

Test Data

Model Number: mUZP-120-24-JBH

Model Name: DC POWER SUPPLY

INPUT: 85V – 264V AC, 50 / 60 Hz

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

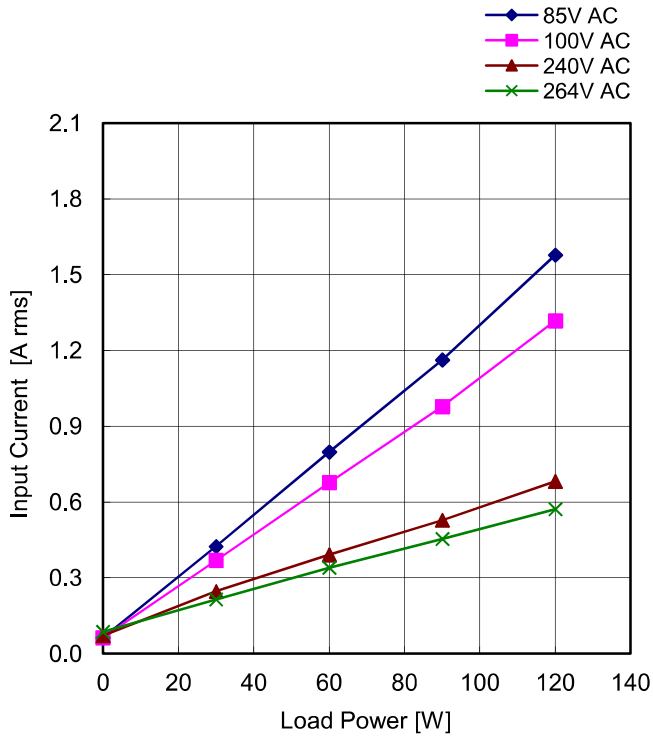
Minimum load : 0W
Rated load :120W
Peak output power: 201.6W

Approved by : *T. S. Yamamoto* (QA manager)
Designed by : *Kazuhiko Yamada* (R&D engineer)
Tested by : *Hiroyuki Watanabe* (Evaluation test engineer)

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Model	mUZP-120-24-JBH	Temperature: 25°C
Item	Input Current (by Load Power)	



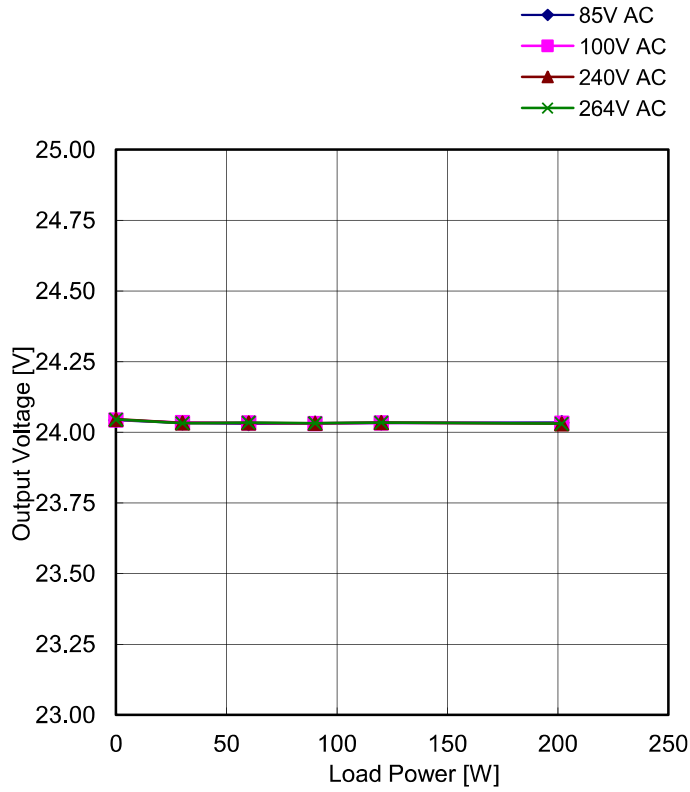
Load Power [W]	Input Current [A rms]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
0.0	0.06	0.06	0.07	0.09
30.0	0.42	0.37	0.25	0.22
60.0	0.80	0.68	0.39	0.34
90.0	1.16	0.98	0.53	0.45
120.0	1.58	1.32	0.68	0.57

