Test Data

Model Number: OZ-060-5

Model Name: DC POWER SUPPLY

INPUT: 85V – 264V AC, 50 / 60 Hz

OUTPUT: 5V   12.0A

Minimum load : 0W
Rated load : 60W

Approved by : _Makoto Urasue_____ (QA manager)

Designed by : _A. Takeda_____ (R&D engineer)

Tested by   : _Kohei Samada_____ (Evaluation test engineer)
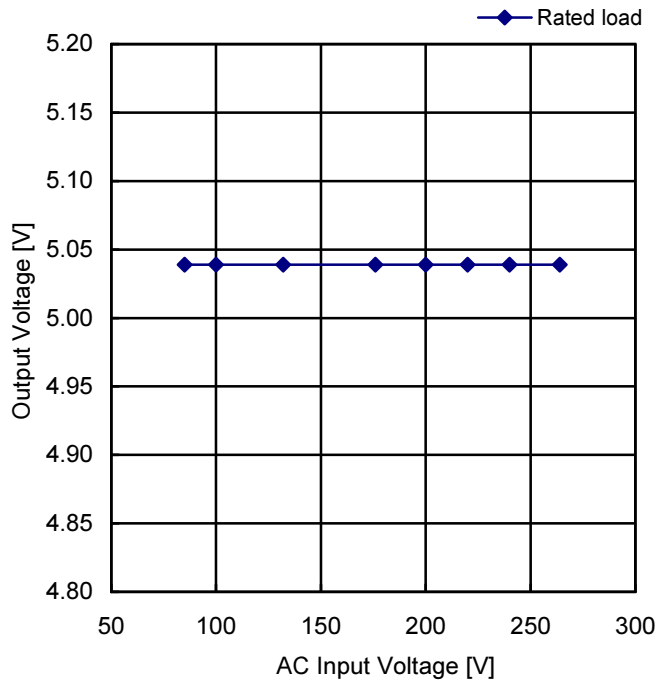
Nipron Co., Ltd.

CONTENTS

Model	OZ-60-5
Item	Input Current（by Load Power）

Temperature: 25°C

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	0.05	0.07	0.07
15.0	0.38	0.34	0.23	0.24
30.0	0.69	0.60	0.36	0.35
45.0	1.02	0.89	0.49	0.47
60.0	1.37	1.19	0.63	0.60

Model	OZ-60-5	Temperature: 25℃
Item	Efficiency	

■Efficiency(by Input Voltage)

Legend: 50% Load, Rated Load

AC Input Voltage [V]	Efficiency [%]	
	50% Load	Rated Load
85	79.34	75.00
100	80.40	77.05
132	81.22	79.29
176	80.34	80.13
200	79.52	80.42
220	77.58	80.12
240	76.29	79.97
264	73.78	79.04

■Efficiency(by Load Power)

Legend: 85V AC, 100V AC, 240V AC, 264V AC

Load Power [W]	Efficiency [%]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
15.0	78.68	79.22	68.06	60.03
30.0	79.34	80.40	76.29	73.78
45.0	77.19	78.92	79.45	77.90
60.0	75.00	77.05	79.97	79.04

Model	OZ-60-5	Temperature: 25°C
Item	Line Regulation	

5V/12A

AC Input Voltage [V]	Output Voltage [V]
85	5.039
100	5.039
132	5.039
176	5.039
200	5.039
220	5.039
240	5.039
264	5.039

Model	OZ-60-5
Item	Line Regulation

Model	OZ-60-5
Item	Load Regulation

Temperature: 25°C

5V

Legend:
- 85V AC
- 100V AC
- 240V AC
- 264V AC
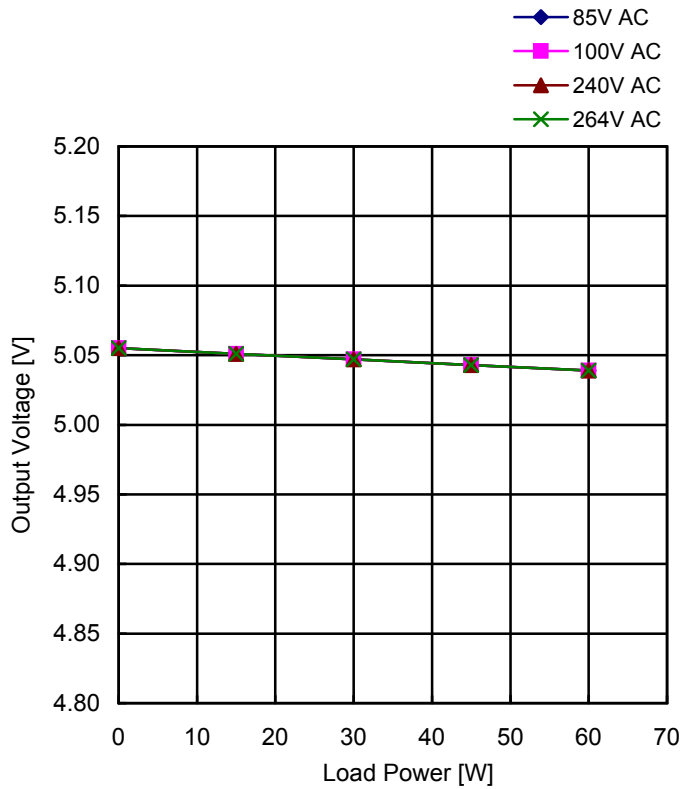
Load Power [W]	Output Voltage [V]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
0.0	5.055	5.055	5.055	5.055
15.0	5.051	5.051	5.051	5.051
30.0	5.047	5.047	5.047	5.047
45.0	5.043	5.043	5.043	5.043
60.0	5.039	5.039	5.039	5.039
-	-	-	-	-

