Nipron

Supplemental test data
(参考資料)

Date of issue: Jul. 25, 2011

Test Data

Model Number: OZ-060-3R3

Model Name: DC POWER SUPPLY

INPUT: 85V – 264V AC, 50 / 60 Hz

OUTPUT: 3.3 V 12.0A

Minimum load : 0W
Rated load :39.6W

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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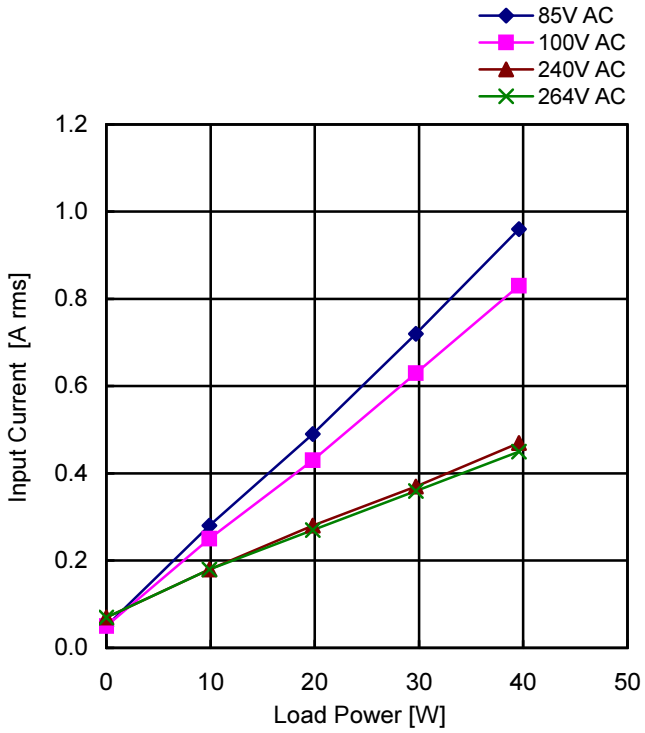
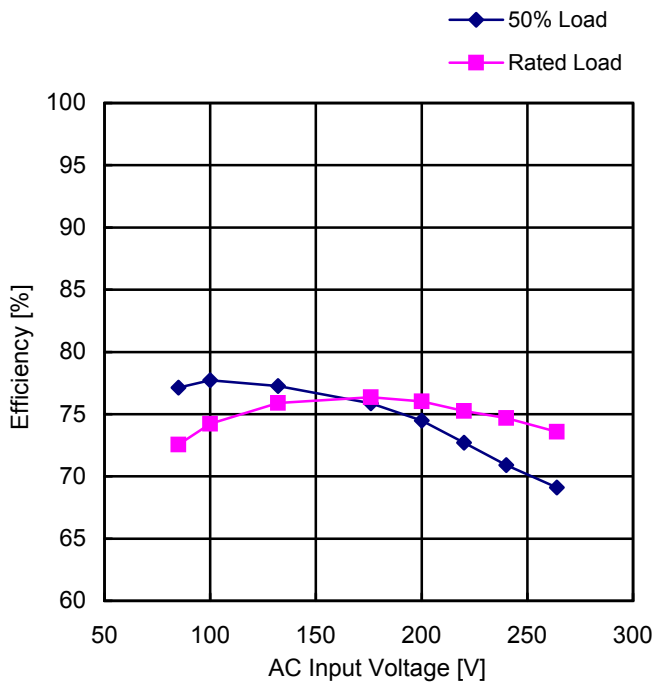
Model	OZ-60-3R3	Temperature: 25℃
Item	Input Current（by Load Power）	



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	0.07	0.07
9.9	0.28	0.25	0.18	0.18
19.8	0.49	0.43	0.28	0.27
29.7	0.72	0.63	0.37	0.36
39.6	0.96	0.83	0.47	0.45

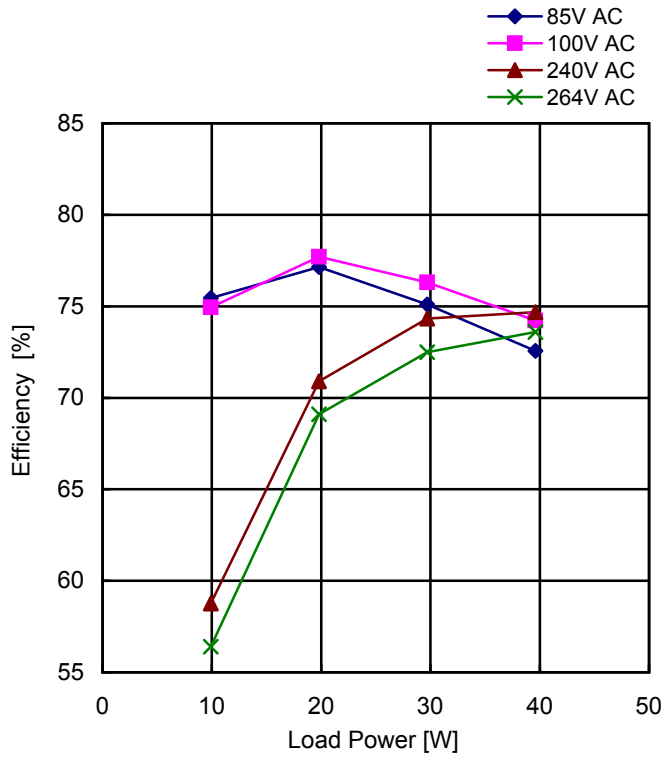
Model	OZ-60-3R3	Temperature: 25℃
Item	Efficiency	

■Efficiency(by Input Voltage)



AC Input Voltage [V]	Efficiency [%]	
	50% Load	Rated Load
85	77.14	72.57
100	77.71	74.22
132	77.26	75.91
176	75.86	76.36
200	74.49	76.02
220	72.72	75.25
240	70.90	74.68
264	69.10	73.59

