

# TEST DATA OF WBA35B-12

Regulated DC Power Supply  
May 24, 2021

Approved by : Takashi Kajii  
Design Manager

Prepared by : Takeshi Natsuno  
Design Engineer

**COSEL CO.,LTD.**

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Model

WBA35B-12

Item

Input Current (by Load Current)

Object

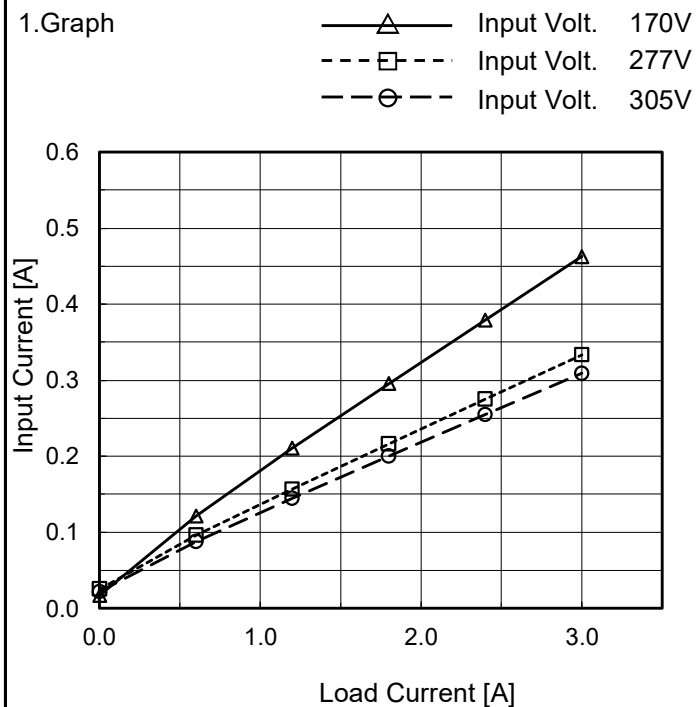
Temperature

25°C

Testing Circuitry

Figure A

1.Graph



2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 170[V]	Input Volt. 277[V]	Input Volt. 305[V]
0.0	0.017	0.025	0.022
0.6	0.122	0.096	0.088
1.2	0.211	0.157	0.145
1.8	0.296	0.216	0.200
2.4	0.379	0.275	0.255
3.0	0.463	0.333	0.309
--	-	-	-
--	-	-	-
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Model

WBA35B-12

Item

Efficiency (by Load Current)

Object

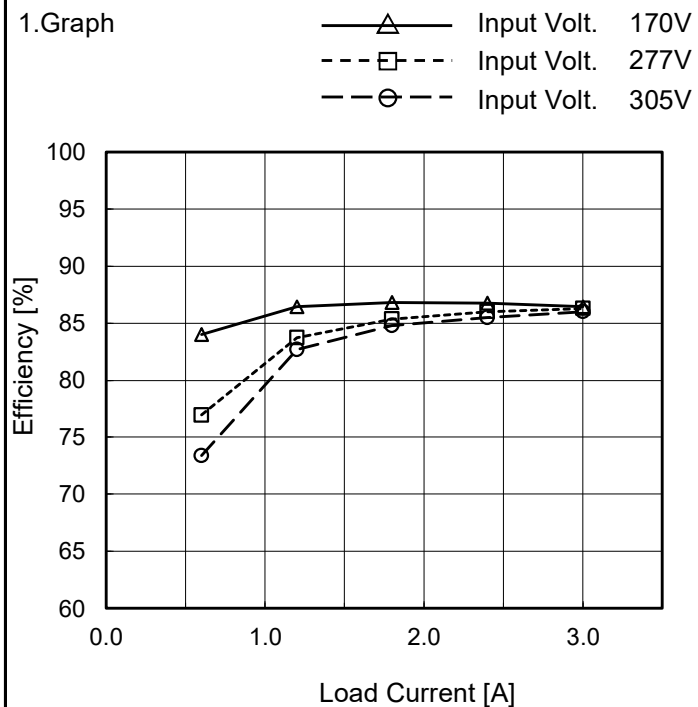
Temperature

25°C

Testing Circuitry

Figure A

1.Graph



2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 170[V]	Input Volt. 277[V]	Input Volt. 305[V]
0.0	-	-	-
0.6	84.0	77.0	73.4
1.2	86.4	83.7	82.7
1.8	86.8	85.4	84.8
2.4	86.8	86.0	85.5
3.0	86.4	86.3	86.0
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-
--	-	-	-

# COSEL

Model

WBA35B-12

Item

Power Factor (by Load Current)

