Nipron

Supplemental test data
(参考資料)

Date of issue: Jul. 25, 2011

Test Data

Model Number: OZ-030-24

Model Name: DC POWER SUPPLY

INPUT: 85V – 264V AC, 50 / 60 Hz

OUTPUT: 24 V 1.3A

Minimum load : 0W
Rated load :31.2W

Approved by : Makoto Urasue (QA manager)

Designed by : A. Takeda (R&D engineer)

Tested by : Kohei Sawada (Evaluation test engineer)

Nipron Co., Ltd.

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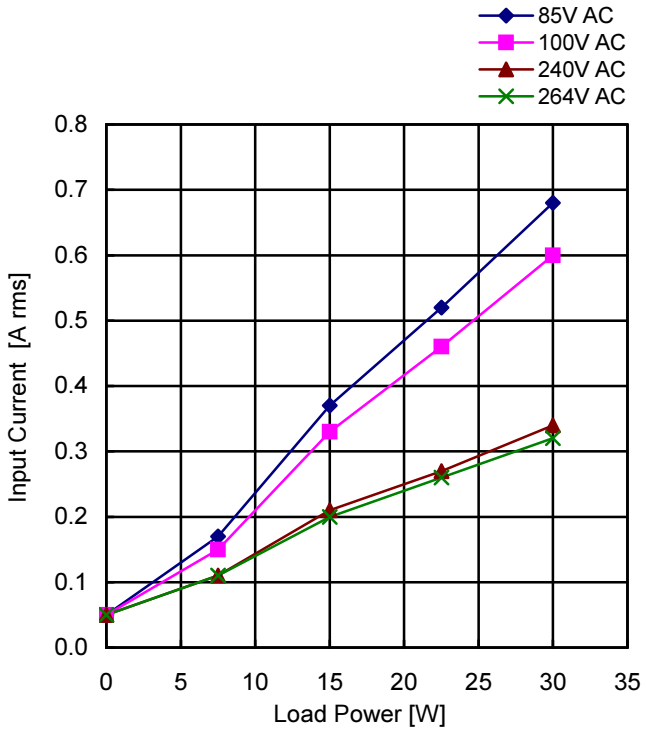
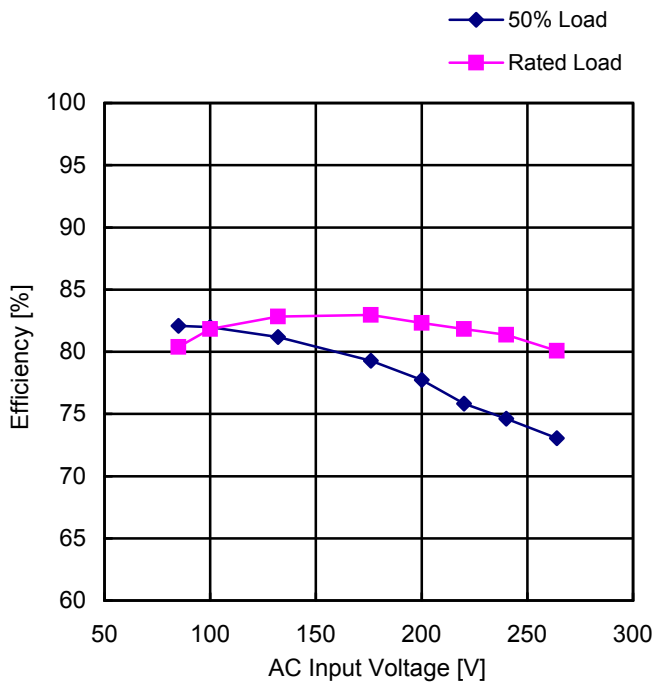
Model	OZ-30-24	Temperature: 25℃
Item	Input Current（by Load Power）	



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	0.05	0.05	0.05	0.05
7.5	0.17	0.15	0.11	0.11
15.0	0.37	0.33	0.21	0.20
22.5	0.52	0.46	0.27	0.26
30.0	0.68	0.60	0.34	0.32

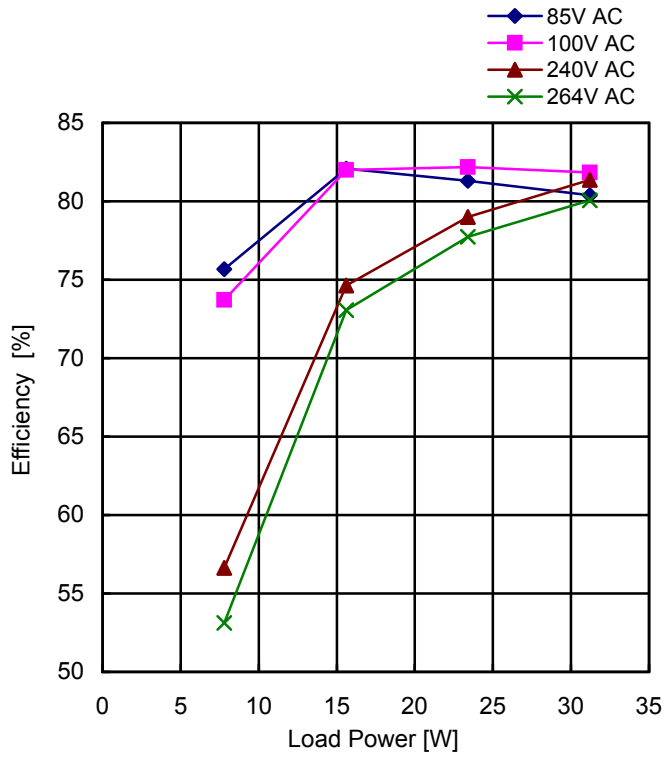
Model	OZ-30-24	Temperature: 25℃
Item	Efficiency	

■Efficiency(by Input Voltage)



AC Input Voltage [V]	Efficiency [%]	
	50% Load	Rated Load
85	82.08	80.39
100	81.99	81.83
132	81.18	82.83
176	79.29	82.96
200	77.75	82.31
220	75.82	81.82
240	74.63	81.36
264	73.05	80.07