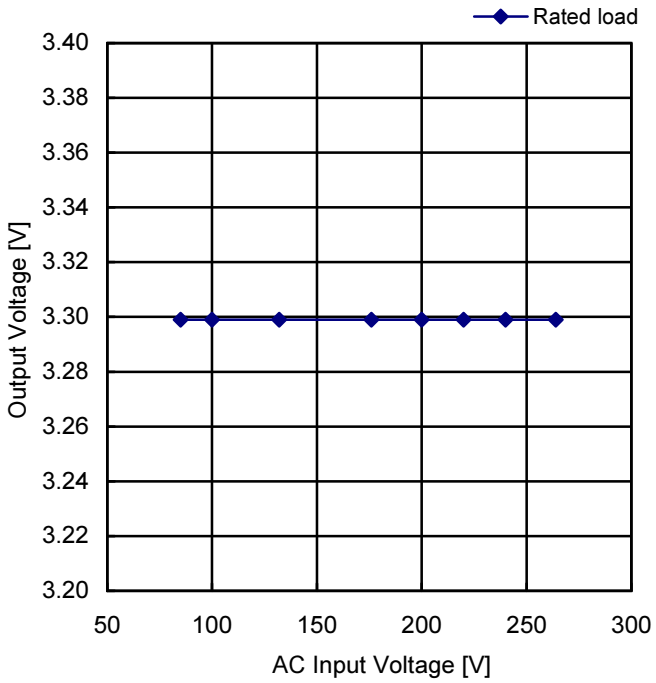
■Efficiency(by Load Power)



Load Power [W]	Efficiency [%]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
9.9	75.45	74.94	58.77	56.40
19.8	77.14	77.71	70.90	69.10
29.7	75.09	76.30	74.33	72.50
39.6	72.57	74.22	74.68	73.59

Model	OZ-60-3R3	Temperature: 25℃
Item	Line Regulation	

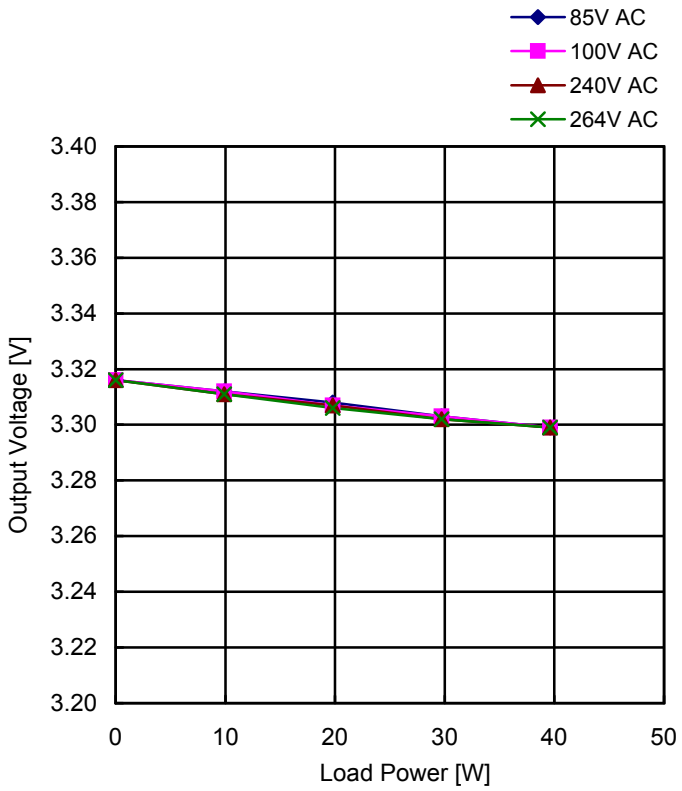
3.3V/12A



AC Input Voltage [V]	Output Voltage [V]
85	3.299
100	3.299
132	3.299
176	3.299
200	3.299
220	3.299
240	3.299
264	3.299

Model	OZ-60-3R3	Temperature: 25℃
Item	Load Regulation	

3.3V



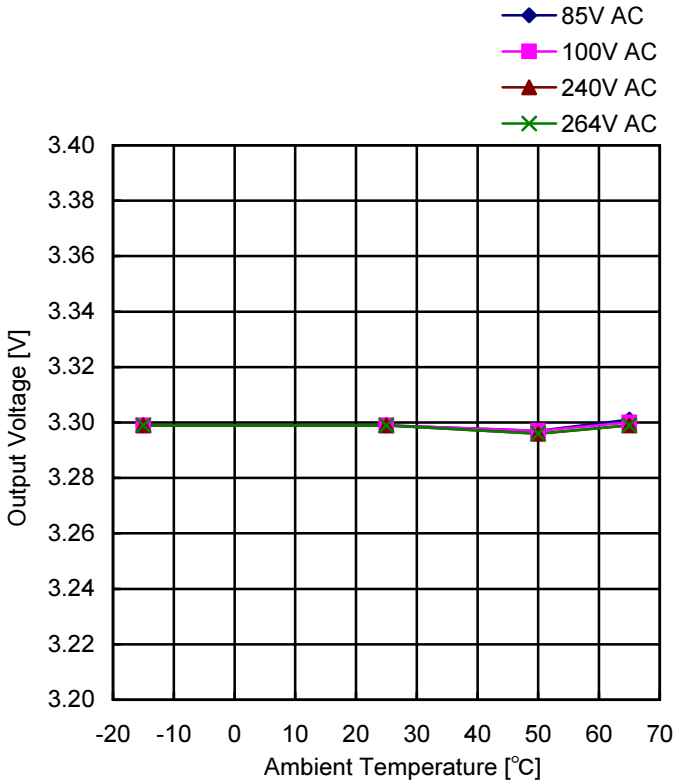
Load Power [W]	Output Voltage [V]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
0.0	3.316	3.316	3.316	3.316
9.9	3.312	3.312	3.311	3.311
19.8	3.308	3.307	3.307	3.306
29.7	3.303	3.303	3.302	3.302
39.6	3.299	3.299	3.299	3.299
-	-	-	-	-

Load Condition

Load Power [W]	Load Current [A]
	3.3V
0.0	0.00
9.9	3.00
19.8	6.00
29.7	9.00
39.6	12.00
-	-

