

TEST DATA OF PDW50F-12

Regulated DC Power Supply
April 6, 2026

Approved by : Junichi Hatagishi
Design Manager

Prepared by : Taichi Nakada
Design Engineer

COSEL CO.,LTD.

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(Final Page 21)

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Model		PDW50F-12	Temperature		25°C
Item		Input Current (by Load Current)	Testing Circuitry		Figure A
Object					
1.Graph		—△— Input Volt. 100V ---□--- Input Volt. 200V ---○--- Input Volt. 230V	2.Values		
Input Current [A] <					

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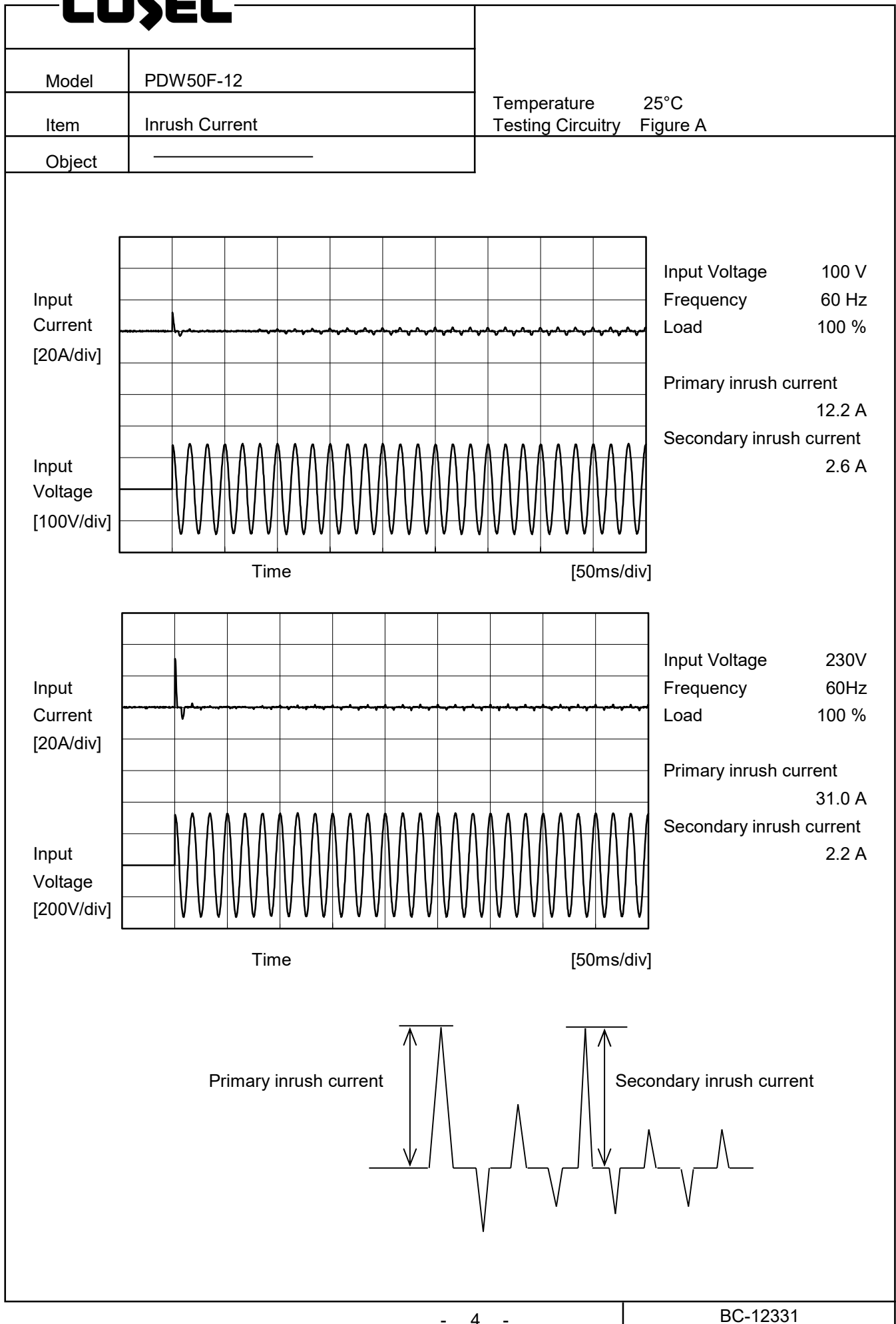
Model		PDW50F-12	Temperature Testing Circuitry	25°C Figure A																																																	
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		<table><tr><th rowspan="2">Load Ratio [%]</th><th colspan="3">Efficiency [%]</th></tr><tr><th>Input Volt. 100[V]</th><th>Input Volt. 200[V]</th><th>Input Volt. 230[V]</th></tr><tr><td>0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>20</td><td>76.1</td><td>75.4</td><td>75.6</td></tr><tr><td>40</td><td>80.5</td><td>80.8</td><td>79.8</td></tr><tr><td>60</td><td>81.6</td><td>82.2</td><td>82.5</td></tr><tr><td>80</td><td>81.8</td><td>82.6</td><td>82.1</td></tr><tr><td>100</td><td>81.5</td><td>83.0</td><td>82.8</td></tr><tr><td>110</td><td>81.1</td><td>83.1</td><td>82.8</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 Ratio [%]	Efficiency [%]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0	-	-	-	20	76.1	75.4	75.6	40	80.5	80.8	79.8	60	81.6	82.2	82.5	80	81.8	82.6	82.1	100	81.5	83.0	82.8	110	81.1	83.1	82.8	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Note: Slanted line shows the range of the rated load current.																																																					

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Model		PDW50F-12	Temperature		25°C																																																		
Item		Power Factor (by Load Current)	Testing Circuitry		Figure A																																																		
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Note: Slanted line shows the range of the rated load current.																																																							

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Model		PDW50F-12	Temperature 25°C Testing Circuitry Figure C
Item		Leakage Current	
Object		_____	

1.Results

Standards	Testing Circuitry	Measuring Method	Input Volt.			Note
			100 [V]	230 [V]	240 [V]	
DEN-AN	Figure C-1	Both phases	0.06	0.16	0.16	Operation
		One of phases	0.09	0.23	0.24	Stand by
IEC62368-1	Figure C-2	Both phases	0.06	0.14	0.16	Operation
		One of phases	0.09	0.22	0.23	Stand by
	Figure C-3	Both phases	0.06	0.14	0.15	Operation
		One of phases	0.09	0.21	0.23	Stand by

