

# HSR-PD

Thank you for purchasing Hanyoung Nux products. Please read the instruction manual carefully before using this product, and use the product correctly. Also, please keep this manual where you can view it any time.

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## Safety information

Please read the safety information carefully before the use, and use the product correctly. The alerts declared in the manual are classified into **Danger**, **Warning** and **Caution** according to their importance

<b>⚠ DANGER</b>	Indicates an imminently hazardous situation which, if not avoided, will result in death or serious injury
<b>⚠ WARNING</b>	Indicates a potentially hazardous situation which, if not avoided, could result in death or serious injury
<b>⚠ CAUTION</b>	Indicates a potentially hazardous situation which, if not avoided, may result in minor injury or property damage

### ⚠ DANGER

The input/output terminals are subject to electric shock risk. Never let the input/output terminals come in contact with your body or conductive substances.

### ⚠ WARNING

- Please read the safety information carefully before the use, and use the product correctly.
- Make sure that the input / output terminals are not in contact with the body and energized objects as there is a danger of electric shock.
- If there is a possibility of a serious accident due to a malfunction or abnormality of this product, install an appropriate protection circuit on the outside, and plan to prevent accidents.
- Please supply the rated power voltage, in order to prevent product breakdowns or malfunctions.
- To prevent electric shocks and malfunctions, do not supply power until the wiring is completed.
- Please disassemble the product after turning OFF the power.
- Any use of the product other than those specified by the manufacturer may result in personal injury or property damage.
- Please use this product after installing it to a panel, because there is a risk of electric shock.

### ⚠ CAUTION

- Please make sure that the product specifications are the same as you ordered.
- Please use the product in places where corrosive gases (especially harmful gases, ammonia, etc.) and flammable gases are not generated.
- Please use the product in places without liquids, oils, chemicals, steam, dust, salt, iron, etc. (pollution degree 1 or 2).
- Please avoid places where large inductive interference, static electricity, magnetic noise are generated.
- Please avoid places with heat accumulation caused by direct sunlight, radiant heat, etc.
- When water enters, short circuit or fire may occur, so please inspect the product carefully.
- Do not wire anything to unused terminals.
- When disposing of the product, treat it as industrial waste.
- If the heat dissipation conditions, such as ventilation, are bad and the heat does not radiate, the product may malfunction or burn out.

## Suffix code

Model	Code	Content
HSR-	□ □ □ □ □	Single-Phase Solid State Relay For PCB Substrate
Terminal type	P	Printed circuit board (PCB) mount
Input control voltage	D	4 - 32 V d.c.
Rated load current	03	3 A
	05	5 A
	08	8 A
Rated load voltage	2	90 - 240 V a.c. (low voltage)
Operation type	Z	Zero cross switching
	R	Random switching

## Suffix code

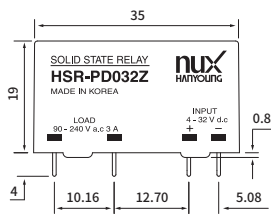
Model	HSR-PD032Z	HSR-PD052Z	HSR-PD082Z	
	HSR-PD032R	HSR-PD052R	HSR-PD082R	
Input	Power voltage	5 - 24 V d.c.		
	Operating voltage range	4 - 32 V d.c.		
	Impedance	Max. 4 kΩ		
	Operating voltage	Min. 3 V d.c.		
	Return voltage	Max. 1.5 V d.c.		
Output	Current input	Constant-current system: 10 mA (±3)		
	Rated load voltage	100 - 220 V a.c.		
	Load voltage range	90 - 240 V a.c.		
	Peak voltage (non-repetition)	600 V		
	Rated load current	3 A	5 A	8 A
	Frequency	50 / 60 Hz		
	Surge current	30 A	60 A	120 A
	Leakage current	Max. 10 mA		
	Output ON voltage drop	Max. 1.6 V (RMS)		
	Min. operating current	0.5 A		
	Response speed	1/2 cycle + max. 1 ms. ("R" type: max. 1 ms)		
	Insulation resistance	500 V d.c., 100 MΩ (between the input / output and case)		
	Dielectric strength	2,500 V a.c. (60 Hz for 1 min)		
Vibration resistance	10 - 55 Hz, double amplitude: 1.5 mm, X · Y · Z each axis 2 hours			
Shock resistance	1000 m/s² (approx. 100 G), X · Y · Z each axis 3 times			
Storage temperature	-30 ~ 90 °C			
Ambient temperature	-20 ~ 80 °C			
Ambient humidity	45 ~ 85 % RH			
Weight	Approx. 10 g	Approx. 22 g	Approx. 27 g	

