Nipron

Date of issue: Jul. 22, 2016

Test Data

Model Number: mUZP-120-12-JB0

Model Name: DC POWER SUPPLY

INPUT: 85V – 264V AC, 50 / 60 Hz

OUTPUT: 12 V 8.4A (16.7 A_{peak})

Minimum load : 0W
Rated load :100.8W
Peak output power: 200.4W

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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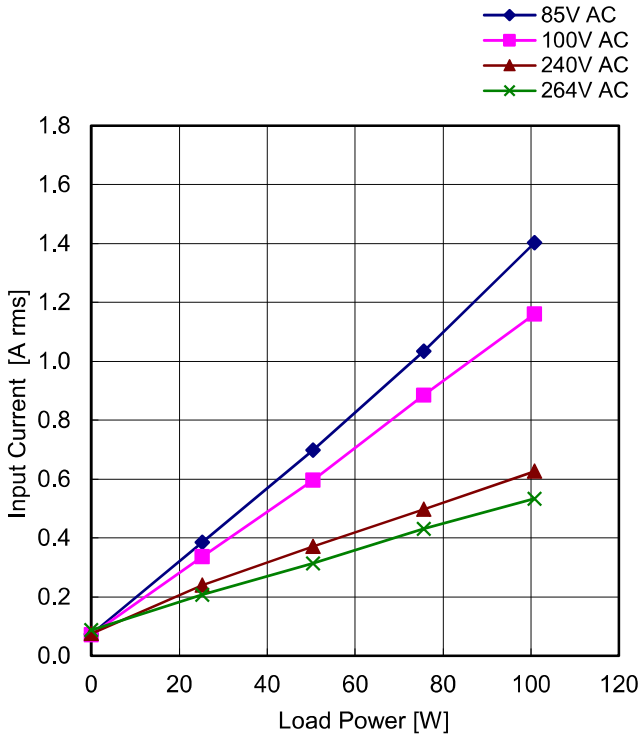
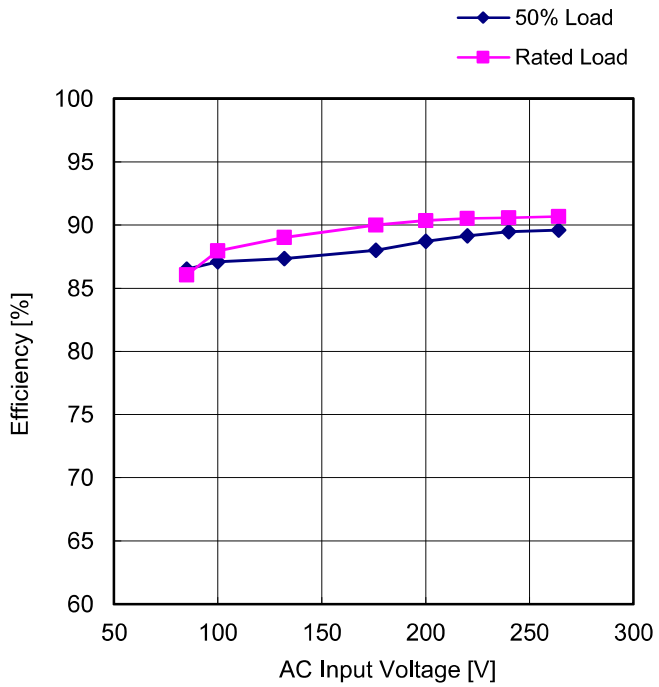
Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Input Current（by Load Power）	



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	0.07	0.07	0.08	0.09
25.2	0.38	0.34	0.24	0.21
50.4	0.70	0.60	0.37	0.31
75.6	1.03	0.88	0.50	0.43
100.8	1.40	1.16	0.63	0.53

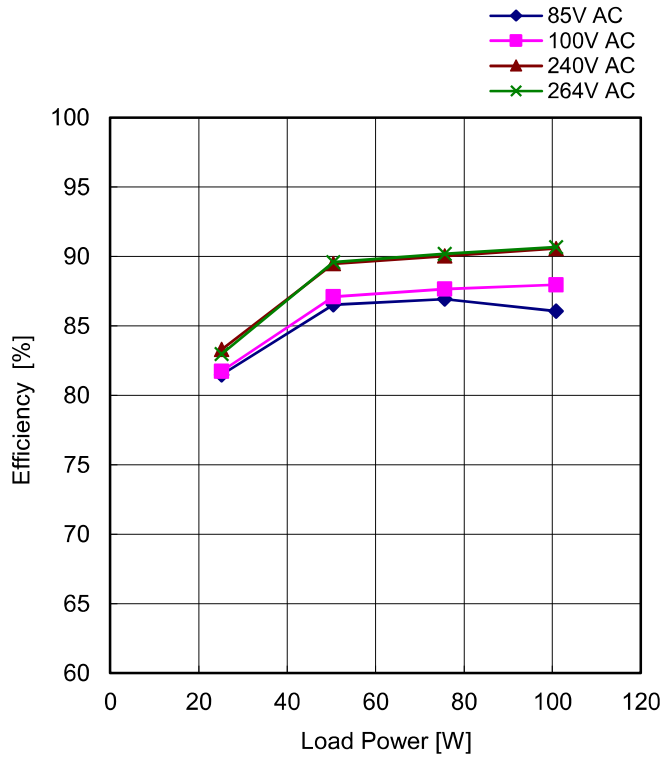
Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Efficiency	

■Efficiency(by Input Voltage)



AC Input Voltage [V]	Efficiency [%]	
	50% Load	Rated Load
85	86.51	86.06
100	87.09	87.95
132	87.33	89.02
176	88.00	90.00
200	88.70	90.34
220	89.12	90.52
240	89.47	90.56
264	89.59	90.68

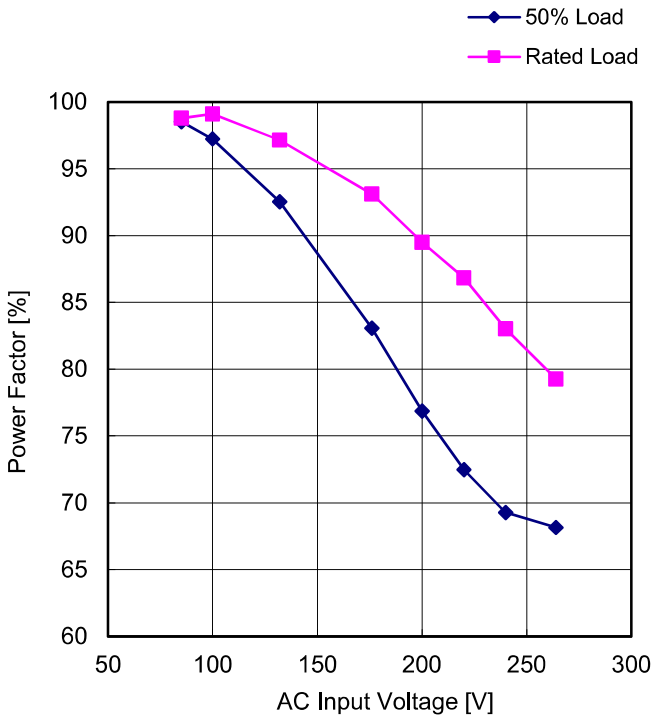
■Efficiency(by Load Power)



Load Power [W]	Efficiency [%]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
25.2	81.47	81.74	83.30	82.97
50.4	86.51	87.09	89.47	89.59
75.6	86.92	87.64	90.03	90.19
100.8	86.06	87.95	90.56	90.68