Load Condition

Load Power [W]	Load Current [A]
	5V
0.0	0.00
15.0	3.00
30.0	6.00
45.0	9.00
60.0	12.00
-	-

Model	OZ-60-5
Item	Ambient Temperature Drift

5V
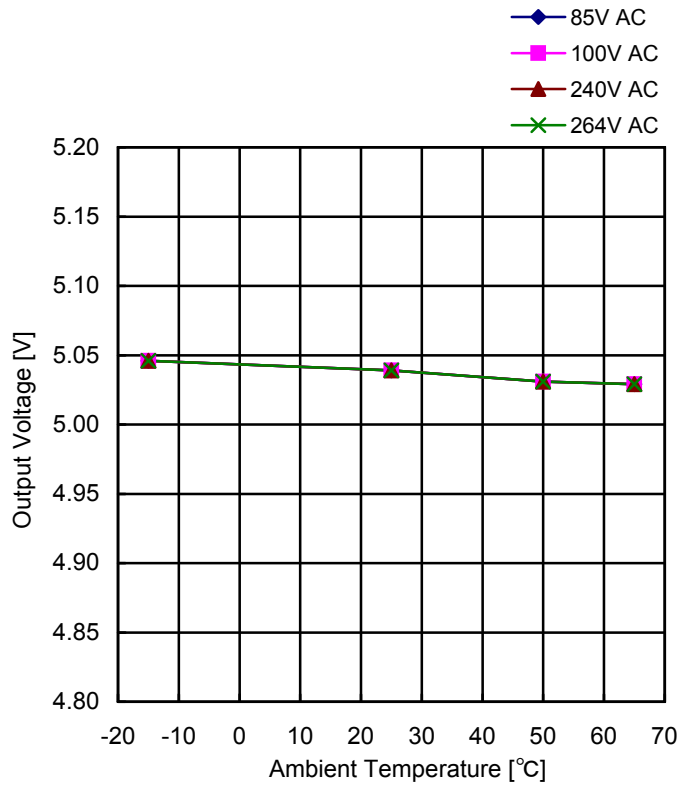
Legend:
- 85V AC
- 100V AC
- 240V AC
- 264V AC

Ambient Temp. (℃)	Output Voltage [V]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
-15	5.046	5.046	5.046	5.046
25	5.039	5.039	5.039	5.039
50	5.031	5.031	5.031	5.031
65	5.029	5.029	5.029	5.029

Load Condition

Ambient Temp. (℃)	Load Current [A]
	5V
-15	12.00
25	12.00
50	12.00
65	8.40

Model	OZ-060-5	Temperature: 25℃
Item	Output Rise Characteristics (at AC Power ON)	

Input: 100V AC
Load: Rated Load

Vertical Sensitivity: 1V/div
Timebase Range: 10ms/div

Timebase Range: 500ms/div
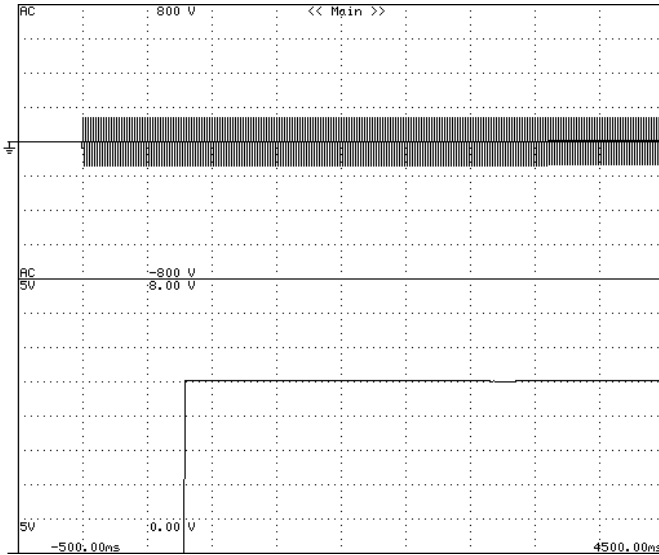
All Output Start-up Sequence
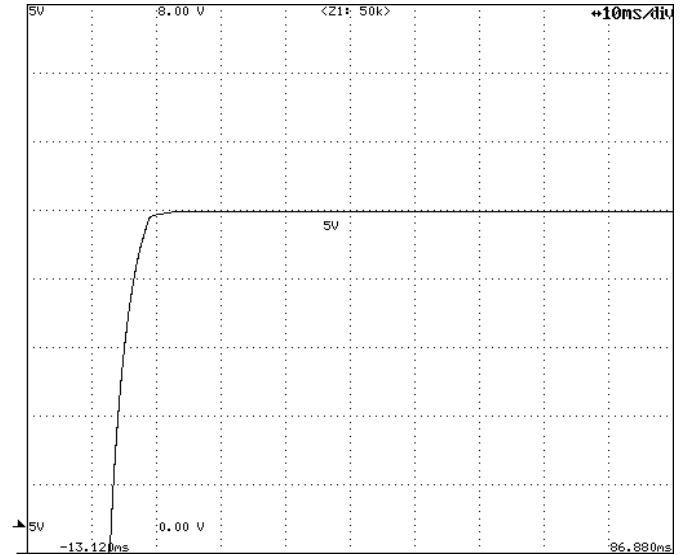
5V DC Output Rise Characteristics
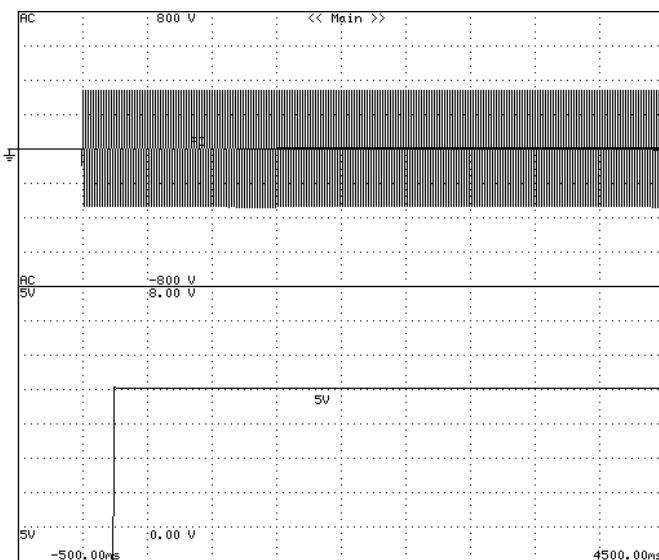
Input: 240V AC
Load: Rated Load

