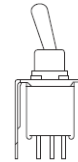
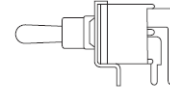




# Series 033TB

## Sealed Sub-Miniature Toggle Switches

- Standard through hole terminal configurations
- Compatible with wave soldering and manual soldering
- IP67 Protection
- Excellent operation feels
- UL & cUL certificate
- Lead free and RoHS compliant



### Description

Sealed switches with perfect performance for soldering and cleaning processes. Excellent operation feedback provides the user with simple and intuitive operation. The robust internal structure ensures long product life to meet various application requirements like Instrument, Telecommunications & Medicals.

### Ordering Information

Series	Terminal Type	Switch Function	Actuator	Termination	Contact Material	Support Bracket																																																		
033TB	S	SA	S	C	S	1																																																		
<table><tr><th>Code</th><th>Terminal type</th></tr><tr><td>S</td><td>Straight</td></tr><tr><td>H</td><td>Horizon right angle</td></tr><tr><td>V</td><td>Vertical right angle</td></tr></table>		Code	Terminal type	S	Straight	H	Horizon right angle	V	Vertical right angle	<table><tr><th>Code</th><th>Actuator</th></tr><tr><td>S</td><td>Std. 10.16</td></tr><tr><td>T</td><td>Std. 6.10</td></tr><tr><td>K</td><td>8.13</td></tr><tr><td>L</td><td>13.97</td></tr><tr><td>N</td><td>3.50</td></tr></table>		Code	Actuator	S	Std. 10.16	T	Std. 6.10	K	8.13	L	13.97	N	3.50	<table><tr><th>Code</th><th>Termination</th></tr><tr><td>Blank</td><td>Right angle</td></tr><tr><td>C</td><td>(std) P.C</td></tr></table>	Code	Termination	Blank	Right angle	C	(std) P.C	<table><tr><th>Code</th><th>Contact Material</th></tr><tr><td>S</td><td>Silver plated</td></tr><tr><td>B</td><td>Gold plated</td></tr><tr><td>G</td><td>Gold over silver</td></tr><tr><td>T</td><td>Gold / Tin</td></tr></table>	Code	Contact Material	S	Silver plated	B	Gold plated	G	Gold over silver	T	Gold / Tin	<table><tr><th>Code</th><th>Support bracket (S terminal type)</th></tr><tr><td>Blank</td><td>None</td></tr><tr><td>1</td><td>Straight type</td></tr><tr><td>2</td><td>(std.) snap-in type</td></tr><tr><th>Code</th><th>Support bracket (H and V terminal type)</th></tr><tr><td>3</td><td>(std.) snap-in type</td></tr><tr><td>Blank</td><td>Straight type</td></tr></table>	Code	Support bracket (S terminal type)	Blank	None	1	Straight type	2	(std.) snap-in type	Code	Support bracket (H and V terminal type)	3	(std.) snap-in type	Blank	Straight type
Code	Terminal type																																																							
S	Straight																																																							
H	Horizon right angle																																																							
V	Vertical right angle																																																							
Code	Actuator																																																							
S	Std. 10.16																																																							
T	Std. 6.10																																																							
K	8.13																																																							
L	13.97																																																							
N	3.50																																																							
Code	Termination																																																							
Blank	Right angle																																																							
C	(std) P.C																																																							
Code	Contact Material																																																							
S	Silver plated																																																							
B	Gold plated																																																							
G	Gold over silver																																																							
T	Gold / Tin																																																							
Code	Support bracket (S terminal type)																																																							
Blank	None																																																							
1	Straight type																																																							
2	(std.) snap-in type																																																							
Code	Support bracket (H and V terminal type)																																																							
3	(std.) snap-in type																																																							
Blank	Straight type																																																							
<table><tr><th>Code</th><th>Switch function</th></tr><tr><td>SA</td><td>SP on-none-on</td></tr><tr><td>SB</td><td>SP on-none-(on)</td></tr><tr><td>SC</td><td>SP on-off-on</td></tr><tr><td>SD*</td><td>SP (on)-off-(on)</td></tr><tr><td>SE*</td><td>SP on-off-(on)</td></tr><tr><td>DA</td><td>DP on-none-on</td></tr><tr><td>DB</td><td>DP on-none-(on)</td></tr><tr><td>DC</td><td>DP on-off-on</td></tr><tr><td>DD*</td><td>DP (on)-off-(on)</td></tr><tr><td>DE*</td><td>DP on-off-(on)</td></tr></table>		Code	Switch function	SA	SP on-none-on	SB	SP on-none-(on)	SC	SP on-off-on	SD*	SP (on)-off-(on)	SE*	SP on-off-(on)	DA	DP on-none-on	DB	DP on-none-(on)	DC	DP on-off-on	DD*	DP (on)-off-(on)	DE*	DP on-off-(on)	<table><tr><th>Code</th><th>ESD Protection Actuator</th></tr><tr><td>A</td><td>10.16(black)</td></tr><tr><td>B</td><td>10.16(white)</td></tr><tr><td>C</td><td>6.10(std - black)</td></tr><tr><td>D</td><td>6.10(white)</td></tr></table>		Code	ESD Protection Actuator	A	10.16(black)	B	10.16(white)	C	6.10(std - black)	D	6.10(white)																					
Code	Switch function																																																							
SA	SP on-none-on																																																							
SB	SP on-none-(on)																																																							
SC	SP on-off-on																																																							
SD*	SP (on)-off-(on)																																																							
SE*	SP on-off-(on)																																																							
DA	DP on-none-on																																																							
DB	DP on-none-(on)																																																							
DC	DP on-off-on																																																							
DD*	DP (on)-off-(on)																																																							
DE*	DP on-off-(on)																																																							
Code	ESD Protection Actuator																																																							
A	10.16(black)																																																							
B	10.16(white)																																																							
C	6.10(std - black)																																																							
D	6.10(white)																																																							

