AC-DC general purpose switching power supply to reduce electricity and CO_2

Resource saving
Long life
Safety-oriented

Product lineup

Series name	Output	+3.3V	+5V	+12V	+15V	+24V
OZ-015 series	Current	3A	3A	1.3A	1A	0.7A
	Voltage	9.9W	15W	15.6W	15W	16.8W
OZ-030 series	Current	6A	6A	2.5A	2A	1.3A
	Voltage	19.8W	30W	30W	30W	31.2W
OZ-060 series	Current	12A	12A	5A	4A	2.5A
	Voltage	39.6W	60W	60W	60W	60W

OZ series of general purpose AC/DC sw' power supply has brought **higher efficiency** compared with competitor's equivalent, resulting in a lot of advantagess, such as **compact/high power, electricity saving, long lifetime, etc.** Besides, OZ series is **safety-oriented** product with double sided PCBs with through holes no matter how small the power is. Many of competitors' equivalents are single sided PCBs. Double sided PCBs with through holes eliminates solder cracks that is likely to occur in lead-free process so that you can use at ease our products in industrial environment where equipments vibrate.

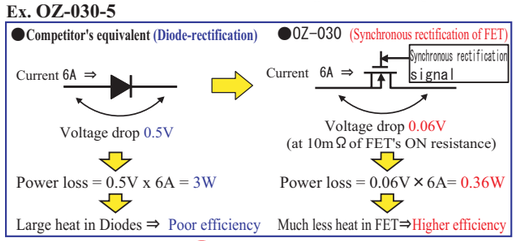
High efficiency

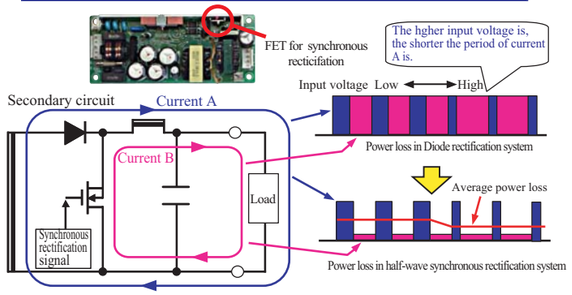
(英)GPSA紹介記事 (3-4)

OZ series has realized high efficiency by synchronous rectifying circuit except some models.

Synchronous rectification ⇒ High efficiency

Ex. OZ-030-5





※ Synchronous rectification only when current B flows
⇒ The higher input voltage is, the higher the efficiency is!

OZ-015/060 series can achieve one rank higher power compared with the equivalents of competitors' in terms of form factor (bottom) size. Also, OZ-015 is smaller compared with the equivalents of competitors' in term of output power.

Comparing with the same size (bottom) of the competitors'... **Higher power!**

Comparing with the same power of the competitors'... **Smaller!**

Comparison of Electrical bill and CO_2 emission

Electrical bill and CO_2 emmision can be redueced with High Efficiency OZ series installed.

Following is one of examples compared with comopetitor's equivalent.

OZ-030-5 vs. Competitor's equiv. efficiency comparison (actual data)

	Vout	Wout	Vin	VA	Efficiency
Nipron (OZ-030-5)	5.1V	30.6W	AC 100V	37.5W	81.6%
			AC 200V	37.6W	81.4%
Competitor's equiv. ①	5.1V	30.6W	AC 100V	39.3W	77.9%
			AC 200V	40.7W	75.2%
Competitor's equiv. ②	5.1V	30.6W	AC 100V	41.3W	74.1%
			AC 200V	40.0W	76.5%

Electrica bill and CO_2 emission comparison at continuous 24-hour operation

OZ-030-5 vs. Competitor's equivalent ①

	Vin	OZ-030-5	Competitor ①	Diff. from OZ-030-5
Electrical bill (yen/year)*1	AC 100V	6,441 yen	6,747 yen	306 yen
	AC 200V	6,457 yen	6,989 yen	532 yen
CO_2 emission (kg/year)*2	AC 100V	121.7	127.5 yen	5.8
	AC 200V	122.0	132.1	10.1

Annual electrical bill: approx. **306 yen** at AC 100V/approx. **532 yen** at AC 200V
CO_2 emissoin: approx. **5.8kg** at AC 100V/approx/ **10.1kg** at AC 200V !