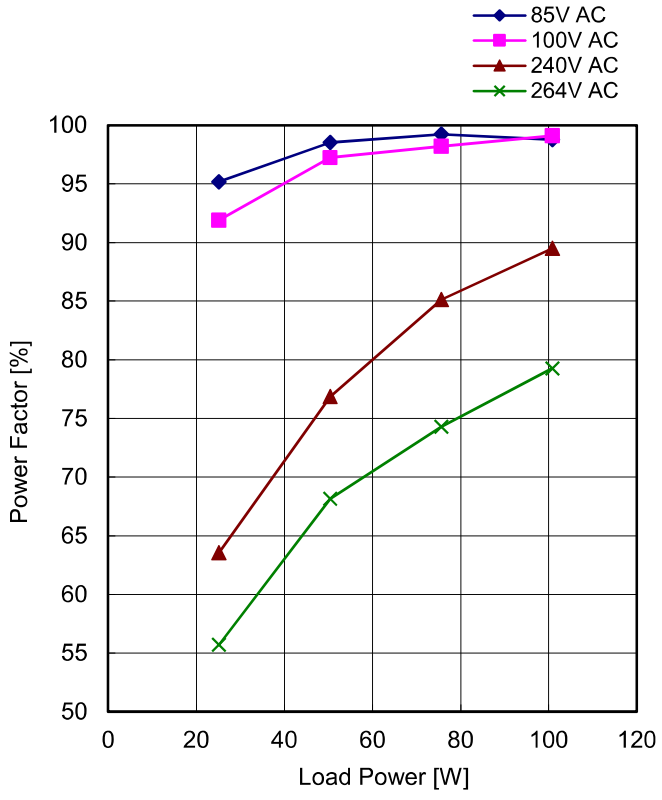
Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Power Factor	

■Power Factor(by Input Voltage)



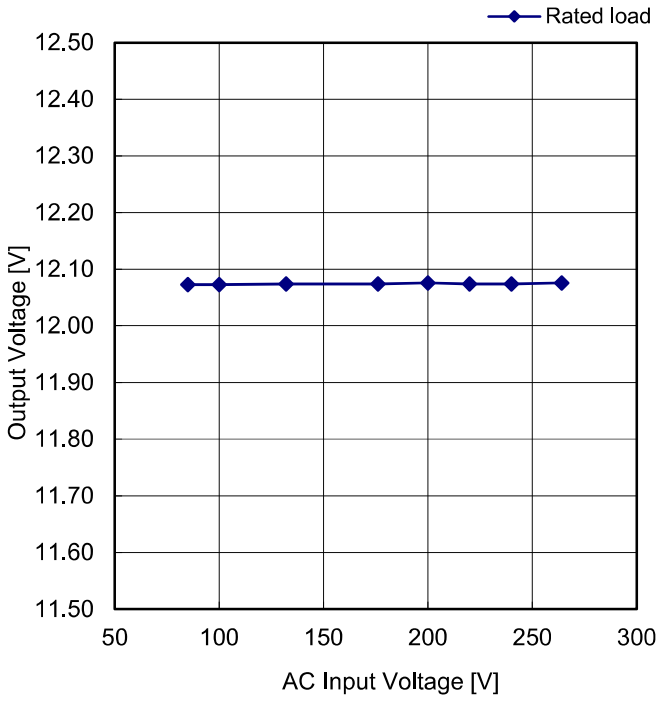
AC Input Voltage [V]	Power Factor [%]	
	50% Load	Rated Load
85	98.5	98.8
100	97.2	99.1
132	92.5	97.2
176	83.1	93.1
200	76.9	89.5
220	72.5	86.8
240	69.3	83.0
264	68.2	79.3

■Power Factor (by Load Power)



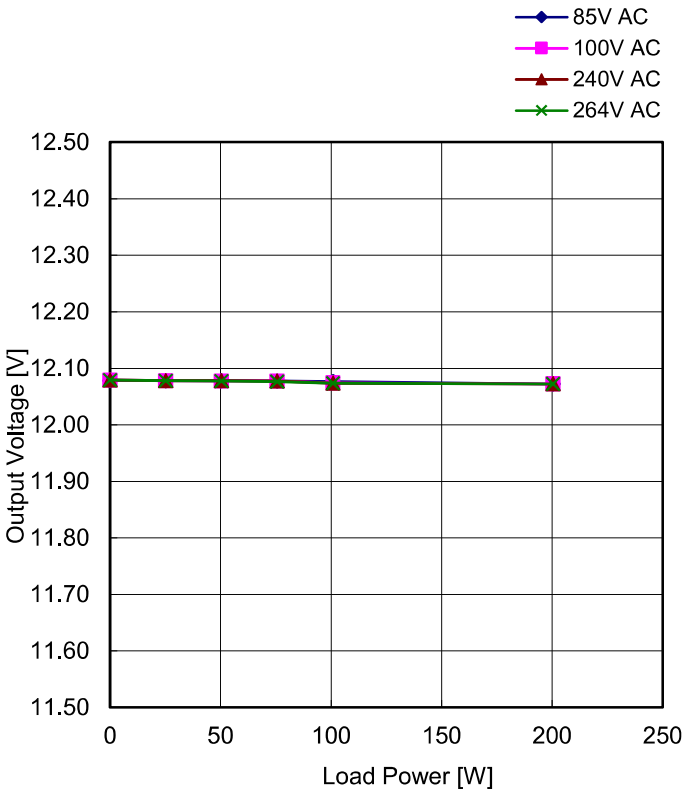
Load Power [W]	Power Factor [%]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
25.2	95.2	91.9	63.5	55.7
50.4	98.5	97.2	76.9	68.2
75.6	99.2	98.2	85.1	74.3
100.8	98.8	99.1	89.5	79.3

Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Line Regulation	



AC Input Voltage [V]	Output Voltage [V]
85	12.073
100	12.073
132	12.074
176	12.074
200	12.076
220	12.074
240	12.074
264	12.076

Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Load Regulation	

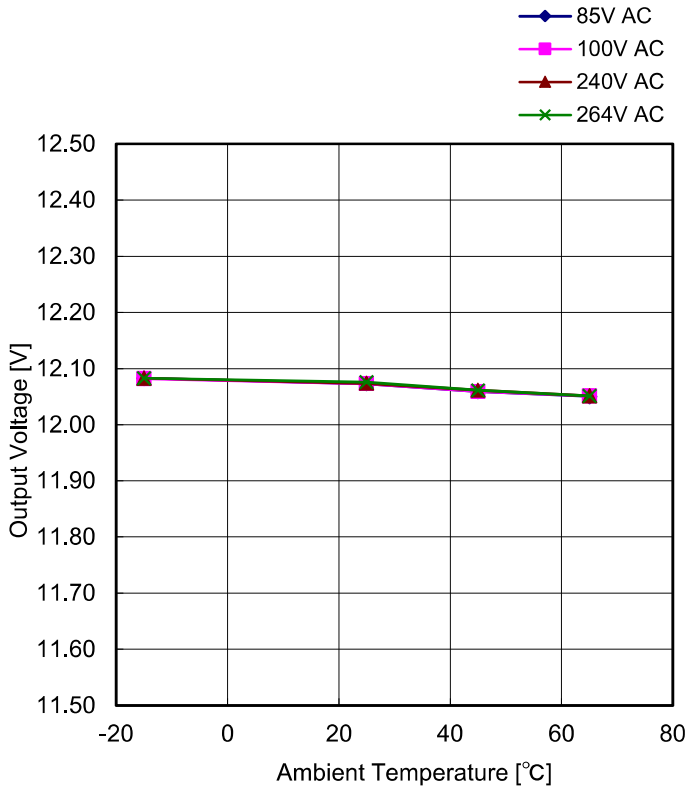


Load Power [W]	Output Voltage [V]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
0.0	12.078	12.079	12.079	12.079
25.2	12.078	12.078	12.078	12.078
50.4	12.078	12.077	12.078	12.077
75.6	12.077	12.077	12.077	12.076
100.8	12.076	12.074	12.073	12.073
200.4	12.072	12.072	12.072	12.072

