



Description

SETsafe | SETfuse's surge protective device (SPD) SD10C 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, SD10C series could fail safely when suffering sustained overvoltage or its internal varistor degradation.

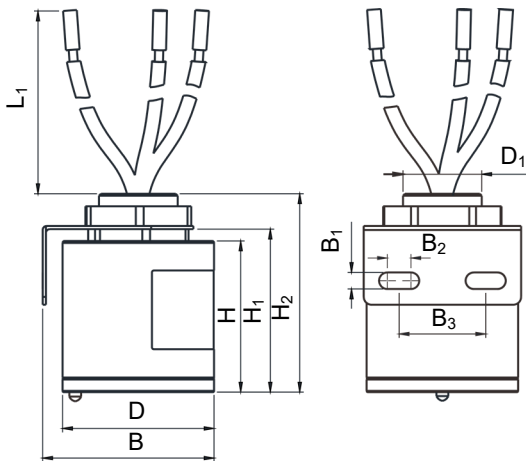
Features

- 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

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	M20×1.5	43.5±1.0	4.2±0.1
B ₂	B ₃		
6.0±0.1	22.0±0.2		

Note:

The wire length "L₁" can be customized as required.

Part Numbering System

SD 10 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
 H: High
 M: Medium

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

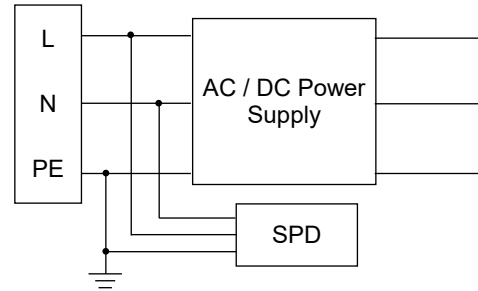
Nominal System Voltage
 120 V, 277 V, 347 V, 480 V

Design Sequence

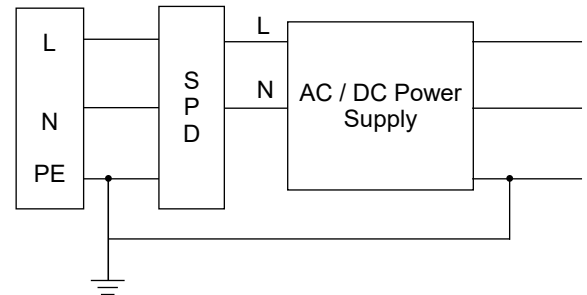
Nominal Discharge Current
 10: 10 kA

Product Category
 SPD

Wiring Diagram



Parallel Connection (One-port)

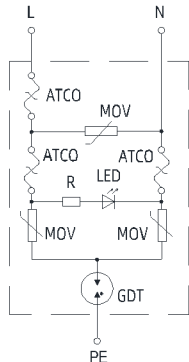


Series Connection (Two-port)

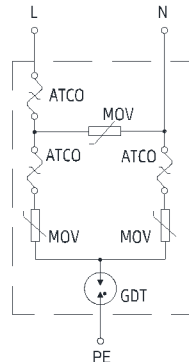
Notes:

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

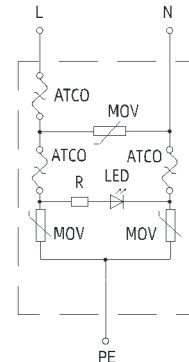
Schematics



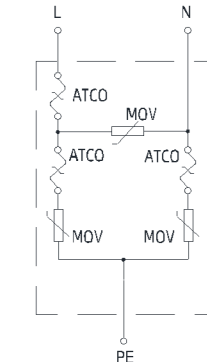
SD10CxxxAx Series
 FIGURE SD10C-1



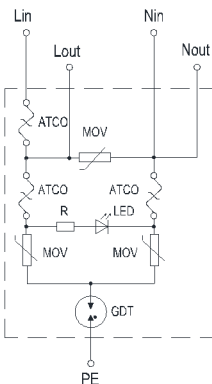
SD10CxxxGx Series
 FIGURE SD10C-2



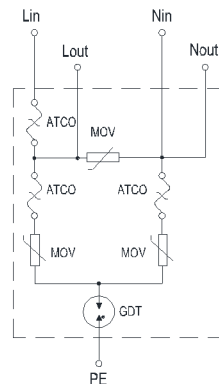
SD10CxxxLx Series
 FIGURE SD10C-3



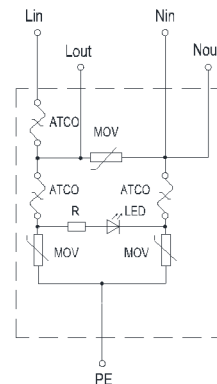
SD10CxxxNx Series
 FIGURE SD10C-4



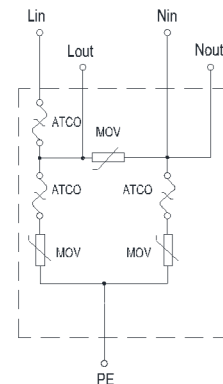
SD10CxxxAxT Series
 FIGURE SD10C-5



SD10CxxxGxT Series
 FIGURE SD10C-6






SD10CxxxLxT Series
 FIGURE SD10C-7






SD10CxxxNxT Series
 FIGURE SD10C-8

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

Agency Approvals

Agency	Standards	No.
	UL1449	on request
	IEC/EN 61643-11	on request
	IEC 61643-11	on request
Environment	RoHS & REACH	Compliant