OZ-030-5 vs. Competitor's equivalent ②

	Vin	OZ-030-5	Competitor ②	Diff. from OZ-030-5
Electrical bill (yen/year)*1	AC100V	6,441 yen	¥7,093	652 yen
	AC200V	6,457 yen	¥6,871	414 yen
CO_2 emission (kg/year)*2	AC100V	121.7	134.1	12.3
	AC200V	122.0	129.9	7.8

Annual electrical bill: approx. **652 yen** at AC 100V/approx. **414 yen** at AC 200V
CO_2 emissoin: approx. **12.3kg** at AC 100V/approx/ **7.8kg** at AC 200V !

*1 20 yen/kWh conversion *2 0.378kg CO_2/kWh conversion

Long lifetime

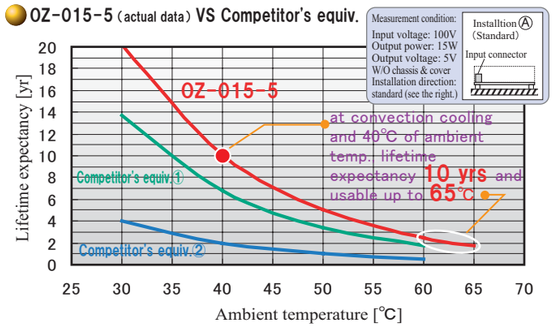
OZ series **brings long lifetime** due to **efficiency-oriented design** and **longer-life electrolytic capacitors**.

Also, OZ-015 & 030 series covers the operating temperature up to **65℃**.

Following shows an example in comparison with competitor's equivalent.

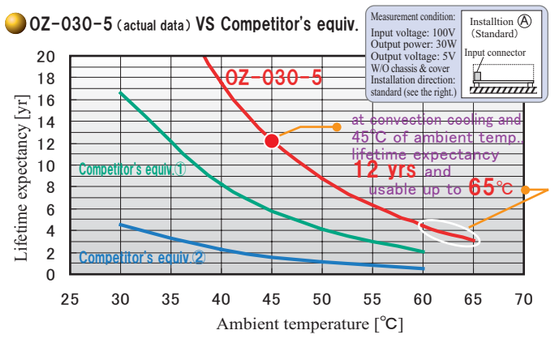
Lifetime expectancy comparison

OZ-015-5 (actual data) VS Competitor's equiv.



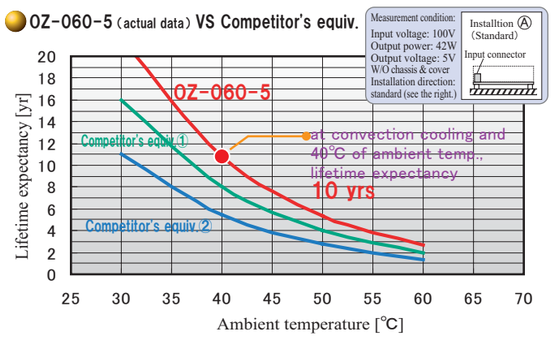
Note 1: Lifetime expectancy of competitor's ① and ② is calculated from their open data on the WEB.
Note 2: The lifetime expectancy is calculated with the constant 15W load. (In actual use, load derating is required at high temp.
Note 3: The lifetime expectancy is theoretical result, and it shall be 15 years max. when the material deterioration of the sealing part of electrolytic capacitors are taken into account.

OZ-030-5 (actual data) VS Competitor's equiv.



Note 1: Lifetime expectancy of competitor's ① and ② is calculated from their open data on the WEB.
Note 2: The lifetime expectancy is calculated with the constant 30W load. (In actual use, load derating is required at high temp.
Note 3: The lifetime expectancy is theoretical result, and it shall be 15 years max. when the material deterioration of the sealing part of electrolytic capacitors are taken into account.

OZ-060-5 (actual data) VS Competitor's equiv.