Model	OZ-60-3R3
Item	Ambient Temperature Drift

3.3V



Ambient Temp. (℃)	Output Voltage [V]			
	Input Voltage 85V AC	Input Voltage 100V AC	Input Voltage 240V AC	Input Voltage 264V AC
-15	3.299	3.299	3.299	3.299
25	3.299	3.299	3.299	3.299
50	3.297	3.297	3.296	3.296
65	3.301	3.300	3.299	3.299

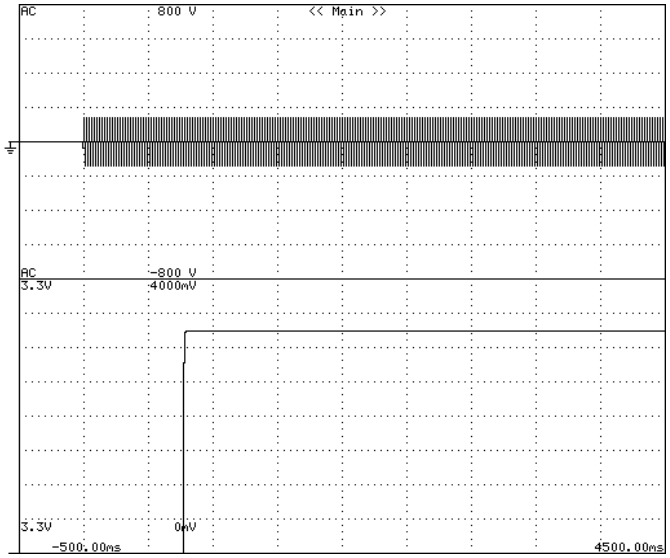
Load Condition

Ambient Temp. (℃)	Load Current [A]
	3.3V
-15	12.00
25	12.00
50	12.00
65	8.40

Model	OZ-060-3R3	Temperature: 25℃
Item	Output Rise Characteristics (at AC Power ON)	

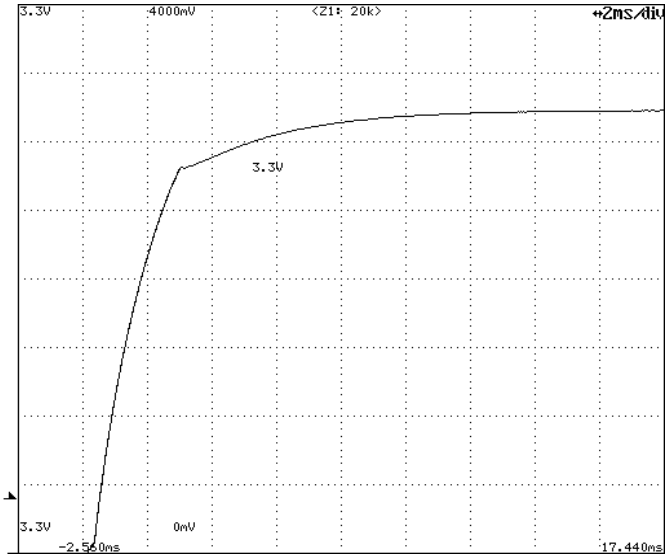
Input: 100V AC
Load: Rated Load

Timebase Range: 500ms/div



All Output Start-up Sequence

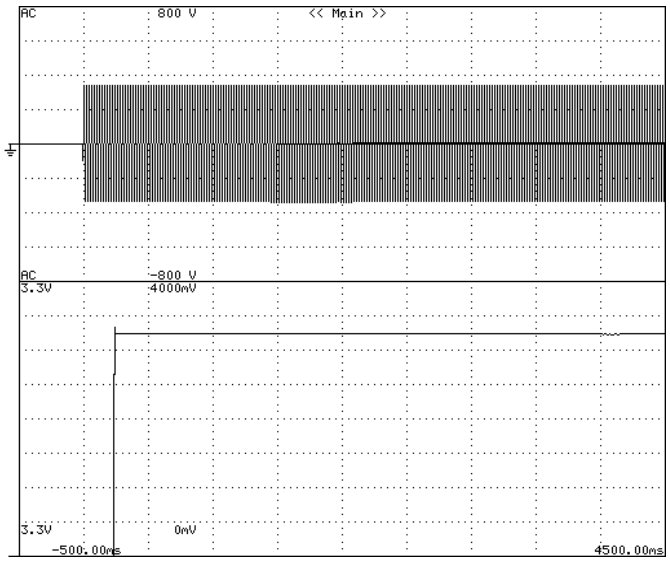
Vertical Sensitivity: 0.5V/div
Timebase Range: 2ms/div



