

# ZGGS5-600TPVh1 Modular Power Supply SPD

## Product Specification



### General

The ZGGS5-600TPVh1 Modular Power Supply SPD consists of the MOV, flame retardant housing, and metal components, characterized by fire-retardant, over-current & overheat protection, and remote signalling alarm; it is installed on the PCB board, mainly used for the primary and secondary surge protection in low voltage AC/DC power supply and distribution system and electrical equipment.

### Features

Small volume, high discharge capacity, fast response, and no follow current;

### Technical Data

#### Operating Environment

Operating temperature	-40 °C~85 °C
Relative humidity	5 %~95 %
Altitude	-500 m~+4000 m

### Technical parameters

Model	ZGGS5-600TPVh1
SPD according to IEC 61643-11:2011	Class I +Class II
SPD according to EN 61643-11:2012	Type 1+Type 2
Number of ports	One
Maximum continuous operating voltage $U_c$	480 V 50/60 Hz
Nominal discharge current $I_n$ (8/20 $\mu$ s)	20 kA
Max. discharge current $I_{max}$ (8/20 $\mu$ s)	40 kA
Lightning impulse current $I_{imp}$ (10/350us)	5 kA
Voltage protection level $U_p$	2.4 kV
Voltage protection level for 5 kA	1.8 kV
Max. backup fuse	63 A gL/gG
Application system	TN; TT、IT: L-N
Response time $t_A$	$\leq 25$ ns
Remote signalling alarming mode	Normal: closed; failure: open-circuit
Status indication	Normal: black; failure: red
Intensity of remote signalling alarm contact	30 V DC, 0.1 A; 125 V AC, 1 A
Connection mode	PCB-board in parallel
Location of installation	Indoors
Degree protection	IP 20
Material of enclosure	UL94 V-0
Installing form	Welding Onboard
SPD according to EN 50539-11:2013	Type 1+Type 2
Maximum continuous operating voltage $U_{CPV}$	600 V DC
Short-circuit current rating $I_{SCPV}$	1000 A
Nominal discharge current $I_n$ (8/20 $\mu$ s)	20 kA
Max. discharge current $I_{max}$ (8/20 $\mu$ s)	40 kA
Lightning impulse current $I_{imp}$ (10/350us)	5 kA
Voltage protection level $U_P$	2.4 kV
Modes of protection	+ — -, +/- —PE
Application system	Photovoltaic system