Object

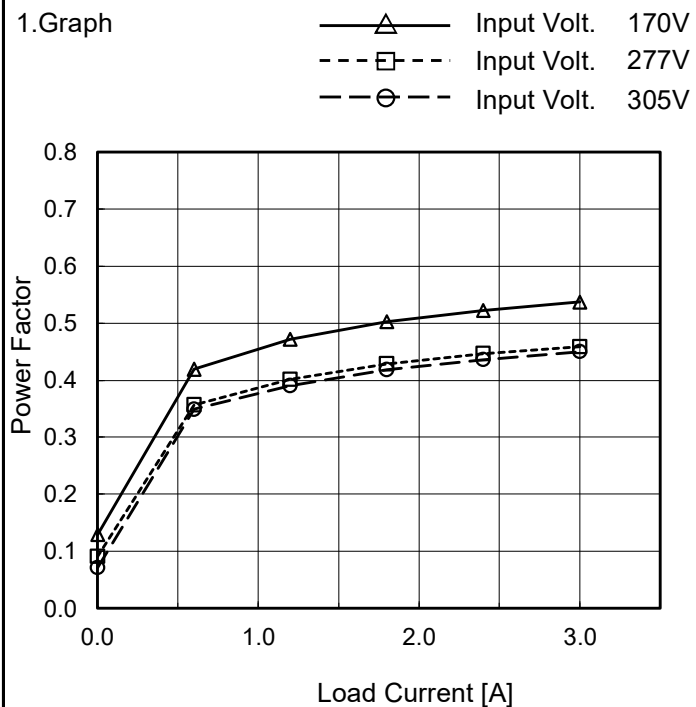
Temperature

25°C

Testing Circuitry

Figure A

1.Graph

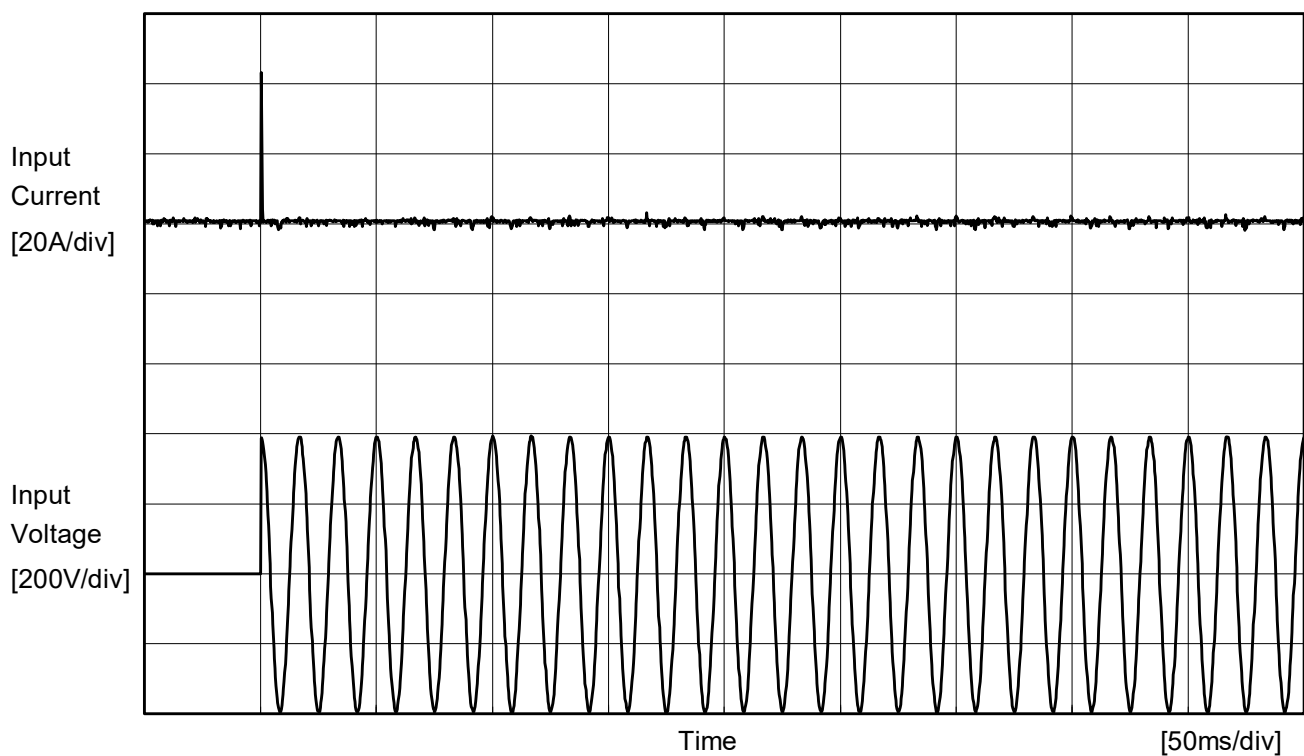


2.Values

Load Current [A]	Power Factor		
	Input Volt. 170[V]	Input Volt. 277[V]	Input Volt. 305[V]
0.0	0.129	0.091	0.071
0.6	0.420	0.357	0.349
1.2	0.472	0.401	0.390
1.8	0.502	0.428	0.418
2.4	0.522	0.446	0.436
3.0	0.537	0.459	0.450
--	-	-	-
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--	-	-	-

