Nipron

Date of issue: Jul. 22, 2016

Test Data

Model Number: mUZPT-120-24-JB0

Model Name: DC POWER SUPPLY

INPUT: 85V – 264V AC, 50 / 60 Hz

OUTPUT: 24V 5A ($8.4A_{peak}$)

Minimum load : 0W
Rated load :120W
Peak output power: 201.6W

Approved by : T Itsubouchi (QA manager)

Designed by : Kazuhiro Gamada (R&D engineer)

Tested by : Hiroyuki Watanabe (Evaluation test engineer)

Nipron Co., Ltd.

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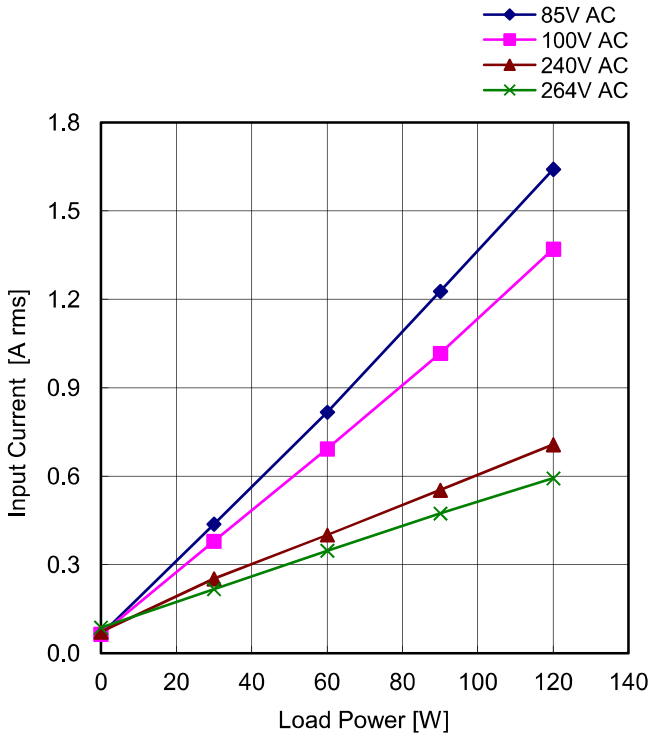
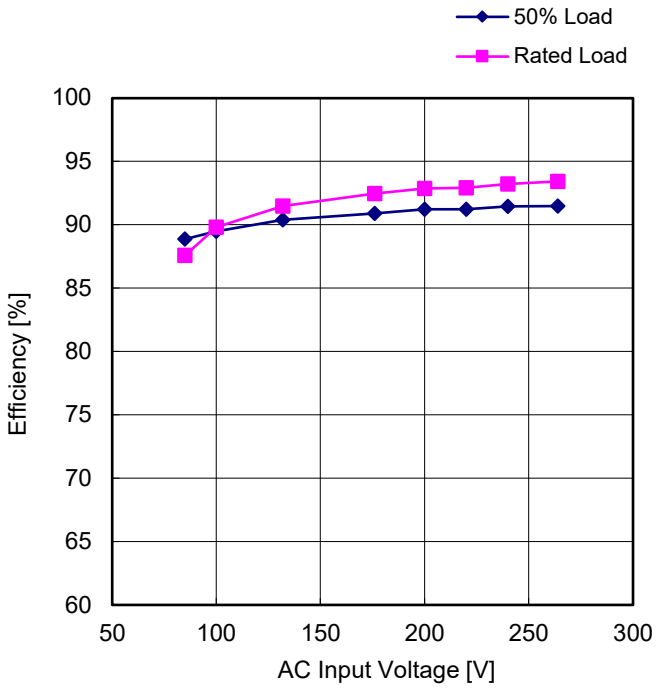
Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Input Current（by Load Power）	



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	0.06	0.06	0.07	0.09
30.0	0.44	0.38	0.25	0.22
60.0	0.82	0.69	0.40	0.35
90.0	1.23	1.02	0.55	0.47
120.0	1.64	1.37	0.71	0.59

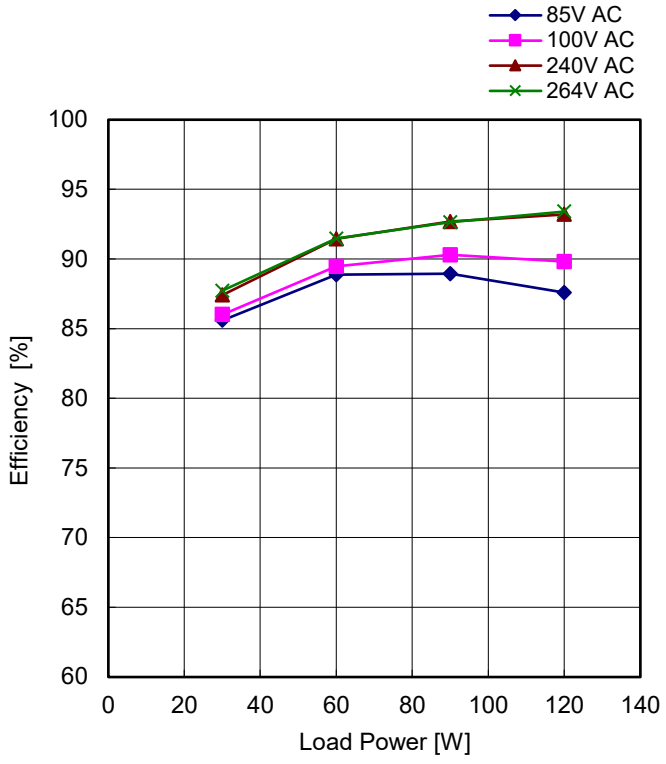
Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Efficiency	

■Efficiency(by Input Voltage)



AC Input Voltage [V]	Efficiency [%]	
	50% Load	Rated Load
85	88.87	87.58
100	89.47	89.80
132	90.38	91.48
176	90.89	92.46
200	91.23	92.85
220	91.22	92.91
240	91.44	93.21
264	91.47	93.42

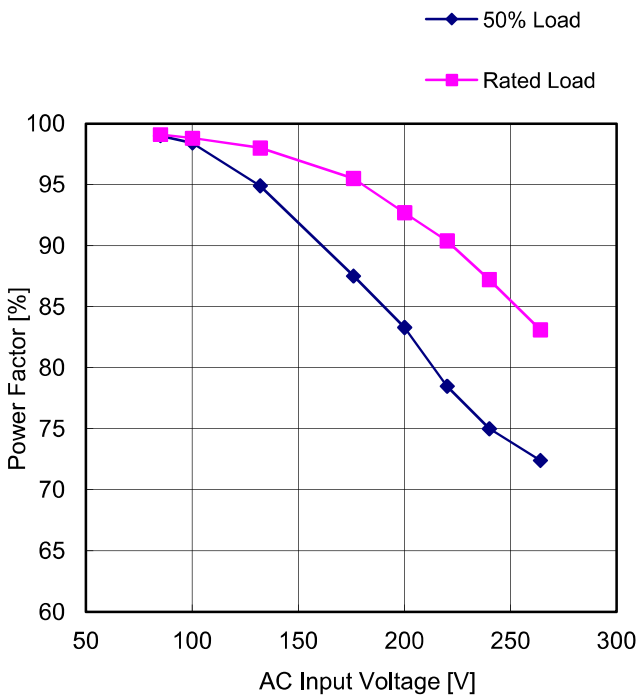
■Efficiency(by Load Power)



