

TEST DATA OF PDA15F-24

Regulated DC Power Supply
November 22, 2023

Approved by : Tetsukazu Okamoto
Design Manager

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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)

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Model		PDA15F-24		Temperature 25°C																																																				
Item		Input Current (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> <p>Input Current [A]</p> <p>Load Current [A]</p> <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">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>0.009</td><td>0.006</td><td>0.007</td></tr><tr><td>0.10</td><td>0.068</td><td>0.043</td><td>0.039</td></tr><tr><td>0.20</td><td>0.118</td><td>0.073</td><td>0.067</td></tr><tr><td>0.30</td><td>0.164</td><td>0.100</td><td>0.093</td></tr><tr><td>0.40</td><td>0.210</td><td>0.129</td><td>0.116</td></tr><tr><td>0.50</td><td>0.255</td><td>0.153</td><td>0.140</td></tr><tr><td>0.60</td><td>0.299</td><td>0.180</td><td>0.163</td></tr><tr><td>0.70</td><td>0.343</td><td>0.207</td><td>0.188</td></tr><tr><td>0.77</td><td>0.374</td><td>0.225</td><td>0.204</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	0.009	0.006	0.007	0.10	0.068	0.043	0.039	0.20	0.118	0.073	0.067	0.30	0.164	0.100	0.093	0.40	0.210	0.129	0.116	0.50	0.255	0.153	0.140	0.60	0.299	0.180	0.163	0.70	0.343	0.207	0.188	0.77	0.374	0.225	0.204	--	-	-	-	--	-	-	-
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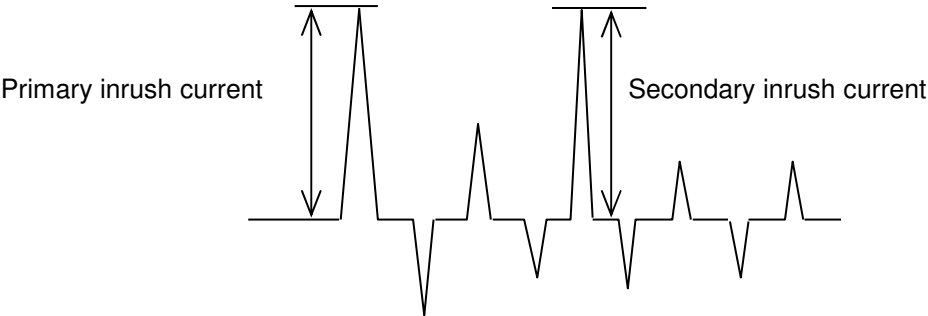
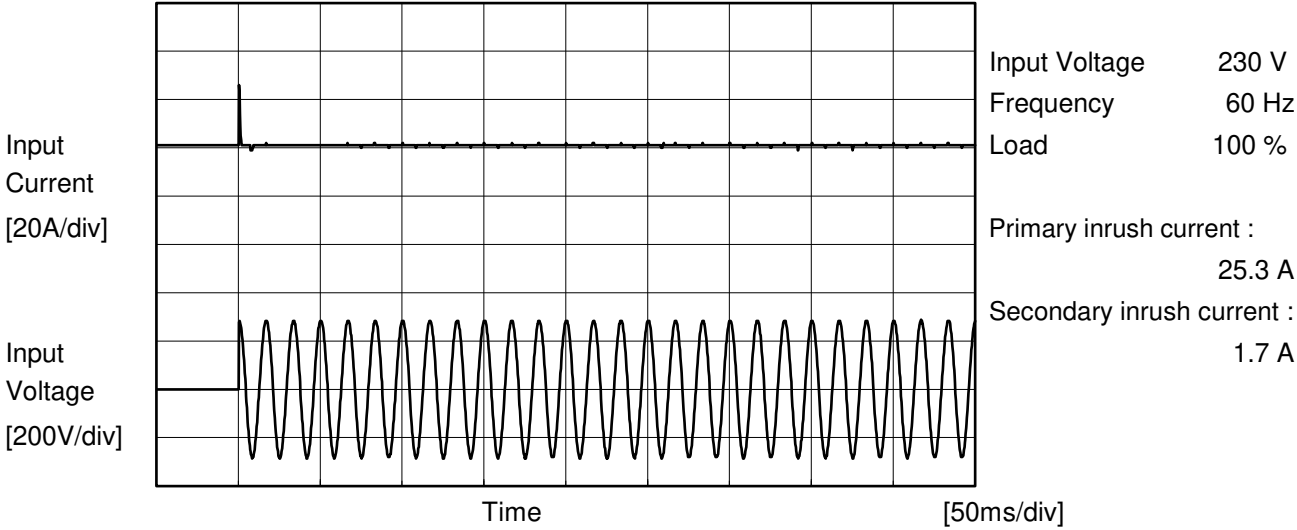
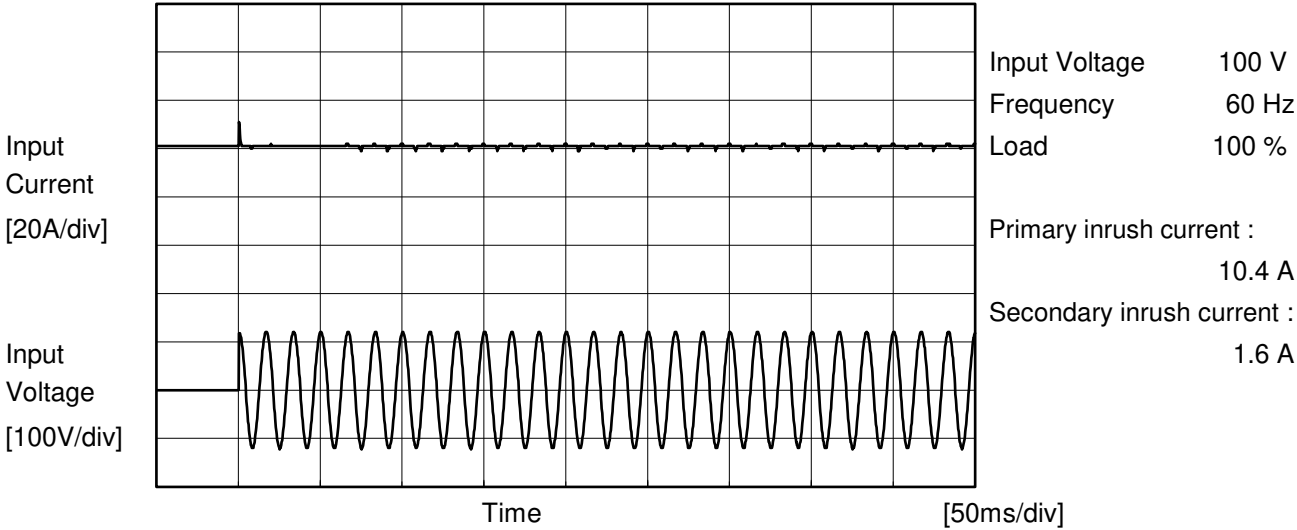
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Model	PDA15F-24	Temperature 25°C Testing Circuitry Figure A	
Item	Inrush Current		
Object	_____		