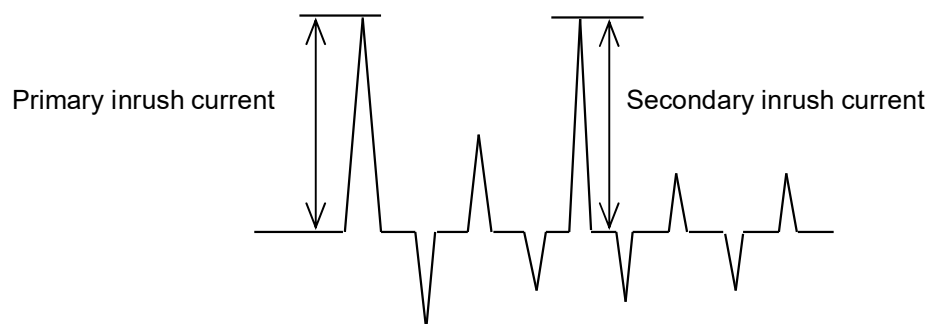
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Model	WBA35B-12	Temperature    25°C Testing Circuitry   Figure A	
Item	Inrush Current		
Object	_____		



Input Voltage            277 V  
Frequency                60 Hz  
Load                        100 %

Primary inrush current    42.8 A  
Secondary inrush current   2.7 A





		Temperature 25°C Testing Circuitry Figure C
Model	WBA35B-12	
Item	Leakage Current	
Object	_____	

### 1.Results

Standards	Testing Circuitry	Measuring Method	Input Volt.			Note
			170 [V]	277 [V]	305 [V]	
DEN-AN	Figure C-1	Both phases	0.21	0.36	0.40	Operation
		One of phases	0.40	0.68	0.75	Stand by
IEC62368-1	Figure C-2	Both phases	0.21	0.36	0.40	Operation
		One of phases	0.40	0.67	0.75	Stand by
	Figure C-3	Both phases	0.21	0.36	0.39	Operation
		One of phases	0.40	0.67	0.74	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

WBA35B-12

Item

Line Regulation

Object

+12V3A

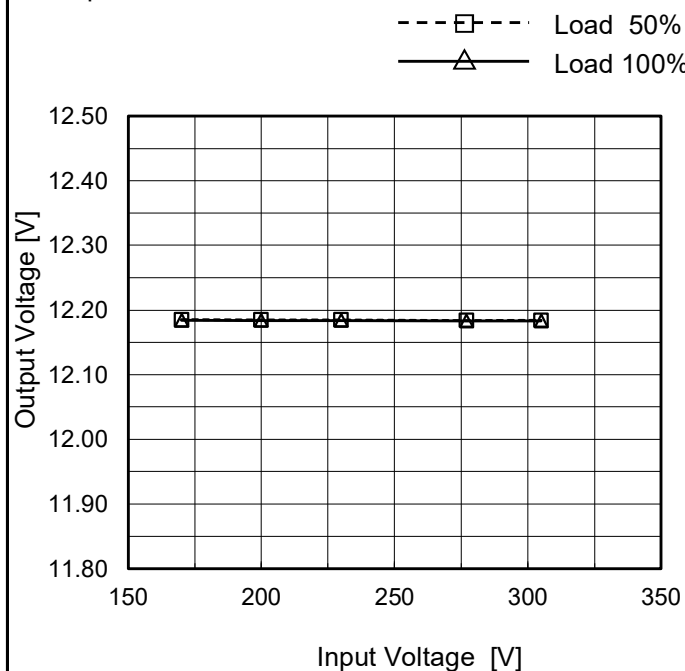
Temperature

25°C

Testing Circuitry

Figure A

## 1.Graph



## 2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
170	12.185	12.184
200	12.185	12.184
230	12.185	12.184
277	12.184	12.183
305	12.184	12.183
--	-	-
--	-	-
--	-	-
--	-	-



