

# SPD-M

Surge Protective Device Module

SM15SxxxP3 Series

## Description



Surge Protective Devices Module (SPD-M) is an onboard surge protection module. Integrated thermal protection, overvoltage protection and remote signal functions. A single module may have common mode, differential mode or full mode protection.

Integrated module can simplify the design and selection for users, suitable for low-voltage AC or DC power supply.

SETsafe | SETfuse SM15SxxxP3 series are mainly composed of varistor (MOV), Gas Discharge Tube (GDT), flame retardant case and other metal accessories. Features such as compact size, high integration, and full protection functions. UL, cUL, TUV certification and complied with RoHS and REACH.

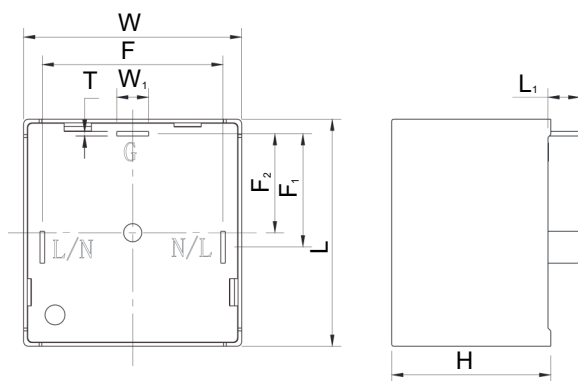
## Features

- High Reliability
- Small Size
- Combination Technology of ATCO, MOV and GDT
- Comply with UL 1449 / IEC 61643-11
- Differential-mode / Common-mode Protection

## Applications

- Telecom Equipment
- AC / DC Power Supply
- Uninterruptable Power Supply (UPS)
- Surge Protective Device (SPD)

## Dimensions (Unit : mm)



Unit: mm

## Schematics

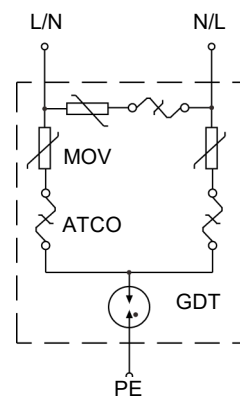


FIGURE SM15SxxxP3-1

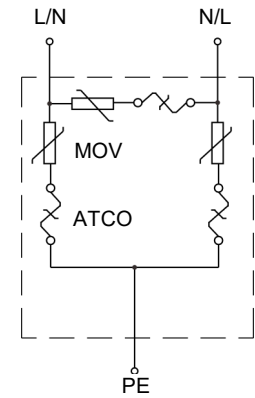


FIGURE SM15SxxxP3-2



L	L <sub>1</sub>	W	W <sub>1</sub>	H	T	F	F <sub>1</sub>	F <sub>2</sub>
25.0 ± 1.0	3.5 ± 1.0	24.0 ± 1.0	3.5 ± 0.5	17.6 ± 1.0	0.50 ± 0.05	20.0 ± 1.0	12.5 ± 1.0	11.0 ± 1.0

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## Specifications

Model	Max. Continuous Operating Voltage		Nominal Discharge Current (8/20 $\mu$ s)	Max. Discharge Current (8/20 $\mu$ s)	Voltage Protection Level	Response Time	External Overcurrent Protection <sup>a</sup>	Schematics	Agency Approvals	
	$U_c$		$I_n$	$I_{max}$	$U_p$					
	(VAC)	(VDC)	(kA)	(kA)	(V)					
SM15S201P3NBB	130	-	5	10	800	<25	10	SM15SxxxP3-2	●	○
SM15S201P3GBB	130	-	5	10	800	<100	10	SM15SxxxP3-1	●	○
SM15S221P3NBB	140	-	5	10	800	<25	10	SM15SxxxP3-2	●	○
SM15S221P3GBB	140	-	5	10	800	<100	10	SM15SxxxP3-1	●	○
SM15S241P3NBB	150	-	5	10	800	<25	10	SM15SxxxP3-2	●	○
SM15S241P3GBB	150	-	5	10	800	<100	10	SM15SxxxP3-1	●	○
SM15S271P3NBB	175	-	5	10	800	<25	10	SM15SxxxP3-2	●	○
SM15S271P3GBB	175	-	5	10	800	<100	10	SM15SxxxP3-1	●	○
SM15S471P3NBB	300	-	5	10	1200	<25	10	SM15SxxxP3-2	●	○
SM15S471P3GBB	300	-	5	10	1200	<100	10	SM15SxxxP3-1	●	○
SM15S511P3NBB	320	-	5	10	1500	<25	10	SM15SxxxP3-2	●	○
SM15S511P3GBB	320	-	5	10	1500	<100	10	SM15SxxxP3-1	●	○
SM15S561P3NBB	350	-	5	10	1500	<25	10	SM15SxxxP3-2	●	●
SM15S561P3GBB	350	-	5	10	1500	<100	10	SM15SxxxP3-1	●	○
SM15S621P3NBB	385	-	5	10	1500	<25	10	SM15SxxxP3-2	●	●
SM15S621P3GBB	385	-	5	10	1500	<100	10	SM15SxxxP3-1	●	●

