Nipron

Date of issue: Jul. 22, 2016

Test Data

Model Number: UZP-220-12

Model Name: DC POWER SUPPLY

INPUT: 85V – 264V AC, 50 / 60 Hz

OUTPUT: 12V 15A (33.4 A_{peak})

Minimum load : 0W
Rated load :180W
Peak output power: 400.8W

Approved by : T Itsubouchi (QA manager)

Designed by : Kazuhiro Yamada (R&D engineer)

Tested by : Hiroyuki Watanabe (Evaluation test engineer)

Nipron Co., Ltd.

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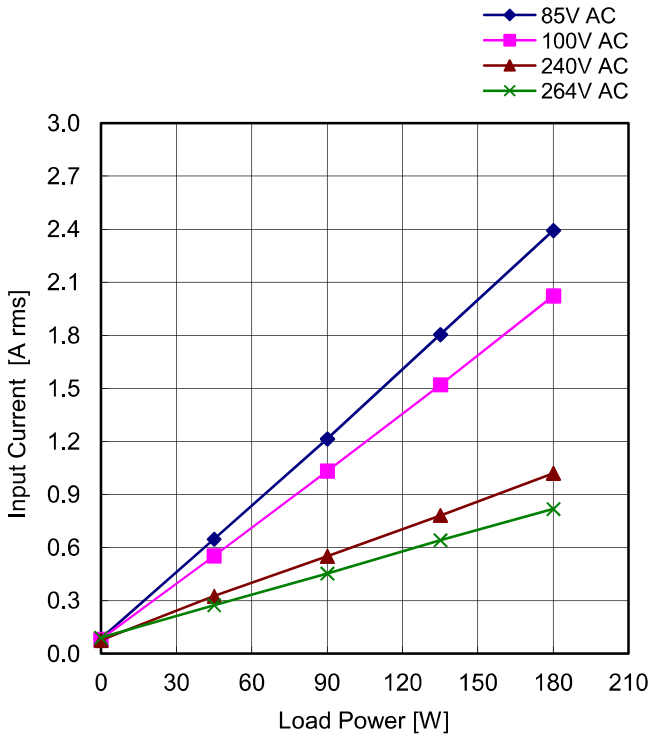
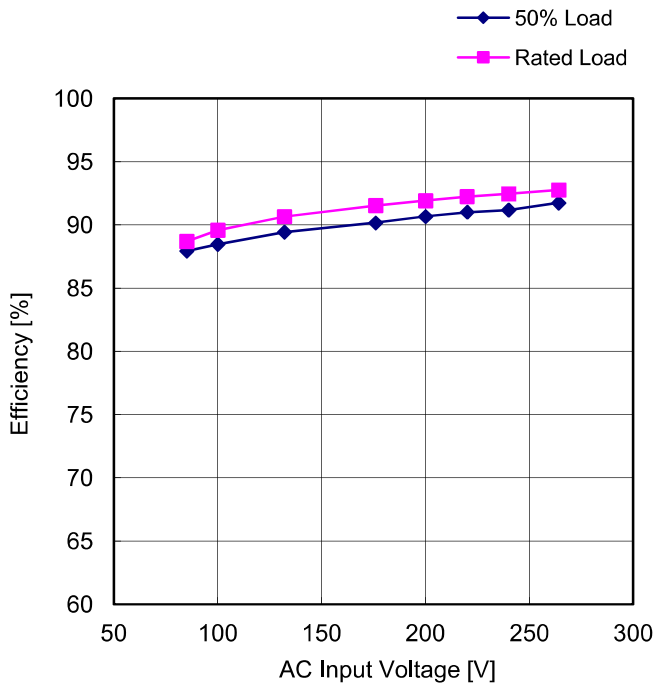
Model	UZP-220-12	Temperature: 25℃
Item	Input Current（by Load Power）	



Load Power [W]	Input Current [A rms]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
0.0	0.09	0.08	0.08	0.09
45.0	0.65	0.55	0.33	0.28
90.0	1.21	1.03	0.55	0.45
135.0	1.80	1.52	0.78	0.64
180.0	2.39	2.02	1.02	0.82

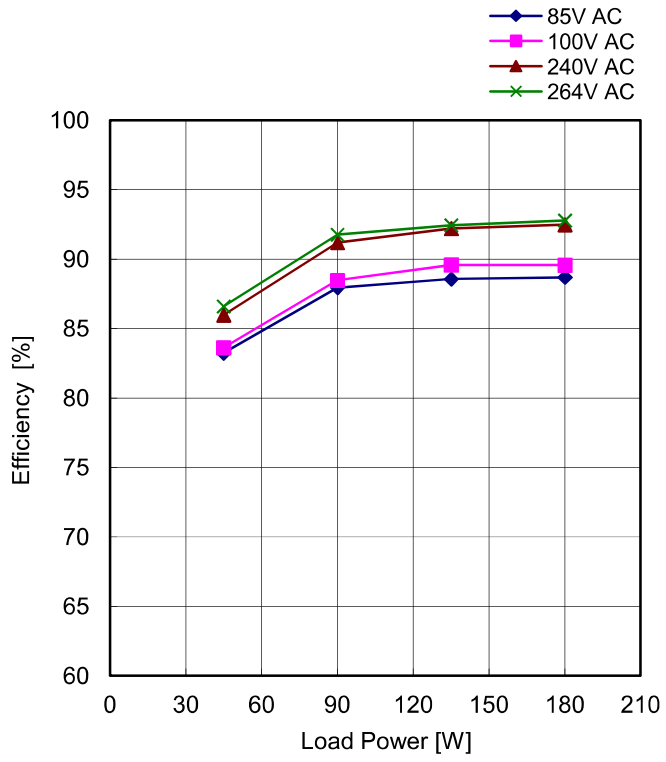
Model	UZP-220-12	Temperature: 25℃
Item	Efficiency	

■Efficiency(by Input Voltage)



AC Input Voltage [V]	Efficiency [%]	
	50% Load	Rated Load
85	87.94	88.70
100	88.47	89.58
132	89.43	90.66
176	90.17	91.55
200	90.68	91.94
220	91.02	92.26
240	91.20	92.48
264	91.76	92.78

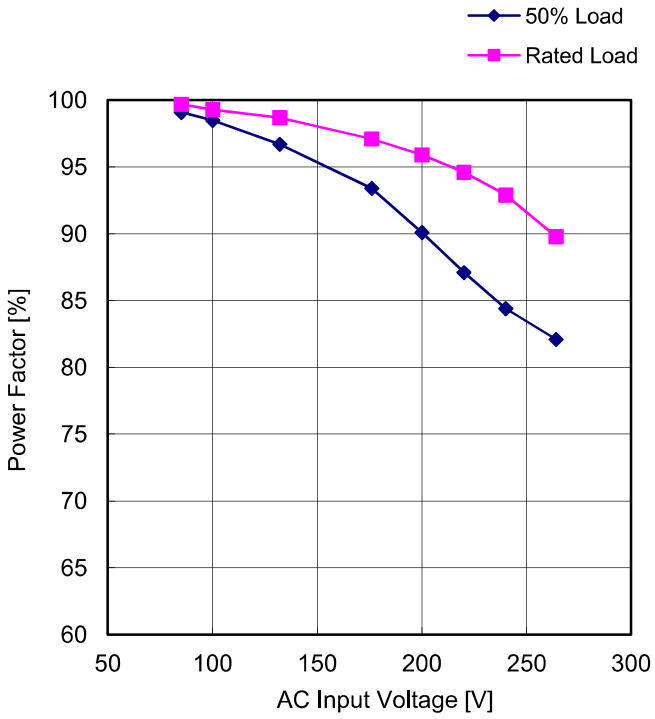
■Efficiency(by Load Power)



Load Power [W]	Efficiency [%]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
45.0	83.24	83.63	85.97	86.59
90.0	87.94	88.47	91.20	91.76
135.0	88.56	89.59	92.21	92.44
180.0	88.70	89.58	92.48	92.78