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

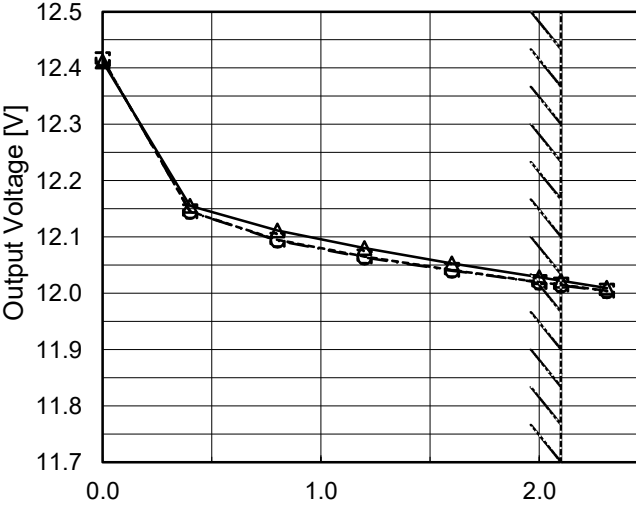
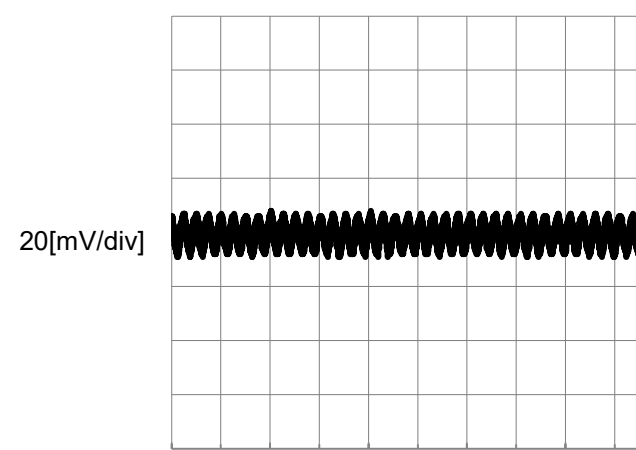
2.Condition

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

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Model		PDW50F-12	
Item		Line Regulation	
Object		+12V2.1A	
1.Graph			

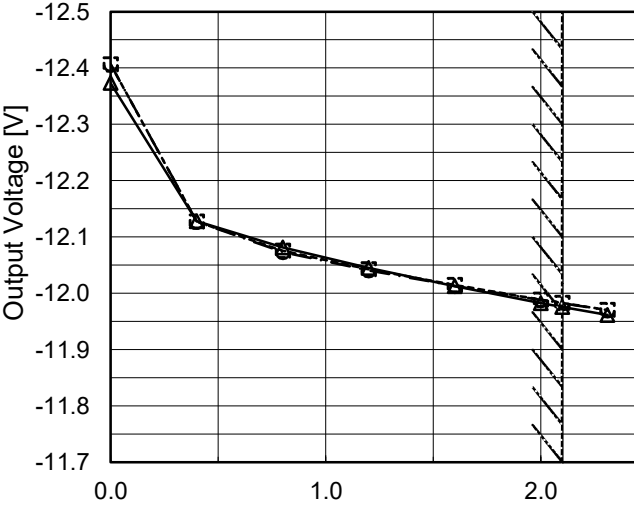
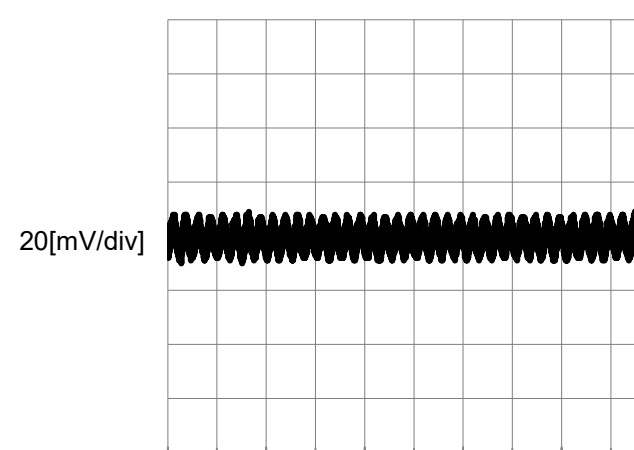
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Item	Load Regulation	Temperature	25°C																																																			
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—△— Input Volt. 100V ---□--- Input Volt. 200V ---○--- Input Volt. 230V  Note: Slanted line shows the range of the rated load current.		<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>12.412</td><td>12.416</td><td>12.416</td></tr><tr><td>0.40</td><td>12.155</td><td>12.145</td><td>12.145</td></tr><tr><td>0.80</td><td>12.111</td><td>12.095</td><td>12.094</td></tr><tr><td>1.20</td><td>12.080</td><td>12.065</td><td>12.064</td></tr><tr><td>1.60</td><td>12.053</td><td>12.041</td><td>12.040</td></tr><tr><td>2.00</td><td>12.029</td><td>12.020</td><td>12.019</td></tr><tr><td>2.10</td><td>12.022</td><td>12.015</td><td>12.014</td></tr><tr><td>2.31</td><td>12.010</td><td>12.005</td><td>12.004</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> -12V: Rated Load Current		Load Current [A]	Output Voltage [V]			Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]	0.00	12.412	12.416	12.416	0.40	12.155	12.145	12.145	0.80	12.111	12.095	12.094	1.20	12.080	12.065	12.064	1.60	12.053	12.041	12.040	2.00	12.029	12.020	12.019	2.10	12.022	12.015	12.014	2.31	12.010	12.005	12.004	--	--	--	--	--	--	--	--	--	--	--	--
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Object	+12V2.1A	Testing Circuitry	Figure B																																																			
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Input Voltage 230V Load 100%  -12V: Rated Load Current																																																						

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Model	PDW50F-12																																																					
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Load Current [A]	Output Voltage [V]																																																					
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Item	Ripple-Noise	Temperature	25°C																																																			
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Input Voltage 230V Load 100%  +12V:Rated Load Current																																																						