Model	mUZP-120-24-JBH	Temperature: 25°C																													
Item	Efficiency																														
<p>■ Efficiency(by Input Voltage)</p> <p>Legend: 50% Load (blue diamonds), Rated Load (pink squares)</p>		<table border="1"> <thead> <tr> <th rowspan="2">AC Input Voltage [V]</th> <th colspan="2">Efficiency [%]</th> </tr> <tr> <th>50% Load</th> <th>Rated Load</th> </tr> </thead> <tbody> <tr><td>85</td><td>89.80</td><td>90.51</td></tr> <tr><td>100</td><td>90.50</td><td>92.28</td></tr> <tr><td>132</td><td>91.04</td><td>93.61</td></tr> <tr><td>176</td><td>91.75</td><td>94.51</td></tr> <tr><td>200</td><td>92.02</td><td>94.87</td></tr> <tr><td>220</td><td>92.24</td><td>95.05</td></tr> <tr><td>240</td><td>92.30</td><td>95.26</td></tr> <tr><td>264</td><td>92.36</td><td>95.15</td></tr> </tbody> </table>	AC Input Voltage [V]	Efficiency [%]		50% Load	Rated Load	85	89.80	90.51	100	90.50	92.28	132	91.04	93.61	176	91.75	94.51	200	92.02	94.87	220	92.24	95.05	240	92.30	95.26	264	92.36	95.15
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Item	Power Factor																															
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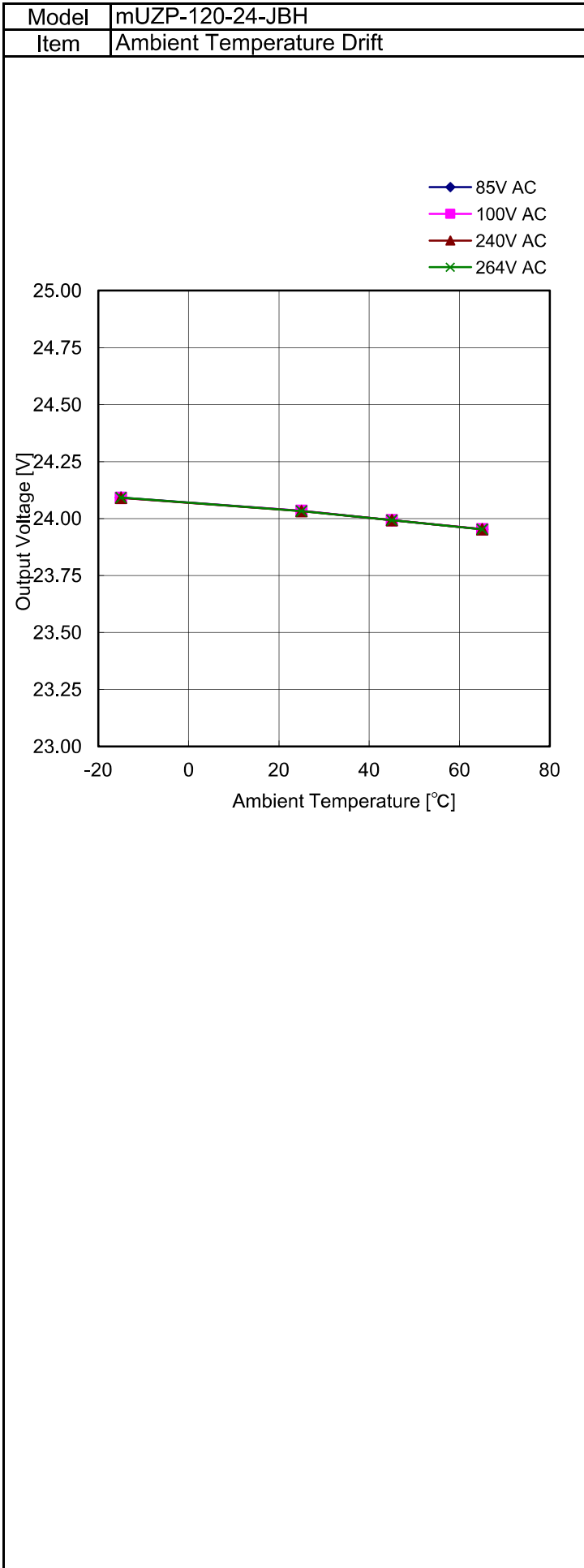
Model	mUZP-120-24-JBH	Temperature: 25°C																		
Item	Line Regulation																			
<p>The graph plots Output Voltage [V] on the y-axis (ranging from 23.00 to 25.00) against AC Input Voltage [V] on the x-axis (ranging from 50 to 300). A single data series labeled 'Rated load' is shown as a blue line with diamond markers. The output voltage remains very stable, fluctuating only slightly around 24.03V across the entire input range.</p>		<table border="1"> <thead> <tr> <th>AC Input Voltage [V]</th> <th>Output Voltage [V]</th> </tr> </thead> <tbody> <tr> <td>85</td> <td>24.034</td> </tr> <tr> <td>100</td> <td>24.034</td> </tr> <tr> <td>132</td> <td>24.032</td> </tr> <tr> <td>176</td> <td>24.033</td> </tr> <tr> <td>200</td> <td>24.033</td> </tr> <tr> <td>220</td> <td>24.033</td> </tr> <tr> <td>240</td> <td>24.033</td> </tr> <tr> <td>264</td> <td>24.033</td> </tr> </tbody> </table>	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
AC Input Voltage [V]	Output Voltage [V]																			
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100	24.034																			
132	24.032																			
176	24.033																			
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240	24.033																			
264	24.033																			

Model	mUZP-120-24-JBH	Temperature: 25°C
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	24.034	24.032	24.030	24.030

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



Ambient Temp. (°C)	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	23.993	23.993	23.993	23.993
65	23.953	23.954	23.953	23.953

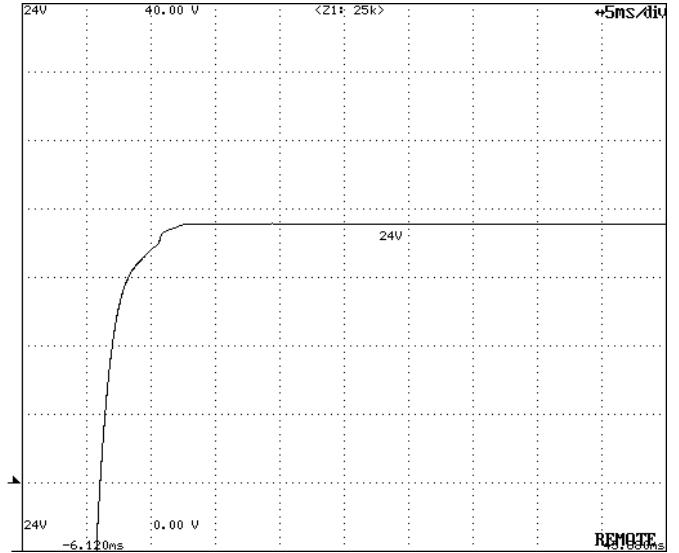
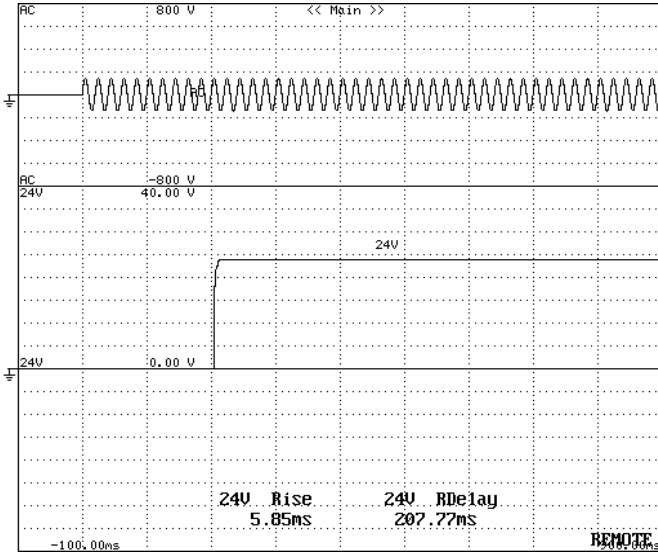
Load Condition	
Ambient Temp. (°C)	Load Current [A]
	24V
-15	5.00
25	5.00
45	5.00
65	3.75

Model	mUZP-120-24-JB	Temperature: 25°C
Item	Output Rise Characteristics (at AC Power ON)	