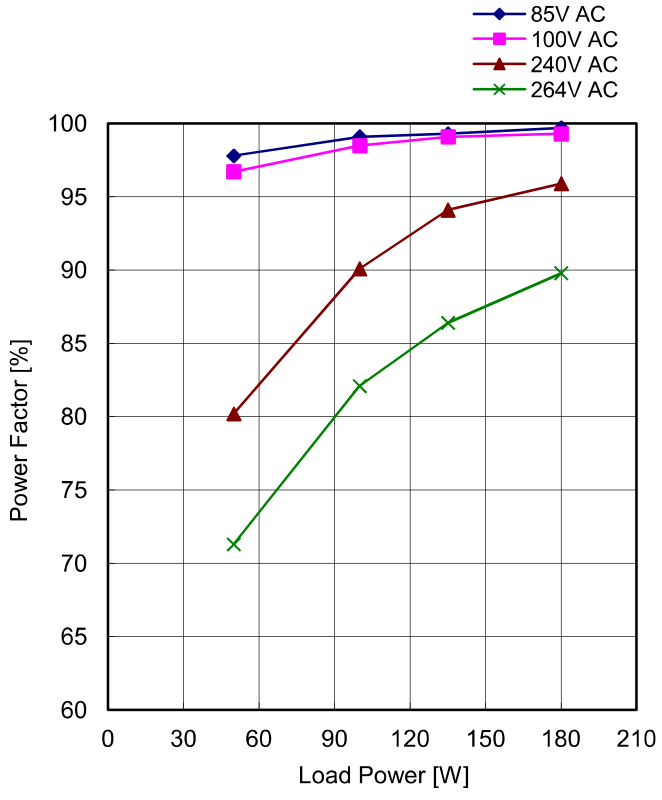
Model	UZP-220-12	Temperature: 25℃
Item	Power Factor	

■Power Factor(by Input Voltage)



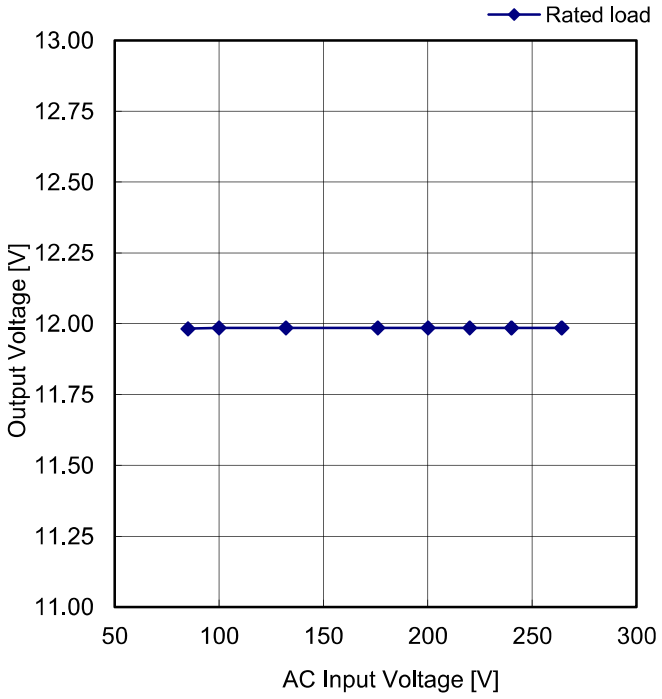
AC Input Voltage [V]	Power Factor [%]	
	50% Load	Rated Load
85	99.1	99.7
100	98.5	99.3
132	96.7	98.7
176	93.4	97.1
200	90.1	95.9
220	87.1	94.6
240	84.4	92.9
264	82.1	89.8

■Power Factor (by Load Power)



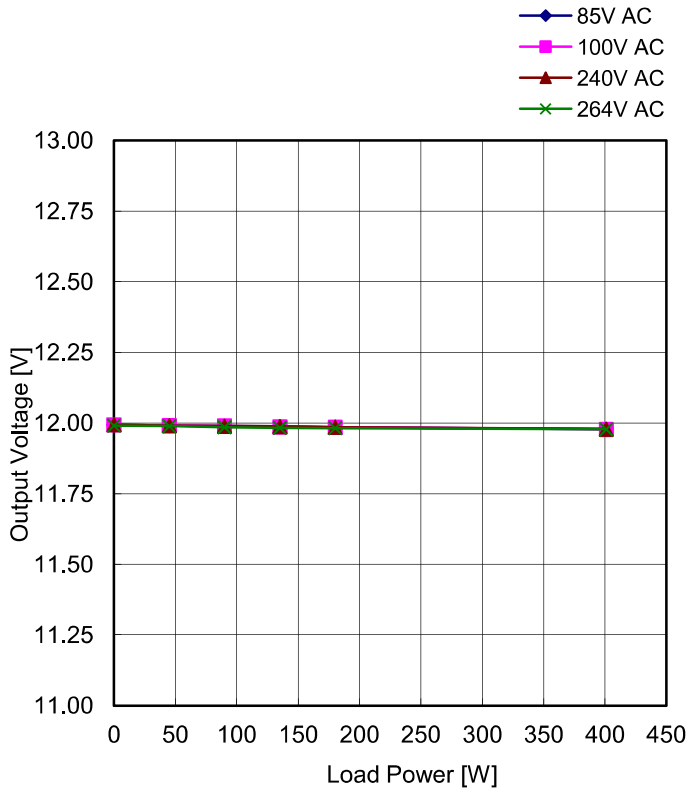
Load Power [W]	Power Factor [%]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
50.0	97.8	96.7	80.2	71.3
100.0	99.1	98.5	90.1	82.1
135.0	99.3	99.1	94.1	86.4
180.0	99.7	99.3	95.9	89.8

Model	UZP-220-12	Temperature: 25℃
Item	Line Regulation	



AC Input Voltage [V]	Output Voltage [V]
85	11.982
100	11.985
132	11.985
176	11.985
200	11.985
220	11.985
240	11.985
264	11.985

Model	UZP-220-12	Temperature: 25℃
Item	Load Regulation	

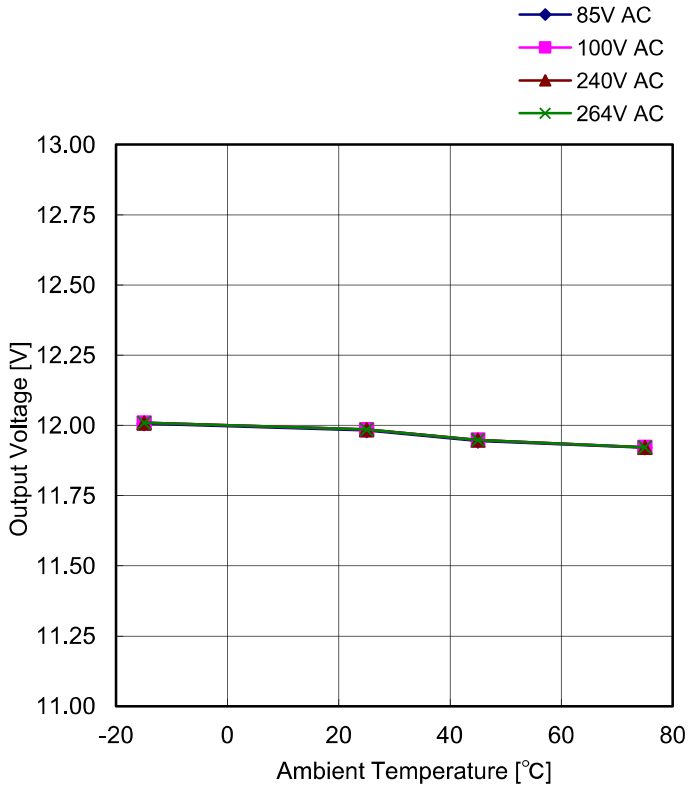


Load Power [W]	Output Voltage [V]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
0.0	11.994	11.994	11.994	11.991
45.0	11.991	11.991	11.991	11.989
90.0	11.989	11.990	11.989	11.985
135.0	11.988	11.987	11.988	11.983
180.0	11.985	11.985	11.985	11.982
400.8	11.978	11.978	11.979	11.978