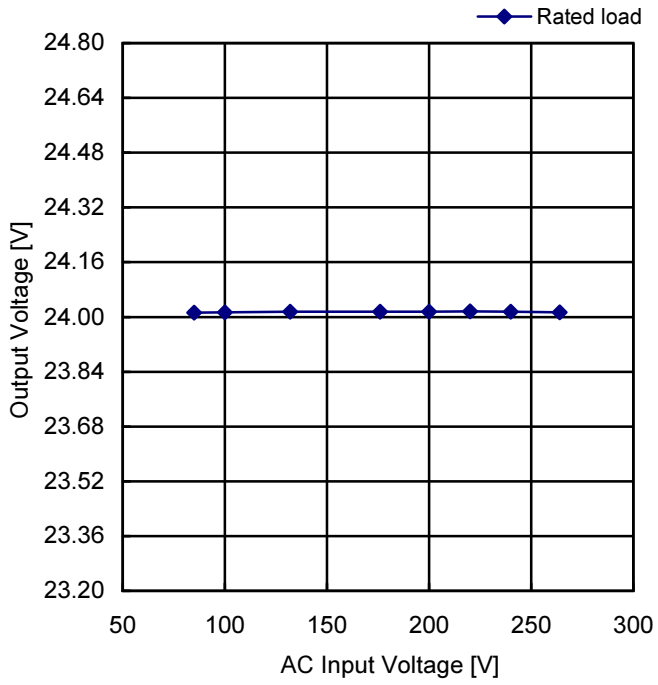
■Efficiency(by Load Power)



Load Power [W]	Efficiency [%]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
7.8	75.68	73.71	56.63	53.13
15.6	82.08	81.99	74.63	73.05
23.4	81.30	82.19	79.00	77.74
31.2	80.39	81.83	81.36	80.07

Model	OZ-30-24	Temperature: 25℃
Item	Line Regulation	

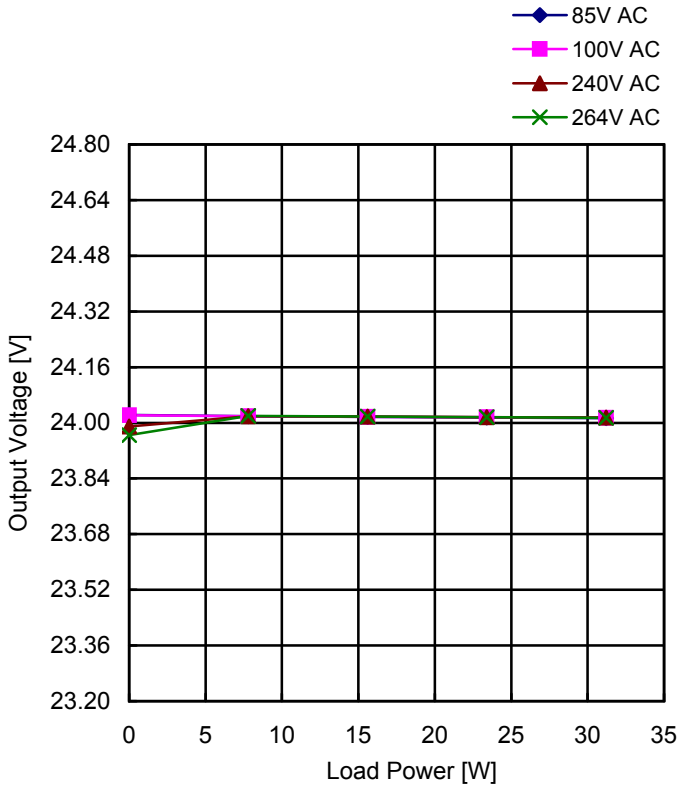
24V/1.3A



AC Input Voltage [V]	Output Voltage [V]
85	24.013
100	24.014
132	24.015
176	24.015
200	24.015
220	24.016
240	24.015
264	24.014

Model	OZ-30-24	Temperature: 25℃
Item	Load Regulation	

24V



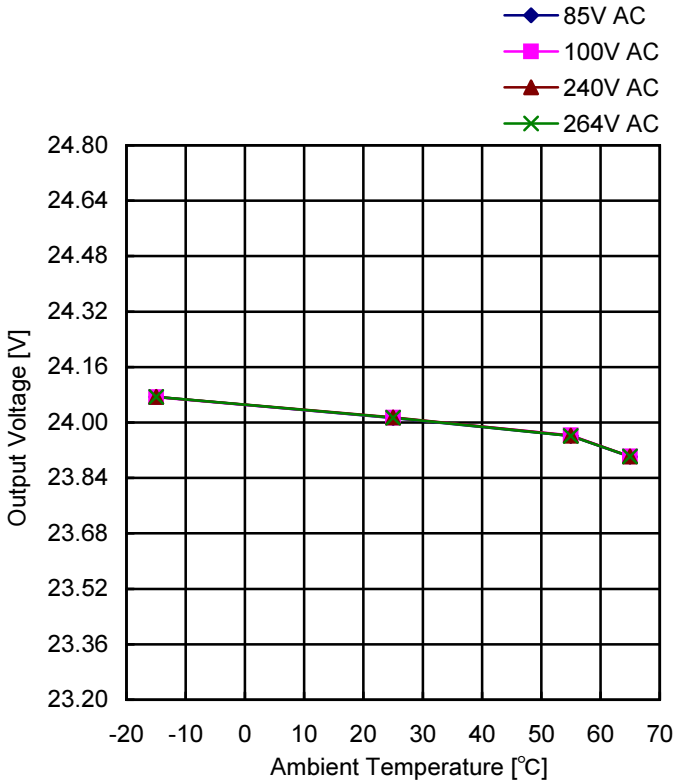
Load Power [W]	Output Voltage [V]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
0.0	24.023	24.022	23.989	23.965
7.8	24.019	24.019	24.019	24.020
15.6	24.017	24.017	24.018	24.018
23.4	24.015	24.016	24.016	24.016
31.2	24.013	24.014	24.015	24.014
-	-	-	-	-