Model		PDA15F-24	Temperature 25°C Testing Circuitry Figure C
Item		Leakage Current	
Object		_____	

1.Results

[mA]

Standards	Testing Circuitry	Measuring Method	Input Volt.			Note
			100 [V]	230 [V]	240 [V]	
DEN-AN	Figure C-1	Both phases	0.06	0.14	0.15	Operation
		One of phases	0.08	0.21	0.22	Stand by
IEC62368-1	Figure C-2	Both phases	0.06	0.14	0.15	Operation
		One of phases	0.08	0.21	0.22	Stand by
	Figure C-3	Both phases	0.06	0.14	0.15	Operation
		One of phases	0.08	0.21	0.22	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.

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Model		PDA15F-24	
Item		Line Regulation	
Object		+24V0.7A	

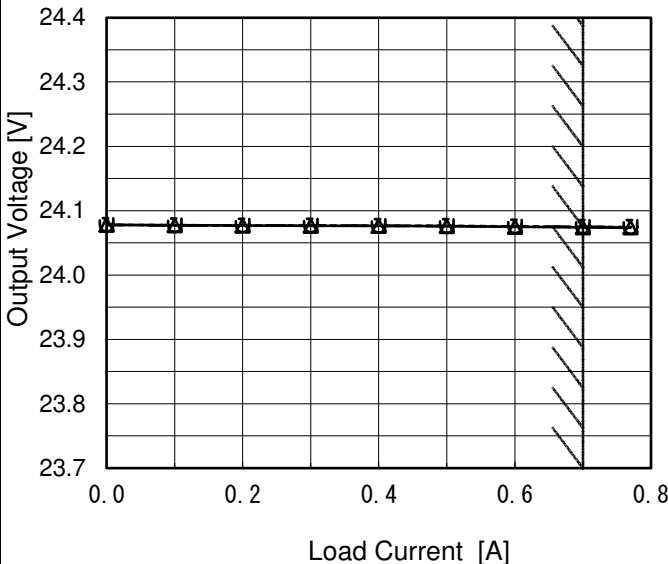
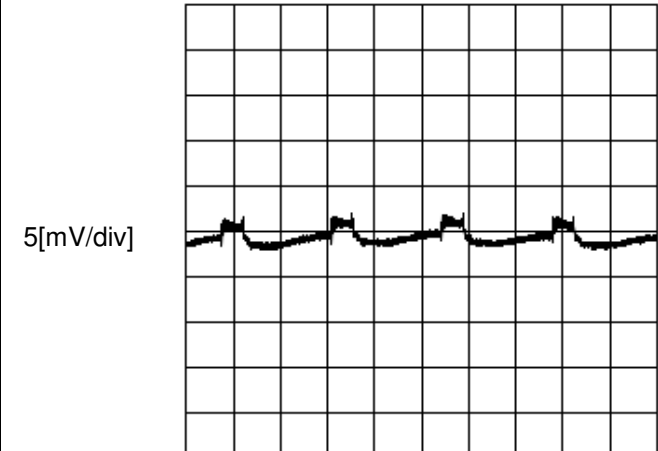
1.Graph

Load 50%

Load 100%

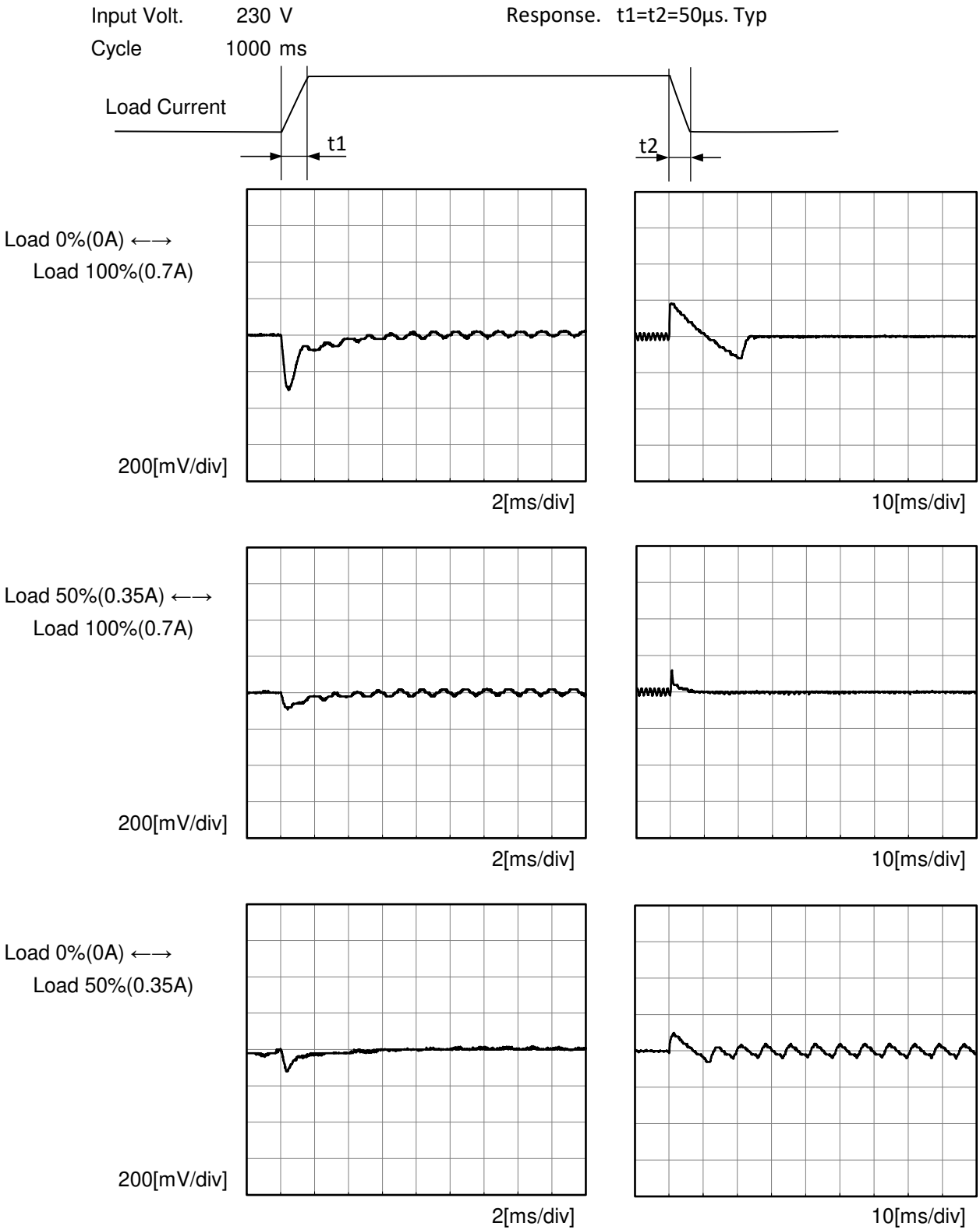
Output Voltage [V]

