

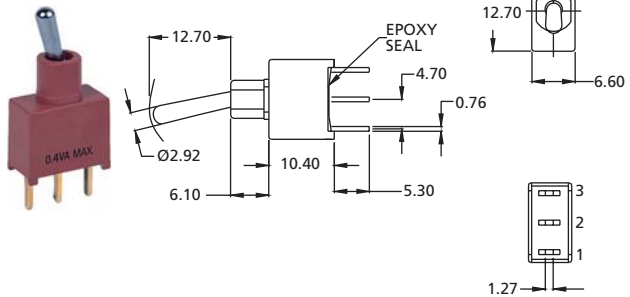
# Toggle Switches

## Sealed Miniature SPDT Toggle Switches

## TK21 Series

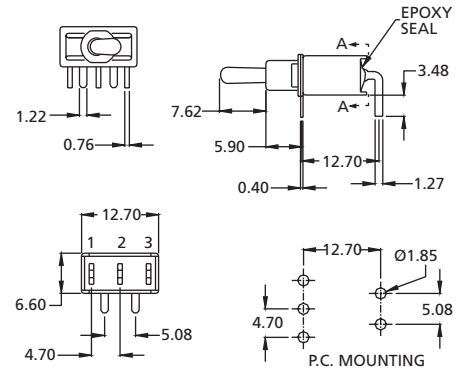
Toggle Switches

UL version available by request



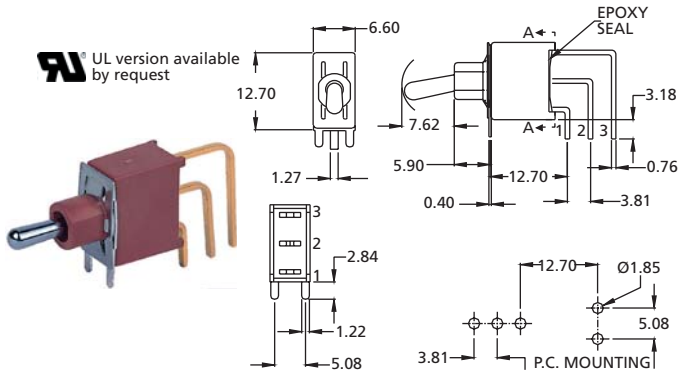
**TK21S1A1B4T2\_E THT Straight**

UL version available by request



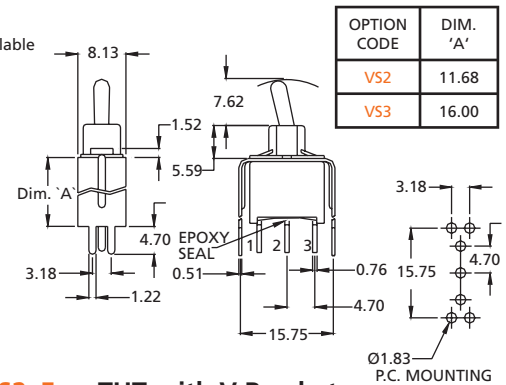
**TK21S1A2B4T6\_E THT Right Angle**

UL version available by request



**TK21S1A2B4T7\_E THT Vertical Right Angle**

UL version available by request



**TK21S1A2B4VS2\_E THT with V-Bracket**

No. Poles	Model No.	Switch Function			Connected Terminals / Schematic		
		Position 1	Position 2	Position 3	Position 1	Position 2	Position 3
SP	TK21S1	ON	NONE	ON	2-3	N/A	2-1
SP	TK21S2	ON	NONE	MOM			
SP	TK21S3	ON	OFF	ON	1-3 2(COMM)	OPEN	1-3 2(COMM)
SP	TK21S4	MOM	OFF	MOM			
SP	TK21S5	ON	OFF	MOM			