**Circuit diagram**

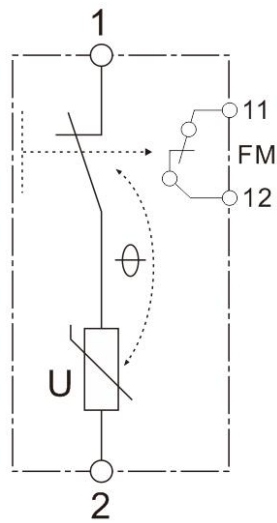


Fig. 1 Circuit diagram

**Configuration**

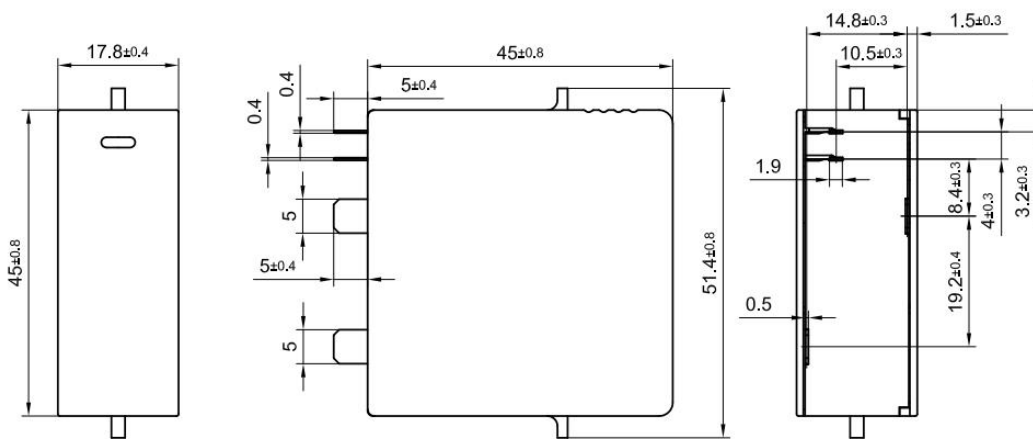


Fig. 2 Structure size

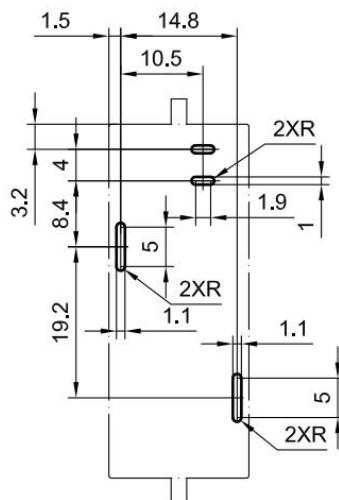


Fig. 3 PCB-hole drilling

## Standards Complied

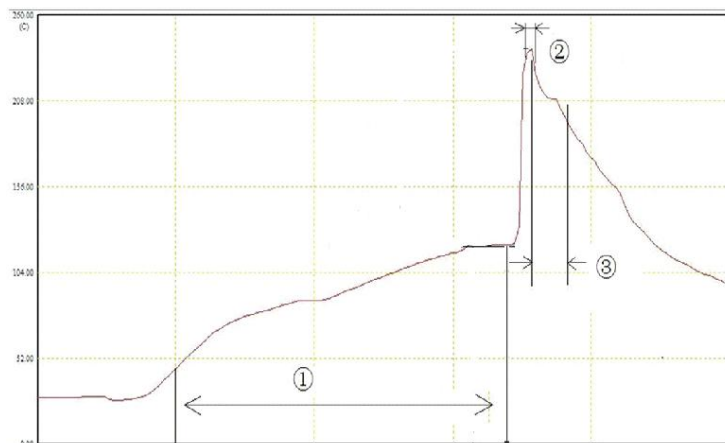
IEC 61643-11:2011	Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems – Requirements and tests
EN 61643-11:2012	Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems – Requirements and tests
UL1449 Ed.4	Standard for Surge Protective Devices
EN 50539-11: 2013	Low-voltage surge protective devices -Surge protective devices for specific application including d.c. -Part 11: Requirements and tests for SPDs in photovoltaic applications

## Approval/Certifications

## Installation

The module is suitable for wave soldering and manual solder.

Recommended Process Parameters:



①Preheating zone ②Soldering zone ③Cooling zone

The manual soldering temperature is  $420^{\circ}\text{C} \pm 5^{\circ}\text{C}$ , soldering time is 4s~7s.

Note: The module includes the temperature Sensitive device, so please do not use reflow

Wave Parameter	Lead-Free Recommendation
Preheat:	
Depends on Flux Action Temperature	Typical Industry Recommendation
Preheat Slope:	$\leq 2^{\circ}\text{C/s}$
Solder Temperature:	$245^{\circ}\text{C}-265^{\circ}\text{C}$
Solder Time:	4-7 seconds

## Usage and Maintenance

1. Check whether the SPD is intact before usage; if it is damaged or open-circuit (remote signalling), it cannot be used anymore.
2. Reliable soldering is needed, i.e., cold solder joint cannot exist in soldered dots, or else damage will be caused and protection effect cannot be ensured.
3. Periodically check whether the remote alarm system is normally closed, and if open-circuit, it indicates that the SPD has failed and must be replaced with another one by professionals.
4. In order to meet the impact requirements of  $8/20 \mu\text{s}$  waveform  $I_n=20\text{kA}$ ,  $I_{max}=40\text{kA}$  in IEC61643-11:2011, the PCB layout is recommended as: copper foil thickness  $70 \mu\text{m}$ , wiring width not less than 8mm (double layer) /16mm (single layer).

## Package, Transportation and Storage

### Package

The package is moisture-proof and shake-proof.

### Transportation

There should be covering during transportation. No strong shocks and impacts are allowed.

### Storage

The storage temperature is  $-10^{\circ}\text{C} \sim 40^{\circ}\text{C}$ , and relative humidity 85% or less. Good ventilation, dry ground and no corrosive gas are in the warehouse.

## Manufacturer Information

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