Vertical Sensitivity: 1V/div
Timebase Range: 10ms/div

Timebase Range: 500ms/div

All Output Start-up Sequence
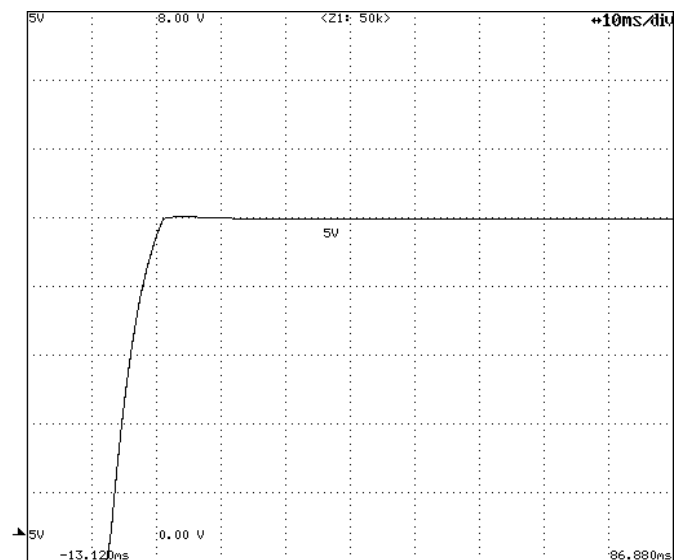
5V DC Output Rise Characteristics

Model	OZ-060-5	Temperature: 25°C
Item	Output Fall Characteristics (at AC Power OFF)	

Input: 100V AC
Load: Rated Load
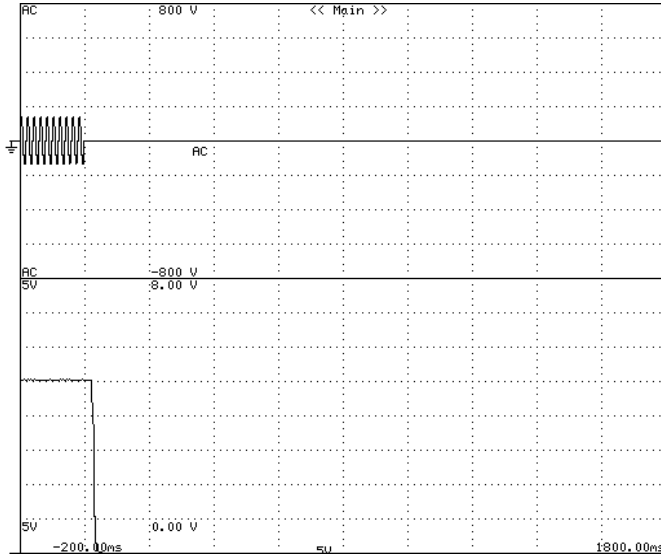
Timebase Range: 200ms/div **Timebase Range: 5ms/div**

Output Fall Characteristics
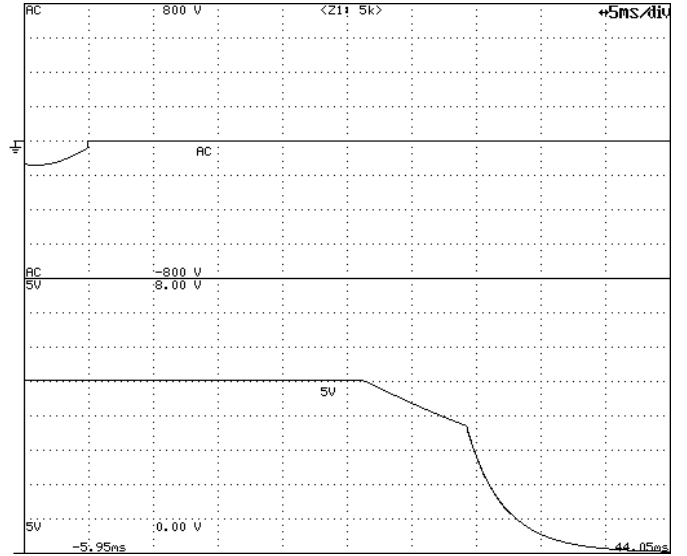
Output Fall Characteristics (magnification)