Note 1: Lifetime expectancy of competitor's ① and ② is calculated from their open data on the WEB.
Note 2: The load for OZ-060-5 shall be 42W (70% load factor) as competitor's ① and ② are unable to provide 60W that is nominal load of OZ-060-5.
Note 3: The lifetime expectancy is calculated with the constant 30W load. (In actual use, load derating is required at high temp.
Note 4: The lifetime expectancy is theoretical result, and it shall be 15 years max. when the material deterioration of the sealing part of electrolytic capacitors are taken into account.

Nipron contributes to global environment improvement by industrial waste reduction driven by long life design policy (10 years and beyond).

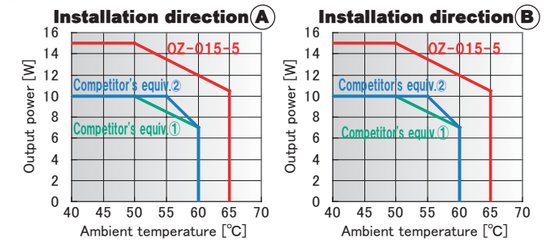
Excellent Output power v.s. Ambient temp. characteristics

OZ series performs **excellent output characteristics even at high temperature** compared with competitor's equivalent (bottom installation).

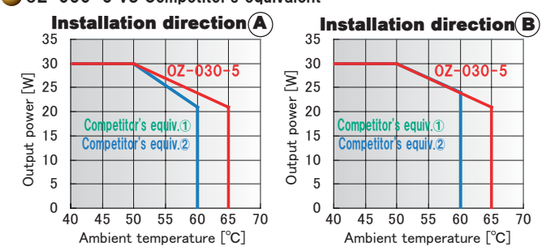
The output power - ambient temp. comparison curves of single open frame are shown below.

Output power – Ambient temp. characteristics

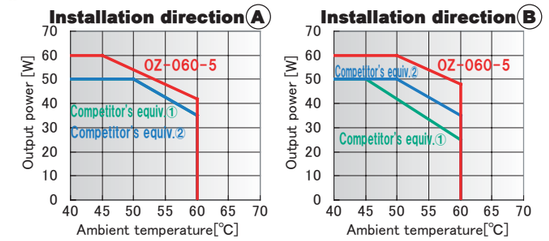
OZ-015-5 VS Competitor's equivalent



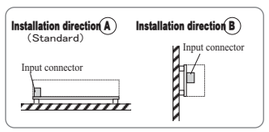
OZ-030-5 VS Competitor's equivalent



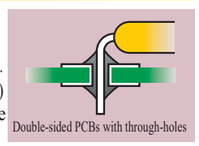
OZ-060-5 VS Competitor's equivalent



※1 OZ serives has advantage in characteristics for other installtion directions over competitors'.
※2 The above characteristics is given to 5V output type, but other outputs have the same advantage as well.



Double-sided PCBs with though-holes even for small power


Double-sided PCBs with through-holes

Small power OZ series is also safety-oriented product with **double-sided PCBs with through-holes** adopted. (Competitor's products adopt mainly single-sided PCBs.)
Solder cracks at high voltage part is likely to invite fire.
With double-sided PCBs with through-holes suitable to industrial use adopted, solder cracks will be gone even in lead-free process.

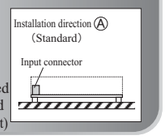
When solder cracks occur at high voltage circuit in SW' unit, it likely induces arc discharge to result in smoke and fire.

Low Noise

OZ series is low-noise power supply, even open frame type, to meet VCCI Class B (conducted emission/radient noise) with no external noise filters.

Measurement condition

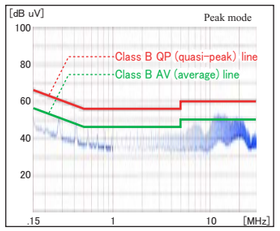
Model: OZ-030-5-J00
Input voltage: 100Vac
Output power: 30W
Output voltage: 5V
Chassis & Cover: Not equipped
Installation direction: Standard
(Refer to the drawing on the right)



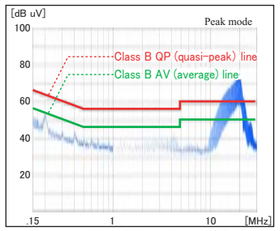
Conducted emission

Conducted emission:
Noise that leaks outside aong AC line from SW' power supply

OZ-030



Competitor's equivalent



Measureed at Hyogo Prefetural Institute of Technology

Other features

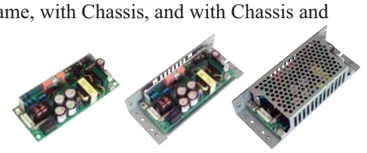
Output voltage adjustabe variable resistor is equipped as Standard to improve system operational stability by compensating line drop voltage. Adjustable range is ±10%.