\* Not all performance combinations for switch function SD, SE, DD, and DE may be available.  
Contact local CTS Representative or CTS Customer Service for availability.

### Electrical Specifications

Parameter	Conditions & Remarks	Min	Max	Unit
Contact Resistance			20	m-ohms
Insulation Resistance	Between insulated terminals	1000		M-ohms
Dielectric Strength	1500 VAC between adjacent switches	1		minute
Rating current (Detail refers to Contact Material Options)	120VAC 250VAC 28VDC	3 1.5 3		A

### Mechanical and Environmental

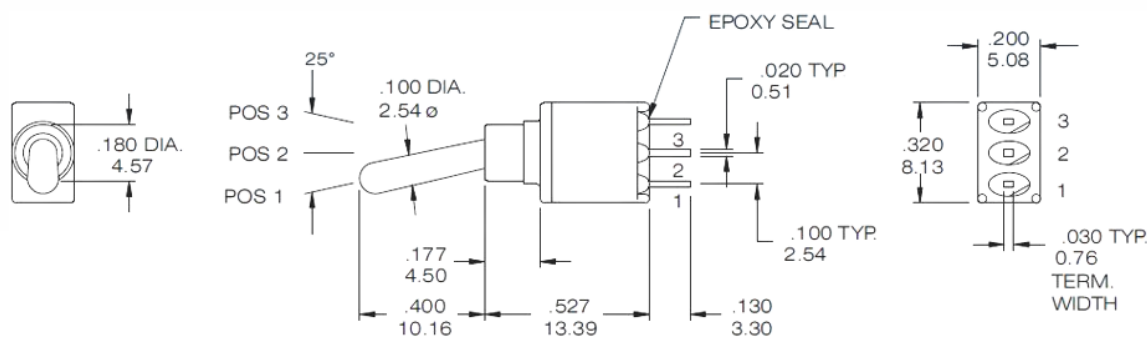
Soldering	Through hole type: Soldering temperature, 260°C for 5 seconds Maximum manual temperature, 350°C for 3 seconds Frequency of solder process: 2 times Max.
RoHS	Lead-Free. Fully compliant to RoHS Directive 2011/65/EU and 2015/863/EU
Operating Force	10N max (applied in operation direction)
Actuation Life	30,000 cycles
Operating Temperature	-30°C to +85°C
Storage Temperature	-30°C to +85°C