Input: 240V AC
Load: Rated Load
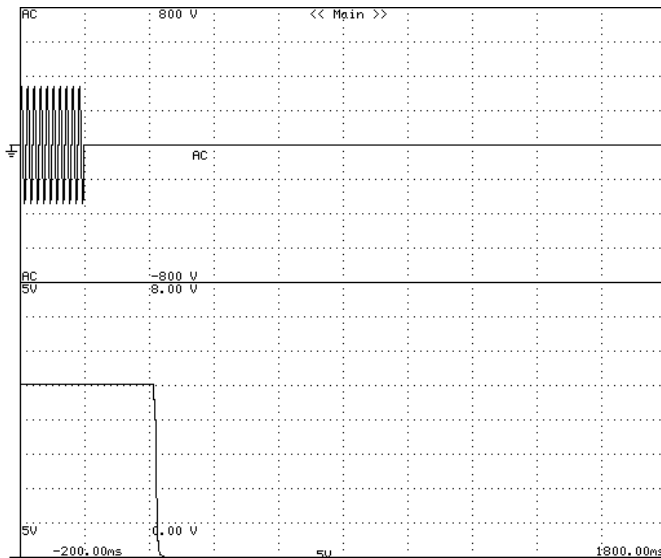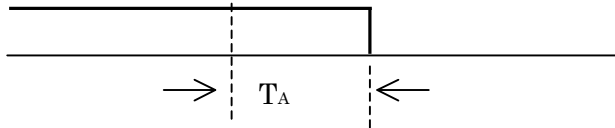
Timebase Range: 200ms/div **Timebase Range: 50ms/div**

Output Fall Characteristics
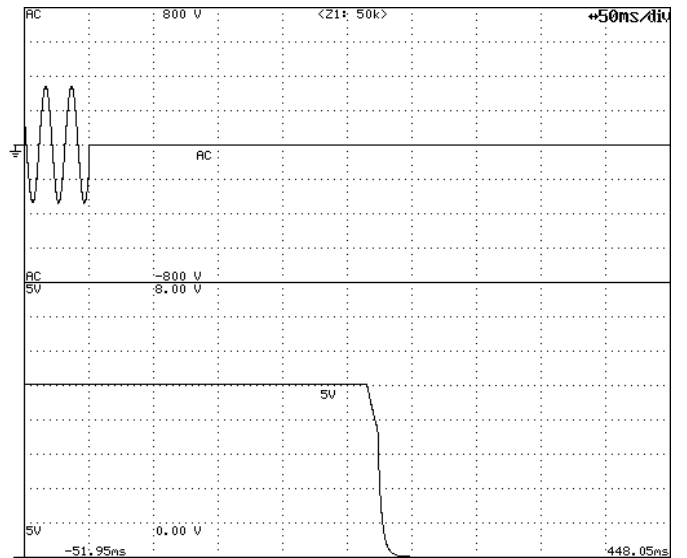
Output Fall Characteristics (magnification)

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Model	OZ-060-5	Temperature: 25℃
Item	Instantaneous Interruption Compensation (by Load Power)	

Input Voltage

Output Voltage

T_A
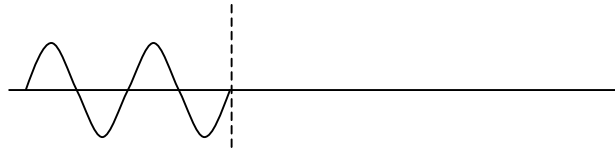
Input Voltage:100V AC
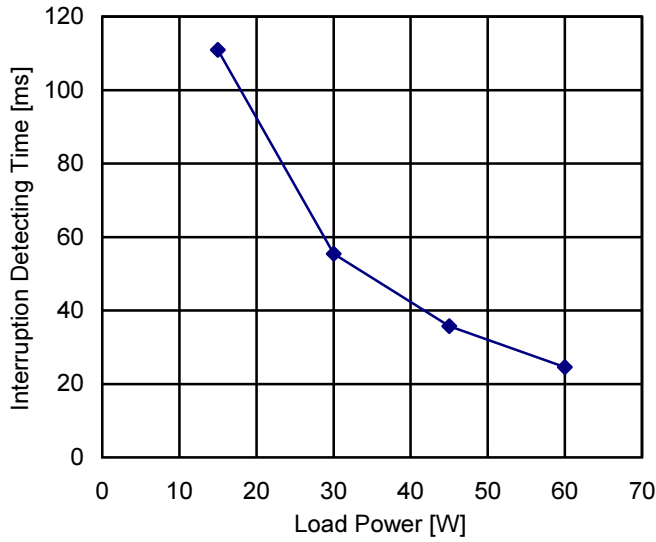
Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	T_A
15.0	110.9
30.0	55.4
45.0	35.7
60.0	24.6

Input Voltage:240V AC
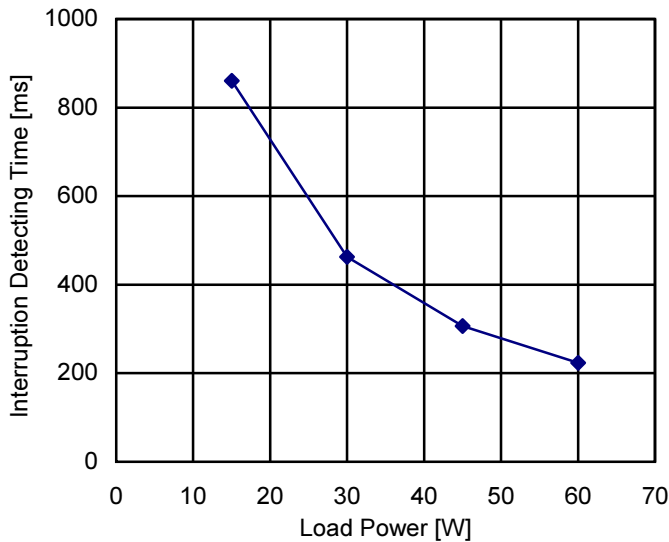
Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	T_A
15.0	860.3
30.0	462.7
45.0	306.8
60.0	223.5