Input: 100V AC
Load: Rated Load

Timebase Range: 100ms/div

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



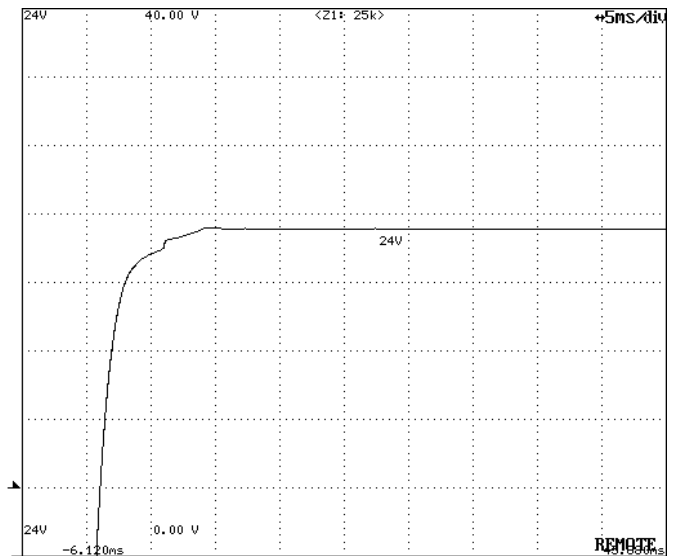
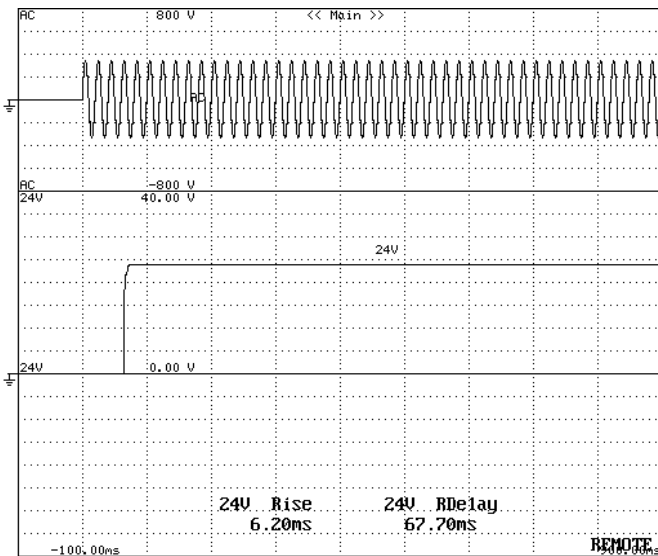
All Output Start-up Sequence

24V DC Output Rise Characteristics

Input: 240V AC
Load: Rated Load

Timebase Range: 100ms/div

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



All Output Start-up Sequence

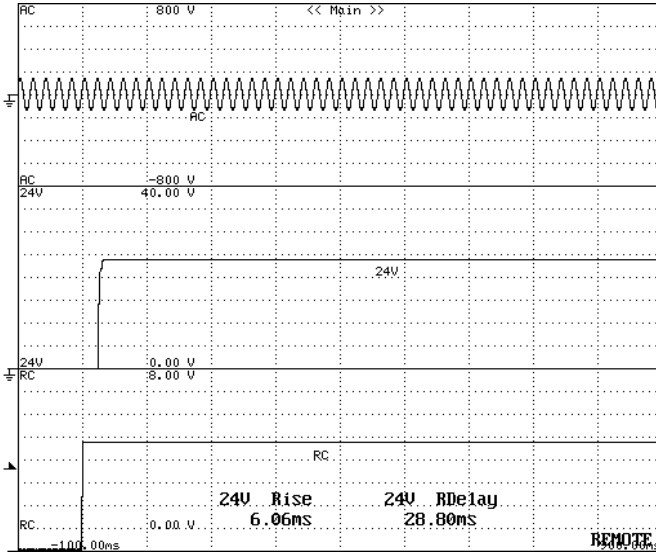
24V DC Output Rise Characteristics

Model	mUZP-120-24-JBH	Temperature: 25°C
Item	Output Rise Characteristics (at Remote ON)	