Load Condition

Load Power [W]	Load Current [A]
	24V
0.0	0.00
7.8	0.325
15.6	0.65
23.4	0.975
31.2	1.30
-	-

Model	OZ-30-24
Item	Ambient Temperature Drift

24V



Ambient Temp. (℃)	Output Voltage [V]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
-15	24.074	24.073	24.074	24.074
25	24.013	24.014	24.015	24.014
55	23.961	23.963	23.962	23.961
65	23.901	23.902	23.902	23.902

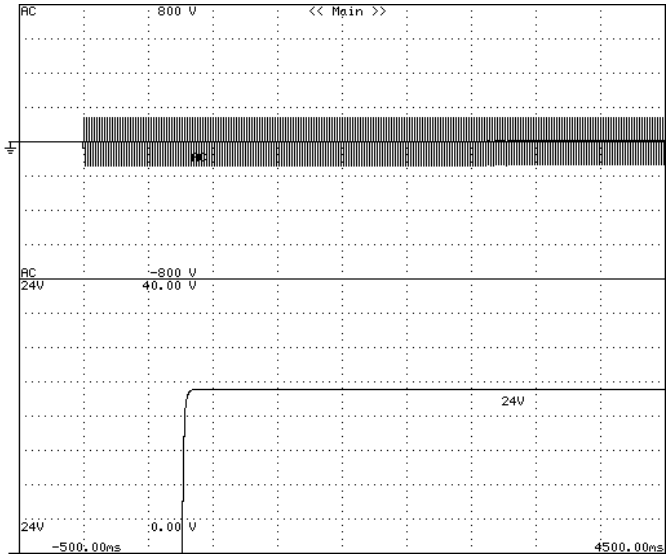
Load Condition

Ambient Temp. (℃)	Load Current [A]
	24V
-15	1.30
25	1.30
55	1.30
65	0.91

Model	OZ-030-24	Temperature: 25℃
Item	Output Rise Characteristics (at AC Power ON)	

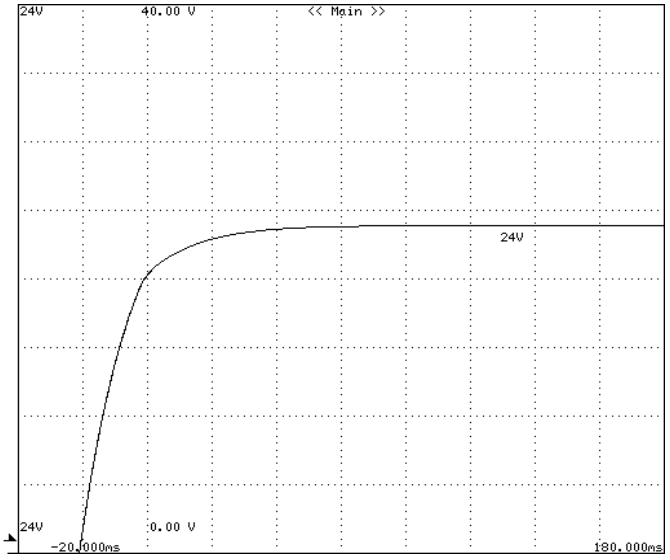
Input: 100V AC
Load: Rated Load

Timebase Range: 500ms/div



All Output Start-up Sequence

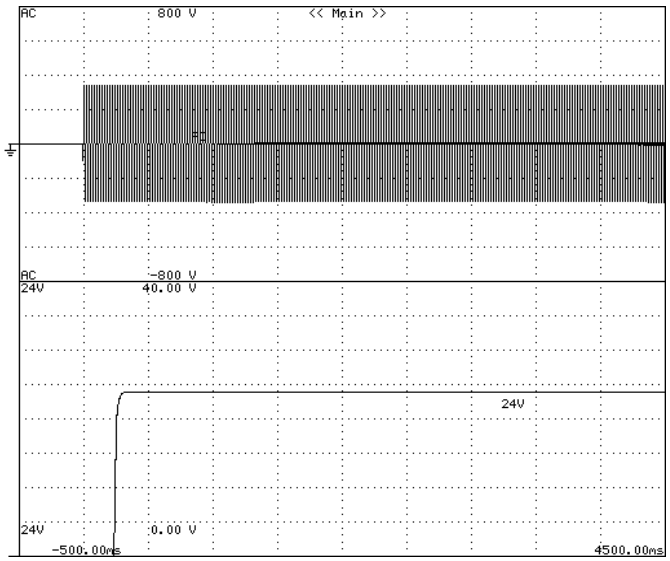
Vertical Sensitivity: 5V/div
Timebase Range: 20ms/div