Load Power [W]	Efficiency [%]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
30.0	85.60	86.01	87.42	87.73
60.0	88.87	89.47	91.44	91.47
90.0	88.94	90.30	92.69	92.64
120.0	87.58	89.80	93.21	93.42

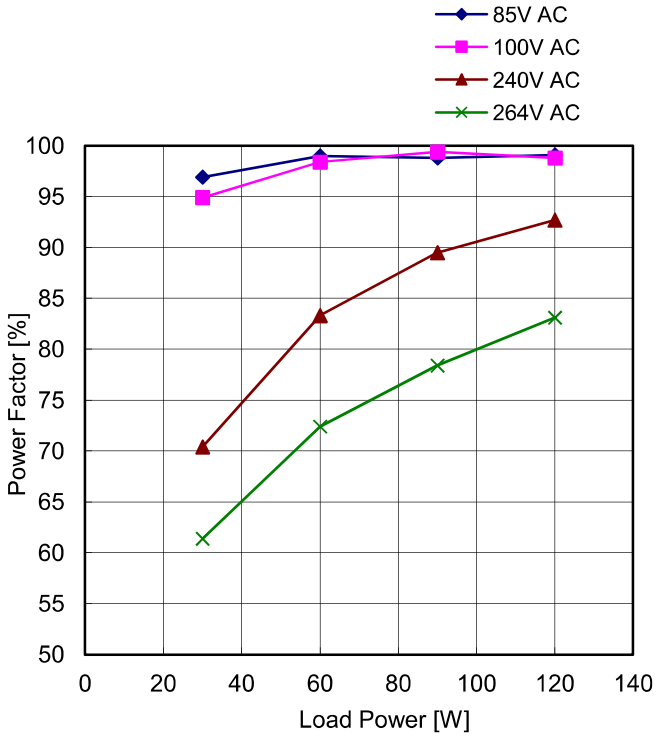
Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Power Factor	

■Power Factor(by Input Voltage)



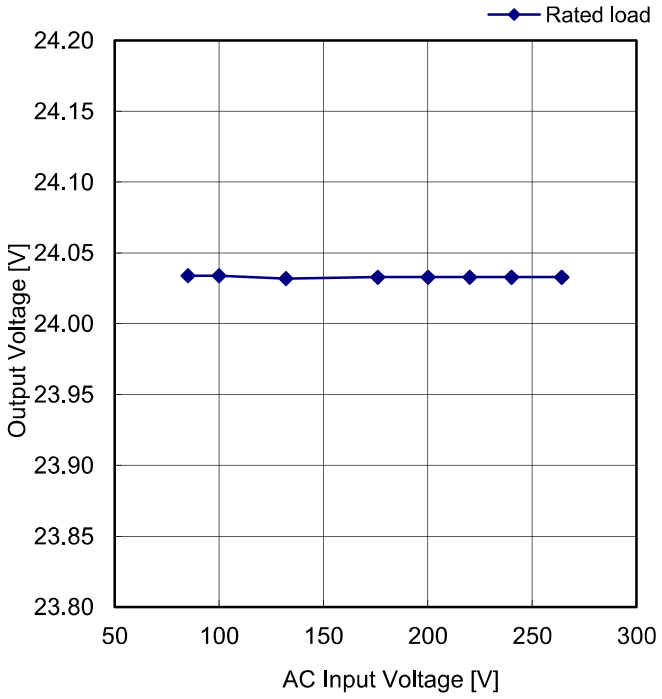
AC Input Voltage [V]	Power Factor [%]	
	50% Load	Rated Load
85	99.0	99.1
100	98.4	98.8
132	94.9	98.0
176	87.5	95.5
200	83.3	92.7
220	78.5	90.4
240	75.0	87.2
264	72.4	83.1

■Power Factor (by Load Power)



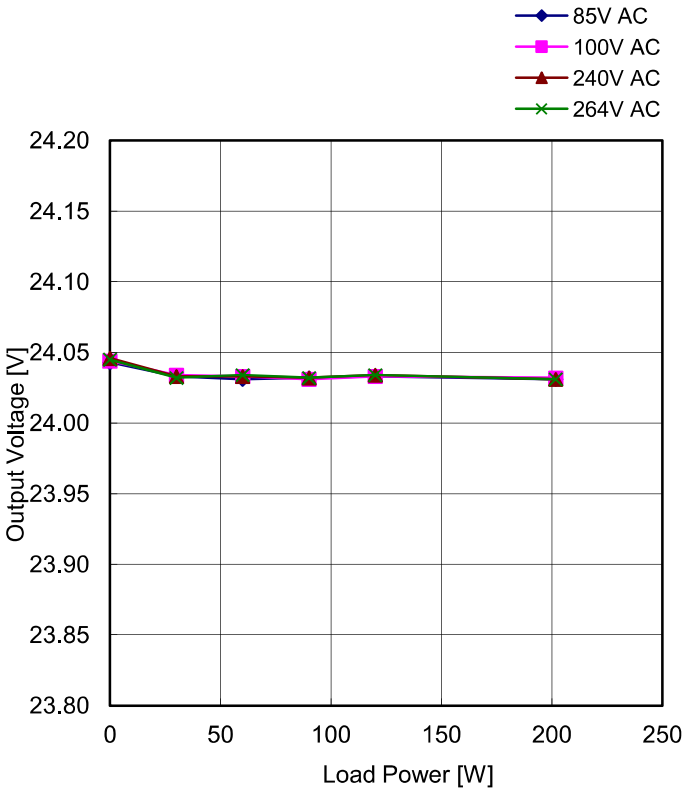
Load Power [W]	Power Factor [%]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
30.0	96.9	94.9	70.4	61.4
60.0	99.0	98.4	83.3	72.4
90.0	98.8	99.4	89.5	78.4
120.0	99.1	98.8	92.7	83.1

Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Line Regulation	



AC Input Voltage [V]	Output Voltage [V]
85	24.034
100	24.034
132	24.032
176	24.033
200	24.033
220	24.033
240	24.033
264	24.033

Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Load Regulation	

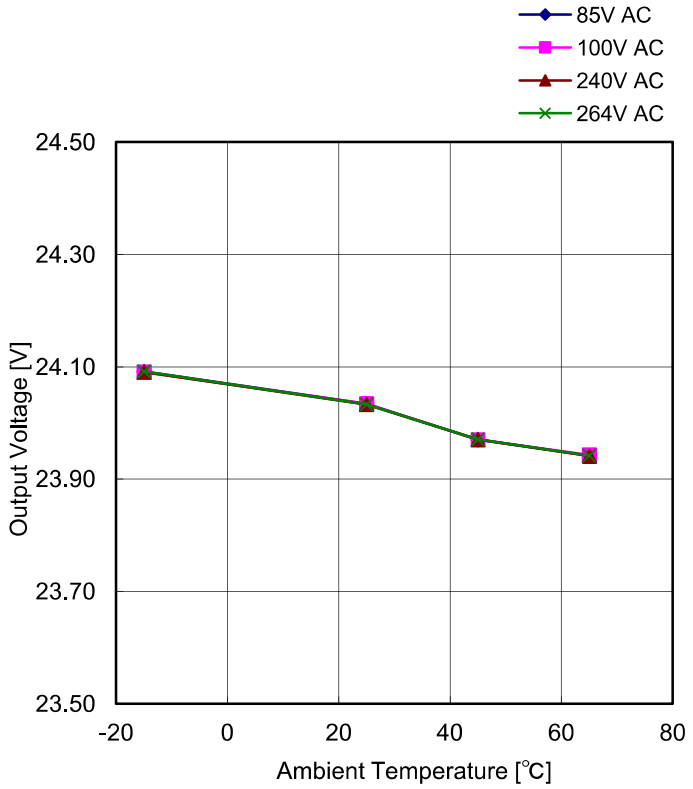


Load Power [W]	Output Voltage [V]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
0.0	24.043	24.044	24.046	24.045
30.0	24.033	24.034	24.033	24.032
60.0	24.031	24.033	24.033	24.034
90.0	24.032	24.031	24.032	24.032
120.0	24.033	24.033	24.034	24.034
201.6	24.031	24.032	24.031	24.031