Load Condition

Load Power [W]	Load Current [A]
	12V
0.0	0.00
25.2	2.10
50.4	4.20
75.6	6.30
100.8	8.40
200.4	16.70

Model	mUZP-120-12-JB0
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	12.083	12.082	12.083	12.083
25	12.073	12.073	12.074	12.076
45	12.059	12.059	12.061	12.061
65	12.050	12.051	12.051	12.051

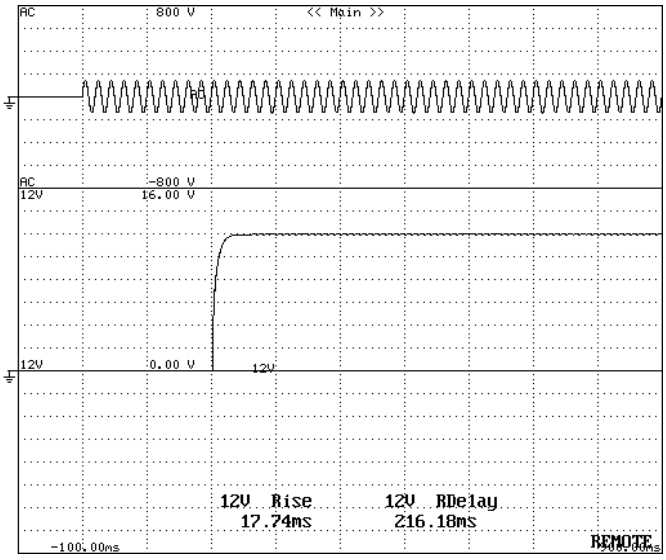
Load Condition

Ambient Temp. (℃)	Load Current [A]
	12V
-15	8.40
25	8.40
45	8.40
65	5.83

Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Output Rise Characteristics (at AC Power ON)	

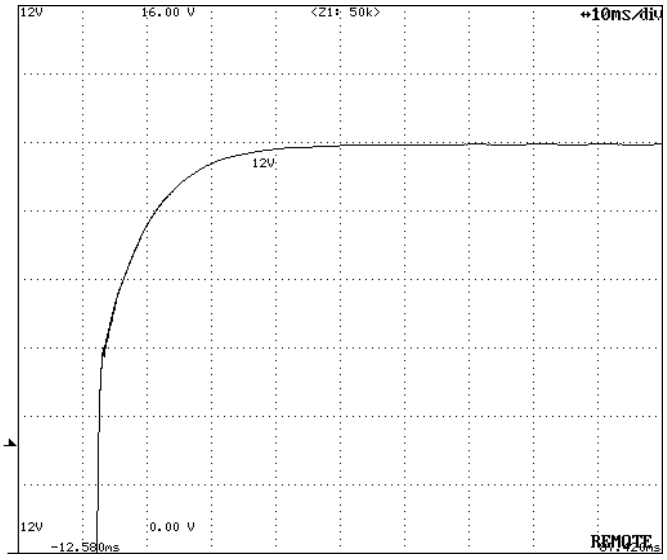
Input: 100V AC
Load: Rated Load

Timebase Range: 100ms/div



All Output Start-up Sequence

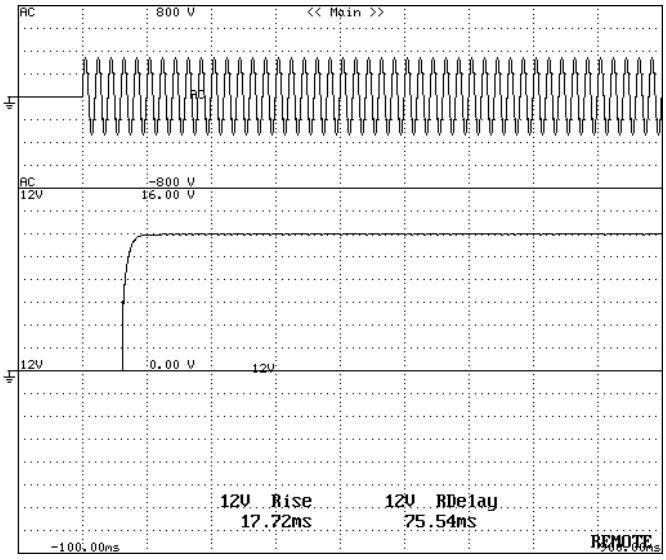
Vertical Sensitivity: 2V/div
Timebase Range: 10ms/div



12V DC Output Rise Characteristics

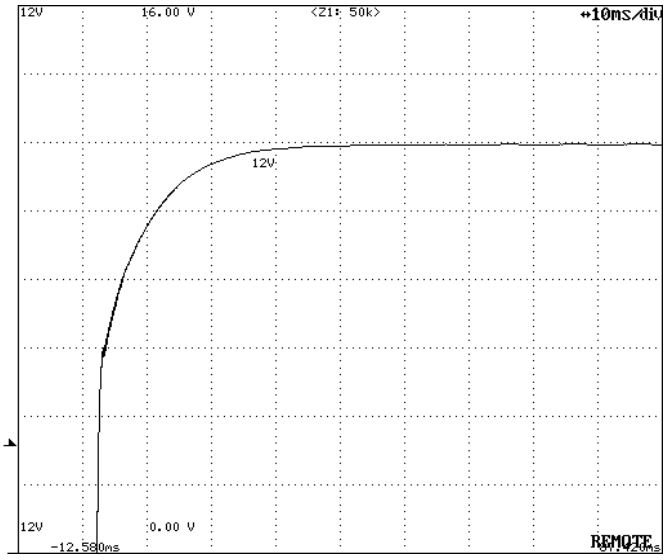
Input: 240V AC
Load: Rated Load

Timebase Range: 100ms/div



All Output Start-up Sequence

Vertical Sensitivity: 2V/div
Timebase Range: 10ms/div

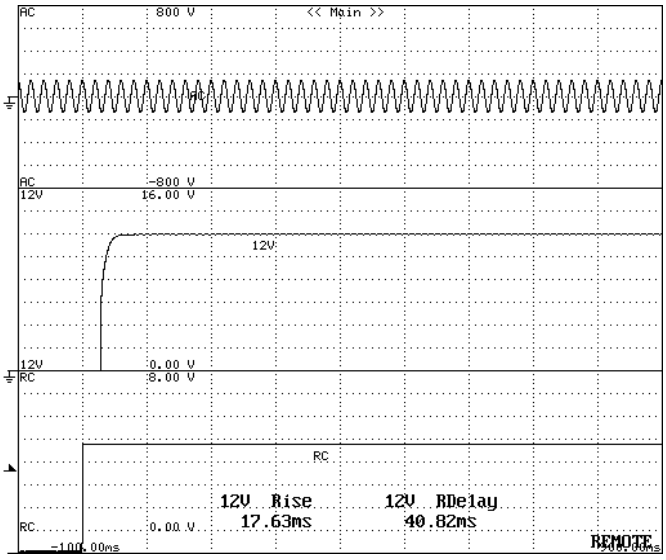


12V DC Output Rise Characteristics

Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Output Rise Characteristics (at Remote ON)	