### How to order:

TK21 1 2 3 4 5 6 7

- 1 POLES & SWITCH FUNCTION:**  
**S1** SP ON-NONE-ON  
**S2** SP ON-NONE-MOM  
**S3** SP ON-OFF-ON  
**S4** SP MOM-OFF-MOM  
**S5** SP ON-OFF-MOM
- 2 ACTUATOR (Details see page A08):**  
**A1** Height=12.70 mm  
**A2** Height=7.62 mm  
**AA** Height=12.70 mm, plastic, anti-static, black  
**AB** Height=7.62 mm, plastic, anti-static, black  
**AC** Height=12.70 mm, plastic, anti-static, silver
- 3 BUSHING (Details see page A08):**  
**B1** Height = 8.80 mm  
**B4** Height = 6.10 mm
- 4 TERMINALS (Details see page A08):**  
**T1** Solder Lug  
**T2** PC Thru Hole  
**T51** Wire Wrap, Height = 18.70 mm  
**T52** Wire Wrap, Height = 24.20 mm

- T53** Wire Wrap, Height = 10.55 mm  
**T54** Wire Wrap, Height = 26.97 mm  
**T6** PC Thru Hole, Right Angle  
**T6N** PC Thru Hole, Right Angle, Snap-in  
**T7** PC Thru Hole, Vertical Right Angle  
**VS2** V-Bracket, Height = 11.68 mm  
**V2N** Snap-in V-Bracket, Height = 11.68 mm  
**VS3** V-Bracket, Height = 16.00 mm
- 5 CONTACT MATERIAL:**  
**AG** Silver  
**AU** Gold  
**UT** Gold, Tin-lead  
**GT** Silver, Tin-lead  
**UG** Gold over Silver  
**UGT** Gold over Silver, Tin-lead
- 6 EPOXY:**  
**E** Epoxy (Standard)
- 7 ROHS & LEADFREE:**  
**blank** RoHS compliant (Standard)  
**V** RoHS compliant & Leadfree

### General Specifications:

#### MATERIALS

- » Movable Contact & Fixed Terminals:
- AG, GT, UG & UGT:** Silver plated over copper alloy
- AU & UT:** Gold over nickel plated over copper alloy

#### MECHANICAL

- » Operating Temperature: -30°C to +85°C
- » Mechanical Life: 30,000 cycles
- » Degree of Protection: IP67

#### CONTACT RATING

- » **AG, GT, UG & UGT:** 5A120VAC/28VDC  
2A250VAC
- » **AU & UT:** 0.4VA max. 20V max. (AC/DC)

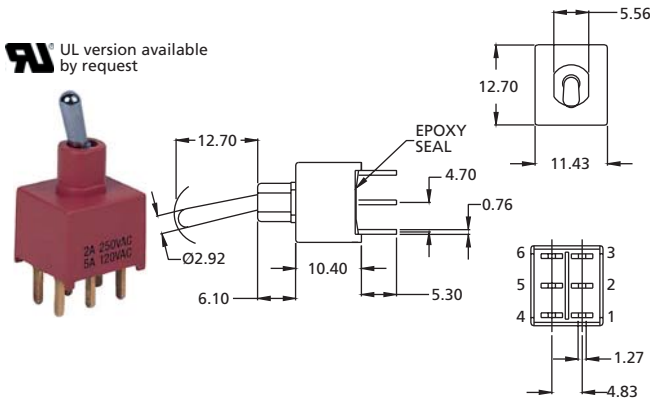
#### ELECTRICAL

- » Contact Resistance: 10mΩ max. initial @ 2-4VDC  
100mA for silver & gold plated contacts
- » Insulation Resistance: 1,000MΩ min.

