

Technical Specification of Lightning Protection Module For Power Supply

Code	H23.510	Model	PV20K-500
Prepared by	Zhao Shenghui	Date	2016-03-23
Reviewed by	Chen Weidong	Date	2016-03-23
Granted by	Li Yelai	Date	2016-03-23



HPXIN

SHENZHEN HAIPENGXIN ELECTRONICS CO.,LTD.
All rights reserved



Revision Record

Date	Revision Version	Description	Prepared by
2014-06-25	V1.0	Preliminary draft has been completed.	Chen Wei Dong
2015-04-22	V1.1	Cold gray of Product's appearance is changed to blue.	Jia Yungang
2015-06-10	V1.1	Rated working current is added at alarm port by parameter settings.	Hu Bishi
2016-03-23	V1.2	Add wave soldering temperature curve chart, words should be silk-screened on the top of module	Zhao Shenghui

深圳市海鹏信电子股份有限公司



Content

1	Scope of application	5
2	Normative references	5
3	Functional performance	5
3.1	Summary	5
3.2	Performance indicators	6
4	Protection principles (for reference only)	6
5	Appearance and structure chart	6
5.1	Structure size	6
5.2	Installation	7
6	For environment and safe regulation	8
7	Environmental protection	8
8	Product Label	8
9	Product Picture	9



Important statement

Technical specification is a controlled document which describes designed products of our company.

Its role is:

- a) Basis of Department of quality inspection;
- b) Basis of customer to confirm the material and test.

深圳市海鹏信电子股份有限公司



1 Scope of application

The surge protector is mainly used in surge protection for 230V Power Supplier System from transient overvoltage

2 Normative references

GB18802.1-2011 Low voltage surge protector Part 1: surge protector of low voltage power distribution system - performance requirements and test methods

GB 2828.1-2003- Count sampling inspection procedures

GB/T191-2008- Packaging graphic symbol

GB/T 2423.1-2008- Electrical and electronic products environmental test Part 2 test method test A: low temperature

GB/T 2423.2-2008- Electrical and electronic products environmental test part 2 test method test B: high temperature

GB/T 2423.4-2008- Electrical and electronic products environmental test Part 2: test method test Db: alternating Damp Heat (12 h + 12 h cycle).

YD/T 1235.1: 2002- Technical requirements of surge protector for low-voltage power distribution system of Communications agency (station)

YD/T 1235.2: 2002- Test methods of surge protector for low-voltage power distribution system of Communications agency (station)

IEC 61643-1 Edition 1.1-2005 Surge protective devices connected to low-voltage power distribution systems - Part 1: Performance requirements and testing methods

DIN EN 61643-11-2002+A11 Low-voltage surge protective devices - Part 11: Surge protective devices connected to low-voltage power systems; Requirements and tests

DIN EN 50539-11-2013+A1 Low-voltage surge protective devices — Surge protective devices for specific application including d.c. Part 11: Requirements and tests for SPDs in photovoltaic applications

3 Functional performance

3.1 Summary

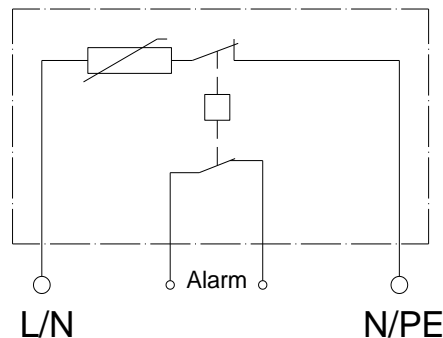
The Lightning Protection Module is dedicated to PCB welding protection; According to the through-flow capacity of protection, the parallel for multiple modules can be used. Safe tripping device for failure and alarm pin for failure (stem node structure) are put in module.



3.2 Performance indicators

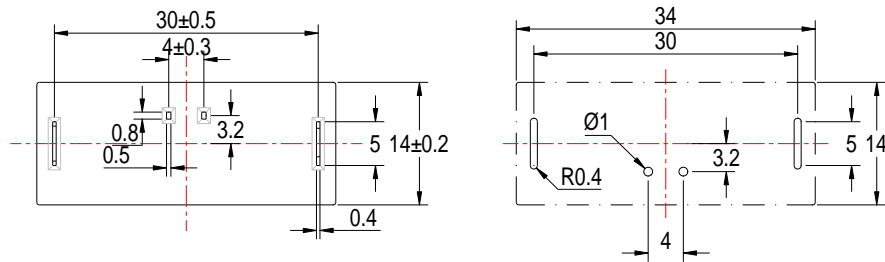
Items	Technical Specifications
Product Model	PV20K-500
Rated Voltage-Uo	230VAC
Starting Voltage	620V±10%
IEC Grade	Type 2
UL Grade	Type 4
Maximum continuous operating voltage -Uc	385VAC/500VDC
Maximum continuous operating voltage of photovoltaic application -Ucpv	500V
Nominal discharge current -In	10kA (8/20μs)
Maximum discharge current -Imax	20kA (8/20μs)
Voltage protection level -Up	1.5kV (10kA, 8/20μs)
DC short circuit endurance capacity	50A/800VDC
Rated short circuit of photovoltaic application-Iscpv	50A
Flame retardant rating of shell	UL94 V-0
Shell materials	PA66+30% Glass fiber
Color of appearance	Blue(PANTONE 279C)
Alarm device	If it is normal, it is closed; If it is abnormal, it is open.
Rated operating current on alarm port	250V/0.5A(AC)0.1A(DC) 125V/1A(AC)0.5(DC)