24V DC Output Rise Characteristics

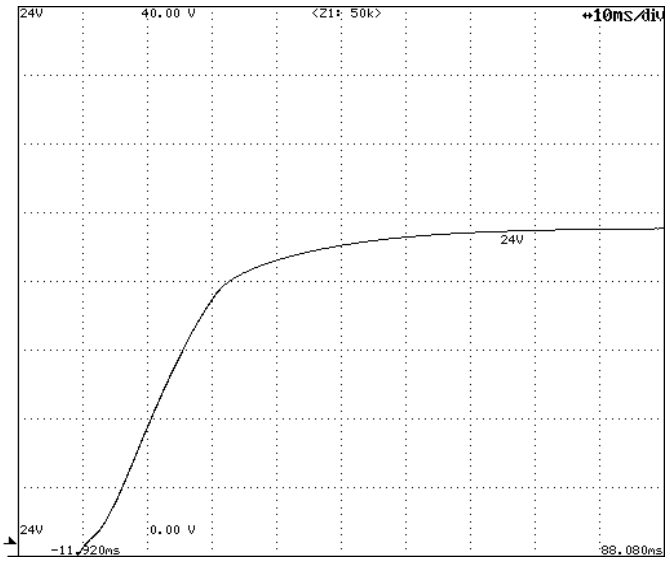
Input: 240V AC
Load: Rated Load

Timebase Range: 500ms/div



All Output Start-up Sequence

Vertical Sensitivity: 5V/div
Timebase Range: 10ms/div

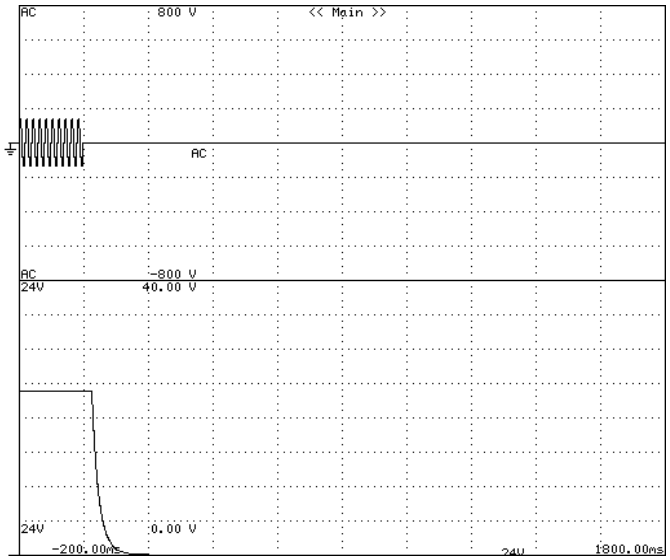


24V DC Output Rise Characteristics

Model	OZ-030-24	Temperature: 25℃
Item	Output Fall Characteristics (at AC Power OFF)	

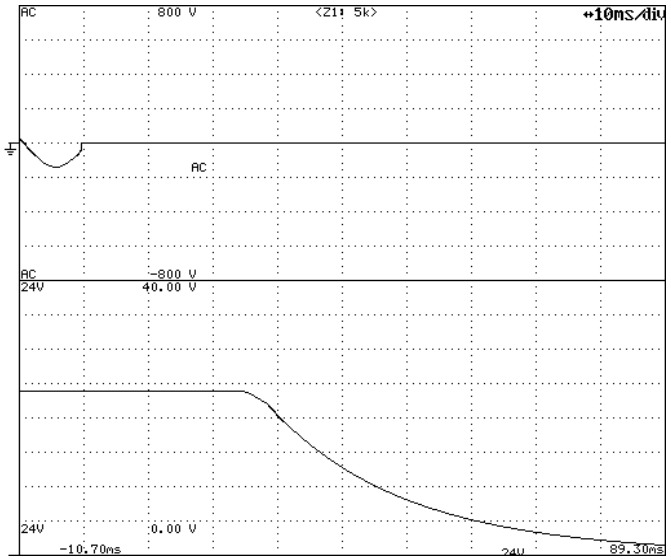
Input: 100V AC
Load: Rated Load

Timebase Range: 200ms/div



Output Fall Characteristics

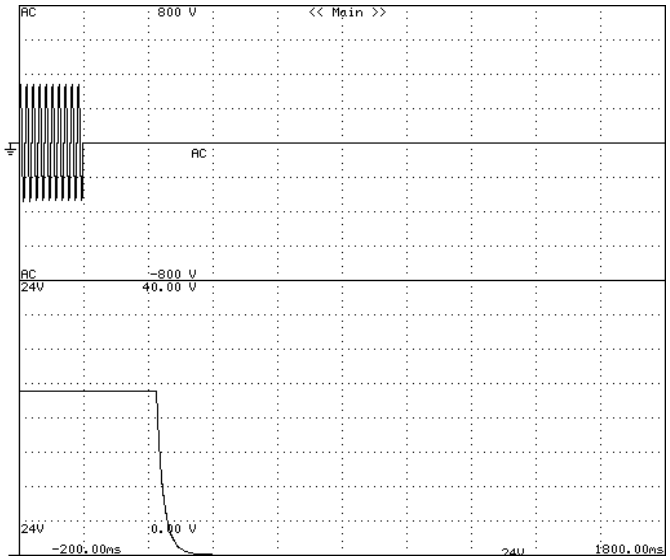
Timebase Range: 10ms/div



Output Fall Characteristics (magnification)