# COSEL

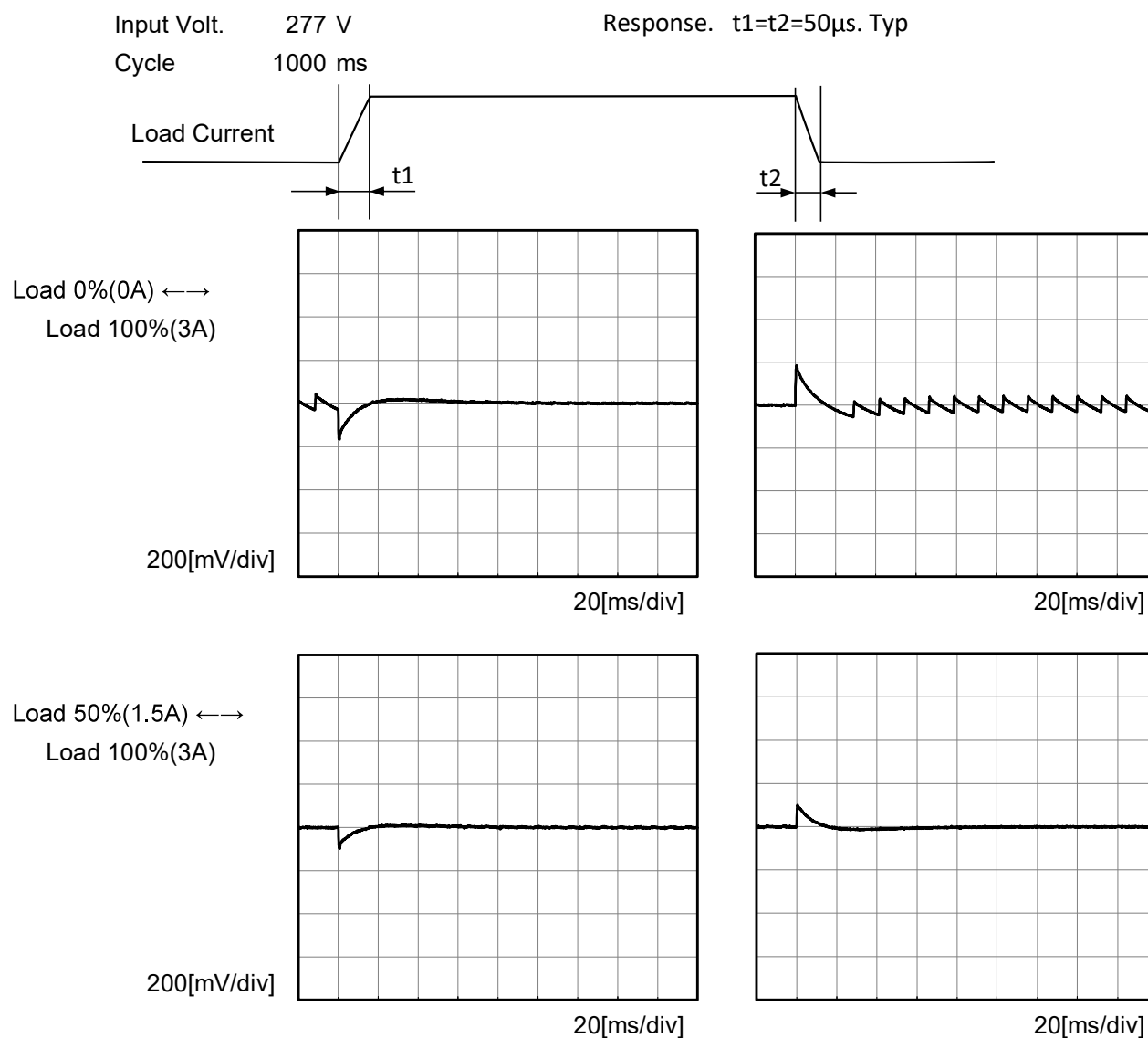
Model		WBA35B-12	Temperature25°C																																																				
Item		Load Regulation	Testing CircuitryFigure A																																																				
Object		+12V3A																																																					
1.Graph		<div><div><div>—△—</div><div>---□---</div><div>---⊖---</div></div><div><div>Input Volt. 170V</div><div>Input Volt. 277V</div><div>Input Volt. 305V</div></div></div> <div>Output Voltage [V]</div> <div>Load Current [A]</div>	2.Values																																																				
			<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Output Voltage [V]</th></tr><tr><th>Input Volt. 170[V]</th><th>Input Volt. 277[V]</th><th>Input Volt. 305[V]</th></tr><tr><td>0.0</td><td>12.174</td><td>12.202</td><td>12.170</td></tr><tr><td>0.6</td><td>12.188</td><td>12.187</td><td>12.181</td></tr><tr><td>1.2</td><td>12.187</td><td>12.186</td><td>12.180</td></tr><tr><td>1.8</td><td>12.187</td><td>12.185</td><td>12.180</td></tr><tr><td>2.4</td><td>12.186</td><td>12.184</td><td>12.180</td></tr><tr><td>3.0</td><td>12.185</td><td>12.183</td><td>12.179</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]	Output Voltage [V]			Input Volt. 170[V]	Input Volt. 277[V]	Input Volt. 305[V]	0.0	12.174	12.202	12.170	0.6	12.188	12.187	12.181	1.2	12.187	12.186	12.180	1.8	12.187	12.185	12.180	2.4	12.186	12.184	12.180	3.0	12.185	12.183	12.179	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--	--
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Item		Ripple-Noise	Temperature25°C																																																				
Object		+12V3A	Testing CircuitryFigure B																																																				
1.Graph		<div><div>Input Voltage277V</div><div>Load100%</div></div> <div>20[mV/div]</div> <div>20[ms/div]</div>																																																					

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Model	WBA35B-12		
Item	Dynamic Load Response	Temperature	25°C
		Testing Circuitry	Figure A
Object	+12V3A		

