

## Features

- 90-305 Vac Working Input Voltage
- Line-Neutral, Line-Ground, and Neutral-Ground Protection Mode
- Suitable for TN, TT and IT Systems
- Maximum Discharge Current ( $I_{max}$ ) 10kA, 8/20 $\mu$ s
- Nominal Discharge Current ( $I_n$ ) 5kA, 8/20 $\mu$ s
- Open Circuit Voltage ( $U_{oc}$ ) 10kV, 1.2/50 $\mu$ s
- Double Thermally Protected
- End-of-life LED Indicator
- EN 61643-11 – T2 & T3
- IEC 61643-11 - Test Class II & Class III
- Design Refer to UL1449 - Type 4CA
- High Temperature, 85°C Maximum Surface Temp Rating, UL94V-0 Flame Resistant Plastic
- Input Over Voltage Protection at 440Vac with 48 Hours
- Available for Series & Parallel Installation
- IP66/IP67



## Description

The PU-10Kx05KBxA thermally protected Surge Protective Device is designed to be used in conjunction with LED Drivers to provide an additional level of surge or transient overvoltage protection in road lighting, industrial, sports and commercial applications, etc. Its built-in thermal disconnect function provides additional protection to prevent catastrophic failure. Even under extreme conditions such as SPD end-of-life or sustaining prolonged over voltage conditions, this device mitigates risk of fire.

## Models

Certification	Wiring Configuration (1)	Protection Mode	Up (Max Clamped Voltage)	Indicator Light	Rated Load Current	Wires	IP Rating	Model Number
TUV,CE,CB	Parallel	DM/CM	1800 V	Y	/	Flying Leads	IP66	PU-10KS05KBTA
TUV,CE,CB	Series	DM/CM	1800 V	Y	8 A	Flying Leads	IP66	PU-10KD05KBTA
TUV,CE,CB	Series	DM	1800 V	Y	8 A	Flying Leads	IP66	PU-10KD05KBSA
TUV,CE,CB	Series	DM/CM	1800 V	Y	8 A	Cables	IP66/IP67	PU-10KD05KBGA

**Notes:** (1) When the life of the SPD ends, the OGDT and/or TCO (see note 2) in the SPD is open, and the indicator will be off. Although the LED driver may still work normally, please replace the SPD in time.

The series model SPD can also be used in parallel, and the connection method can be found in the "Series" model with backup connection method' described in "Wiring". Note that if you need to refer to the backup connection method, be sure to insulate and waterproof at the connection and suspension.

(2) OGDT (Open-circuit failure Gas Discharge Tube): Under excessive surge conditions, the arc temperature in the GDT becomes very high, which causes the low-temperature solder inside it to melt, allowing air to enter and the inert gas to escape, the result of which creates the open circuit.

TCO (Thermal Cut-Off): When the temperature of the thermal fuse exceeds its operating temperature, the circuit will be permanently cut off.

## General Specifications

Parameter		Min.	Typ.	Max.	Notes
Rated Operating Voltage		100 Vac		277 Vac	
Input AC Voltage		90 Vac		305 Vac	
Max. Continuous Operating Voltage (MCOV/U <sub>c</sub> ) <sup>(1)</sup>		-	-	320 Vac	
Input Frequency		47 Hz	-	63 Hz	
Nominal Discharge Current (I <sub>n</sub> ) <sup>(2)</sup>				5 kA	8/20μs current waveform
Maximum Discharge Current (I <sub>max</sub> ) <sup>(3)</sup>				10 kA	8/20μs current waveform
Open Circuit Voltage (U <sub>oc</sub> ) <sup>(4)</sup>				10 kV	1.2/50μs open circuit voltage waveform
Rated Load Current (I <sub>L</sub> )				8 A	PU-10KD05KBTA PU-10KD05KBSA PU-10KD05KBGA
Clamping Voltage Up (L-N,L-G, N-G) <sup>(5)</sup>	Peak Voltage			1800 V	Measured at a 10kV/5 kA combination wave and 5kA 8/20μs current waveform
	Platform Voltage			1500 V	
Earthing Systems		TN, IT, TT			
SCCR <sup>(6)</sup>		300 A			
End-of-life LED Indicator		Yes			GREEN: Good OFF: Replace
Isolation Voltage Capability			500 V		
Repetitive Surge Capability (each coupling mode)					8/20μs current waveform
	10 kA	1	-	-	
	5 kA	15	-	-	
	3 kA	100	-	-	
	1 kA	500	-	-	
Dimensions	(PU-10KS05KBTA) Inches (L × W × H) Millimeters (L × W × H)	2.91 × 1.31 × 0.83 74.00 × 33.20 × 21.20			With mounting ear 3.29 × 1.31 × 0.83 83.60 × 33.20 × 21.20
	(PU-10KD05KBTA) Inches (L × W × H) Millimeters (L × W × H)	2.91 × 1.31 × 0.83 74.00 × 33.20 × 21.20			With mounting ear 3.45 × 1.31 × 0.83 87.60 × 33.20 × 21.20
	(PU-10KD05KBSA) Inches (L × W × H) Millimeters (L × W × H)	2.91 × 1.31 × 0.83 74.00 × 33.20 × 21.20			With mounting ear 3.45 × 1.31 × 0.83 87.60 × 33.20 × 21.20
	(PU-10KD05KBGA) Inches (L × W × H) Millimeters (L × W × H)	2.91 × 1.31 × 0.83 74.00 × 33.20 × 21.20			With mounting ear 3.47 × 1.31 × 0.83 88.10 × 33.20 × 21.20
Net Weight	PU-10KS05KBTA		106 g		
	PU-10KD05KBTA		115 g		
	PU-10KD05KBSA		103 g		
	PU-10KD05KBGA		130 g		

