr><td>2.4</td><td>0.246</td><td>0.153</td><td>0.142</td></tr><tr><td>3.0</td><td>0.303</td><td>0.187</td><td>0.170</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>		Load Current [A]	Input Current [A]			Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]	0.0	0.010	0.019	0.022	0.6	0.076	0.051	0.048	1.2	0.134	0.087	0.080	1.8	0.191	0.120	0.112	2.4	0.246	0.153	0.142	3.0	0.303	0.187	0.170	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-		
Load Current [A]	Input Current [A]																																																							
	Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]																																																					
0.0	0.010	0.019	0.022																																																					
0.6	0.076	0.051	0.048																																																					
1.2	0.134	0.087	0.080																																																					
1.8	0.191	0.120	0.112																																																					
2.4	0.246	0.153	0.142																																																					
3.0	0.303	0.187	0.170																																																					
--	-	-	-																																																					
--	-	-	-																																																					
--	-	-	-																																																					
--	-	-	-																																																					
--	-	-	-																																																					

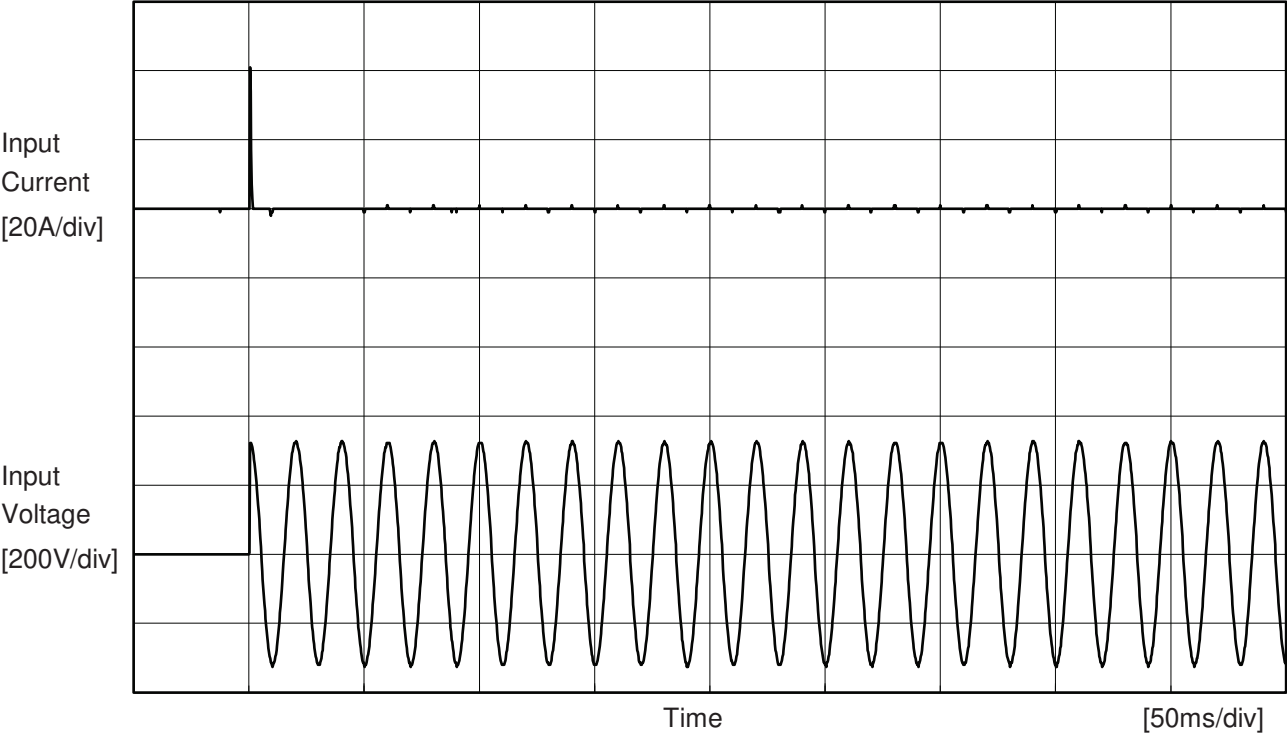
[illegible]