4 Protection principles (for reference only)

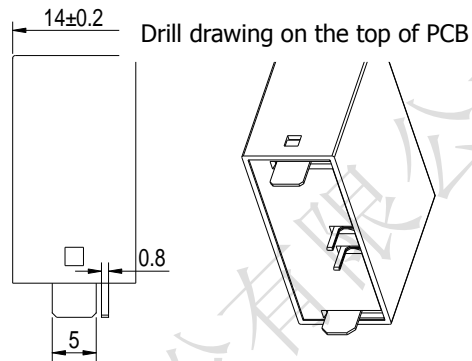
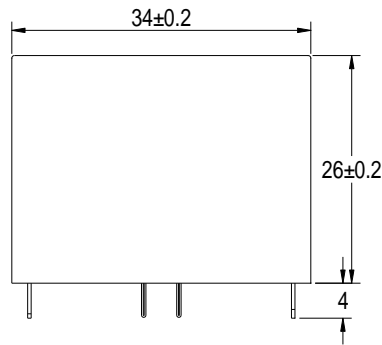


5 Appearance and structure chart

5.1 Structure size

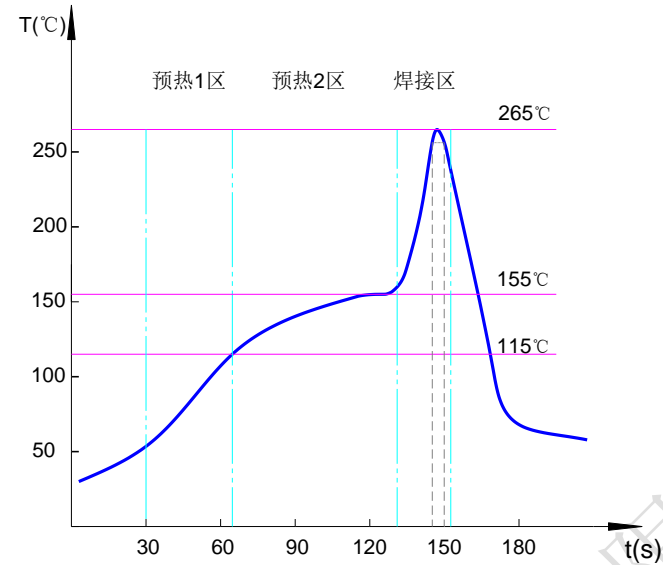


PCB顶层钻孔图



5.2 Installation

- The Lightning protection module adopts the PCB welding installation, PCB drilling is shown in above chart (PCB drilling chart):
- Welding: Manual welding or Wave Soldering welding can be used for the product; When Manual welding is used, constant temperature soldering iron 100 W, a temperature of $420\text{ }^{\circ}\text{C} \pm 5\text{ }^{\circ}\text{C}$ and welding time are 1 ~ 3 seconds, and the solder wire is recommended to use solder wire with room temperature, welding time for electrode pin 3 and 4 are less; Wave soldering welding curve is recommended: preheating temperature 1 area $115\pm 5\text{ }^{\circ}\text{C}$; 2 area: $155\pm 5\text{ }^{\circ}\text{C}$; Peak temperature: $265\pm 5\text{ }^{\circ}\text{C}$; Chain speed: 1.15~1.25 m/min ; Adjustment is required according to the different circuit board, please refer to following wave soldering welding temperature curve chart.



Wave soldering welding temperature curve chart

● Notes:

138 °C low temperature welding is adapted at internal safety tripping point of the lightning protection module; When welding is carried out, please pay attention to control temperature to prevent tripping from failure; When multiple ones are used in parallel, the copper's width of protective circuit PCB should meet the requirements of through-flow capacity; The creepage distance between the power cord and the alarm circuit should meet the relevant safe requirements.

6 For environment and safe regulation

Items	Requirement Specifications
Working temperature (°C)	-40°C~+85°C
Storage temperature (°C)	-40°C~+85°C
Relative humidity (%)	5%~95%
Applicable altitude (m)	≤5000m
The atmospheric pressure (Pa)	70kPa~106kPa
Alarm circuit of this surge protector meets requirements of reinforced insulation which is defined in EN60950-1/A1:2006. Insulation withstand voltage between remote alarm port and main circuit is 3750Vrms	

7. Environmental protection

Meet the RoHS of EU requirements

8. Product Label



9. Product Picture



Product picture is for reference only, please in kind prevail.