Nipron

Test Data

Model Number: OZ-015-12

Model Name: DC POWER SUPPLY

INPUT: 85V – 264V AC, 50 / 60 Hz

OUTPUT: 12 V   1.3A

Minimum load : 0W
Rated load :15.6W

Approved by :   _Makoto Urasu_   (QA manager)

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

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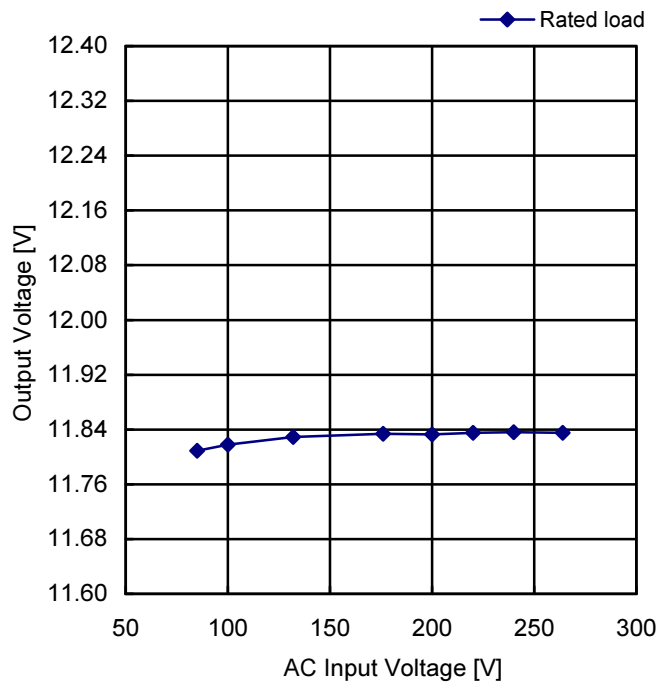
Nipron Co.,Ltd.

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Model	OZ-15-12	Temperature: 25°C
Item	Input Current （by Load Power）	

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

X-axis: Load Power [W]
Y-axis: Input Current [A rms]

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	0.03	0.03	0.04	0.04
3.9	0.12	0.11	0.07	0.07
7.8	0.20	0.18	0.11	0.11
11.7	0.29	0.25	0.14	0.14
15.6	0.37	0.32	0.18	0.17

Model	OZ-15-12	Temperature: 25℃
Item	Efficiency	

■Efficiency(by Input Voltage)

AC Input Voltage [V]	Efficiency [%]	
	50% Load	Rated Load
85	77.36	76.26
100	79.43	78.54
132	77.22	81.43
176	77.85	81.97
200	76.68	81.46
220	75.03	81.22
240	72.85	81.12
264	72.03	80.18

■Efficiency(by Load Power)

Load Power [W]	Efficiency [%]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
3.9	73.72	74.79	61.52	59.79
7.8	77.36	79.43	72.85	72.03
11.7	77.40	78.94	78.58	78.11
15.6	76.26	78.54	81.12	80.18

Model	OZ-15-12
Item	Line Regulation

Temperature: 25℃

12V/1.3A

AC Input Voltage [V]	Output Voltage [V]
85	11.809
100	11.818
132	11.829
176	11.834
200	11.833
220	11.835
240	11.836
264	11.835

Model	OZ-15-12
Item	Line Regulation

Model	OZ-15-12
Item	Load Regulation

Temperature: 25°C

12V

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	11.850	11.850	11.849	11.850
3.9	11.846	11.846	11.846	11.846
7.8	11.841	11.842	11.843	11.843
11.7	11.835	11.837	11.839	11.840
15.6	11.809	11.818	11.836	11.835
-	-	-	-	-

Load Condition

Load Power [W]	Load Current [A]
	12V
0.0	0.00
3.9	0.325
7.8	0.65
11.7	0.975
15.6	1.30
-	-

Model	OZ-15-12
Item	Ambient Temperature Drift

12V
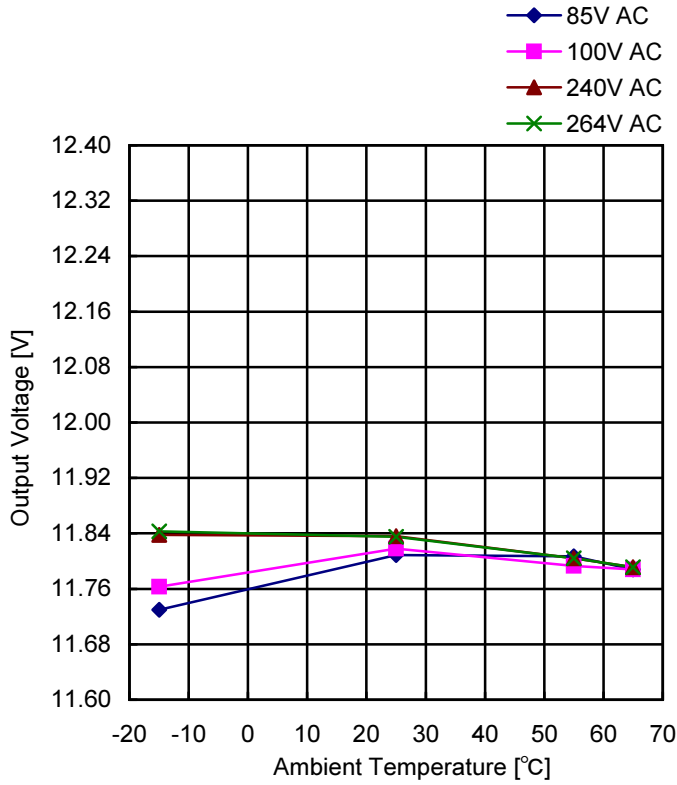
Ambient Temp. (℃)	Output Voltage [V]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
-15	11.730	11.763	11.838	11.843
25	11.809	11.818	11.836	11.835
55	11.807	11.793	11.804	11.804
65	11.788	11.788	11.791	11.791

