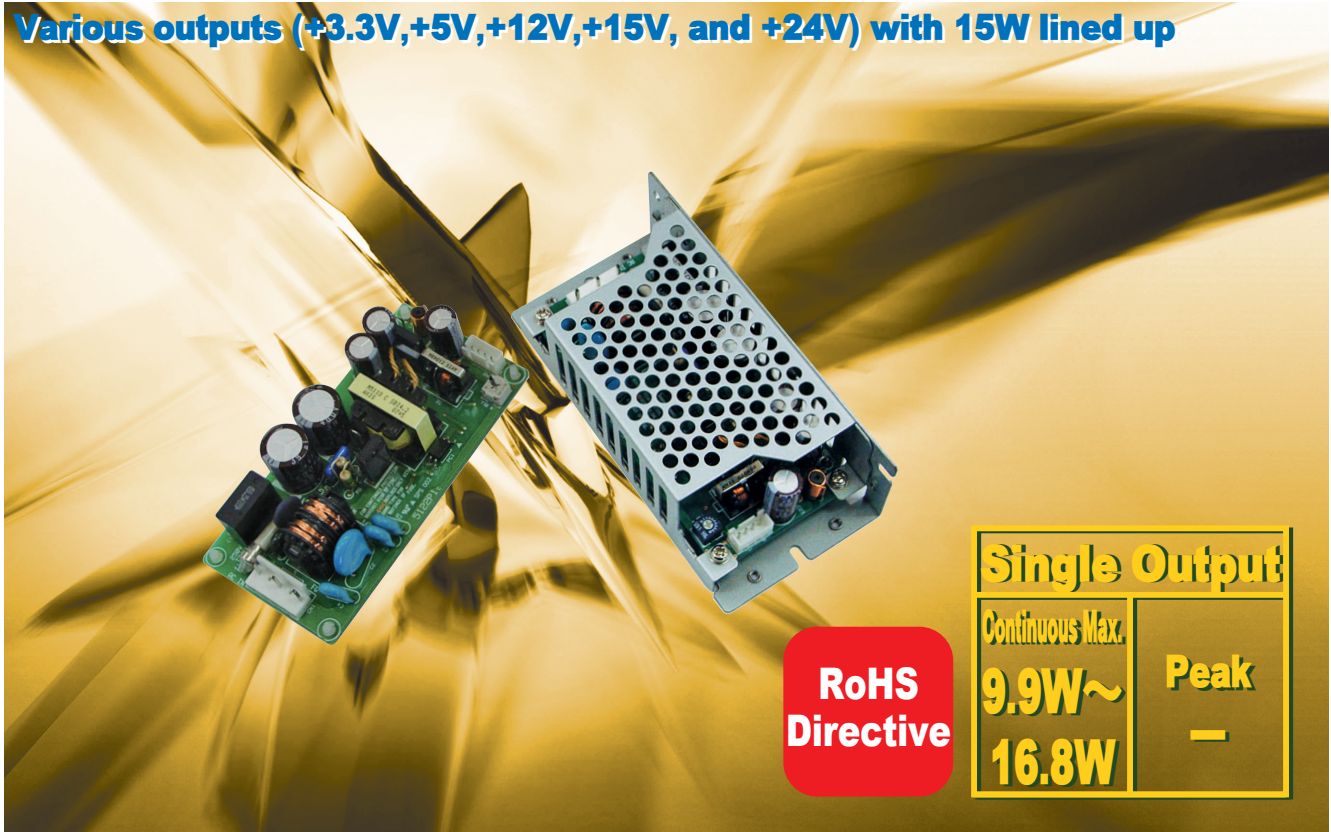


Single Output Power Supply OZ-015 series

Various outputs (+3.3V,+5V,+12V,+15V, and +24V) with 15W lined up



**RoHS
Directive**

Single Output	
Continuous Max.	Peak
9.9W~ 16.8W	—

Structure	Model	Output voltage	Output current	Output power	Stock
Open frame type	OZ-015-3R3-J00	+3.3V	3A	9.9W	Standard Stock
	OZ-015-5-J00	+5V	3A	15W	Standard Stock
	OZ-015-12-J00	+12V	1.3A	15.6W	Standard Stock
	OZ-015-15-J00	+15V	1A	15W	Standard Stock
	OZ-015-24-J00	+24V	0.7A	16.8W	Standard Stock
W/T Chassis	'-C' is added after Open frame model name (Ex. OZ-015-3R3-J00-C)				10 days before delivery
W/T Chassis & Cover	'-K' is added after Open frame model name (Ex. OZ-015-3R3-J00-K)				10 days before delivery

■ Model name coding		① Series name	③ 3R3:+3.3V output	④ J: Nylon connector Input/Output terminal	⑦ Optional specification
OZ-015-**-J00-**		② Output power	5: +5V output	⑤ Backup function NOT available	Blank: Open frame type