**Notes:** (1) Maximum Continuous Operating Voltage (MCOV/U<sub>c</sub>): The maximum r.m.s. voltage that could be continuously applied to the SPD.

- (2) Nominal Discharge Current ( $I_n$ ): The peak amount of current that the SPD can withstand for 15 impulses using the 8/20 $\mu$ s current wave. This measures the SPD's endurance capability.
- (3) Maximum Discharge Current ( $I_{max}$ ): The peak amount of current that the SPD can withstand for 1 impulses using the 8/20 $\mu$ s current wave. This measures the SPD's maximum capability.
- (4) Open Circuit Voltage ( $U_{oc}$ ): The peak amount of voltage that the SPD can withstand using the combination wave. This measures the SPD's maximum voltage capability.
- (5) Clamping Voltage ( $U_p$ ): The measured amount of residual, or "let-through", voltage that can pass through the SPD during the application of impulses of Open Circuit Voltage ( $U_{oc}$ ).
- (6) SCCR: Short-circuit Current Rating for Max. Mains-side Overcurrent Protection

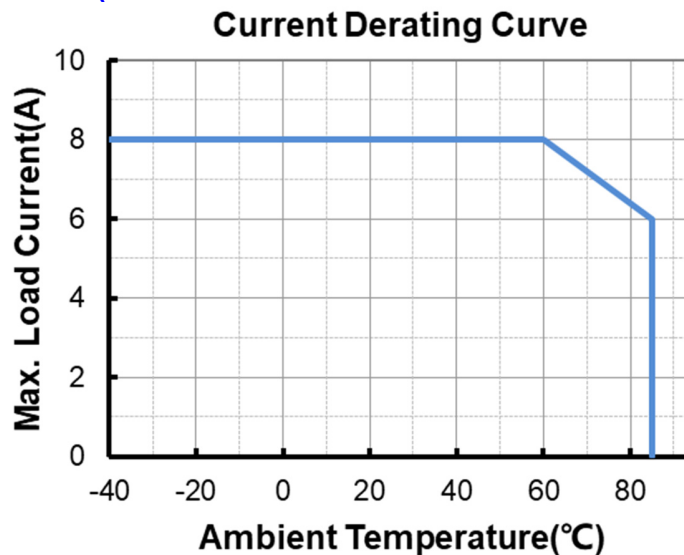
## Environmental Specifications

Parameter	Min.	Typ.	Max.	Notes
Operating Temperature	-40 °C	-	+85 °C	Humidity: 10% RH to 95% RH
Storage Temperature	-40 °C	-	+85 °C	Humidity: 5% RH to 95% RH