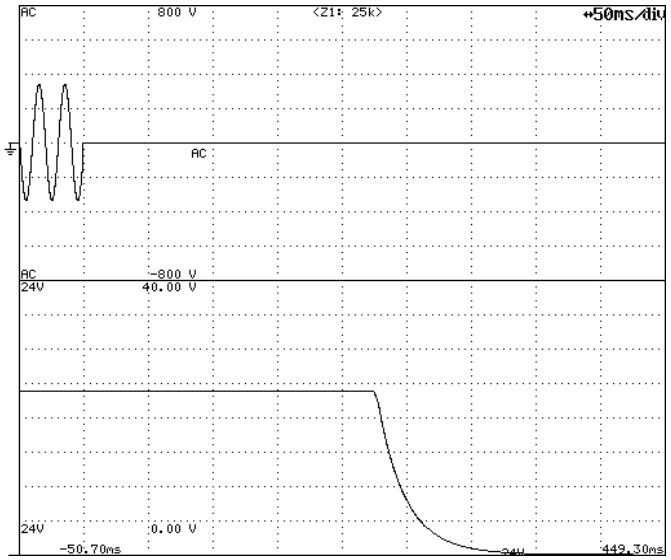
Input: 240V AC
Load: Rated Load

Timebase Range: 200ms/div



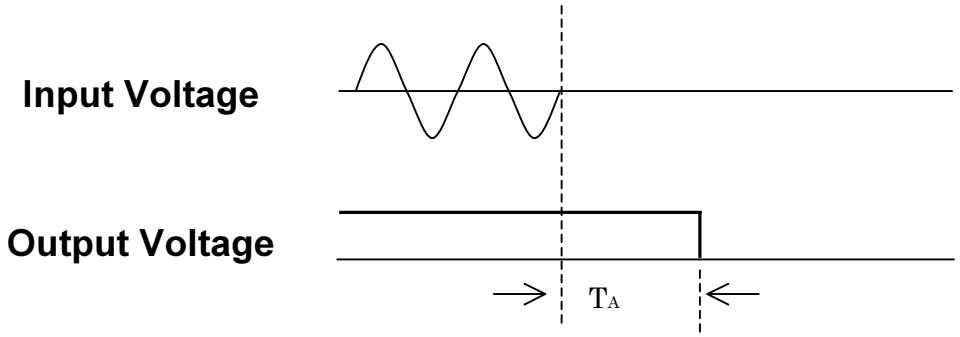
Output Fall Characteristics

Timebase Range: 50ms/div

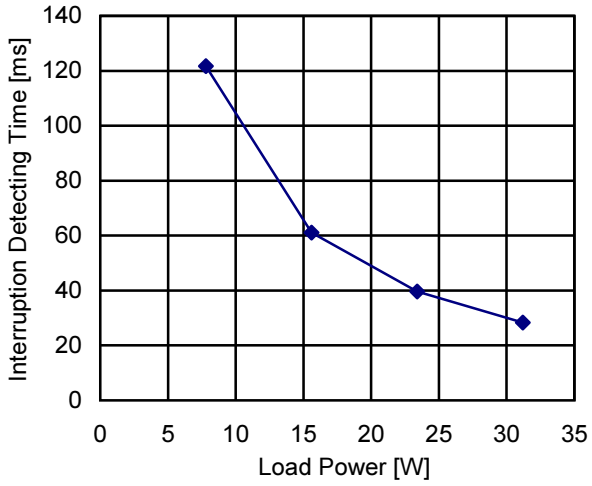


Output Fall Characteristics (magnification)

Model	OZ-030-24	Temperature: 25℃
Item	Instantaneous Interruption Compensation (by Load Power)	

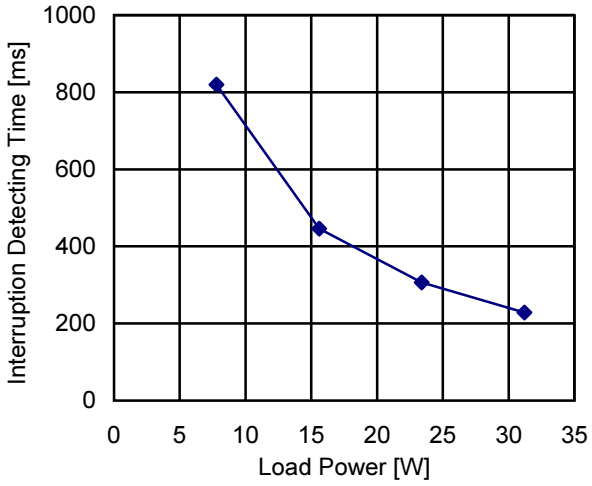


Input Voltage:100V AC



Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	TA
7.8	121.7
15.6	61.1
23.4	39.6
31.2	28.3

Input Voltage:240V AC



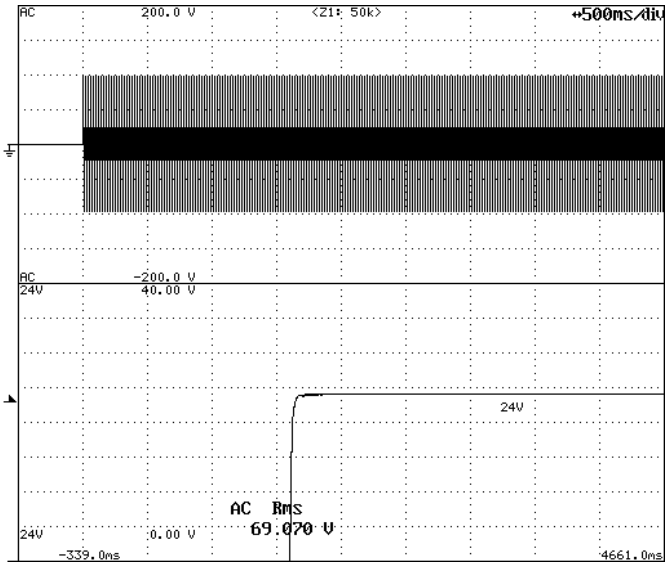
Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	TA
7.8	819.4
15.6	445.8
23.4	306.4
31.2	228.4

