Description

SETsafe | SETfuse's surge protective device (SPD) SD05C series is specifically designed for outdoor lighting. The products facilitate surge immunity compliant with IEEE C62.41.2 Location Category C high exposure and protect LED street lighting from lightning surge damage. With built-in thermal protection, SD05C series could fail safely when suffering sustained overvoltage or its internal varistor degradation.

Features

- Sealed Enclosure, IP66
- Differential and Common Mode Protections
- One-port or Two-port Surge Protective Device (SPD)
- Thermal Protection and Failure Indication

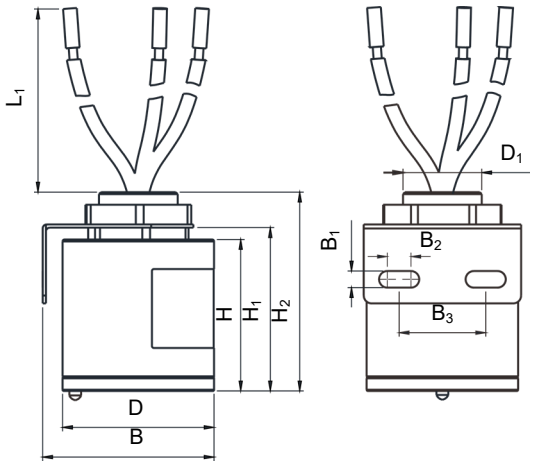
Applications

- Outdoor Street Lighting
- Parking Lighting
- Highway Lighting
- Landscape Lighting
- Traffic and Signal Lighting

Agency Approvals

Agency	Standards	No.
c UL us	UL1449	on request
Environment	RoHS & REACH	Compliant

Dimensions (mm)



L_1	H	H_1	H_2
150.0±5.0	38.0±1.0	41.0±1.0	50.0±1.0
D	**D_1**	**B**	**B_1**
Φ38.0±1.0	M20x1.5	43.5±1.0	4.2±0.1
B_2	**B_3**		
6.0±0.1	22.0±0.2		

Note:
The wire length "L_1" can be customized as required.

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Part Numbering System

SD 05 C 277 L M T - D - 001

Other Options

Protection Mode
Default: All-mode
D: Differential Mode

Wire Connection
Default: One-port
T: Two-port

Surge Capacity
M: Medium

Circuit Characteristic
A: With GDT and Failure Indicator
G: With GDT
L: With Failure Indicator
N: Without GDT or Failure Indicator

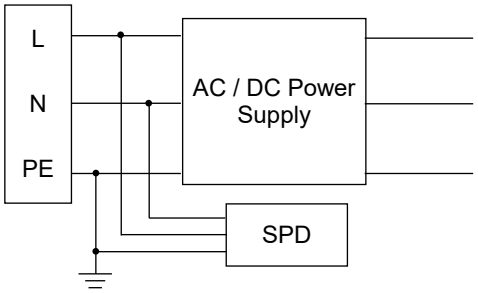
Nominal System Voltage
120 V, 277 V, 347 V, 480 V

Design Sequence

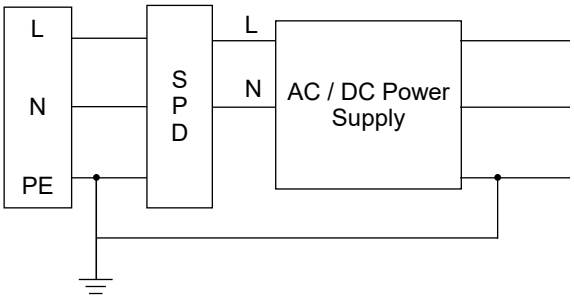
Nominal Discharge Current
05: 5 kA

Product Category
SPD

Wiring Diagram



Parallel Connection (One-port)

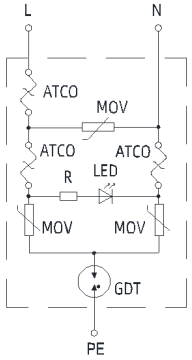


Series Connection (Two-port)

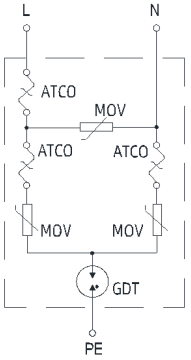
Notes:

- Internal thermal protection.
- Two-port SPD can disconnect the main line when open-circuit failure happens.