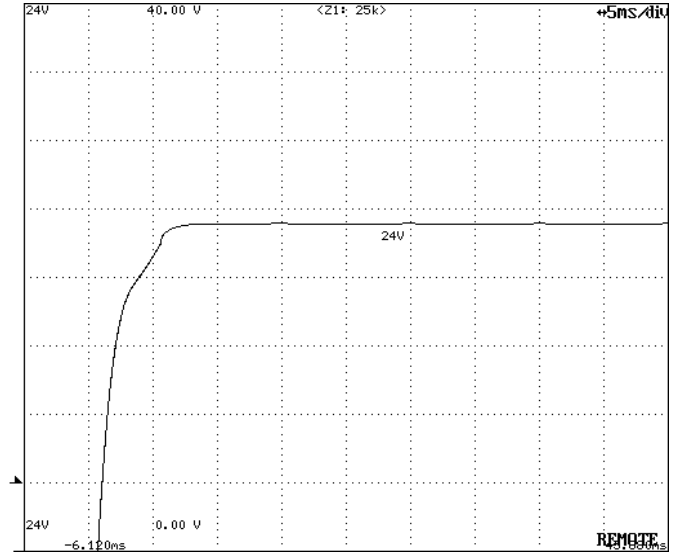
Input: 100V AC
Load: Rated Load

Timebase Range: 100ms/div

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



All Output Start-up Sequence

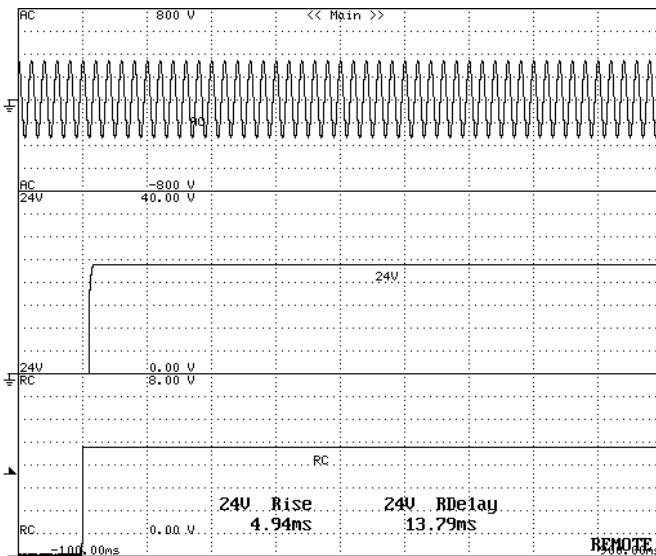


24V DC Output Rise Characteristics

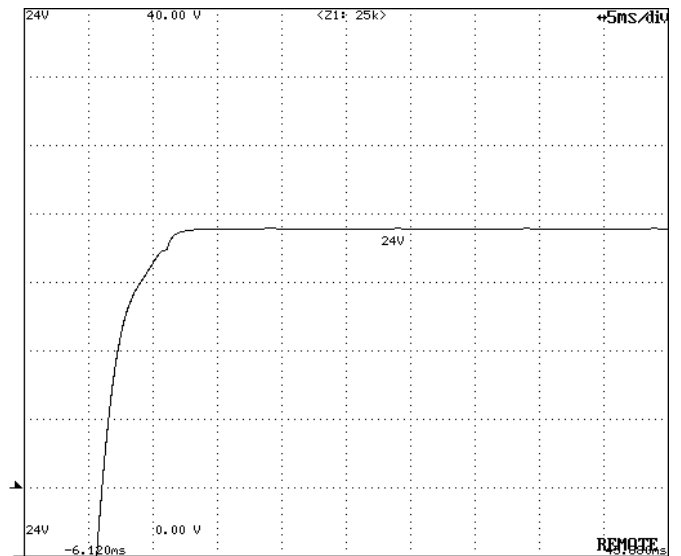
Input: 240V AC
Load: Rated Load

Timebase Range: 100ms/div

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



All Output Start-up Sequence

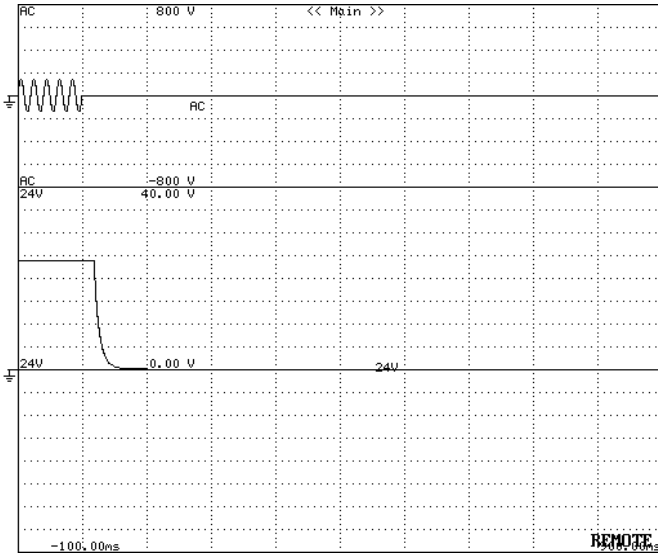


24V DC Output Rise Characteristics

Model	mUZP-120-24-JBH	Temperature: 25°C
Item	Output Fall Characteristics (at AC Power OFF)	

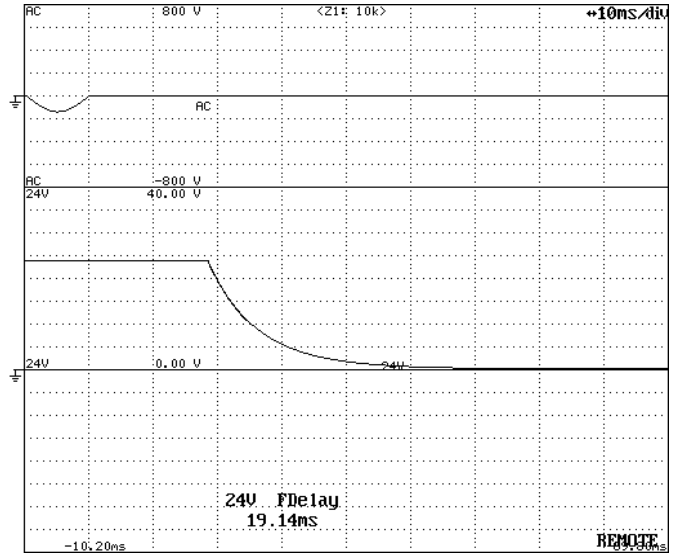
Input: 100V AC
Load: Rated Load

Timebase Range: 100ms/div



Output Fall Characteristics

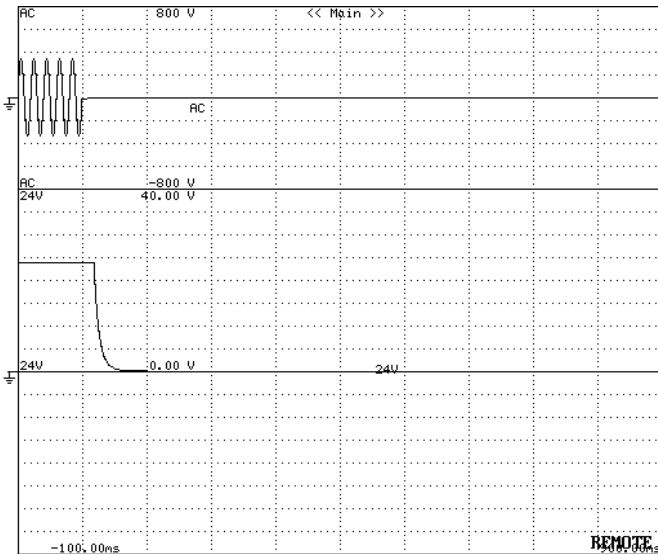
Timebase Range: 10ms/div



Output Fall Characteristics (magnification)

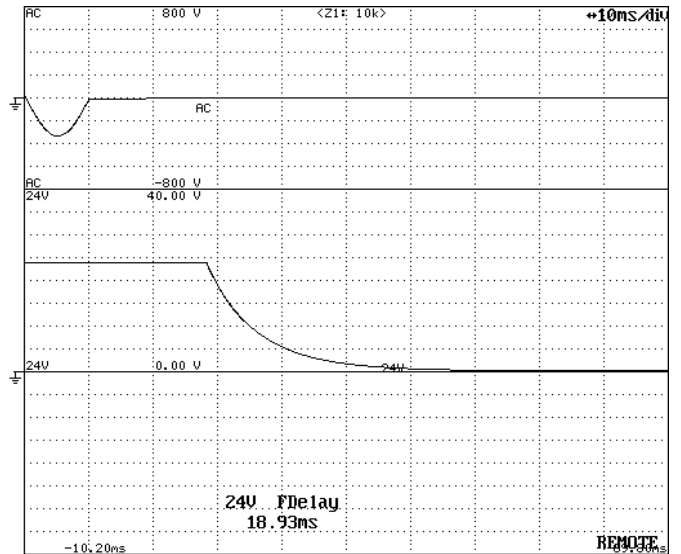
Input: 240V AC
Load: Rated Load

Timebase Range: 100ms/div



Output Fall Characteristics

Timebase Range: 10ms/div

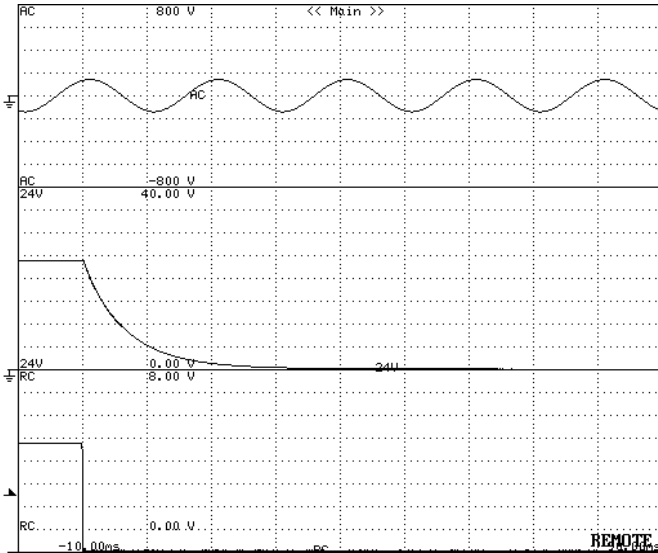


Output Fall Characteristics (magnification)