①	②	③	④	⑤	⑥
				⑥ Modification No.	-C: W/T Chassis
					-K: W/T Chassis and Cover

Features

- Double sided PWBs with through holes suitable for Industrial use (Competitors mainly adopt Single sided PWBs).
- Equipped with a variable resistor to adjust output voltage
- Safety standards are acquired (UL60950-1,CSA60950-1,EN60950-1,and EN50178)
- High efficiency with synchronous rectifying system for all models in the series

Safety standard	UL	CSA	EN	CE	CCC
Reliability grade	HFA	FA	HOA	OA	

●Function

TTL	PFC	RoHS Directive
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●Input

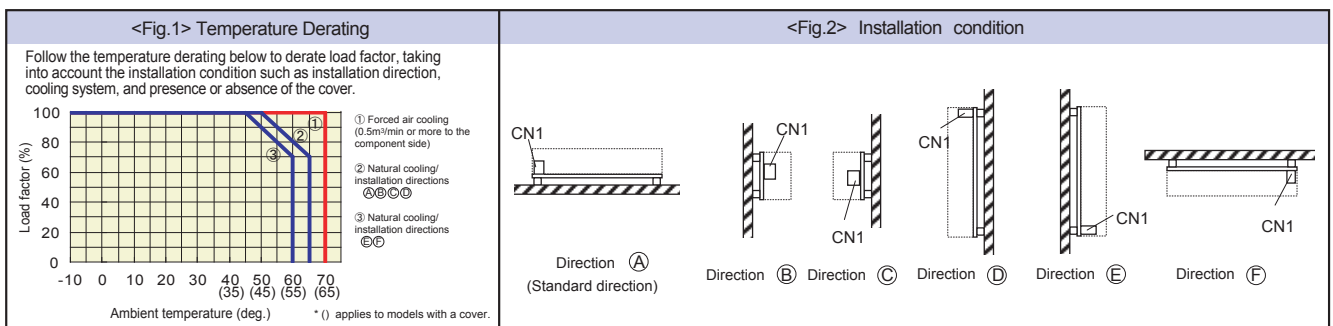
AC input	85V~264V (Worldwide range)
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●Dimension

W×H×D (mm)	W/O Chassis & Cover	50×28×105
	W/T Chassis & Cover	57×36×125

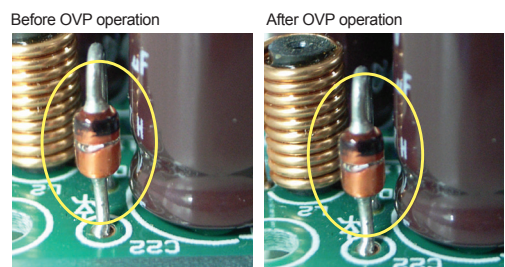
General Specification (Items are provided at normal temperature and humidity unless otherwise specified.)