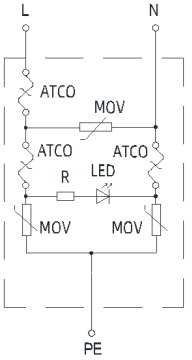
Schematics



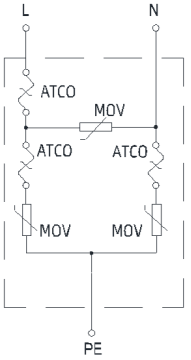
SD05CxxxAM Series
FIGURE SD05C-1



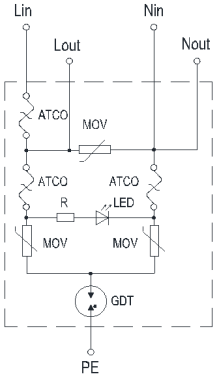
SD05CxxxGM Series
FIGURE SD05C-2



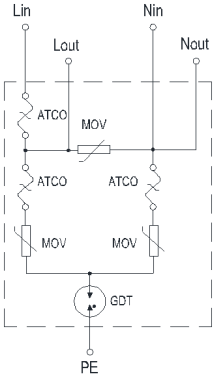
SD05CxxxLM Series
FIGURE SD05C-3



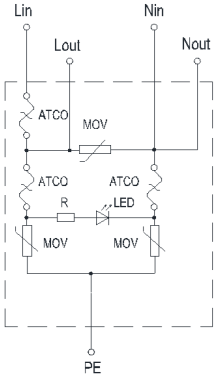
SD05CxxxNM Series
FIGURE SD05C-4



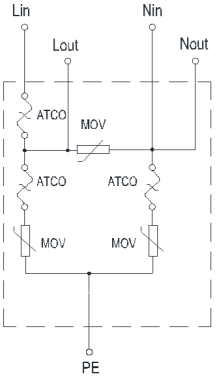
SD05CxxxAMT Series
FIGURE SD05C-5



SD05CxxxGMT Series
FIGURE SD05C-6



SD05CxxxLMT Series
FIGURE SD05C-7



SD05CxxxNMT Series
FIGURE SD05C-8

Note: The wire color can be customized according to relevant standards and customer requirements.

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Glossary

Item	Description
U_p	**Votage 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 µs	**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)
1.2/50 µs	**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)
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 µs. — (IEC 61643-11)
I_{max}	**Maximum Discharge Current** Crest value of a current through the SPD having an 8/20 µs 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)
IP	**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.
TCO	**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.
ATCO	**Alloy Thermal-Link** Alloy Type Thermal-Link, Alloy is the thermal element.

SPD

Specifications

Model	Max. Continuous Operating Voltage	Nominal Discharge Current (8/20 µs)	Max. Discharge Current (8/20 µs)	Voltage Protection Level	Rated Current [a]	Response Time	External Overcurrent Protection [b]	Schematics	Agency Approvals
	U_c	I_n	I_{max}	U_p	I_r				c UL us
	(VAC)	(kA)	(kA)	(V)	(A)	(ns)	(A)	FIGURE	UL, CUL
SD05C120AM	150	5	10	1400	-	<100	10	SD05C-1	●
SD05C277AM	320	5	10	2000	-	<100	10	SD05C-1	●
SD05C347AM	420	5	10	2200	-	<100	10	SD05C-1	●
SD05C480AM	550	5	10	3000	-	<100	10	SD05C-1	
SD05C120GM	150	5	10	1400	-	<100	10	SD05C-2	●
SD05C277GM	320	5	10	2000	-	<100	10	SD05C-2	●
SD05C347GM	420	5	10	2200	-	<100	10	SD05C-2	●
SD05C480GM	550	5	10	3000	-	<100	10	SD05C-2	
SD05C120LM	150	5	10	1200	-	<25	10	SD05C-3	●
SD05C277LM	320	5	10	1600	-	<25	10	SD05C-3	●
SD05C347LM	420	5	10	2000	-	<25	10	SD05C-3	●
SD05C480LM	550	5	10	2800	-	<25	10	SD05C-3	
SD05C120NM	150	5	10	1200	-	<25	10	SD05C-4	●
SD05C277NM	320	5	10	1600	-	<25	10	SD05C-4	●
SD05C347NM	420	5	10	2000	-	<25	10	SD05C-4	●
SD05C480NM	550	5	10	2800	-	<25	10	SD05C-4	
SD05C120AMT	150	5	10	1400	10	<100	10	SD05C-5	●
SD05C277AMT	320	5	10	2000	10	<100	10	SD05C-5	●
SD05C347AMT	420	5	10	2200	10	<100	10	SD05C-5	●
SD05C480AMT	550	5	10	3000	10	<100	10	SD05C-5	
SD05C120GMT	150	5	10	1400	10	<100	10	SD05C-6	●
SD05C277GMT	320	5	10	2000	10	<100	10	SD05C-6	●
SD05C347GMT	420	5	10	2200	10	<100	10	SD05C-6	●
SD05C480GMT	550	5	10	3000	10	<100	10	SD05C-6	
SD05C120LMT	150	5	10	1200	10	<25	10	SD05C-7	●
SD05C277LMT	320	5	10	1600	10	<25	10	SD05C-7	●
SD05C347LMT	420	5	10	2000	10	<25	10	SD05C-7	●
SD05C480LMT	550	5	10	2800	10	<25	10	SD05C-7	
SD05C120NMT	150	5	10	1200	10	<25	10	SD05C-8	●
SD05C277NMT	320	5	10	1600	10	<25	10	SD05C-8	●
SD05C347NMT	420	5	10	2000	10	<25	10	SD05C-8	●
SD05C480NMT	550	5	10	2800	10	<25	10	SD05C-8	