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Object	+24V0.7A	Testing Circuitry	Figure B																																																			
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<div><div><div>Input Voltage</div><div>230V</div></div><div><div>Load</div><div>100%</div></div><div><div></div><div>5[mV/div]</div><div>4[μs/div]</div></div></div>																																																						



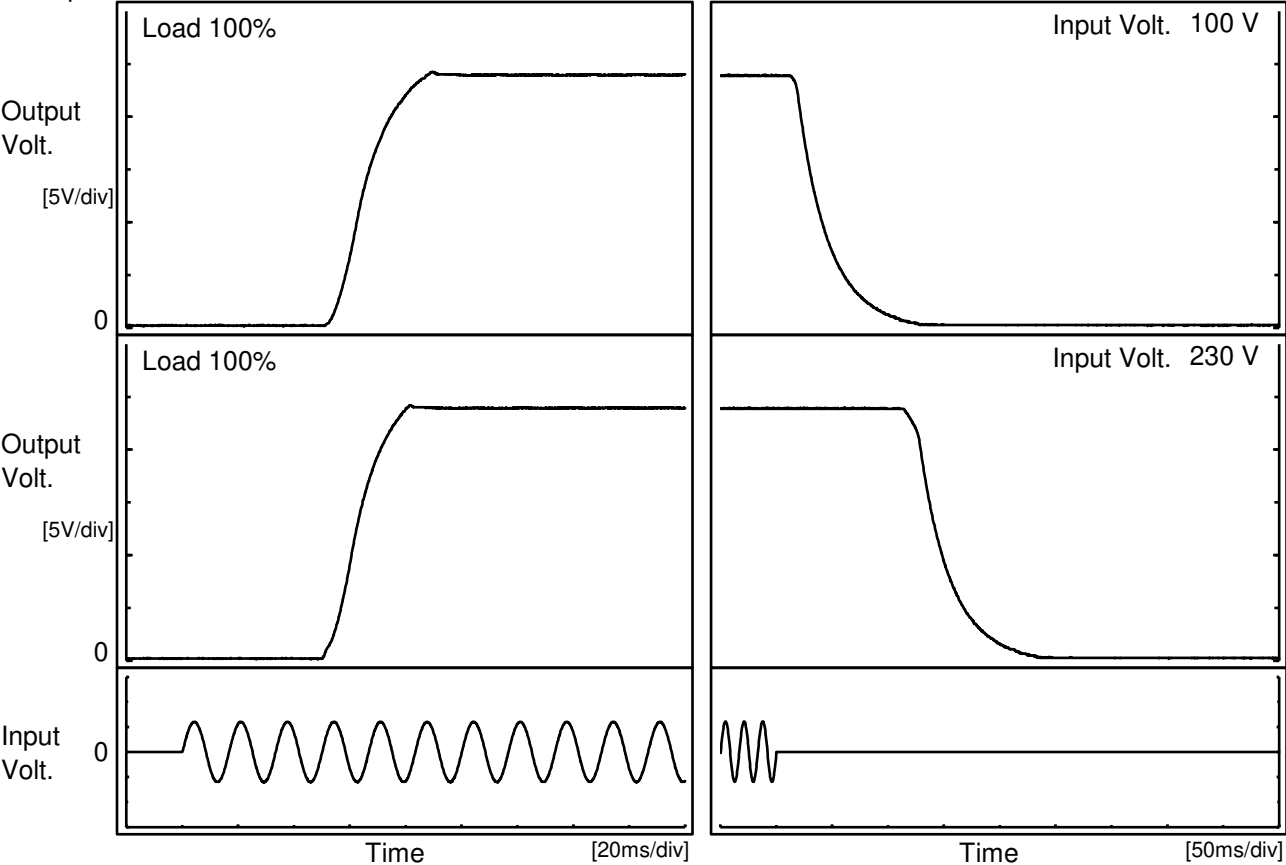
Model	PDA15F-24		
Item	Dynamic Load Response	Temperature	25°C
Object	+24V0.7A	Testing Circuitry	Figure A





