

## 1. Industry segments

### •Field of industry

PV Solar Power Generator

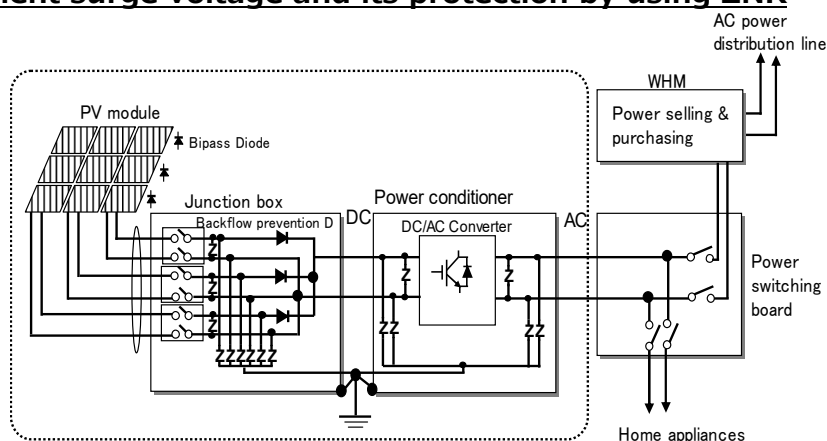
### •Product

Power conditioner(DC/AC inverter)

Junction Box with backflow prevention diodes



## 2. Transient surge voltage and its protection by using ZNR



### 1) Aim of ZNR application

Protection of PV system/power conditioner against lightning surge voltages.

### 2) Problems with surge voltage

- **Kind of surge voltage** Lightning surge voltage
- **Path for surge voltage** PV panels and PV-DC lines to a junction box and a power conditioner
- **Failed parts or circuits** Breakdown of backflow prevention diodes or DC/AC converter in a power conditioner.

### 3) How to apply ZNR to the circuits

#### •Connection

PV DC power line(line-line and line-ground) AC power line(line-line and line-ground)

#### •ZNR part number selection

ERZE11A□□□, ERZV14D□□□ or ERZE14A□□□, ERZV20D□□□

□□□ : Varistor voltage be selected by max.AC/DC line volatge

#### •Precaution in surge protection designing

ZNR should be connected at load side of switch in a junction box.

In a power conditioner, ZNR should be connected at the entrance of DC and AC power line respectively

Along with a maximum DC volts and AC volts of PV system, varistor voltage should be selected.

Voltage of the insulation test and withstanding test must be taken into account.

For heavy duty use, E type, CK type and SC type are recommended instead of the above standard D types.

## 3. Relevant technical information or references

JISC8981 『Standards for safety design of electrical circuit in photovoltaic power generating systems for residential use』

JISC8962 『Testing procedure of power conditioner for small photovoltaic generating systems』