

SPD-M

Surge Protective Device Module

SM20(30)M230L205 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 SM20(30)M230L205 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 certification and complied with RoHS and REACH.

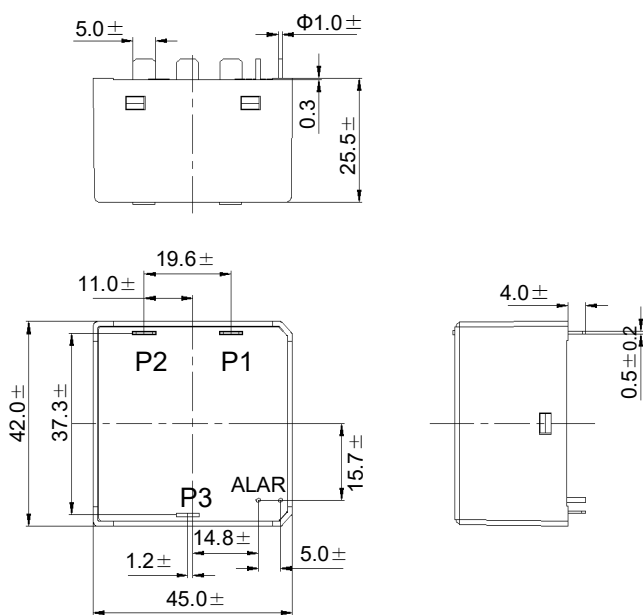
Features

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

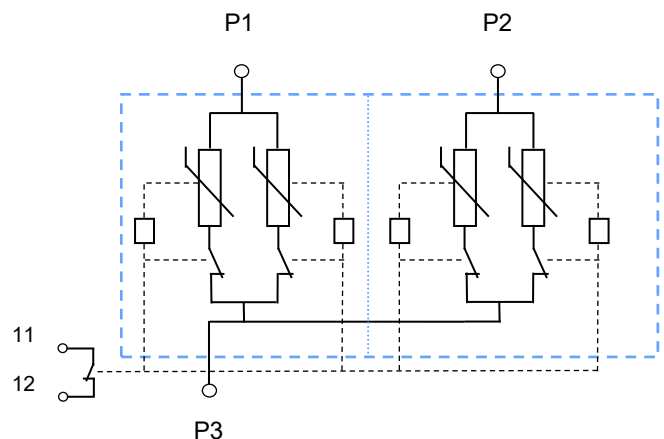
Applications

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

Dimensions (Unit : mm)



Schematics



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Specifications

Features	Specifications	
Model	SM20M230L205	SM20M230L205
Nominal system Voltage (U_n) VAC	230 VAC	230 VAC
Max. Continuous Operating Voltage (U_c) VAC	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 / N - PE	L / N - PE
Alarm	Green / Red	Green / Red
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	

Wiring Diagram

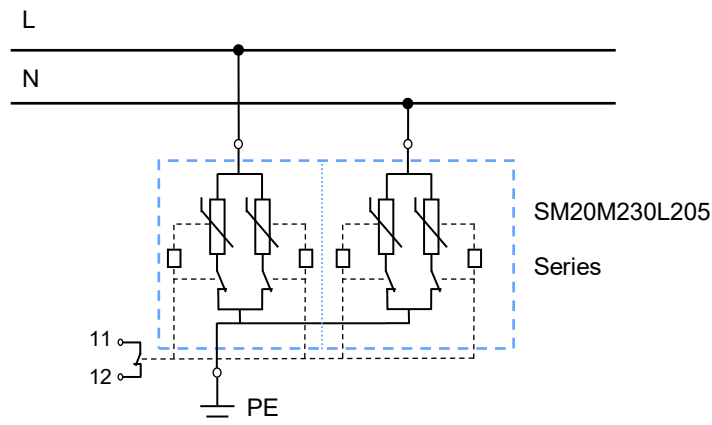
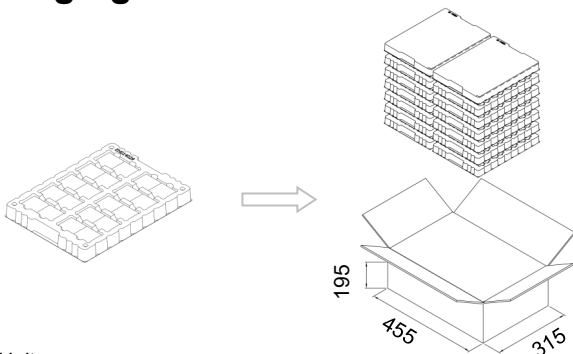


FIGURE 1 Single-phase circuit common mode protection

Packaging Information



Unit: mm

Please contact us if you have special packaging requirements.