### Mechanical Specifications

Figure 1 – 033TBSSASCB



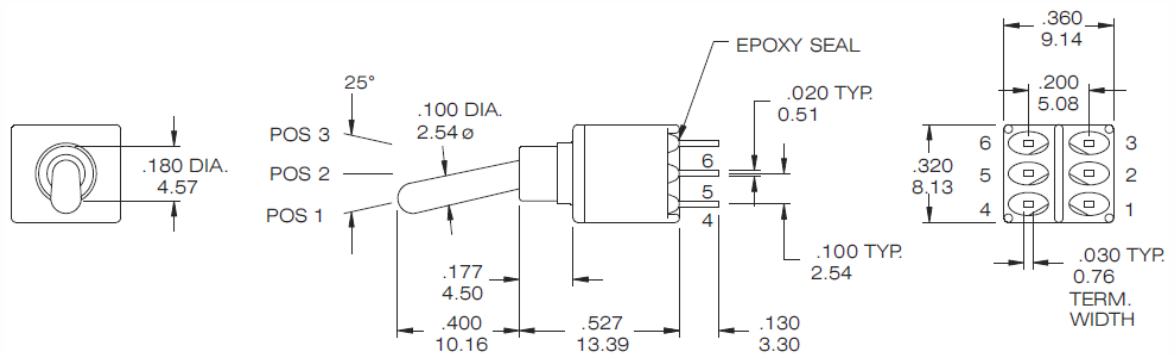
Name	Switch position		
033TBSSA	ON	none	ON
033TBSSB	ON	none	(ON)
033TBSSC	ON	OFF	ON
033TBSSD	(ON)	OFF	(ON)
033TBSSE	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1



### Figure 2 – 033TBSDASCB



Name	Switch position		
033TBSDA	ON	none	ON
033TBSDB	ON	none	(ON)
033TBSDC	ON	OFF	ON
033TBSDD	(ON)	OFF	(ON)
033TBSE	ON	OFF	(ON)
Term. Comm.	2-3, 5-6	open	2-1, 5-4



### Figure 3 – 033TBHSATB3



Name	Switch position		
033TBHSA	ON	none	ON
033TBHSB	ON	none	(ON)
033TBHSC	ON	OFF	ON
033TBHSD	(ON)	OFF	(ON)
033TBHSE	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

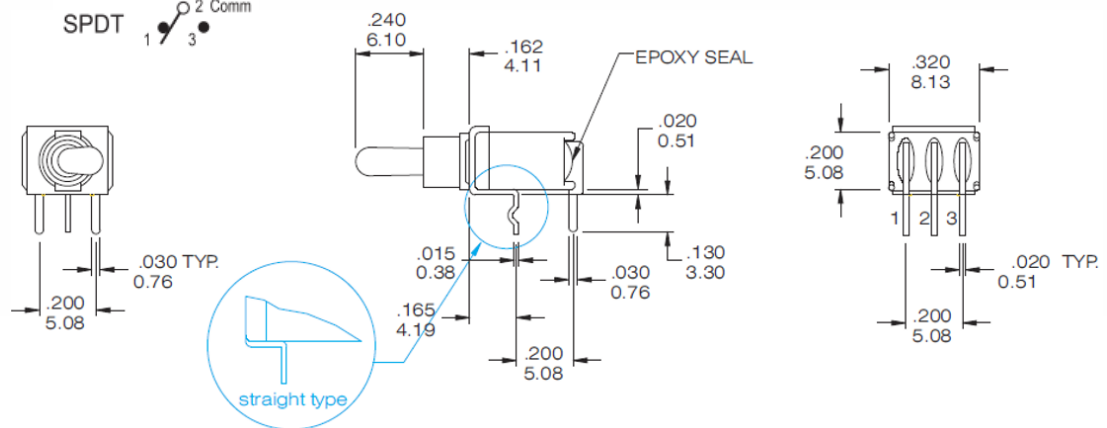
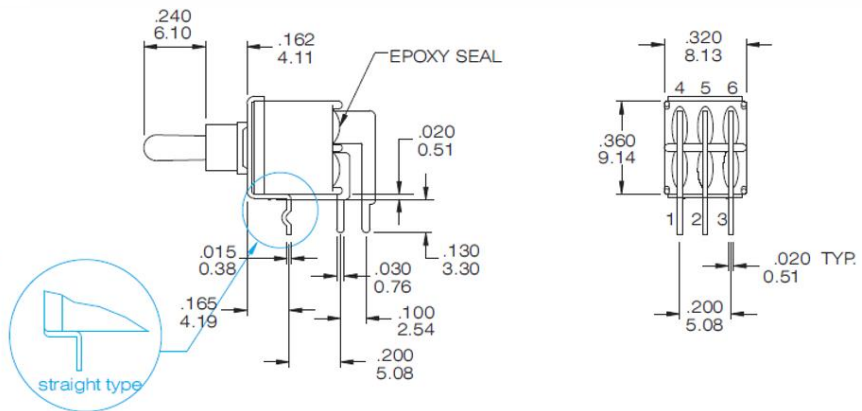
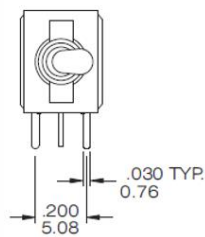
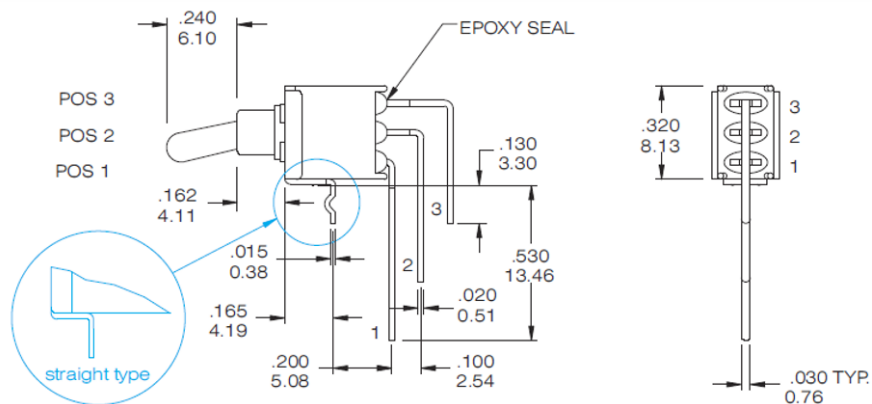
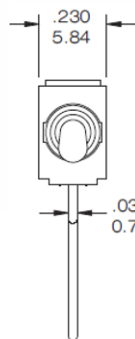
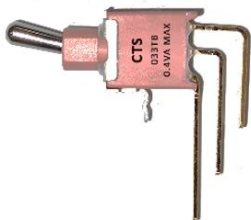