Load Condition

Load Power [W]	Load Current [A]
	12V
0.0	0.00
45.0	3.75
90.0	7.50
135.0	11.25
180.0	15.00
400.8	33.40

Model	UZP-220-12
Item	Ambient Temperature Drift



Ambient Temp. (℃)	Output Voltage [V]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
-15	12.006	12.009	12.009	12.009
25	11.982	11.985	11.985	11.985
45	11.945	11.948	11.948	11.948
75	11.921	11.922	11.922	11.922

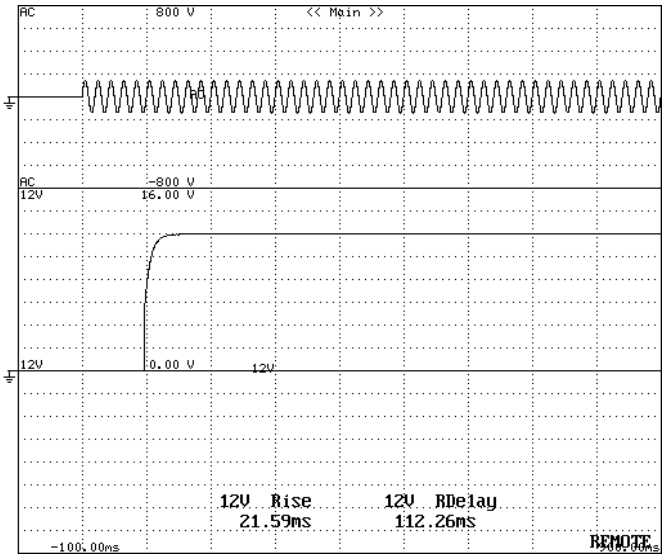
Load Condition

Ambient Temp. (℃)	Load Current [A]
	12V
-15	15.00
25	15.00
45	15.00
75	8.33

Model	UZP-220-12	Temperature: 25℃
Item	Output Rise Characteristics (at AC Power ON)	

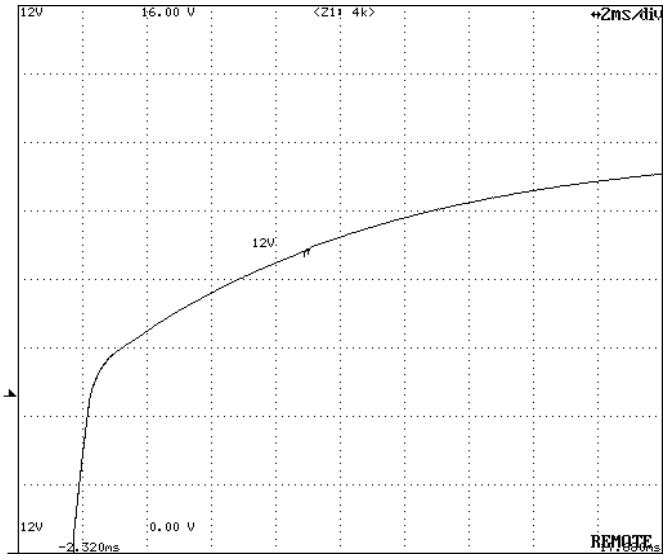
Input: 100V AC
Load: Rated Load

Timebase Range: 100ms/div



All Output Start-up Sequence

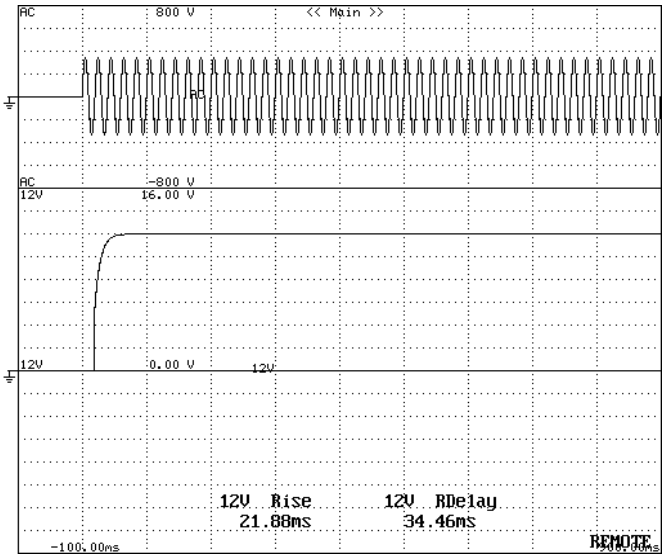
Vertical Sensitivity: 2V/div
Timebase Range: 2ms/div



12V DC Output Rise Characteristics

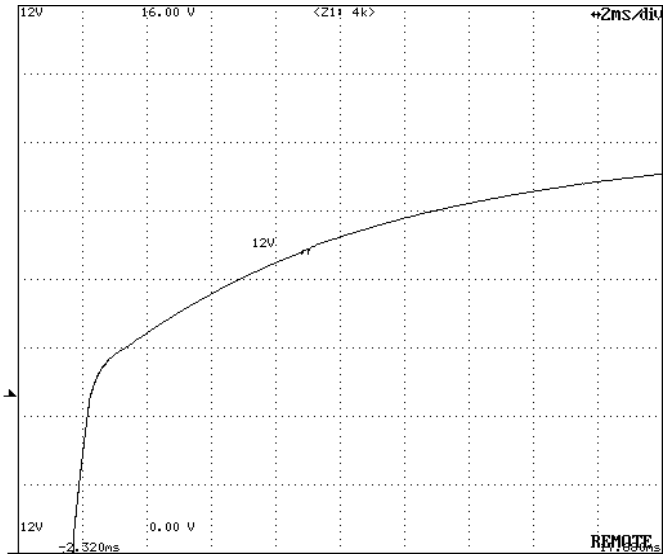
Input: 240V AC
Load: Rated Load

Timebase Range: 100ms/div



All Output Start-up Sequence

Vertical Sensitivity: 2V/div
Timebase Range: 2ms/div

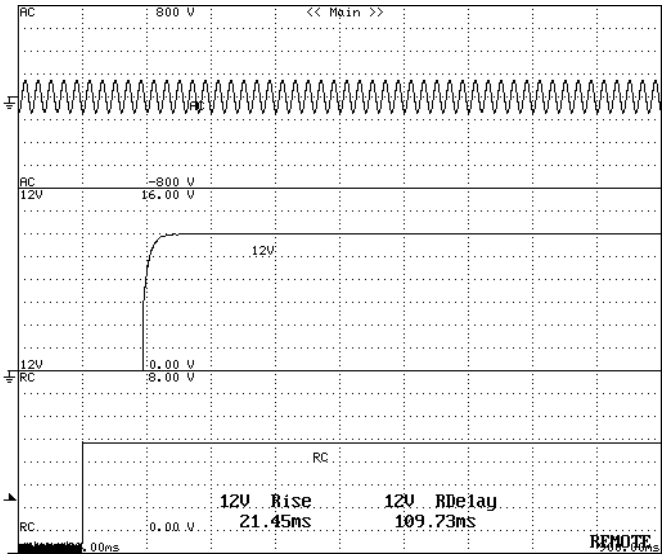


12V DC Output Rise Characteristics

Model	UZP-220-12	Temperature: 25℃
Item	Output Rise Characteristics (at Remote ON)	