	Items	Specification	Measurements, etc.					
AC Input	Rated voltage	AC100-240V(AC85-264V)	Worldwide range					
	Frequency	50/60Hz	Frequency range: 47-63Hz					
	Efficiency	100V input	73% typ(+3.3V),75% typ(+5V),79% typ(+12V),79% typ(+15V),79% typ(+24V)	at Rated load				
		240V input	74% typ(+3.3V),78% typ(+5V),80% typ(+12V),80% typ(+15V),80% typ(+24V)					
	Power factor	(Characteristics data on Fig.4)						
	Inrush current	25A typ(AC100V),50A typ(AC200V) (Characteristics data on Fig.5)		at Rated load and Cold start (25 deg.)				
Input current	100V input	0.23A typ(+3.3V),0.33A typ(+5V),0.32A typ(+12V),0.31A typ(+15V),0.35A typ(+24V)	at Rated load					
	240V input	0.13A typ(+3.3V),0.18A typ(+5V),0.18A typ(+12V),0.17A typ(+15V),0.19A typ(+24V)						
Output	Model	OZ-015-3R3 OZ-015-5 OZ-015-12 OZ-015-15 OZ-015-24						
	Rated voltage	+3.3V +5V +12V +15V +24V						
	Rated current	3A 3A 1.3A 1A 0.7A						
	Max. current/power	3A 3A 1.3A 1A 0.7A						
		9.9W 15W 15.6W 15W 16.8W						
	Min. load	0A 0A 0A 0A 0A						
	Voltage adjustable range (%)	±10					at Rated input with 50% load	
	Total voltage regulation (mV)	±165 max	±250 max	±600 max	±750 max	±1200 max	Sum of fluctuation by Temp., Input and Load	
	Max. ripple voltage(mVp-p)	0-50deg.	80 max	80 max	120 max	120 max	120 max	To measure on the test board with a capacitor (47uF) with 20MHz oscilloscope. The test board shall be away from load wires and within 150 mm from the output terminals. (Data on Fig.16)
		-10-0deg.	140 max	140 max	160 max	160 max	160 max	
Max. spike voltage (mVp-p)	0-50deg.	120 max	120 max	150 max	150 max	150 max		
	-10-0deg.	160 max	160 max	180 max	180 max	180 max		
Protection	Overcurrent protection	OCP point (A)	3.15 min	3.15 min	1.37 min	1.1 min	0.74 min	at the load when output voltage falls down by 10%.
		Method	Foldback current limiting (Characteristics data on Fig.18)					
	Recovery	Automatic recovery						
		OVP point(V)	4 min	5.75 min	13.8 min	17.3 min	27.6 min	
Overvoltage protection	Method	Zener-diode clamping *See the note below.						
	Recovery	Recovery is unavailable.						
Environment	Operating Temperature and Humidity	-10-65deg./20-90%					* See <Fig.1> Temperature derating below. No condensation	
	Storage Temp. and Humidity	-20-75deg./10-95%					No condensation	
	Vibration	Acceleration of 2G with vibration frequency of 10-55Hz for 10 sweep cycles in the X · Y · Z directions.					To follow JIS-C-60068-2-6 at no operation	
	Mechanical shock (surface dropping)	Lift one bottom edge up to 50mm and let it fall. Repeat three times for each of four edges. No malfunction.					To follow JIS-C-60068-2-31 at no operation	
Insulation	Dielectric strength	AC 1500V for 1 min. between AC input and DC output/FG					Cut-off current: 20mA	
	Insulation resistance	50MΩ min. between AC input and DC output/FG, and between DC output and FG.					At DC500V	
	Leakage current	0.5mA max. at AC 100V, and 1mA max. at AC 200V (Characteristics data on Fig.6)					YEW, TYPE3226 (1kΩ) or equivalent	
EMC	Line noise immunity	±1000V (Pulse width: 100/1000ns, Repeated cycle: 30 to 100Hz, Normal mode/Common mode with Positive/Negative polarity for 1 minute.)					To measure with INS-410. There shall be no DC-factor fluctuation of output and malfunction.	
	Electrostatic discharge	EN61000-4-2 Compliant						
	Radioactive radio frequency electromagnetic field	EN61000-4-3 Compliant						
	Fast Transient Burst	EN61000-4-4 Compliant						
	Lightning	EN61000-4-5 Compliant						
	Conductive radio frequency electromagnetic field	EN61000-4-6 Compliant						
	Power source frequency magnetic field Immunity	EN61000-4-8 Compliant						
	Voltage dips/Fluctuation	EN61000-4-11 Compliant						
Conducted Emission	VCCI-B,FCC-B,EN55022-B, and CISPR22-B Compliant (Characteristics data on Fig.7,8)					Connect a metal spacer of 8mm in height between FG land of PSU board mounting hole on the PCB solder side and an iron plate to measure the PSU single body. The iron plate shall be the same size as the PSU board and 1mm thick.		
Others	Safety standard	Certified UL60950-1,CSA60950-1(c-UL),EN60950-1,EN50178.CE Marking (LVD,EMCD)/ The Electrical Appliance and Material Safety Law (section 2) compliant						
	Cooling system	Natural air cooling						
	Output GND grounding	Capacitor grounding						
	Output hold-up time	AC turn-off → 90% of rated voltage: 20ms min at AC100V, 100ms min. at AC200V. (Data on page Fig.13)					at Rated load	
	Reliability Grade	FA (Industrial equipment grade to use double-sided PWBs with through holes)					To follow our standard	
	MTBF	350,000 H min					To follow EIAJ RCR-9102	
	Weight	100g typical without Chassis and Cover						
	Warranty	Three years after delivery. However, if any faults belong to us, the defective unit shall be repaired or replaced at our cost.					Except causes generated by operation out of this specification	