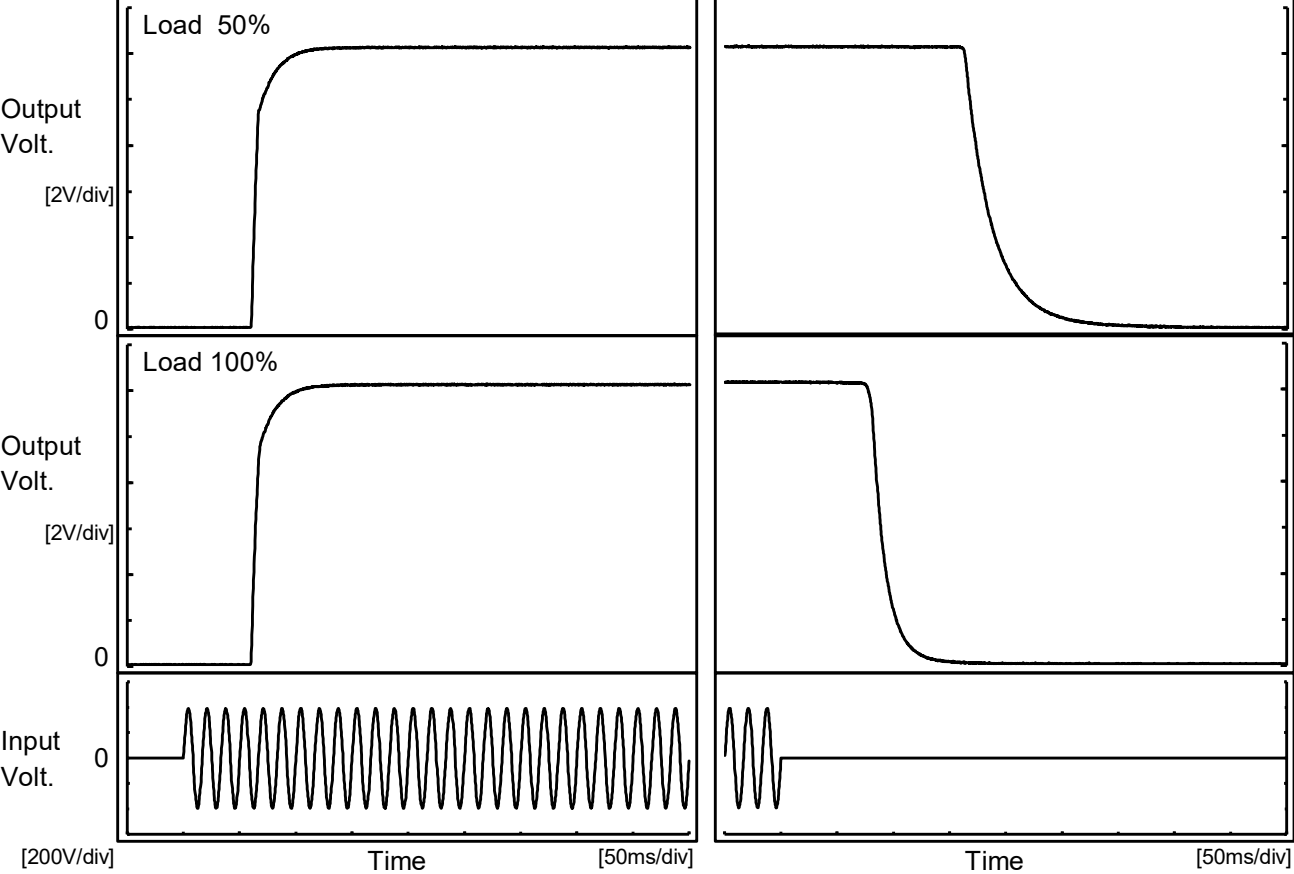




Model	WBA35B-12		
Item	Rise and Fall Time	Temperature	25°C
Object	+12V3A	Testing Circuitry	Figure A

1.Graph

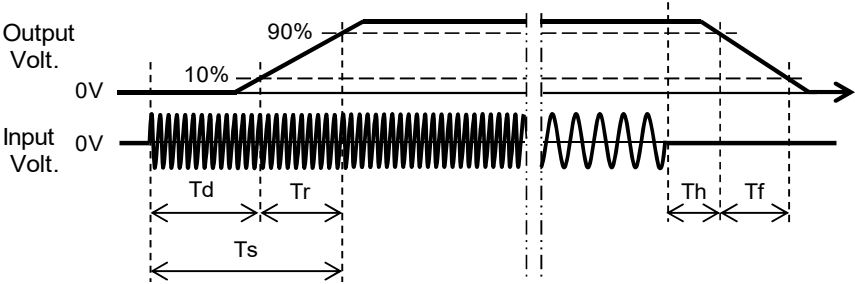
Input Volt. 277 V



2.Values

[ms]

Load \ Time	Td	Tr	Ts	Th	Tf
50 %	61.0	16.8	77.8	165.8	54.8
100 %	60.8	17.0	77.8	81.3	27.0



