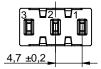
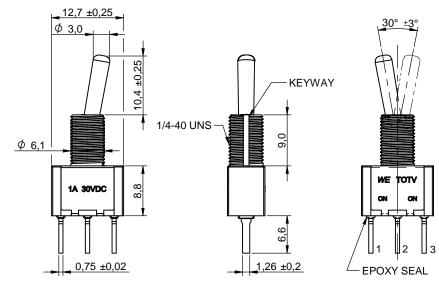
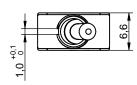
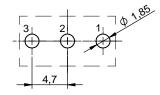
# **Dimensions: [mm]**





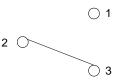






Scale - 2:1

## **Schematic:**

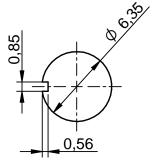




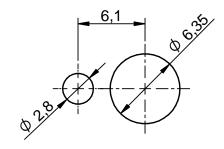
Scale - 1,5:1

RoHS COMPUNIT COMPUNIT		Elin	001.001	2023-01-31	DIN ISO 2768-1m		METHOD ———	<b>-</b>
		WS-TOTV THT 6.35mm panel cut out				1		
WÜRTH ELEKTRONIK	Mary Frath Chr. 1	Round actuator with Threaded keyway bushing Toggle Switch 47212			<b>72121010111</b>			
MORE THAN YOU EXPECT	entrating 16.1 + 49 (0) 79 42 945 - 0 SZE/TYPE  www.we-online.com  12.7x6.6mm			BUSINESS UNIT eiCan	status Valid		PAGE 1/9	

# **Recommended Panel Cutout: [mm]**



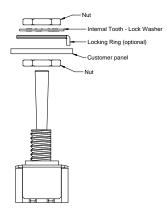
Without locking ring



With locking ring

Scale - 2:1

# **Recommended Assembly Sequence:**



COMPLIANT COMPLIANT	WS-TO	WS-TOTV THT 6.35mm panel cut out				
RoHS REACH	DESCRIPTION	•	•	·		
63 0	Elin	001.001	2023-01-31	DIN ISO 2768-1m	WE THOSE	<del>10</del>
	CHECKED	REVISION	DATE (YYYY-MM-DD)	GENERAL TOLERANCE	PROJECT METHOD	

12.7x6.6mm



EMC & Inductive Solutions Max-Eyth-Str. 1 74638 Waldenburg

Tel. +49 (0) 79 42 945 - 0 www.we-online.com eiSos@we-online.com

keyway bushing Toggle Switch SIZE/TYPE

472121010111 BUSINESS UNIT STATUS

eiCan

Valid

PAGE

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## **Material Properties:**

Actuator Material	Copper Alloy
Actuator Plating	Chrome
Bushing Material	Copper Alloy
Bushing Plating	Nickel
Cover Material	Stainless Steel
Frame Material	DAP
Frame Flammability Rating	UL94 V-0
Frame Color	Red
Spring Material	Carbon Steel
Moveable Contact Material	Copper Alloy
Moveable Contact Plating	Silver
Stationary Contact Material	Copper Alloy
Stationary Contact Plating	Silver
Terminal Material	Copper Alloy
Terminal Plating	Silver

## **Electrical Properties:**

Properties		Test conditions	Value	Unit	Tol.
Rated Current	I <sub>R</sub>		1	Α	
Rated Voltage	V <sub>R</sub>		30	V (DC)	
Contact Resistance Initial	R		30	mΩ	max.
Contact Resistance After Life Test	R		1	Ω	max.
Insulation Resistance	R <sub>ISO</sub>	500 V (DC)	1000	MΩ	min.
Withstanding Voltage		1 min	500	V (AC)	

## **Mechanical Properties:**

Properties	Test conditions	Value	Unit
Electrical Life 1)	1A / 30V(DC)	50000	Steps

## **Mechanical Properties:**

Properties	Test conditions	Value	Unit			
Schematic	SPDT					
Switching Function	ON-ON					
Connection Type	Opposite Side Connection					