3.3V DC Output Rise Characteristics

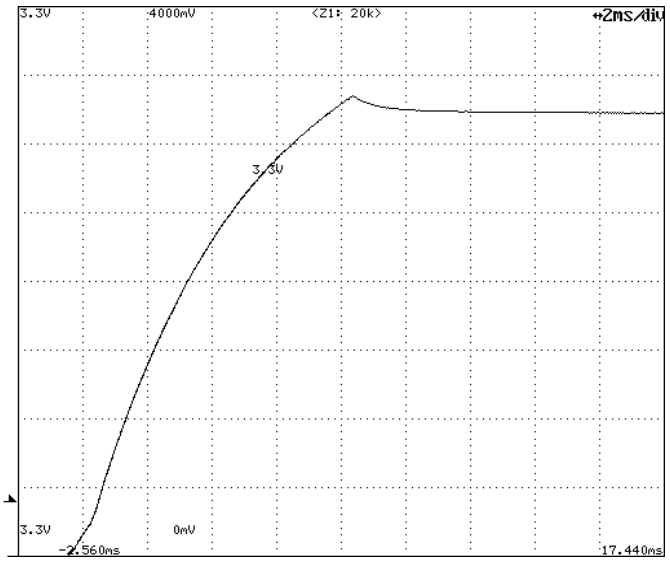
Input: 240V AC
Load: Rated Load

Timebase Range: 500ms/div



All Output Start-up Sequence

Vertical Sensitivity: 0.5V/div
Timebase Range: 2ms/div

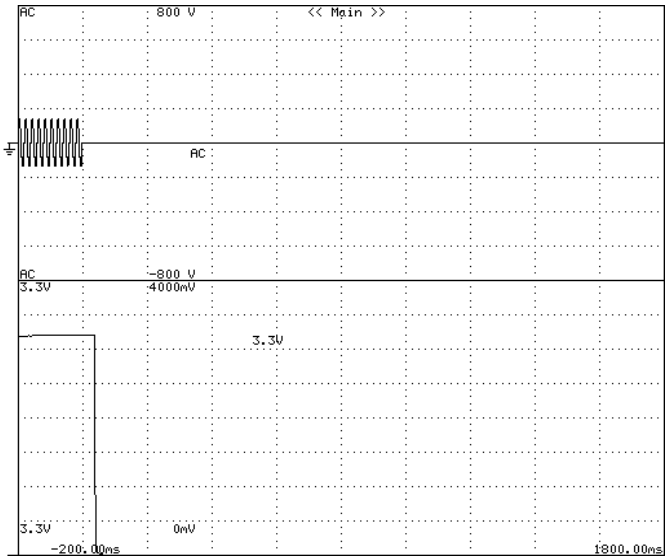


3.3V DC Output Rise Characteristics

Model	OZ-060-3R3	Temperature: 25℃
Item	Output Fall Characteristics (at AC Power OFF)	

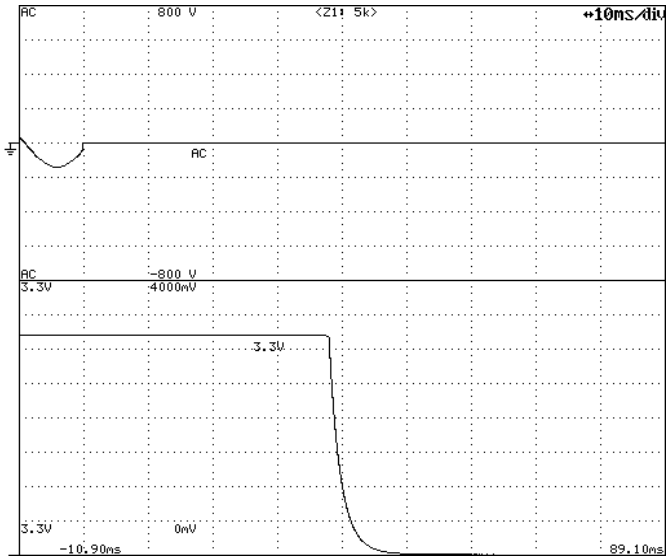
Input: 100V AC
Load: Rated Load

Timebase Range: 200ms/div



Output Fall Characteristics

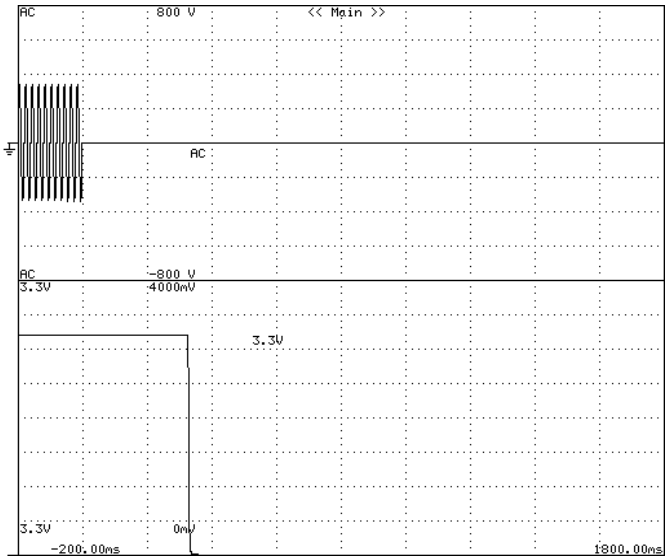
Timebase Range: 10ms/div



Output Fall Characteristics (magnification)