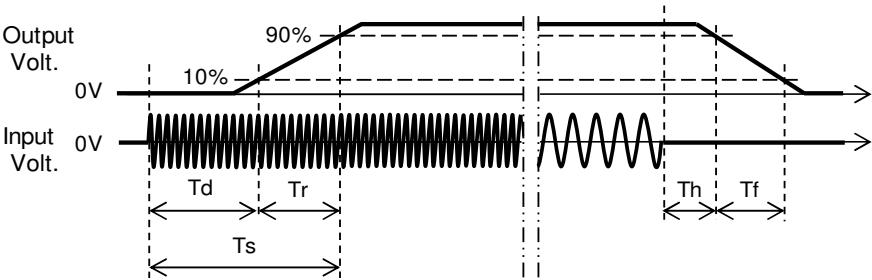
Model		PDA15F-24	Temperature 25°C Testing Circuitry Figure A
Item		Rise and Fall Time	
Object		+24V0.7A	

1.Graph



2.Values

		[ms]				
Input Volt.	Time	Td	Tr	Ts	Th	Tf
100 V		56.0	23.3	79.3	23.0	59.3
230 V		54.5	19.9	74.4	159.0	61.0



Model

PDA15F-24

Item

Hold-Up Time

Object

+24V0.7A

1.Graph

---□---

Load 50%

—△—

Load 100%

Hold-Up Time [ms]

1000

100

10

1

50

100

150

200

250

300

Input Voltage [V]

85

90

100

120

200

230

264

280

--

38

43

55

83

252

339

454

515

-

-

17

23

37

115

159

218

249

-

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%
85	38	-
90	43	17
100	55	23
120	83	37
200	252	115
230	339	159
264	454	218
280	515	249
--	-	-

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<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>24.0</td><td>0.91</td><td>0.98</td></tr><tr><td>22.8</td><td>-</td><td>-</td></tr><tr><td>21.6</td><td>-</td><td>-</td></tr><tr><td>19.2</td><td>-</td><td>-</td></tr><tr><td>16.8</td><td>-</td><td>-</td></tr><tr><td>14.4</td><td>-</td><td>-</td></tr><tr><td>12.0</td><td>-</td><td>-</td></tr><tr><td>9.6</td><td>-</td><td>-</td></tr><tr><td>7.2</td><td>-</td><td>-</td></tr><tr><td>4.8</td><td>-</td><td>-</td></tr><tr><td>2.4</td><td>-</td><td>-</td></tr><tr><td>0.0</td><td>-</td><td>-</td></tr></table>		Output Voltage [V]	Load Current [A]		Input Volt. 100[V]	Input Volt. 230[V]	24.0	0.91	0.98	22.8	-	-	21.6	-	-	19.2	-	-	16.8	-	-	14.4	-	-	12.0	-	-	9.6	-	-	7.2	-	-	4.8	-	-	2.4	-	-	0.0	-	-
Output Voltage [V]	Load Current [A]																																											
	Input Volt. 100[V]	Input Volt. 230[V]																																										
24.0	0.91	0.98																																										
22.8	-	-																																										
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19.2	-	-																																										
16.8	-	-																																										
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12.0	-	-																																										
9.6	-	-																																										
7.2	-	-																																										
4.8	-	-																																										
2.4	-	-																																										
0.0	-	-																																										