Load Condition

Ambient Temp. (℃)	Load Current [A]
	12V
-15	1.30
25	1.30
55	1.30
65	0.91

Model	OZ-015-12	Temperature: 25°C
Item	Output Rise Characteristics (at AC Power ON)	

Input: 100V AC
Load: Rated Load

Vertical Sensitivity: 2V/div
Timebase Range: 20ms/div

Timebase Range: 100ms/div
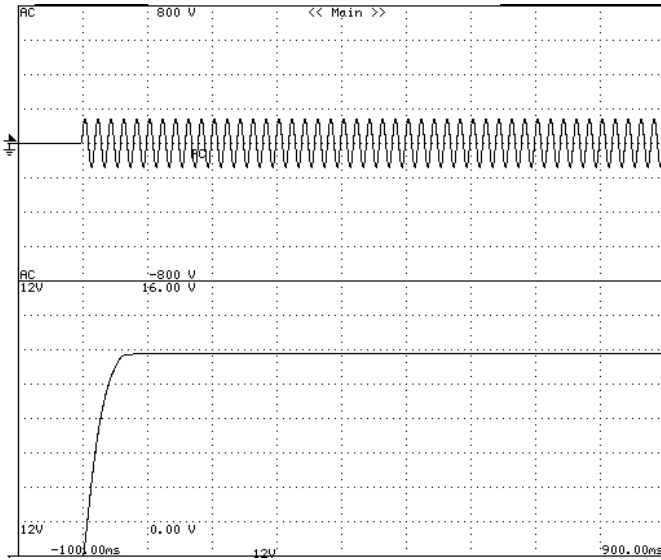
All Output Start-up Sequence
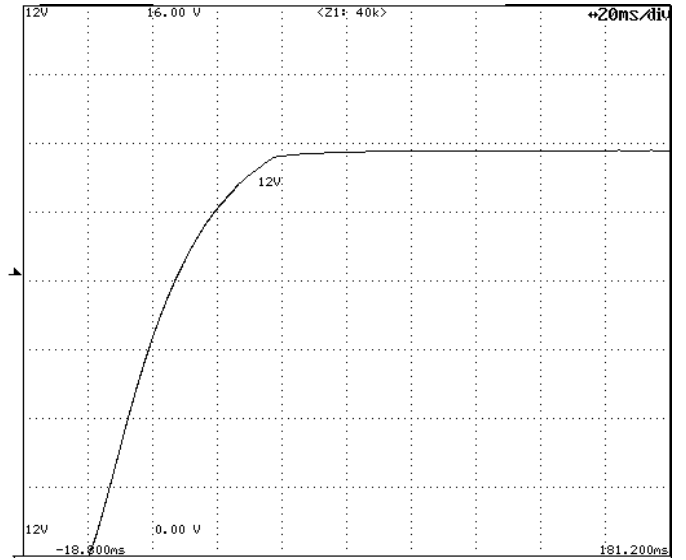
12V DC Output Rise Characteristics