Item	Tray	Carton
Dimensions (mm)	295 × 220	455 × 315 × 195
Quantity (PCS)	35	140

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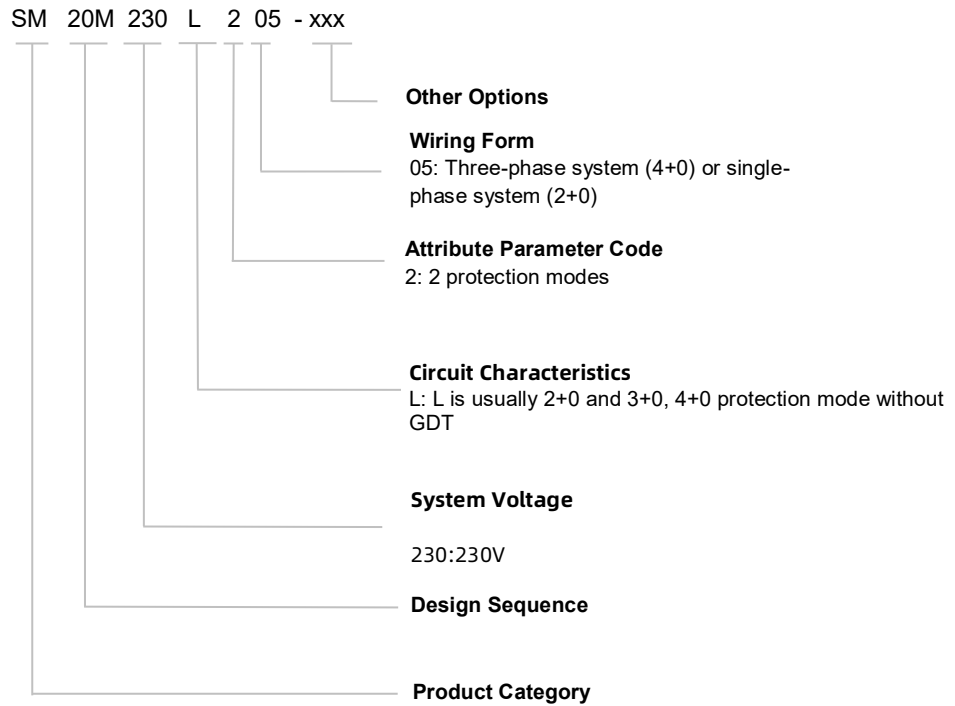
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Agency Information

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
Environment	EN	RoHS & REACH	Compliant	

Part Numbering System



Reminder:

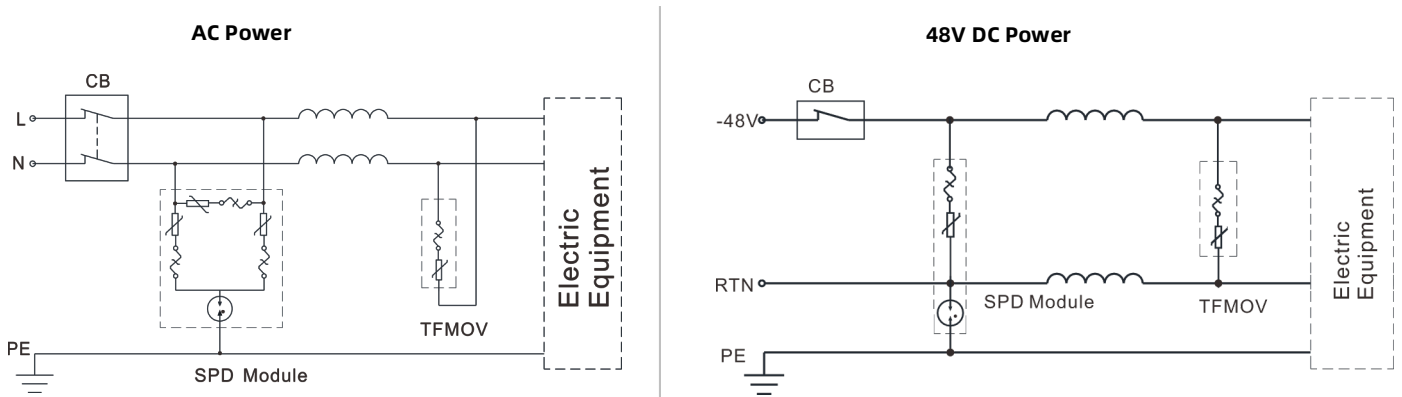
Part numbering system in the datasheet is only for selecting correct parameter and product features. Before placing order, please contact us for specifications and use the part number and product code in the specifications to place order to ensure the part is correct. Product code is the unique identification.