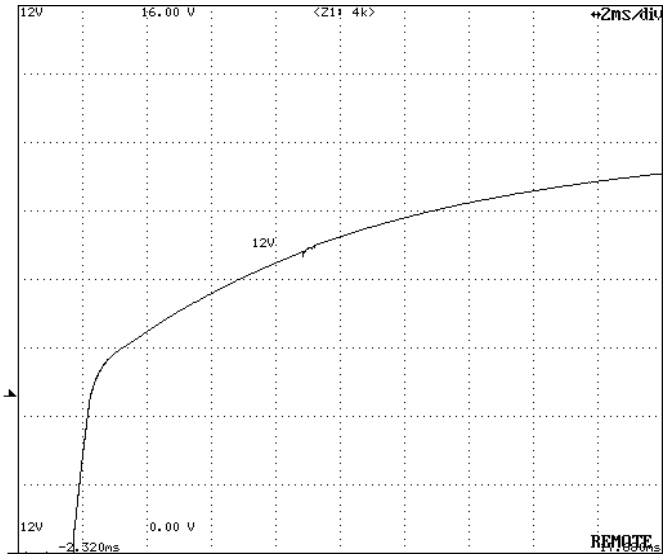
Input: 100V AC
Load: Rated Load

Timebase Range: 100ms/div



All Output Start-up Sequence

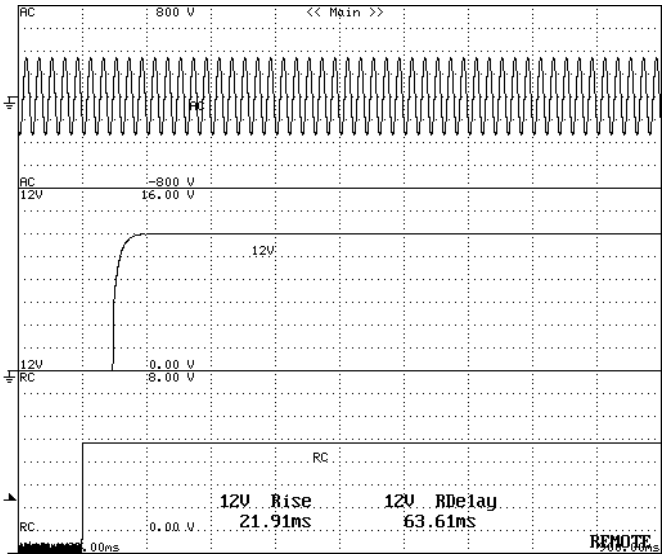
Vertical Sensitivity: 2V/div
Timebase Range: 2ms/div



12V DC Output Rise Characteristics

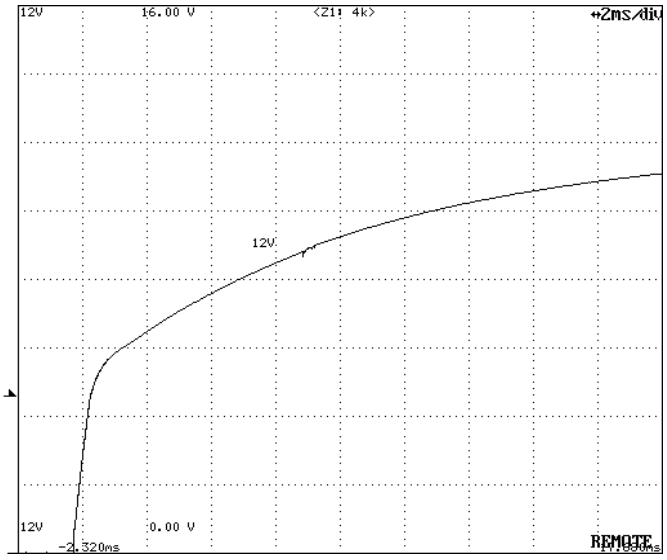
Input: 240V AC
Load: Rated Load

Timebase Range: 100ms/div



All Output Start-up Sequence

Vertical Sensitivity: 2V/div
Timebase Range: 2ms/div

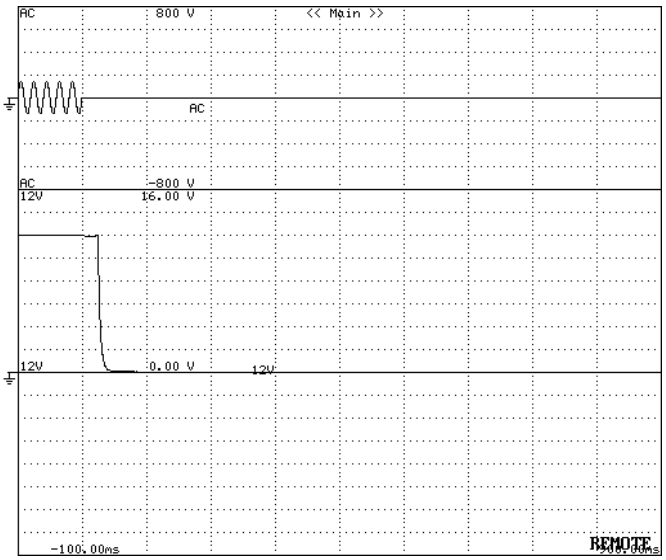


12V DC Output Rise Characteristics

Model	UZP-220-12	Temperature: 25℃
Item	Output Fall Characteristics (at AC Power OFF)	

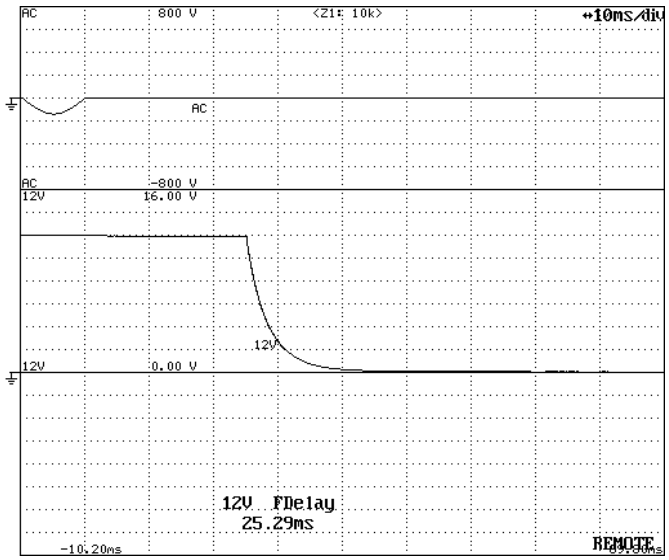
Input: 100V AC
Load: Rated Load

Timebase Range: 100ms/div



Output Fall Characteristics

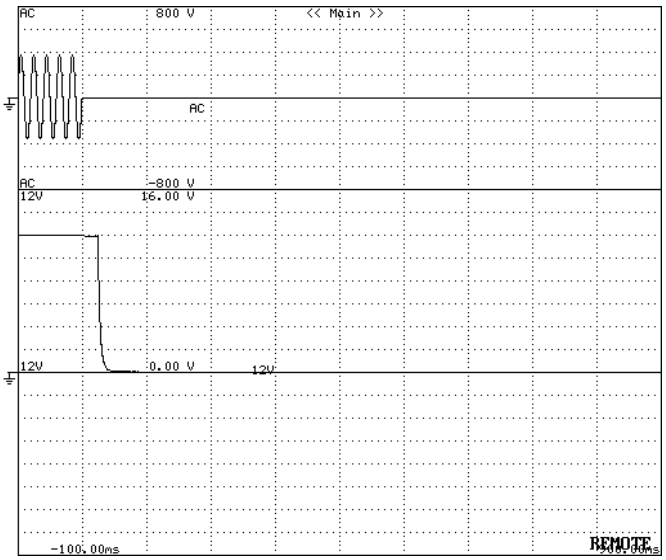
Timebase Range: 10ms/div



Output Fall Characteristics (magnification)