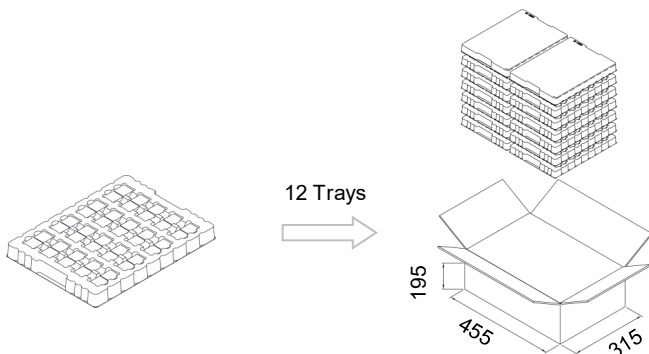
Note:

a: Recommended External Circuit Breaker Model C 10 A, Curve C.

The SM15S511GBM is a mechanical trip structure.

"●" indicates that the product has been certified, and "○" indicates that the product has not been certified.

## Packaging Information



Item	Tray	Carton
Dimensions (mm)	295 × 220	455 × 315 × 195
Quantity (PCS)	40	480




- Unit: mm
- Please contact us if you have special packaging requirements.

# SPD-M

Surge Protective Device Module

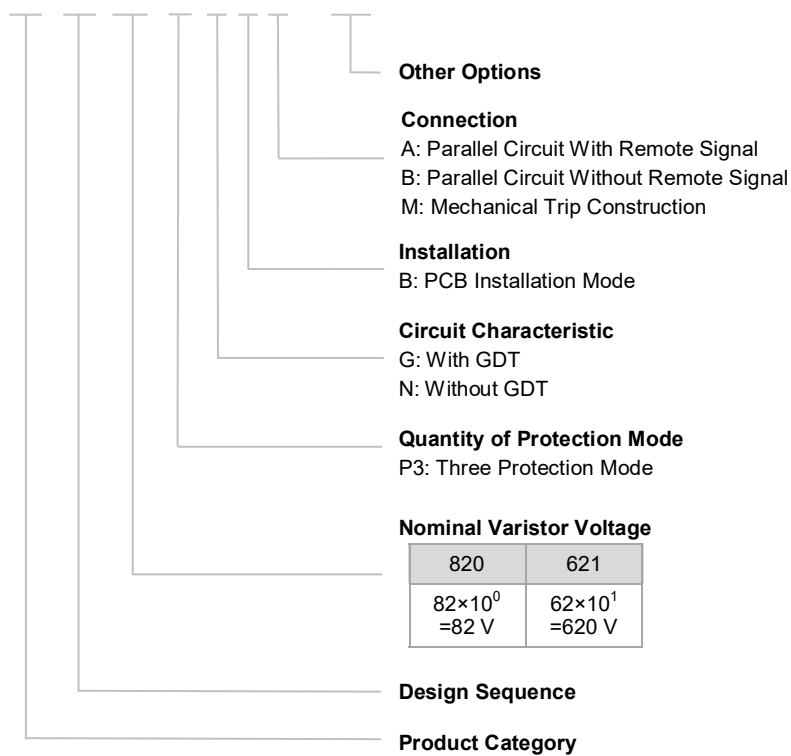
SM15SxxxP3 Series

## Agency Information

Agency Symbol		Standards	The File No. and certification No. obtained by SETsafe   SETfuse	Category
	UL	UL 1449	E322662	Type 4CA
	CUL	CSA C22.2 NO. 5	E322662	Type 4CA
	TUV	EN 61643-11	J 50347206	Class II
<b>Environment</b>	EN	RoHS & REACH	Compliant	