Input: 240V AC
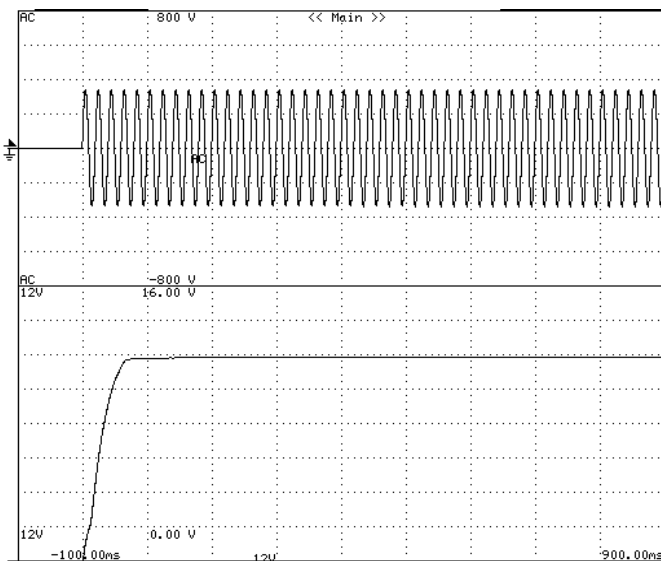Load: Rated Load

Vertical Sensitivity: 2V/div
Timebase Range: 20ms/div

Timebase Range: 100ms/div

All Output Start-up Sequence
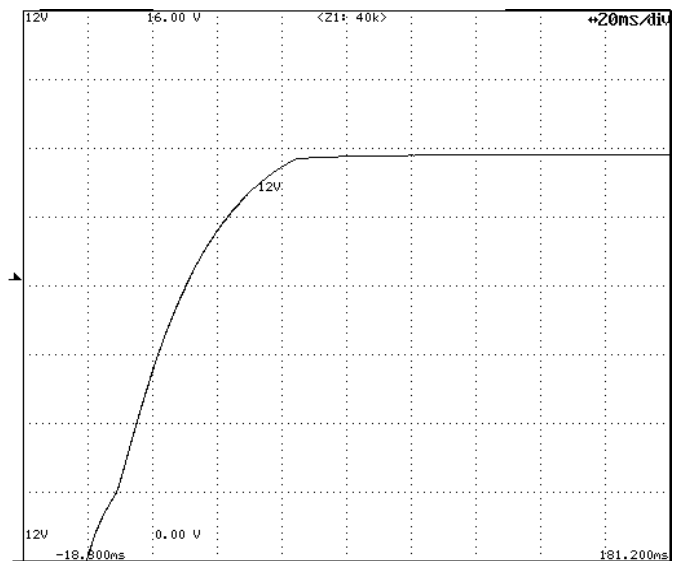
12V DC Output Rise Characteristics

Model	OZ-015-12	Temperature: 25°C
Item	Output Fall Characteristics (at AC Power OFF)	

Input: 100V AC
Load: Rated Load
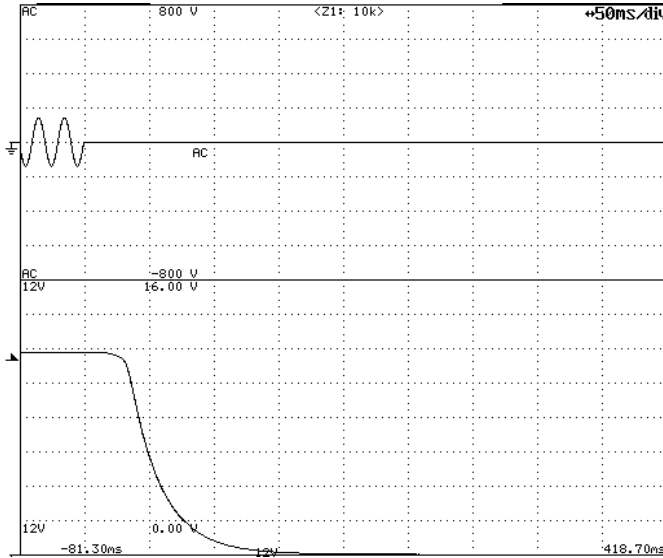
Timebase Range: 50ms/div	**Timebase Range: 10ms/div**

Output Fall Characteristics

Output Fall Characteristics (magnification)

Input: 240V AC
Load: Rated Load
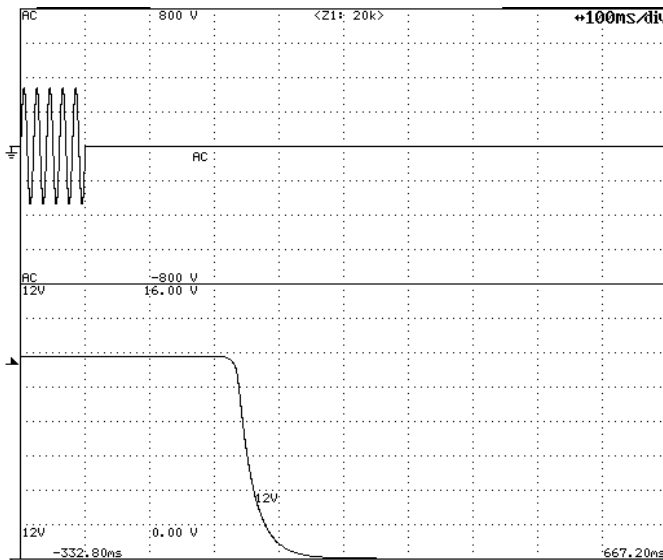
Timebase Range: 100ms/div	**Timebase Range: 50ms/div**

