COSEL

参考資料

TEST DATA OF GHA300F-12

Regulated DC Power Supply
April 19, 2013

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COSEL CO.,LTD.

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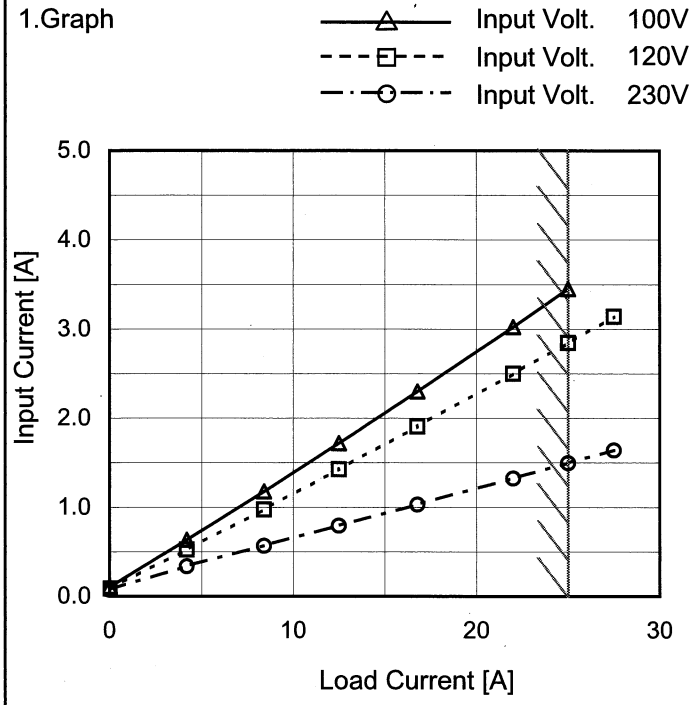

Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Current [A]		
	Input Volt. 100[V]	Input Volt. 120[V]	Input Volt. 230[V]
0.0	0.107	0.088	0.076
4.2	0.634	0.524	0.338
8.4	1.178	0.975	0.567
12.5	1.722	1.427	0.794
16.8	2.303	1.907	1.031
22.0	3.024	2.499	1.324
25.0	3.453	2.846	1.497
27.5	-	3.140	1.642
--	-	-	-
--	-	-	-
--	-	-	-

BC-10746

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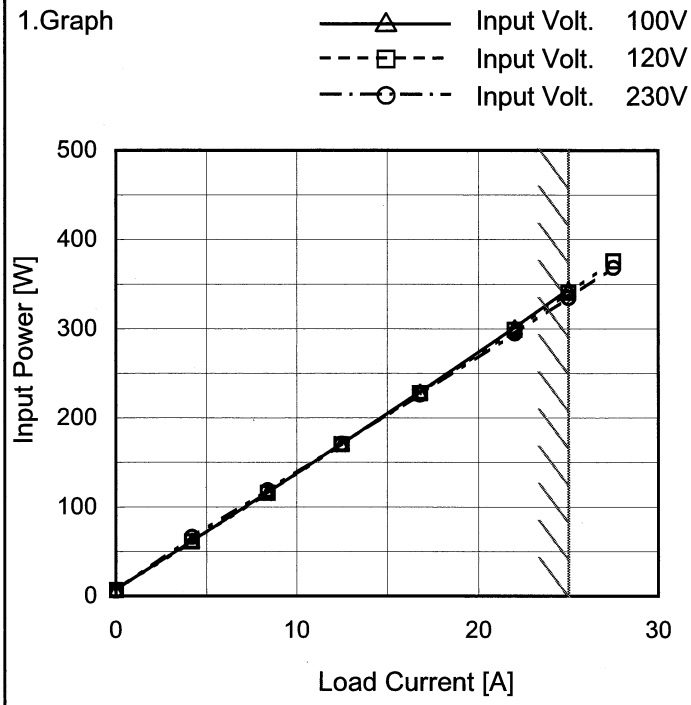
Model	GHA300F-12
Item	Input Power (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Input Power [W]		
	Input Volt. 100[V]	Input Volt. 120[V]	Input Volt. 230[V]
0.0	7.5	6.5	6.1
4.2	62.1	60.9	66.6
8.4	116.9	115.7	118.8
12.5	171.4	170.3	170.9
16.8	229.5	227.6	226.4
22.0	301.8	298.8	294.9
25.0	344.6	340.6	334.9
27.5	-	375.7	368.5
--	-	-	-
--	-	-	-
--	-	-	-

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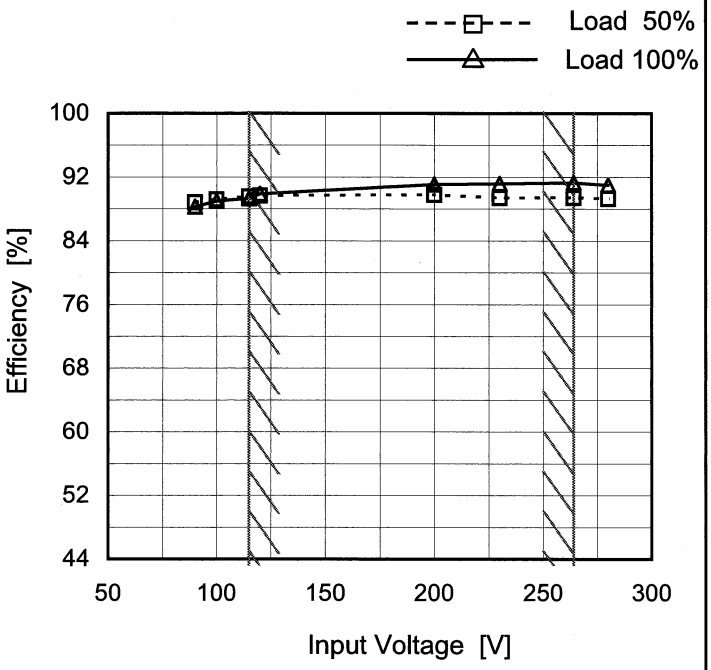
Model	GHA300F-12
Item	Efficiency (by Input Voltage)
Object	――――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Efficiency [%]	
	Load 50%	Load 100%
90	88.8	88.3 ※1
100	89.2	89.0 ※2
115	89.6	89.3
120	89.7	89.9
200	89.8	91.1
230	89.4	91.2
264	89.4	91.3
280	89.3	91.0
--	-	-