Model	mUZP-120-24-JBH	Temperature: 25°C
Item	Output Fall Characteristics (at Remote OFF)	

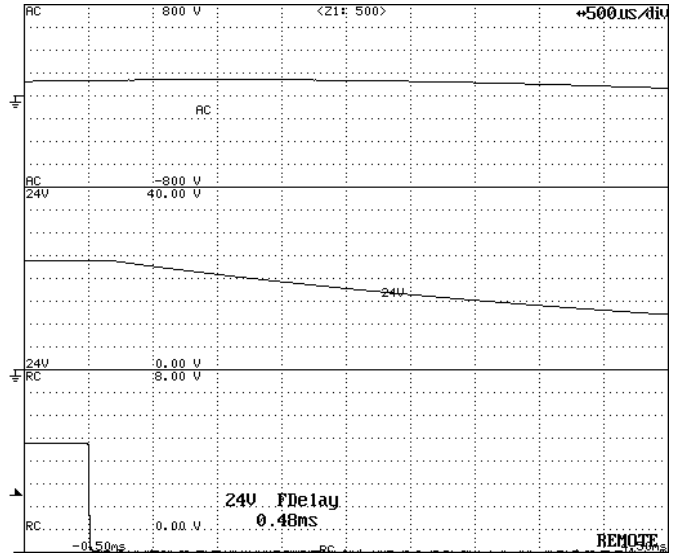
Input: 100V AC
Load: Rated Load

Timebase Range: 10ms/div



Output Fall Characteristics

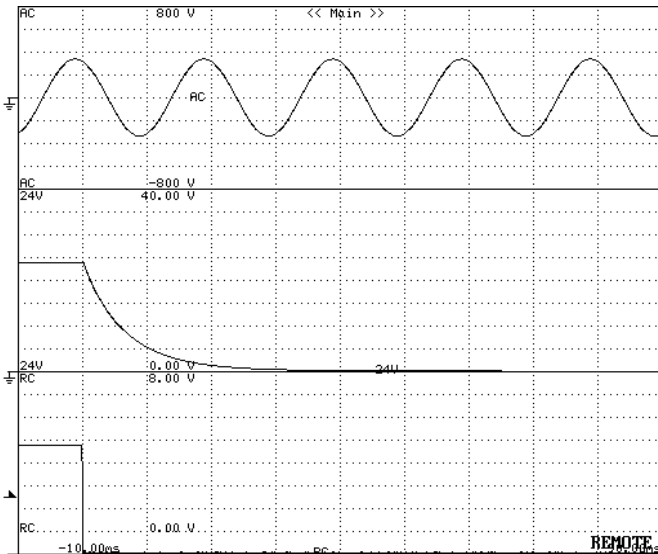
Timebase Range: 500 μs/div



Output Fall Characteristics (magnification)

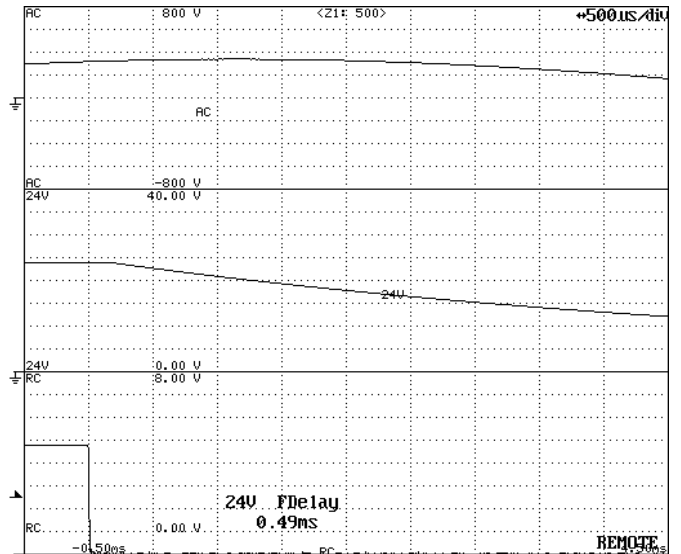
Input: 240V AC
Load: Rated Load

Timebase Range: 10ms/div



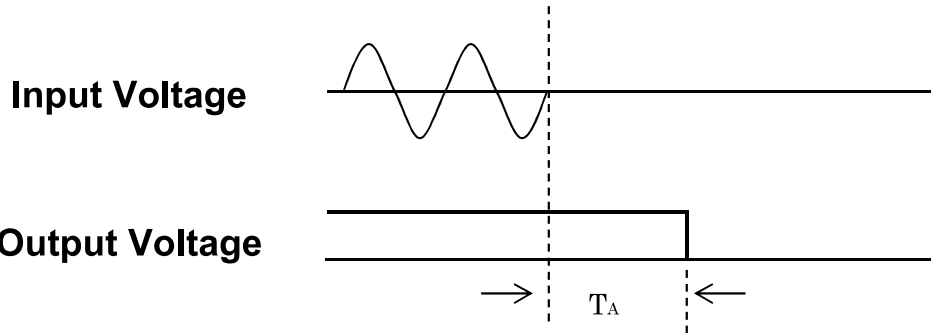
Output Fall Characteristics

Timebase Range: 500 μs/div

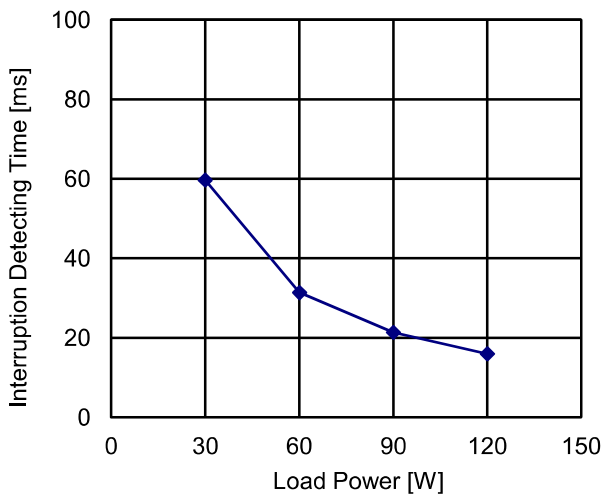


Output Fall Characteristics (magnification)

Model	mUZP-120-24-JBH	Temperature: 25°C
Item	Instantaneous Interruption Compensation (by Load Power)	