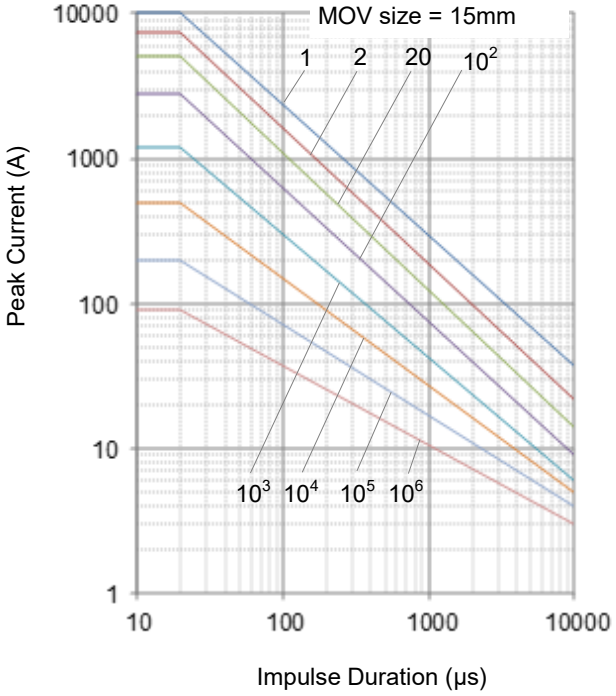
Notes:
a: Rated Current of the Thermal Fuse.
b: Recommended External Circuit Breaker Model: C 10 A, Curve C.

TOV Test

Specification	Value	Condition
Temporary Overvoltage (V) TOV @ t_T = 5 s	336 V@ U_n 230 V	LV system fault for TN power grid
Temporary Overvoltage (V) TOV @ t_T = 120 min	442 V@ U_n 230 V	LV system fault for TN power grid
Max leakage current at U_c (µA)	40	-
End of life indication	Yes	Light on: SPD is functional, Light off: SPD has reached end-of-life
EN 61643-11 Test Classification	Test class II	-
UL 1449 Type Classification	Type 4CA	-

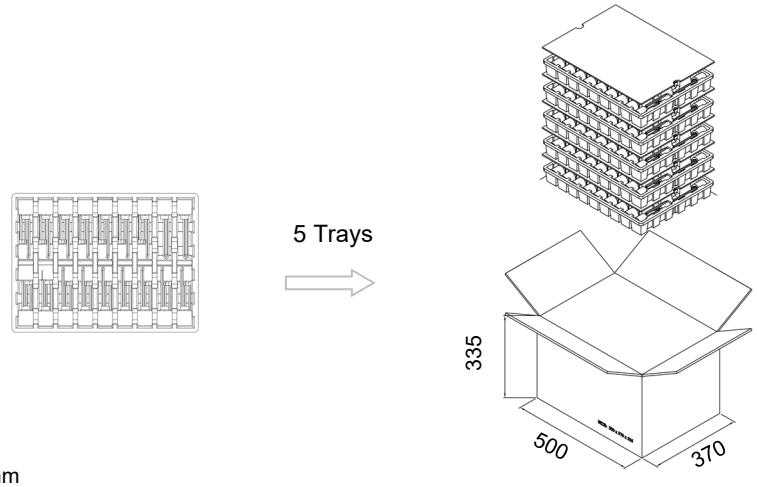
SPD

Repetitive Surge Capability



Pulse Rating (8/20 µs)	
Strikes	**Surge**
1	10000 A
2	7500 A
20	5000 A
100	2800 A
1000	1200 A
10,000	500 A
100,000	200 A
1,000,000	90 A

Packaging Information



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

Item	Tray	Carton
Dimensions (mm)	470×350×57	500×370×335
Quantity (PCS)	32	160
Gross Weight (kg)		(20.0 to 27.5)±10%

Note:
The gross weight of each carton will be different because of the difference of product model, It depends on the voltage of the product and the number of wires. The gross weight is for reference only, please contact us for more details.

ATTENTION

Usage

1. Frequency range is from 47 Hz to 63 Hz.
2. The voltage applied continuously to the SPD 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 m to - 500 m.
4. Do not touch the product body or wires directly when power is on, to avoid electric shock.

Replacement

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

Storage

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

Installation

1. Installation and startup may only be carried out by qualified personnel. The relevant country-specific regulations must be observed.
2. Check the device for external damage before installation. If the device is defective, it must not be used.
3. Pay attention to risk of electric shock. Please cutoff all electrical power before installation or service.
4. Lay the output cables to the surge protective devices (SPDs) as short as possible, without loops.
5. Please install proper backup protection devices in front of SPD.
6. Do not apply mechanical stress to the SPD body during or after the installation.

Maintenance

1. Check SPD status according to instructions before and after the thunderstorm season each year.
2. If the indicator of "failure state" appears, the SPD is damaged. Replace the SPD with same type.
3. Ensure electrical connections and mountings are correct before energizing the circuit.
4. SPD`s quality is well controlled and strictly inspected before delivery. If non-functional ones are found during operation, please contact us early enough.

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