※1:Load 80%
※2:Load 88%

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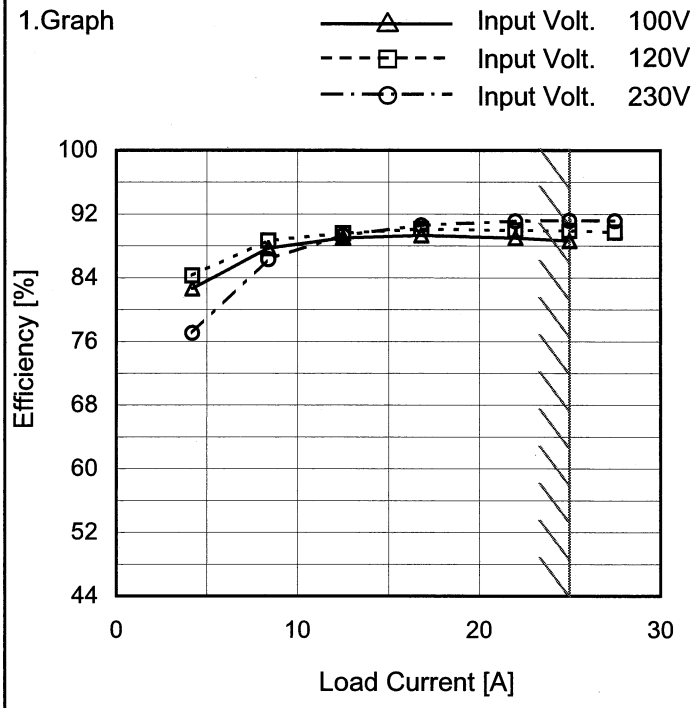
Model	GHA300F-12
Item	Efficiency (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Efficiency [%]		
	Input Volt. 100[V]	Input Volt. 120[V]	Input Volt. 230[V]
0.0	-	-	-
4.2	82.7	84.3	77.1
8.4	87.7	88.6	86.3
12.5	89.0	89.6	89.3
16.8	89.3	90.1	90.6
22.0	89.0	89.9	91.1
25.0	88.6	89.9	91.2
27.5	-	89.7	91.2
--	-	-	-
--	-	-	-
--	-	-	-

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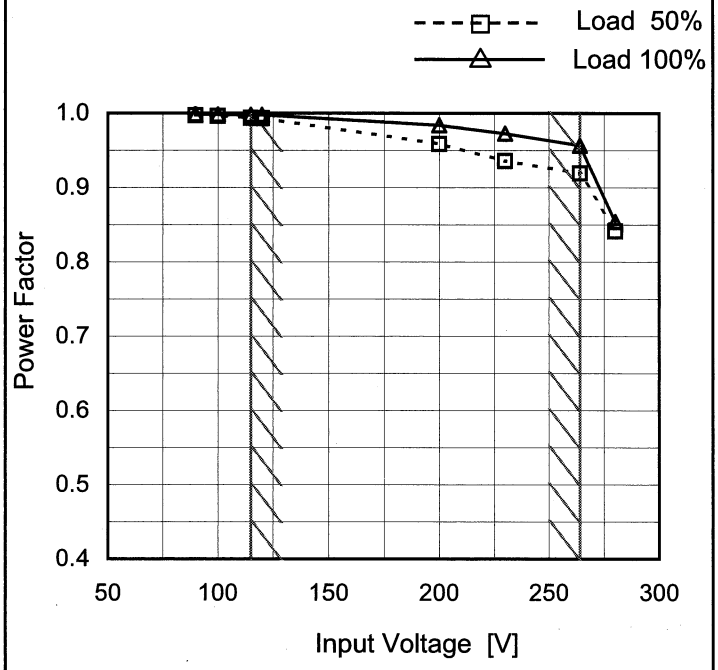
Model	GHA300F-12
Item	Power Factor (by Input Voltage)
Object	――――――――

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Power Factor	
	Load 50%	Load 100%
90	0.997	0.999 ※1
100	0.996	0.998 ※2
115	0.994	0.998
120	0.993	0.998
200	0.959	0.984
230	0.936	0.973
264	0.919	0.957
280	0.841	0.854
--	-	-

※1:Load 80%
※2:Load 88%

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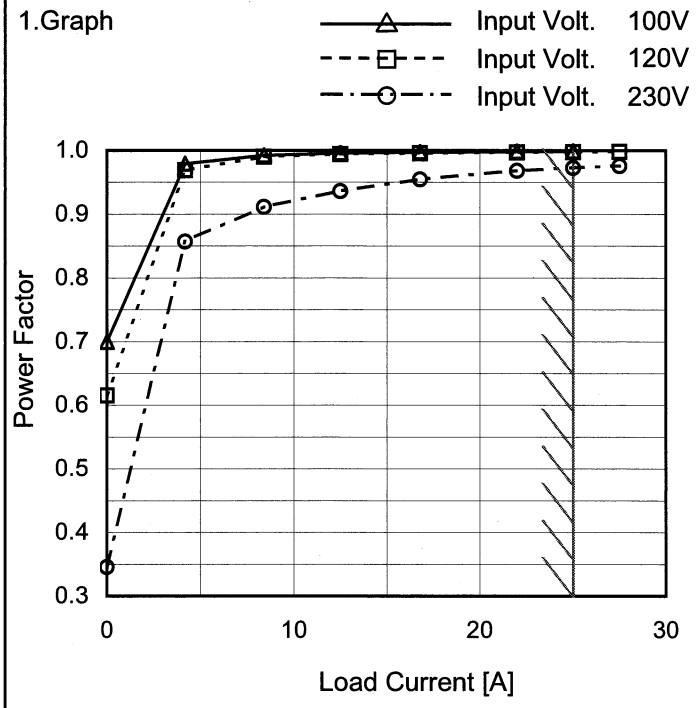
Model	GHA300F-12
Item	Power Factor (by Load Current)
Object	————————

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Power Factor		
	Input Volt. 100[V]	Input Volt. 120[V]	Input Volt. 230[V]
0.0	0.700	0.615	0.346
4.2	0.979	0.969	0.857
8.4	0.992	0.990	0.912
12.5	0.996	0.994	0.936
16.8	0.997	0.996	0.955
22.0	0.998	0.997	0.968
25.0	0.999	0.998	0.973
27.5	-	0.998	0.976
--	-	-	-
--	-	-	-
--	-	-	-