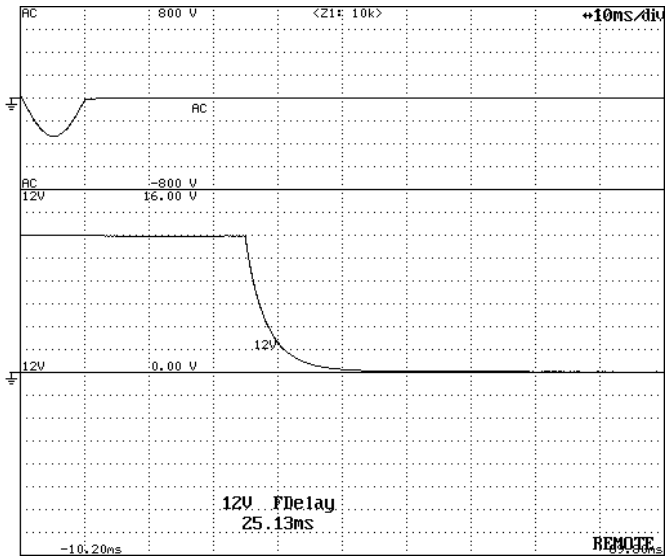
Input: 240V AC
Load: Rated Load

Timebase Range: 100ms/div



Output Fall Characteristics

Timebase Range: 10ms/div

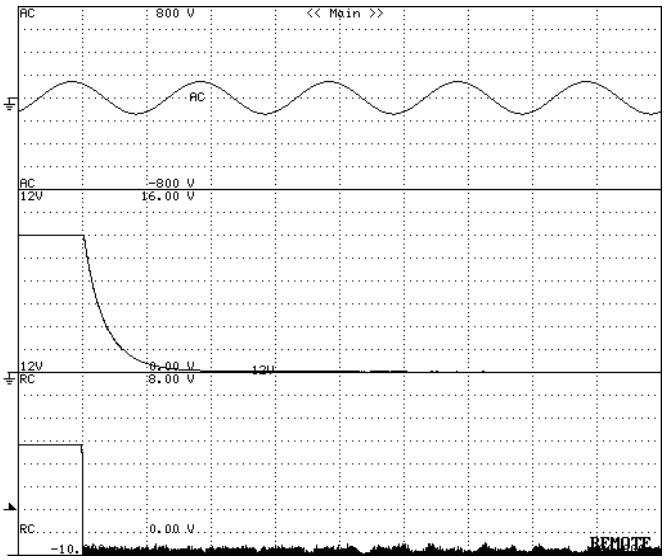


Output Fall Characteristics (magnification)

Model	UZP-220-12	Temperature: 25℃
Item	Output Fall Characteristics (at Remote OFF)	

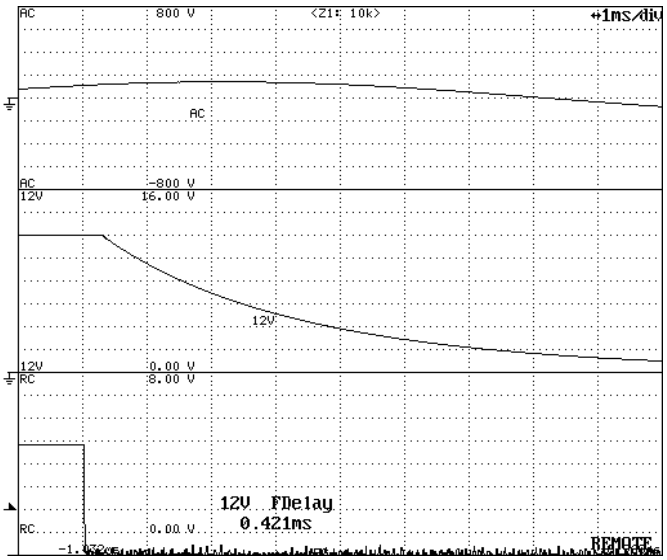
Input: 100V AC
Load: Rated Load

Timebase Range: 10ms/div



Output Fall Characteristics

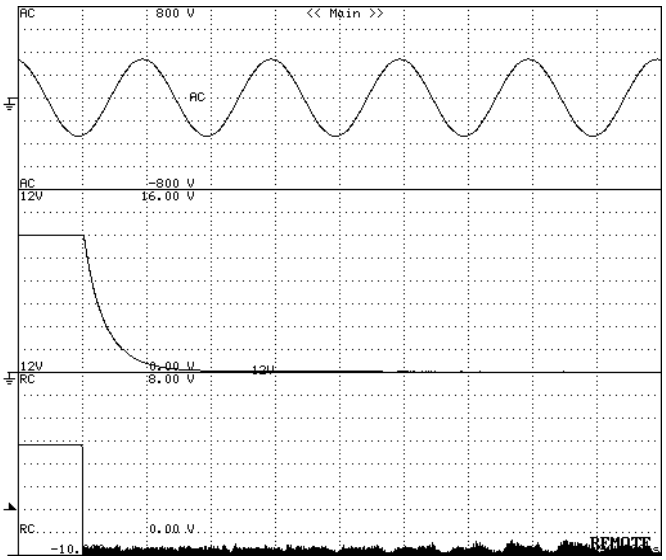
Timebase Range: 1ms/div



Output Fall Characteristics (magnification)

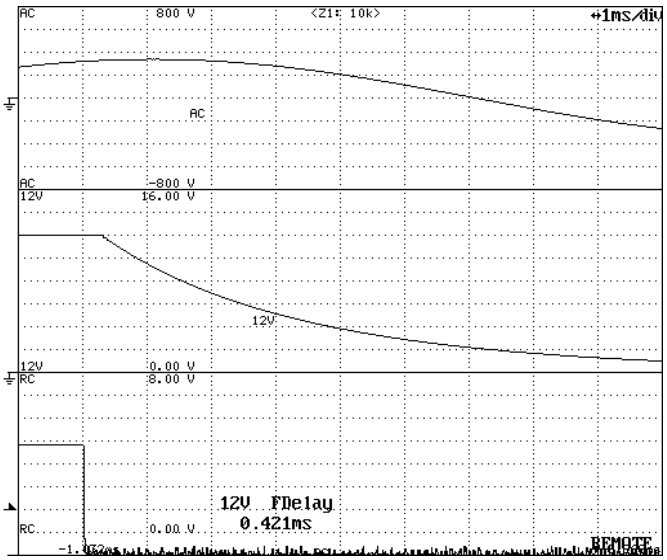
Input: 240V AC
Load: Rated Load

Timebase Range: 10ms/div



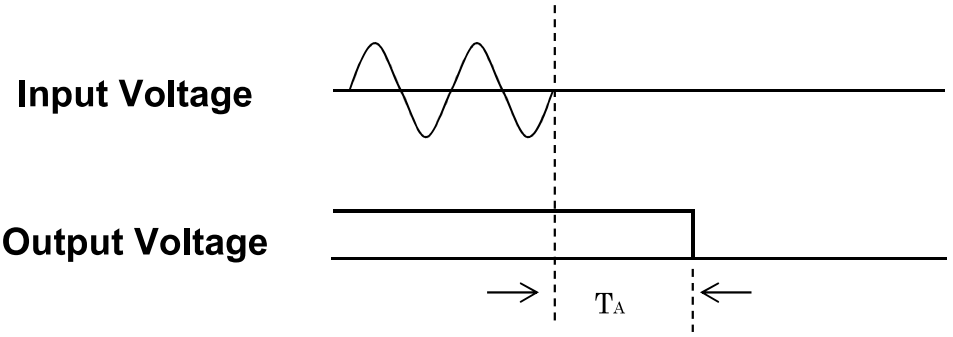
Output Fall Characteristics

Timebase Range: 1ms/div

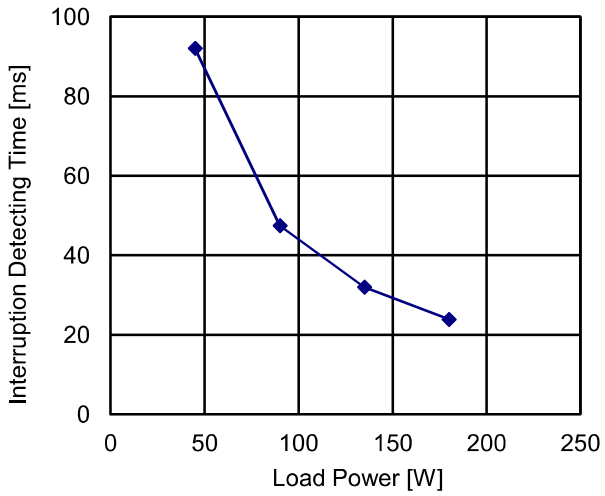


Output Fall Characteristics (magnification)