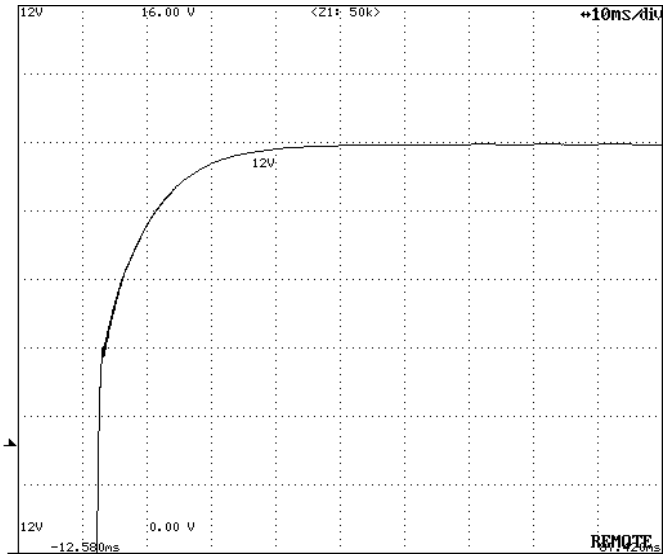
Input: 100V AC
Load: Rated Load

Timebase Range: 100ms/div



All Output Start-up Sequence

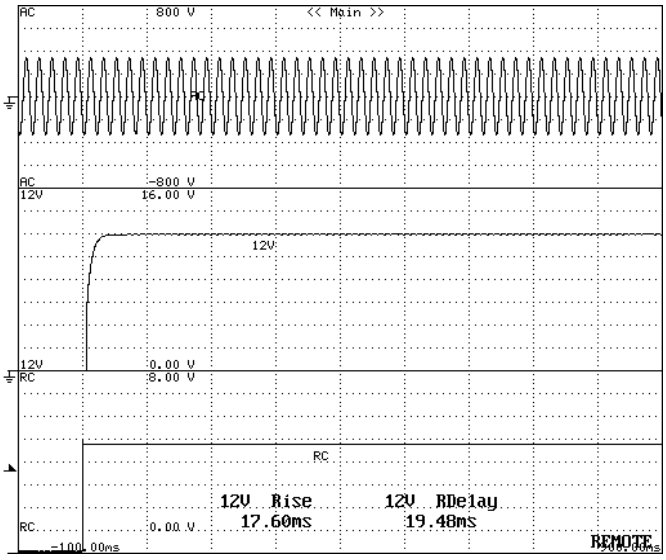
Vertical Sensitivity: 2V/div
Timebase Range: 10ms/div



12V DC Output Rise Characteristics

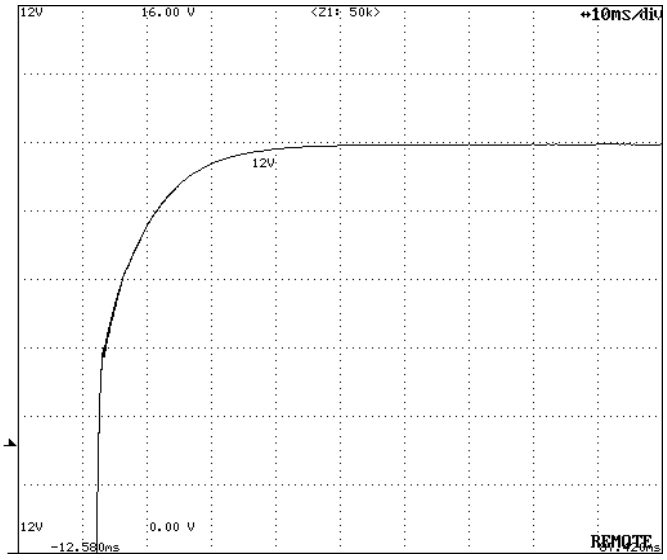
Input: 240V AC
Load: Rated Load

Timebase Range: 100ms/div



All Output Start-up Sequence

Vertical Sensitivity: 2V/div
Timebase Range: 10ms/div

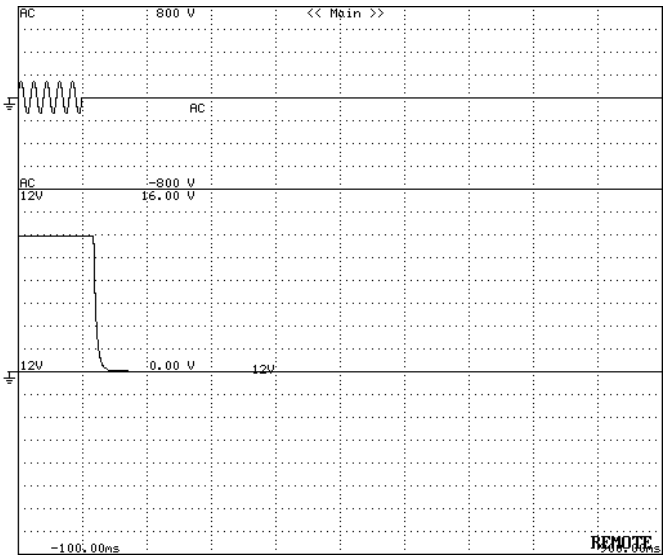


12V DC Output Rise Characteristics

Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Output Fall Characteristics (at AC Power OFF)	

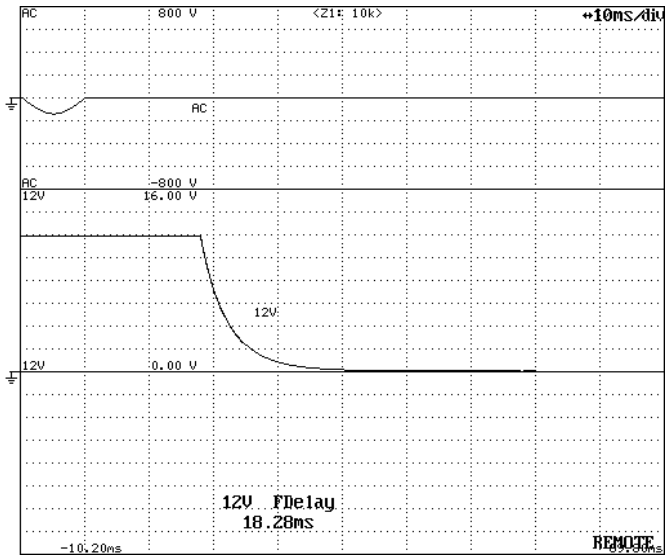
Input: 100V AC
Load: Rated Load

Timebase Range: 100ms/div



Output Fall Characteristics

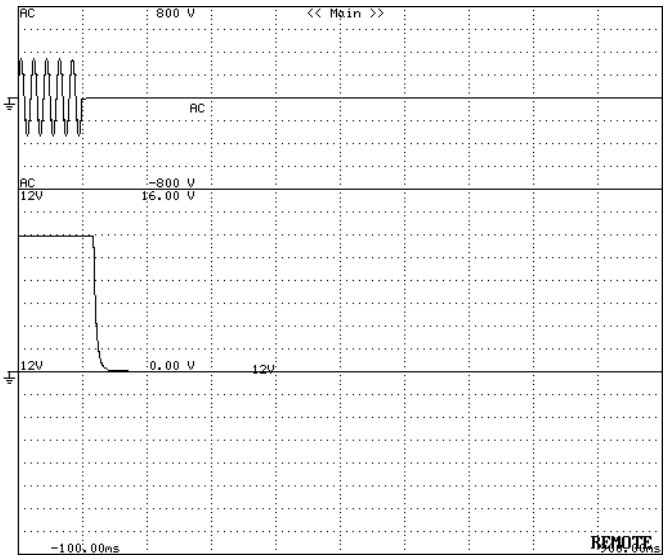
Timebase Range: 10ms/div



Output Fall Characteristics (magnification)