European terminal as well as connectors for Input/Output

For OZ-060, European terminals as well as connectors for Input/Output are available.

Selectable Chassis or Cover

Choose from Open Frame, with Chassis, and with Chassis and Cover



Open Frame　W/T Chassis　W/T Chassis & Cover

Series connection acceptable

Series connection acceptable; Series connection between different outputs such as 12V and 24V is also acceptable.

Example of application

Power source for gate-drive circuit of full bridge inverter

This is an example to modify OZ-030 as power source for gate-drive circuit of full bridge inverter. Grounding capacitor between Primary and Secondary is removed as insulation between upper leg and lower leg of full bridge is required at high frequency too.
(This unit does not meet safety standard.)

■ Model
OZ-030-5-J01
OZ-030-15-J01

We are willing to live up to your requests such as modification, etc.

Products coming soon

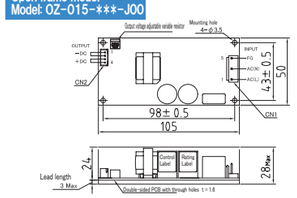
DIN rail power supply

DIN rail power supplies are coming soon that equip Input/Output terminal case in front and DIN rail mounting bracket.

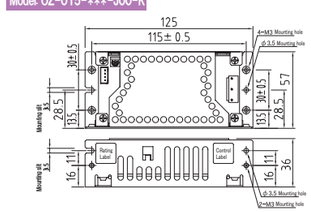
Dimensions

OZ-015 series

Open frame model
Model: OZ-015-***-J00

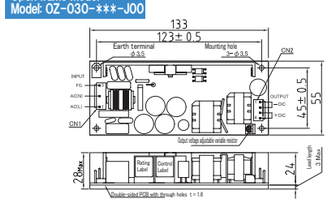


W/T Chassis and Cover
Model: OZ-015-***-J00-K

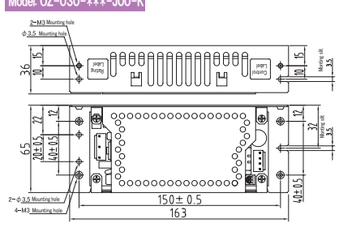


OZ-030 series

Open frame model
Model: OZ-030-***-J00

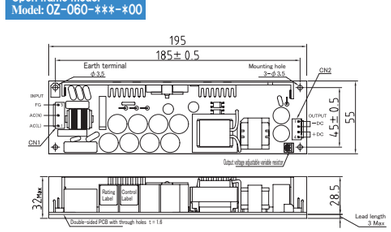


W/T Chassis and Cover
Model: OZ-030-***-J00-K

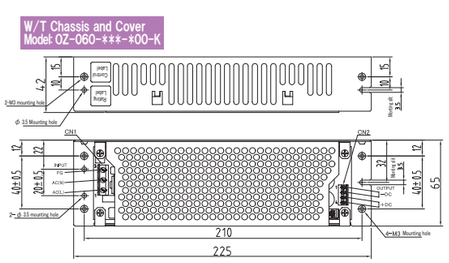


OZ-060 series

Open frame model
Model: OZ-060-***-*00



W/T Chassis and Cover
Model: OZ-060-***-*00-K



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■ When using product, please contact us for "Product Specifications" and make sure to check all the items for proper use.

Brand New Product

Environmentally friendly pwer supply that enables regenerative energy re-used !