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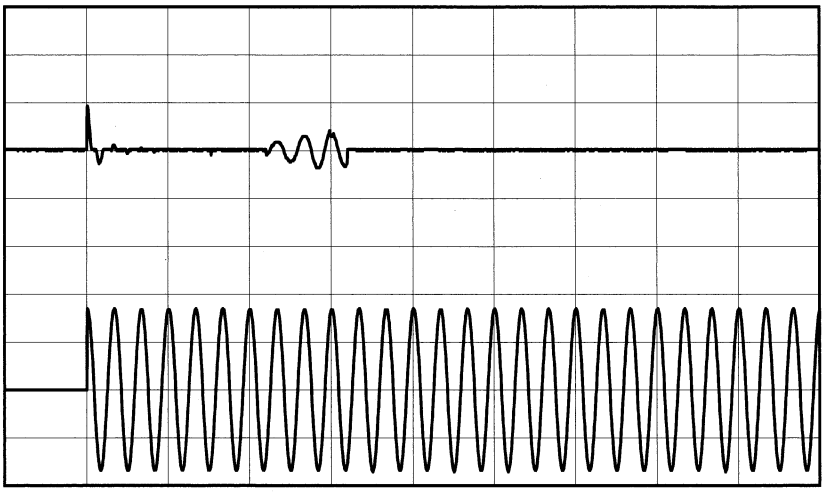
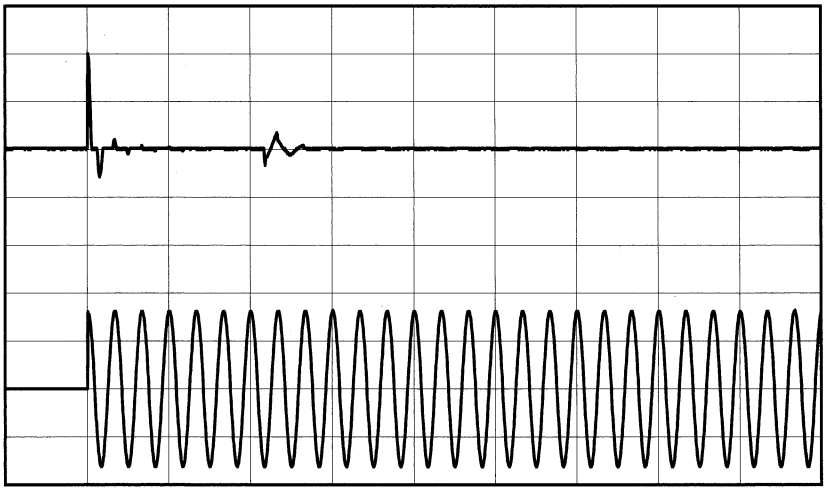
Model	GHA300F-12	
Item	Inrush Current	Temperature 25°C Testing Circuitry Figure A
Object	————————	



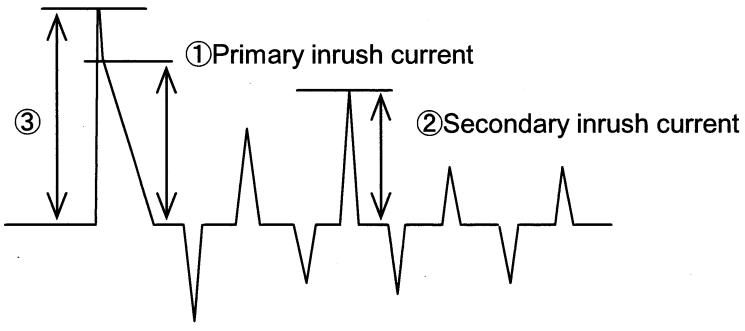
Input Voltage 120 V
Frequency 60 Hz
Load 100 %

①Primary inrush current :
17.4 A
②Secondary inrush current :
8.2 A
③Surge current ※1:
18.6 A



Input Voltage 230 V
Frequency 60 Hz
Load 100 %

①Primary inrush current :
38.4 A
②Secondary inrush current :
7.0 A
③Surge current ※1:
40.2 A



※1 The specification of the primary inrush current means that the surge current to a built-in noise filter (0.2msec or less : waveform ③) is excluded.

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Model	GHA300F-12	
Item	Leakage Current	Temperature 25°C Testing Circuitry Figure B
Object	――――――――――	

1.Results

[mA]

Standards		Input Volt.			Note
		100 [V]	120 [V]	240 [V]	
IEC60601	Both phases	0.08	0.09	0.17	Operation
	One of phases	0.14	0.15	0.31	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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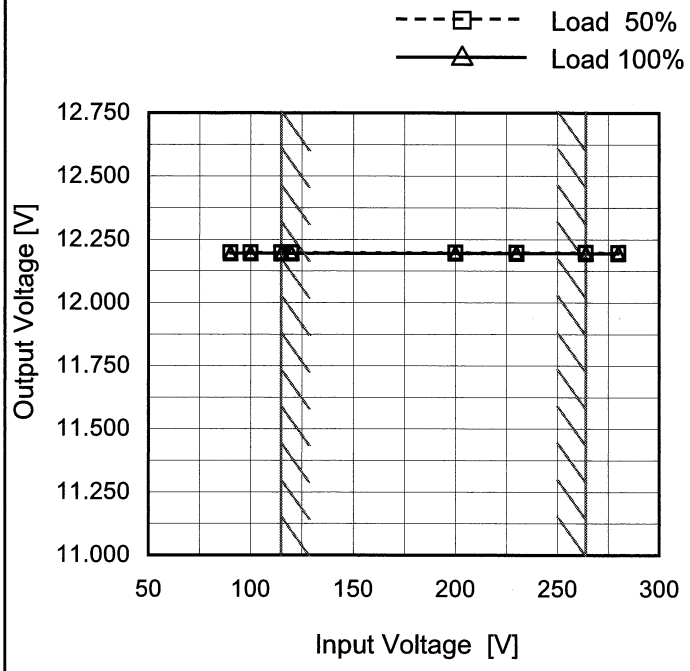
Model	GHA300F-12
Item	Line Regulation
Object	+12V25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Output Voltage [V]	
	Load 50%	Load 100%
90	12.197	12.196 ※1
100	12.197	12.196 ※2
115	12.197	12.195
120	12.197	12.195
200	12.197	12.195
230	12.197	12.195
264	12.197	12.195
280	12.197	12.196
--	-	-

※1:Load 80%
※2:Load 88%

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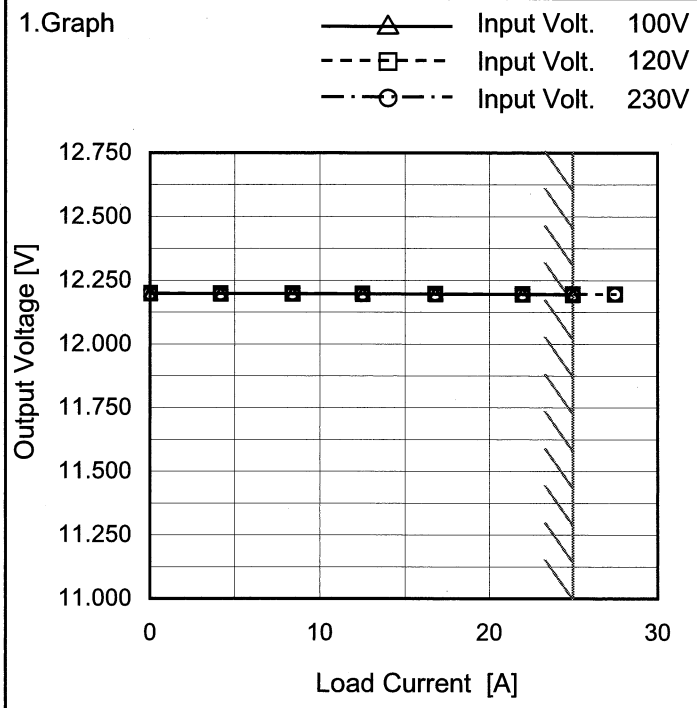
Model	GHA300F-12
Item	Load Regulation
Object	+12V25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