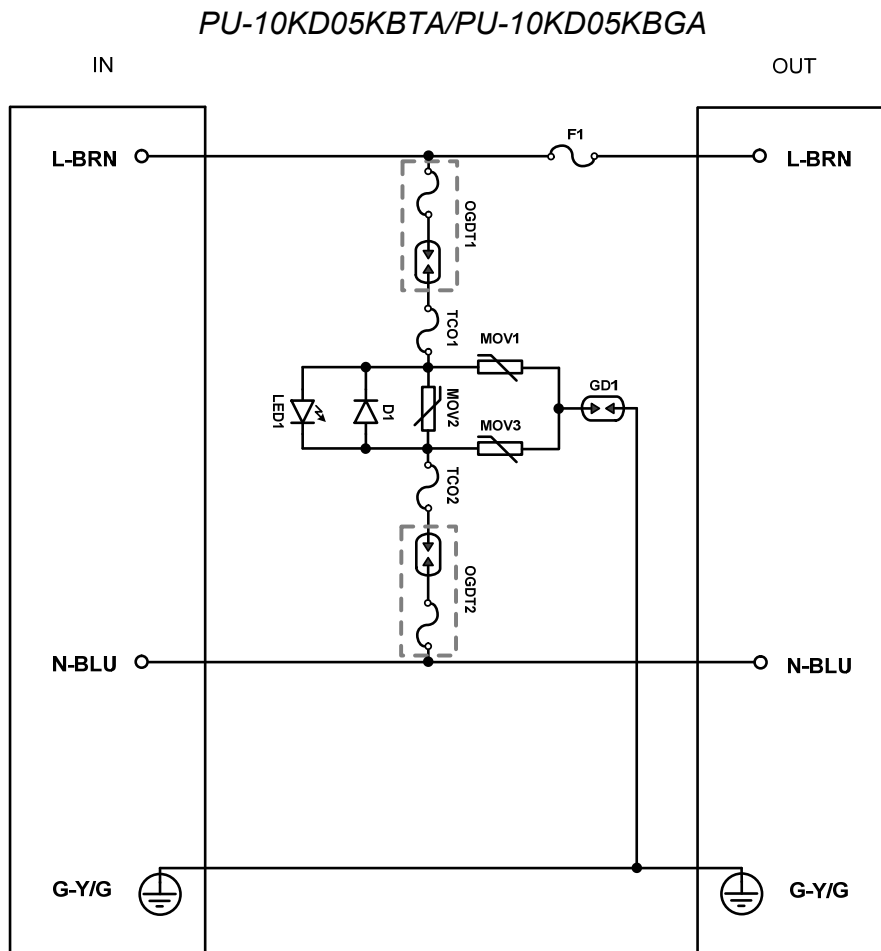
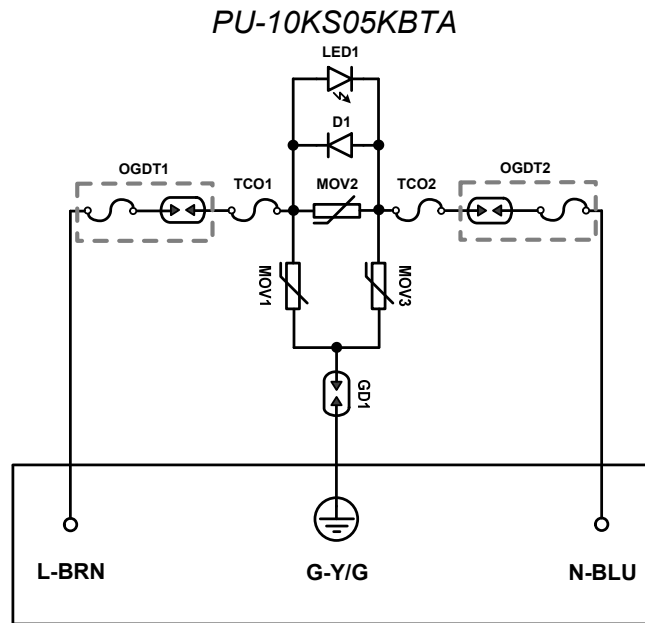
## Safety & EMC Compliance

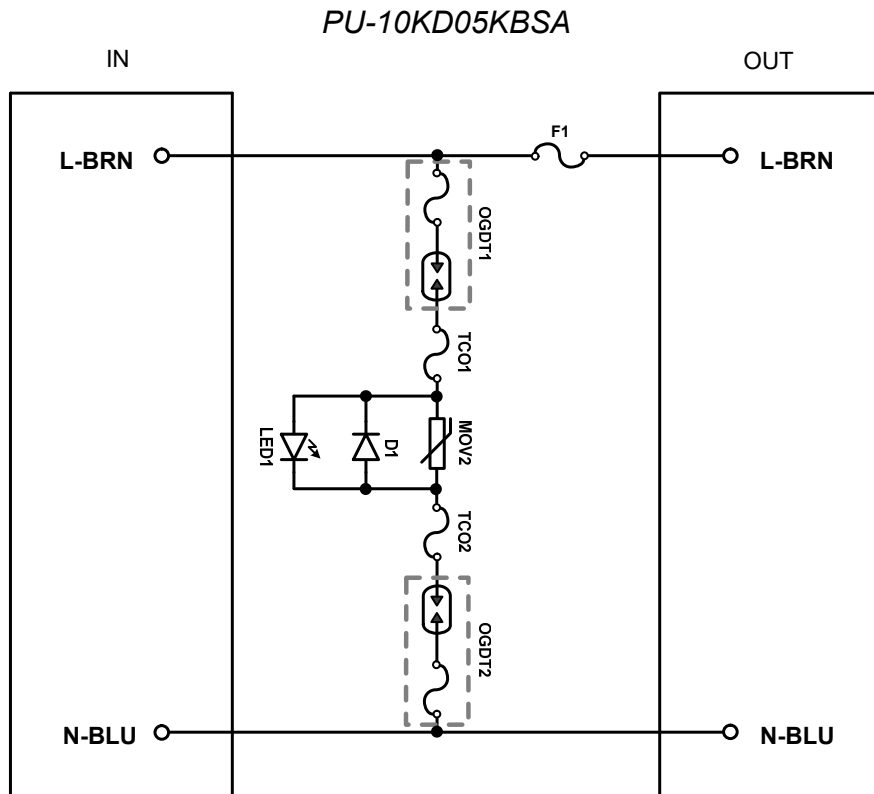
Safety Category	Standard
TUV & CE	EN 61643-11
CB	IEC 61643-11

