

SPD Module

Surge Protective Device Module

SM20(30)M230L306



Features

- Thermally Protected MOV
- With Remote Signal Contact
- Comply with IEC/EN 61643-11 T2
- Small Size, The Height is Only 25.5 mm
- High Reliability

Applications

- Telecom Equipment
- AC / DC Power Supply
- Uninterruptable Power Supply (UPS)
- Embedded Power Supply

Part Numbering System

SM 20 M 230 L 3 06 - 001

Other Options

System connection type
06: Three-phase system,
AC 3+0

Quantity of Protection Mode
3: Three Protection Modes

Circuit Characteristic
L: With MOV

Nominal System Voltage
230: 230 V

Design Sequence


Nominal discharge current
20: 20 kA, 30: 30 kA

Product Category

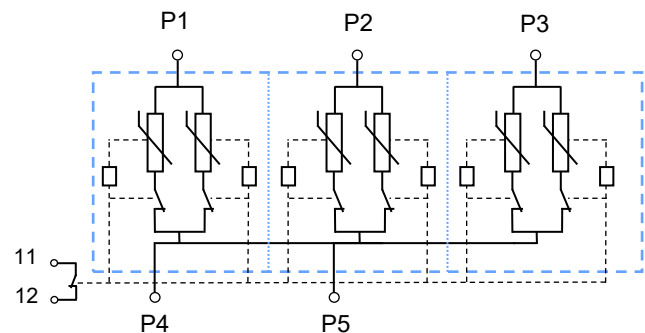
Description

SM20(30)M230L306 series are designed to meet the surge protection requirements of power equipment in harsh environments. The products facilitate surge immunity compliant with IEC 61643-11 Class II. With 3+0 protection mode, SM20(30)M230L306 series is composed of several sub-modules, the sub-module is designed with double MOV in parallel. SM20(30)M230L306 are rated at 20 / 30 kA(8/20 µs) nominal discharge current, meeting the requirement of surge protection on the input of three-phase circuit.

Agency Approvals

Agency	Standards	No.
	IEC / EN 61643-11	On-going
Environment	RoHS & REACH	Compliant