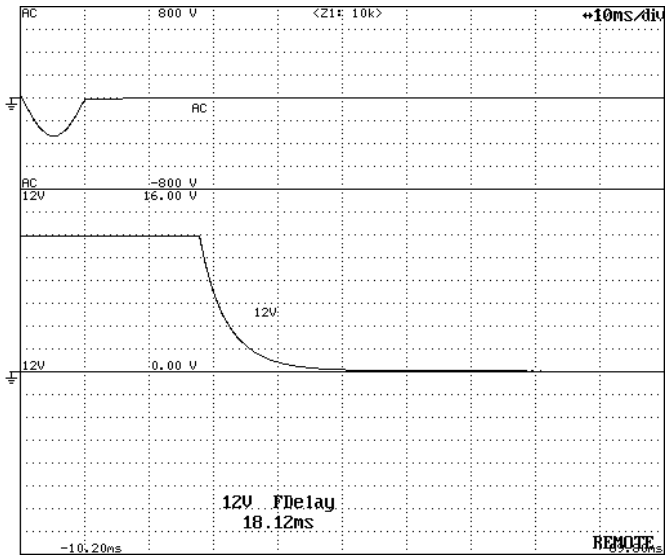
Input: 240V AC
Load: Rated Load

Timebase Range: 100ms/div



Output Fall Characteristics

Timebase Range: 10ms/div

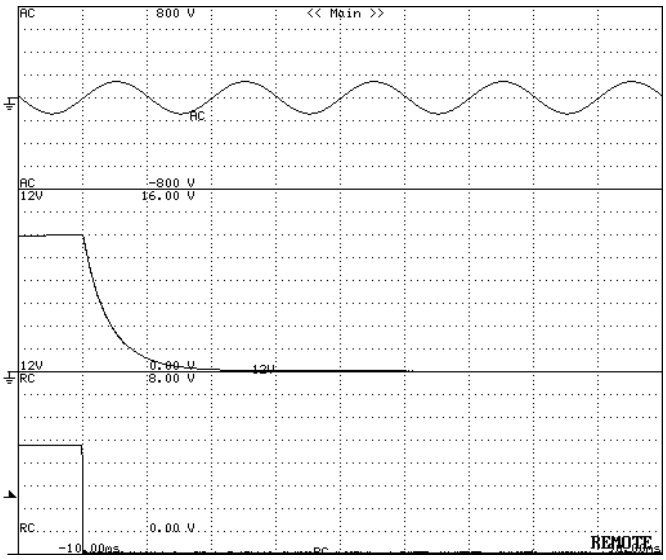


Output Fall Characteristics (magnification)

Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Output Fall Characteristics (at Remote OFF)	

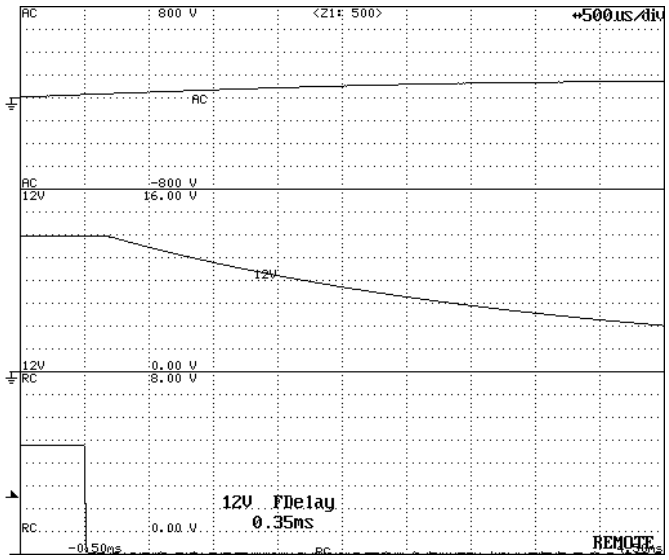
Input: 100V AC
Load: Rated Load

Timebase Range: 10ms/div



Output Fall Characteristics

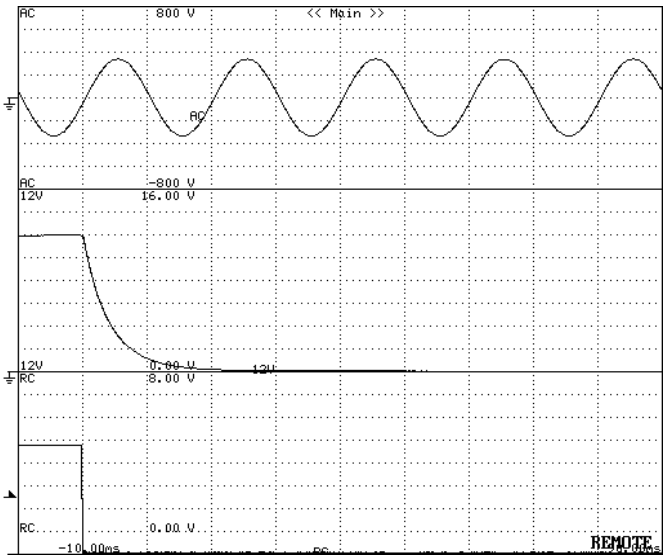
Timebase Range: 500 μ s/div



Output Fall Characteristics (magnification)