Figure 4 – 033TBHDATB3



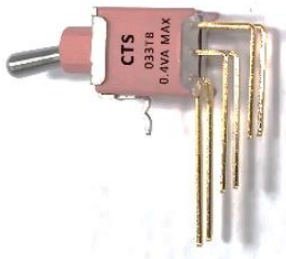
Name	Switch position		
033TBHDA	ON	none	ON
033TBHDB	ON	none	(ON)
033TBHDC	ON	OFF	ON
033TBHDD	(ON)	OFF	(ON)
033TBHDE	ON	OFF	(ON)
Term. Comm.	2-3, 5-6	open	2-1, 5-4

Figure 5 – 033TBVSATB3



Name	Switch position		
033TBVSA	ON	none	ON
033TBVSB	ON	none	(ON)
033TBVSC	ON	OFF	ON
033TBVSD	(ON)	OFF	(ON)
033TBVSE	ON	OFF	(ON)
Term. Comm.	2-3	open	2-1

Figure 6 – 033TBVDATB3



Name	Switch position		
033TBVDA	ON	none	ON
033TBVDB	ON	none	(ON)
033TBVDC	ON	OFF	ON
033TBVDD	(ON)	OFF	(ON)
033TBVDE	ON	OFF	(ON)
Term. Comm.	2-3, 5-6	open	2-1, 5-4

DPDT 1 3 4 6  
2 Comm 5 Comm

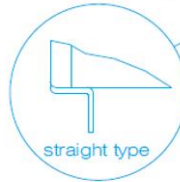


.398  
10.11



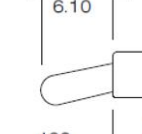
.200 TYP  
5.08

POS 3  
POS 2  
POS 1



straight type

.240  
6.10



.162  
4.11

.015  
0.38

.165  
4.19

.200  
5.08

.100  
2.54

.020  
0.51

.530  
13.46

.130  
3.30

EPOXY SEAL

.320  
8.13

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

.030 TYP.  
0.76

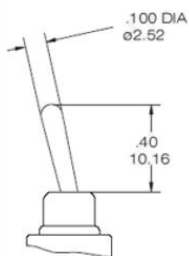
.030 TYP.  
0.76

.030 TYP.  
0.76

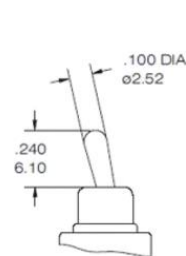
.030 TYP.  
0.76

## Actuator Options

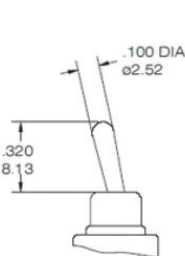
S (std.)



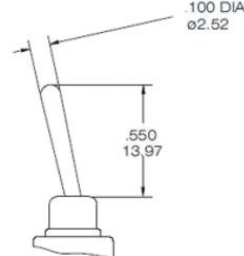
T (std.)



