

1. Industry segments

•Field of industry

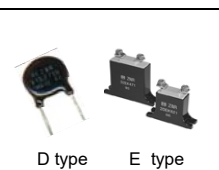
Power supply

•Product

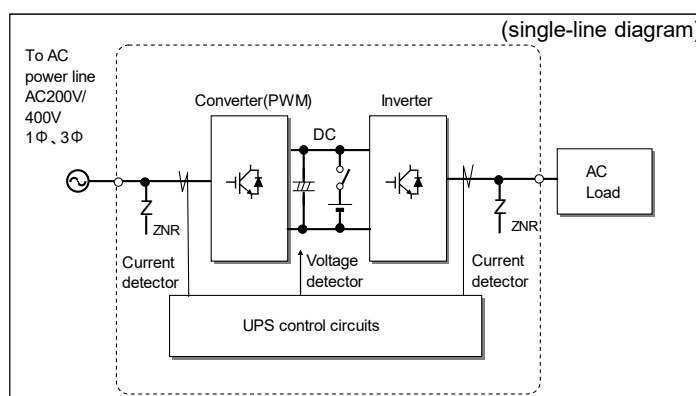
UPS

AC/DC Converter, DC/AC Inverter

Recommended ZNR



2. Transient surge voltage and its protection by using ZNR



1) Aim of ZNR application

Protection of AC/DC converter, DC/AC inverter and their controller in UPS against lightning surge

2) Problems with surge voltage

- Kind of surge voltage Induced lightning surge voltage
- Path for surge voltage AC power line
- Failed parts or circuits Damage of power semiconductors in the converter/inverter and controller

3) How to apply ZNR to the circuits

•Connection

AC power line(line-line, line-ground)

•ZNR part number selection

For AC200V system: Line-line ERZE14A431, ERZE14A471, ERZV20D431, ERZV20D471

Line-ground: ERZV20D182

For heavy duty : Line-line ERZC32EK431, ERZC32EK471, Line-ground: ERZC32EK911(2pcs in series)

•Precaution in surge protection designing (Parameters to be considered for ZNR selection)

Surge voltage test (Voltage, current, waveform and their repetition) should be conducted, if required.

Voltage of the insulation test and withstanding test must be taken into account for ZNR model selection

V1mA (line-ground).

Insulation coordination between clamping voltage and withstand voltage of power semiconductors

3. Relevant technical information or references

JISC4411-2『Uninterruptible power systems (UPS)-Part 2:Electromagnetic compatibility (EMC) requirements』

JISC4411-3『Uninterruptible power systems(UPS)-Part3 : Method of specifying the performance and test requirements』

IEC62040-2 and 3 -ditto-