Load Condition

Load Power [W]	Load Current [A]
	24V
0.0	0.00
30.0	1.25
60.0	2.50
90.0	3.75
120.0	5.00
201.6	8.40

Model	mUZPT-120-24-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	24.092	24.091	24.091	24.092
25	24.034	24.034	24.033	24.033
45	23.970	23.970	23.971	23.971
65	23.942	23.943	23.941	23.942

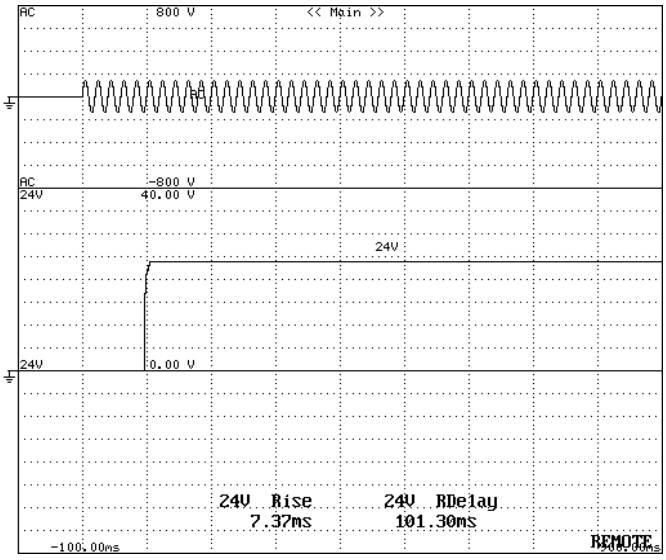
Load Condition

Ambient Temp. (℃)	Load Current [A]
	24V
-15	5.00
25	5.00
45	5.00
65	3.33

Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Output Rise Characteristics (at AC Power ON)	

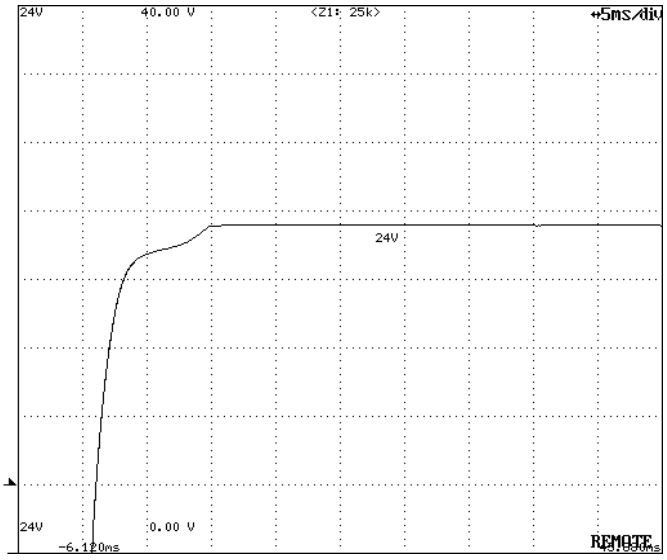
Input: 100V AC
Load: Rated Load

Timebase Range: 100ms/div



All Output Start-up Sequence

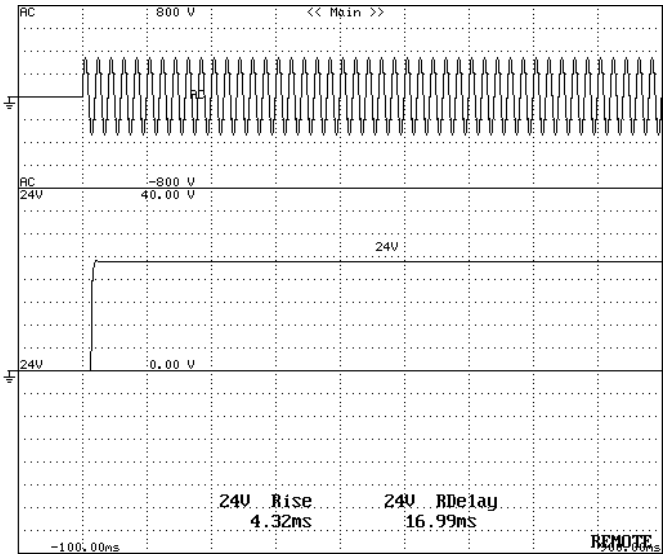
Vertical Sensitivity: 5V/div
Timebase Range: 5ms/div



24V DC Output Rise Characteristics

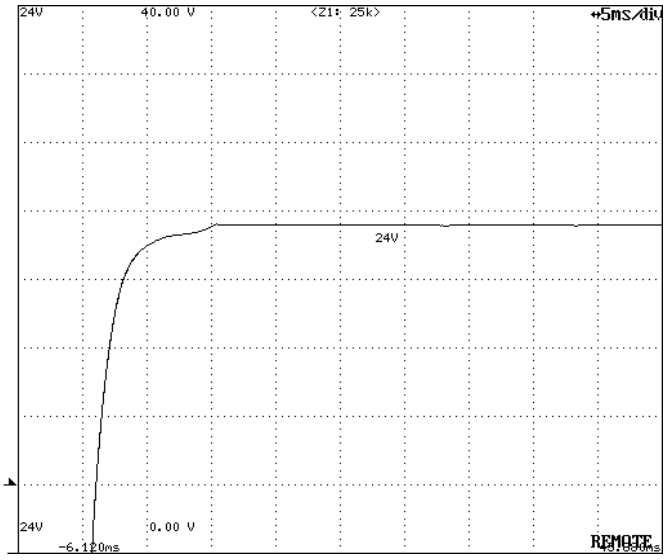
Input: 240V AC
Load: Rated Load

Timebase Range: 100ms/div



All Output Start-up Sequence

Vertical Sensitivity: 5V/div
Timebase Range: 5ms/div

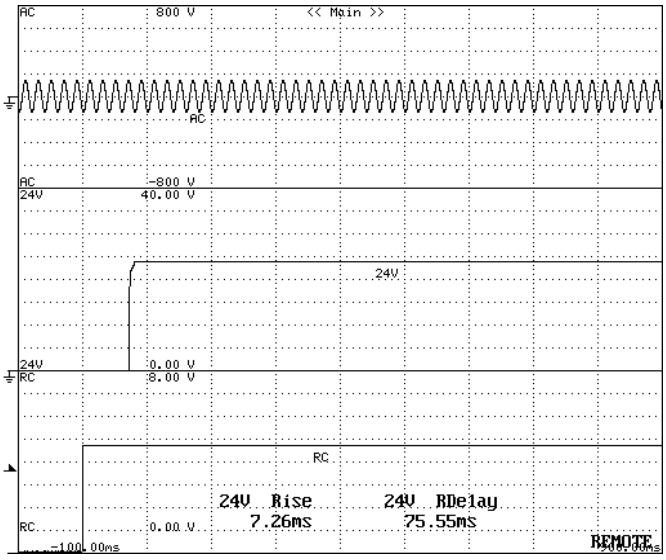


24V DC Output Rise Characteristics

Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Output Rise Characteristics (at Remote ON)	