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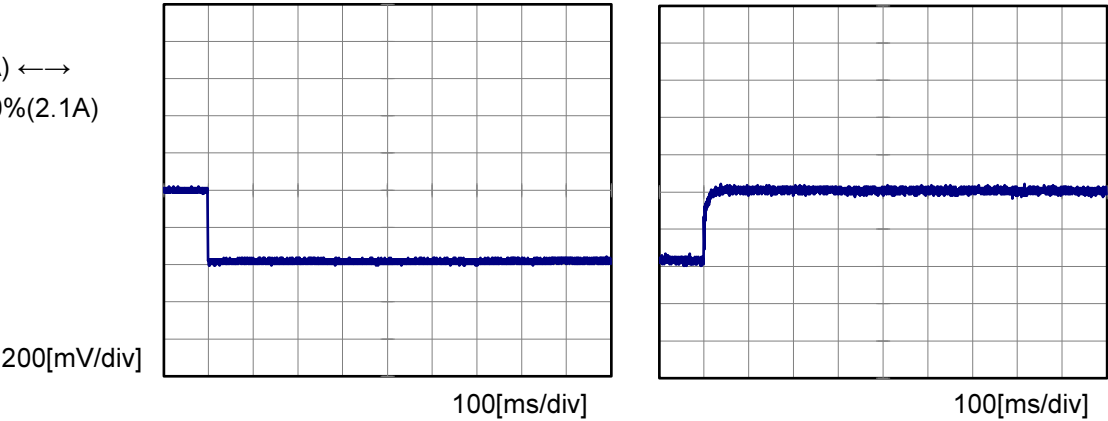


Model		PDW50F-12	Temperature 25°C Testing Circuitry Figure A
Item		Dynamic Load Response	
Object		+12V2.1A	

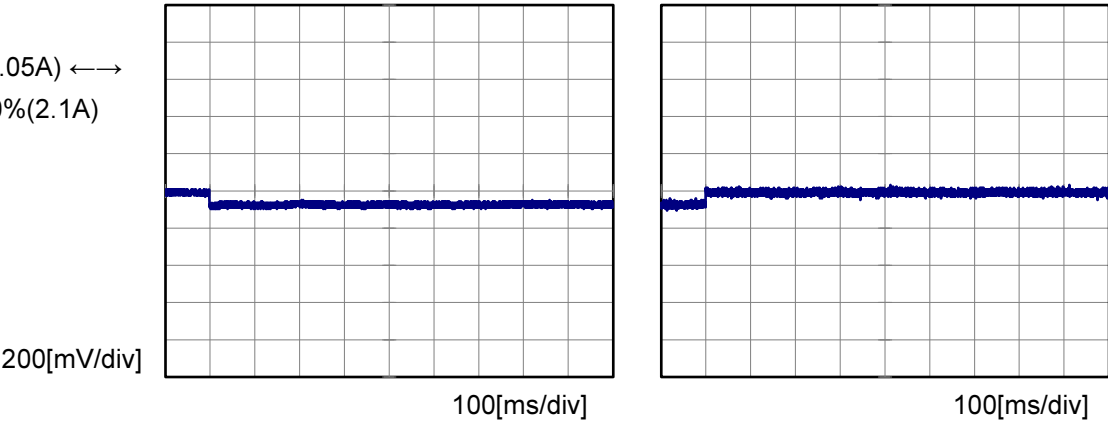
Input Volt. 230 V
-12V:Rated Load Current
Cycle 1000 ms
Response. t1=t2=50μs. Typ



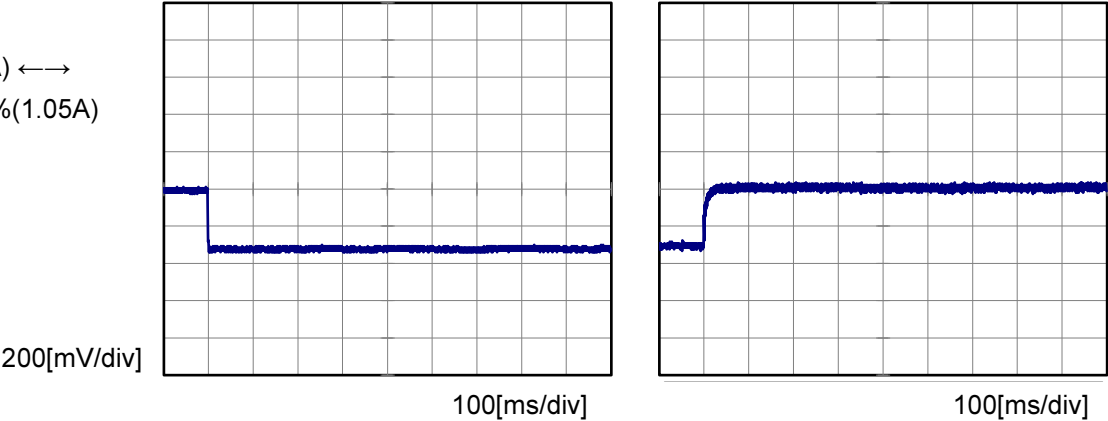
Load 0%(0A) ↔
Load 100%(2.1A)



Load 50%(1.05A) ↔
Load 100%(2.1A)



Load 0%(0A) ↔
Load 50%(1.05A)





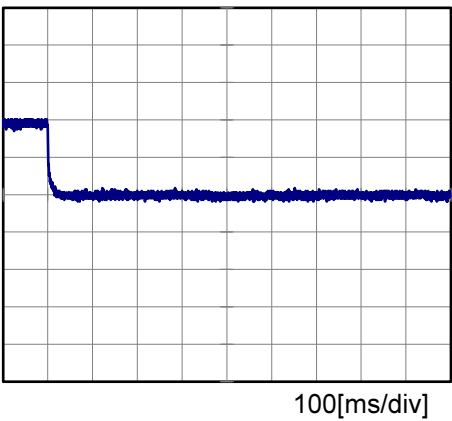
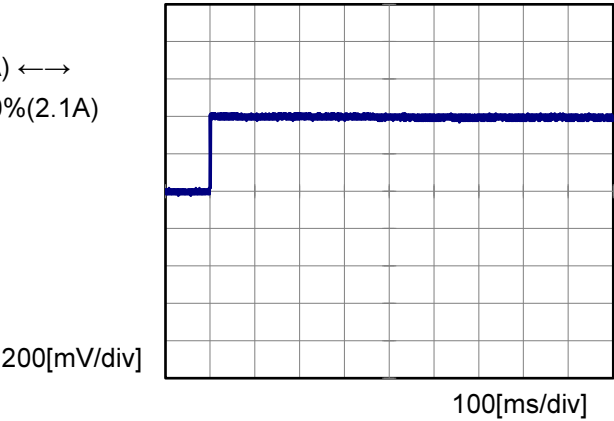
Model		PDW50F-12	Temperature 25°C Testing Circuitry Figure A
Item		Dynamic Load Response	
Object		-12V2.1A	