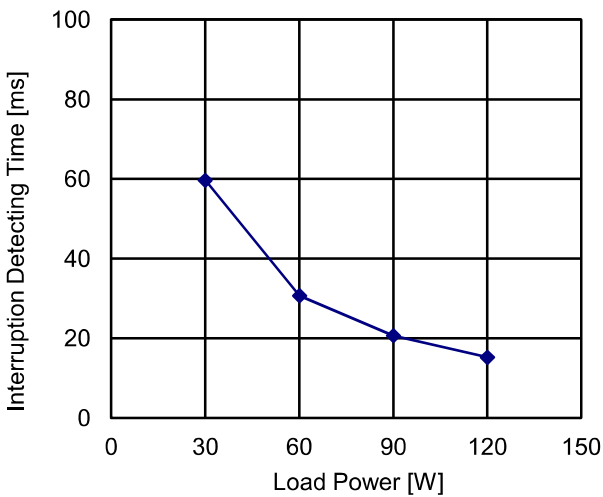


Input Voltage:100V AC



Load Power [W]	Interruption Detecting Time [ms]
	Output Voltage
	T_A
30.0	59.7
60.0	31.4
90.0	21.4
120.0	16.0

Input Voltage:240V AC

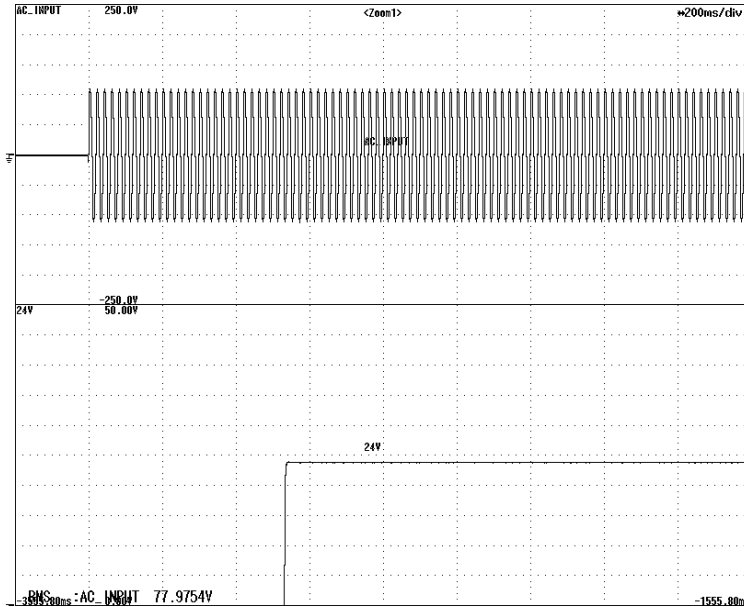


Load Power [W]	Interruption Detecting Time [ms]
	Output Voltage
	T_A
30.0	59.7
60.0	30.7
90.0	20.7
120.0	15.3