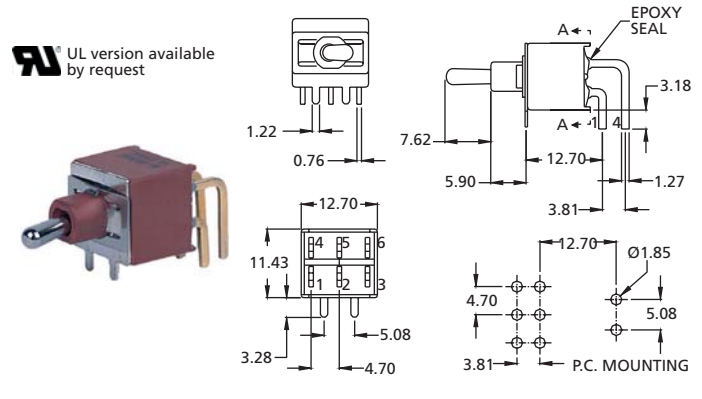
# Toggle Switches

## Sealed Miniature DPDT Toggle Switches

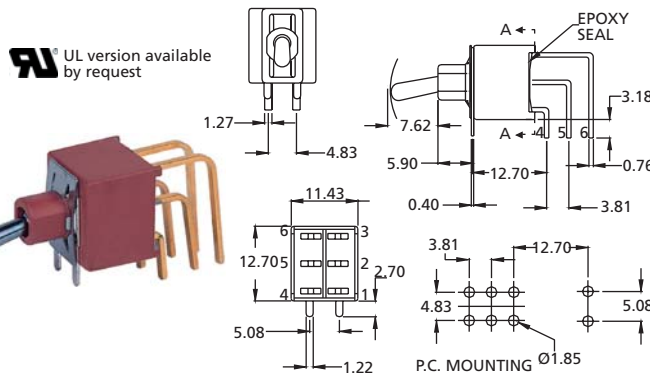
## TK22 Series



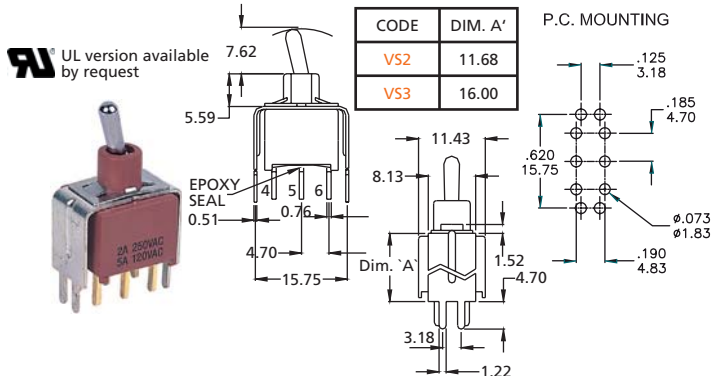
**TK22D1A1B4T2\_E THT Straight**



**TK22D1A2B4T6\_E THT Right Angle**



**TK22D1A2B4T7\_E THT Vertical Right Angle**



**TK22D1A2B4VS2\_E THT with V-Bracket**

No. Poles	Model No.	Switch Function			Connected Terminals / Schematic		
		Position 1	Position 2	Position 3	Position 1	Position 2	Position 3
DP	TK22D1	ON	NONE	ON	2-3, 5-6	N/A	2-1, 5-4
DP	TK22D2	ON	NONE	MOM		N/A	
DP	TK22D3	ON	OFF	ON			
DP	TK22D4	MOM	OFF	MOM	OPEN	N/A	
DP	TK22D5	ON	OFF	MOM			

No. Poles	Model No.	Switch Function			Connected Terminals / Schematic		
		Position 1	Position 2	Position 3	Position 1	Position 2	Position 3
DP	TK22D6	ON	ON	ON	2-3, 5-6	2-3, 5-4	2-1, 5-4
DP	TK22D7	MOM	ON	MOM			
DP	TK22D8	ON	ON	MOM			

### How to order:



#### 1 POLES & SWITCH FUNCTION:

- D1 DP ON-NONE-ON
- D2 DP ON-NONE-MOM
- D3 DP ON-OFF-ON
- D4 DP MOM-OFF-MOM
- D5 DP ON-OFF-MOM
- D6 DP ON-ON-ON
- D7 DP MOM-ON-MOM
- D8 DP ON-ON-MOM

#### 2 ACTUATOR (Details see page A08):

- A1 Height=12.70 mm
- A2 Height=7.62 mm
- AA Height=12.70 mm, plastic, anti-static, black
- AB Height=7.62 mm, plastic, anti-static, black
- AC Height=12.70 mm, plastic, anti-static, silver

#### 3 BUSHING (Details see page A08):

- B1 Height = 8.80 mm
- B4 Height = 6.10 mm

#### 4 TERMINALS (Details see page A08):

- T1 Solder Lug
- T2 PC Thru Hole

- T51 Wire Wrap, Height = 18.70 mm
- T52 Wire Wrap, Height = 24.20 mm
- T53 Wire Wrap, Height = 10.55 mm
- T54 Wire Wrap, Height = 26.97 mm
- T6 PC Thru Hole, Right Angle
- T6N PC Thru Hole, Right Angle, Snap-in
- T7 PC Thru Hole, Vertical Right Angle
- VS2 V-Bracket, Height = 11.68 mm
- V2N Snap-in V-Bracket, Height = 11.68 mm
- VS3 V-Bracket, Height = 16.00 mm