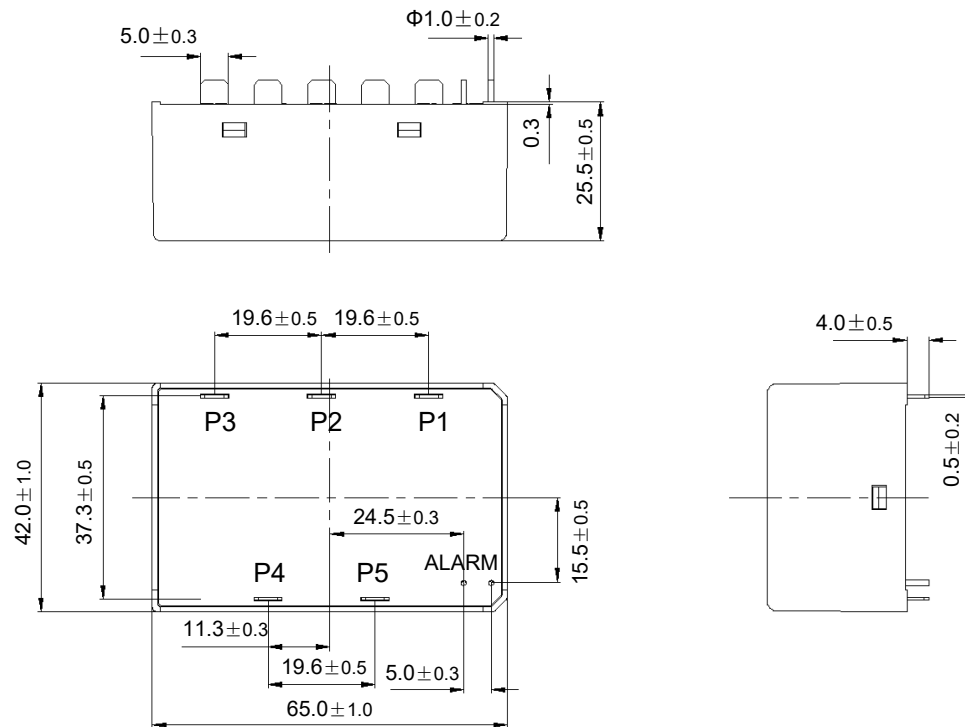
Schematics



Glossary

Item	Description
U_p	Voltage Protection Level Maximum voltage to be expected at the SPD terminals due to an impulse stress with defined voltage steepness and an impulse stress with a discharge current with given amplitude and wave shape. — (IEC 61643-11)
8/20 μ s	8/20 Current Impulse Current impulse with a nominal virtual front time of 8 μ s and a nominal time to half-value of 20 μ s. — (IEC 61643-11)
1.2/50 μ s	1.2/50 Voltage Impulse Voltage impulse with a nominal virtual front time of 1,2 μ s and a nominal time to half-value of 50 μ s. — (IEC 61643-11)
U_c	Maximum Continuous Operating Voltage Maximum r.m.s. voltage, which may be continuously applied to the SPD's mode of protection. — (IEC 61643-11)
I_n	Nominal Discharge Current Crest value of the current through the SPD having a current waveshape of 8/20 μ s. — (IEC 61643-11)
I_{max}	Maximum Discharge Current Crest value of a current through the SPD having an 8/20 μ s waveshape and magnitude according to the manufacturers specification. I_{max} is equal to or greater than I_n . — (IEC 61643-11)
Modes of Protection	Modes of Protection An intended current path, between terminals that contains protective components, e.g. line-to-line, line-to-earth, line-to-neutral, neutral-to-earth. — (IEC 61643-11)

Dimensions (mm)



Specifications

Features	Specifications	
Model	SM20M230L306	SM30M230L306
Nominal system Voltage (U_n)	230 / 400 VAC	230 / 400 VAC
Max. Continuous Operating Voltage (U_c)	385 VAC	385 VAC
Nominal Discharge Current (8/20 μ s) (I_n)	20 kA	30 kA
Max. Discharge Current (8/20 μ s) (I_{max})	40 kA	60 kA
Voltage Protection Rating (U_p)	1800 V	2000 V
Protection Mode	(L - PE) / (L - N)	(L - PE) / (L - N)
Alarm	Remote signal	Remote signal
Max. Main-side Overcurrent Protection	125 A gL/gG	160 A gL/gG
Installation	PCB	
Operational Temperature Range	(-40 ~ 85) °C	
According to Standard	IEC/EN 61643-11 Class II	

Applications

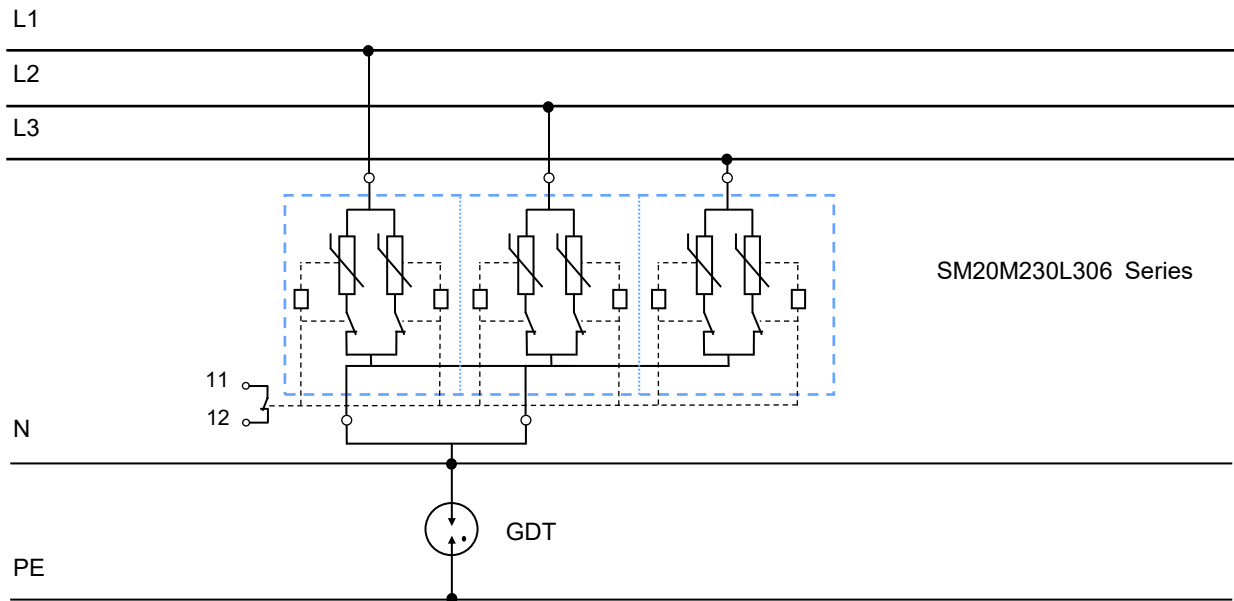


Figure 1 Three-phase circuit protection (20 kA)