Input Volt. 230 V
+12V:Rated Load Current
Cycle 1000 ms

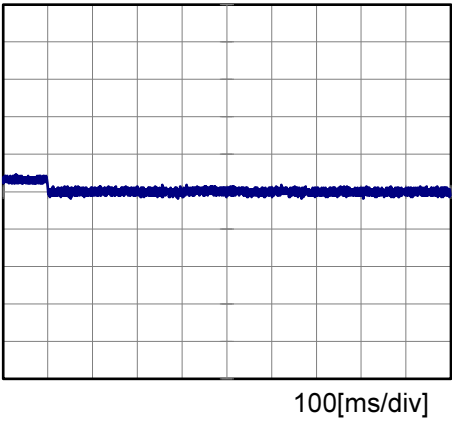
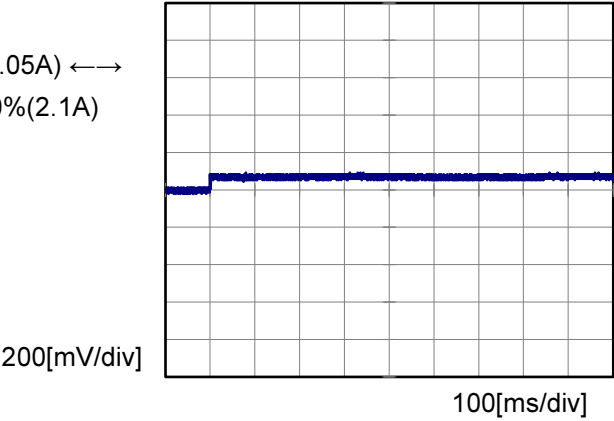
Response. t1=t2=50μs. Typ



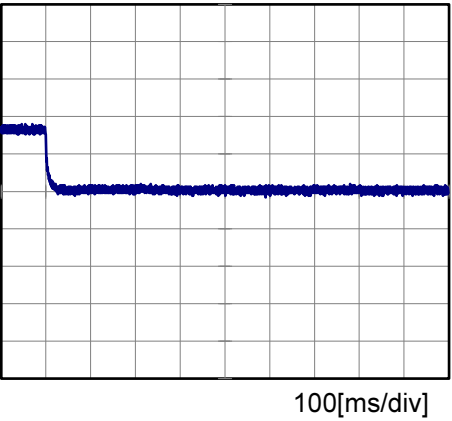
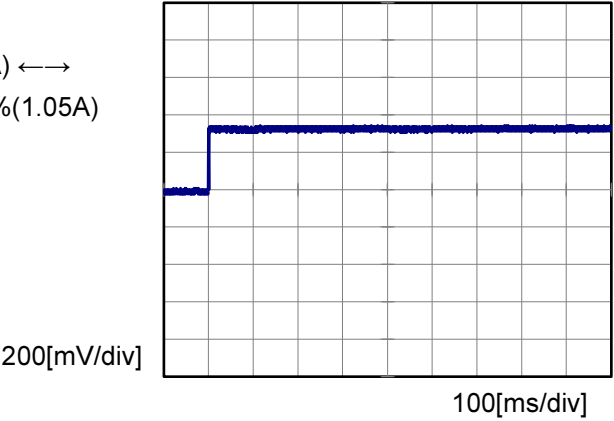
Load 0%(0A) ↔
Load 100%(2.1A)



Load 50%(1.05A) ↔
Load 100%(2.1A)



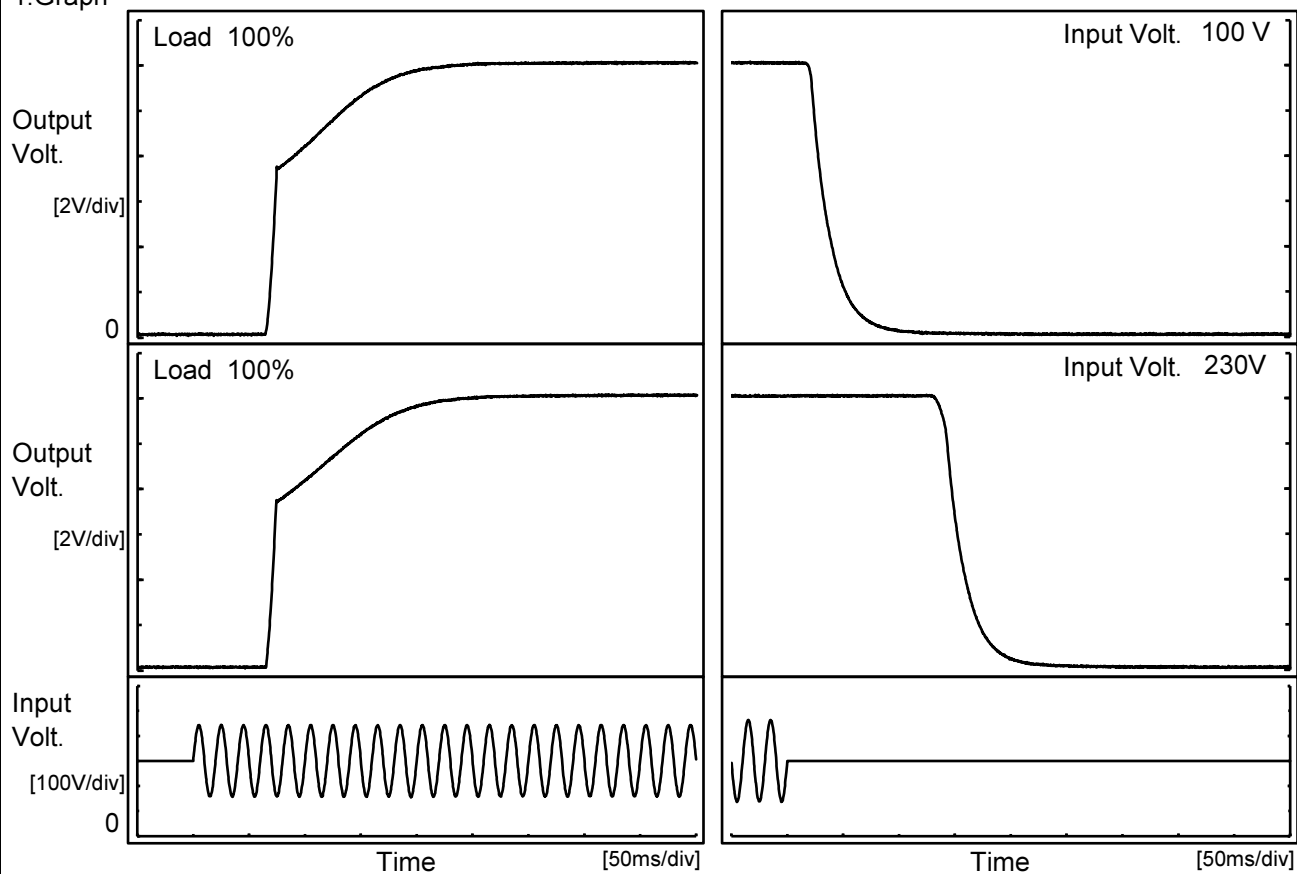
Load 0%(0A) ↔
Load 50%(1.05A)