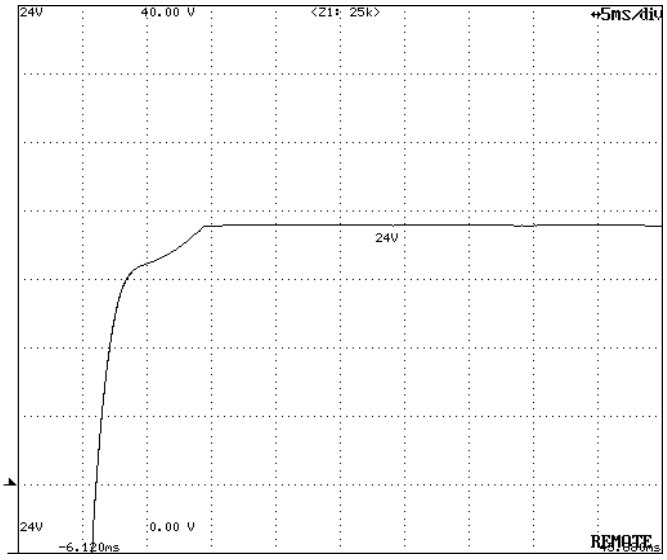
Input: 100V AC
Load: Rated Load

Timebase Range: 100ms/div



All Output Start-up Sequence

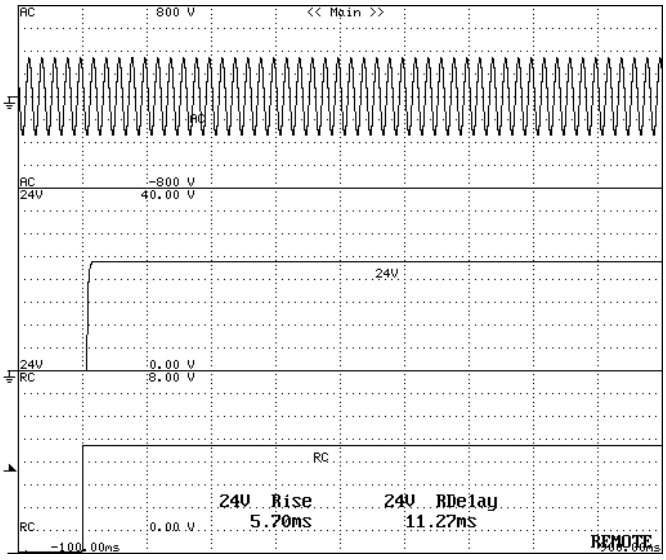
Vertical Sensitivity: 5V/div
Timebase Range: 5ms/div



24V DC Output Rise Characteristics

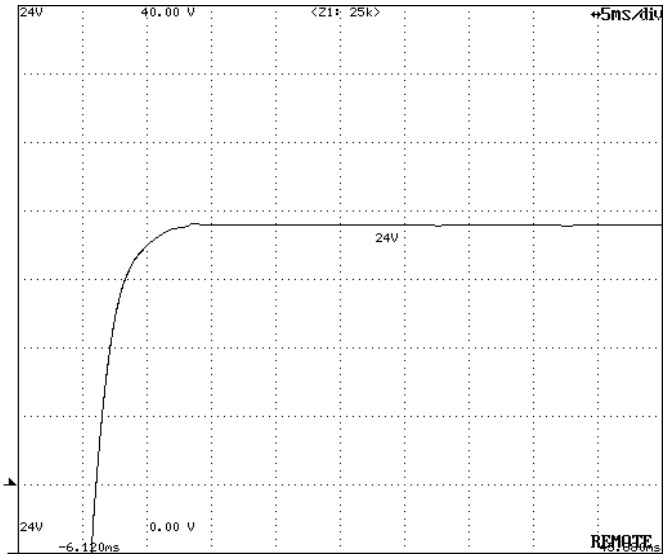
Input: 240V AC
Load: Rated Load

Timebase Range: 100ms/div



All Output Start-up Sequence

Vertical Sensitivity: 5V/div
Timebase Range: 5ms/div

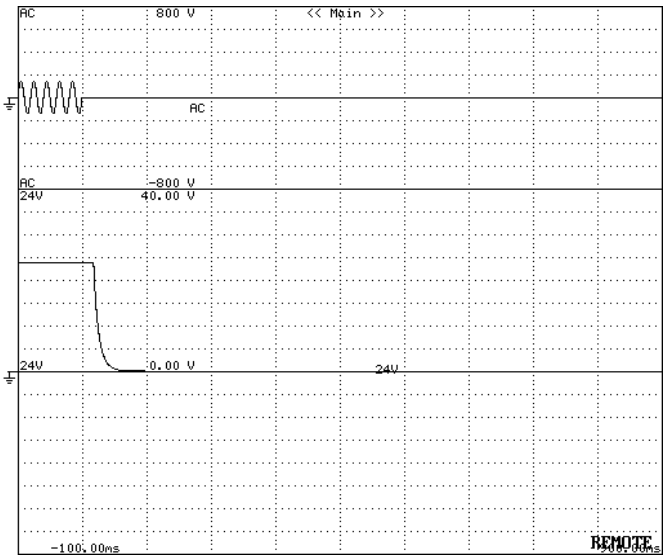


24V DC Output Rise Characteristics

Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Output Fall Characteristics (at AC Power OFF)	

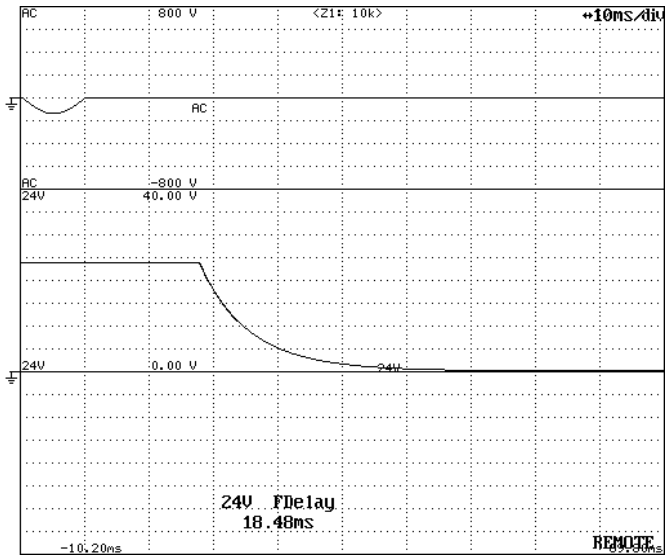
Input: 100V AC
Load: Rated Load

Timebase Range: 100ms/div



Output Fall Characteristics

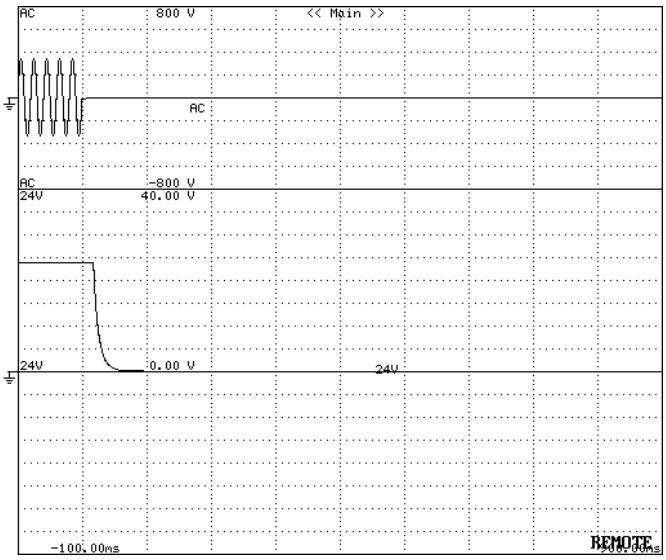
Timebase Range: 10ms/div



Output Fall Characteristics (magnification)