COSEL

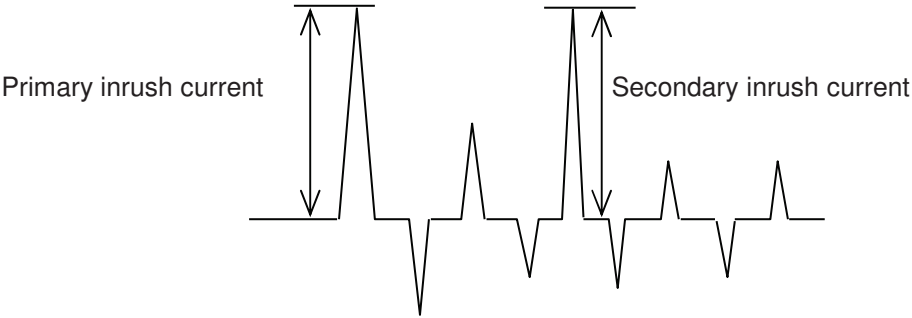
Model		UMA30F-5		Temperature 25°C																																																	
Item		Power Factor (by Load Current)		Testing Circuitry Figure A																																																	
Object		+5V3A																																																			
1.Graph				2.Values																																																	
<div><div><div>—△—</div><div>Input Volt.</div><div>115V</div></div><div><div>---□---</div><div>Input Volt.</div><div>230V</div></div><div><div>-·-○-·-</div><div>Input Volt.</div><div>264V</div></div></div> <table><thead><tr><th>Load Current [A]</th><th>115V</th><th>230V</th><th>264V</th></tr></thead><tbody><tr><td>0.0</td><td>0.045</td><td>0.025</td><td>0.024</td></tr><tr><td>0.6</td><td>0.423</td><td>0.324</td><td>0.303</td></tr><tr><td>1.2</td><td>0.476</td><td>0.377</td><td>0.359</td></tr><tr><td>1.8</td><td>0.507</td><td>0.406</td><td>0.389</td></tr><tr><td>2.4</td><td>0.526</td><td>0.425</td><td>0.407</td></tr><tr><td>3.0</td><td>0.538</td><td>0.438</td><td>0.421</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></tbody></table>				Load Current [A]	115V	230V	264V	0.0	0.045	0.025	0.024	0.6	0.423	0.324	0.303	1.2	0.476	0.377	0.359	1.8	0.507	0.406	0.389	2.4	0.526	0.425	0.407	3.0	0.538	0.438	0.421	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-		
Load Current [A]	115V	230V	264V																																																		
0.0	0.045	0.025	0.024																																																		
0.6	0.423	0.324	0.303																																																		
1.2	0.476	0.377	0.359																																																		
1.8	0.507	0.406	0.389																																																		
2.4	0.526	0.425	0.407																																																		
3.0	0.538	0.438	0.421																																																		
--	-	-	-																																																		
--	-	-	-																																																		
--	-	-	-																																																		
--	-	-	-																																																		
--	-	-	-																																																		



Model		UMA30F-5	Temperature 25°C Testing Circuitry Figure A
Item		Inrush Current	
Object		+5V3A	



Input Voltage	230 V
Frequency	50 Hz
Load	100 %
Primary inrush current	41.0 A
Secondary inrush current	1.0 A





COSEL		Temperature 25°C Testing Circuitry Figure C
Model	UMA30F-5	
Item	Leakage Current	
Object	+5V3A	

1.Results

[mA]

Standards	Testing Circuitry	Measuring Method	Input Volt.			Note
			115 [V]	230 [V]	264 [V]	
IEC60601-1	Figure C-1	Both phases	0.05	0.11	0.12	Operation
		One of phases	0.10	0.21	0.24	Stand by
IEC62368-1	Figure C-2	Both phases	0.05	0.11	0.13	Operation
		One of phases	0.10	0.21	0.25	Stand by
	Figure C-3	Both phases	0.05	0.11	0.12	Operation
		One of phases	0.10	0.21	0.25	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.