Model	UZP-220-12	Temperature: 25℃
Item	Instantaneous Interruption Compensation (by Load Power)	

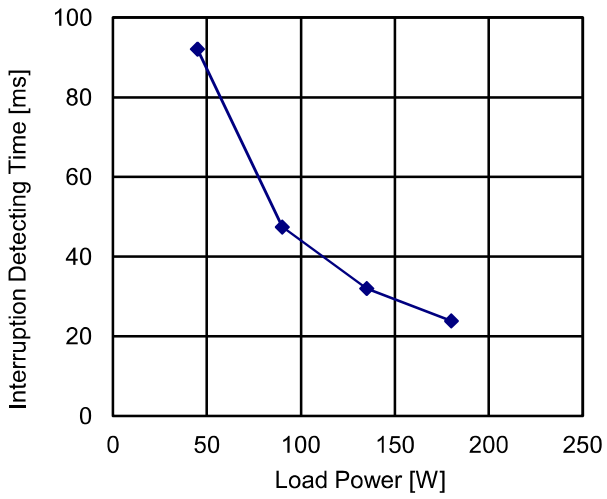


Input Voltage:100V AC



Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	TA
45.0	92.1
90.0	47.5
135.0	32.0
180.0	23.9

Input Voltage:240V AC



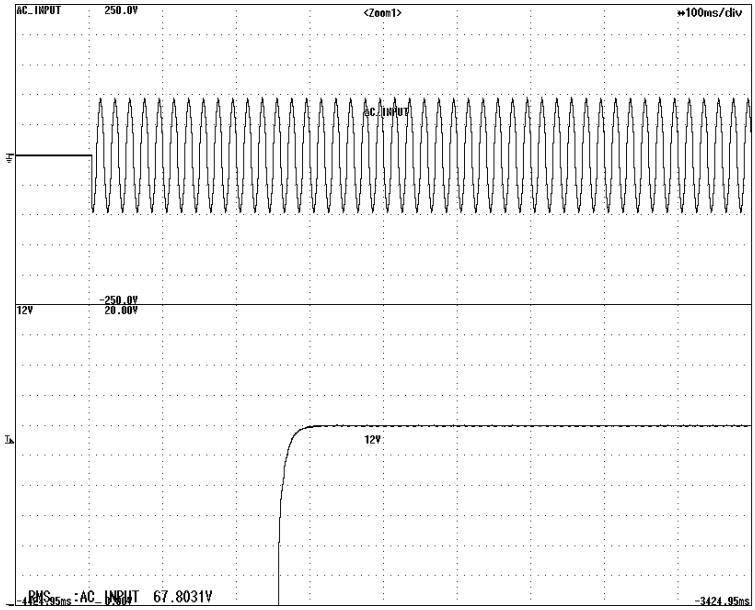
Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	TA
45.0	92.1
90.0	47.5
135.0	32.0
180.0	23.9