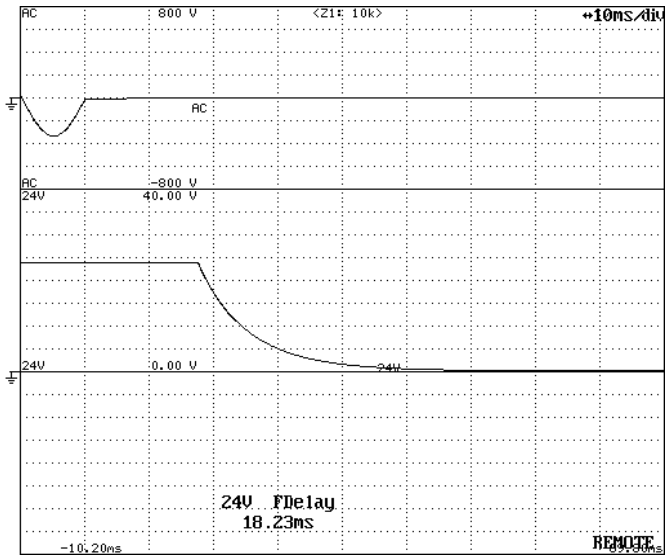
Input: 240V AC
Load: Rated Load

Timebase Range: 100ms/div



Output Fall Characteristics

Timebase Range: 10ms/div

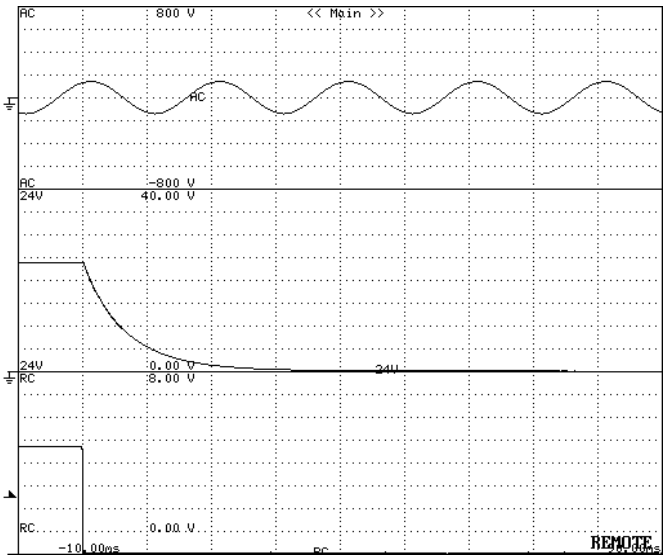


Output Fall Characteristics (magnification)

Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Output Fall Characteristics (at Remote OFF)	

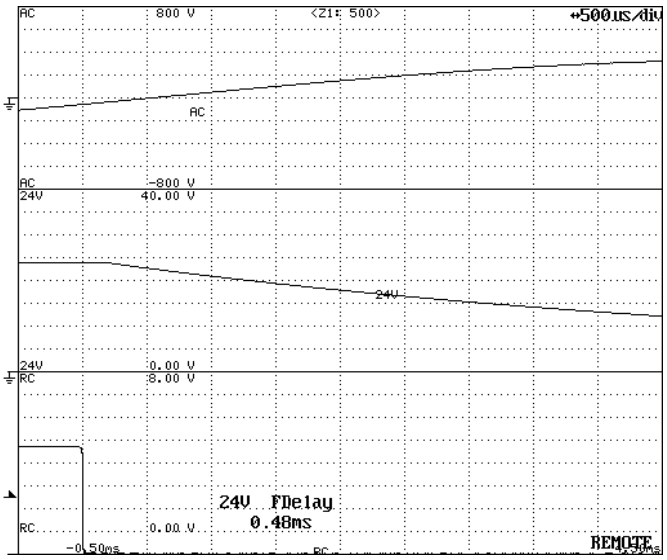
Input: 100V AC
Load: Rated Load

Timebase Range: 10ms/div



Output Fall Characteristics

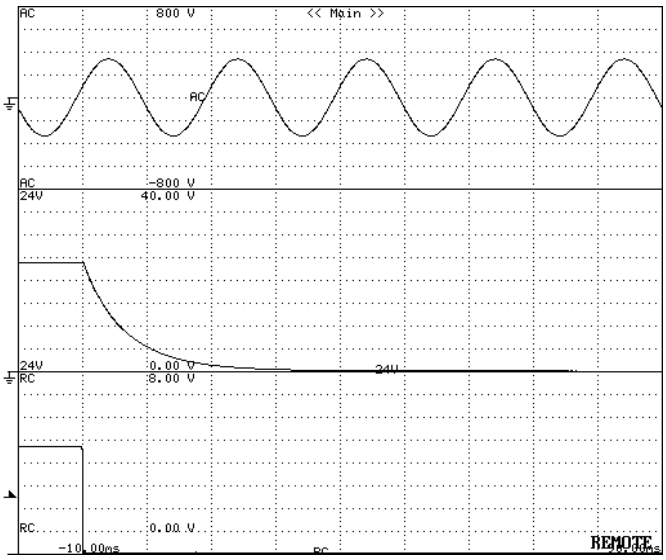
Timebase Range: 500μs/div



Output Fall Characteristics (magnification)