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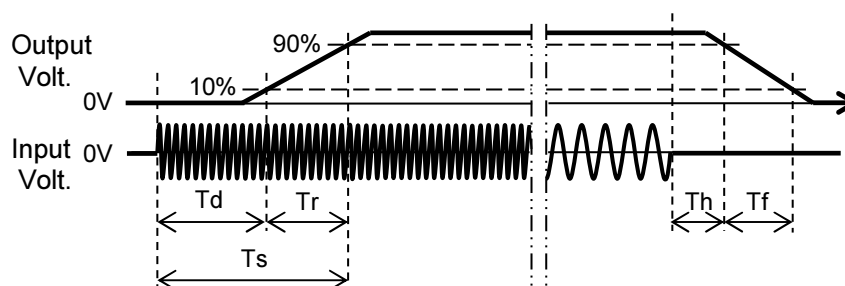
Model	PDW50F-12	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	+12V2.1A		

1.Graph



2.Values

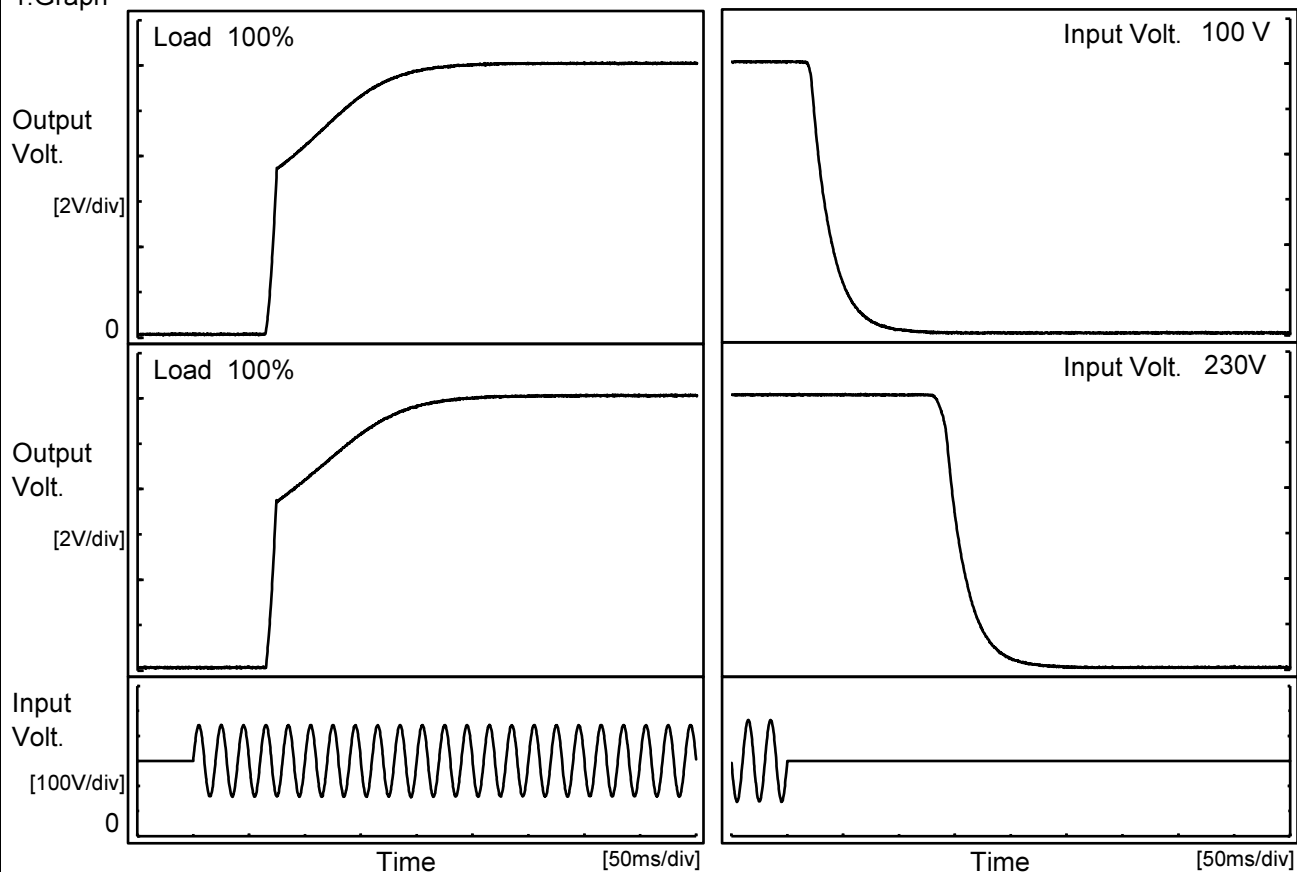
Input Volt \ Time	Td	Tr	Ts	Th	Tf
100V	67.5	88.3	155.8	22.3	37.8
230V	67.3	96.0	163.3	140.5	38.8



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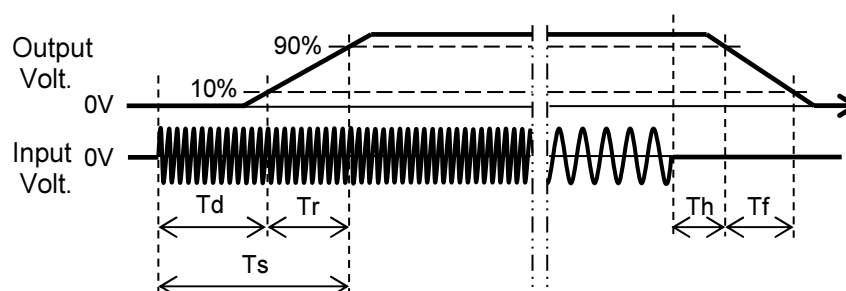
Model	PDW50F-12	Temperature	25°C
Item	Rise and Fall Time	Testing Circuitry	Figure A
Object	-12V2.1A		

1.Graph



2.Values

Input Volt \ Time	Td	Tr	Ts	Th	Tf
100V	67.3	89.8	157.1	22.3	38.0
230V	67.3	96.0	163.3	140.5	39.8