Model	Fault Indicator	GDT	One-Port	Two-Port	Agency Approvals		
							
SD10C120A*	•	•	•		•	•	
SD10C277A*	•	•	•		•	•	•
SD10C347A*	•	•	•		•	•	
SD10C480A*	•	•	•		•		
SD10C120G*		•	•		•		
SD10C277G*		•	•		•		
SD10C347G*		•	•		•		
SD10C480G*		•	•		•		
SD10C120L*	•		•		•	•	
SD10C277L*	•		•		•	•	•
SD10C347L*	•		•		•	•	
SD10C480L*	•		•		•		
SD10C120N*			•		•		
SD10C277N*			•		•		
SD10C347N*			•		•		
SD10C480N*			•		•		
SD10C120A*T	•	•		•	•	•	
SD10C277A*T	•	•		•	•	•	•
SD10C347A*T	•	•		•	•	•	
SD10C480A*T	•	•		•	•		
SD10C120G*T		•		•	•		
SD10C277G*T		•		•	•		
SD10C347G*T		•		•	•		
SD10C480G*T		•		•	•		
SD10C120L*T	•			•	•	•	
SD10C277L*T	•			•	•	•	•
SD10C347L*T	•			•	•	•	
SD10C480L*T	•			•	•		
SD10C120N*T				•	•		
SD10C277N*T				•	•		
SD10C347N*T				•	•		
SD10C480N*T				•	•		

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 μs. — (IEC 61643-11)</p>
I_{max}	<p>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)</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. — (IEC 61643-11)</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>

Specifications

Model	Max. Continuous Operating Voltage	Nominal Discharge Current (8/20 μs)	Max. Discharge Current (8/20 μs)	Voltage Protection Rating	Voltage Protection Level	Rated Current ^a	Response Time	External Overcurrent Protection ^b	Schematic
	U_c	I_n	I_{max}	VPR	U_p	I_r			
	(VAC)	(kA)	(kA)	(V)	(V)	(A)	(ns)	(A)	FIGURE
SD10C120A*	150	10	15/25	800	1400	-	<100	32	SD10C-1
SD10C277A*	320	10	15/25	1300	2000	-	<100	32	SD10C-1
SD10C347A*	420	10	15/25	1500	2200	-	<100	32	SD10C-1
SD10C480A*	550	10	15/20	1800	3000	-	<100	20	SD10C-1
SD10C120G*	150	10	15/25	800	1400	-	<100	32	SD10C-2
SD10C277G*	320	10	15/25	1300	2000	-	<100	32	SD10C-2
SD10C347G*	420	10	15/25	1500	2200	-	<100	32	SD10C-2
SD10C480G*	550	10	15/20	1800	3000	-	<100	20	SD10C-2
SD10C120L*	150	10	15/25	600	1200	-	<25	32	SD10C-3
SD10C277L*	320	10	15/25	1150	1600	-	<25	32	SD10C-3
SD10C347L*	420	10	15/25	1350	2000	-	<25	32	SD10C-3
SD10C480L*	550	10	15/20	1600	2500	-	<25	20	SD10C-3
SD10C120N*	150	10	15/25	600	1200	-	<25	32	SD10C-4
SD10C277N*	320	10	15/25	1150	1600	-	<25	32	SD10C-4
SD10C347N*	420	10	15/25	1350	2000	-	<25	32	SD10C-4
SD10C480N*	550	10	15/20	1600	2500	-	<25	20	SD10C-4
SD10C120A*T	150	10	15/25	800	1400	15	<100	32	SD10C-5
SD10C277A*T	320	10	15/25	1300	2000	15	<100	32	SD10C-5
SD10C347A*T	420	10	15/25	1500	2200	15	<100	32	SD10C-5
SD10C480A*T	550	10	15/20	1800	3000	15	<100	20	SD10C-5
SD10C120G*T	150	10	15/25	800	1400	15	<100	32	SD10C-6
SD10C277G*T	320	10	15/25	1300	2000	15	<100	32	SD10C-6
SD10C347G*T	420	10	15/25	1500	2200	15	<100	32	SD10C-6
SD10C480G*T	550	10	15/20	1800	3000	15	<100	20	SD10C-6
SD10C120L*T	150	10	15/25	600	1200	15	<25	32	SD10C-7
SD10C277L*T	320	10	15/25	1150	1600	15	<25	32	SD10C-7
SD10C347L*T	420	10	15/25	1350	2000	15	<25	32	SD10C-7
SD10C480L*T	550	10	15/20	1600	2500	15	<25	20	SD10C-7
SD10C120N*T	150	10	15/25	600	1200	15	<25	32	SD10C-8
SD10C277N*T	320	10	15/25	1150	1600	15	<25	32	SD10C-8
SD10C347N*T	420	10	15/25	1350	2000	15	<25	32	SD10C-8
SD10C480N*T	550	10	15/20	1600	2500	15	<25	20	SD10C-8

Notes:

a: Rated Current of the Thermal Fuse.