Model	OZ-030-24	Temperature: 25℃
Item	Start-Up Voltage	

Timebase Range: 500ms/div
Load: Rated Load

AC Input

+24V

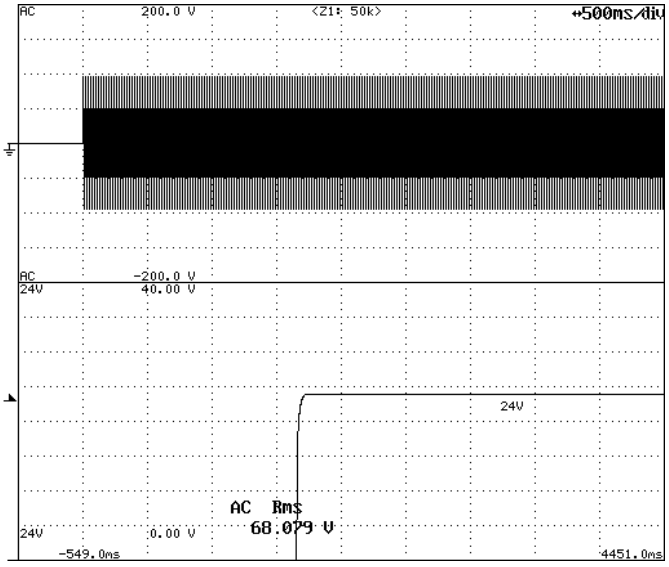


Start-up Voltage: 69.1V AC

Timebase Range: 500ms/div
Load: Minimum Load

AC Input

+24V



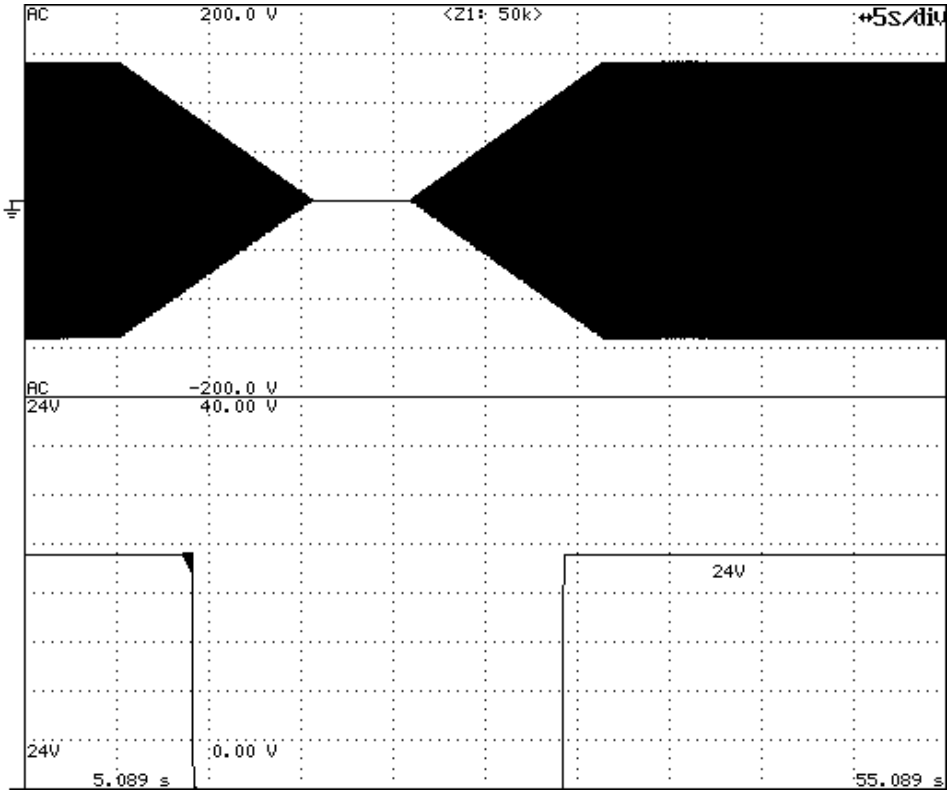
Start-up Voltage: 68.1V AC

Model	OZ-030-24	Temperature: 25℃
Item	Input Voltage Sweep Up/Down	

Timebase Range: 5s/div
Load: Rated Load

AC Input

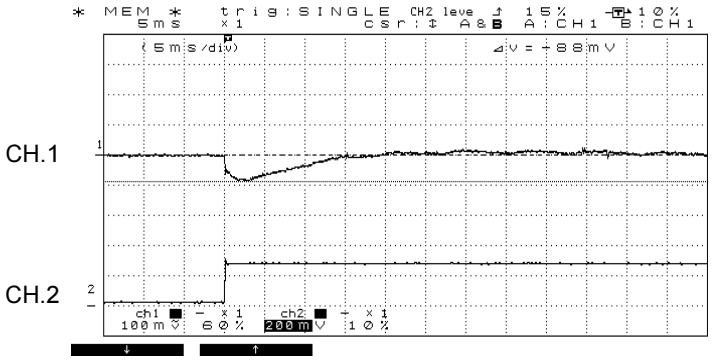
+24V

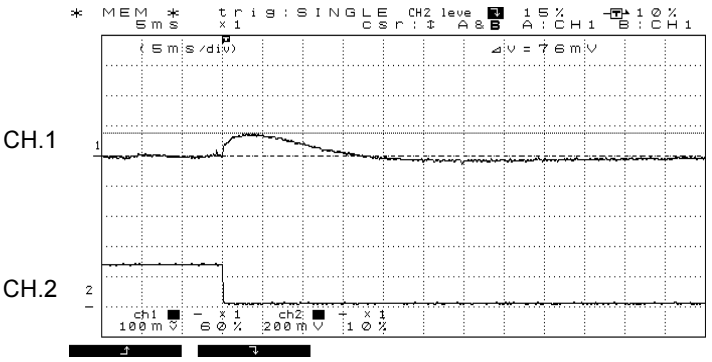


Sweep Rate: 10Vave/sec

Model	OZ-030-24	Temperature: 25℃
Item	Dynamic Load Response	

+24V DC Output Transient Response Waveforms

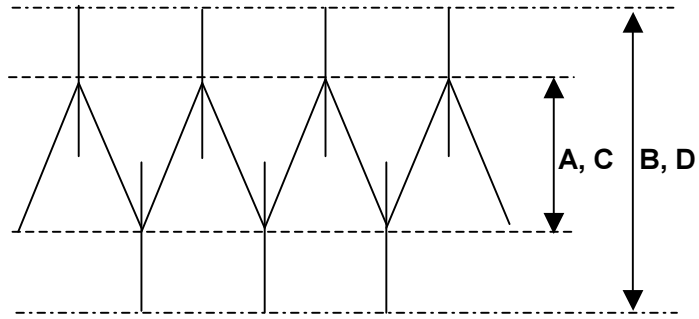




Waveform 1	
CH1	Measuring Point: DC Output Voltage
	Vertical Sensitivity: 100mV/div
CH2	Measuring Point: DC Output Current
	Vertical Sensitivity: 1A/div
Timebase Range	5ms/div
Condition	Input: 100V AC

Note:
Rated Load(1.3A) ⇌ Minimum load(0A)