# COSEL

Model

WBA35B-12

Item

Hold-Up Time

Object

+12V3A

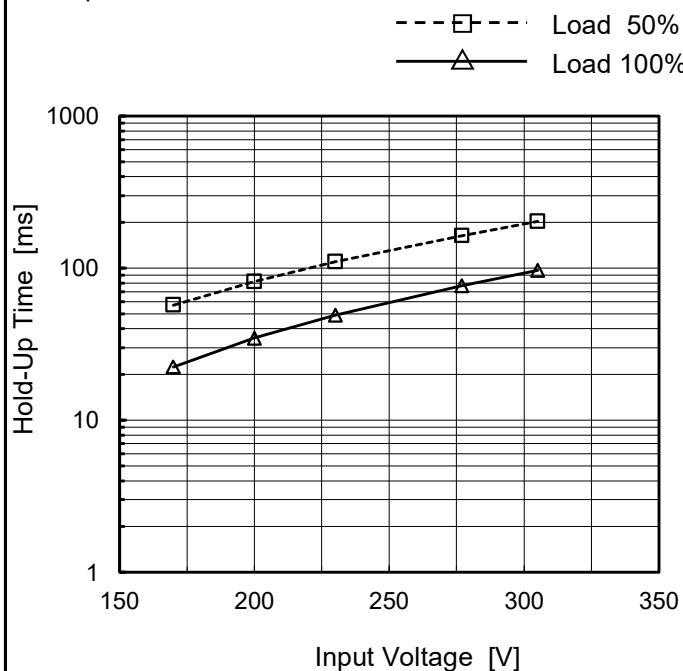
Temperature

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.

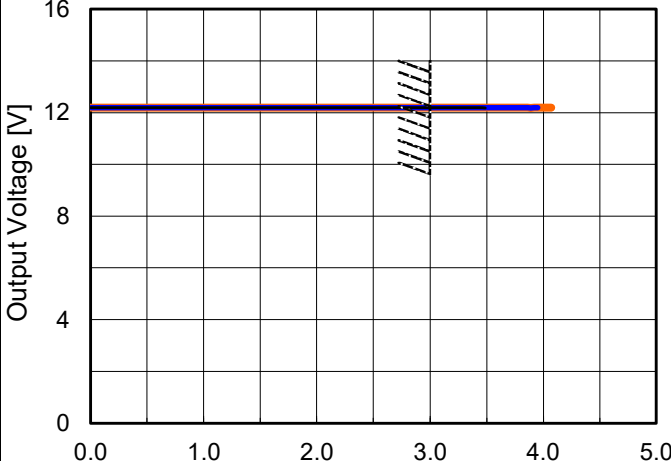
## 2.Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
170	57	22
200	82	35
230	111	49
277	164	77
305	203	97
--	-	-
--	-	-
--	-	-
--	-	-

# COSEL

Model	WBA35B-12																																																					
Item	Instantaneous Interruption Compensation	Temperature	25°C																																																			
Object	+12V3A	Testing Circuitry	Figure A																																																			
1.Graph		2.Values																																																				
<div><div><div>—△—</div><div>Input Volt.</div><div>170V</div></div><div><div>---□---</div><div>Input Volt.</div><div>277V</div></div><div><div>---⊖---</div><div>Input Volt.</div><div>305V</div></div></div> <div>Instantaneous Compensation Time [ms]</div> <div>Load Current [A]</div>		<table><tr><th rowspan="2">Load Current [A]</th><th colspan="3">Time [ms]</th></tr><tr><th>Input Volt. 170[V]</th><th>Input Volt. 277[V]</th><th>Input Volt. 305[V]</th></tr><tr><td>0.0</td><td>-</td><td>-</td><td>-</td></tr><tr><td>0.6</td><td>151</td><td>405</td><td>504</td></tr><tr><td>1.2</td><td>73</td><td>207</td><td>259</td></tr><tr><td>1.8</td><td>47</td><td>138</td><td>173</td></tr><tr><td>2.4</td><td>31</td><td>101</td><td>129</td></tr><tr><td>3.0</td><td>23</td><td>77</td><td>102</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. 170[V]	Input Volt. 277[V]	Input Volt. 305[V]	0.0	-	-	-	0.6	151	405	504	1.2	73	207	259	1.8	47	138	173	2.4	31	101	129	3.0	23	77	102	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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**COSEL**

Model	WBA35B-12																																																																	
Item	Overcurrent Protection	Temperature	25°C																																																															
Object	+12V3A	Testing Circuitry	Figure A																																																															
1.Graph		2.Values																																																																
<div><div><div></div>Input Volt. 170V</div><div><div></div>Input Volt. 277V</div><div><div></div>Input Volt. 305V</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="3">Load Current [A]</th></tr><tr><th>Input Volt. 170[V]</th><th>Input Volt. 277[V]</th><th>Input Volt. 305[V]</th></tr><tr><td>12</td><td>3.49</td><td>3.95</td><td>4.07</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><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><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>		Output Voltage [V]	Load Current [A]			Input Volt. 170[V]	Input Volt. 277[V]	Input Volt. 305[V]	12	3.49	3.95	4.07	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-	--	-	-	-
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Model		WBA35B-12	Testing Circuitry    Figure A	
Item		Ambient Temperature Drift		
Object		+12V3A		
1.Values		Load    100%		
Ambient Temperature[°C]		Output Voltage    [V]		
		Input Volt.    170V	Input Volt.    277V	Input Volt.    305V
-20		12.149	12.148	12.118
25		12.182	12.181	12.140
50		12.190	12.189	12.163