Tajubu

Electrical double layer capacitor　TBRS-2000-320

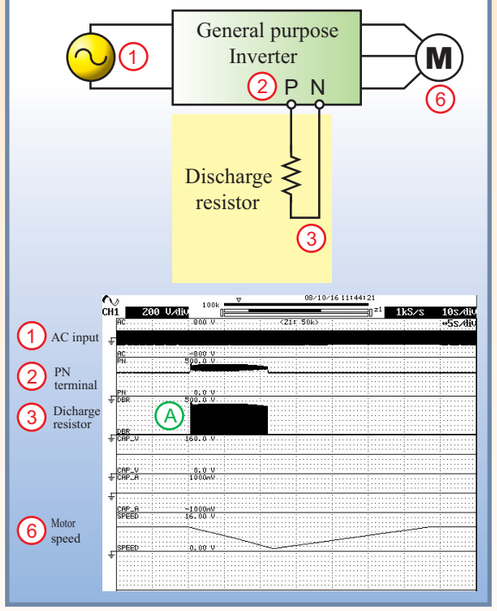
Two-way Tajubu, TBR series, equipped with Step-up and -down fucntion has been born newly in multiple booster for inverters.

Equipments using servo motors generates regenerative energy in braking operation.The energy is typically consumed as heat in discharge resistors. However, nowadays this method is unacceptable at present to meet the requirement to reduce CO_2.
We, Nipron, has developed new multiple booster as one of sulutions to this by adding step-down function to current booster derived from 10-year experience. This unit serves as regenerative energy absorber and discharger.

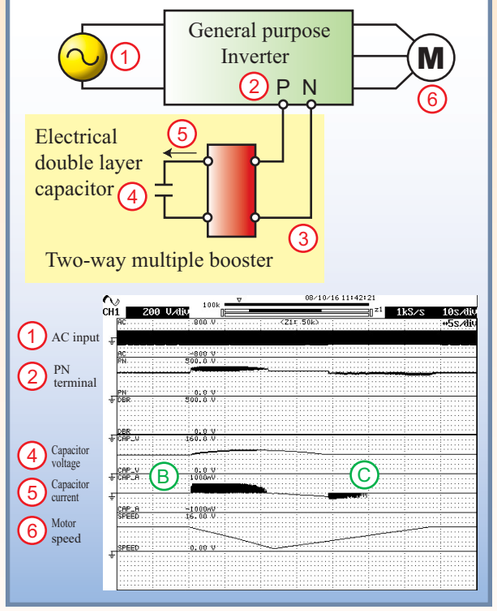
Also, backup operation at blackout is available by using the surplus of electrical double layer capacitor.

Advantage of two-way multiple booster

Traditional method (discharge resistor connected)



Two-way multiple booster connected



Regenerative energy is consumed in discharge resistors Ⓐ in traditional method when the motor speeds down.
With two-way multiple booster connected, the energy consumption in said resistor Ⓐ does not occur as the regenerative energy is charged to electrical double layer capacitor Ⓑ.
Since the output voltage of two-way multiple booster is set higher than PN terminal ②, the energy charged to electrical double layer capacitor is preferentially discharged as shown at Ⓒ.

BLACKOUT BACKUP available ! Best for 24V output with battery embedded in controller, BOZ-190P-24-P2.3

- BOX type 24V output AC-DC SW' regulator useful for controller embedding
- Lead-acid Battery equipped in the case to backup at blackout
- Easy replacement of Lead-acid battery at maintenance
- A variety of Input/Output signals, such as blackout detection, battery no mating notice, etc. (see the table below.)

Specification summary

Model	BOZ-190P-24-P2.3
Input voltage	AC 85V to 264V
Output voltage	24V
Max,. Load/Power	5A/120W
Peak Load/Power	8A/192W(10s max.)
Cooling system	Convection cooling
Battery equipped	12V 2.3Ah Lead battery
Blackout backup time	Approx. 9 min. at 3A discharge*

* Only reference at first operation, not guaranteed.

Input/Output signal

Blackout detection signal	The signal is delivered at AC 80V or less.
Battery low signal	The signal is delivered at 10V or less of battery voltage.
Battery no mating notice	The signal is delivered when the battery is not connected.
Shutdown signal	Output is shut down when the signal is received during battery operation.
Battery check signal	Battery operation forcibly starts when the signal is received during AC operation.

Dimensions