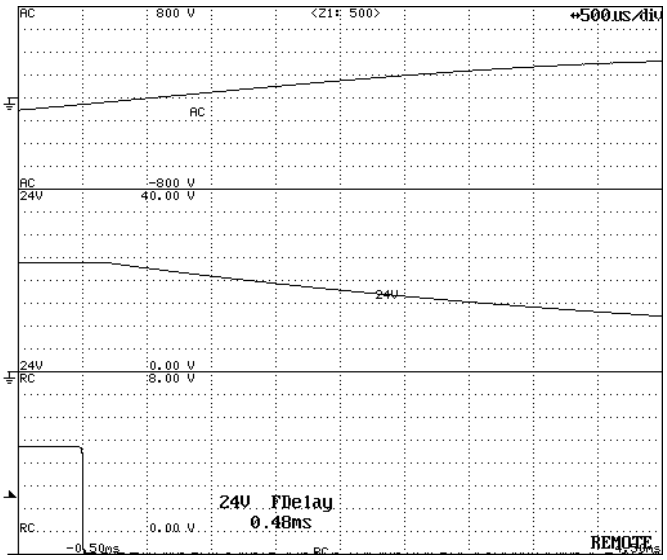
Input: 240V AC
Load: Rated Load

Timebase Range: 10ms/div



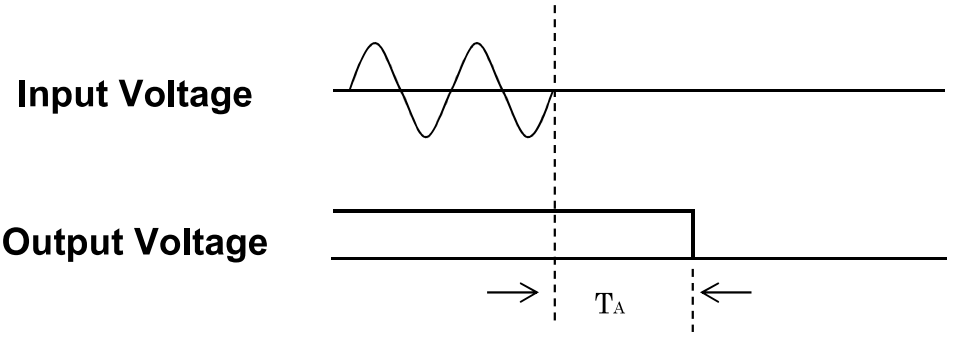
Output Fall Characteristics

Timebase Range: 500μs/div

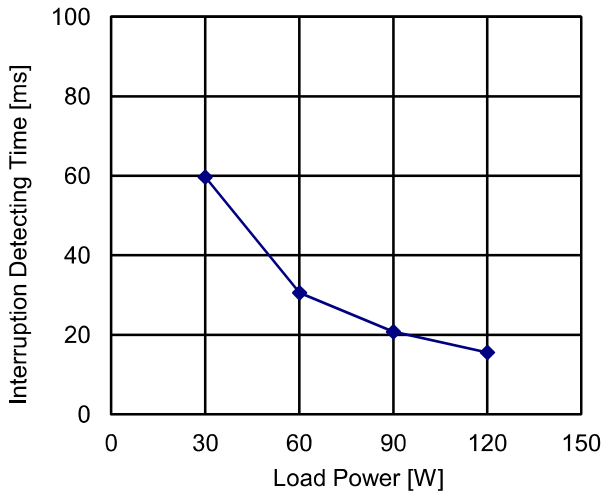


Output Fall Characteristics (magnification)

Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Instantaneous Interruption Compensation (by Load Power)	

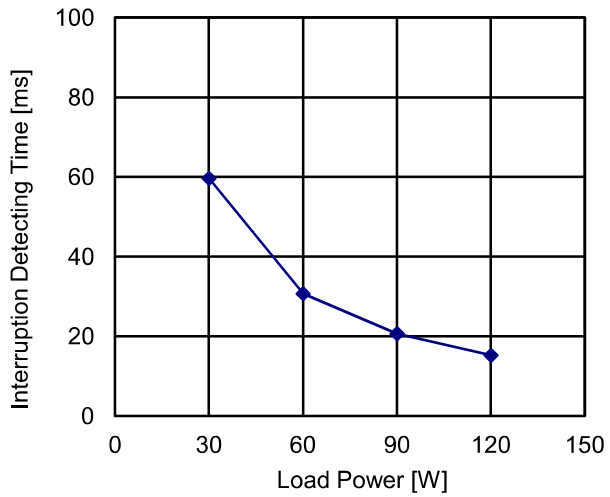


Input Voltage:100V AC



Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	TA
30.0	59.7
60.0	30.6
90.0	20.8
120.0	15.6

Input Voltage:240V AC



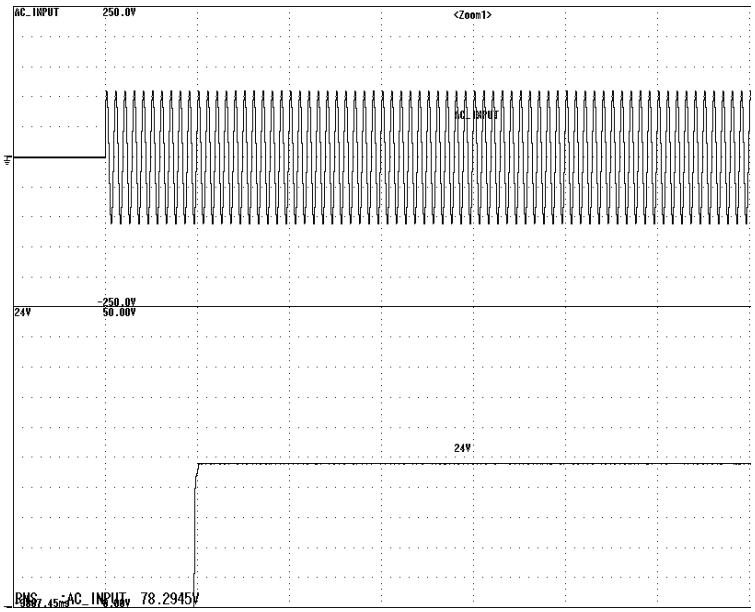
Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	TA
30.0	59.7
60.0	30.7
90.0	20.7
120.0	15.3

Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Start-Up Voltage	

Timebase Range: 200ms/div
Load: Rated Load

AC Input

+24V

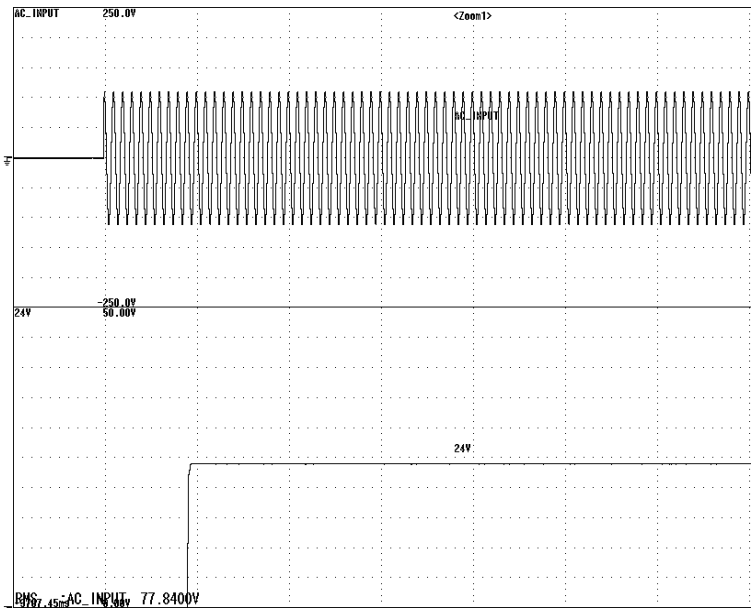


Start-up Voltage: 78.3V AC

Timebase Range: 200ms/div
Load: Minimum Load

AC Input

+24V



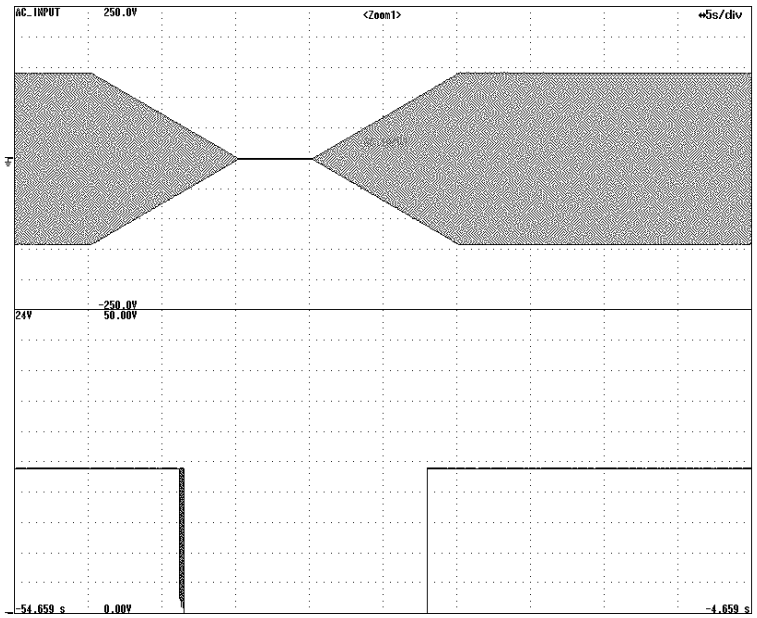
Start-up Voltage: 77.8V AC

Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Input Voltage Sweep Up/Down	

Timebase Range: 5s/div
Load: Rated Load

AC Input

+24V



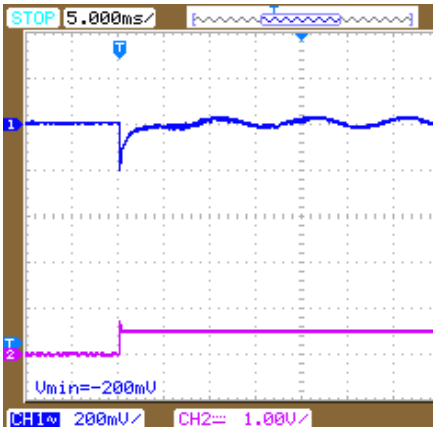
Sweep Rate: 10Vave/sec

Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Dynamic Load Response	

+24V DC Output Transient Response Waveforms

CH1

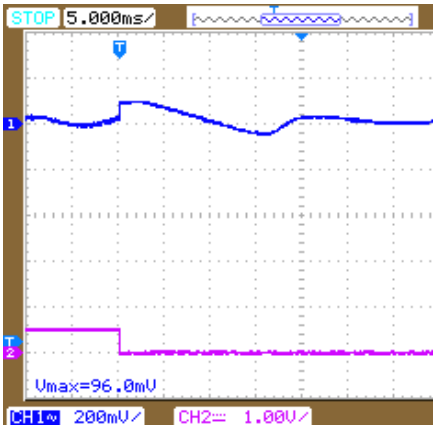
CH2



Waveform 1	
CH1	Measuring Point: DC Output Voltage
	Vertical Sensitivity: 200mV/div
CH2	Measuring Point: DC Output Current
	Vertical Sensitivity: 10A/div
Timebase Range	5ms/div
Condition	Input: 100V AC
Note: Minimum load(0A) → Rated Load(5A)	

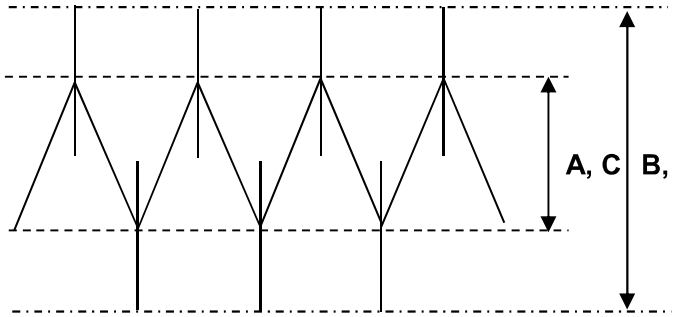
CH1

CH2



Waveform 2	
CH1	Measuring Point: DC Output Voltage
	Vertical Sensitivity: 200mV/div
CH2	Measuring Point: DC Output Current
	Vertical Sensitivity: 10A/div
Timebase Range	5ms/div
Condition	Input: 100V AC
Note: Rated Load(5A) → Minimum load(0A)	

Model	mUZPT-120-24-JB0	Load: Rated Load
Item	Ripple / Noise Voltage	

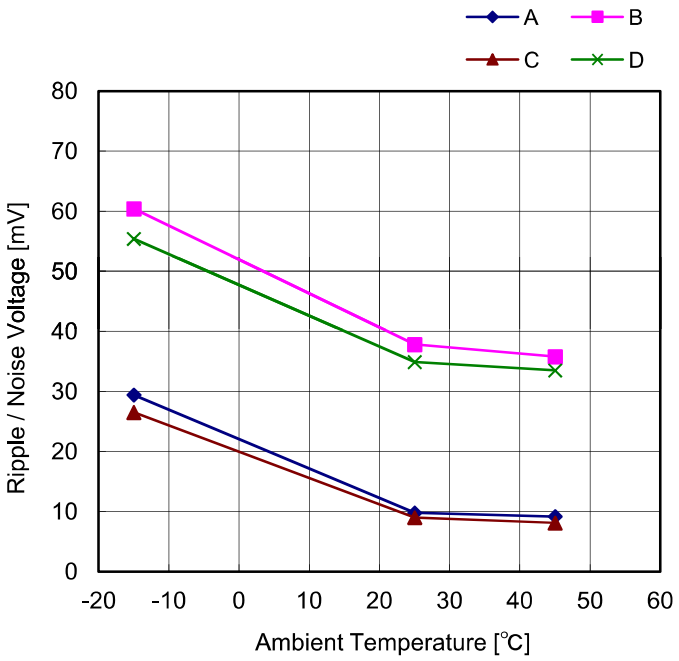


at 100V AC

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

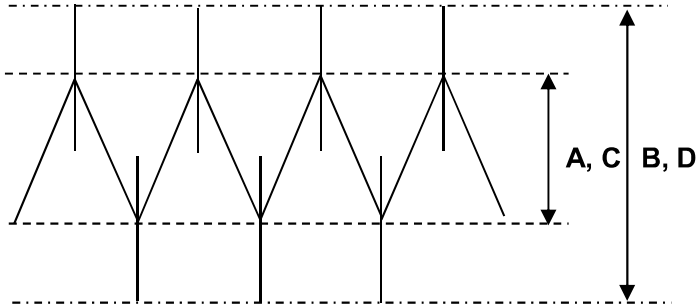
at 240V AC

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



Ambient Temp. [℃]	Ripple / Noise Voltage [mV]			
	A	B	C	D
-15	29.4	60.4	26.5	55.4
25	9.8	37.8	9.0	34.9
45	9.2	35.8	8.1	33.5