## Current Derating Curve (PU-10KD05KBTA/PU-10KD05KBSA/PU-10KD05KBGA)



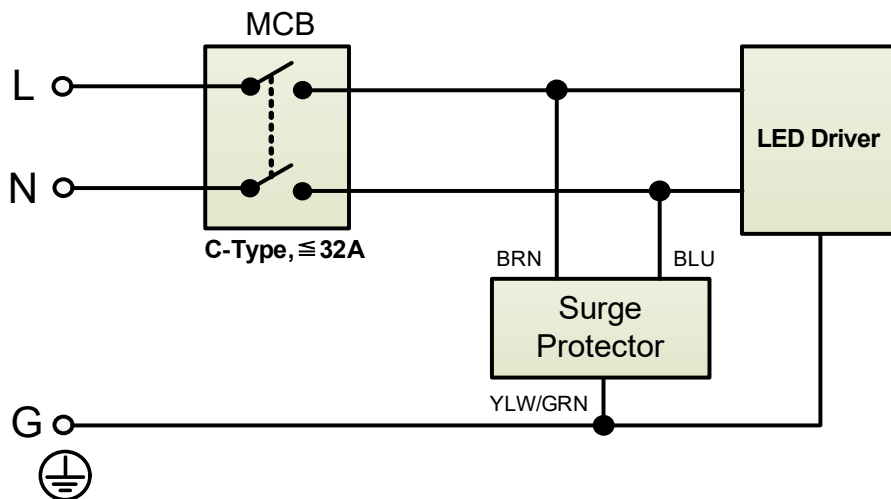
## Schematic



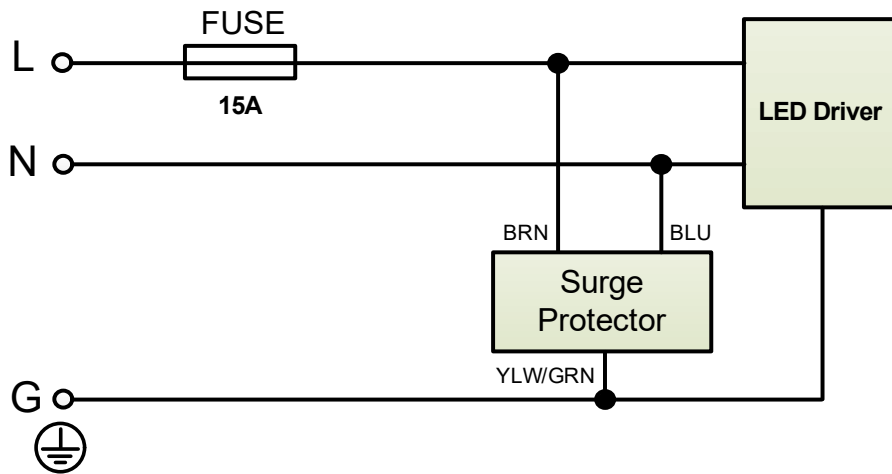


## Wiring

PU-10KS05KBTA  
Parallel