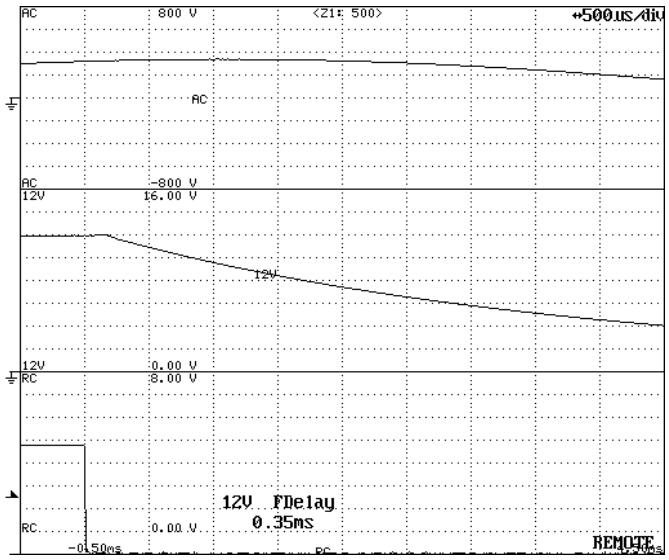
Input: 240V AC
Load: Rated Load

Timebase Range: 10ms/div



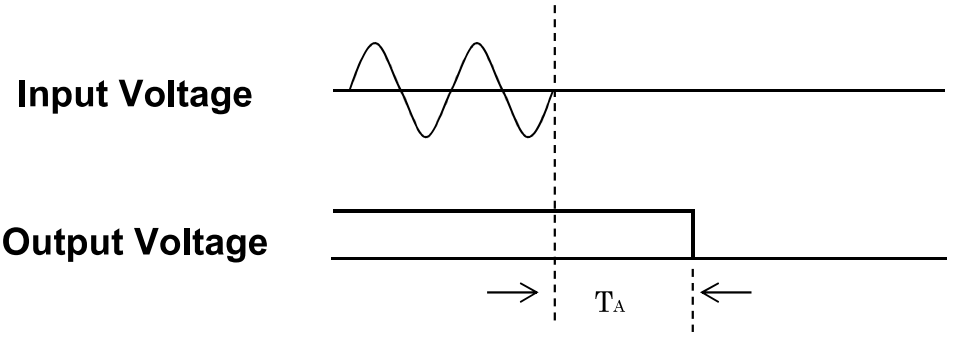
Output Fall Characteristics

Timebase Range: 500 μ s/div

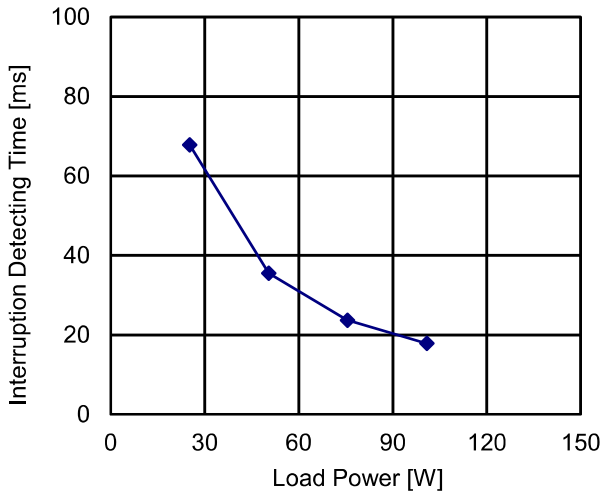


Output Fall Characteristics (magnification)

Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Instantaneous Interruption Compensation (by Load Power)	

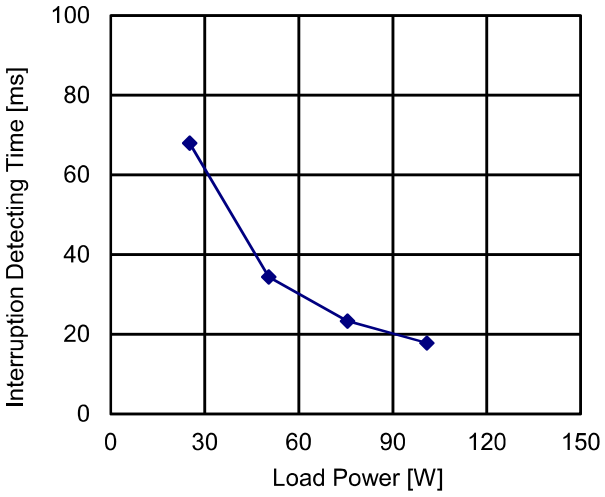


Input Voltage:100V AC



Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	TA
25.20	67.8
50.4	35.5
75.60	23.7
100.8	17.9

Input Voltage:240V AC



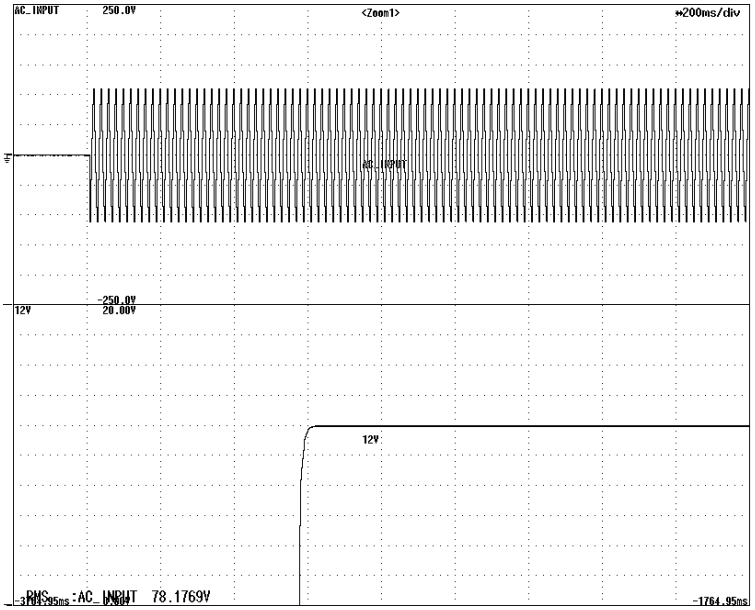
Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	TA
25.20	68.0
50.4	34.4
75.60	23.3
100.8	17.8

Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Start-Up Voltage	

Timebase Range: 200ms/div
Load: Rated Load

AC Input

+12V

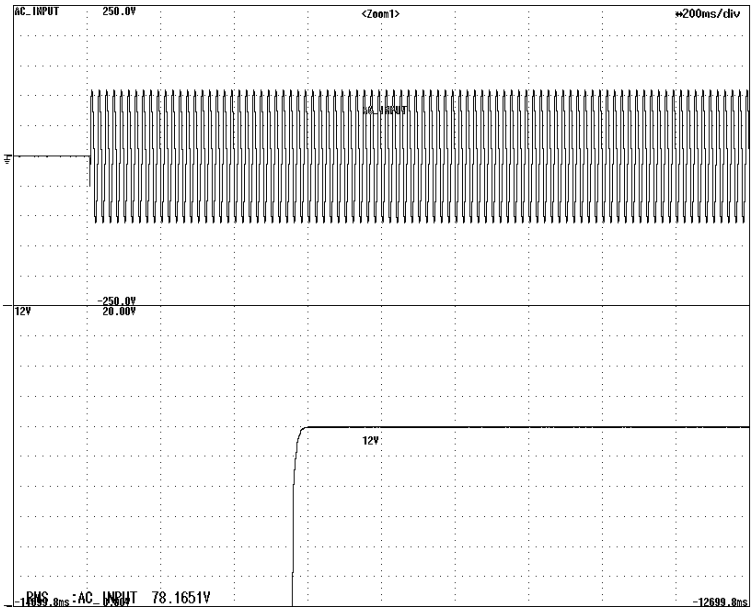


Start-up Voltage: 78.2V AC

Timebase Range: 200ms/div
Load: Minimum Load

AC Input

+12V



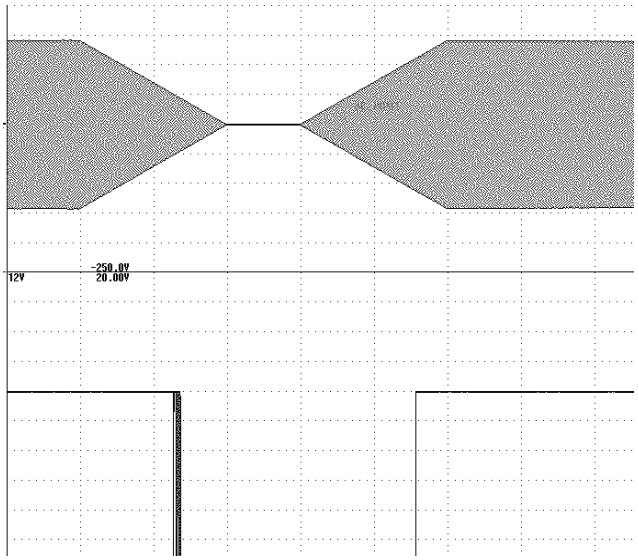
Start-up Voltage: 78.2V AC

Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Input Voltage Sweep Up/Down	

Timebase Range: 5s/div
Load: Rated Load

AC Input

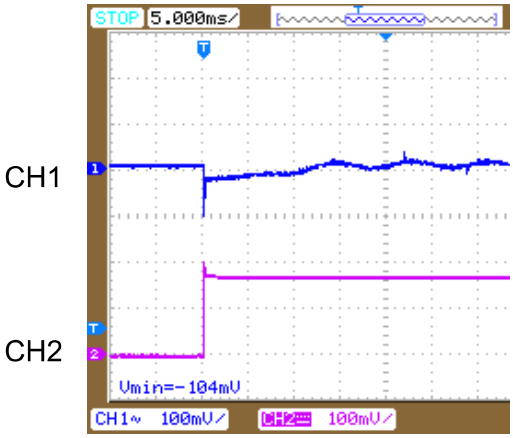
+12V



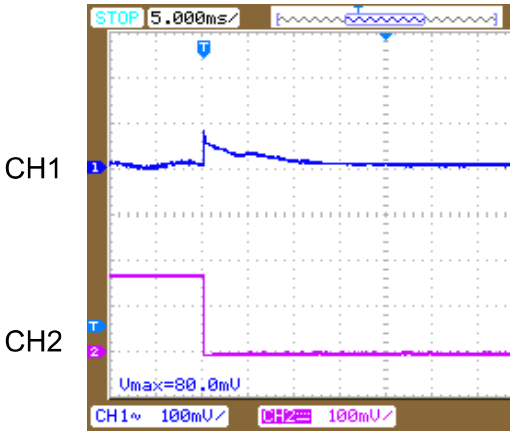
Sweep Rate: 10Vave/sec

Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Dynamic Load Response	

+12V DC Output Transient Response Waveforms

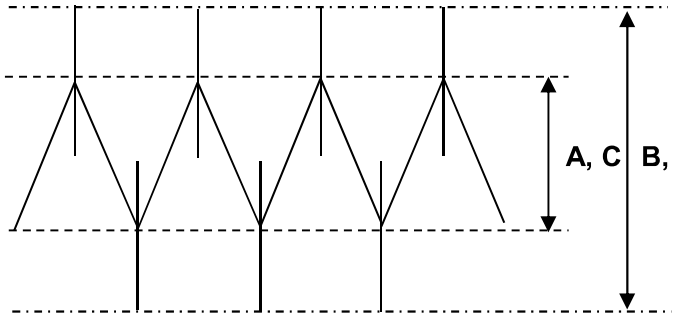


Waveform 1	
CH1	Measuring Point: DC Output Voltage
	Vertical Sensitivity: 100mV/div
CH2	Measuring Point: DC Output Current
	Vertical Sensitivity: 5A/div
Timebase Range	5ms/div
Condition	Input: 100V AC
Note: Minimum load(0A) → Rated Load(8.4A)	



Waveform 2	
CH1	Measuring Point: DC Output Voltage
	Vertical Sensitivity: 100mV/div
CH2	Measuring Point: DC Output Current
	Vertical Sensitivity: 5A/div
Timebase Range	5ms/div
Condition	Input: 100V AC
Note: Rated Load(8.4A) → Minimum load(0A)	

Model	mUZP-120-12-JB0	Load: Rated Load
Item	Ripple / Noise Voltage	

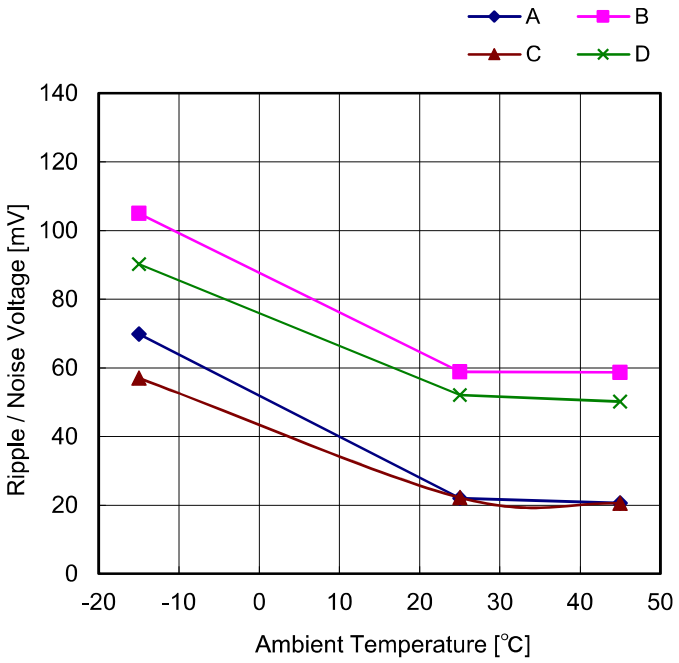


at 100V AC

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

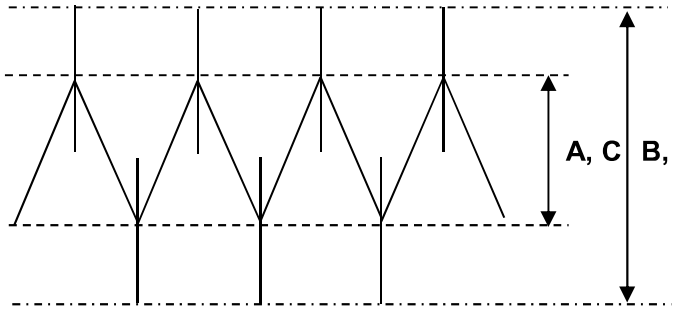
at 240V AC

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



Ambient Temp. [℃]	Ripple / Noise Voltage [mV]			
	A	B	C	D
-15	69.8	105.0	57.0	90.2
25	22.0	58.8	22.2	52.1
45	20.6	58.7	20.5	50.1