<div>LOREL</div>																																			
Model	UMA30F-5																																		
Item	Line Regulation	Temperature	25°C																																
		Testing Circuitry	Figure A																																
Object	+5V3A																																		
1.Graph		2.Values																																	
<div><div><div><div><div>---</div><div>□</div><div>---</div></div><div>Load 50%</div></div><div><div>—</div><div>△</div><div>—</div></div><div>Load 100%</div></div></div> <div><div><div>Output Voltage [V]</div><div>5.3</div><div>5.2</div><div>5.1</div><div>5</div><div>4.9</div></div><div><div>50</div><div>100</div><div>150</div><div>200</div><div>250</div><div>300</div></div><div><div>Input Voltage [V]</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>85</td><td>5.128</td><td>-</td></tr><tr><td>100</td><td>5.128</td><td>-</td></tr><tr><td>115</td><td>5.128</td><td>5.092</td></tr><tr><td>132</td><td>5.128</td><td>5.093</td></tr><tr><td>170</td><td>5.128</td><td>5.094</td></tr><tr><td>200</td><td>5.128</td><td>5.095</td></tr><tr><td>230</td><td>5.128</td><td>5.096</td></tr><tr><td>264</td><td>5.128</td><td>5.096</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Input Voltage [V]	Output Voltage [V]		Load 50%	Load 100%	85	5.128	-	100	5.128	-	115	5.128	5.092	132	5.128	5.093	170	5.128	5.094	200	5.128	5.095	230	5.128	5.096	264	5.128	5.096	--	-	-
Input Voltage [V]	Output Voltage [V]																																		
	Load 50%	Load 100%																																	
85	5.128	-																																	
100	5.128	-																																	
115	5.128	5.092																																	
132	5.128	5.093																																	
170	5.128	5.094																																	
200	5.128	5.095																																	
230	5.128	5.096																																	
264	5.128	5.096																																	
--	-	-																																	