Model	OZ-060-5	Temperature: 25℃
Item	Start-Up Voltage	

Timebase Range: 500ms/div
Load: Rated Load

AC Input

+5V
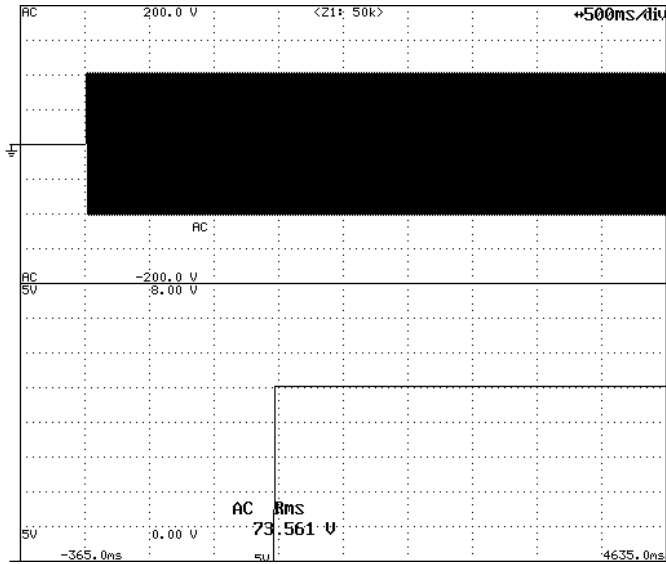
AC Rms
73.561 V

Start-up Voltage: 73.561V AC

Timebase Range: 500ms/div
Load: Minimum Load

AC Input

+5V
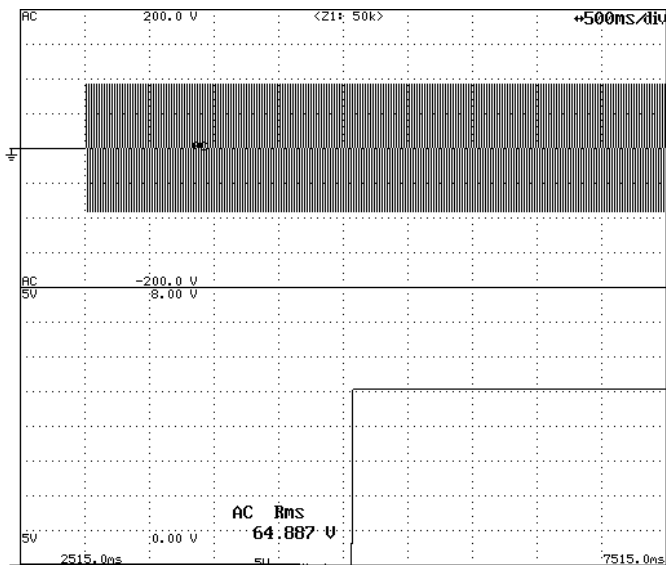
AC Rms
64.887 V

Start-up Voltage: 64.887V AC

Model	OZ-060-5	Temperature: 25℃
Item	Input Voltage Sweep Up/Down	

Timebase Range: 5s/div
Load: Rated Load

```
AC          200.0 V            <Z1: 50k>                    +5s/div
```

AC Input

```
AC         -200.0 V
5V          8.00 V
```

+5V

```
5V          0.00 V
  11.705 s                                5V              61.705 s
```
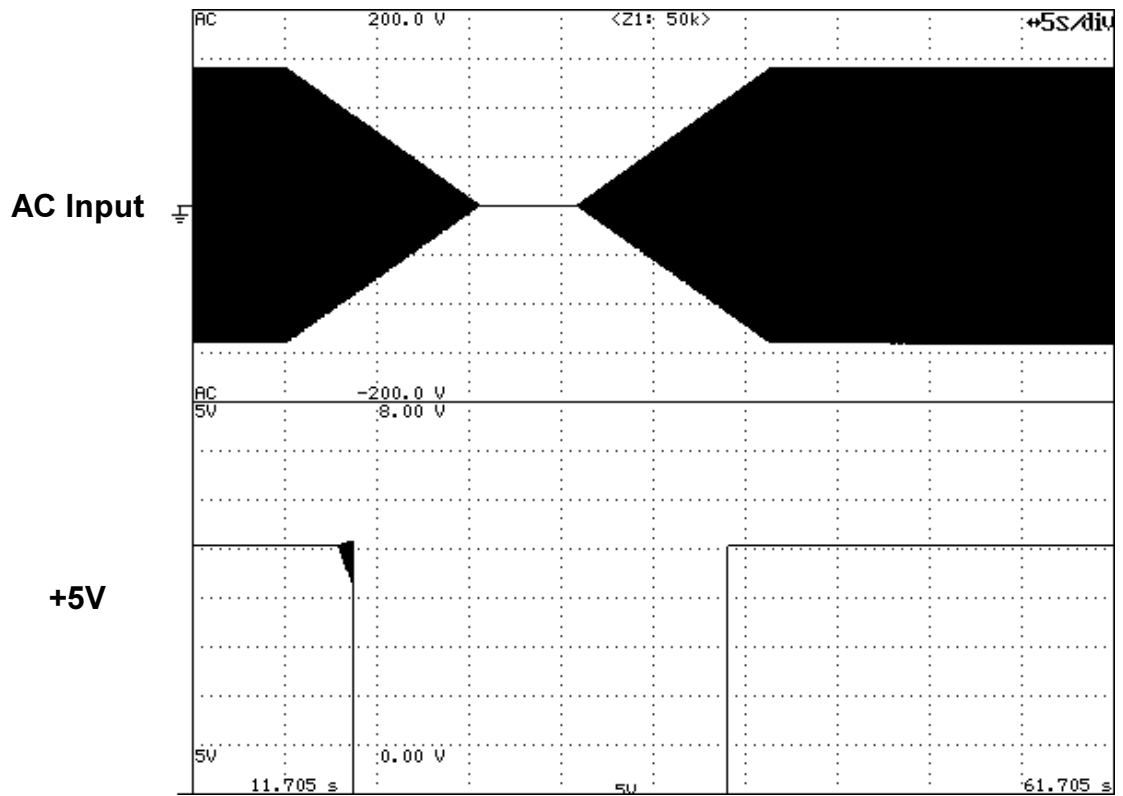
Sweep Rate: 10Vave/sec