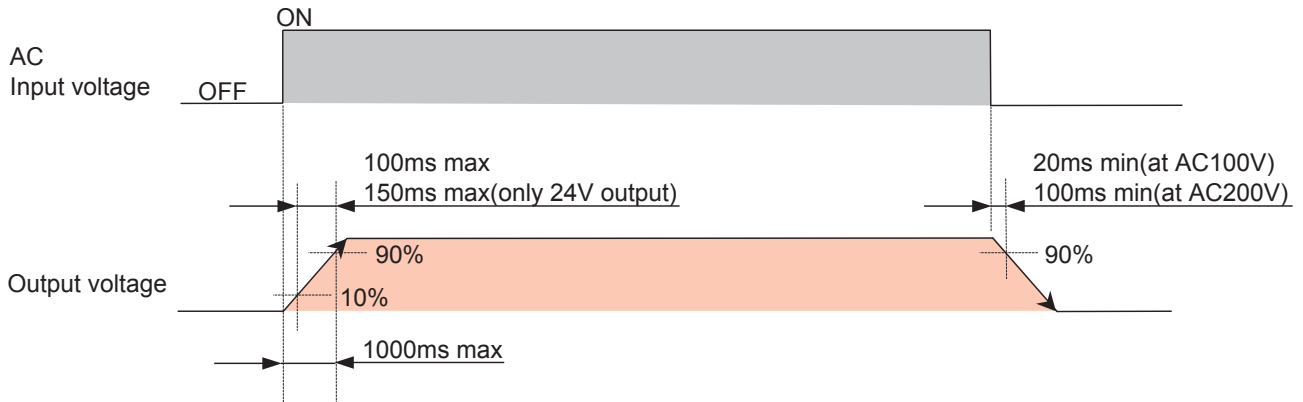


*** Note: Zener-diode clamping**

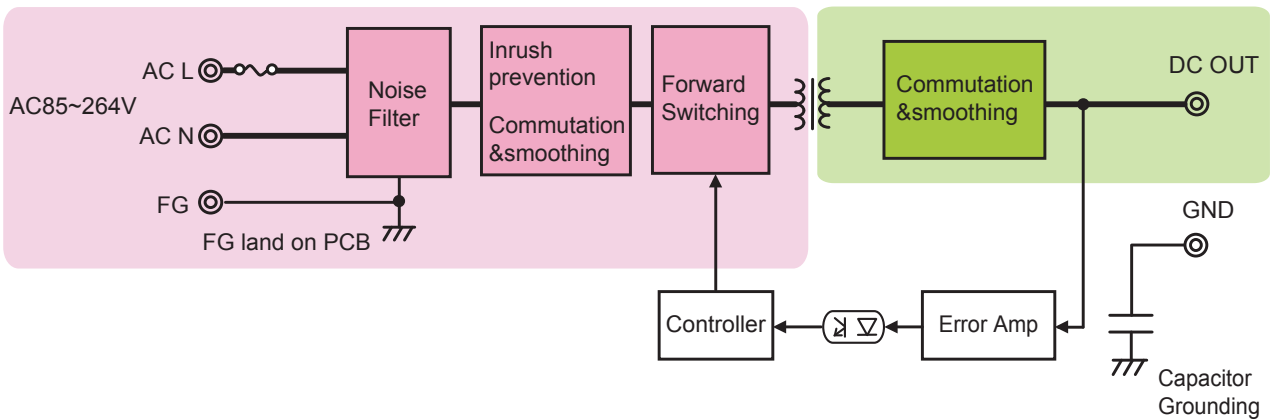
When overvoltage occurs due to malfunction of PSU, the current flows through the zener diode connected in parallel between + and - of output to absorb the over-voltage. The power loss of the diode exceeds its acceptable power loss and damage itself resulting in output short circuit. For recovery, the zener diode must be replaced and the cause of overvoltage should be removed. In general, this method applies to small-power PSUs. Also, the zener diode shows no different appearance before and after the OVP operation as shown on the right.



Sequence Timing Chart



Block Diagram



Connection In Series And Parallel

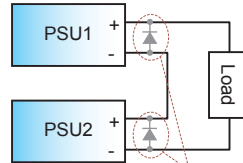
Series connection

Series connection shown on the right is available.