Model	mUZP-120-12-JB0	Temperature : 25℃
Item	Ripple / Noise Voltage	

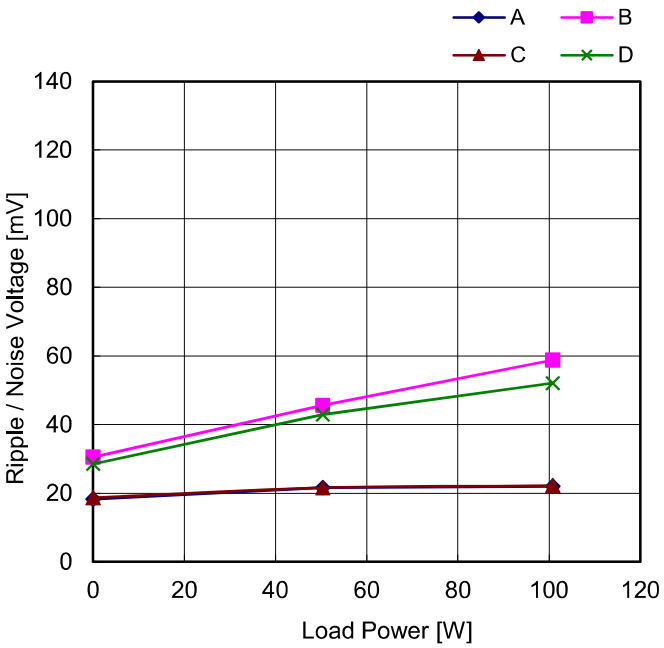


at 100V AC

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

at 240V AC

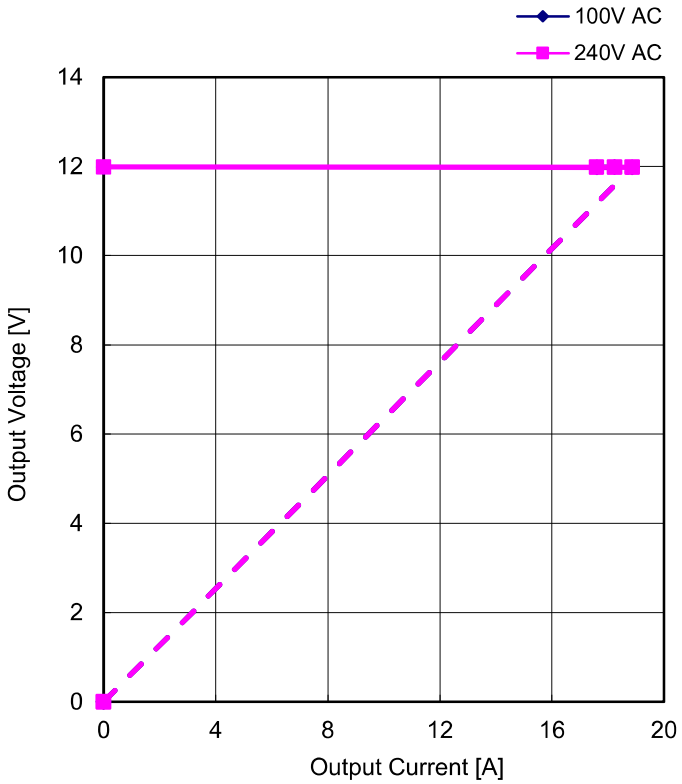
C: Ripple Voltage (mVP-P)
D: Noise Voltage (mVP-P)



Load Power [W]	Ripple / Noise Voltage [mV]			
	A	B	C	D
0	18.3	30.5	18.7	28.5
50.4	21.7	45.6	21.6	42.9
100.8	22.0	58.8	22.2	52.1

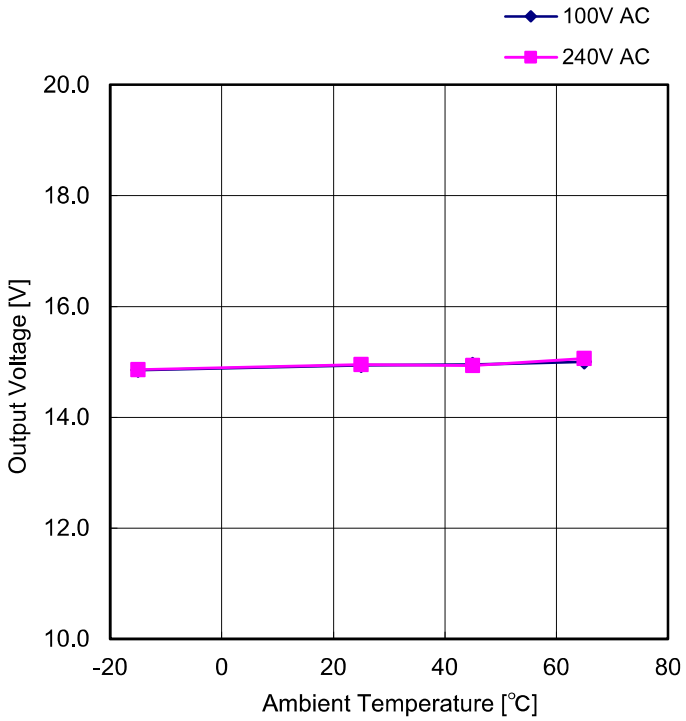
Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Over-Current Protection	

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	11.99	0.00	11.99
17.60	11.98	17.60	11.98
18.25	11.98	18.25	11.98
18.87	11.98	18.87	11.98

Model	mUZP-120-12-JB0	Load: Minimum Load
Item	Over-Voltage Protection	



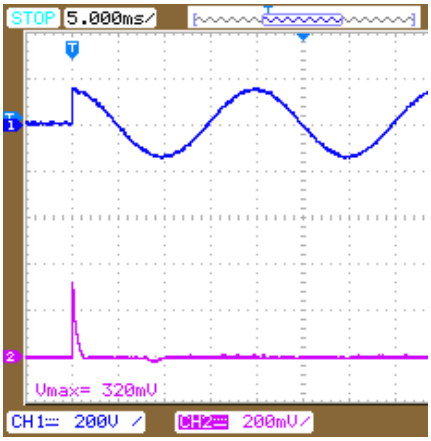
Ambient Temp. [°C]	Output Voltage [V]	
	100V AC	240V AC
-15	14.85	14.86
25	14.94	14.95
45	14.95	14.93
65	15.00	15.06

Model	mUZP-120-12-JB0	Temperature: 25℃
Item	Inrush Current	Load: Rated Load

Inrush Current Waveforms

CH1

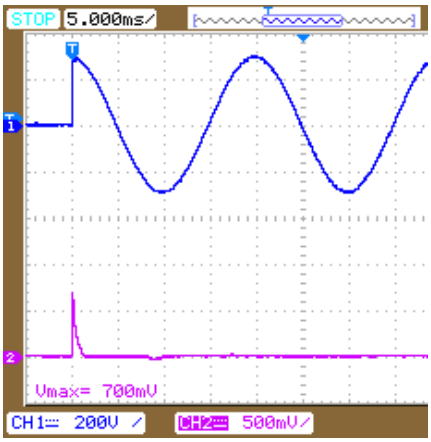
CH2



Waveform 1	
CH1	Measuring Point: AC Input Voltage
	Range: 200V/div
CH2	Measuring Point: AC Input Current
	Range: 10A/div
Timebase Range	5ms/div
Condition	Input: 100V AC
	Load: Rated Load
Note: Inrush Current: 16.0A	

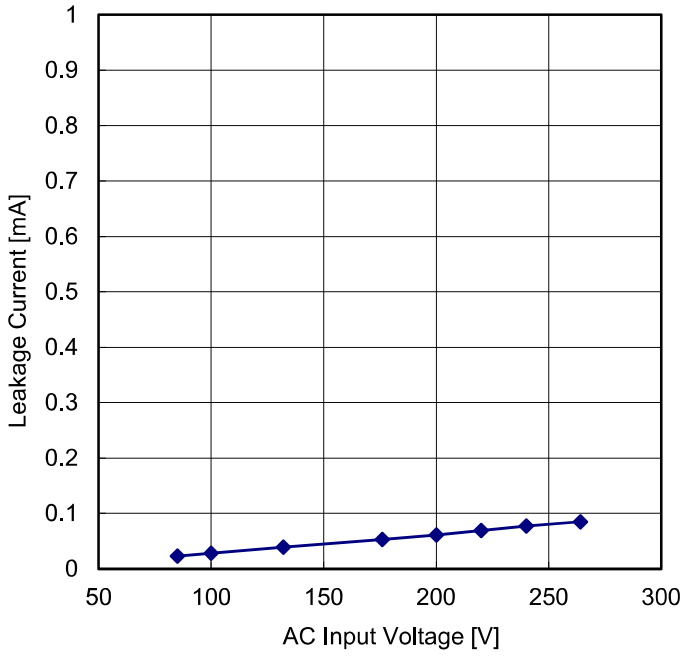
CH1

CH2



Waveform 2	
CH1	Measuring Point: AC Input Voltage
	Range: 200V/div
CH2	Measuring Point: AC Input Current
	Range: 25A/div
Timebase Range	5ms/div
Condition	Input: 200V AC
	Load: Rated Load
Note: Inrush Current: 35.0A	

Model	mUZP-120-12-JB0	Load: Rated Load
Item	Leakage Current	



AC Input Voltage [V]	Leakage Current [mA]
85	0.02
100	0.03
132	0.04
176	0.05
200	0.06
220	0.07
240	0.08
264	0.09