Model	mUZP-120-24-JBH	Temperature: 25°C
Item	Start-Up Voltage	

Timebase Range: 200ms/div
Load: Rated Load

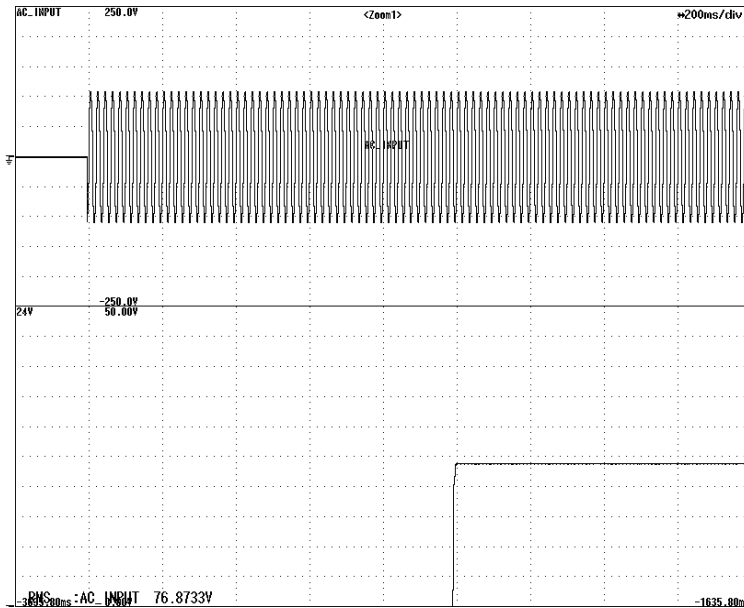
AC Input



Start-up Voltage: 78.0V AC

Timebase Range: 200ms/div
Load: Minimum Load

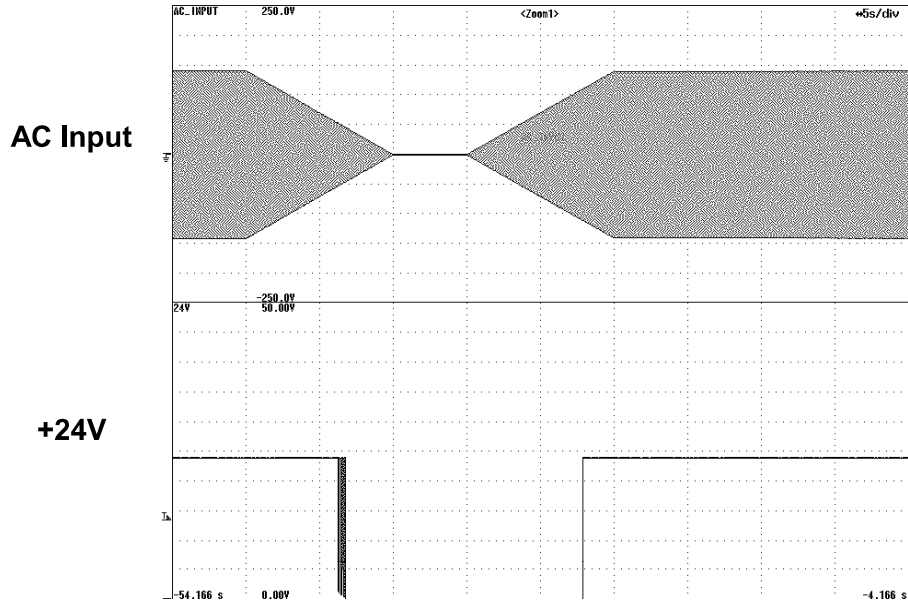
AC Input



Start-up Voltage: 76.9 AC

Model	mUZP-120-24-JBH	Temperature: 25°C
Item	Input Voltage Sweep Up/Down	

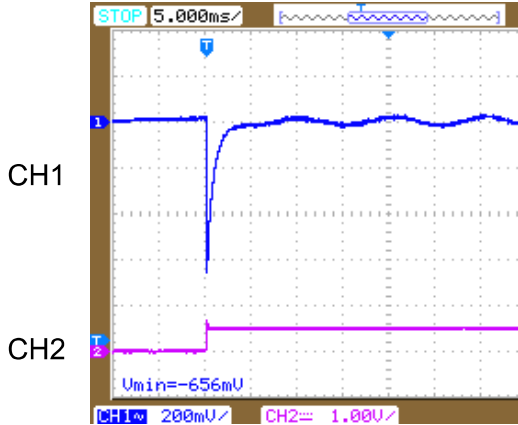
Timebase Range: 5s/div
Load: Rated Load



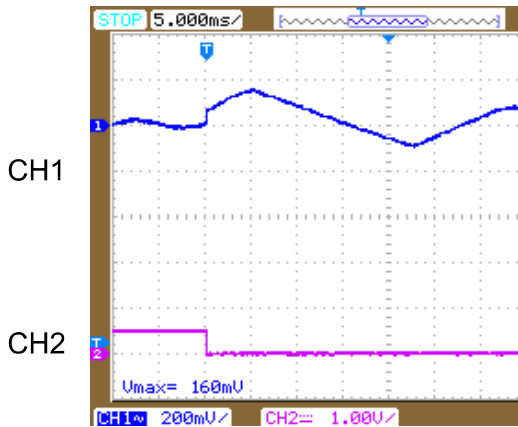
Sweep Rate: 10Vave/sec

Model	mUZP-120-24-JBH	Temperature: 25°C
Item	Dynamic Load Response	

+24V DC Output Transient Response Waveforms

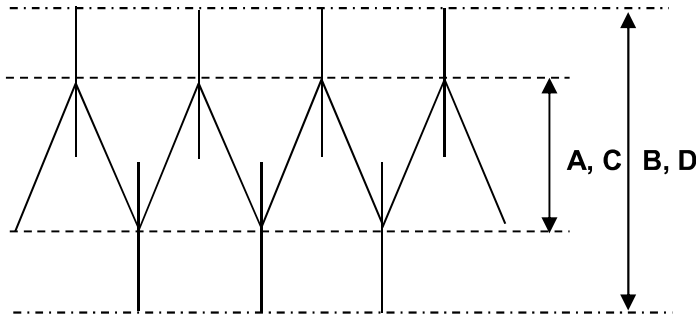


Waveform 1	
CH1	Measuring Point: DC Output Voltage
	Vertical Sensitivity: 200mV/div
CH2	Measuring Point: DC Output Current
	Vertical Sensitivity: 5A/div
Timebase Range	5ms/div
Condition	Input: 100V AC
Note: Minimum load(0A) → Rated Load(5A)	



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

Model	mUZP-120-24-JBH	Load: Rated Load
Item	Ripple / Noise Voltage	

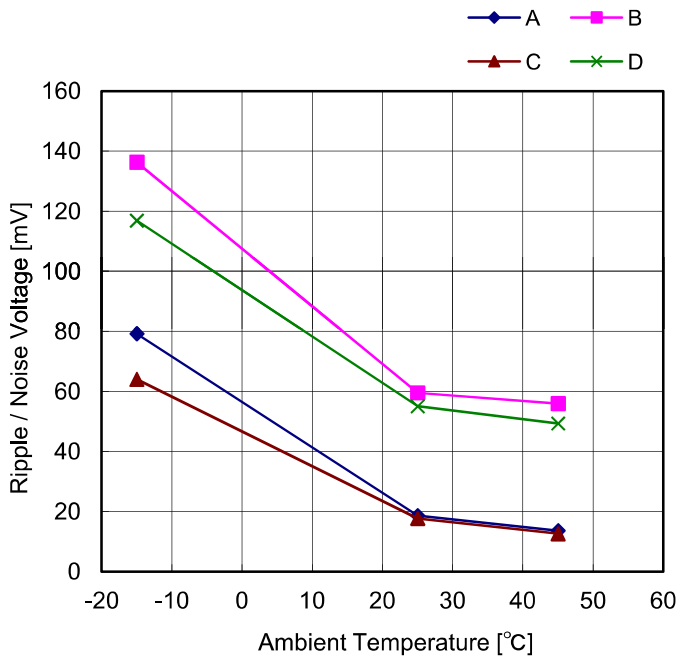


at 100V AC

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

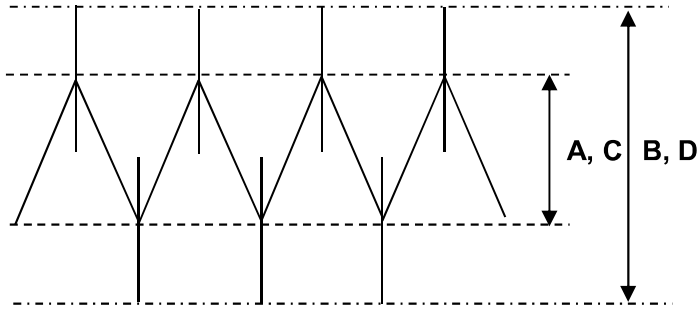
at 240V AC

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



Ambient Temp. [°C]	Ripple / Noise Voltage [mV]			
	A	B	C	D
-15	79.2	136.3	64.1	116.9
25	18.7	59.5	17.7	55.0
45	13.6	55.9	12.6	49.3