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Model	PDW50F-12																																		
Item	Hold-Up Time	Temperature	25°C																																
		Testing Circuitry	Figure A																																
Object	+12V2.1A																																		
1.Graph		2.Values																																	
--- □ --- Load 50% — △ — Load 100% Hold-Up Time [ms] 1000 100 10 1 50 100 150 200 250 300 Input Voltage [V] <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>33</td><td>15</td></tr><tr><td>90</td><td>38</td><td>17</td></tr><tr><td>100</td><td>48</td><td>22</td></tr><tr><td>120</td><td>72</td><td>34</td></tr><tr><td>200</td><td>215</td><td>107</td></tr><tr><td>230</td><td>289</td><td>144</td></tr><tr><td>264</td><td>386</td><td>193</td></tr><tr><td>280</td><td>439</td><td>221</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></tbody></table> 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.		Input Voltage [V]	Hold-Up Time [ms]		Load 50%	Load 100%	85	33	15	90	38	17	100	48	22	120	72	34	200	215	107	230	289	144	264	386	193	280	439	221	--	-	-		
Input Voltage [V]	Hold-Up Time [ms]																																		
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Object	-12V2.1A																																		
1.Graph		2.Values																																	
--- □ --- Load 50% — △ — Load 100% Hold-Up Time [ms] 1000 100 10 1 50 100 150 200 250 300 Input Voltage [V] 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.		<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>33</td><td>15</td></tr><tr><td>90</td><td>38</td><td>17</td></tr><tr><td>100</td><td>48</td><td>22</td></tr><tr><td>120</td><td>72</td><td>34</td></tr><tr><td>200</td><td>215</td><td>106</td></tr><tr><td>230</td><td>289</td><td>144</td></tr><tr><td>264</td><td>386</td><td>193</td></tr><tr><td>280</td><td>439</td><td>220</td></tr><tr><td>--</td><td>-</td><td>-</td></tr></table>		Input Voltage [V]	Hold-Up Time [ms]		Load 50%	Load 100%	85	33	15	90	38	17	100	48	22	120	72	34	200	215	106	230	289	144	264	386	193	280	439	220	--	-	-
Input Voltage [V]	Hold-Up Time [ms]																																		
	Load 50%	Load 100%																																	
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280	439	220																																	
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Model		PDW50F-12	Temperature25°C																																																				
Item		Instantaneous Interruption Compensation	Testing CircuitryFigure A																																																				
Object		+12V2.1A																																																					
1.Graph			2.Values																																																				
—△— Input Volt. 100V - - -□- - - Input Volt. 200V - · - · -○- · - · - Input Volt. 230V Instantaneous Compensation Time [ms] Load Current [A]			<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>0.40</td><td>44</td><td>191</td><td>256</td></tr><tr><td>0.80</td><td>35</td><td>161</td><td>217</td></tr><tr><td>1.20</td><td>28</td><td>141</td><td>189</td></tr><tr><td>1.60</td><td>26</td><td>125</td><td>168</td></tr><tr><td>2.00</td><td>23</td><td>112</td><td>151</td></tr><tr><td>2.10</td><td>22</td><td>108</td><td>147</td></tr><tr><td>2.31</td><td>18</td><td>102</td><td>138</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	-	-	-	0.40	44	191	256	0.80	35	161	217	1.20	28	141	189	1.60	26	125	168	2.00	23	112	151	2.10	22	108	147	2.31	18	102	138	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Time [ms]																																																						
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																				
0.00	-	-	-																																																				
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--	-	-	-																																																				
--	-	-	-																																																				
--	-	-	-																																																				
Note: Slanted line shows the range of the rated load current.																																																							

COSEL																																																						
Model	PDW50F-12																																																					
Item	Instantaneous Interruption Compensation	Temperature	25°C																																																			
Object	-12V2.1A	Testing Circuitry	Figure A																																																			
1.Graph Input Volt. 100V Input Volt. 200V Input Volt. 230V Instantaneous Compensation Time [ms] 1000 100 10 1 0.0 1.0 2.0 Load Current [A] Note: Slanted line shows the range of the rated load current.		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>0.40</td><td>44</td><td>190</td><td>256</td></tr><tr><td>0.80</td><td>35</td><td>161</td><td>217</td></tr><tr><td>1.20</td><td>28</td><td>141</td><td>189</td></tr><tr><td>1.60</td><td>26</td><td>125</td><td>168</td></tr><tr><td>2.00</td><td>23</td><td>111</td><td>151</td></tr><tr><td>2.10</td><td>22</td><td>108</td><td>147</td></tr><tr><td>2.31</td><td>18</td><td>102</td><td>138</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	-	-	-	0.40	44	190	256	0.80	35	161	217	1.20	28	141	189	1.60	26	125	168	2.00	23	111	151	2.10	22	108	147	2.31	18	102	138	--	-	-	-	--	-	-	-	--	-	-	-
Load Current [A]	Time [ms]																																																					
	Input Volt. 100[V]	Input Volt. 200[V]	Input Volt. 230[V]																																																			
0.00	-	-	-																																																			
0.40	44	190	256																																																			
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COSEL