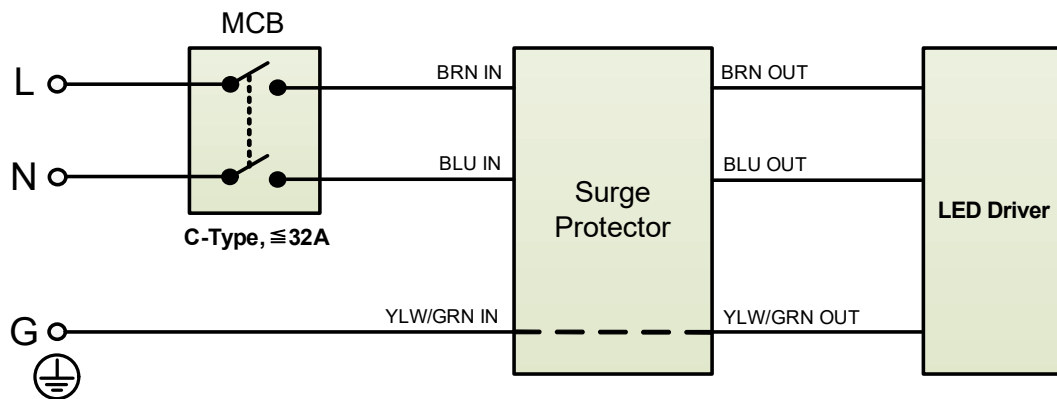


Parallel

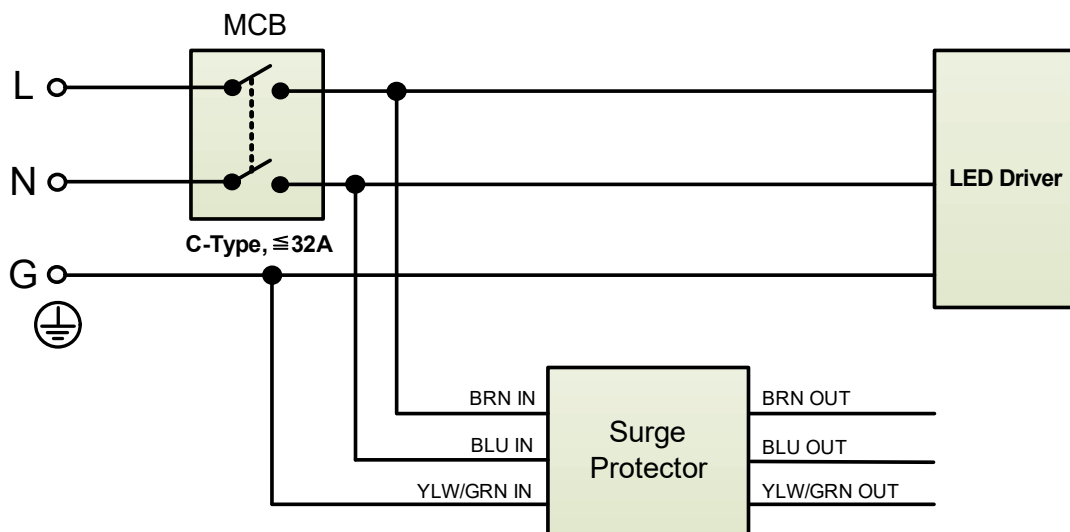


PU-10KD05KBTA/PU-10KD05KBGA

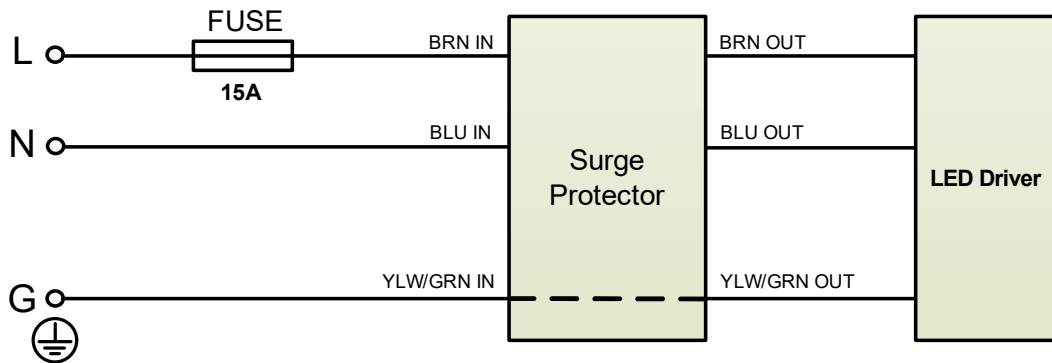
Series



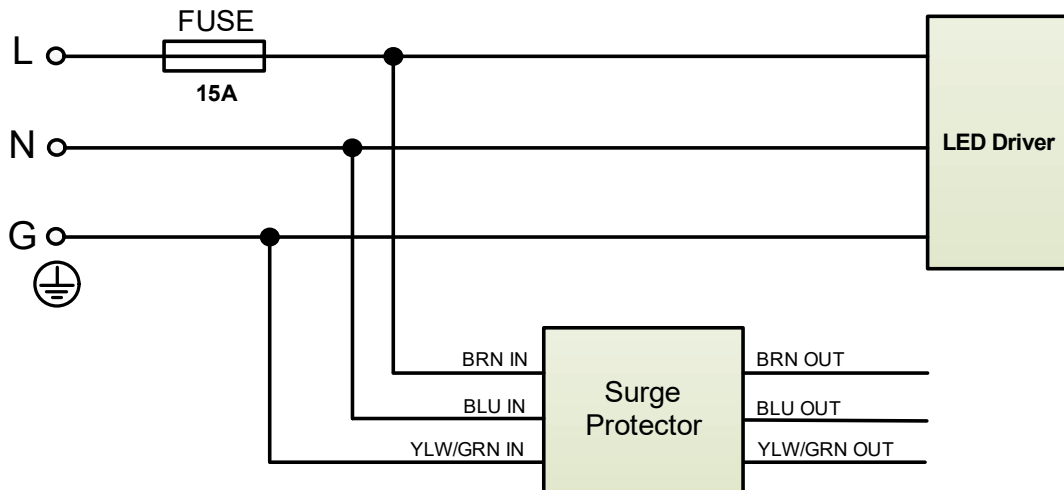
Parallel (backup connection)