Load Current [A]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 120[V]	Input Volt. 230[V]
0.0	12.200	12.200	12.200
4.2	12.198	12.199	12.199
8.4	12.198	12.198	12.198
12.5	12.197	12.197	12.197
16.8	12.196	12.197	12.196
22.0	12.196	12.196	12.196
25.0	12.195	12.195	12.196
27.5	-	12.195	12.195
--	-	-	-
--	-	-	-
--	-	-	-

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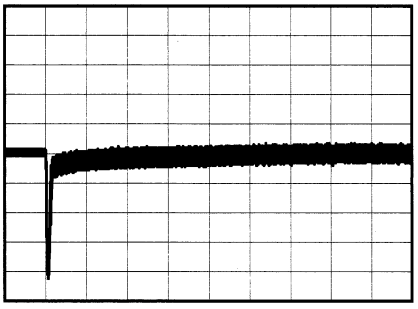
Model	GHA300F-12		
Item	Dynamic Load Response	Temperature Testing Circuitry	25℃ Figure A
Object	+12V 25A		

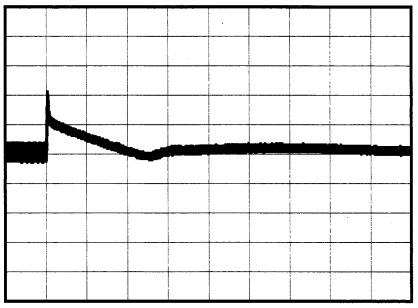
Input Volt. 120V
Cycle 1000ms

Load Current

25A / 50us

Min.Load (0A)⟷
Load 100%(25A)



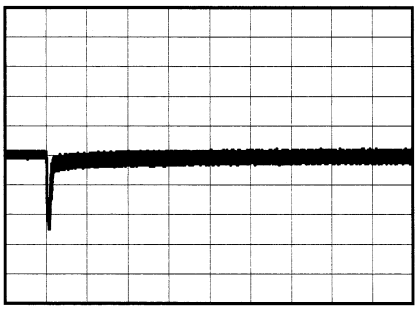


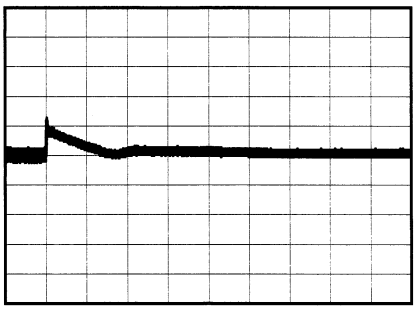
200 mV/div

1 ms/div

1 ms/div

Min.Load (0A)⟷
Load 50%(12.5A)



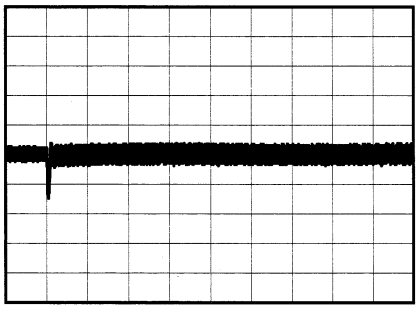


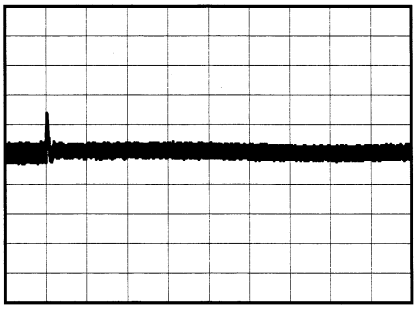
200 mV/div

1 ms/div

1 ms/div

Load 50% (12.5A)⟷
Load 100% (25A)





200 mV/div

1 ms/div

1 ms/div

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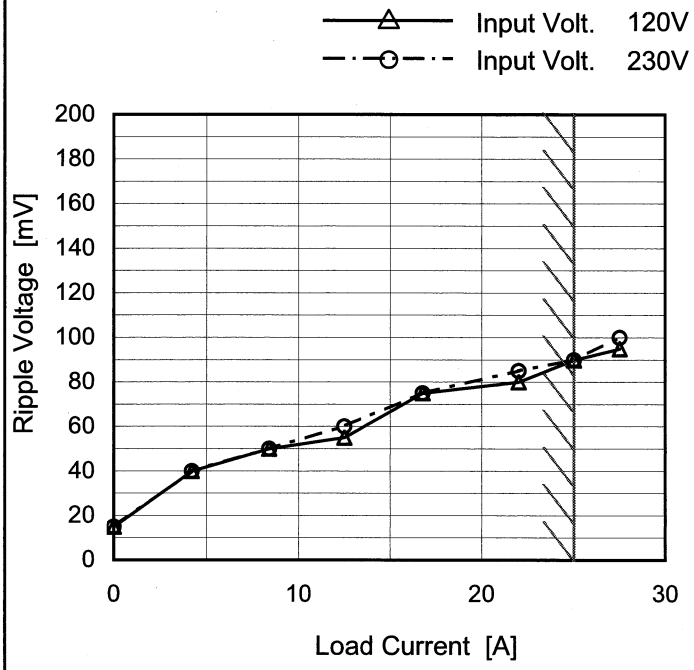
Model	GHA300F-12
Item	Ripple Voltage (by Load Current)
Object	+12V25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.
Ripple Voltage is shown as p-p in the figure below.
Note: Slanted line shows the range of the rated load current.

Ripple [mVp-p]

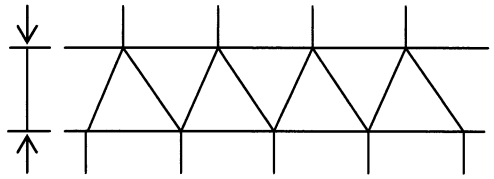


Fig.Complex Ripple Wave Form

2.Values

Load Current [A]	Ripple Voltage [mV]	
	Input Volt. 120 [V]	Input Volt. 230 [V]
0.0	15	15
4.2	40	40
8.4	50	50
12.5	55	60
16.8	75	75
22.0	80	85
25.0	90	90
27.5	95	100
--	-	-
--	-	-
--	-	-

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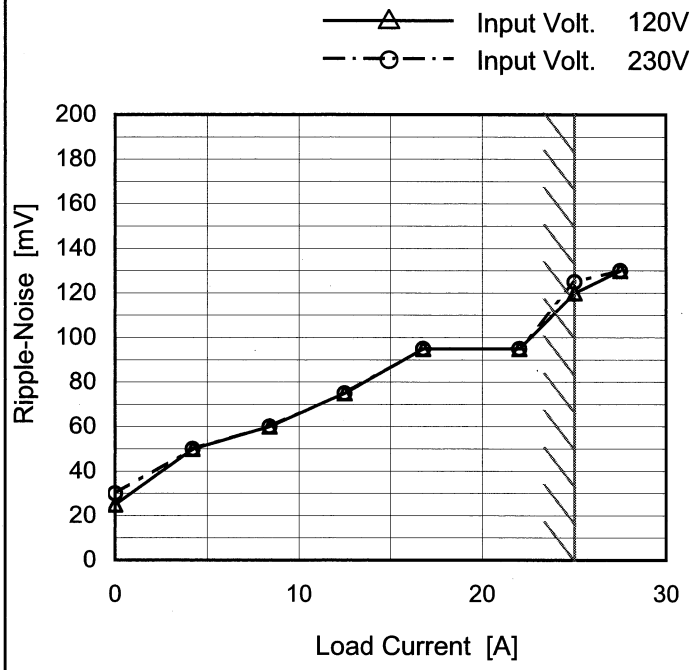
Model	GHA300F-12
Item	Ripple-Noise
Object	+12V25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



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.