#### 5 CONTACT MATERIAL:

- AG Silver
- AU Gold
- UT Gold, Tin-lead
- GT Silver, Tin-lead
- UG Gold over Silver
- UGT Gold over Silver, Tin-lead

#### 6 EPOXY:

- E Epoxy (Standard)

#### 7 ROHS & LEADFREE:

- blank RoHS compliant (Standard)
- V RoHS compliant & Leadfree

### General Specifications:

#### MATERIALS

» Movable Contact & Fixed Terminals:

AG, GT, UG & UGT: Silver plated over copper alloy

AU & UT: Gold over nickel plated over copper alloy

#### MECHANICAL

» Operating Temperature: -30°C to +85°C

» Mechanical Life: 30,000 cycles

» Degree of Protection: IP67

#### CONTACT RATING

» AG, GT, UG & UGT: 5A120VAC/28VDC

2A250VAC

» AU & UT: 0.4VA max. 20V max. (AC/DC)

#### ELECTRICAL

» Contact Resistance: 10mΩ max. initial @ 2-4VDC

100mA for silver & gold plated contacts

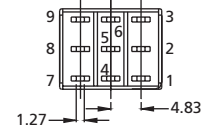
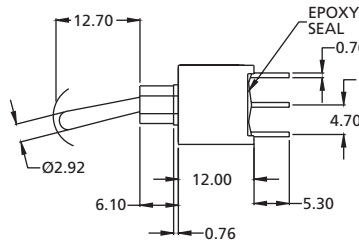
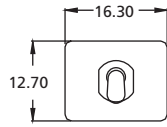
» Insulation Resistance: 1,000MΩ min.

# Toggle Switches

## Sealed Miniature 3PDT Toggle Switches

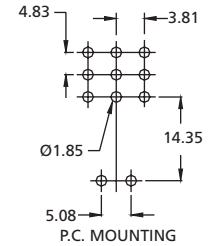
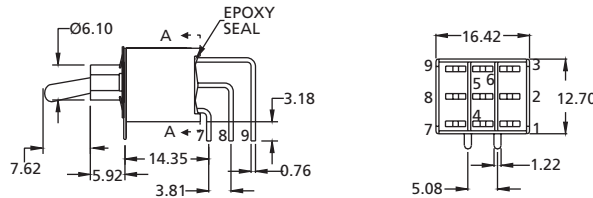
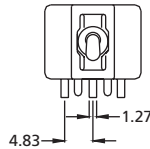
## TK23 Series

UL version available by request



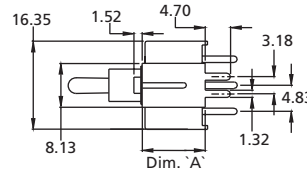
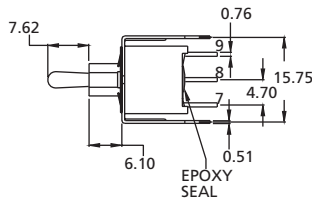
**TK23T1A1B4T2\_E** THT Straight

UL version available by request

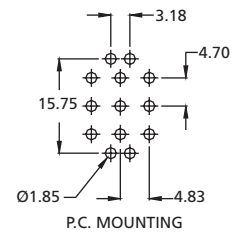


**TK23T1A2B4T7\_E** THT Vertical Right Angle

UL version available by request



CODE	DIM. A'
VS2	11.68
VS3	16.00



**TK23T1A2B4VS2\_E** THT with V-Bracket

No. Poles	Model No.	Switch Function			Connected Terminals / Schematic		
		Position 1	Position 2	Position 3	Position 1	Position 2	Position 3
3P	TK23T1	ON	NONE	ON	2-3	N/A	2-1
3P	TK23T2	ON	NONE	MOM			
3P	TK23T3	ON	OFF	ON		OPEN	
3P	TK23T4	MOM	OFF	MOM			
3P	TK23T5	ON	OFF	MOM			