Item		Minimum Input Voltage for Regulated Output Voltage	Testing Circuitry    Figure A
Object		+12V3A	
1.Values			
Ambient Temperature[°C]		Input    Voltage        [V]	
		Load    50%	Load    100%
-20		46	98
25		45	96
50		45	96

Item		Overvoltage Protection	Testing Circuitry    Figure A
Object		+12V3A	
1.Values		Load 0%	
Ambient Temperature[°C]		Operating Point [V]	
		Input Volt.    170V	Input Volt.    305V
-20		14.77	14.75
25		15.01	15.00
50		15.15	15.12

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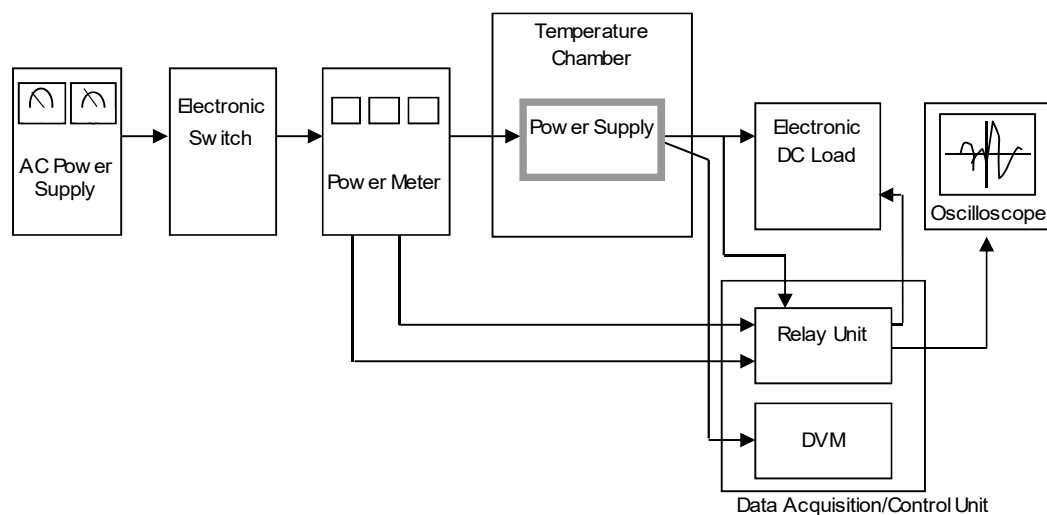


Figure A

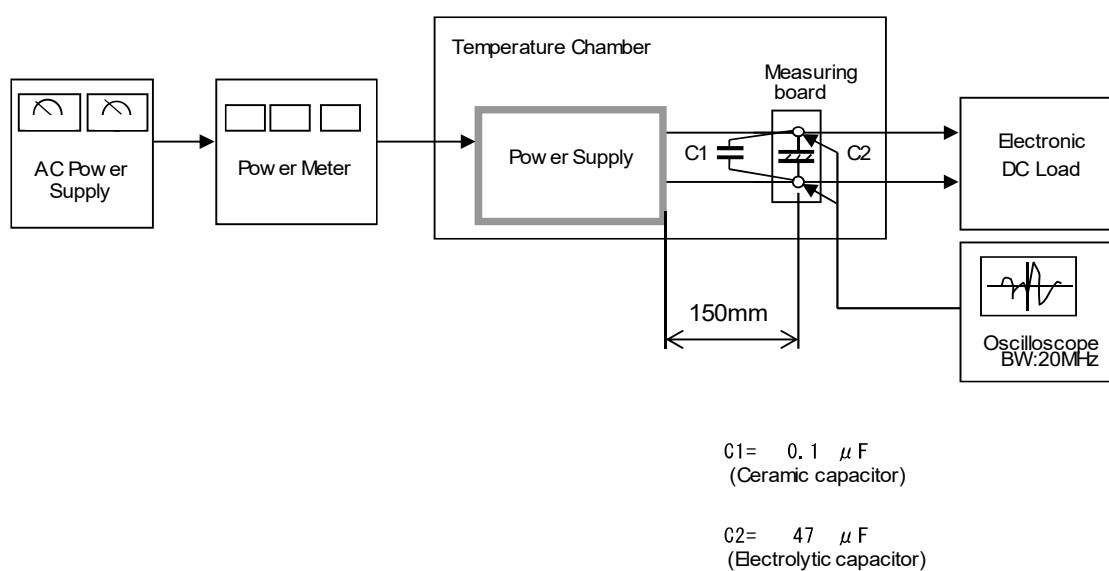


Figure B



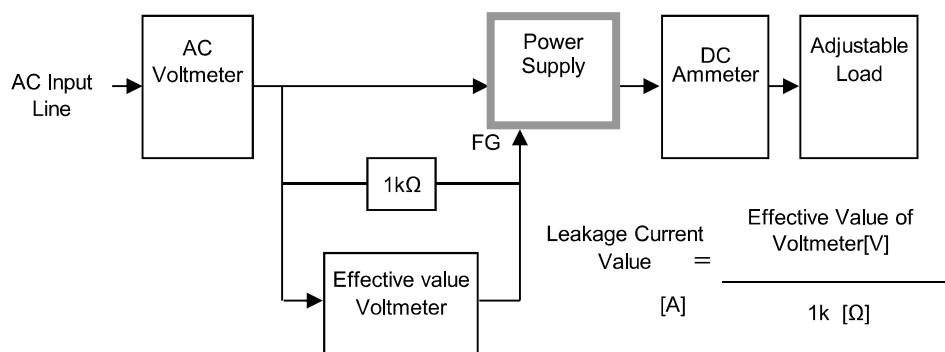


Figure C-1 ( DEN-AN )