-

6

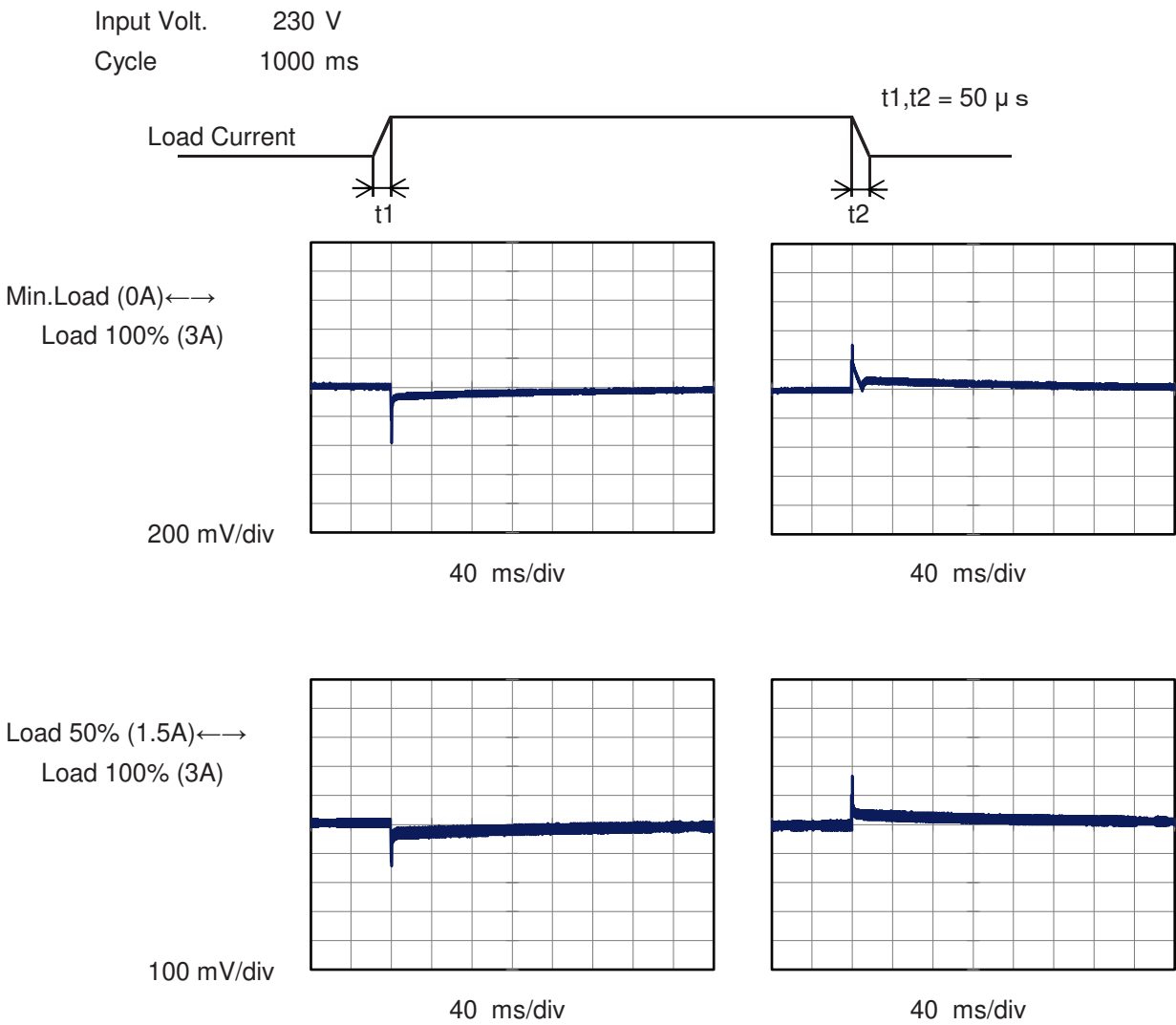
-

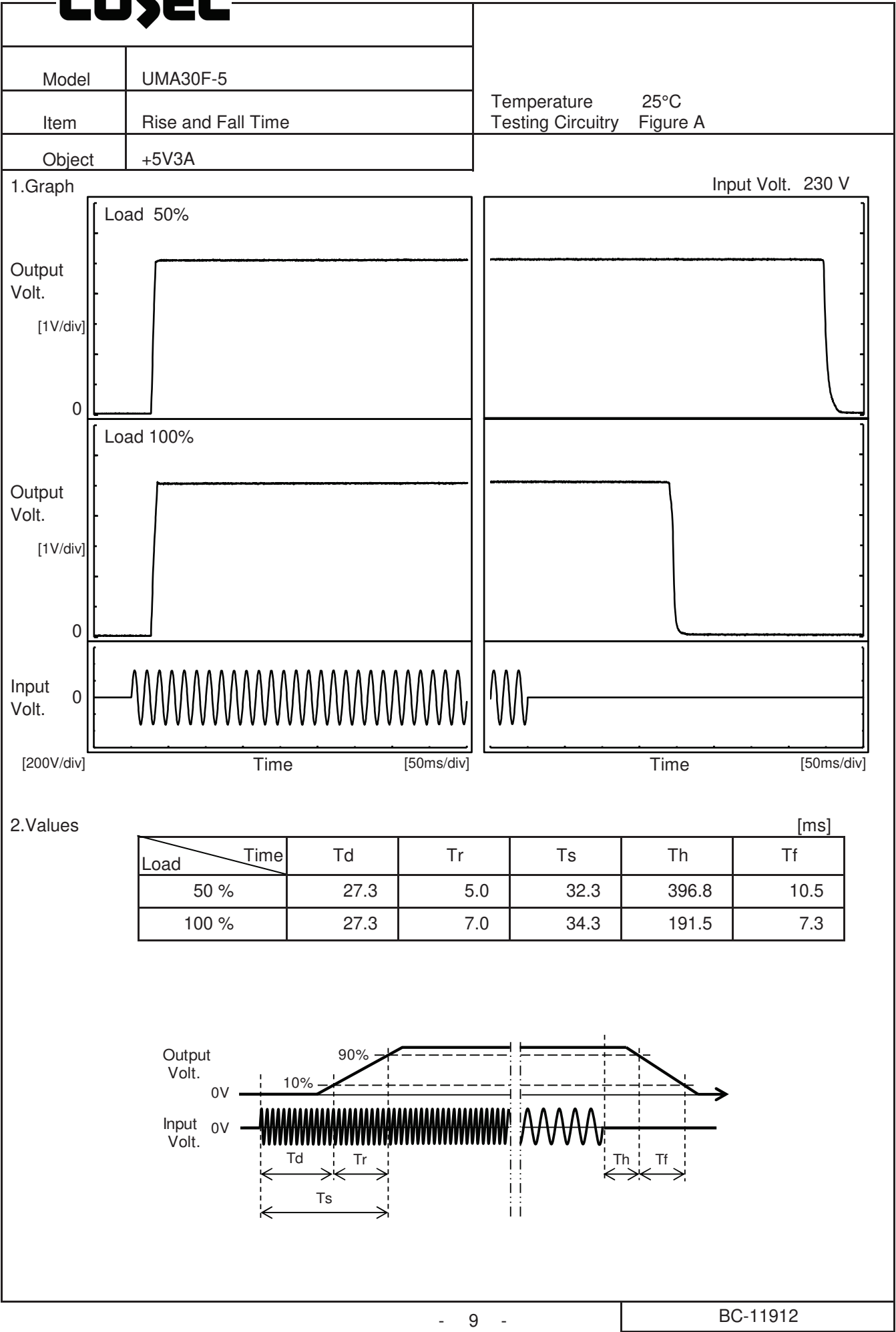
BC-11912

- 7 -



Model	UMA30F-5	Temperature Testing Circuitry	25°C Figure A
Item	Dynamic Load Response		
Object	+5V3A		