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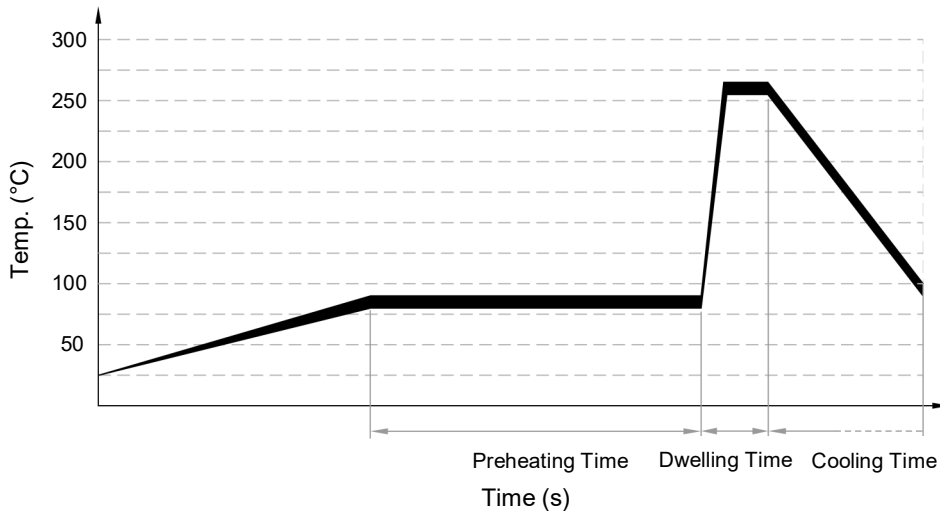
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Application Options



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>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)</p>
8/20 μ s	<p>8/20 Current Impulse Current impulse with a nominal virtual front time of 8 μs and a nominal time to half-value of 20 μs. — (IEC 61643-11)</p>
1.2/50 μ s	<p>1.2/50 Voltage Impulse Voltage impulse with a nominal virtual front time of 1,2 μs and a nominal time to half-value of 50 μs. — (IEC 61643-11)</p>
U_c	<p>Maximum Continuous Operating Voltage Maximum r.m.s. voltage, which may be continuously applied to the SPD's mode of protection. — (IEC 61643-11)</p>
I_n	<p>Nominal Discharge Current Crest value of the current through the SPD having a current waveshape of 8/20. — (IEC 61643-11)</p>
I_{imp}	<p>Impulse Discharge Current for Class I Test 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>Maximum Discharge Current Crest value of a current through the SPD having an 8/20 waveshape and magnitude according to the manufacturers specification. I_{max} is equal to or greater than I_n. — (IEC 61643-11)</p>
Modes of Protection	<p>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.</p>
IP	<p>Degrees of Protection Provided by Enclosure (IP Code) 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>
TCO	<p>Thermal-Link 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>
ATCO	<p>Alloy Thermal-Link 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.

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

Rated Voltage U_n (V)	Nominal Discharge Current I_n (kA)										Model	Maximum Continuous Operating Voltage U_n (V)	Page	
	AC	DC	5	10	15	20	AC	DC	AC	DC				
347V														510
400V														460
254														420
277V														385
220														350
230V														320
														300
														275
														250
120														230
130V														210
														190
														175
														150
110V														140
														130
														115
60V														95
60V														75
48V														60
48V														50
36V														40
24V														35
24V														30
AC	DC	5	10	15	20	AC	DC	AC	DC	AC	DC	AC	DC	38

Notes:
 * May be followed by G or N.
 # May be followed by B or A.

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

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