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		Testing Circuitry Figure A																			
Model	PDA15F-24																				
Item	Ambient Temperature Drift																				
Object	+24V0.7A																				
1.Values		Load 100%																			
<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 100V</th><th>Input Volt. 200V</th><th>Input Volt. 230V</th></tr><tr><td>-10</td><td>24.037</td><td>24.038</td><td>24.038</td></tr><tr><td>25</td><td>24.074</td><td>24.075</td><td>24.075</td></tr><tr><td>55</td><td>24.074</td><td>24.075</td><td>24.075</td></tr></table>		Ambient Temperature [°C]	Output Voltage [V]			Input Volt. 100V	Input Volt. 200V	Input Volt. 230V	-10	24.037	24.038	24.038	25	24.074	24.075	24.075	55	24.074	24.075	24.075	
Ambient Temperature [°C]	Output Voltage [V]																				
	Input Volt. 100V	Input Volt. 200V	Input Volt. 230V																		
-10	24.037	24.038	24.038																		
25	24.074	24.075	24.075																		
55	24.074	24.075	24.075																		
Item		Testing Circuitry Figure A																			
Minimum Input Voltage for Regulated Output Voltage																					
Object		+24V0.7A																			
1.Values																					
<table><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><tr><td>-10</td><td>33</td><td>64</td></tr><tr><td>25</td><td>32</td><td>62</td></tr><tr><td>55</td><td>32</td><td>62</td></tr></table>		Ambient Temperature [°C]	Input Voltage [V]		Load 50%	Load 100%	-10	33	64	25	32	62	55	32	62						
Ambient Temperature [°C]	Input Voltage [V]																				
	Load 50%	Load 100%																			
-10	33	64																			
25	32	62																			
55	32	62																			
Item		Testing Circuitry Figure A																			
Overvoltage Protection																					
Object		+24V0.7A																			
1.Values		Load 0%																			
<table><tr><th rowspan="2">Ambient Temperature [°C]</th><th colspan="2">Operating Point [V]</th></tr><tr><th>Input Volt. 100V</th><th>Input Volt. 230V</th></tr><tr><td>-20</td><td>31.66</td><td>31.66</td></tr><tr><td>25</td><td>32.94</td><td>32.94</td></tr><tr><td>55</td><td>33.86</td><td>33.86</td></tr></table>		Ambient Temperature [°C]	Operating Point [V]		Input Volt. 100V	Input Volt. 230V	-20	31.66	31.66	25	32.94	32.94	55	33.86	33.86						
Ambient Temperature [°C]	Operating Point [V]																				
	Input Volt. 100V	Input Volt. 230V																			
-20	31.66	31.66																			
25	32.94	32.94																			
55	33.86	33.86																			