Model		UMA30F-5		Temperature Testing Circuitry	25°C Figure A																																																														
Item		Hold-Up Time																																																																	
Object		+5V3A																																																																	
1.Graph				2.Values																																																															
<div><div>---□--- Load 50%</div><div>—△— Load 100%</div><table><tr><th>Input Voltage [V]</th><th>Load 50% [ms]</th><th>Load 100% [ms]</th></tr><tr><td>85</td><td>48</td><td>-</td></tr><tr><td>100</td><td>68</td><td>-</td></tr><tr><td>115</td><td>93</td><td>42</td></tr><tr><td>132</td><td>125</td><td>57</td></tr><tr><td>170</td><td>213</td><td>99</td></tr><tr><td>200</td><td>299</td><td>142</td></tr><tr><td>230</td><td>400</td><td>194</td></tr><tr><td>264</td><td>535</td><td>259</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table></div> <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>				Input Voltage [V]	Load 50% [ms]	Load 100% [ms]	85	48	-	100	68	-	115	93	42	132	125	57	170	213	99	200	299	142	230	400	194	264	535	259	--	-	-	<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>85</td><td>48</td><td>-</td></tr><tr><td>100</td><td>68</td><td>-</td></tr><tr><td>115</td><td>93</td><td>42</td></tr><tr><td>132</td><td>125</td><td>57</td></tr><tr><td>170</td><td>213</td><td>99</td></tr><tr><td>200</td><td>299</td><td>142</td></tr><tr><td>230</td><td>400</td><td>194</td></tr><tr><td>264</td><td>535</td><td>259</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Input Voltage [V]	Hold-Up Time [ms]		Load 50%	Load 100%	85	48	-	100	68	-	115	93	42	132	125	57	170	213	99	200	299	142	230	400	194	264	535	259	--	-	-
Input Voltage [V]	Load 50% [ms]	Load 100% [ms]																																																																	
85	48	-																																																																	
100	68	-																																																																	
115	93	42																																																																	
132	125	57																																																																	
170	213	99																																																																	
200	299	142																																																																	
230	400	194																																																																	
264	535	259																																																																	
--	-	-																																																																	
Input Voltage [V]	Hold-Up Time [ms]																																																																		
	Load 50%	Load 100%																																																																	
85	48	-																																																																	
100	68	-																																																																	
115	93	42																																																																	
132	125	57																																																																	
170	213	99																																																																	
200	299	142																																																																	
230	400	194																																																																	
264	535	259																																																																	
--	-	-																																																																	