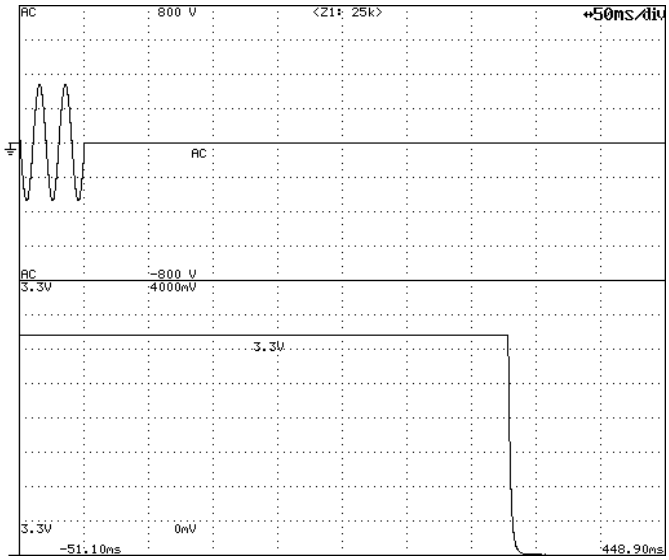
Input: 240V AC
Load: Rated Load

Timebase Range: 200ms/div



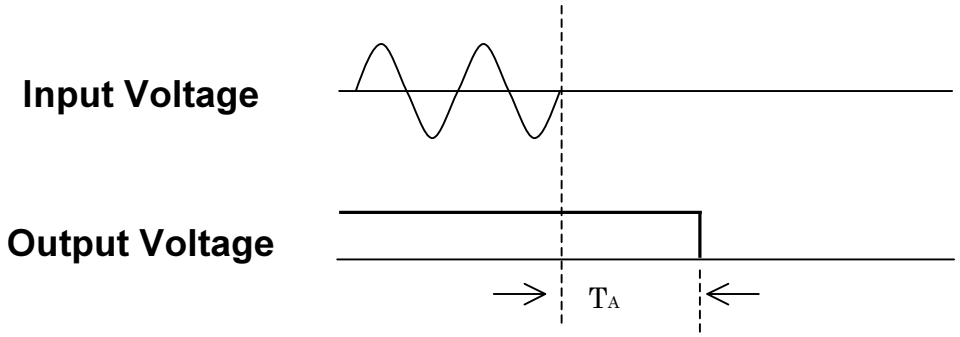
Output Fall Characteristics

Timebase Range: 50ms/div

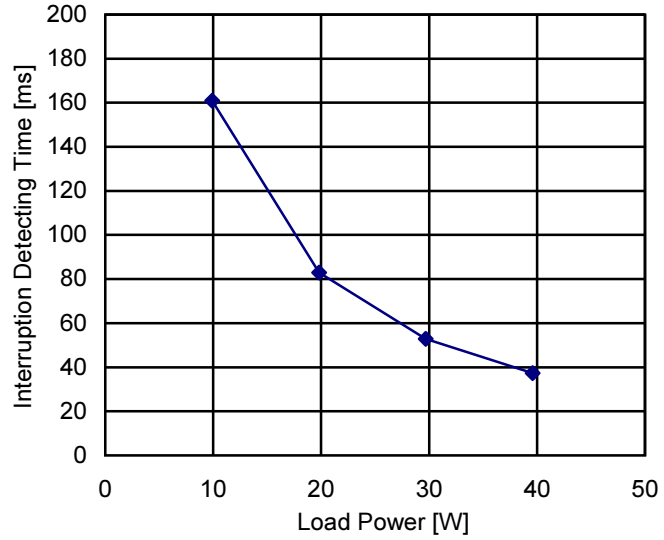


Output Fall Characteristics (magnification)

Model	OZ-060-3R3	Temperature: 25℃
Item	Instantaneous Interruption Compensation (by Load Power)	

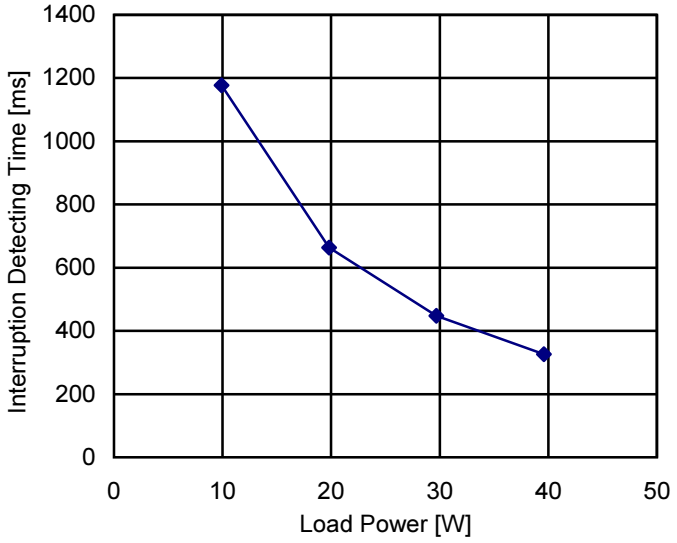


Input Voltage:100V AC



Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	TA
9.9	160.9
19.8	82.9
29.7	52.9
39.6	37.4

Input Voltage:240V AC



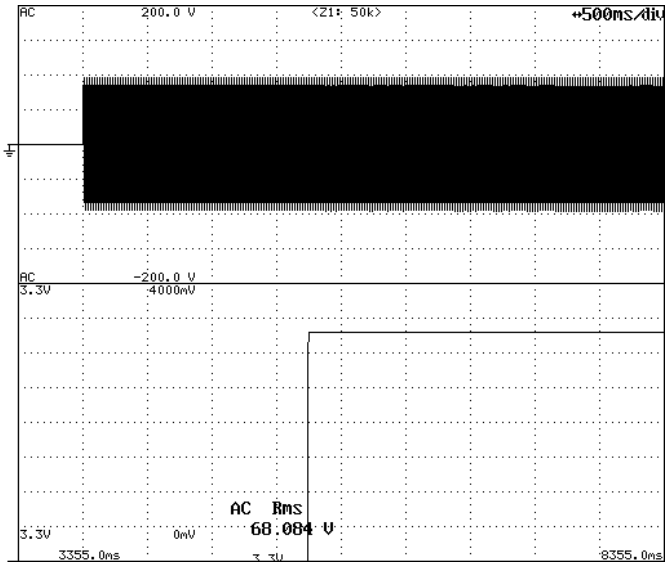
Load Power [W]	Interruption Detecting Time [ms]
	Ouput Voltage
	TA
9.9	1177.5
19.8	663.1
29.7	447.7
39.6	326.5