### How to order:

TK23 1 2 3 4 5 6 7

- 1 POLES & SWITCH FUNCTION:**  
**T1** 3P ON-NONE-ON  
**T2** 3P ON-NONE-MOM  
**T3** 3P ON-OFF-ON  
**T4** 3P MOM-OFF-MOM  
**T5** 3P ON-OFF-MOM

- 2 ACTUATOR (Details see page A08):**  
**A1** Height=12.70 mm  
**A2** Height=7.62 mm  
**AA** Height=12.70 mm, plastic, anti-static, black  
**AB** Height=7.62 mm, plastic, anti-static, black  
**AC** Height=12.70 mm, plastic, anti-static, silver

- 3 BUSHING (Details see page A08):**  
**B1** Height = 8.80 mm  
**B4** Height = 6.10 mm

- 4 TERMINALS (Details see page A08):**  
**T1** Solder Lug  
**T2** PC Thru Hole  
**T51** Wire Wrap, Height = 18.70 mm  
**T52** Wire Wrap, Height = 24.20 mm

- T53** Wire Wrap, Height = 10.55 mm  
**T54** Wire Wrap, Height = 26.97 mm  
**T6** PC Thru Hole, Right Angle  
**T6N** PC Thru Hole, Right Angle, Snap-in  
**T7** PC Thru Hole, Vertical Right Angle  
**VS2** V-Bracket, Height = 11.68 mm  
**V2N** Snap-in V-Bracket, Height = 11.68 mm  
**VS3** V-Bracket, Height = 16.00 mm

- 5 CONTACT MATERIAL:**  
**AG** Silver  
**AU** Gold  
**UT** Gold, Tin-lead  
**GT** Silver, Tin-lead  
**UG** Gold over Silver  
**UGT** Gold over Silver, Tin-lead

- 6 EPOXY:**  
**E** Epoxy (Standard)

- 7 ROHS & LEADFREE:**  
**blank** RoHS compliant (Standard)  
**V** RoHS compliant & Leadfree

### General Specifications:

#### MATERIALS

» Movable Contact & Fixed Terminals:

**AG, GT, UG & UGT:** Silver plated over copper alloy

**AU & UT:** Gold over nickel plated over copper alloy

#### MECHANICAL

» Operating Temperature: -30°C to +85°C

» Mechanical Life: 30,000 cycles

» Degree of Protection: IP67

#### CONTACT RATING

» **AG, GT, UG & UGT:** 5A120VAC/28VDC  
2A250VAC

» **AU & UT:** 0.4VA max. 20V max. (AC/DC)

#### ELECTRICAL

» Contact Resistance: 10mΩ max. initial @ 2-4VDC

100mA for silver & gold plated contacts

» Insulation Resistance: 1,000MΩ min.

# Toggle Switches

## Additional Informations for TK21, 22 & 23 Series

### ACTUATOR OPTIONS

<b>A1</b> Standard when order with T1 & T2 Terminations	<b>A2</b> Standard with T6, T7, VS2 & VS3 Terminations	<b>AA</b> ESD Plastic Actuator	<b>AB</b> ESD Plastic Actuator

### BUSHING OPTIONS

<b>B1</b> Standard for T1 termination	<b>B4</b> Standard for T2, T6, T7 & VS Terminations

### TERMINAL OPTIONS

				<table border="1"> <thead> <tr> <th>CODE</th> <th>DIM. 'A'</th> </tr> </thead> <tbody> <tr> <td>T51</td> <td>18.70</td> </tr> <tr> <td>T52</td> <td>24.20</td> </tr> <tr> <td>T53</td> <td>10.55</td> </tr> <tr> <td>T54</td> <td>26.97</td> </tr> </tbody> </table>	CODE	DIM. 'A'	T51	18.70	T52	24.20	T53	10.55	T54	26.97
CODE	DIM. 'A'													
T51	18.70													
T52	24.20													
T53	10.55													
T54	26.97													
<b>T1</b> Solder Lug	<b>T2</b> THT	<b>T3</b> Quick Connect	<b>T5</b> Wire Wrap											

<b>T6N</b>	<b>T7N</b>	<b>V2N</b>

### HARDWARE

<b>NUT</b>	<b>LOCKING RING</b>	<b>LOCK WASHER</b>