- 13 -

BC-11955

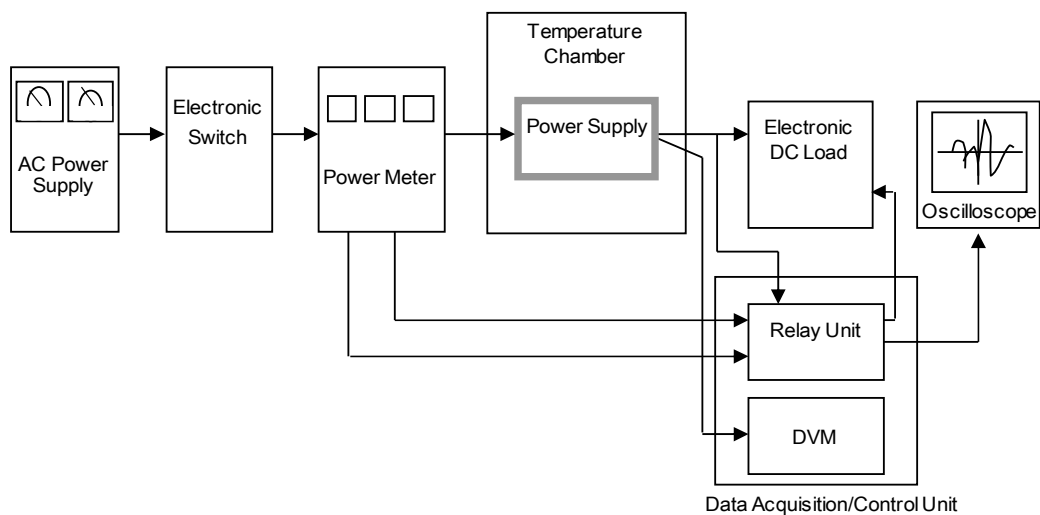


Figure A

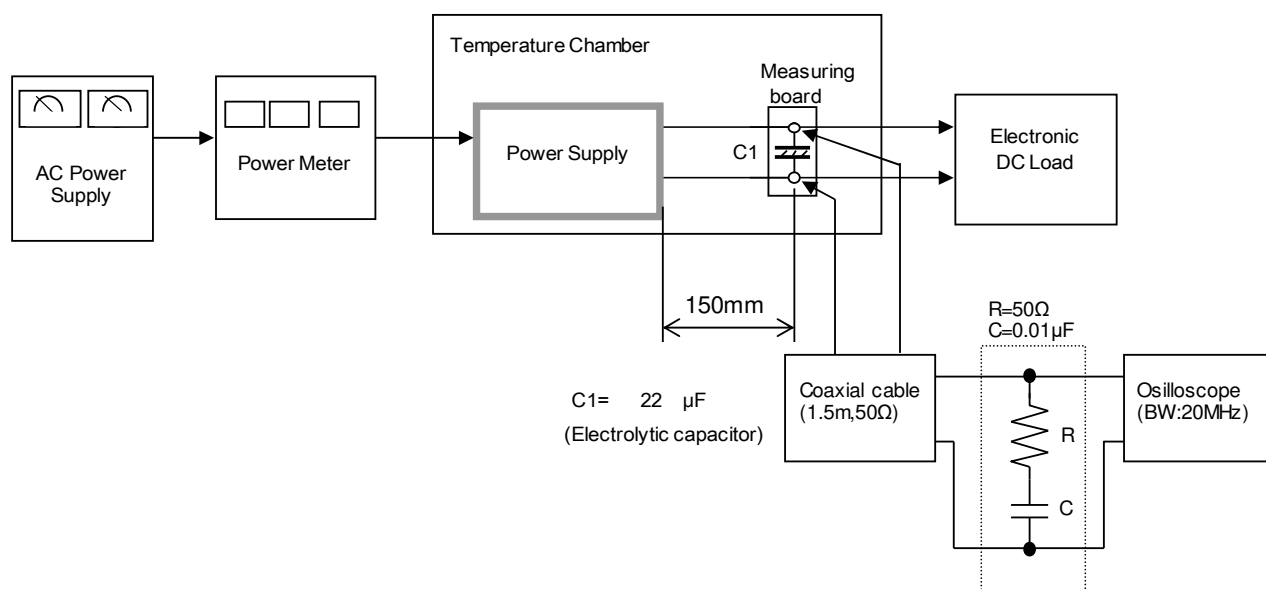


Figure B

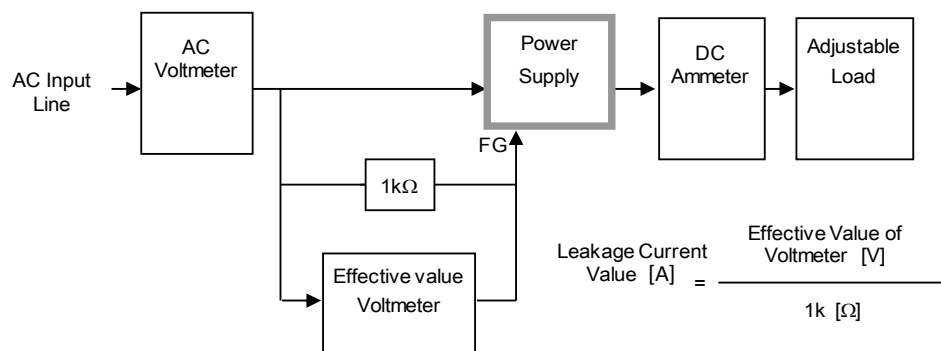


Figure C-1 (DEN-AN)