Model	OZ-060-3R3	Temperature: 25℃
Item	Start-Up Voltage	

Timebase Range: 500ms/div
Load: Rated Load

AC Input

+3.3V

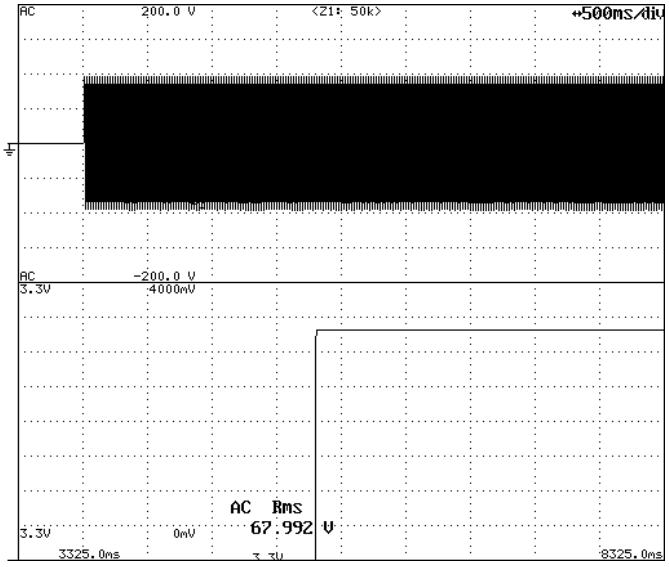


Start-up Voltage: 68.1V AC

Timebase Range: 500ms/div
Load: Minimum Load

AC Input

+3.3V



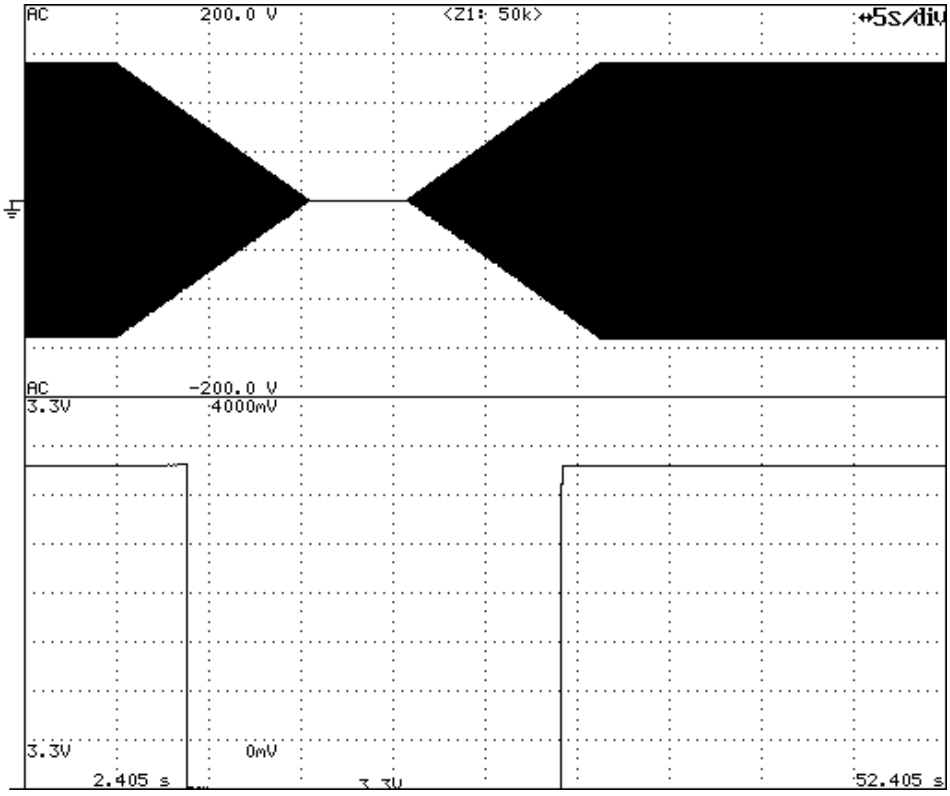
Start-up Voltage: 68.0V AC

Model	OZ-060-3R3	Temperature: 25℃
Item	Input Voltage Sweep Up/Down	

Timebase Range: 5s/div
Load: Rated Load

AC Input

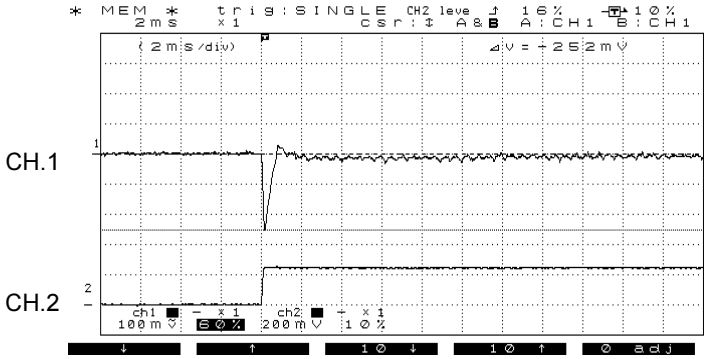
+3.3V



Sweep Rate: 10Vave/sec

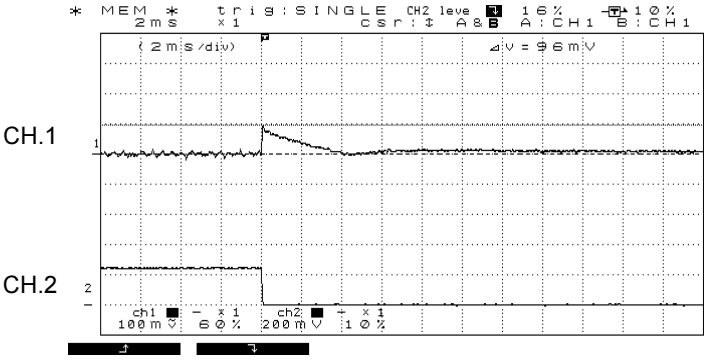
Model	OZ-060-3R3	Temperature: 25℃
Item	Dynamic Load Response	

+3.3V DC Output Transient Response Waveforms

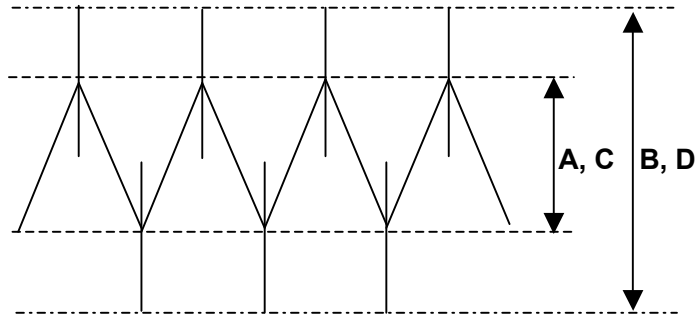


Waveform 1	
CH1	Measuring Point: DC Output Voltage
	Vertical Sensitivity: 100mV/div
CH2	Measuring Point: DC Output Current
	Vertical Sensitivity: 10A/div
Timebase Range	2ms/div
Condition	Input: 100V AC