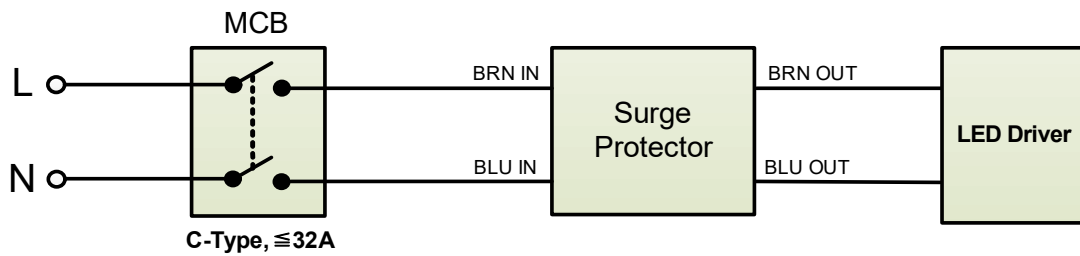
Series



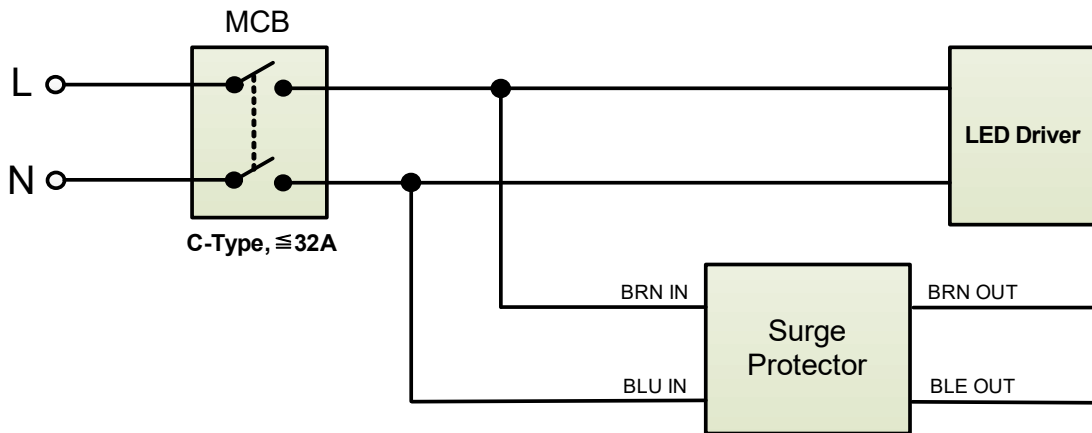
Parallel (backup connection)