Model		PDW50F-12		Temperature 25°C																																										
Item		Overcurrent Protection		Testing Circuitry Figure A																																										
Object		+12V2.1A																																												
1.Graph		Input Volt. 100V Input Volt. 230V		2.Values																																										
Output Voltage [V] Load Current [A] Overcurrent protection is Hiccup mode.		<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>12.00</td><td>3.93</td><td>4.25</td></tr><tr><td>11.40</td><td>-</td><td>-</td></tr><tr><td>10.80</td><td>-</td><td>-</td></tr><tr><td>9.60</td><td>-</td><td>-</td></tr><tr><td>8.40</td><td>-</td><td>-</td></tr><tr><td>7.20</td><td>-</td><td>-</td></tr><tr><td>6.00</td><td>-</td><td>-</td></tr><tr><td>4.80</td><td>-</td><td>-</td></tr><tr><td>3.60</td><td>-</td><td>-</td></tr><tr><td>2.40</td><td>-</td><td>-</td></tr><tr><td>1.20</td><td>-</td><td>-</td></tr><tr><td>0.00</td><td>-</td><td>-</td></tr></table> -12V: Rated Load Current		Output Voltage [V]	Load Current [A]		Input Volt. 100[V]	Input Volt. 230[V]	12.00	3.93	4.25	11.40	-	-	10.80	-	-	9.60	-	-	8.40	-	-	7.20	-	-	6.00	-	-	4.80	-	-	3.60	-	-	2.40	-	-	1.20	-	-	0.00	-	-		
Output Voltage [V]	Load Current [A]																																													
	Input Volt. 100[V]	Input Volt. 230[V]																																												
12.00	3.93	4.25																																												
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2.40	-	-																																												
1.20	-	-																																												
0.00	-	-																																												
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1.Graph		Input Volt. 100V Input Volt. 230V		2.Values																																										
Output Voltage [V] Load Current [A] Note: Slanted line shows the range of the rated load current. Overcurrent protection is Hiccup mode.		<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>-12.00</td><td>3.92</td><td>4.29</td></tr><tr><td>-11.40</td><td>-</td><td>-</td></tr><tr><td>-10.80</td><td>-</td><td>-</td></tr><tr><td>-9.60</td><td>-</td><td>-</td></tr><tr><td>-8.40</td><td>-</td><td>-</td></tr><tr><td>-7.20</td><td>-</td><td>-</td></tr><tr><td>-6.00</td><td>-</td><td>-</td></tr><tr><td>-4.80</td><td>-</td><td>-</td></tr><tr><td>-3.60</td><td>-</td><td>-</td></tr><tr><td>-2.40</td><td>-</td><td>-</td></tr><tr><td>-1.20</td><td>-</td><td>-</td></tr><tr><td>0.00</td><td>-</td><td>-</td></tr></table> +12V: Rated Load Current		Output Voltage [V]	Load Current [A]		Input Volt. 100[V]	Input Volt. 230[V]	-12.00	3.92	4.29	-11.40	-	-	-10.80	-	-	-9.60	-	-	-8.40	-	-	-7.20	-	-	-6.00	-	-	-4.80	-	-	-3.60	-	-	-2.40	-	-	-1.20	-	-	0.00	-	-		
Output Voltage [V]	Load Current [A]																																													
	Input Volt. 100[V]	Input Volt. 230[V]																																												
-12.00	3.92	4.29																																												
-11.40	-	-																																												
-10.80	-	-																																												
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-7.20	-	-																																												
-6.00	-	-																																												
-4.80	-	-																																												
-3.60	-	-																																												
-2.40	-	-																																												
-1.20	-	-																																												
0.00	-	-																																												

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Model	PDW50F-12	Testing Circuitry Figure A	
Item	Ambient Temperature Drift		
Object	+12V2.1A		
1.Values		Load 100%	
Ambient Temperature[°C]	Output Voltage [V]		
	Input Volt. 100V	Input Volt. 200V	Input Volt. 230V
-10	12.057	12.050	12.050
25	12.024	12.017	12.017
50	11.987	11.981	11.981
-12V: Load Current is same as +12V			
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A	
Object	+12V2.1A		
1.Values			
Ambient Temperature[°C]	Input Voltage [V]		
	Load 50%	Load 100%	
-10	34	55	
25	34	56	
50	34	57	
-12V: Load Current is same as +12V			
Item	Overvoltage Protection	Testing Circuitry Figure A	
Object	+12V2.1A		
1.Values		Load 0%	
Ambient Temperature[°C]	Operating Point [V]		
	Input Volt. 100V	Input Volt. 230V	
-20	21.52	21.52	
25	22.12	22.12	
50	22.41	22.41	

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Model	PDW50F-12		
Item	Ambient Temperature Drift	Testing Circuitry Figure A	
Object	-12V2.1A		
1.Values		Load 100%	
Ambient Temperature[°C]	Output Voltage [V]		
	Input Volt. 100V	Input Volt. 200V	Input Volt. 230V
-10	-12.028	-12.036	-12.036
25	-11.981	-11.989	-11.989
50	-11.938	-11.946	-11.945
+12V: Load Current is same as -12V			
Item	Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry Figure A	
Object	-12V2.1A		
1.Values			
Ambient Temperature[°C]	Input Voltage [V]		
	Load 50%	Load 100%	
-10	34	55	
25	34	55	
50	34	57	
+12V: Load Current is same as -12V			
Item	Overvoltage Protection	Testing Circuitry Figure A	
Object	-12V2.1A		
1.Values		Load 0%	
Ambient Temperature[°C]	Operating Point [V]		
	Input Volt. 100V	Input Volt. 230V	
-20	-20.25	-20.25	
25	-20.85	-20.85	
50	-21.14	-21.14	

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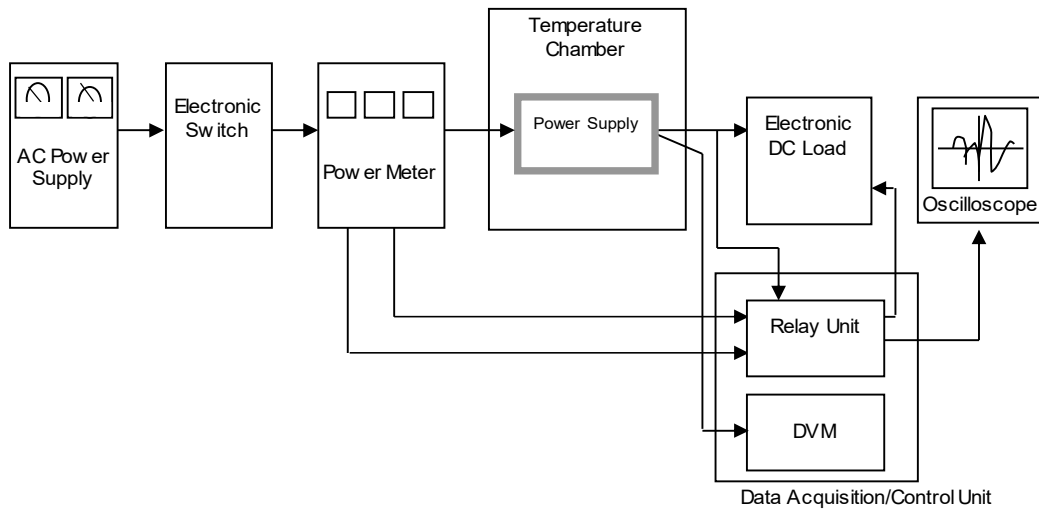