Model		UMA30F-5		Temperature 25°C Testing Circuitry Figure A																																																			
Item		Instantaneous Interruption Compensation																																																					
Object		+5V3A																																																					
1.Graph																																																							
<div><div><div><div><div></div><div></div></div><div></div><div></div></div><div><div><div></div><div></div></div><div></div><div></div></div><div><div><div></div><div></div></div><div></div><div></div></div></div><div><div>Input Volt. 115V</div><div>Input Volt. 230V</div><div>Input Volt. 264V</div></div></div> <div><div><div>Instantaneous Compensation Time [ms]</div><div>10000</div><div>1000</div><div>100</div><div>10</div><div>1</div></div><div><div>0</div><div>1</div><div>2</div><div>3</div><div>4</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. 115[V]</th><th>Input Volt. 230[V]</th><th>Input Volt. 264[V]</th></tr><tr><td>0.0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.6</td><td>237</td><td>999</td><td>1326</td></tr><tr><td>1.2</td><td>117</td><td>501</td><td>668</td></tr><tr><td>1.8</td><td>76</td><td>332</td><td>441</td></tr><tr><td>2.4</td><td>55</td><td>247</td><td>330</td></tr><tr><td>3.0</td><td>42</td><td>192</td><td>257</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>					Load Current [A]	Time [ms]			Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]	0.0	-	-	-	0.6	237	999	1326	1.2	117	501	668	1.8	76	332	441	2.4	55	247	330	3.0	42	192	257	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Time [ms]																																																						
	Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]																																																				
0.0	-	-	-																																																				
0.6	237	999	1326																																																				
1.2	117	501	668																																																				
1.8	76	332	441																																																				
2.4	55	247	330																																																				
3.0	42	192	257																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				
2.Values																																																							
<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</th></tr><tr><th>Input Volt. 115[V]</th><th>Input Volt. 230[V]</th><th>Input Volt. 264[V]</th></tr><tr><td>0.0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.6</td><td>237</td><td>999</td><td>1326</td></tr><tr><td>1.2</td><td>117</td><td>501</td><td>668</td></tr><tr><td>1.8</td><td>76</td><td>332</td><td>441</td></tr><tr><td>2.4</td><td>55</td><td>247</td><td>330</td></tr><tr><td>3.0</td><td>42</td><td>192</td><td>257</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr><tr><td>--</td><td>-</td><td>-</td><td>-</td></tr></table>					Load Current [A]	Time [ms]			Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]	0.0	-	-	-	0.6	237	999	1326	1.2	117	501	668	1.8	76	332	441	2.4	55	247	330	3.0	42	192	257	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Time [ms]																																																						
	Input Volt. 115[V]	Input Volt. 230[V]	Input Volt. 264[V]																																																				
0.0	-	-	-																																																				
0.6	237	999	1326																																																				
1.2	117	501	668																																																				
1.8	76	332	441																																																				
2.4	55	247	330																																																				
3.0	42	192	257																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				