Output Fall Characteristics
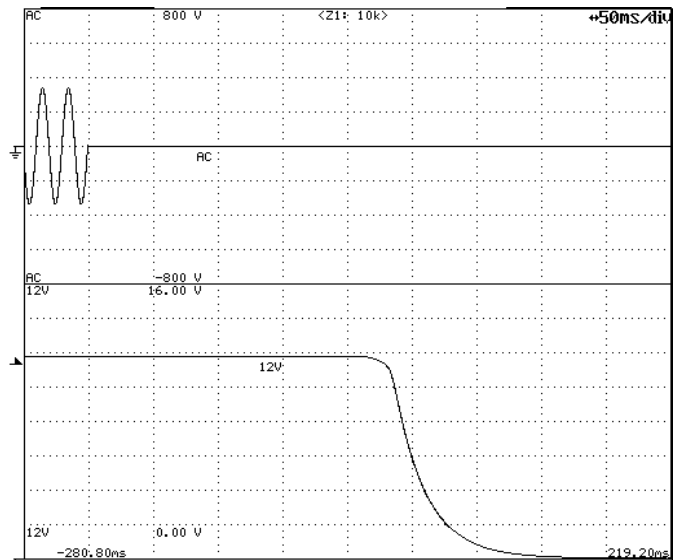
Output Fall Characteristics (magnification)

Model	OZ-015-12	Temperature: 25℃
Item	Instantaneous Interruption Compensation (by Load Power)	

Input Voltage

Output Voltage

T_A
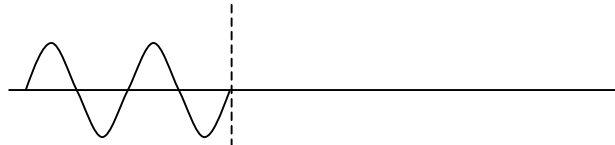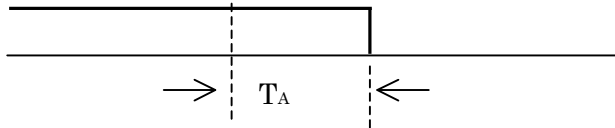
Input Voltage:100V AC
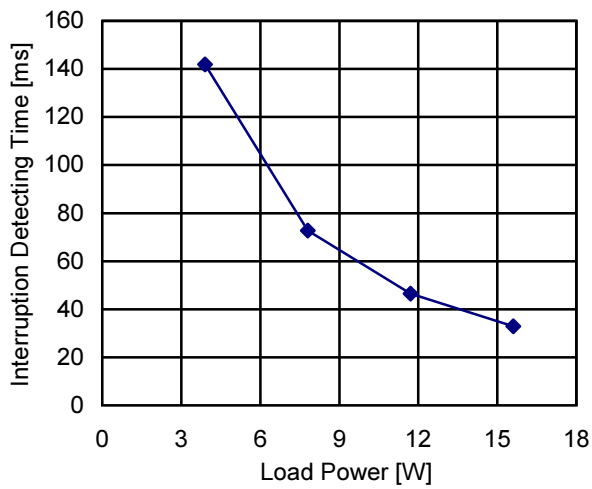
Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	T_A
3.9	141.8
7.8	72.7
11.7	46.6
15.6	32.9

Input Voltage:240V AC
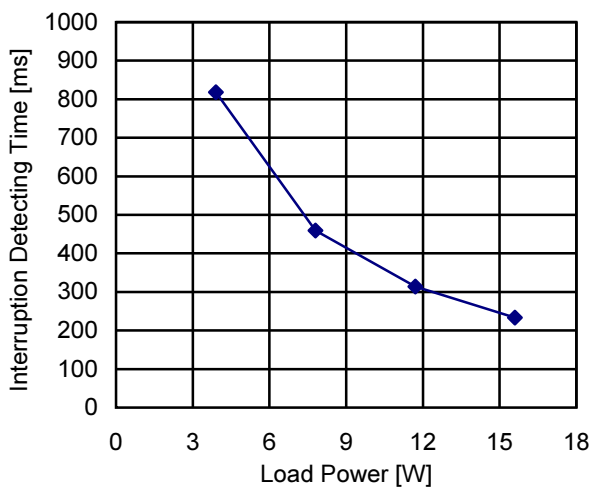
Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	T_A
3.9	818.5
7.8	459.3
11.7	313.8
15.6	233.4