(note) the weight is calculated excluding the packing box

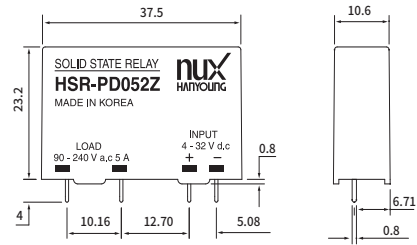
## Dimension

[Unit: mm]

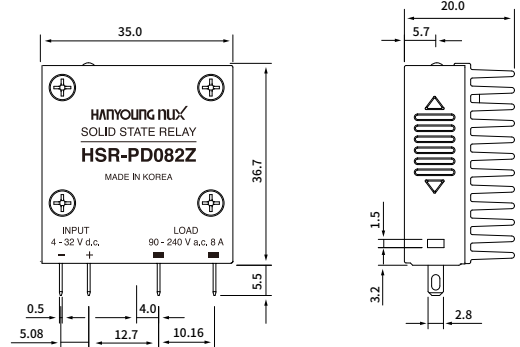
### ■ 3A (HSR-PD032Z, HSR-PD032R)



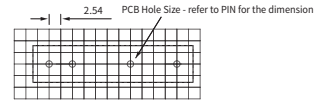
### ■ 5 A (HSR-PD052Z, HSR-PD052R)



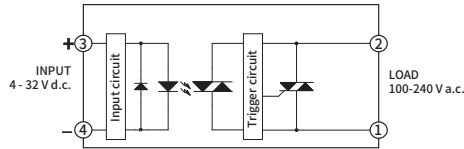
### ■ 8 A (HSR-PD082Z, HSR-PD082R)



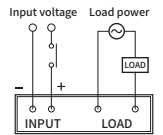
## PCB working dimensions (bottom view)



## Equivalent circuit

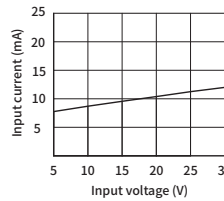


## Application circuit

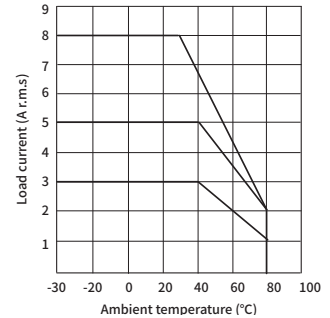


## Load Current Characteristics

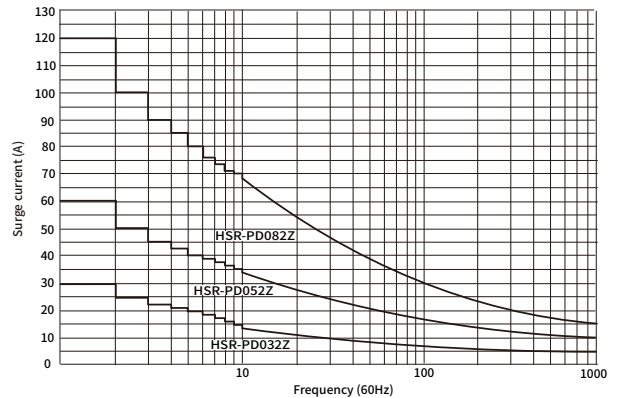
### ■ Input Voltage - Current Characteristics



### ■ Load Current Characteristics

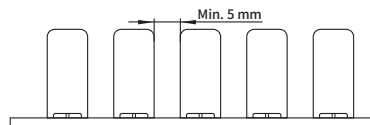


### ■ Input current characteristics (non-repetition)



### ■ Correct usage

• If multiple SSRs are installed together, space them more than 5 mm apart.



- The soldering should be done within 260 °C for 5 seconds.
- The snubber circuit is not built in the output terminal.
- When using the product at room temperature higher than the rated ambient temperature (25 °C), use it at 80% or less of the rated load current. When the room temperature exceeds 40 °C, HSR malfunction or burnout may occur.