- 11 -

BC-11912

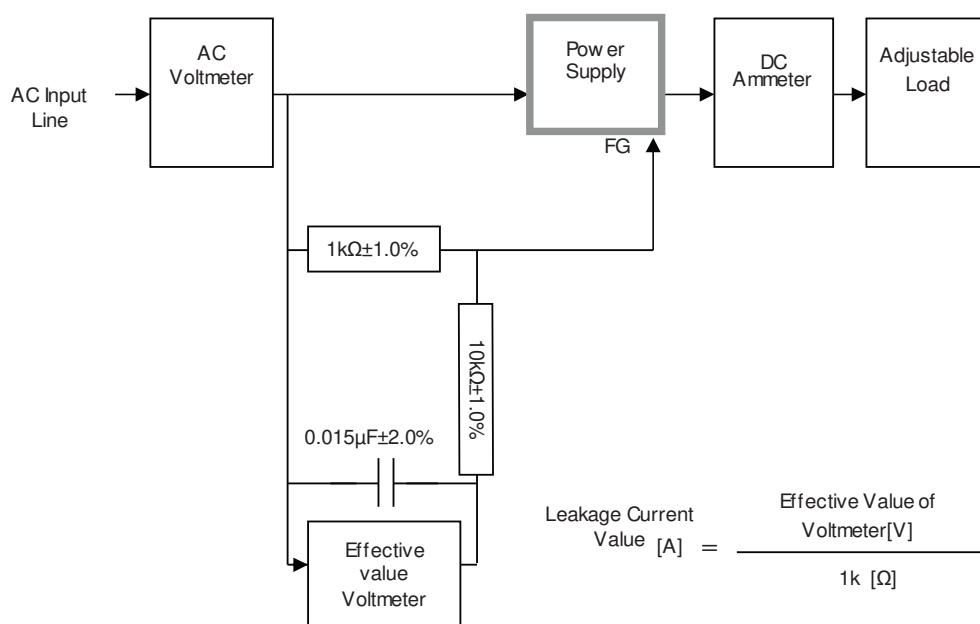
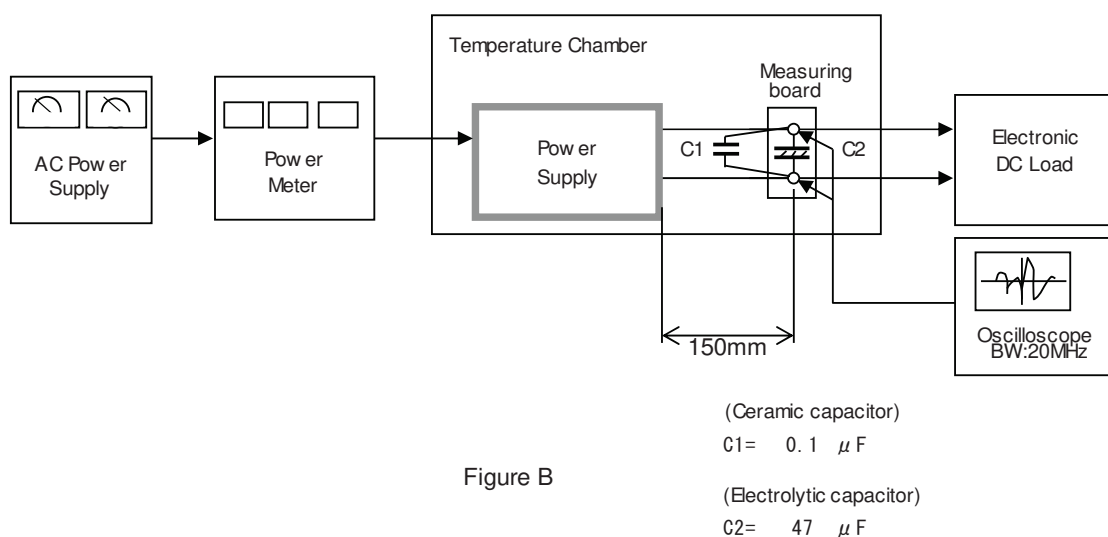
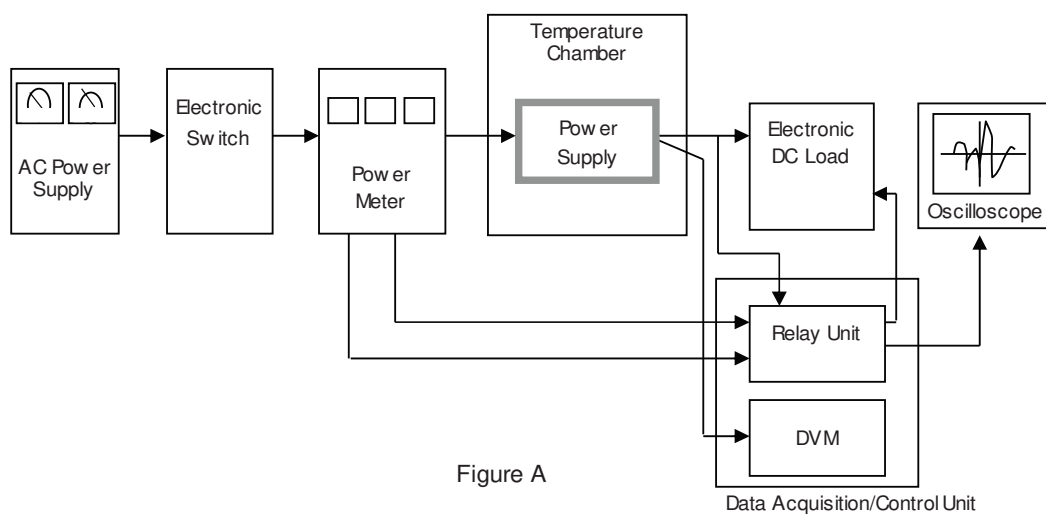
BC-11912



COSEL			
Model	UMA30F-5		
Item	Ambient Temperature Drift	Testing Circuitry Figure A	
Object	+5V3A		
1.Values		Load 100%	
Ambient Temperature[°C]	Output Voltage [V]		
	Input Volt. 115V	Input Volt. 230V	Input Volt. 264V
-20	5.084	5.088	5.088
25	5.093	5.096	5.096
50	5.092	5.095	5.095
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A	
Object	+5V3A		
1.Values			
Ambient Temperature[°C]	Input Voltage [V]		
	Load 50%	Load 100%	
-20	27	43	
25	26	42	
50	26	42	
Item	Overvoltage Protection	Testing Circuitry Figure A	
Object	+5V3A		
1.Values		Load 0%	
Ambient Temperature[°C]	Operating Point [V]		
	Input Volt. 115V	Input Volt. 264V	
-20	6.59	6.59	
25	6.59	6.59	
50	6.59	6.59	