Model	OZ-015-12	Temperature: 25℃
Item	Start-Up Voltage	

Timebase Range: 500ms/div
Load: Rated Load

AC Input

+12V
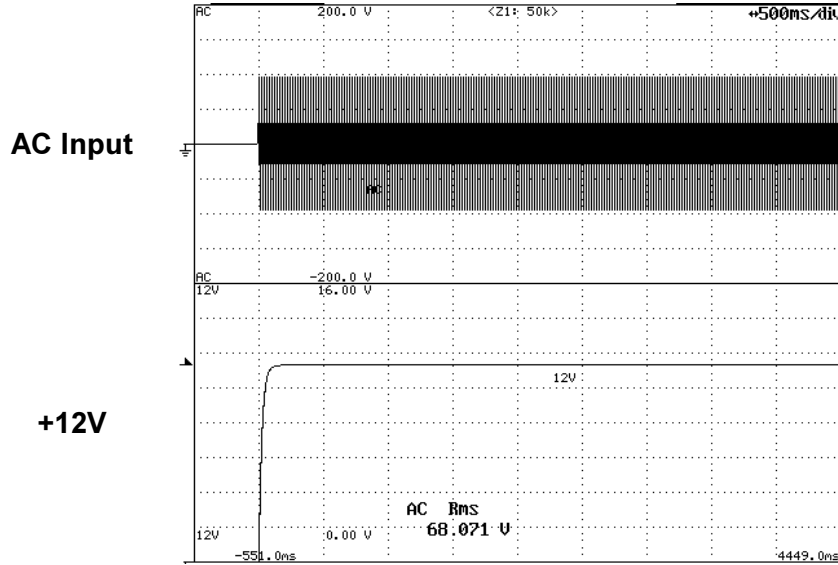
Start-up Voltage: 68.071V AC

Timebase Range: 500ms/div
Load: Minimum Load

AC Input

+12V
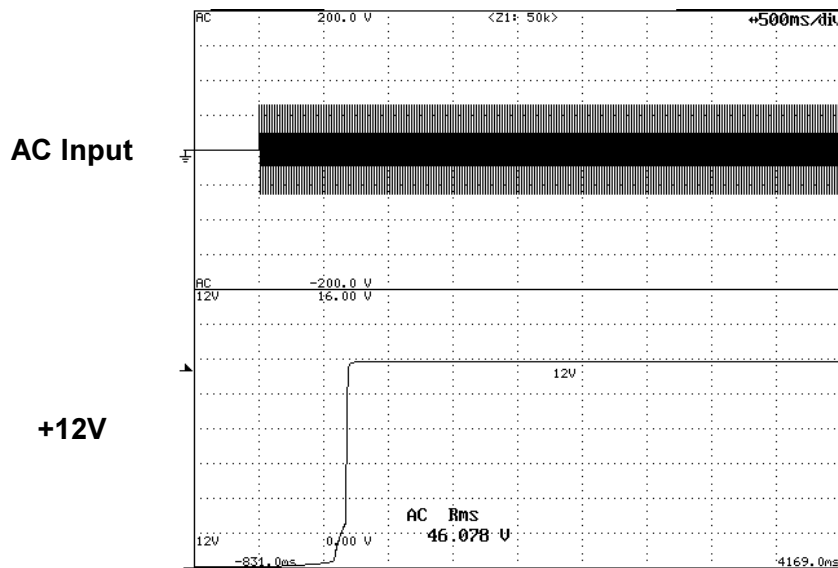
Start-up Voltage: 46.078V AC

Model	OZ-015-12	Temperature: 25℃
Item	Input Voltage Sweep Up/Down	

Timebase Range: 5s/div
Load: Rated Load

AC Input

+12V
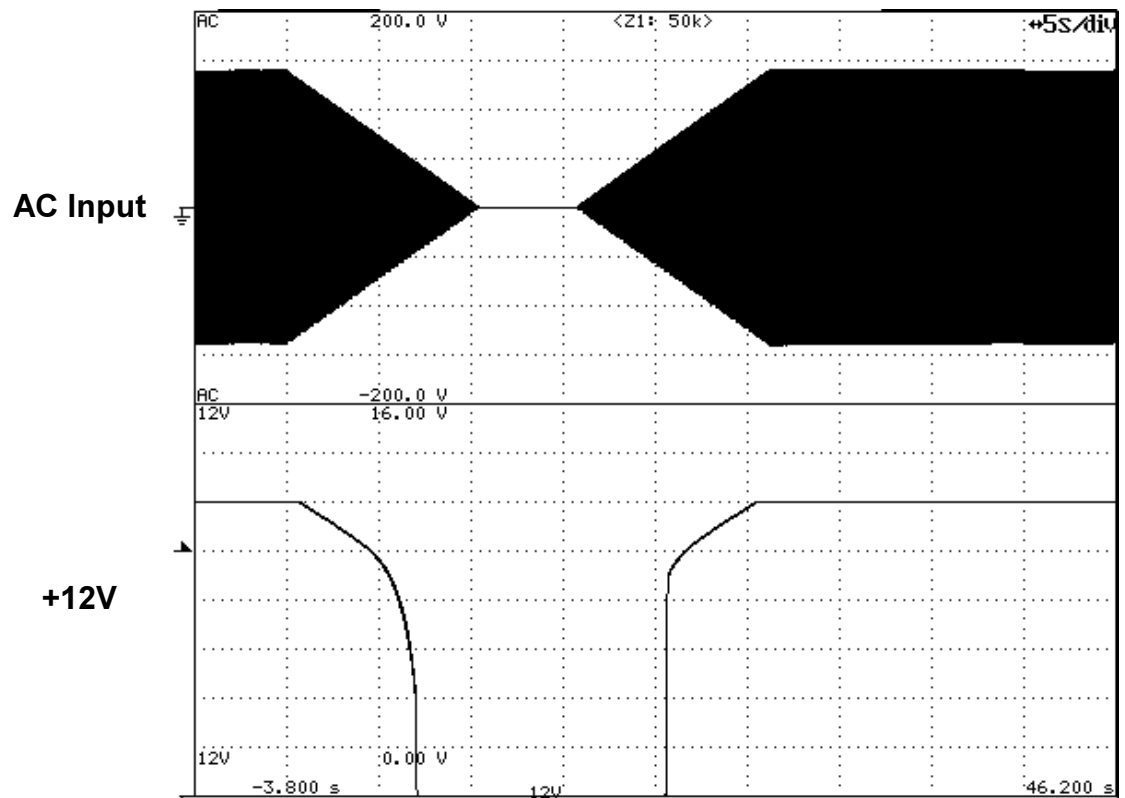
Sweep Rate: 10Vave/sec

Model	OZ-015-12	Temperature: 25℃
Item	Input Voltage Sweep Up/Down	

Model	OZ-015-12	Temperature: 25℃
Item	Dynamic Load Response	