 · Series connection between different output voltages is available, such as 12V and 24V.

Note: In the case that different voltages are connected in series like Fig. (1) on the right;

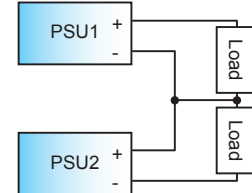
- The output current shall be the rated current or less of the smaller rated current among the PSU1 and PSU2 connected in series.
- Connect diodes for protection as shown in the Fig. (1). Current rating of the diode shall be 1.5 times or more of rated output current whose unit has larger rated output current among PSU1 and PSU2. Also, use Schottky diodes whose forward voltage is lower than the forward voltage of the diodes used in the PSU.

Fig. (1)



In the case of series connection of different output voltages, connect diodes shown as above.

Fig. (2)



Parallel operation

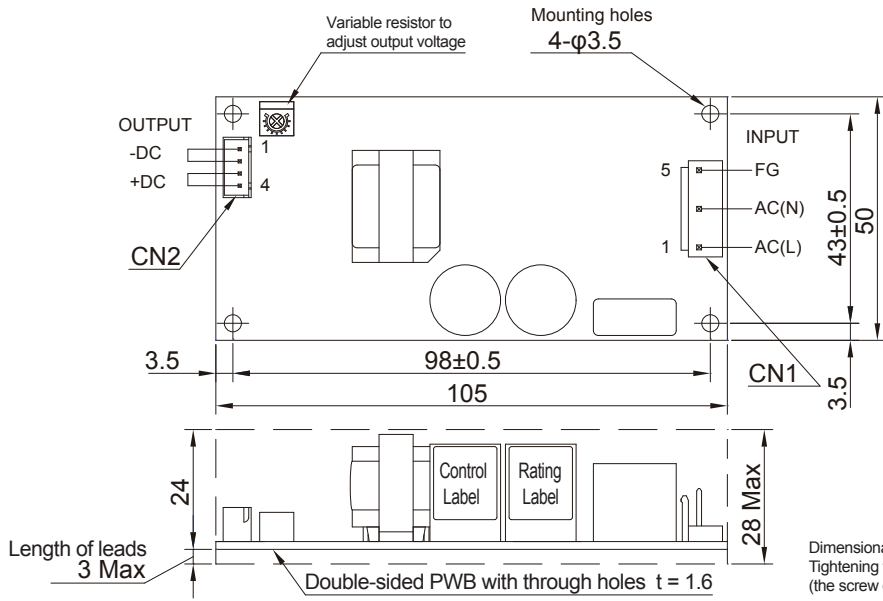
Parallel operation is unacceptable.