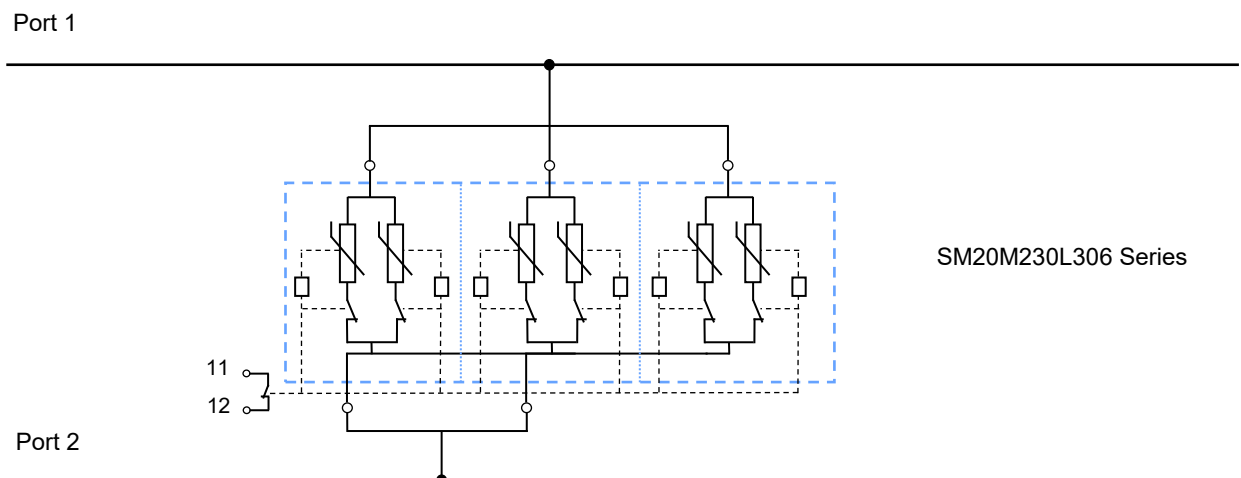
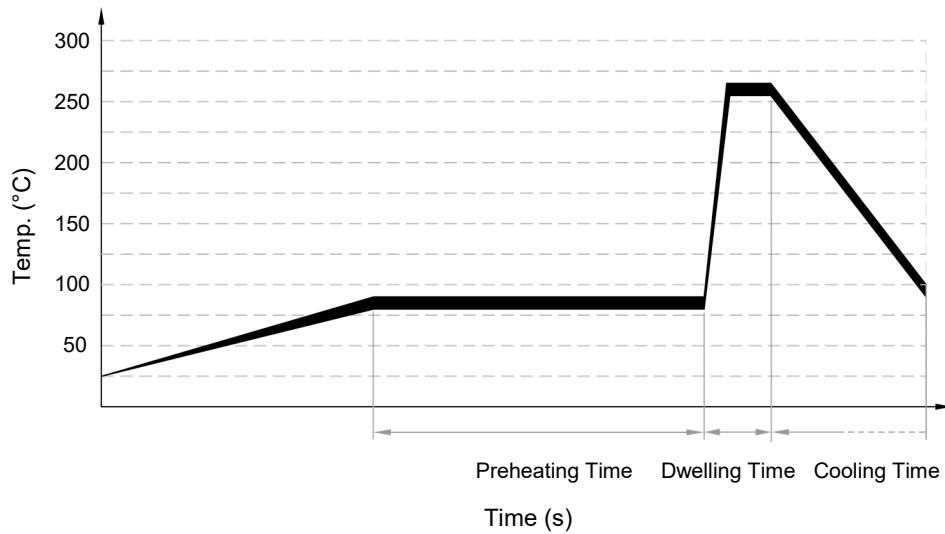


Figure 2 Single protection mode (60 kA)

Wave Soldering Parameters (Reference)



Item	Temp. (°C)	Time (s)
Preheating	80 to 90	60 to 150
Dwelling	250 to 260	2 to 4

Note:

The wave soldering parameters are for reference only. Before SPD module is for practice usage, relative validation is recommended.

Recommended Hand-Soldering Parameters

Item	Condition
Iron Temperature	350 °C (Max.)
Soldering Time	4 seconds (Max.)
Distance between Soldering Point and the Bottom of Product	2 mm (Min.)



ATTENTION

Usage

1. Frequency range is from 47 Hz to 63 Hz.
2. The voltage applied continuously to the SPD module must not exceed its maximum continuous operating voltage U_c .
3. When atmosphere press is from 80 kPa to 106 kPa, the related altitude shall be from 2000 meters to - 500 meters.
4. Do not touch the product body or pins directly when power is on, to avoid electric shock.

Replace

As SPD module is a non-repairable product, for safety sake, please use the same type of SPD module for replacement.

Storage

Do not store SPD module at high temperature, high humidity or corrosive gas environment, to avoid oxidation of the lead wires. Use them up within 1 year after receiving the goods.

Installation Position

Do not install SPD module to the place that may suffer severe vibration.