Model	OZ-30-24	Load: Rated Load
Item	Ambient Temperature Drift	



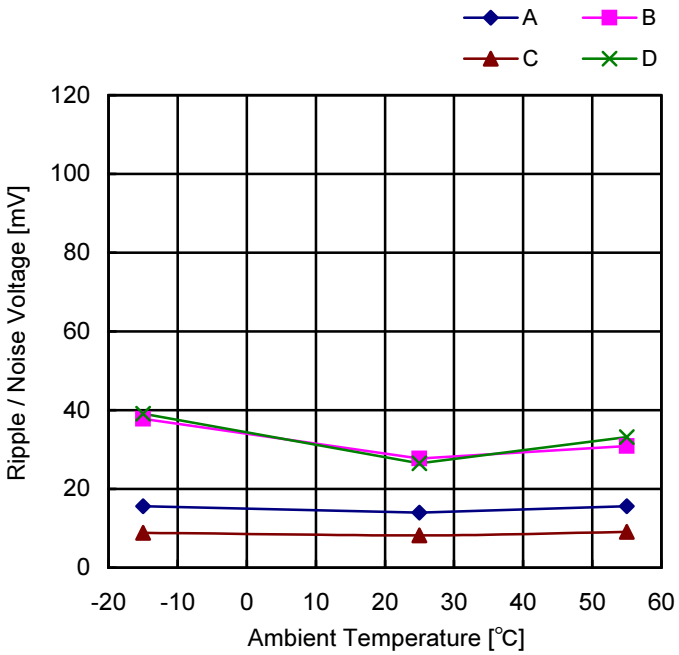
at 100V AC

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

at 240V AC

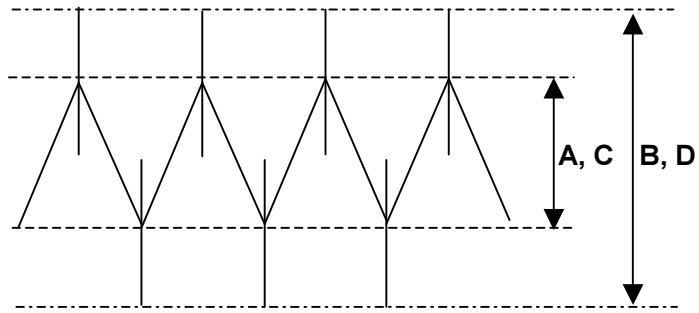
C: Ripple Voltage (mV_{P-P})
D: Noise Voltage (mV_{P-P})

24V



Ambient Temp. [℃]	Ripple / Noise Voltage [mV]			
	A	B	C	D
-15	15.6	37.8	8.9	39.1
25	14.0	27.7	8.2	26.5
55	15.6	30.9	9.1	33.2

Model	OZ-30-24	Temperature : 25℃
Item	Ambient Temperature Drift	



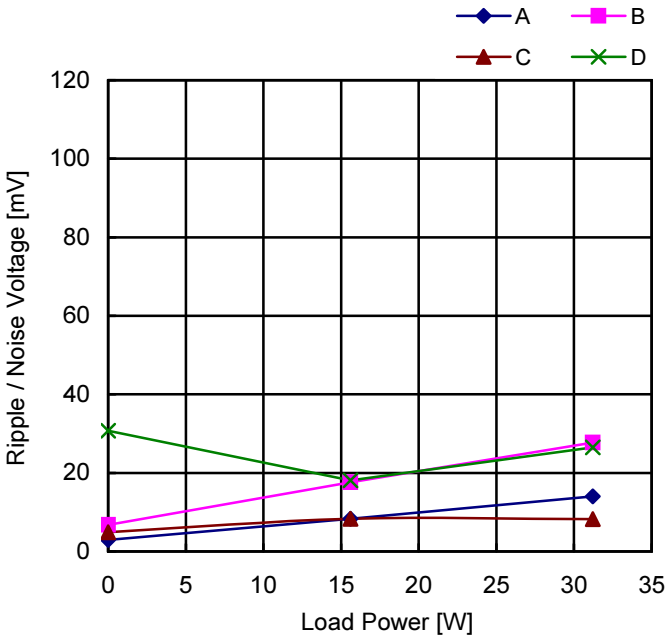
at 100V AC

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})

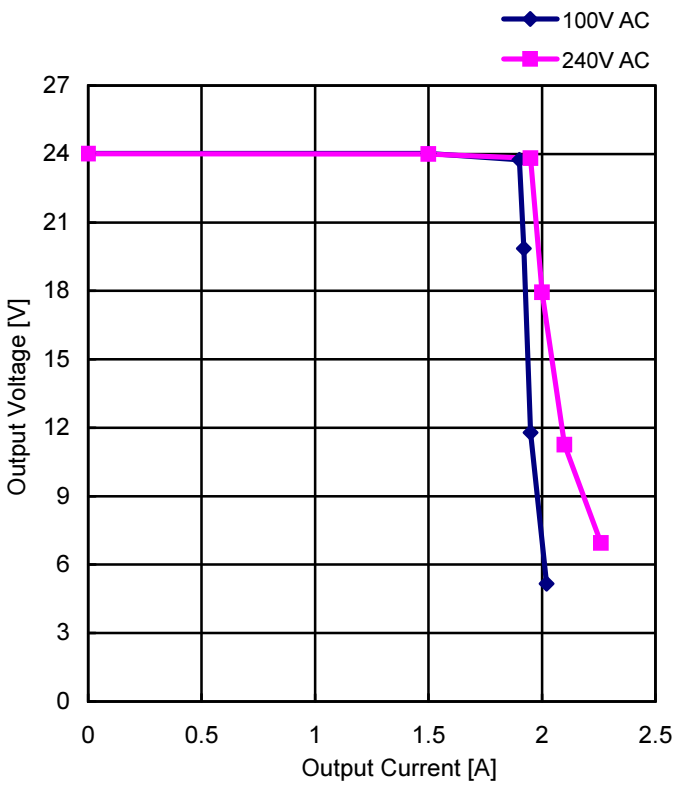
24V



Load Power [W]	Ripple / Noise Voltage [mV]			
	A	B	C	D
0	2.9	6.8	4.9	30.7
15.6	8.3	17.6	8.3	18.1
31.2	14.0	27.7	8.2	26.5