Model	OZ-060-5	Temperature: 25℃
Item	Dynamic Load Response	

+5V DC Output Transient Response Waveforms
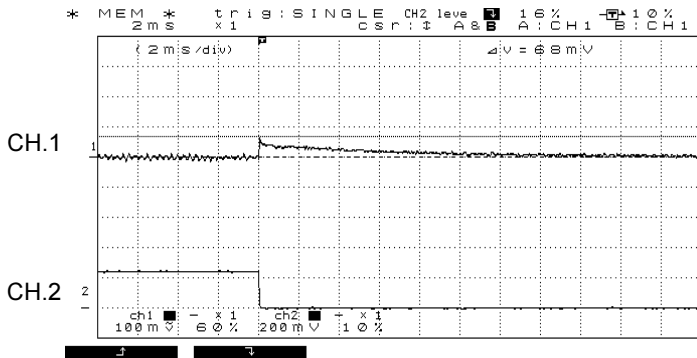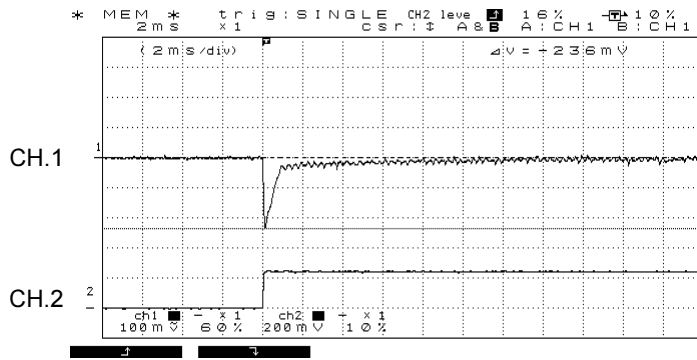
Waveform 1		
CH1	Measuring Point: DC Output Voltage	
	Vertical Sensitivity: 100mV/div	
CH2	Measuring Point: DC Output Current	
	Vertical Sensitivity: 10A/div	
Timebase Range	2ms/div	
Condition	Input: 100V AC	

Note:
Rated Load(12A) ⇌ Minimum load(0A)

Model	OZ-60-5	Load: Rated Load
Item	Ambient Temperature Drift	
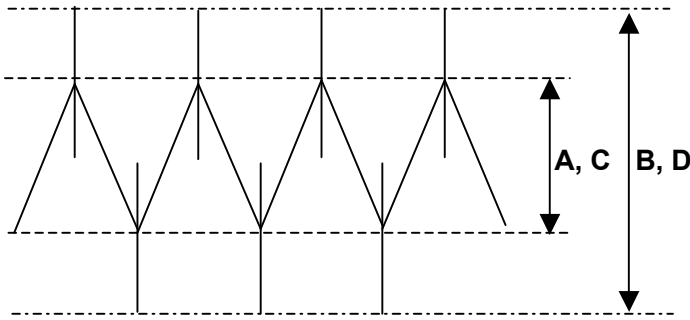
at 100V AC

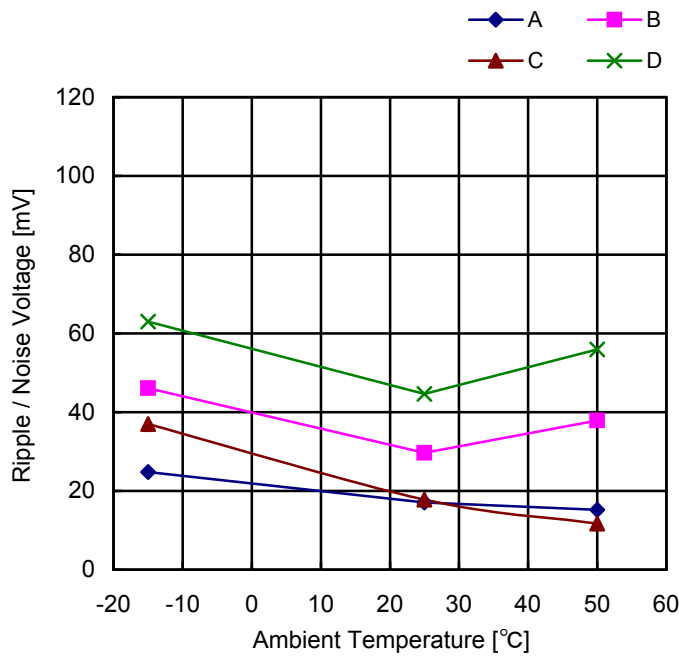A: Ripple Voltage (mV$_{P-P}$)
B: Noise Voltage (mV$_{P-P}$)

at 240V AC

C: Ripple Voltage (mV$_{P-P}$)
D: Noise Voltage (mV$_{P-P}$)

5V

Ambient Temp. [°C]	Ripple / Noise Voltage [mV]			
	A	B	C	D
-15	24.8	46.1	37.0	63.0
25	17.1	29.7	17.8	44.6
50	15.2	37.9	11.7	55.9