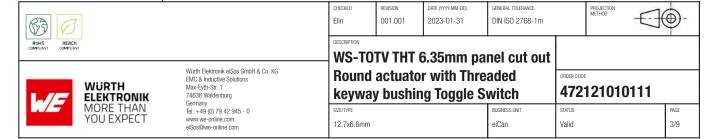
<sup>1)</sup> Step- each movement

## **General Information:**

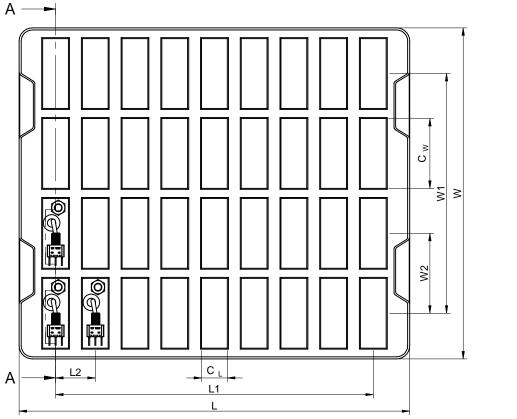
Operating Temperature	-40 up to +85 °C
Storage Conditions (in original packaging)	< 40 °C; < 75 % RH
Moisture Sensitivity Level (MSL)	1

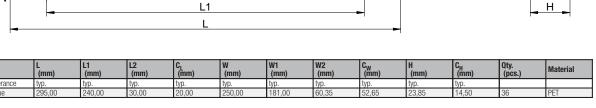
## **Certification:**

RoHS Approval		Compliant [2011/65/EU&2015/863]
RE/	ACh Approval	Conform or declared [(EC)1907/2006]

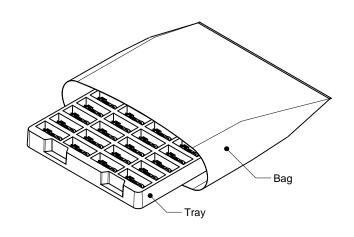


# Packaging Specification - Tray: [mm]

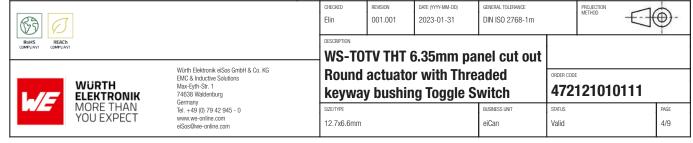




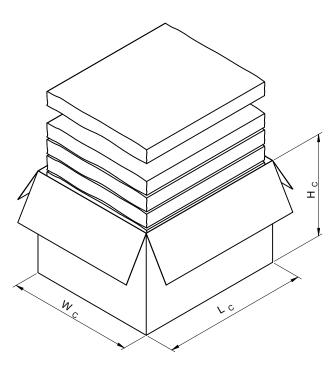
# Packaging Specification - Bag: [mm]



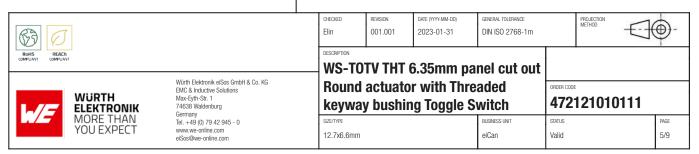
	L <sub>IC</sub> (mm) W <sub>IC</sub> (mm)			No. of Tray (pcs.)	Qty. (pcs.)	Material	
Tolerance	typ.	typ.	typ.				
Value	295	250	30	1	36	PE BAG	



# Packaging Specification - Outer Carton: [mm]



	L <sub>C</sub> (mm)	W <sub>C</sub> (mm)	H <sub>C</sub> (mm)	No. of Bags (pcs.)	Qty. (pcs.)	Material
Tolerance	typ.	typ.	typ.			
Value	315	270	220	6	216	Paner



# **Classification Wave Soldering Profile:**



# **Classification Wave Soldering Profile:**

Profile Feature		Pb-Free Assembly	Sn-Pb Assembly	
Preheat Temperature Min	T <sub>s min</sub>	100 °C	100 °C	
Preheat Temperature Typical	T <sub>s typical</sub>	120 °C	120 °C	
Preheat Temperature Max	T <sub>s max</sub>	130 °C	130 °C	
Preheat Time $t_s$ from $T_{s min}$ to $T_{s max}$	t <sub>s</sub>	70 seconds	70 seconds	
Ramp-up Rate	ΔΤ	150 °C max.	150 °C max.	
Peak Temperature	T <sub>p</sub>	250 °C - 260 °C	235 °C - 260 °C	
Time of actual peak temperature	t <sub>p</sub>	max. 10 seconds max. 5 seconds each wave	max. 10 seconds max. 5 seconds each wave	
Ramp-down Rate, Min		~ 2 K/ second	~ 2 K/ second	
Ramp-down Rate, Typical		~ 3.5 K/ second	~ 3.5 K/ second	
Ramp-down Rate, Max		~ 5 K/ second	~ 5 K/ second	
Time 25 °C to 25 °C		4 minutes	4 minutes	

refer to EN61760-1:2006

		CHECKED	REVISION 001.001	DATE (YYYY-MM-DD) 2023-01-31	GENERAL TOLERANCE DIN ISO 2768-1m		PROJECTION METHOD		<b>)</b> -
ROMS REACH COMPLINT	Würth Elektronik elSos SmbH & Co. KG EMC & Inductive Solutions		WS-TOTV THT 6.35mm panel cut out Round actuator with Threaded						
ELEKTRONIK MORE THAN YOU EXPECT		SIZE/TYPE 12.7x6.6mm	y bushin	g Toggle S	witch BUSINESS UNIT eiCan	STATUS Valid	121010 <sup>-</sup>		PAGE 6/9