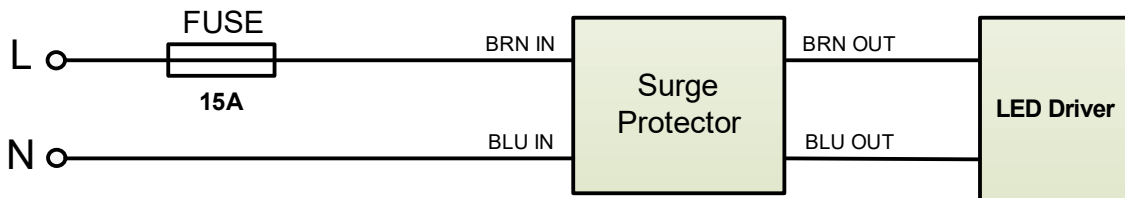
PU-10KD05KBSA Series



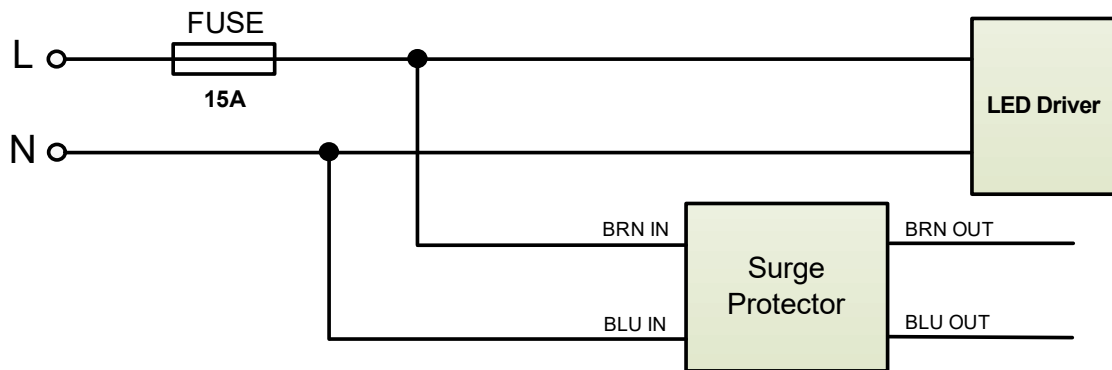
*Parallel (backup connection)*



*Series*



*Parallel (backup connection)*



**Notes:**

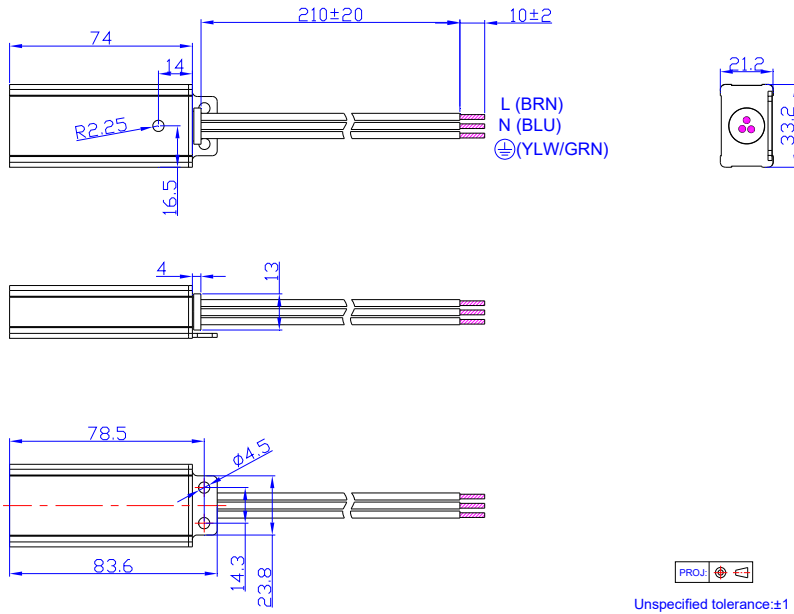
- When the life of the SPD ends, the indicator will be off. Although the LED driver may still work normally, please replace the SPD in time.
- The series model SPD can also be used in parallel, and the connection method can be found in the "Series" model with backup connection method described in "Wiring". To use the series SPD as parallel, the output end of the SPD is suspended, the input side of the SPD is connected in parallel to the input end of the LED driver, the brown wire of the SPD input is connected downstream the MCB or fuse, and the blue line is connected to the neutral line of the grid, such as if there is a yellow/green line, just connect it to the ground line. Please note that if you need to refer to the backup connection scheme for use, the user must ensure that the relevant waterproof and insulation treatment is done at the connection and the suspended space.



## Mechanical Outline

### PU-10KS05KBTA

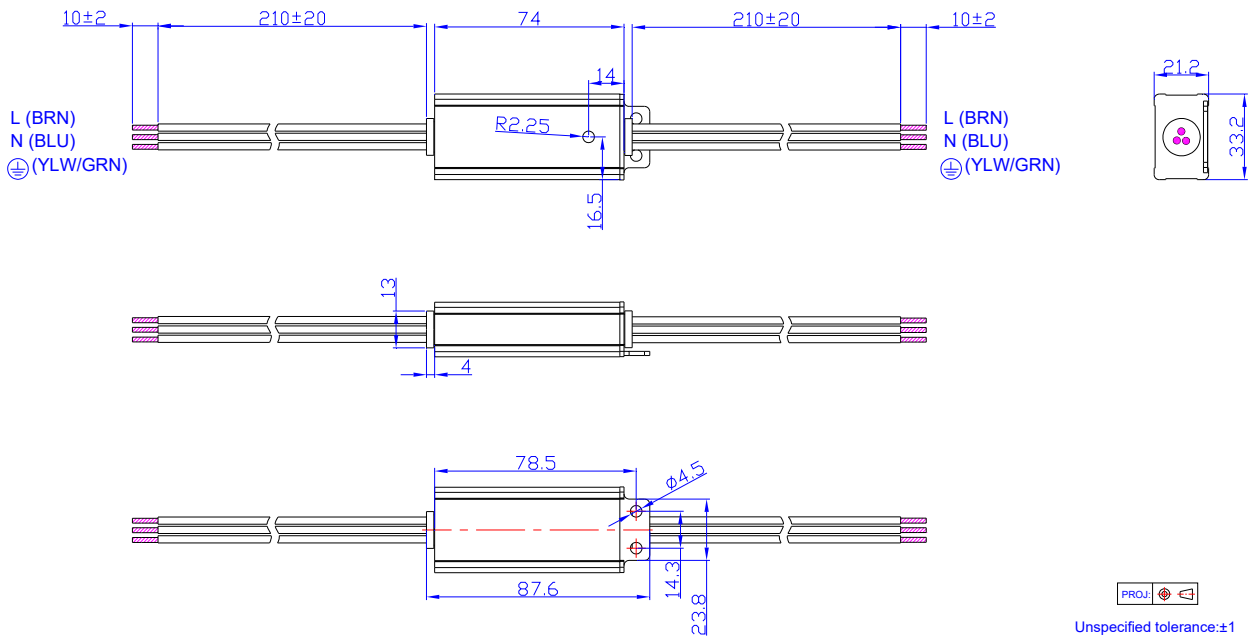
UL 1015 17AWG /3C  $\varnothing$ 3



### PU-10KD05KBTA

INPUT (UL 1015 17AWG/3C  $\varnothing$ 3)