## Part Numbering System

SM 15S 621 P3 G B B - 001



**Reminder:**

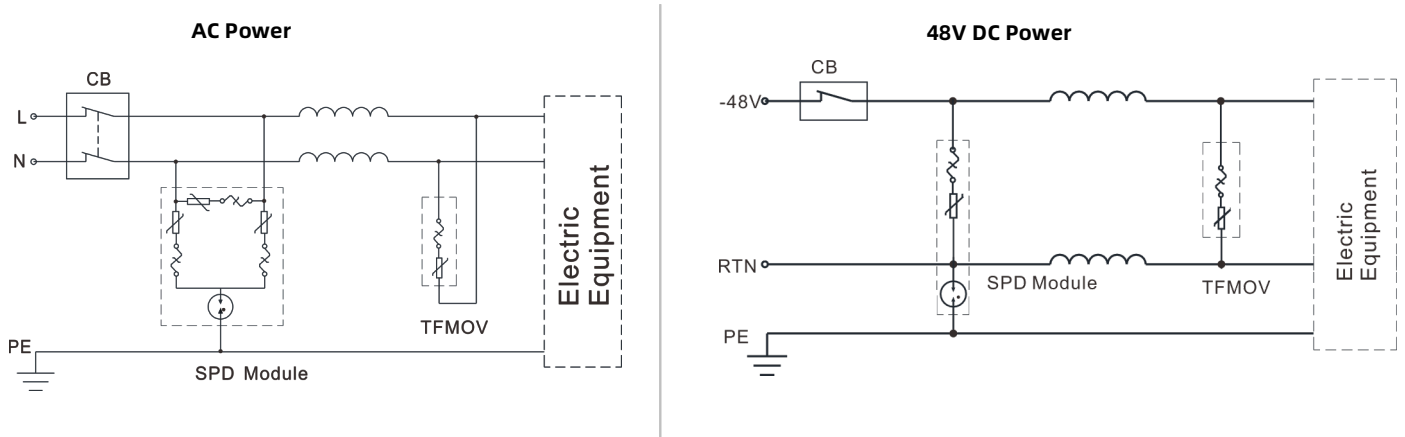
Part numbering system in the datasheet is only for selecting correct parameter and product features. Before placing order, please contact us for specifications and use the part number and product code in the specifications to place order to ensure the part is correct. Product code is the unique identification.

# SPD-M

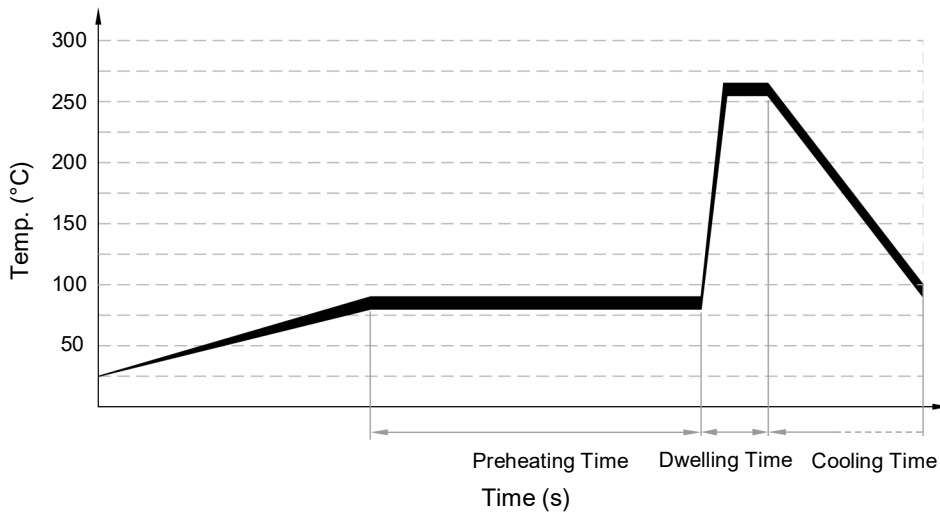
Surge Protective Device Module

SM15SxxxP3 Series

## Application Options



## Wave Soldering Parameters (Reference)



Item	Temp. (°C)	Time (s)
Preheating	≤ 150	60 ~ 150
Dwelling	≤ 260	≤ 10

Note:

The wave soldering parameters are for reference only. Before SPD-M 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.)