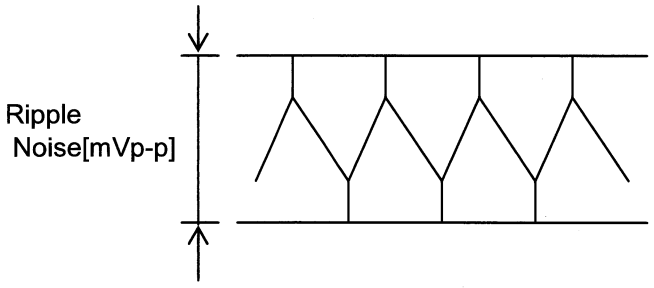


Fig.Complex Ripple Noise Wave Form

2.Values

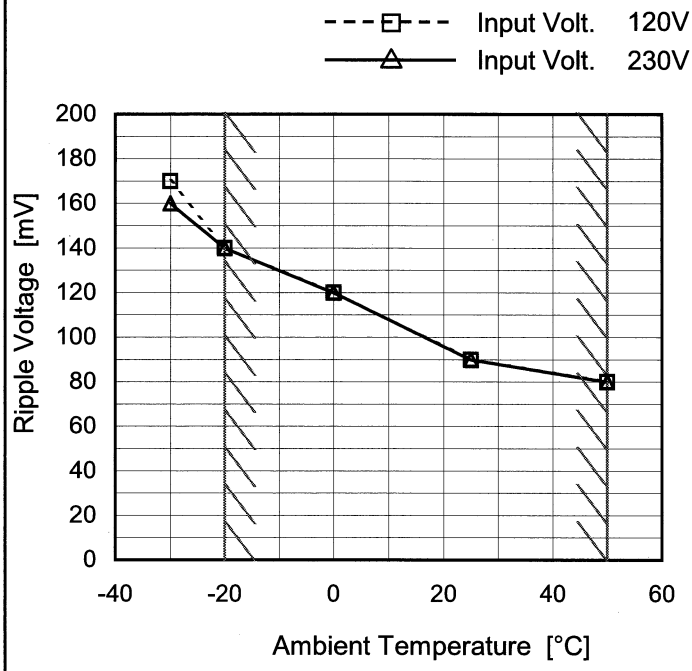
Load Current [A]	Ripple-Noise [mV]	
	Input Volt. 120 [V]	Input Volt. 230 [V]
0.0	25	30
4.2	50	50
8.4	60	60
12.5	75	75
16.8	95	95
22.0	95	95
25.0	120	125
27.5	130	130
--	-	-
--	-	-
--	-	-

COSEL

Model	GHA300F-12
Item	Ripple Voltage (by Ambient Temp.)
Object	+12V25A

Testing Circuitry Figure A

1.Graph



Measured by 20 MHz Oscilloscope.

Note: Slanted line shows the range of the rated ambient temperature.

2.Values

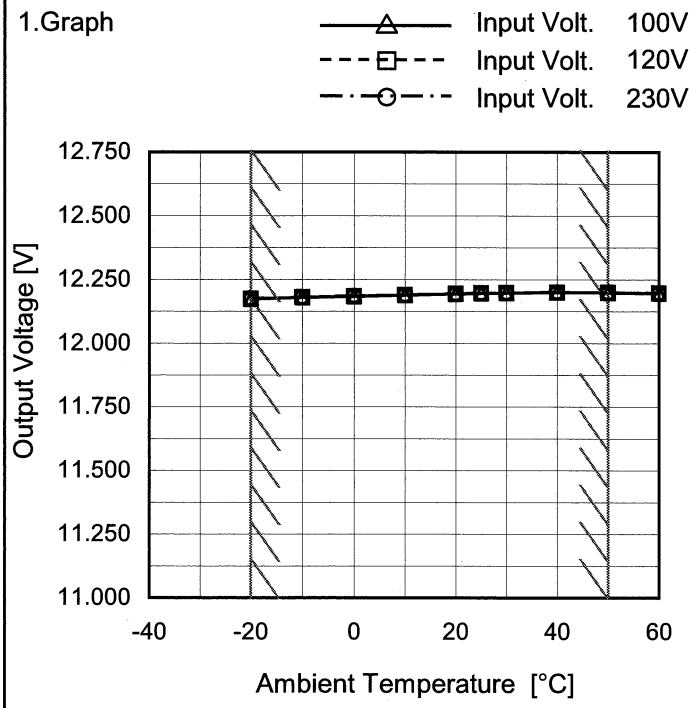
Ambient Temperature [°C]	Ripple Voltage [mV]	
	Input Volt. 120 [V]	Input Volt. 230 [V]
-30	170	160
-20	140	140
0	120	120
25	90	90
50	80	80
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GHA300F-12
Item	Ambient Temperature Drift
Object	+12V25A

Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Output Voltage [V]		
	Input Volt. 100[V]	Input Volt. 120[V]	Input Volt. 230[V]
-20	12.174	12.175	12.175
-10	12.180	12.180	12.180
0	12.185	12.185	12.185
10	12.189	12.190	12.190
20	12.194	12.195	12.195
25	12.196	12.197	12.197
30	12.198	12.198	12.198
40	12.200	12.200	12.200
50	12.199	12.199	12.199
60	12.197	12.197	12.197
--	-	-	-

Note: In case of Input Volt. 100V, Load 88%.
Other case Load 100%.

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Model	GHA300F-12	
Item	Output Voltage Accuracy	Testing Circuitry Figure A
Object	+12V25A	

1.Output Voltage Accuracy

This is defined as the value of the output voltage, regulation load, ambient temperature and input voltage varied at random in the range as specified below.