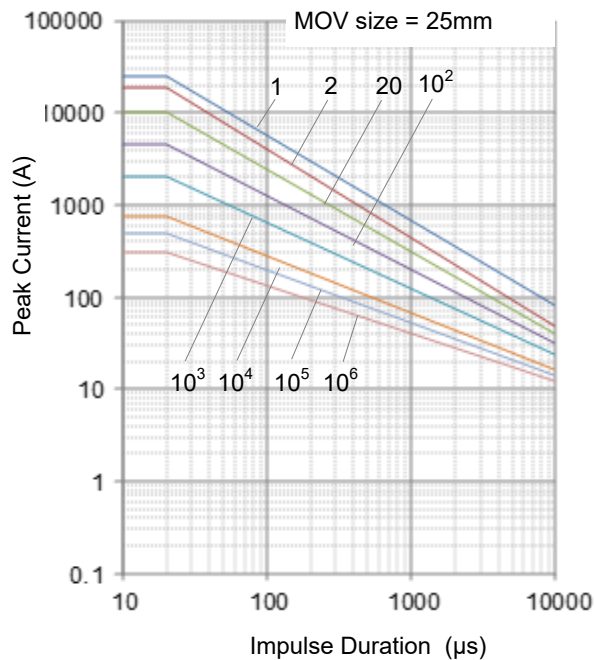
b: Recommended External Circuit Breaker Model: C 32 A, Curve C.

*: Maybe M or H

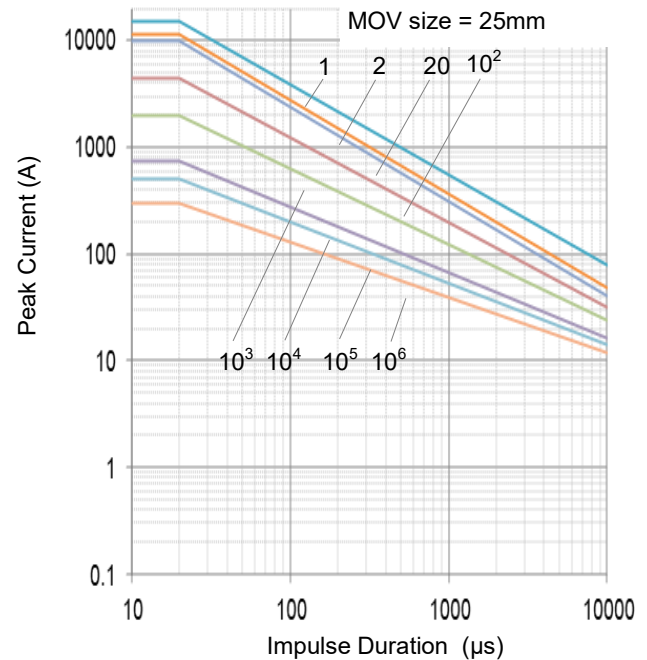
TOV Test

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	-

Repetitive Surge Capability



Pulse Rating (8/20 μs)	
Strikes	Surge
1	25000 A
2	18750 A
20	10000 A
100	4500 A
1000	2000 A
10,000	750 A
100,000	500 A
1,000,000	300 A

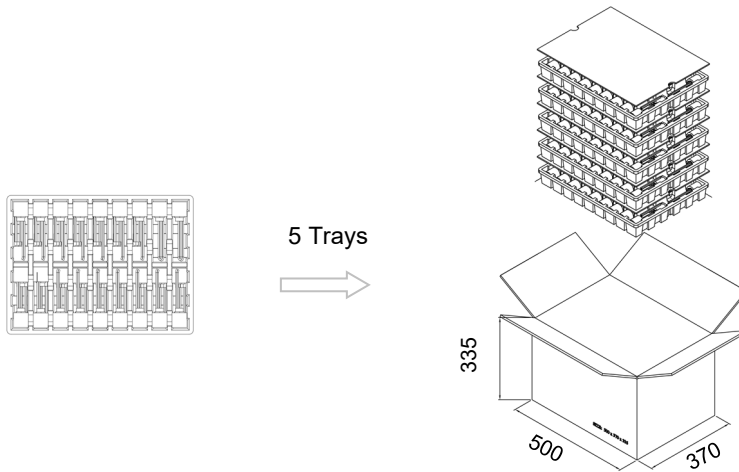


Pulse Rating (8/20 μs)	
Strikes	Surge
1	15000 A
2	11250 A
20	10000 A
100	4500 A
1000	2000 A
10,000	750 A
100,000	500 A
1,000,000	300 A

Note: Suitable for products with a max. discharge current of 25 kA

Note: Suitable for products with a max. discharge current of 15 kA

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 27.0)±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.