+12V DC Output Transient Response Waveforms

CH.1

CH.2
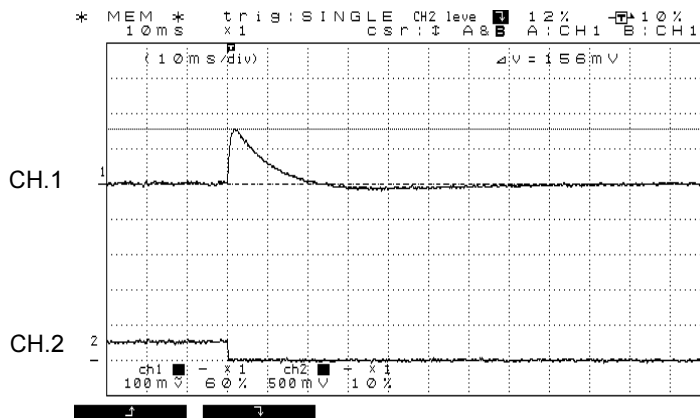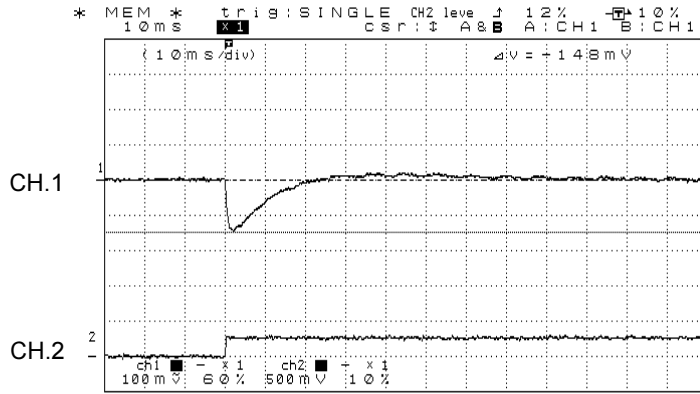
Waveform 1		
CH1	Measuring Point: DC Output Voltage	
	Vertical Sensitivity: 100mV/div	
CH2	Measuring Point: DC Output Current	
	Vertical Sensitivity: 2.5A/div	
Timebase Range	10ms/div	
Condition	Input: 100V AC	
Note: Rated Load(1.3A) ⇌ Minimum load(0A)		

CH.1

CH.2

Model	OZ-15-12	Load: Rated Load
Item	Ambient Temperature Drift	
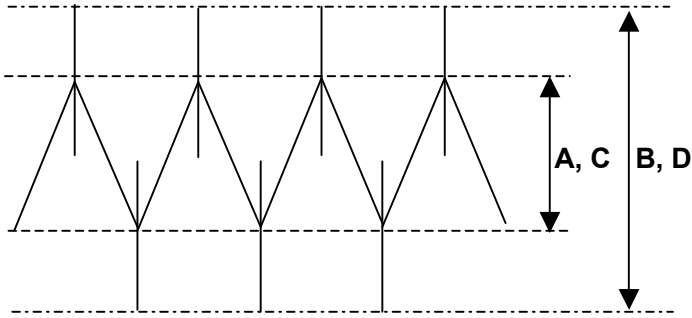
at 100V AC

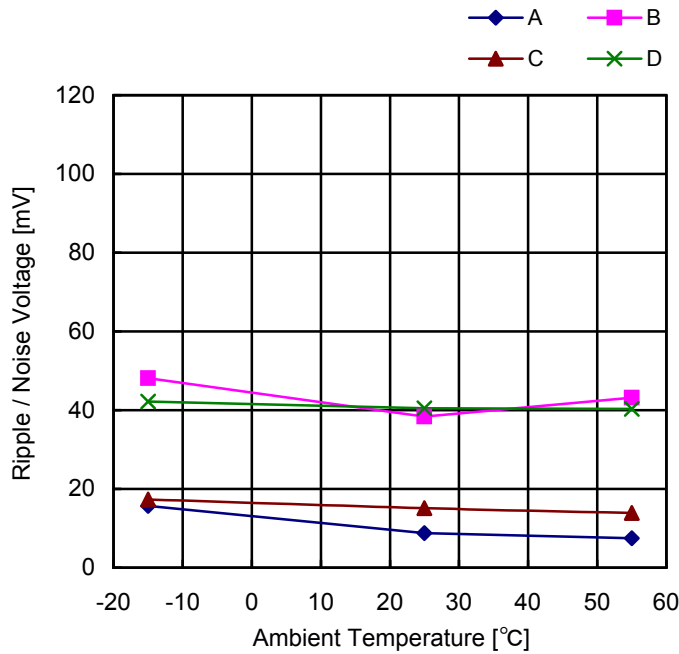A: Ripple Voltage (mV$_{P-P}$)
B: Noise Voltage (mV$_{P-P}$)

