ZNR Application Note Air Conditioner



1. Industry segments Recommended ZNR Field of industry Electric Home appliance(White goods) Product Air Conditioner Indoor Unit D type Outdoor Unit 2. Transient surge voltage and its protection by using ZNR Indoor Unit Fuse Control Circuit ZNR Temp. • Humid. •Fan & Flap Timer etc. Outdoor unit variation Outdoor Unit Control Circuit (Comp) Compressor. AC Power line • Fan etc 100V/200V Fan GDT GDT 7NR GDT:Gas Discharge Tube 1) Aim of ZNR application Protection of control circuits for indoor and outdoor units against lightning surges 2)Problems with surge voltage Kind of surge voltage Induced lightning surge voltage Path for surge voltage AC power line Failed parts or circuits Breakdown of power circuits & control circuits or malfunction 3) How to apply ZNR to the circuits Connection Indoor : AC power line(line-line) Outdoor : AC power line(line-line, line-ground) ·ZNR part number selection For AC100V/200V : Indoor (line-line) ERZE08A471, ERZV10V471, ERZE11A471, ERZV14D471 Ourdoor(line-line) ERZE08A221, ERZV10D221, ERZE11A221, ERZV14D221 Outdoor(line-ground) ERZV10D102, ERZE11A102, ERZV14D102 2pcs of the same type in series to obtain 440V and 2kV of V1mA respectively. For AC200V outdoor unit variation: Line-line, line-ground(GDT in series) ERZE11A621 or 681 ERZV14D621 or 681, GDT spark over voltage in DC = 3,6kV Precaution in surge protection designing ZNR should be connected at load side of the fuse(over current protector) with a suitable current rating. Model(V1mA) of ZNR or GDT should be selected to clear the voltage at insulation test and withstand voltage test for the air conditioner as well as max. AC line voltage. 3. Relevant technical information or references JISC60664, IEC60664 [Insulation coordination for equipment within low-voltage systems-Part 1:Principles, requirements and tests. Technical information contained in this paper is intended to convey examples of typical performances and/or applications and is not intended to make any

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