## Glossary

Item	Description
$U_p$	<p><b>Voltage Protection Level</b>                      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)</p>
8/20 $\mu$ s	<p><b>8/20 Current Impulse</b>                      Current impulse with a nominal virtual front time of 8 <math>\mu</math>s and a nominal time to half-value of 20 <math>\mu</math>s.                      — (IEC 61643-11)</p>
1.2/50 $\mu$ s	<p><b>1.2/50 Voltage Impulse</b>                      Voltage impulse with a nominal virtual front time of 1,2 <math>\mu</math>s and a nominal time to half-value of 50 <math>\mu</math>s.                      — (IEC 61643-11)</p>
$U_c$	<p><b>Maximum Continuous Operating Voltage</b>                      Maximum r.m.s. voltage, which may be continuously applied to the SPD's mode of protection.                      — (IEC 61643-11)</p>
$I_n$	<p><b>Nominal Discharge Current</b>                      Crest value of the current through the SPD having a current waveshape of 8/20.                      — (IEC 61643-11)</p>
$I_{imp}$	<p><b>Impulse Discharge Current for Class I Test</b>                      Crest value of a discharge current through the SPD with specified charge transfer Q and specified energy W/R in the specified time.                      — (IEC 61643-11)</p>
$I_{max}$	<p><b>Maximum Discharge Current</b>                      Crest value of a current through the SPD having an 8/20 waveshape and magnitude according to the manufacturers specification. <math>I_{max}</math> is equal to or greater than <math>I_n</math>.                      — (IEC 61643-11)</p>
<b>Modes of Protection</b>	<p><b>Modes of Protection</b>                      An intended current path, between terminals that contains protective components, e.g. line-to-line, line-to-earth, line-to-neutral, neutral-to-earth.</p>
<b>IP</b>	<p><b>Degrees of Protection Provided by Enclosure (IP Code)</b>                      Classification preceded by the symbol IP indicating the extent of protection provided by an enclosure against access to hazardous parts, against ingress of solid foreign objects and possibly harmful ingress of water.</p>
<b>TCO</b>	<p><b>Thermal-Link</b>                      A non-resettable device incorporating a THERMAL ELEMENT which will open a circuit once only when exposed for a sufficient length of time to a temperature in excess of that for which it has been designed.</p>
<b>ATCO</b>	<p><b>Alloy Thermal-Link</b>                      Alloy Type Thermal-Link, Alloy is the thermal element.</p>



## ATTENTION

### Usage

1. Frequency range is from 47 Hz to 63 Hz a.c.
2. The voltage applied continuously to the SPD-M must not exceed its maximum continuous operating voltage  $U_c$ .
3. When atmosphere press is from 45 kPa to 106 kPa, the related altitude shall be from 5000 meters to - 500 meters.
4. Do not touch the product body or pins directly when power is on, to avoid electric shock.

### Replacement

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

### Storage

Do not store SPD-M 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-M to the place that may suffer severe vibration.

**Surge Protective Device Module ( SPD-M ) Feature & Model List Overview**

Rated Voltage $U_n$ ( V )		Model	Maximum Continuous Operating Voltage $U_n$ ( V )		Page		
AC	DC		AC	DC			
347V	400V				510		
				SM34S751P1GGB	460		
					420		
220 - 230V	254 - 277V	SM15S621P3*BB		SM34S621P1GGB	385		
		SM15S561P3*BB		SM34S561P1GGB	SM34S561P2*B#	350	
		SM15S511P3*BB		SM34S511P1GGB	SM34S511P2*B#	320	
		SM15S471P3*BB		SM34S471P1GGB	SM34S471P2*B#	300	
				SM34S431P1GGB	SM34S431P2*B#	275	
110V	120 - 130V				250		
					230		
					210		
					190		
		SM15S271P3*BB			SM34S271P2*B#	175	
60V		SM15S241P3*BB		SM34S241P1GGB	SM34S241P2*B#	150	
		SM15S221P3*BB			SM34S221P2*B#	140	
		SM15S201P3*BB			SM34S201P2*B#	130	
						115	
48V	60V				95		
				SM34S121P1GGB	SM20K121P1*BA	75	100
				SM34S101P1GGB	SM20K101P1*BA	60	85
36V	48V			SM34S820P1GGB	SM20K820P1*BA	50	65
				SM34S680P1GGB	SM20K680P1*BA	40	56
24V	24V					35	45
				SM34S470P1GGB		30	38

**Notes:**

- \* May be followed by G or N.
- # May be followed by B or A.

**Surge Protective Device Module ( SPD-M ) Feature & Model List Overview**

Rated Voltage $U_n$ (V)	Model	Nominal Discharge Current $I_n$ (kA)				Page
		15	20	30	AC	
347V	400V	○	○	○	○	510
		○	○	○	○	460
		○	○	○	○	420
220 - 230V	254 - 277V	SM15M277A203	SM20M230A203	SM20M230%	SM30M230%	385
		○	○	○	○	350
		SM15M230A203	SM20M277A203	SM08B230N203	○	320
120 - 130V		○	○	○	○	300
		○	○	○	○	275
		○	○	○	○	250
110V		○	○	○	○	230
		○	○	○	○	210
		○	○	○	○	190
60V		○	○	○	○	175
		○	○	○	○	150
		○	○	○	○	140
48V		○	○	○	○	130
		○	○	○	○	115
		○	○	○	○	95
36V		○	○	○	○	75
		○	○	○	○	60
		○	○	○	○	50
24V		○	○	○	○	40
		○	○	○	○	35
		○	○	○	○	30

**Notes:**  
 % May be followed by L205, L306 or A404.