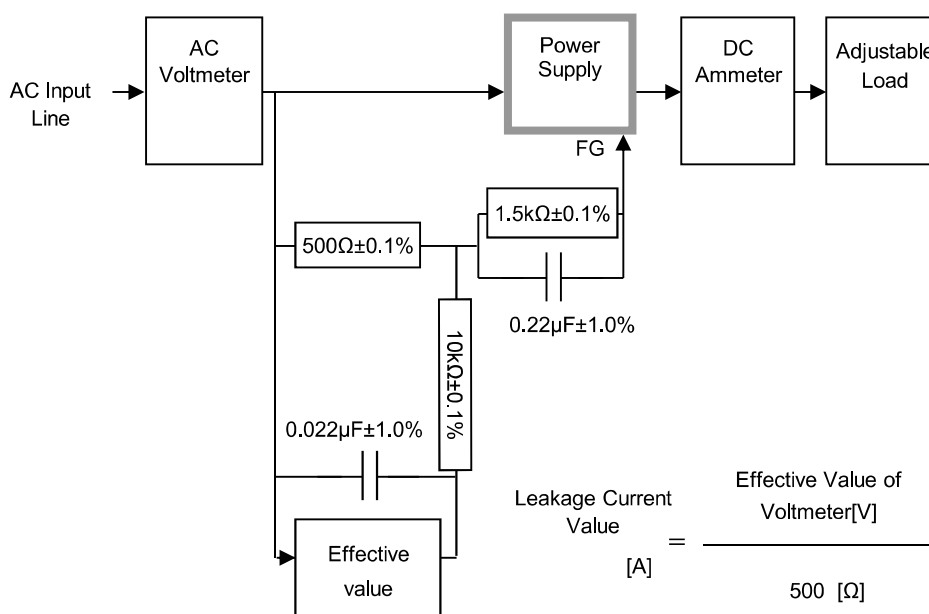


Figure C-2 ( IEC62368-1 refer to IEC60990 Fig.4 )

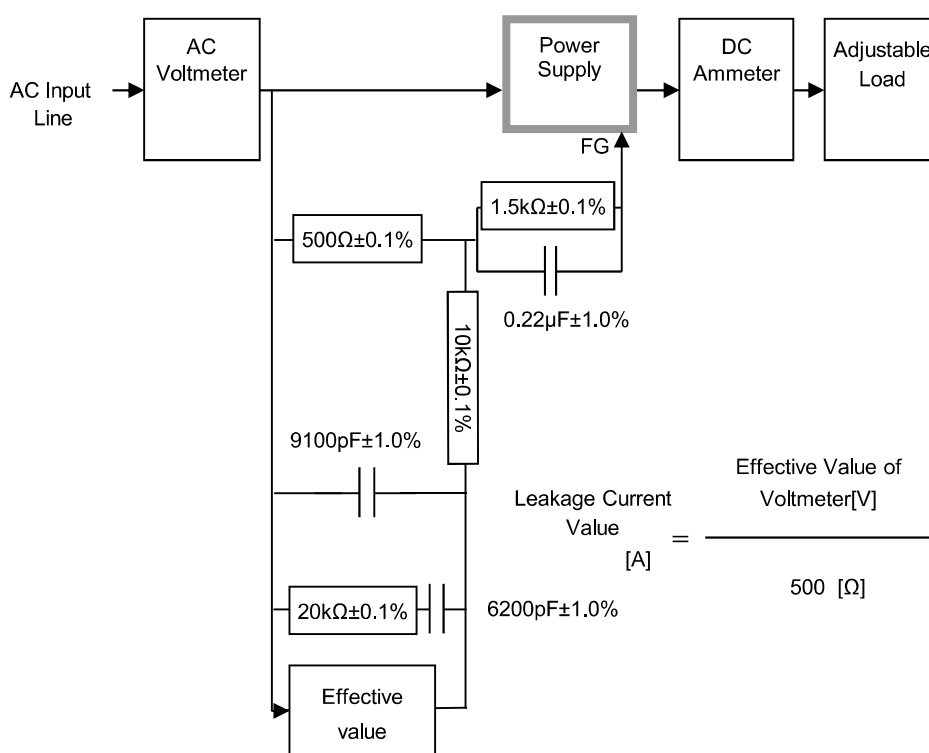


Figure C-3 ( IEC62368-1 refer to IEC60990 Fig.5 )