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Model	OZ-60-5	Temperature：25℃
Item	Ambient Temperature Drift	

at 100V AC

A: Ripple Voltage (mV$_{P-P}$)
B: Noise Voltage (mV$_{P-P}$)

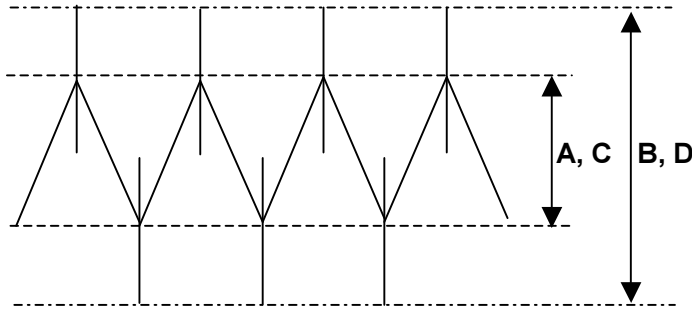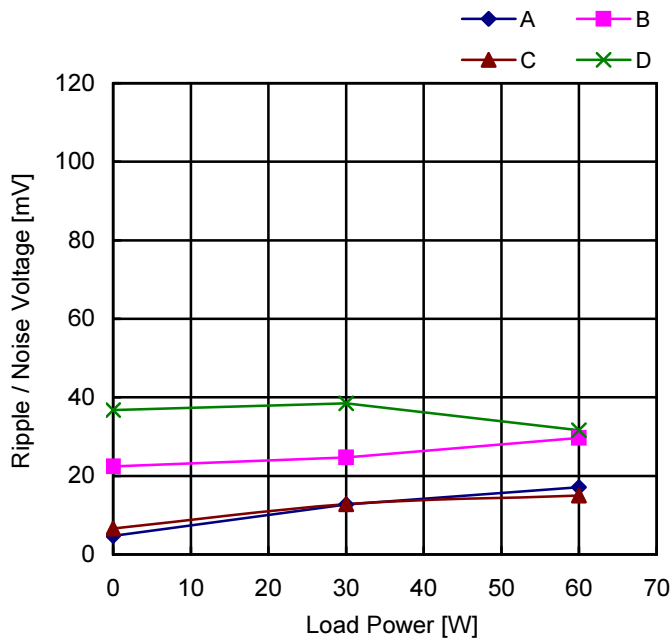**at 240V AC**

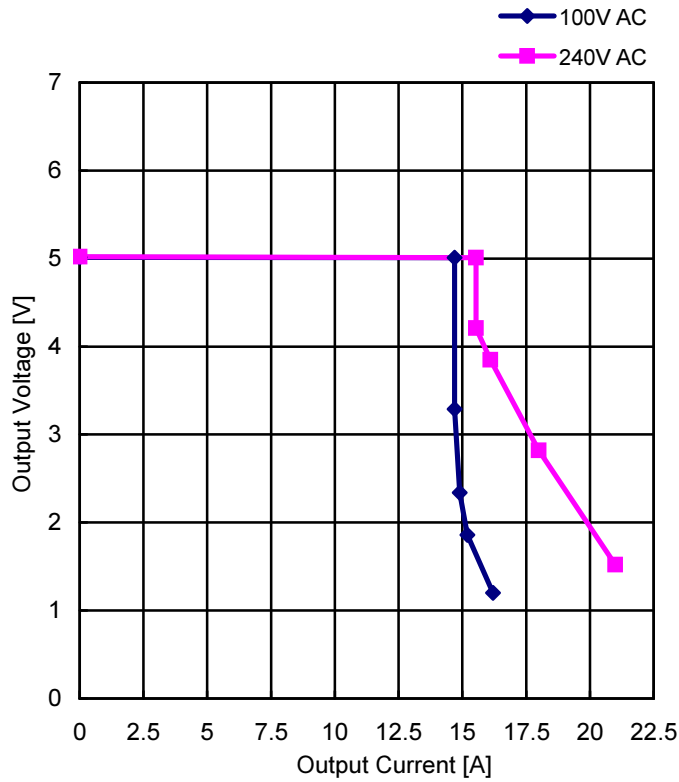C: Ripple Voltage (mV$_{P-P}$)
D: Noise Voltage (mV$_{P-P}$)

5V

Load Power [W]	Ripple / Noise Voltage [mV]			
	A	B	C	D
0	4.7	22.4	6.6	36.8
30	12.7	24.7	12.8	38.5
60	17.1	29.7	15.0	31.6

Model	OZ-60-5	Temperature: 25℃
Item	Over-Current Protection	

V-I Characteristics of 5V O.C.P

Legend: 100V AC, 240V AC

Input Voltage: 100V AC		Input Voltage: 240V AC	
Output Current [A]	Output Voltage [V]	Output Current [A]	Output Voltage [V]
0.00	5.01	0.00	5.02
14.70	5.01	15.54	5.01
14.70	3.29	15.54	4.21
14.90	2.34	16.10	3.85
15.20	1.86	18.00	2.82
16.20	1.20	21.00	1.52