Model	UZP-220-12	Temperature: 25℃
Item	Start-Up Voltage	

Timebase Range: 100ms/div
Load: Rated Load

AC Input

+12V

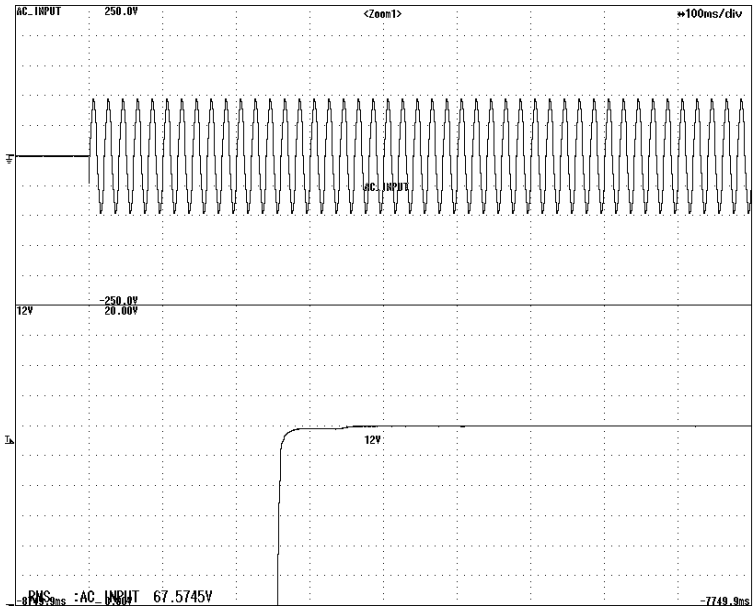


Start-up Voltage: 67.8V AC

Timebase Range: 100ms/div
Load: Minimum Load

AC Input

+12V



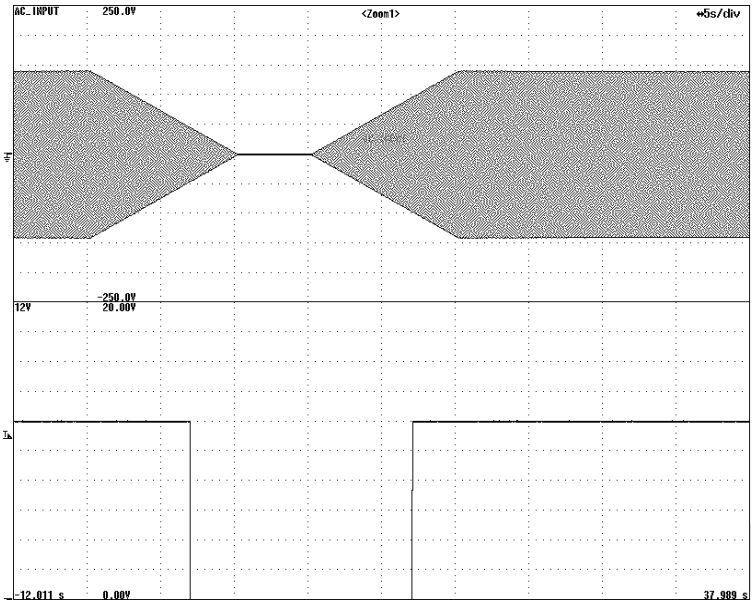
Start-up Voltage: 67.6V AC

Model	UZP-220-12	Temperature: 25℃
Item	Input Voltage Sweep Up/Down	

Timebase Range: 5s/div
Load: Rated Load

AC Input

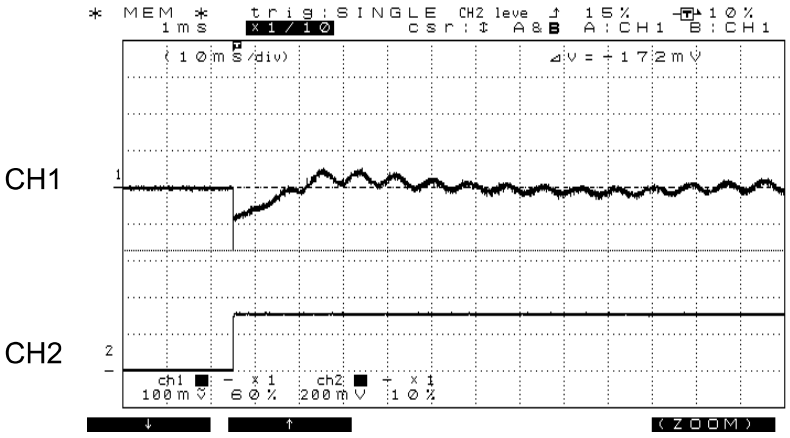
+12V



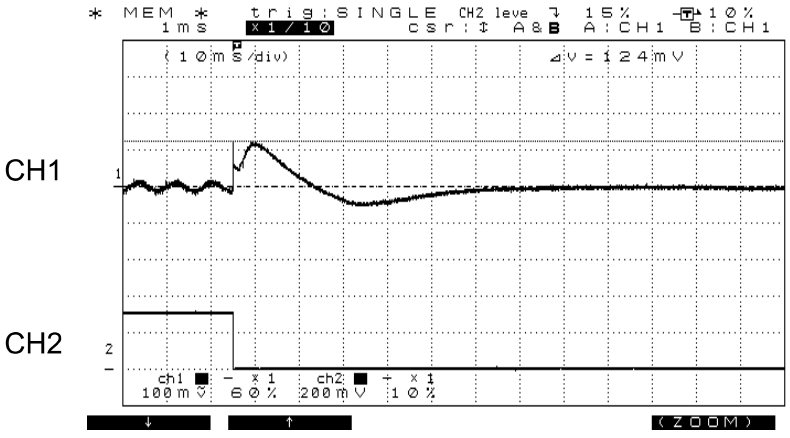
Sweep Rate: 10Vave/sec

Model	UZP-220-12	Temperature: 25℃
Item	Dynamic Load Response	

+12V DC Output Transient Response Waveforms

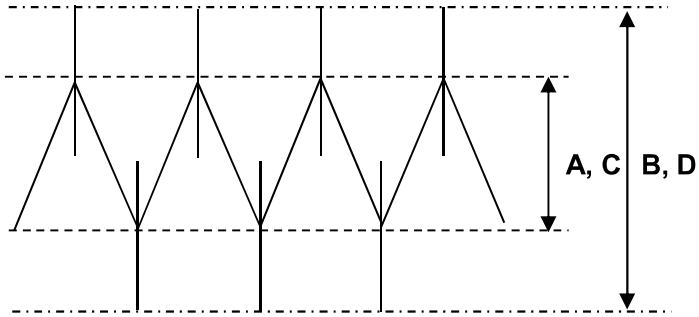


Waveform 1	
CH1	Measuring Point: DC Output Voltage
	Vertical Sensitivity: 100mV/div
CH2	Measuring Point: DC Output Current
	Vertical Sensitivity: 10A/div
Timebase Range	10ms/div
Condition	Input: 100V AC
Note: Minimum load(0A) → Rated Load(15A)	



Waveform 2	
CH1	Measuring Point: DC Output Voltage
	Vertical Sensitivity: 100mV/div
CH2	Measuring Point: DC Output Current
	Vertical Sensitivity: 10A/div
Timebase Range	10ms/div
Condition	Input: 100V AC
Note: Rated Load(15A) → Minimum load(0A)	

Model	UZP-220-12	Load: Rated Load
Item	Ripple / Noise Voltage	

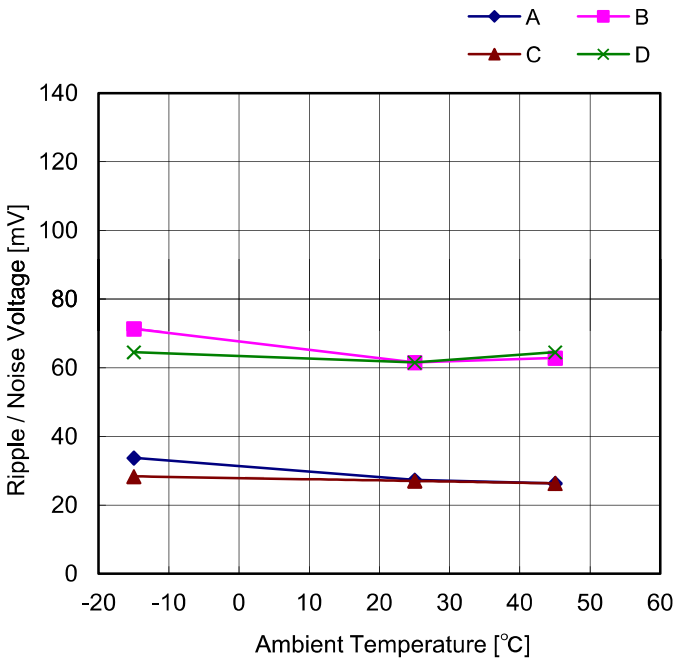


at 100V AC

A: Ripple Voltage (mV_{P-P})
B: Noise Voltage (mV_{P-P})

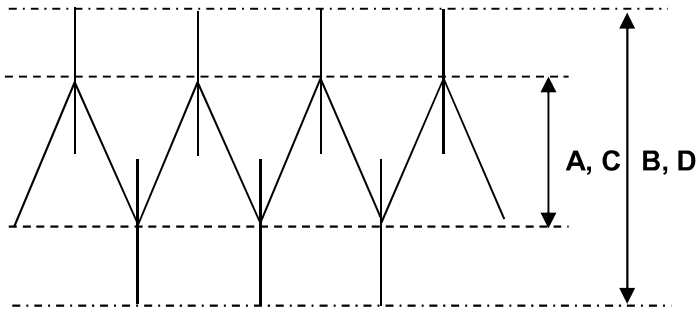
at 240V AC

C: Ripple Voltage (mV_{P-P})
D: Noise Voltage (mV_{P-P})



Ambient Temp. [℃]	Ripple / Noise Voltage [mV]			
	A	B	C	D
-15	33.7	71.3	28.3	64.5
25	27.3	61.5	27.0	61.5
45	26.3	62.8	26.3	64.5

Model	UZP-220-12	Temperature : 25℃
Item	Ripple / Noise Voltage	

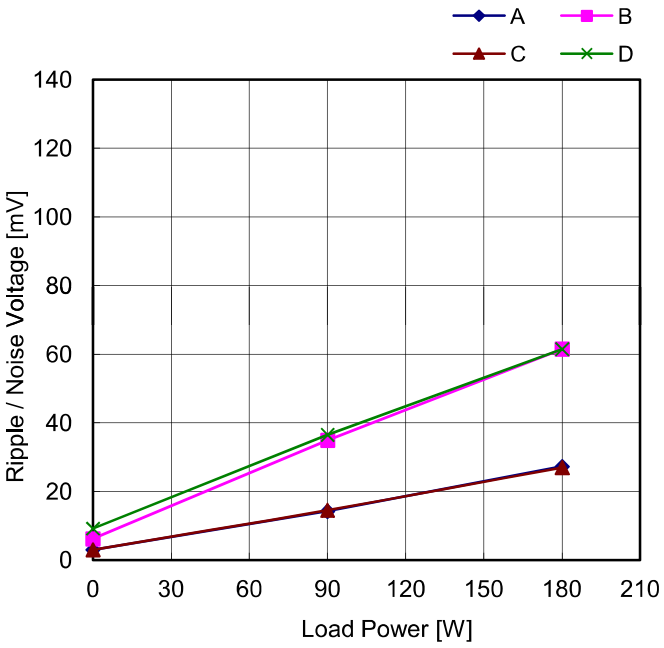


at 100V AC

A: Ripple Voltage (mVP-P)
B: Noise Voltage (mVP-P)

at 240V AC

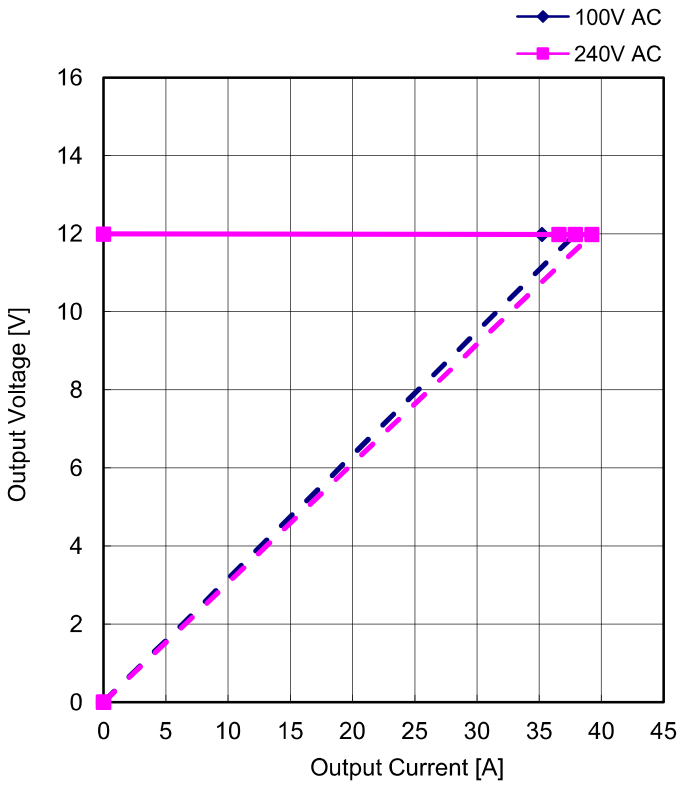
C: Ripple Voltage (mVP-P)
D: Noise Voltage (mVP-P)