## **Cautions and Warnings:**

# The following conditions apply to all goods within the product series of WS-TOTV of Würth Elektronik eiSos GmbH & Co. KG:

#### General:

- This mechanical component is designed and manufactured for use in general electronic equipment.
- Würth Elektronik must be asked for written approval (following the PPAP procedure) before incorporating the components into any
  equipment in fields such as military, aerospace, aviation, nuclear control, submarine, transportation (automotive control, train control,
  ship control), transportation signal, disaster prevention, medical, public information network, etc. where higher safety and reliability are
  especially required and/or if there is the possibility of direct damage or human injury.
- Mechanical components that will be used in safety-critical or high-reliability applications, should be pre-evaluated by the customer.
- The component is designed and manufactured to be used within the datasheet specified values. If the usage and operation conditions
  specified in the datasheet are not met, the component may be damaged or dissolved.
- Do not drop or impact the components, the component may flake apart.
- Prevent any damage or scratches on the switch, especially on the actuator.
- Würth Elektronik products are qualified according to international standards, which are listed in each product reliability report. Würth
  Elektronik does not warrant any customer qualified product characteristics beyond Würth Elektroniks' specifications, for its validity and
  sustainability over time.
- The responsibility for the applicability of the customer specific products and use in a particular customer design is always within the
  authority of the customer. All technical specifications for standard products also apply to customer specific products.

## **Product Specific:**

#### Soldering

- The solder profile must comply with the technical product specifications. All other profiles will void the warranty.
- Hand soldering max. 350°C for 5 sec max...
- All other soldering methods are at the customers' own risk.
- Please keep our switch at delivery original position before and during the soldering process.
- Design the right angle part with consideration of the wave soldering process so that the parts will not touch the soldering wave during
  the soldering process or protect the switch part with cover fixture. Melting of the switch might cause malfunction.

## **Cleaning and Washing:**

• If a series is washable, the general information section in the datasheet will contain the washability guidelines. Should there be no information regarding washability, the product has not been constructed to withstand a washing process. Washing agents used during the production to clean the customer application might damage or change the characteristics of the component, body, pins and/or termination. Washing agents may have a negative effect on the long-term functionality of the product.

If the parts are washable, hermetic:

- Cleaning agents that are used to clean the customer applications may damage or change the characteristics of the component, body, pins and termination.
- Please do not immerse any washable products into water or cleaning agents or put them in locations exposed to water completely.
- Do not clean washable series immediately after soldering. The cleaning agent may be absorbed into the switch through respiration while
  the switch cools.
- Please do not press actuator or change status /position during the cleaning and washing process.
- Using a brush during the cleaning process may deform function relevant areas. Therefore, we do not recommend using a brush during
  the PCB cleaning process.

If the parts are not washable:

- Parts are not constructed for washing. Washing may cause malfunctions.
- When cleaning by hand (brushing), to avoid malfunction, do not use excessive force on switch. Excessive force can deform function relevant areas.

## **Potting and Coating:**

If the product is potted in the customer application, the potting material may shrink or expand during and after hardening. Shrinking
could lead to an incomplete seal, allowing contaminants into the body, pins or termination. Expansion could damage the components.

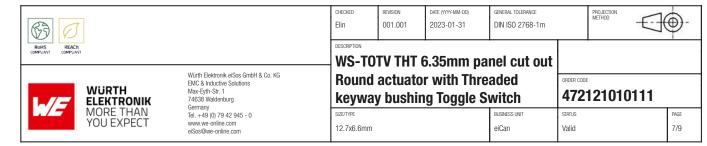
We recommend a manual inspection after potting or coating to avoid these effects

## **Storage Conditions:**

- A storage of Würth Elektronik products for longer than 12 months is not recommended. Within other effects, the terminals may suffer
  degradation, resulting in bad solderability. Therefore, all products shall be used within the period of 12 months based on the day of
  shipment.
- Do not expose the components into direct sunlight.
- The storage conditions in the original packaging are defined according to DIN EN 61760-2.
- For a moisture sensitive component, the storage condition in the original packaging is defined according to IPC/JEDEC-J-STD-033. It is
  also recommended to return the component to the original moisture proof bag and reseal the moisture proof bag again.
- The storage conditions stated in the original packaging apply to the storage time and not to the transportation time of the components.