Temperature : -20 - 50°C
Input Voltage : 115 - 264V
Load Current : 0 - 25A

* Output Voltage Accuracy = ±(Maximum of Output Voltage - Minimum of Output Voltage) / 2

$$\text{* Output Voltage Accuracy (Ration)} = \frac{\text{Output Voltage Accuracy}}{\text{Rated Output Voltage}} \times 100$$

2.Values

Item	Temperature [°C]	Input Voltage[V]	Output		Output Voltage Accuracy	
			Current[A]	Voltage[V]	Value [mV]	Ration [%]
Maximum Voltage	40	120	0	12.205	±16	±0.1
Minimum Voltage	-20	115	25	12.174		

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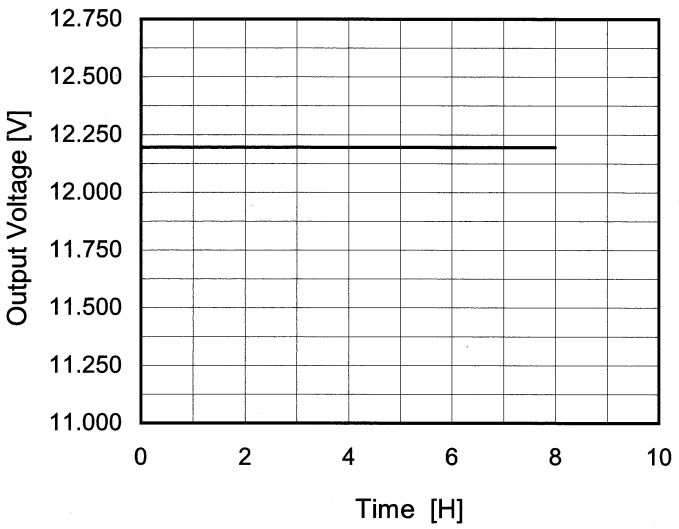
Model	GHA300F-12
Item	Time Lapse Drift
Object	+12V25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Input Volt. 230V
Load 100%

* The characteristic of AC120V is equal.

2.Values

Time since start [H]	Output Voltage [V]
0.0	12.195
0.5	12.195
1.0	12.195
2.0	12.195
3.0	12.196
4.0	12.196
5.0	12.196
6.0	12.196
7.0	12.196
8.0	12.195

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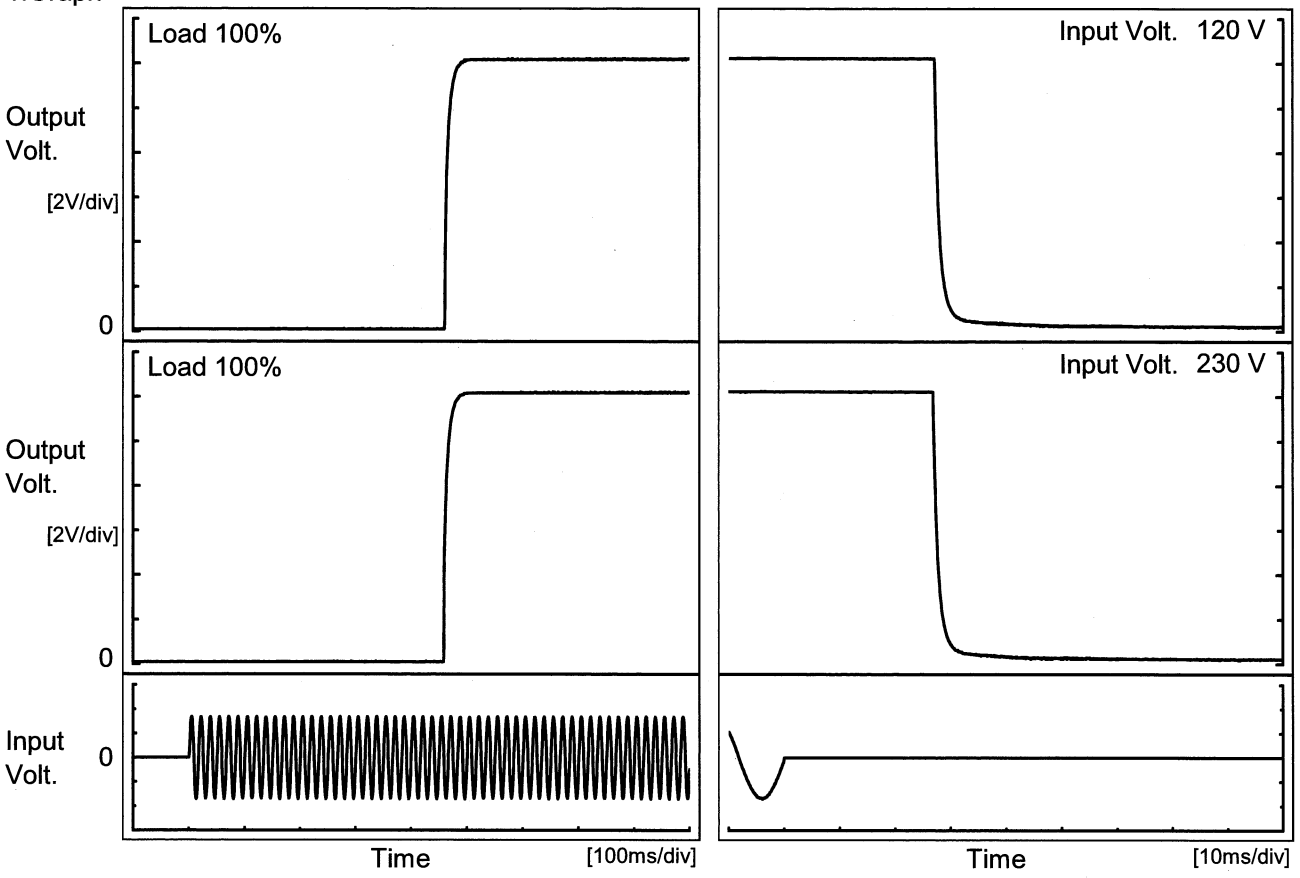
Model	GHA300F-12	
Item	Rise and Fall Time	Temperature 25°C Testing Circuitry Figure A
Object	+12V25A	

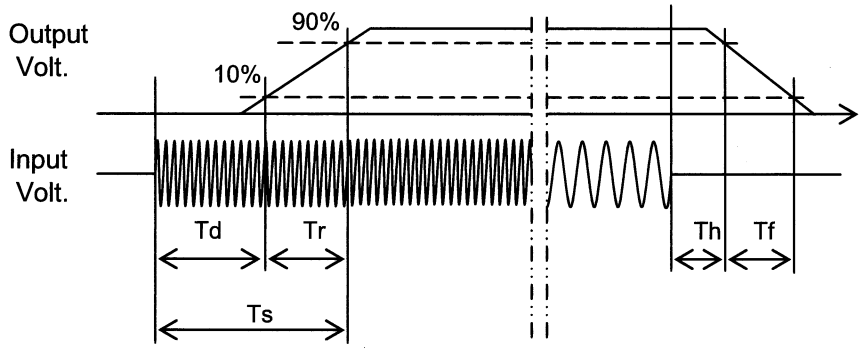
1.Graph



2.Values

[ms]

Input Volt. \ Time	Td	Tr	Ts	Th	Tf
120 V	461.5	12.5	474.0	27.1	2.4
230 V	459.5	13.0	472.5	26.9	2.4