at 240V AC

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

12V

Ambient Temp. [°C]	Ripple / Noise Voltage [mV]			
	A	B	C	D
-15	15.7	48.1	17.3	42.2
25	8.8	38.4	15.1	40.5
55	7.5	43.2	13.9	40.3

Model	OZ-15-12	Temperature：25℃
Item	Ambient Temperature Drift	
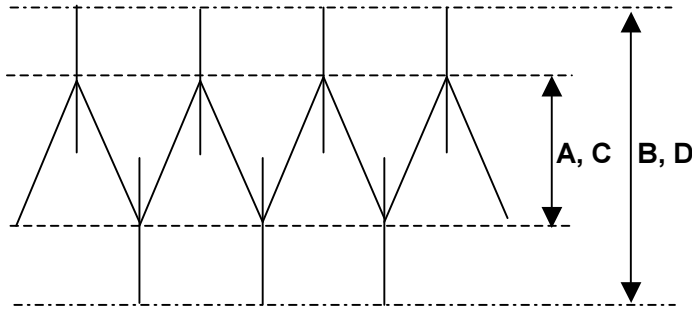
A, C **B, D**

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$_{P-P}$)
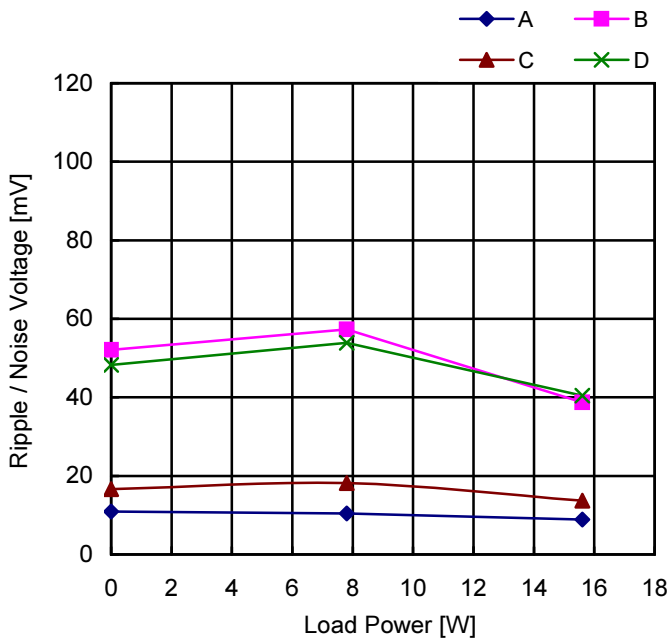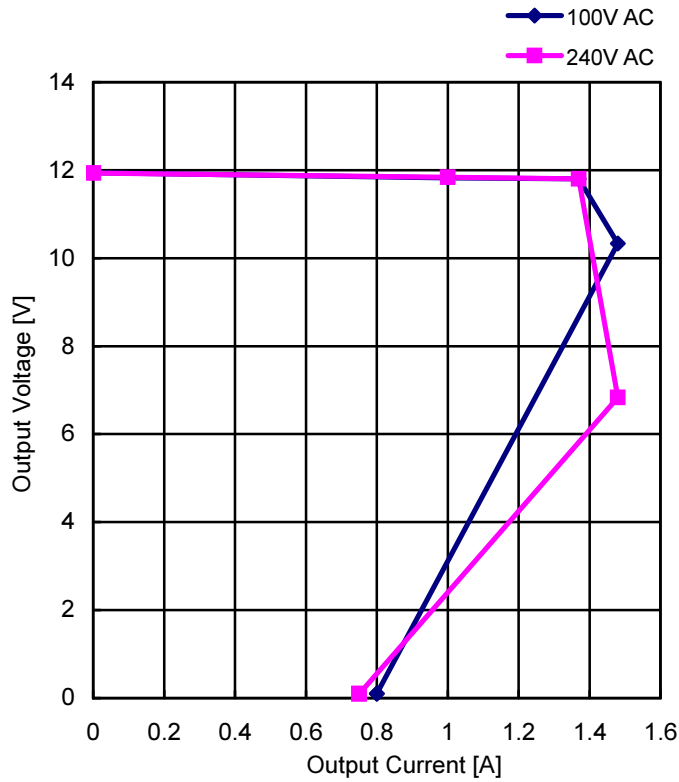
12V