Model	mUZP-120-24-JBH	Temperature : 25°C
Item	Ripple / Noise Voltage	

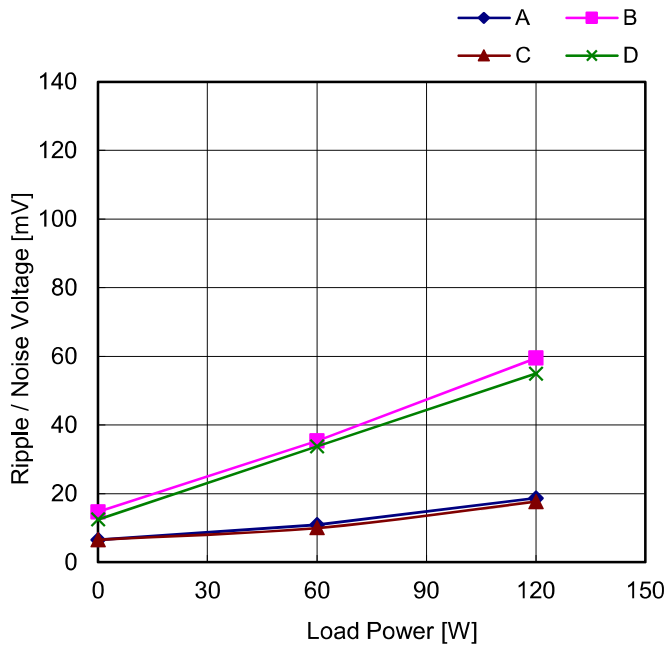


at 100V AC

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

at 240V AC

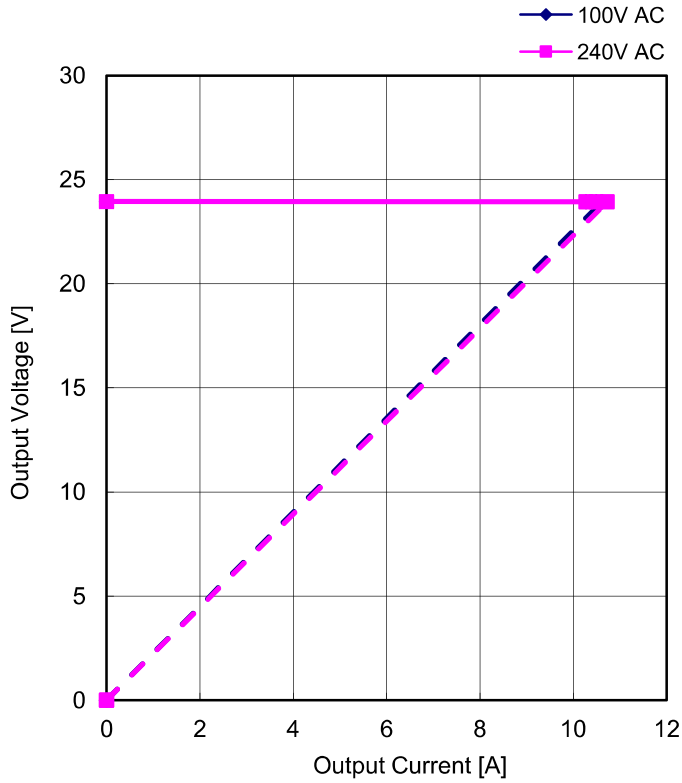
C: Ripple Voltage (mVP-P)
D: Noise Voltage (mVP-P)



Load Power [W]	Ripple / Noise Voltage [mV]			
	A	B	C	D
0	6.5	14.7	6.5	12.5
60.0	11.0	35.3	10.0	33.8
120.0	18.7	59.5	17.7	55.0

Model	mUZP-120-24-JBH	Temperature: 25°C
Item	Over-Current Protection	

V-I Characteristics of 24V O.C.P

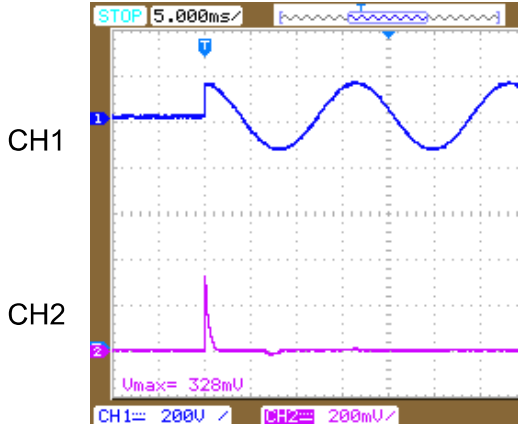


Input Voltage: 100V AC		Input Voltage: 240V AC	
Output Current [A]	Output Voltage [V]	Output Current [A]	Output Voltage [V]
0.00	23.95	0.00	23.95
10.26	23.94	10.26	23.94
10.49	23.94	10.49	23.94
10.61	23.93	10.73	23.94

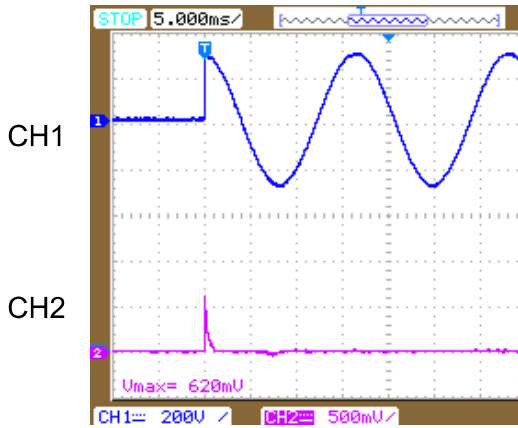
Model	mUZP-120-24-JBH	Load: Minimum Load																	
Item	Over-Voltage Protection																		
		<table border="1"> <thead> <tr> <th rowspan="2">Ambient Temp. [°C]</th> <th colspan="2">Output Voltage [V]</th> </tr> <tr> <th>100V AC</th> <th>240V AC</th> </tr> </thead> <tbody> <tr> <td>-15</td> <td>31.20</td> <td>31.24</td> </tr> <tr> <td>25</td> <td>32.01</td> <td>32.01</td> </tr> <tr> <td>45</td> <td>32.45</td> <td>32.36</td> </tr> <tr> <td>65</td> <td>32.87</td> <td>32.84</td> </tr> </tbody> </table>	Ambient Temp. [°C]	Output Voltage [V]		100V AC	240V AC	-15	31.20	31.24	25	32.01	32.01	45	32.45	32.36	65	32.87	32.84
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Model	mUZP-120-24-JBH	Temperature: 25°C
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: 10A/div
Timebase Range	5ms/div
Condition	Input: 100V AC Load: Rated Load
Note: Inrush Current: 16.4A	



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	mUZP-120-24-JBH	Load: Rated Load																																				
Item	Leakage Current																																					
<p>The graph plots Leakage Current [mA] on the y-axis (0 to 1) against AC Input Voltage [V] on the x-axis (50 to 300). The data points are as follows:</p> <table border="1"> <thead> <tr> <th>AC Input Voltage [V]</th> <th>Leakage Current [mA]</th> </tr> </thead> <tbody> <tr><td>85</td><td>0.02</td></tr> <tr><td>100</td><td>0.03</td></tr> <tr><td>132</td><td>0.04</td></tr> <tr><td>176</td><td>0.05</td></tr> <tr><td>200</td><td>0.06</td></tr> <tr><td>220</td><td>0.07</td></tr> <tr><td>240</td><td>0.07</td></tr> <tr><td>264</td><td>0.08</td></tr> </tbody> </table>		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	0.07	264	0.08	<table border="1"> <thead> <tr> <th>AC Input Voltage [V]</th> <th>Leakage Current [mA]</th> </tr> </thead> <tbody> <tr><td>85</td><td>0.02</td></tr> <tr><td>100</td><td>0.03</td></tr> <tr><td>132</td><td>0.04</td></tr> <tr><td>176</td><td>0.05</td></tr> <tr><td>200</td><td>0.06</td></tr> <tr><td>220</td><td>0.07</td></tr> <tr><td>240</td><td>0.07</td></tr> <tr><td>264</td><td>0.08</td></tr> </tbody> </table>	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	0.07	264	0.08
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