Options(Sold separately)

Cable			
Photos	Model	Category	Description
	WH-C05VH-800	Input harness	Connection to nylon connector is acceptable.
	WH-C05VH-800-01	Input harness (with ferrite core)	Connection to nylon connector is acceptable.
	WH-C04XH-800	Output harness	Connection to nylon connector is acceptable.

Outline Drawing

■ PCB type (open frame) model



Dimensional tolerance shall be ± 1 unless otherwise specified.
Tightening torque for the unit mounting hole is 0.6N · m Max.
(the screw diameter shall be 3mm).

CN1:INPUT		
PIN No.	FUNCTION	CONNECTOR TYPE
1	AC(L)	B3P5-VH (JST)
2	AC(N)	
3	AC(N)	B3P5-VH (JST)
4	AC(N)	
5	FG	

*Applicable housing
VHR-5N (JST)

*Applicable terminal
Reel:SVH-21T-P1.1
Bulk:BVH-21T-P1.1

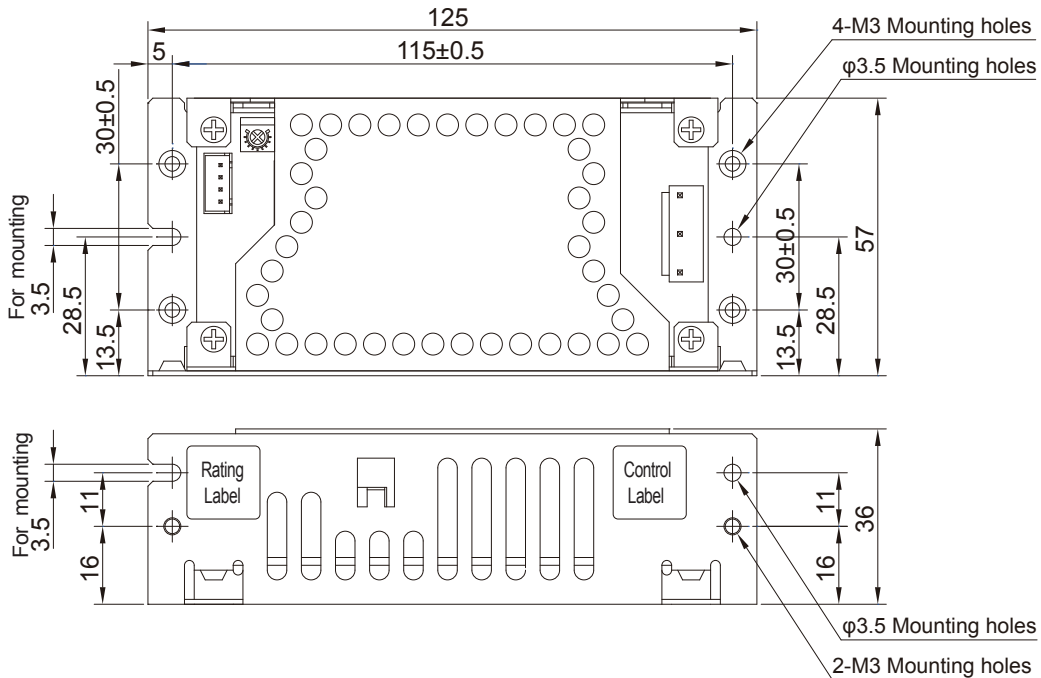
CN2:OUTPUT		
PIN No.	FUNCTION	CONNECTOR TYPE
1	-DC	B4B-XH-A (JST)
2	-DC	
3	+DC	B4B-XH-A (JST)
4	+DC	

*Applicable housing
XHP-4 (JST)

*Applicable terminal
Reel: SXH-001T-P0.6
Bulk: BXH-001T-P0.6

* For CN2, current per pin shall be 2A or less.