Load Power [W]	Ripple / Noise Voltage [mV]			
	A	B	C	D
0	10.9	52.1	16.6	48.3
7.8	10.4	57.3	18.2	53.9
15.6	8.9	38.7	13.7	40.4

Model	OZ-15-12
Item	Over-Current Protection

Temperature: 25℃

V-I Characteristics of 12V 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	11.94	0.00	11.93
1.00	11.83	1.00	11.84
1.37	11.80	1.37	11.80
1.48	10.33	1.48	6.83
0.80	0.10	0.75	0.10
0.80	0.10	0.75	0.10

Model	OZ-015-12	Temperature: 25℃
Item	Inrush Current	Load: Rated Load
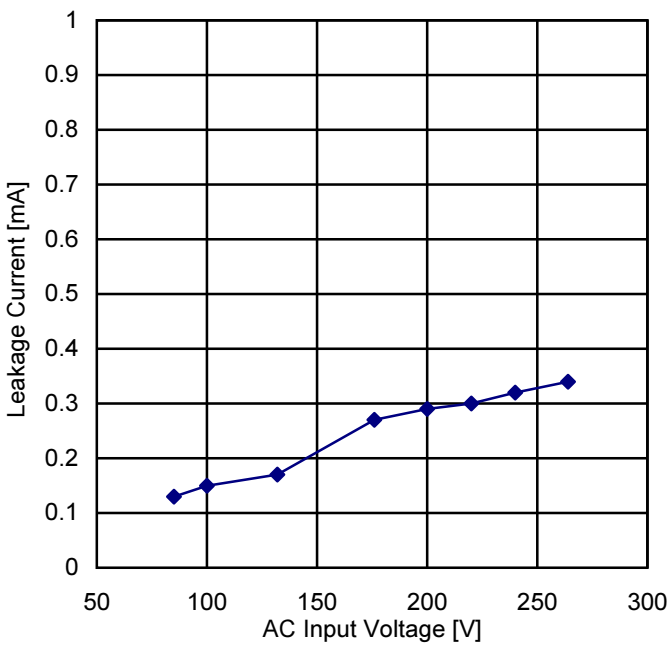
Inrush Current Waveforms
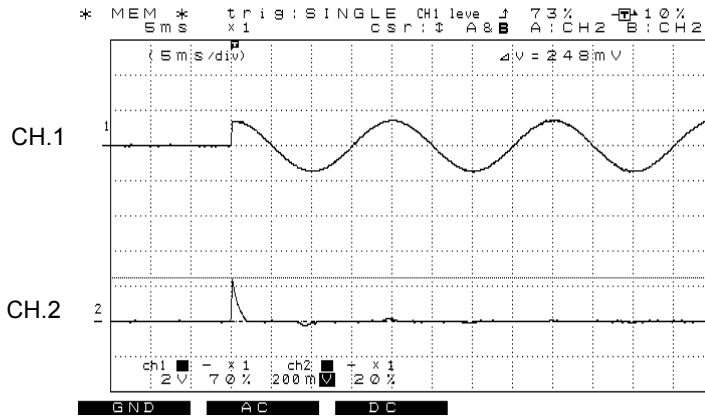
DATA 1		
CH1	Measuring Point: AC Input Voltage	
	Range: 200V/div	
CH2	Measuring Point: AC Input Current	
	Range: 10A/div	
Temporal Axis	5ms/div	
Conditions	Input: 100V AC Load: Rated Load	
Note: Inrush Current: 12.4A		
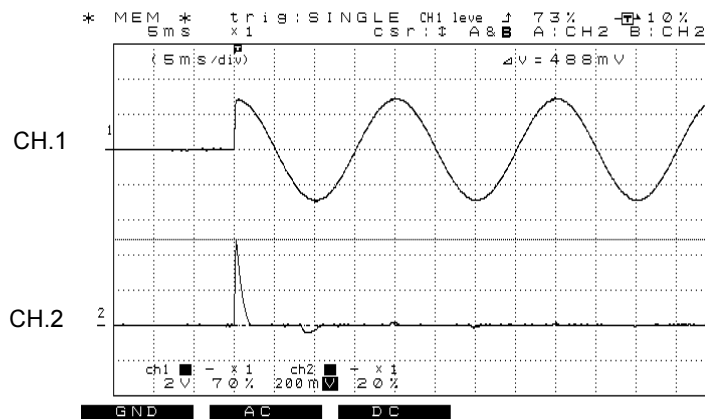
DATA 2		
CH1	Measuring Point: AC Input Voltage	
	Range: 200V/div	
CH2	Measuring Point: AC Input Current	
	Range: 10A/div	
Temporal Axis	5ms/div	
Conditions	Input: 200V AC Load: Rated Load	
Note: Inrush Current: 24.4A		

Model	OZ-015-12
Item	Leakage Current

Load: Rated Load

AC Input Voltage [V]	Leakage Current [mA]
85	0.13
100	0.15
132	0.17
176	0.27
200	0.29
220	0.30
240	0.32
264	0.34