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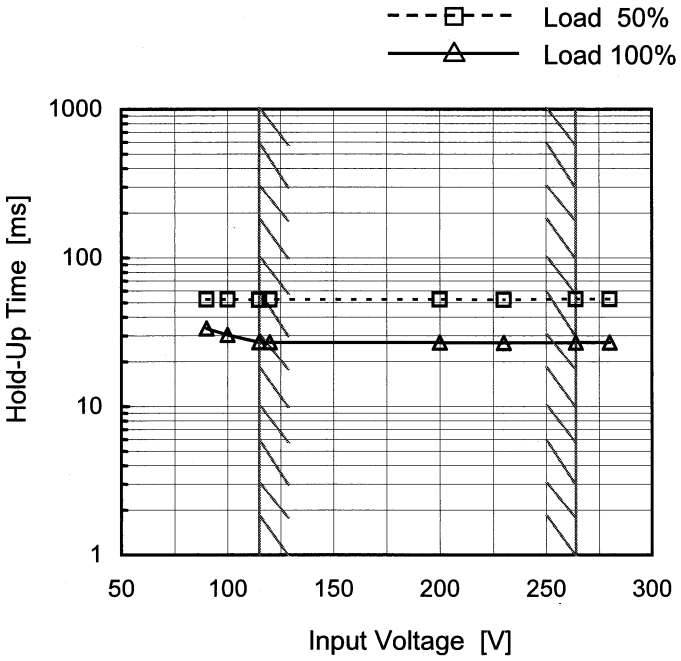
Model	GHA300F-12
Item	Hold-Up Time
Object	+12V25A

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.
Note: Slanted line shows the range of the rated input voltage.

2.Values

Input Voltage [V]	Hold-Up Time [ms]	
	Load 50%	Load 100%
90	52	34 ※1
100	52	30 ※2
115	52	27
120	52	27
200	52	27
230	52	27
264	53	27
280	53	27
--	-	-

※1:Load 80%
※2:Load 88%

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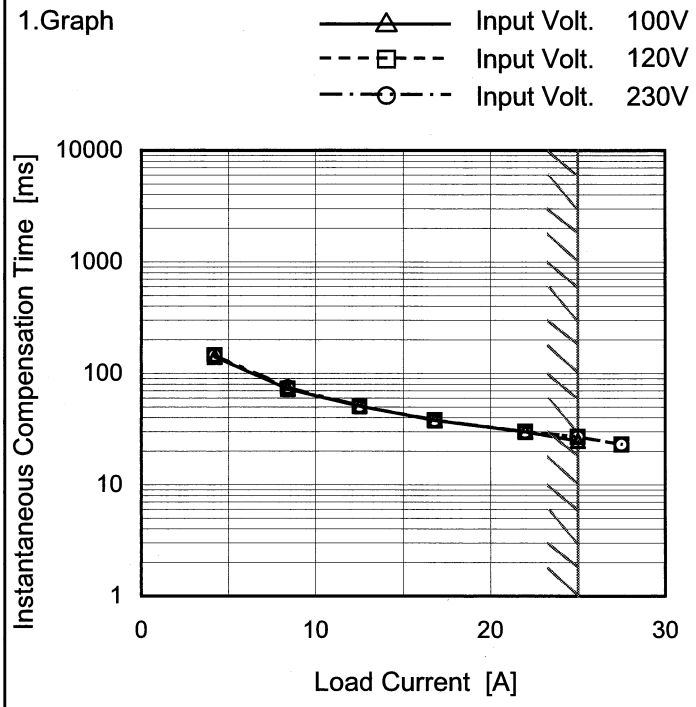
Model	GHA300F-12
Item	Instantaneous Interruption Compensation
Object	+12V25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

2.Values

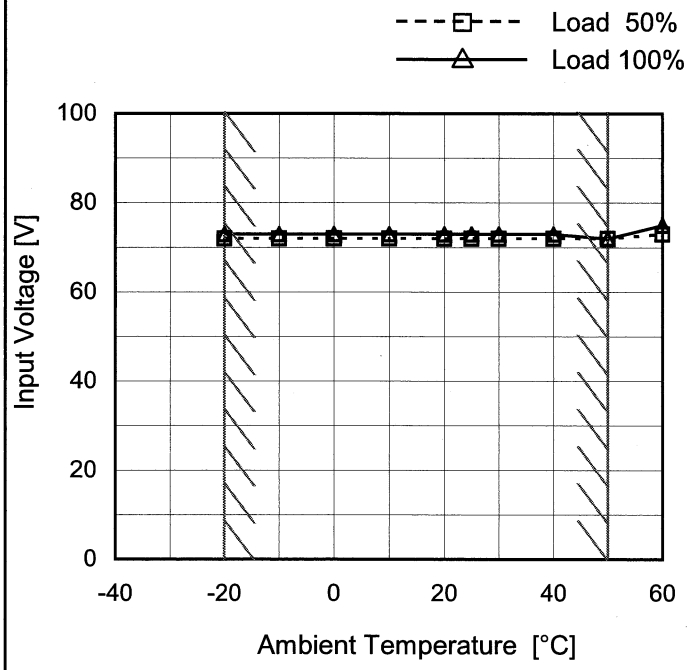
Load Current [A]	Time [ms] Input Volt. 100[V]	Input Volt. 120[V]	Input Volt. 230[V]
0.0	-	-	-
4.2	141	145	146
8.4	73	73	75
12.5	51	51	51
16.8	38	38	38
22.0	30	30	30
25.0	25	27	27
27.5	-	23	23
--	-	-	-
--	-	-	-
--	-	-	-

COSEL

Model	GHA300F-12
Item	Minimum Input Voltage for Regulated Output Voltage
Object	+12V25A

Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated ambient temperature.

2.Values

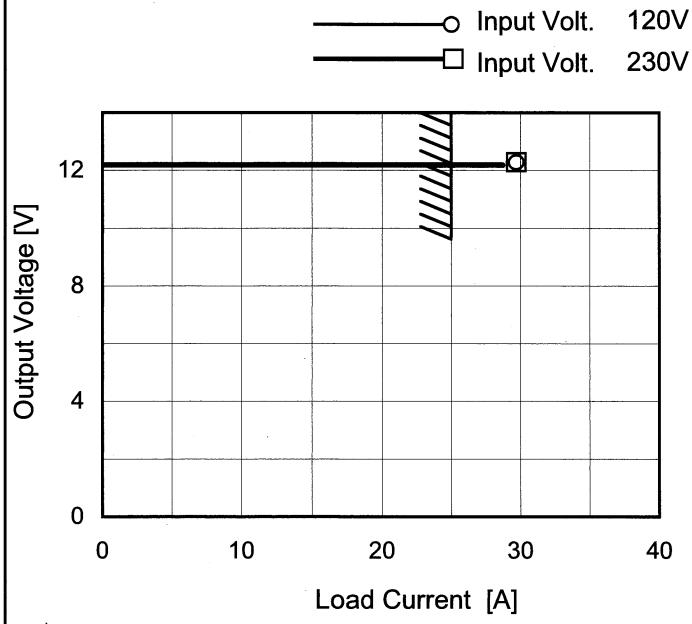
Ambient Temperature [°C]	Input Voltage [V]	
	Load 50%	Load 100%
-20	72	73
-10	72	73
0	72	73
10	72	73
20	72	73
25	72	73
30	72	73
40	72	73
50	72	72
60	73	75
--	-	-

COSEL

Model	GHA300F-12
Item	Overcurrent Protection
Object	+12V25A

Temperature 25°C
Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated load current.