Model	OZ-30-24	Temperature: 25℃
Item	Over-Current Protection	

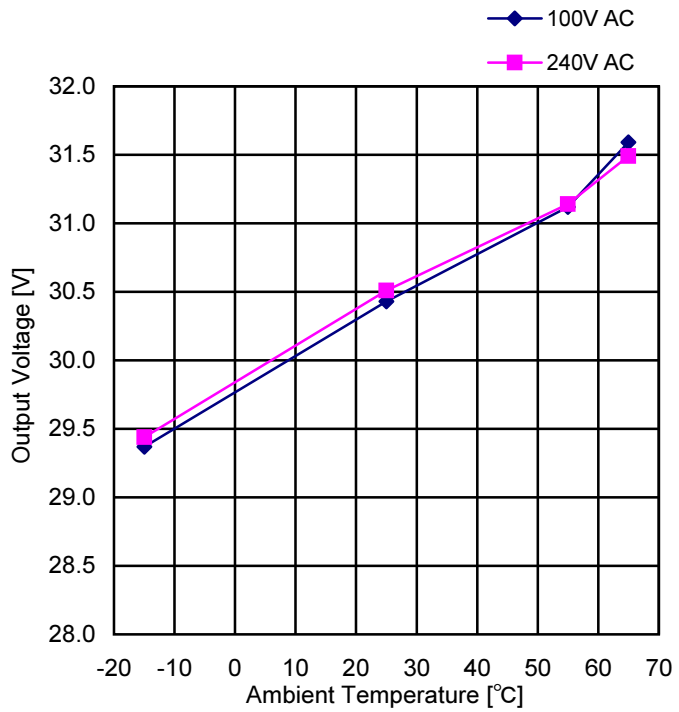
V-I Characteristics of 24V O.C.P



Input Voltage: 100V AC		Input Voltage: 240V AC	
Output Current [A]	Output Voltage [V]	Output Current [A]	Output Voltage [V]
0.00	24.02	0.00	24.01
1.50	24.02	1.50	24.00
1.90	23.74	1.95	23.81
1.92	19.86	2.00	17.94
1.95	11.79	2.10	11.26
2.02	5.17	2.26	6.95

Model	OZ-030-24	Load: Minimum Load
Item	Over-Voltage Protection	

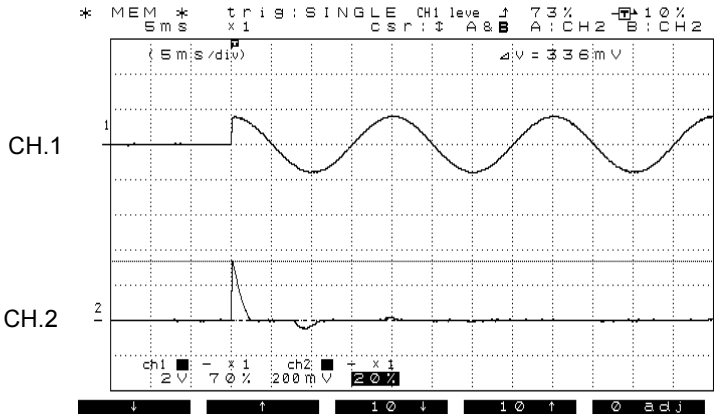
+24V



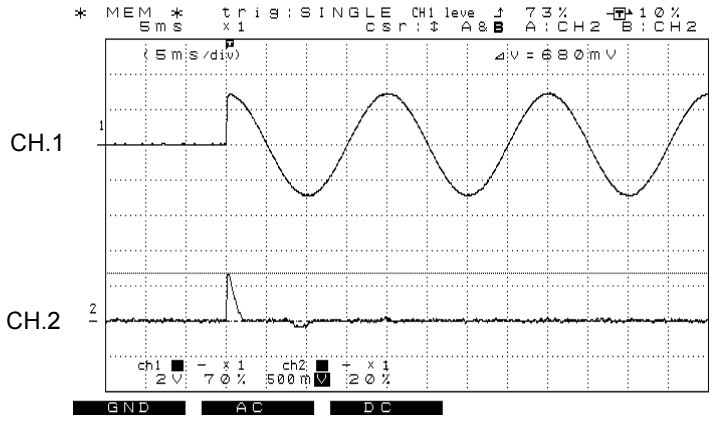
Ambient Temp. [℃]	Output Voltage	
	100V AC	240V AC
-15	29.37	29.44
25	30.43	30.51
55	31.12	31.14
65	31.59	31.49

Model	OZ-030-24	Temperature: 25℃
Item	Inrush Current	Load: Rated Load

Inrush Current Waveforms

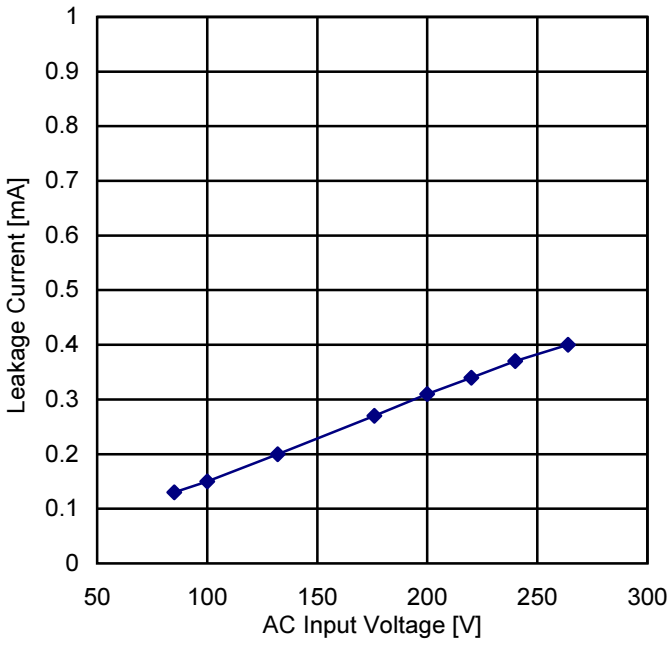


DATA 1	
CH1	Measuring Point: AC Input Voltage
	Range: 200V/div
CH2	Measuring Point: AC Input Current
	Range: 10A/div
Temporal Axis	5ms/div
Conditions	Input: 100V AC Load: Rated Load
Note: Inrush Current: 16.8A	



DATA 2	
CH1	Measuring Point: AC Input Voltage
	Range: 200V/div
CH2	Measuring Point: AC Input Current
	Range: 25A/div
Temporal Axis	5ms/div
Conditions	Input: 200V AC Load: Rated Load
Note: Inrush Current: 34.0A	

Model	OZ-030-24	Load: Rated Load
Item	Leakage Current	



AC Input Voltage [V]	Leakage Current [mA]
85	0.13
100	0.15
132	0.20
176	0.27
200	0.31
220	0.34
240	0.37
264	0.40