## Packaging:

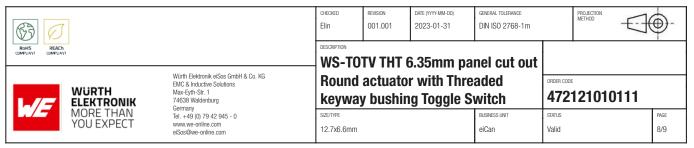
 The packaging specifications apply only to purchase orders comprising whole packaging units. If the ordered quantity exceeds or is lower than the specified packaging unit, packaging in accordance with the packaging specifications cannot be ensured.



## **Handling:**

Please refer to the pre-caution guide: https://www.we-online.de/precaution\_toggleswitch

These cautions and warnings comply with the state of the scientific and technical knowledge and are believed to be accurate and reliable. However, no responsibility is assumed for inaccuracies or incompleteness.



## **Important Notes**

# The following conditions apply to all goods within the product range of Würth Elektronik eiSos GmbH & Co. KG:

## 1. General Customer Responsibility

Some goods within the product range of Würth Elektronik eiSos GmbH & Co. KG contain statements regarding general suitability for certain application areas. These statements about suitability are based on our knowledge and experience of typical requirements concerning the areas, serve as general guidance and cannot be estimated as binding statements about the suitability for a customer application. The responsibility for the applicability and use in a particular customer design is always solely within the authority of the customer. Due to this fact it is up to the customer to evaluate, where appropriate to investigate and decide whether the device with the specific product characteristics described in the product specification is valid and suitable for the respective customer application or not.

## 2. Customer Responsibility related to Specific, in particular Safety-Relevant Applications

It has to be clearly pointed out that the possibility of a malfunction of electronic components or failure before the end of the usual lifetime cannot be completely eliminated in the current state of the art, even if the products are operated within the range of the specifications. In certain customer applications requiring a very high level of safety and especially in customer applications in which the malfunction or failure of an electronic component could endanger human life or health it must be ensured by most advanced technological aid of suitable design of the customer application that no injury or damage is caused to third parties in the event of malfunction or failure of an electronic component. Therefore, customer is cautioned to verify that data sheets are current before placing orders. The current data sheets can be downloaded at www.we-online.com.

#### 3. Best Care and Attention

Any product-specific notes, cautions and warnings must be strictly observed. Any disregard will result in the loss of warranty.

#### 4. Customer Support for Product Specifications

Some products within the product range may contain substances which are subject to restrictions in certain jurisdictions in order to serve specific technical requirements. Necessary information is available on request. In this case the field sales engineer or the internal sales person in charge should be contacted who will be happy to support in this matter.

#### 5. Product R&D

Due to constant product improvement product specifications may change from time to time. As a standard reporting procedure of the Product Change Notification (PCN) according to the JEDEC-Standard inform about minor and major changes. In case of further queries regarding the PCN, the field sales engineer or the internal sales person in charge should be contacted. The basic responsibility of the customer as per Section 1 and 2 remains unaffected.

## 6. Product Life Cycle

Due to technical progress and economical evaluation we also reserve the right to discontinue production and delivery of products. As a standard reporting procedure of the Product Termination Notification (PTN) according to the JEDEC-Standard we will inform at an early stage about inevitable product discontinuance. According to this we cannot guarantee that all products within our product range will always be available. Therefore it needs to be verified with the field sales engineer or the internal sales person in charge about the current product availability expectancy before or when the product for application design-in disposal is considered. The approach named above does not apply in the case of individual agreements deviating from the foregoing for customer-specific products.

## 7. Property Rights

All the rights for contractual products produced by Würth Elektronik eiSos GmbH & Co. KG on the basis of ideas, development contracts as well as models or templates that are subject to copyright, patent or commercial protection supplied to the customer will remain with Würth Elektronik eiSos GmbH & Co. KG does not warrant or represent that any license, either expressed or implied, is granted under any patent right, copyright, mask work right, or other intellectual property right relating to any combination, application, or process in which Würth Elektronik eiSos GmbH & Co. KG components or services are used.

#### 8. General Terms and Conditions

Unless otherwise agreed in individual contracts, all orders are subject to the current version of the "General Terms and Conditions of Würth Elektronik eiSos Group", last version available at www.we-online.com.