Intermittent operation occurs when overcurrent protection is activated.

2.Values

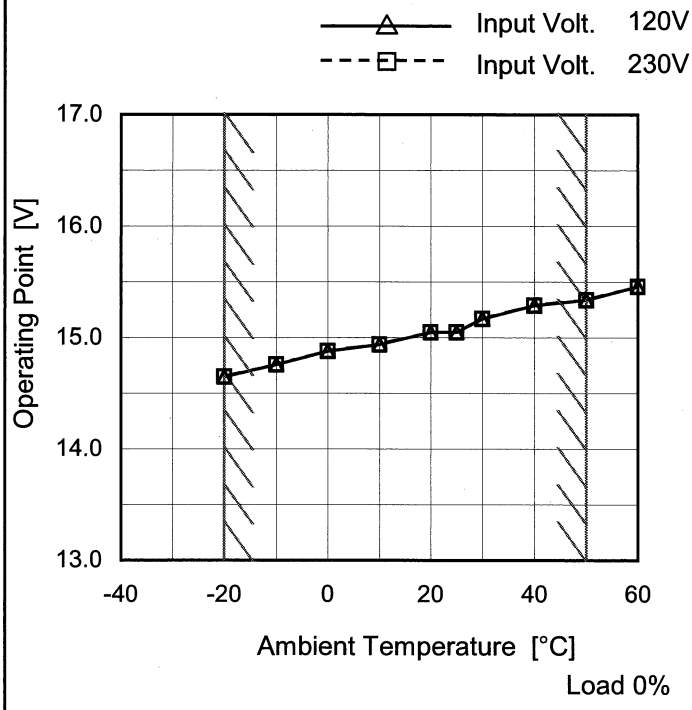
Output Voltage [V]	Load Current [A]	
	Input Volt. 120[V]	Input Volt. 230[V]
12	28.75	28.73
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-
--	-	-

COSEL

Model	GHA300F-12
Item	Overvoltage Protection
Object	+12V25A

Testing Circuitry Figure A

1.Graph



Note: Slanted line shows the range of the rated ambient temperature.

2.Values

Ambient Temperature [°C]	Operating Point [V]	
	Input Volt. 120[V]	Input Volt. 230[V]
-20	14.65	14.65
-10	14.76	14.76
0	14.88	14.88
10	14.94	14.94
20	15.05	15.05
25	15.05	15.05
30	15.17	15.17
40	15.29	15.29
50	15.34	15.34
60	15.46	15.46
--	-	-

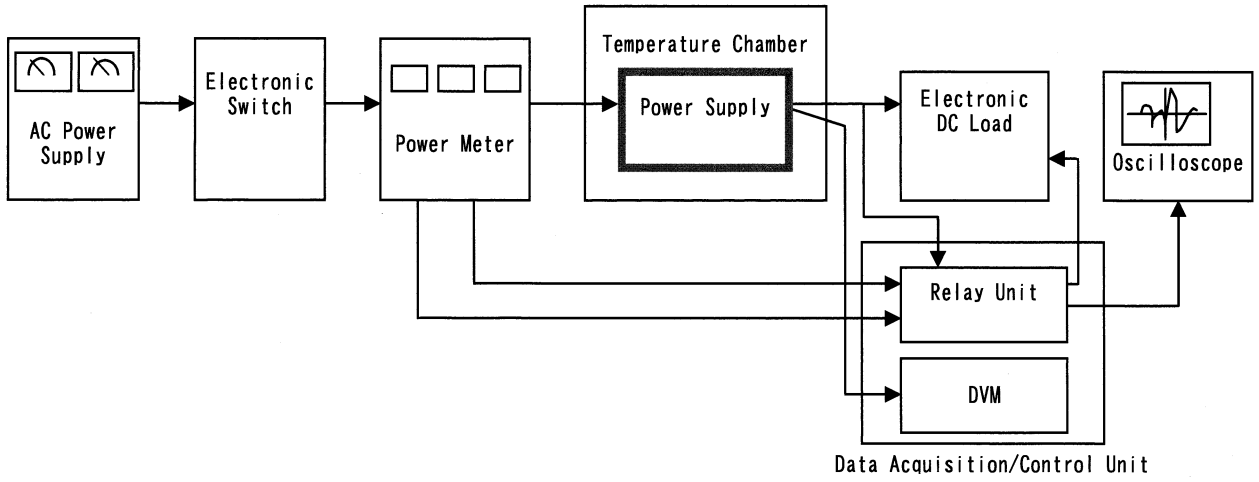


Figure A

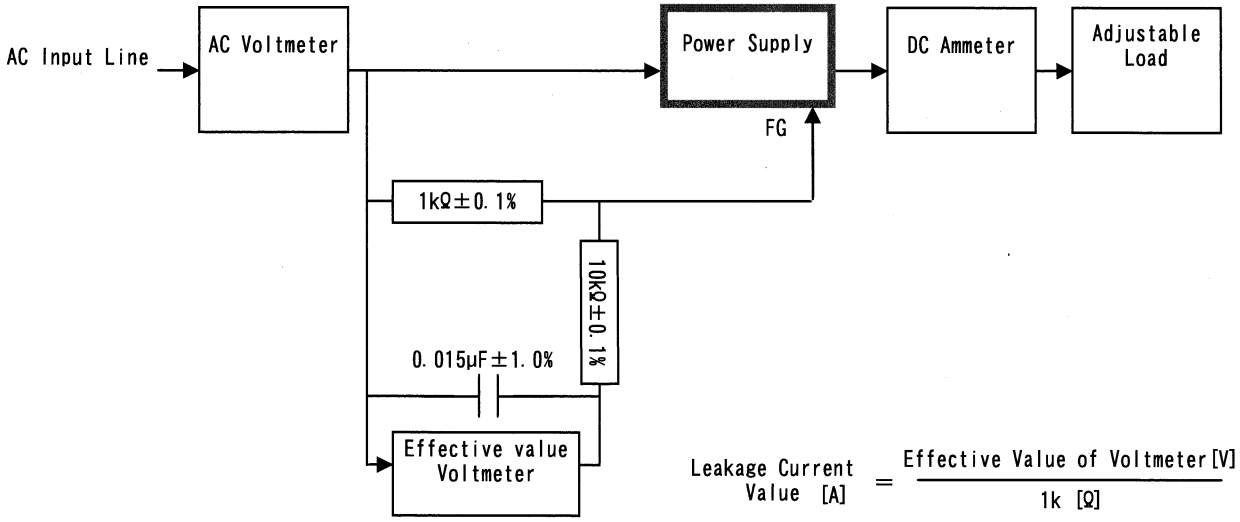


Figure B (IEC60601-1)