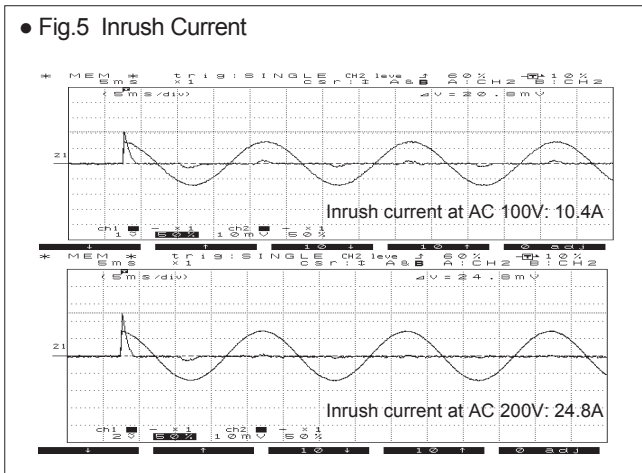
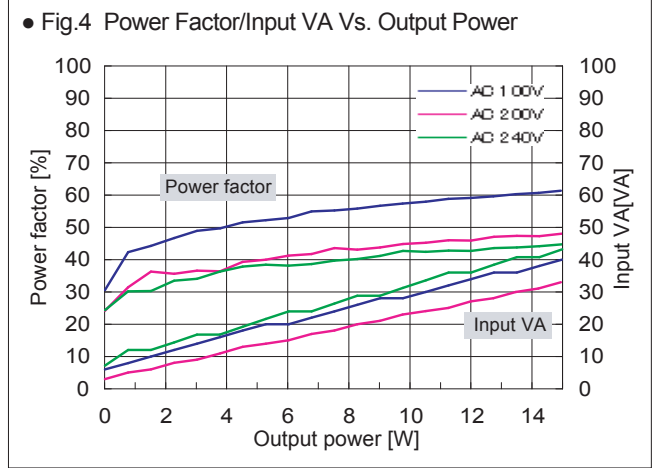
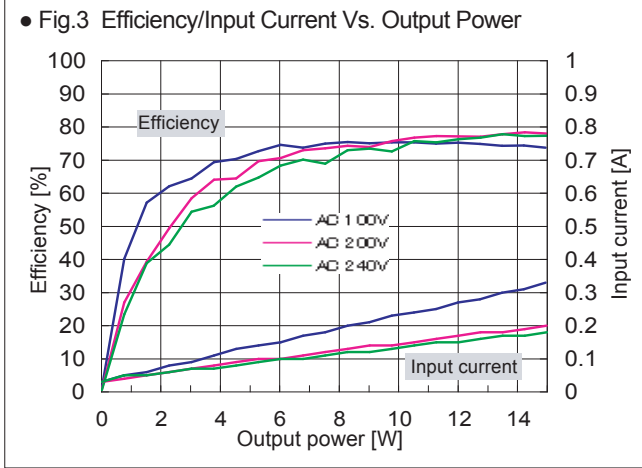
■ Model with Chassis and Cover



Dimensional tolerance shall be ± 1 unless otherwise specified.

Characteristics Data(Typical features of the product series) **OZ-015-5** (Examples of actual measurement)