Load Power [W]	Ripple / Noise Voltage [mV]			
	A	B	C	D
0	3.0	6.2	3.0	9.2
90.0	14.3	34.9	14.6	36.5
180.0	27.3	61.5	27.0	61.5

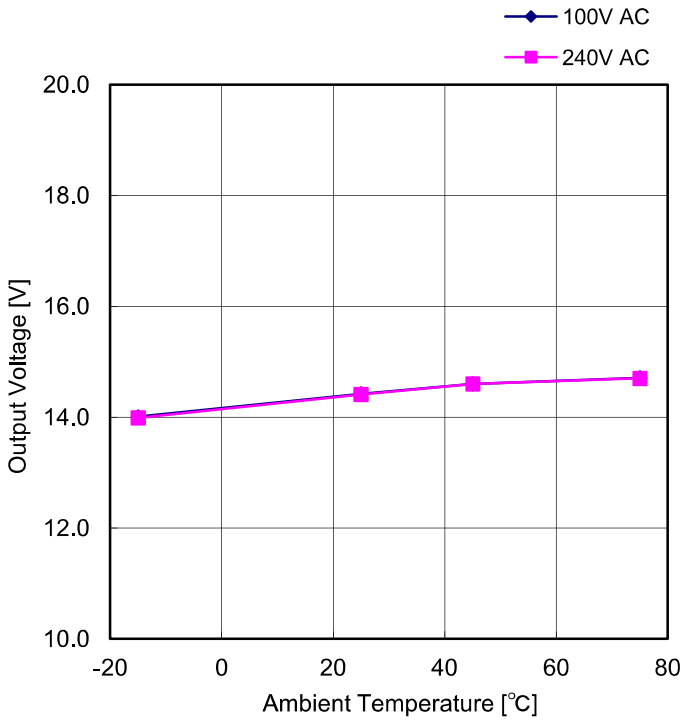
Model	UZP-220-12	Temperature: 25℃
Item	Over-Current Protection	

V-I Characteristics of 12V O.C.P



Input Voltage: 100V AC		Input Voltage: 240V AC	
Output Current [A]	Output Voltage [V]	Output Current [A]	Output Voltage [V]
0.00	12.00	0.00	12.00
35.21	11.98	36.56	11.98
36.56	11.98	37.87	11.98
37.87	11.98	39.22	11.98

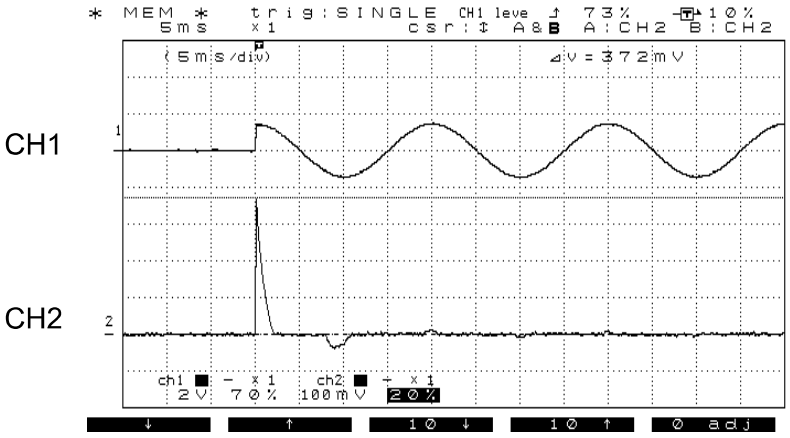
Model	UZP-220-12	Load: Minimum Load
Item	Over-Voltage Protection	



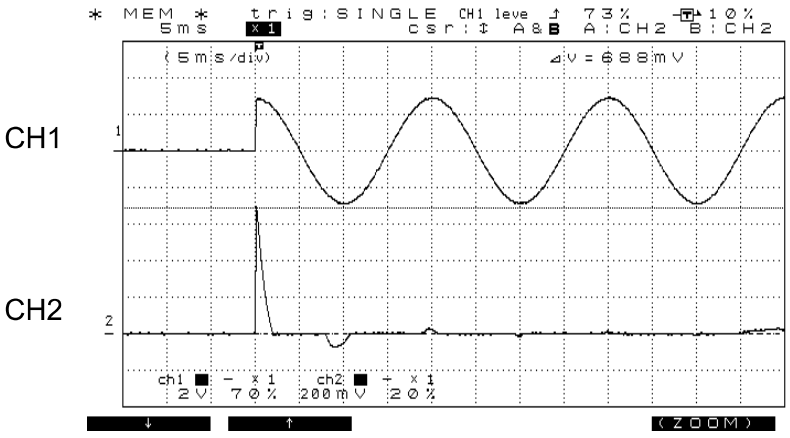
Ambient Temp. [℃]	Output Voltage [V]	
	100V AC	240V AC
-15	14.01	13.99
25	14.42	14.41
45	14.60	14.60
75	14.71	14.70

Model	UZP-220-12	Temperature: 25℃
Item	Inrush Current	Load: Rated Load

Inrush Current Waveforms

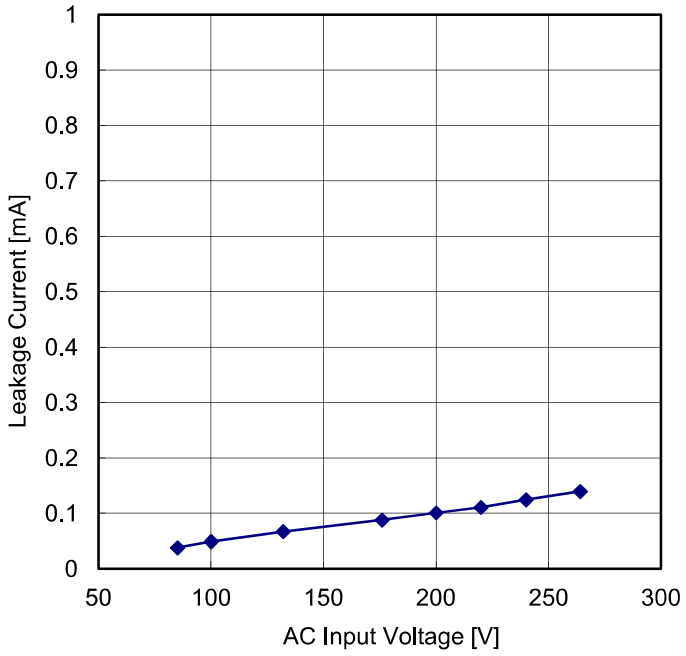


Waveform 1	
CH1	Measuring Point: AC Input Voltage
	Range: 200V/div
CH2	Measuring Point: AC Input Current
	Range: 5A/div
Timebase Range	5ms/div
Condition	Input: 100V AC
	Load: Rated Load
Note: Inrush Current: 18.6A	



Waveform 2	
CH1	Measuring Point: AC Input Voltage
	Range: 200V/div
CH2	Measuring Point: AC Input Current
	Range: 10A/div
Timebase Range	5ms/div
Condition	Input: 200V AC
	Load: Rated Load
Note: Inrush Current: 34.4A	

Model	UZP-220-12	Load: Rated Load
Item	Leakage Current	



AC Input Voltage [V]	Leakage Current [mA]
85	0.04
100	0.05
132	0.07
176	0.09
200	0.10
220	0.11
240	0.13
264	0.14