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



Model	OZ-60-3R3	Load: Rated Load
Item	Ambient Temperature Drift	



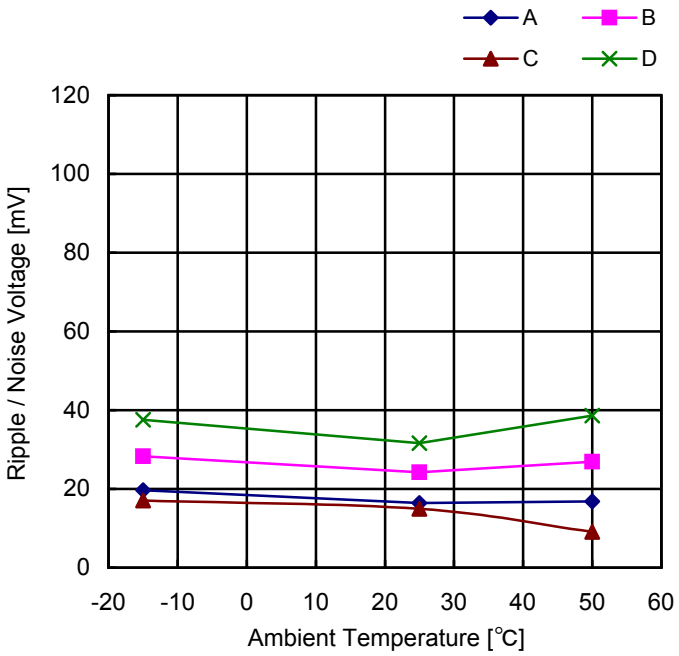
at 100V AC

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

at 240V AC

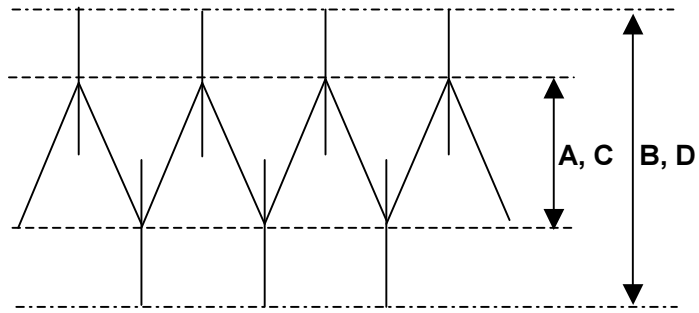
C: Ripple Voltage (mV_{P-P})
D: Noise Voltage (mV_{P-P})

3.3V



Ambient Temp. [℃]	Ripple / Noise Voltage [mV]			
	A	B	C	D
-15	19.7	28.3	17.1	37.6
25	16.4	24.2	15.0	31.6
50	16.8	26.9	9.1	38.6

Model	OZ-60-3R3	Temperature : 25℃
Item	Ambient Temperature Drift	



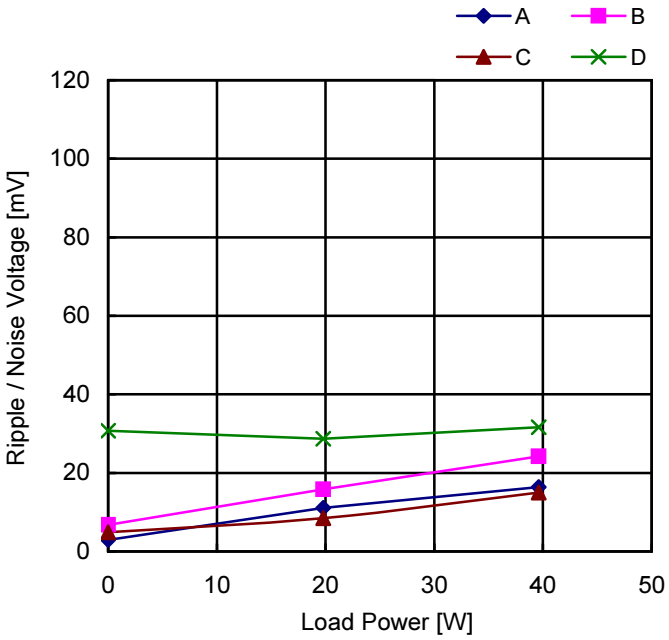
at 100V AC

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})

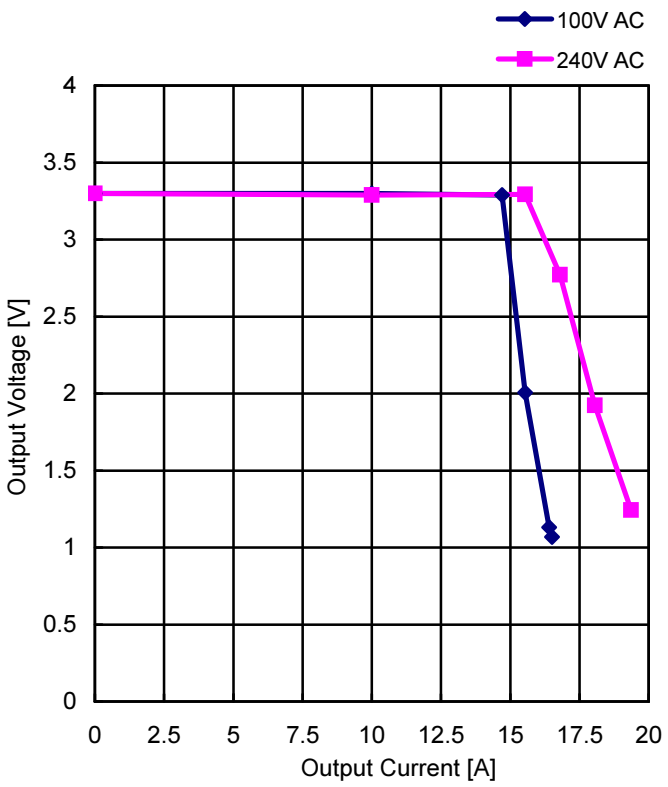
3.3V



Load Power [W]	Ripple / Noise Voltage [mV]			
	A	B	C	D
0	2.9	6.8	4.9	30.7
19.8	11.1	15.8	8.5	28.7
39.6	16.4	24.2	15.0	31.6