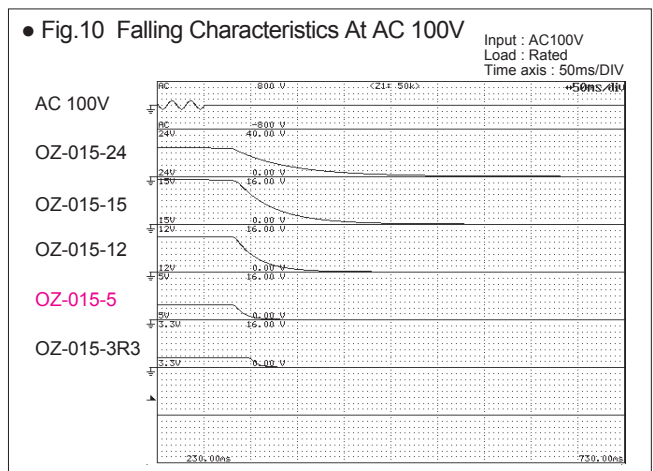
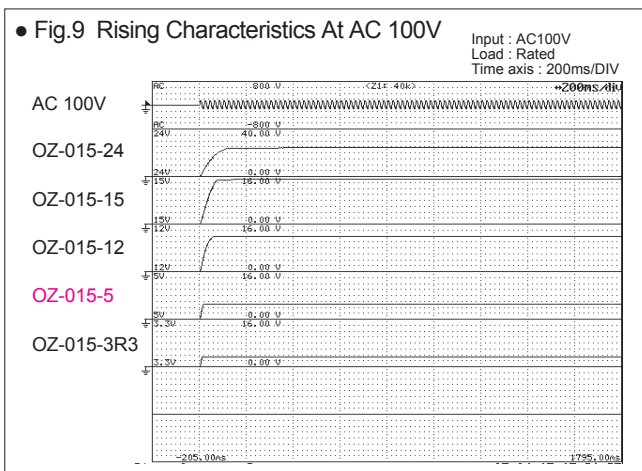
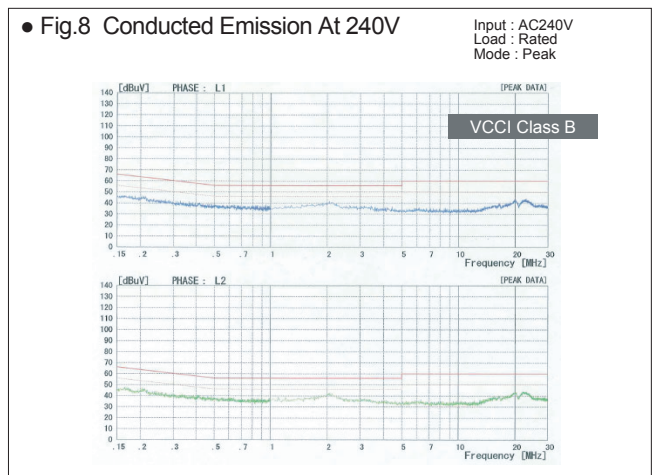
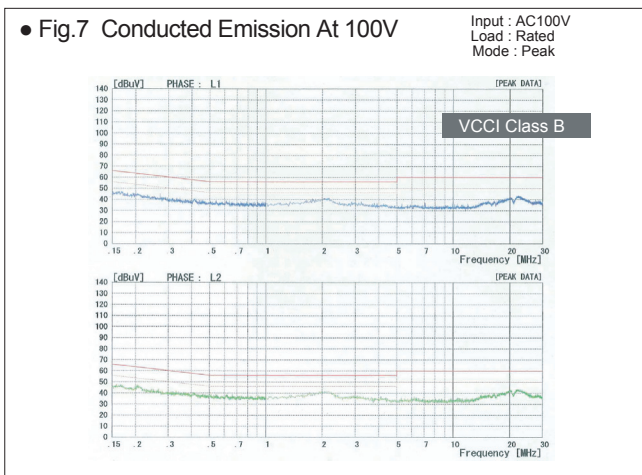
[* If you request property data of other products, please visit our website and download for getting them.](#)



● Fig.6 Leakage Current

Input : AC100,200,240V
Load : Rated load and Min. load

	Rated load	Min. load
AC 100V	0.15mA	0.14mA
AC 200V	0.30mA	0.31mA
AC 240V	0.34mA	0.34mA



Characteristics Data(Typical features of the product series) **OZ-015-5** (Examples of actual measurement)

* If you request property data of other products, please visit our website and download for getting them.