Model	mUZPT-120-24-JB0	Temperature : 25℃
Item	Ripple / Noise Voltage	

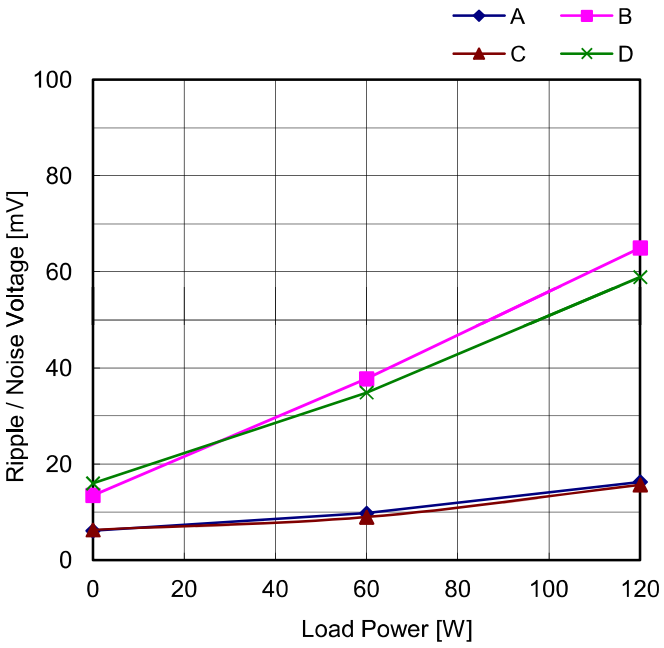


at 100V AC

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

at 240V AC

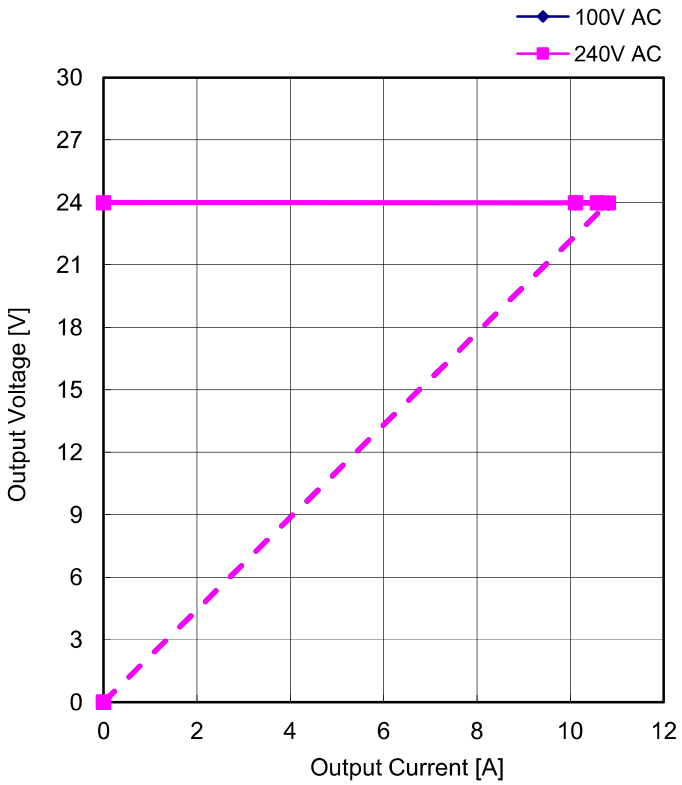
C: Ripple Voltage (mVP-P)
D: Noise Voltage (mVP-P)



Load Power [W]	Ripple / Noise Voltage [mV]			
	A	B	C	D
0	6.1	13.5	6.3	16.0
60.0	9.8	37.8	9.0	34.9
120.0	16.3	65.0	15.7	58.9

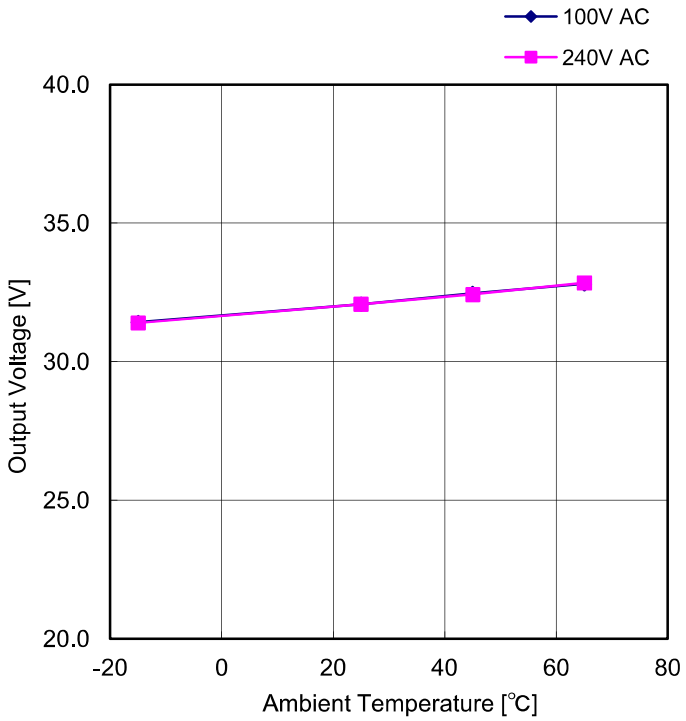
Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Over-Current Protection	

V-I Characteristics of 24V 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	23.99	0.00	23.99
10.11	23.99	10.11	23.98
10.58	23.98	10.58	23.98
10.82	23.98	10.82	23.98

Model	mUZPT-120-24-JB0	Load: Minimum Load
Item	Over-Voltage Protection	



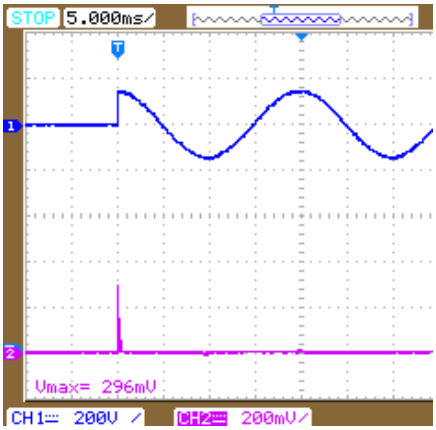
Ambient Temp. [°C]	Output Voltage [V]	
	100V AC	240V AC
-15	31.43	31.40
25	32.08	32.08
45	32.47	32.43
65	32.81	32.85

Model	mUZPT-120-24-JB0	Temperature: 25℃
Item	Inrush Current	Load: Rated Load

Inrush Current Waveforms

CH1

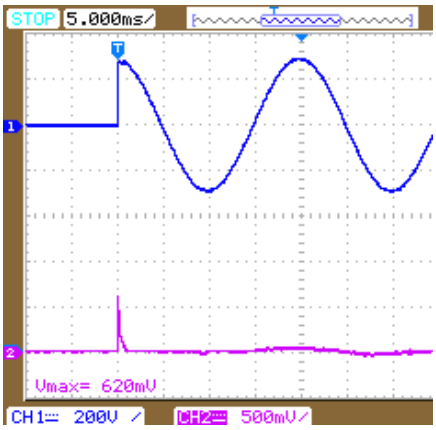
CH2



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: 14.8A	

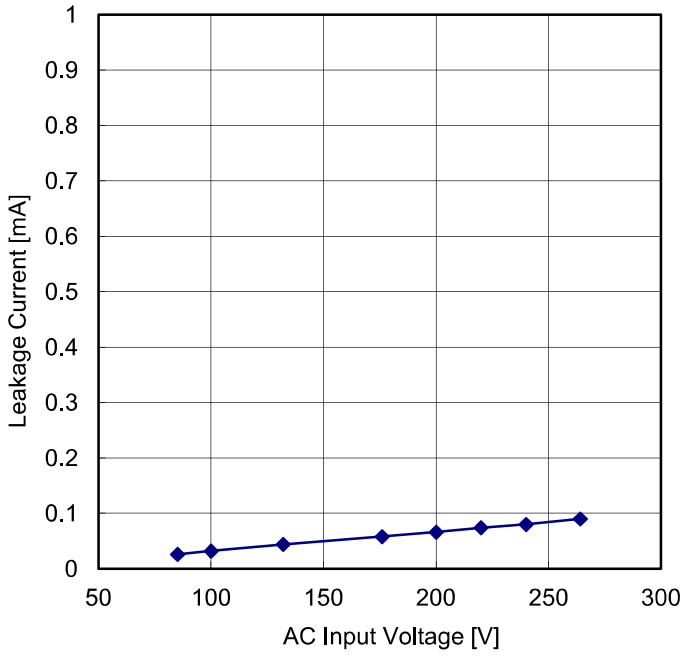
CH1

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: 31.0A	

Model	mUZPT-120-24-JB0	Load: Rated Load
Item	Leakage Current	



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