Model	OZ-60-3R3	Temperature: 25℃
Item	Over-Current Protection	

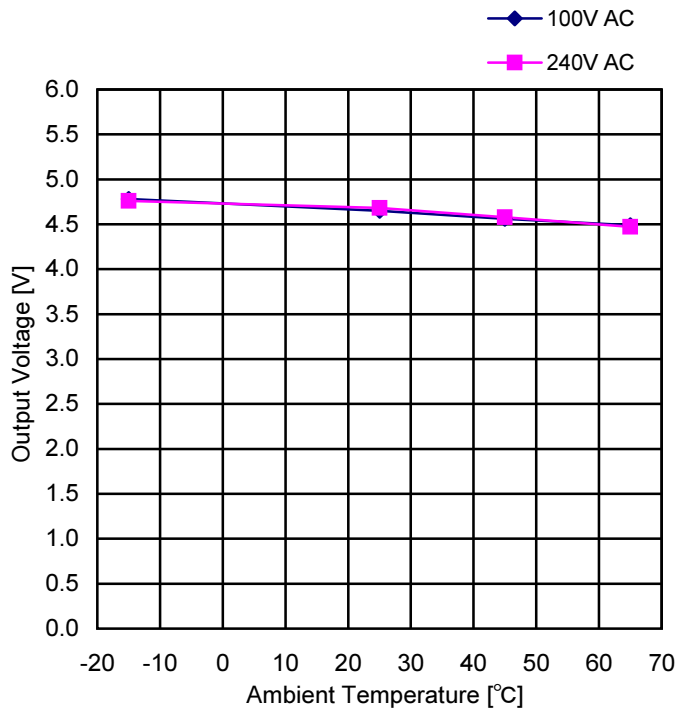
V-I Characteristics of 3.3V O.C.P



Input Voltage: 100V AC		Input Voltage: 240V AC	
Output Current [A]	Output Voltage [V]	Output Current [A]	Output Voltage [V]
0.00	3.30	0.00	3.30
10.00	3.30	10.00	3.29
14.70	3.29	15.54	3.29
15.54	2.01	16.80	2.77
16.40	1.13	18.06	1.92
16.51	1.07	19.36	1.24

Model	OZ-060-3R3	Load: Minimum Load
Item	Over-Voltage Protection	

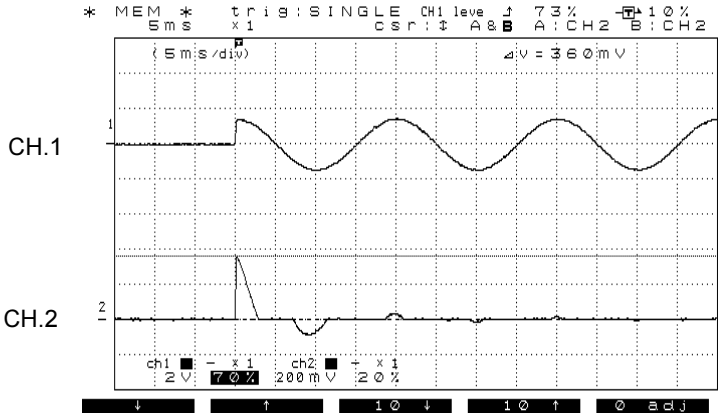
+3.3V



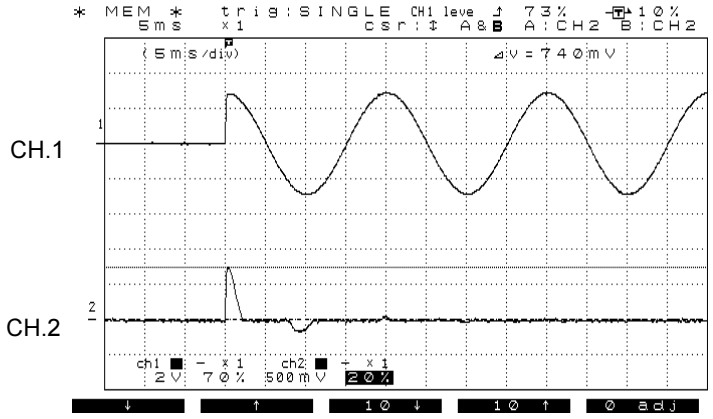
Ambient Temp. [℃]	Output Voltage	
	100V AC	240V AC
-15	4.78	4.76
25	4.65	4.68
45	4.56	4.58
65	4.49	4.47

Model	OZ-060-3R3	Temperature: 25℃
Item	Inrush Current	Load: Rated Load

Inrush Current Waveforms

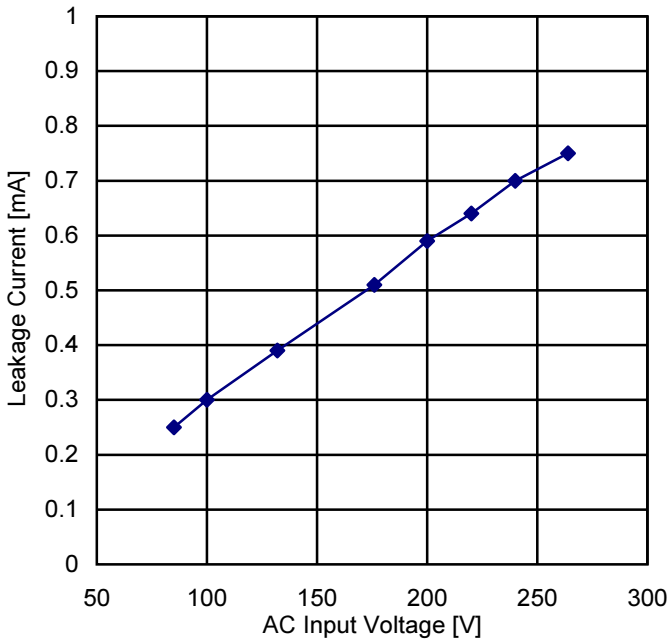


Waveform 1	
CH1	Measuring Point: AC Input Voltage
	Range: 200V/div
CH2	Measuring Point: AC Input Current
	Range: 10A/div
Timebase Range	5ms/div
Conditions	Input: 100V AC Load: Rated Load
Note: Inrush Current: 18.0A	



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: 37.0A	

Model	OZ-060-3R3	Load: Rated Load
Item	Leakage Current	



AC Input Voltage [V]	Leakage Current [mA]
85	0.25
100	0.30
132	0.39
176	0.51
200	0.59
220	0.64
240	0.70
264	0.75