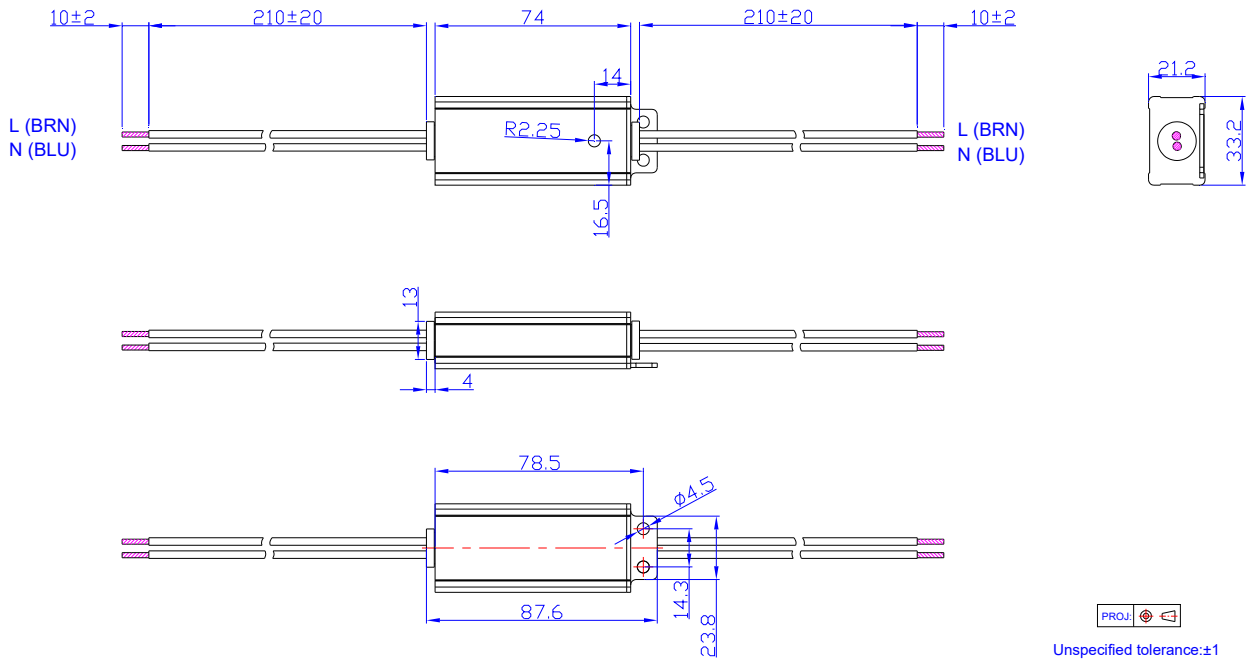
OUTPUT (UL 1015 17AWG/3C  $\varnothing$ 3)



## PU-10KD05KBSA

INPUT (UL 1672 17AWG/2C  $\phi 3$ )

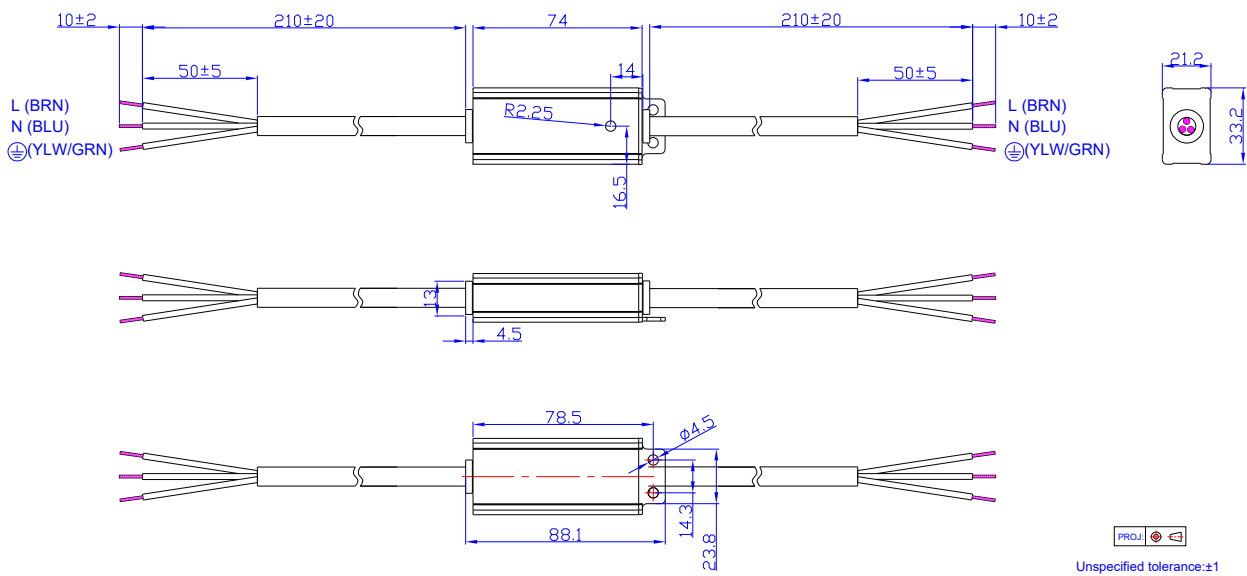
OUTPUT (UL 1672 17AWG/2C  $\phi 3$ )



## PU-10KD05KBGA

INPUT(UL SJOW 17AWG/3C & VDE HO5RN-F 3G1.0mm<sup>2</sup>  $\phi 3$ )

OUTPUT(UL SJOW 17AWG/3C & VDE HO5RN-F 3G1.0mm<sup>2</sup>  $\phi 3$ )



## Revision History

Change Date	Rev.	Description of Change		
		Item	From	To
2023-06-02	A	Datasheet Release	/	/