Model	OZ-060-5
Item	Over-Voltage Protection

Load: Minimum Load

+5V
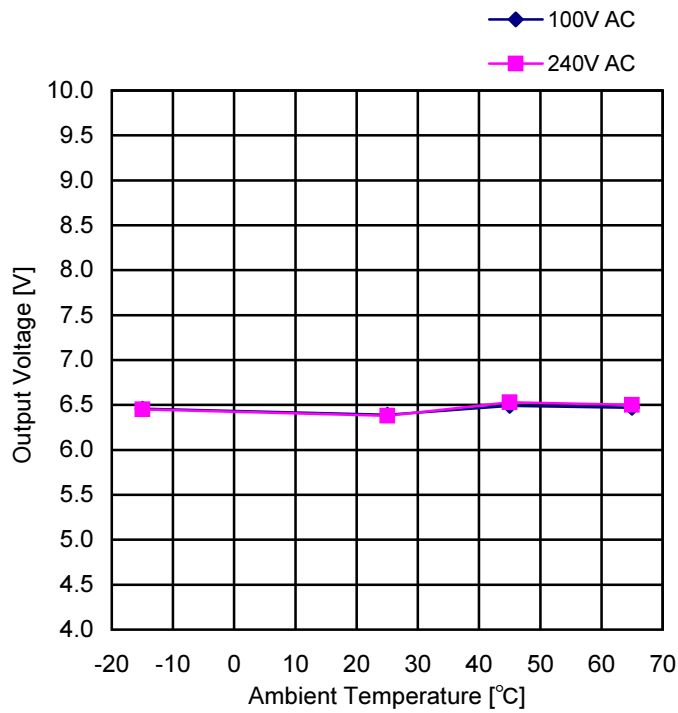
	100V AC
	240V AC

Ambient Temp. [°C]	Output Voltage	
	100V AC	240V AC
-15	6.46	6.45
25	6.39	6.38
45	6.49	6.53
65	6.47	6.50

Model	OZ-060-5	Temperature: 25℃
Item	Inrush Current	Load: Rated Load

Inrush Current Waveforms
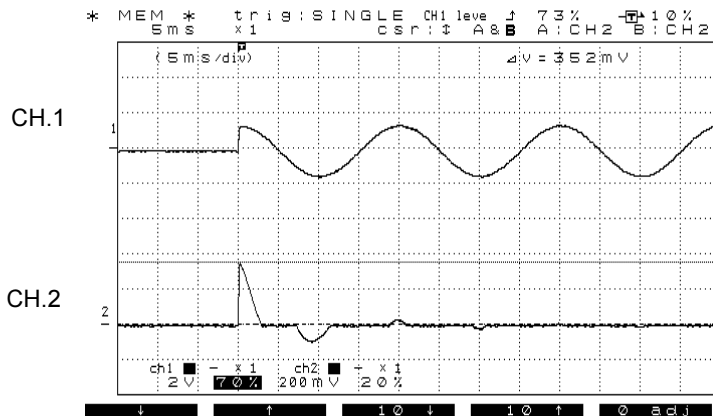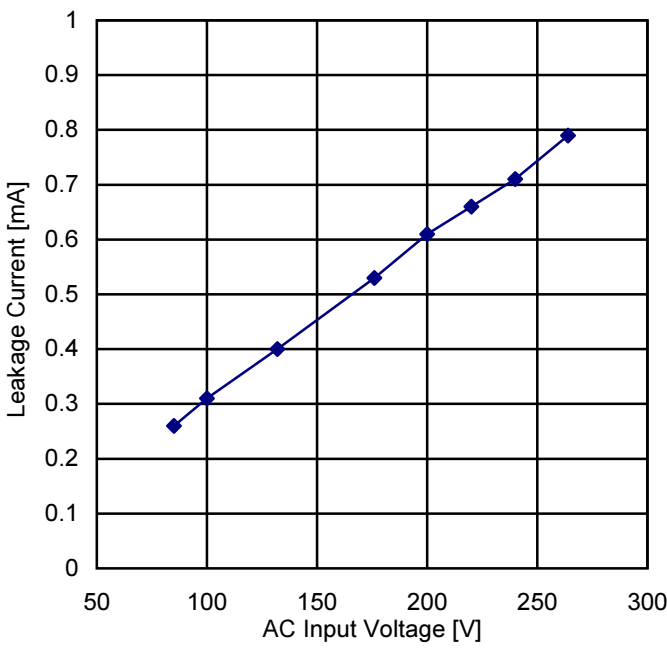
Waveform 1

CH1	Measuring Point: AC Input Voltage
	Range: 200V/div
CH2	Measuring Point: AC Input Current
	Range: 10A/div
Timebase Range	5ms/div
Conditions	Input: 100V AC Load: Rated Load

Note:
Inrush Current: 17.6A
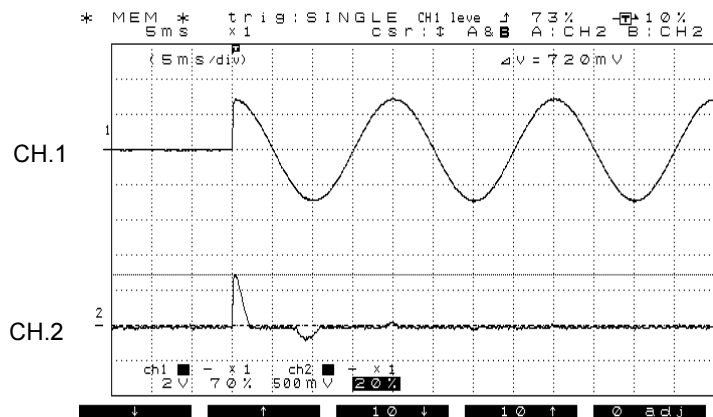
Waveform 2

CH1	Measuring Point: AC Input Voltage
	Range: 200V/div
CH2	Measuring Point: AC Input Current
	Range: 25A/div
Timebase Range	5ms/div
Conditions	Input: 200V AC Load: Rated Load

Note:
Inrush Current: 36.0A

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Model	OZ-060-5	Load: Rated Load
Item	Leakage Current	

AC Input Voltage [V]	Leakage Current [mA]
85	0.26
100	0.31
132	0.40
176	0.53
200	0.61
220	0.66
240	0.71
264	0.79

Model	OZ-060-5	Load: Rated Load
Item	Leakage Current	