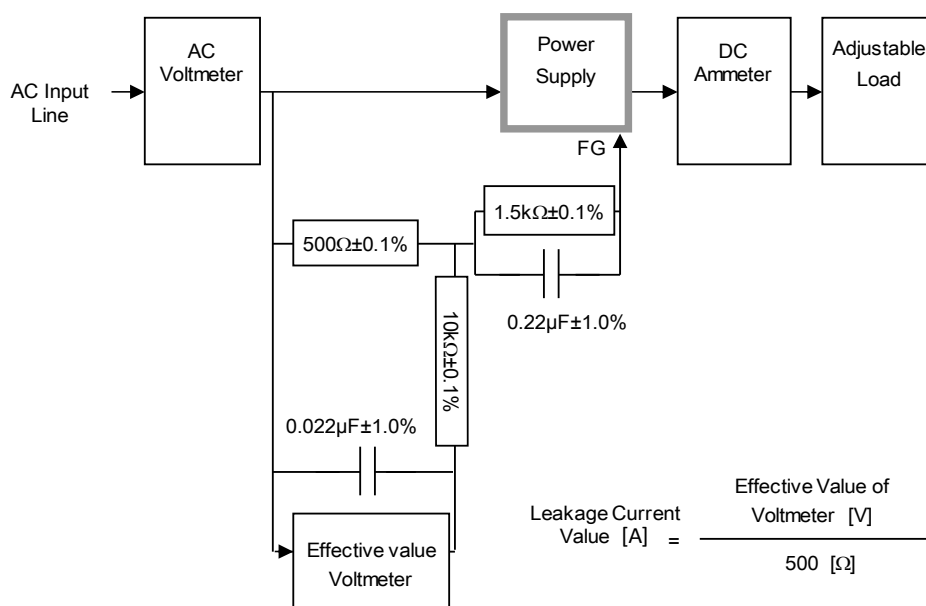


Figure C-2 (IEC62368-1 refer to IEC60990 Fig.4)

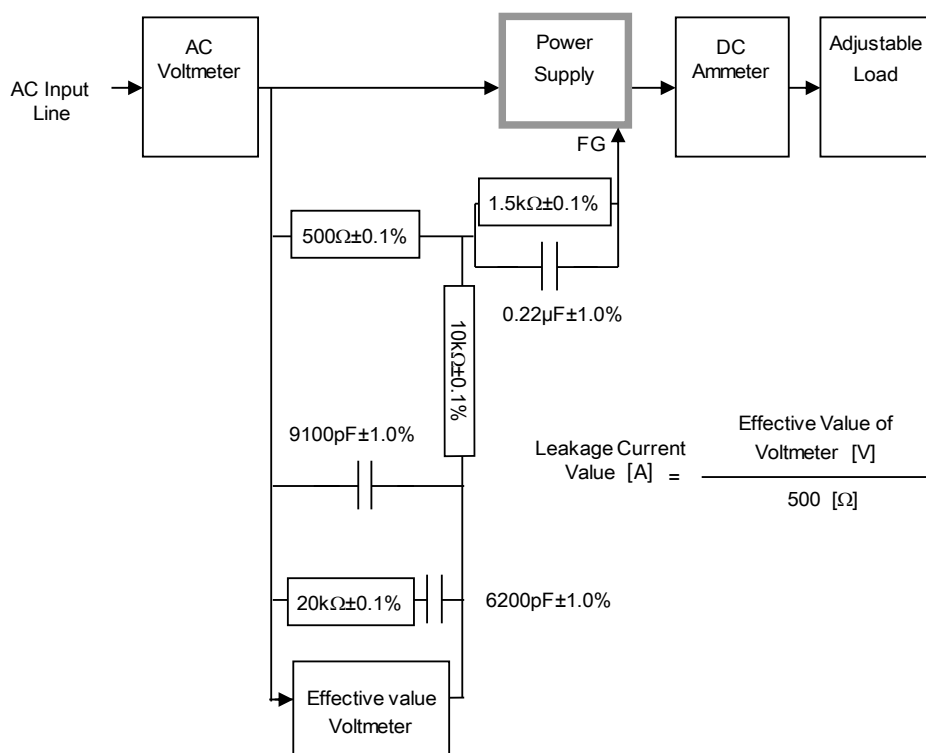


Figure C-3 (IEC62368-1 refer to IEC60990 Fig.5)