- 13 -

BC-11912



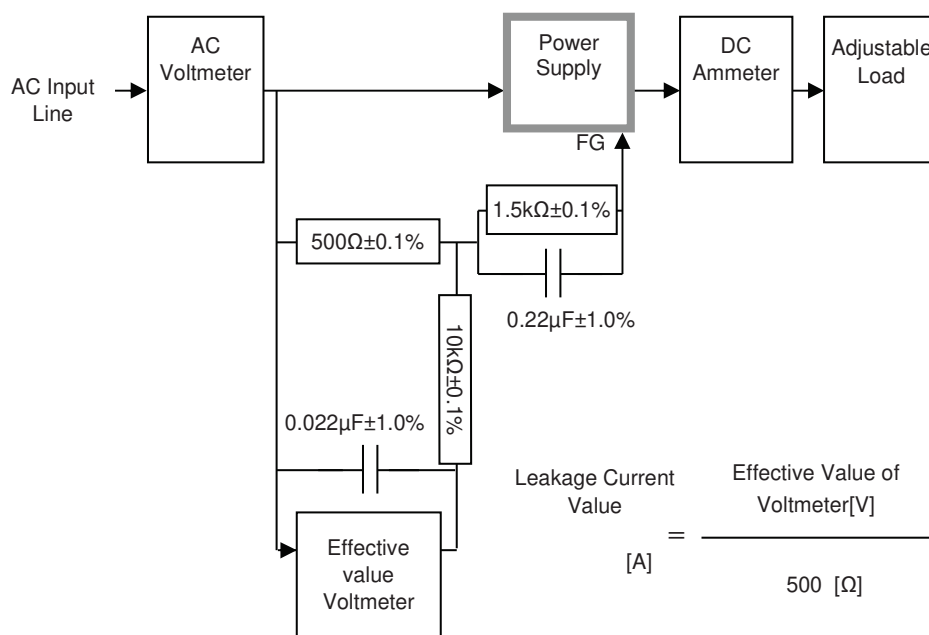


Figure C-2 (IEC62368-1 refer to IEC60990 Fig.4)

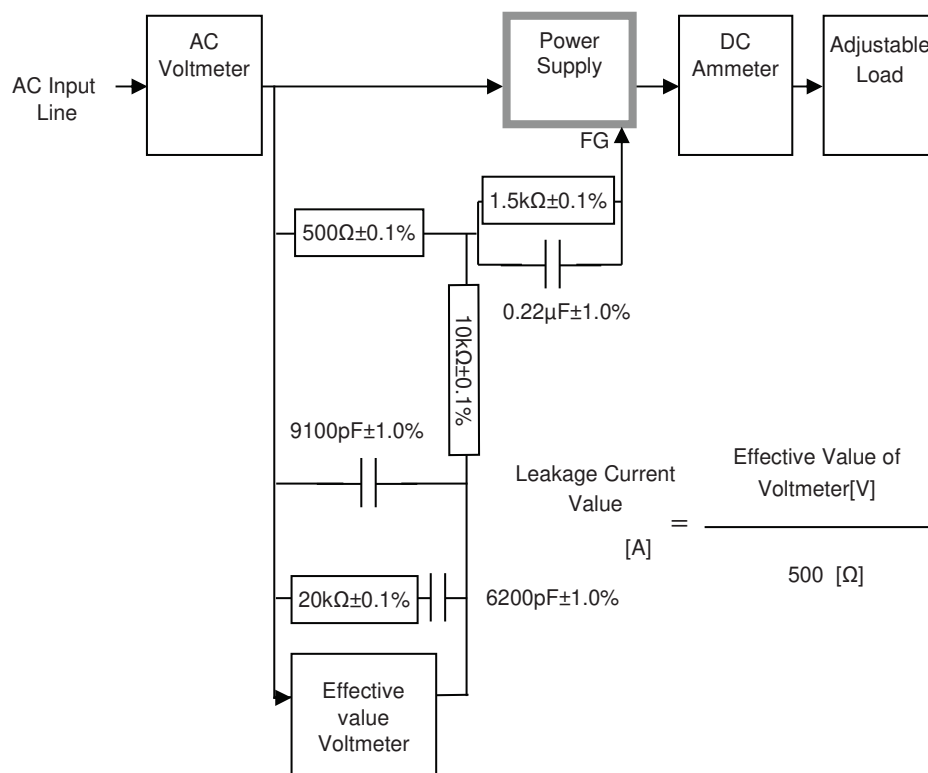


Figure C-3 (IEC62368-1 refer to IEC60990 Fig.5)