Figure A

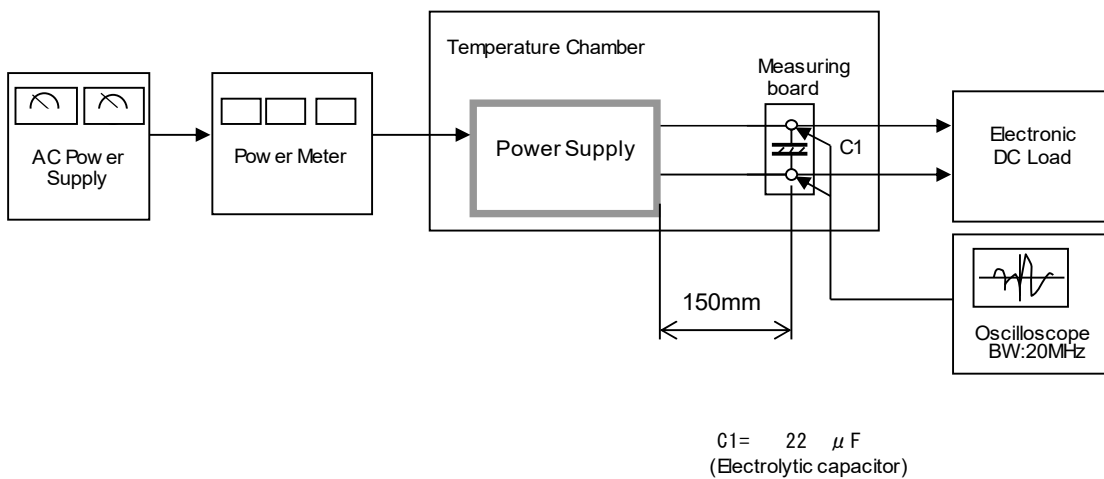


Figure B

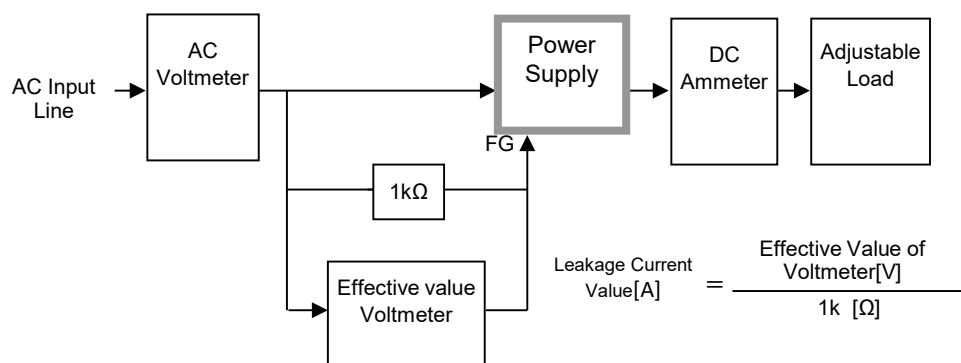


Figure C-1 (DEN-AN)

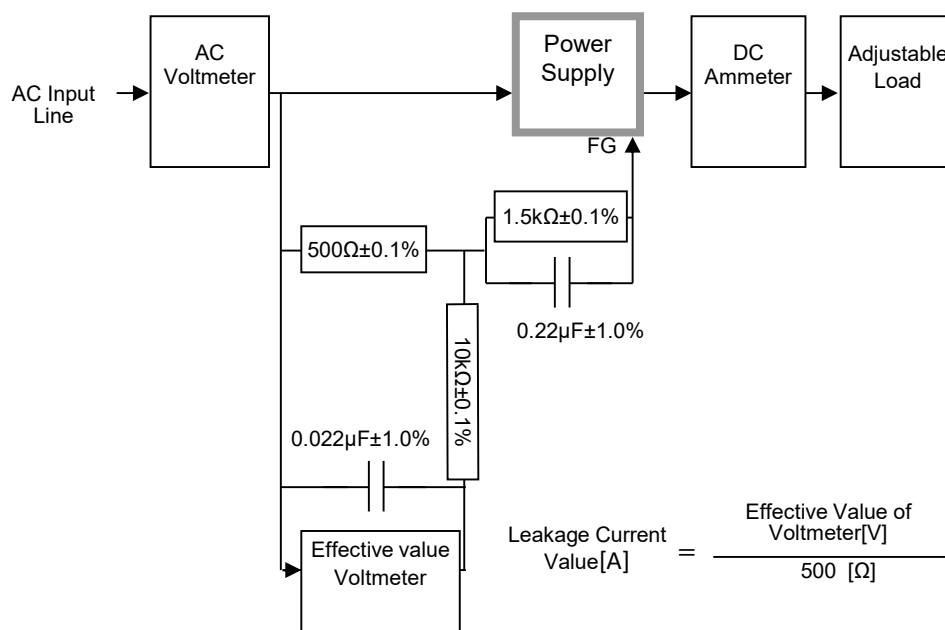


Figure C-2 (IEC62368-1 refer to IEC60990 Fig.4)

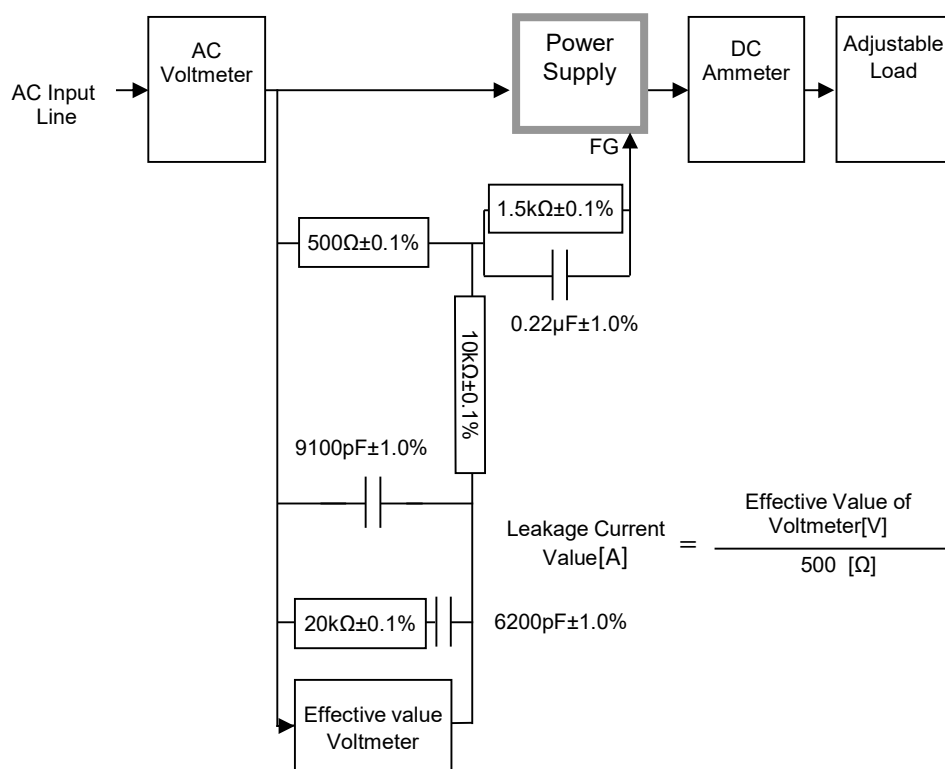


Figure C-3 (IEC62368-1 refer to IEC60990 Fig.5)