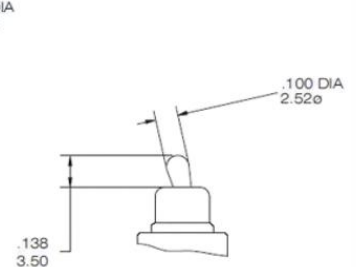
K



L

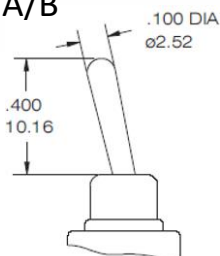


N

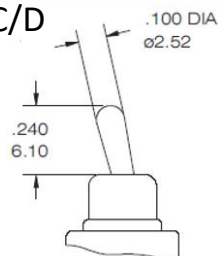


## ESD Protection Toggle

A/B



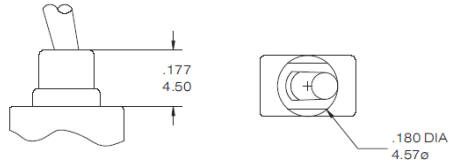
C/D



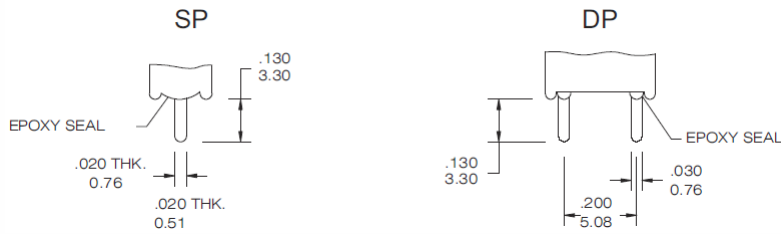
Material Nylon 4/6 (UL 94V-0), black std.  
Static resistance: 9,000V DC min. @sea  
level, actuator to terminals

Code	Color
A、C	Black(std.)
B、D	White

### Bushing dimensions

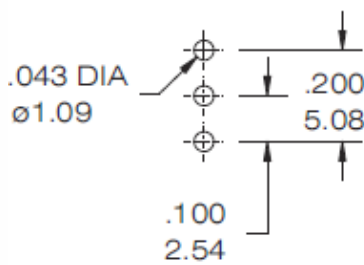


### Termination dimensions

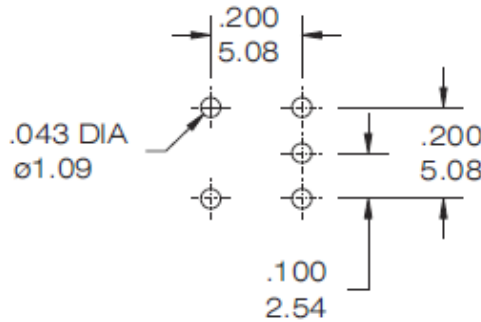


### PCB Mounting Dimensions

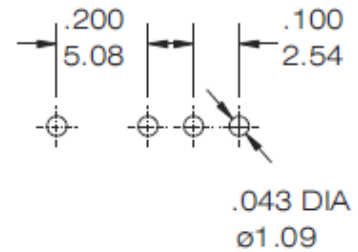
033TBSSA ~ SSE



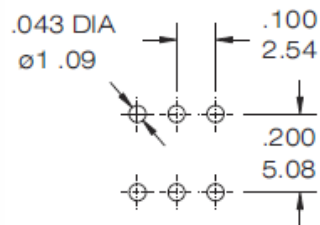
033TBHSA ~ HSE



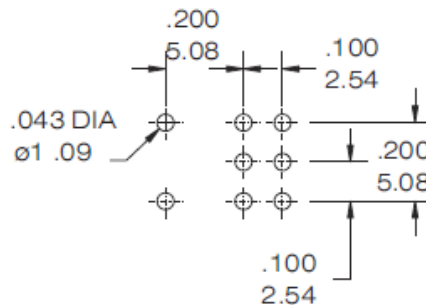
033TBVSA ~ VAE



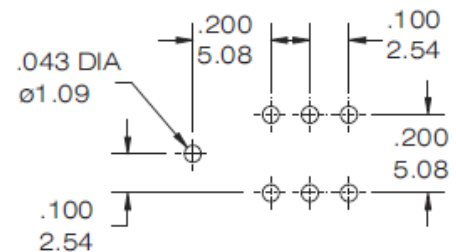
033TBSDA ~ SDE



033TBHDA ~ HDE



033TBVDA ~ VDE

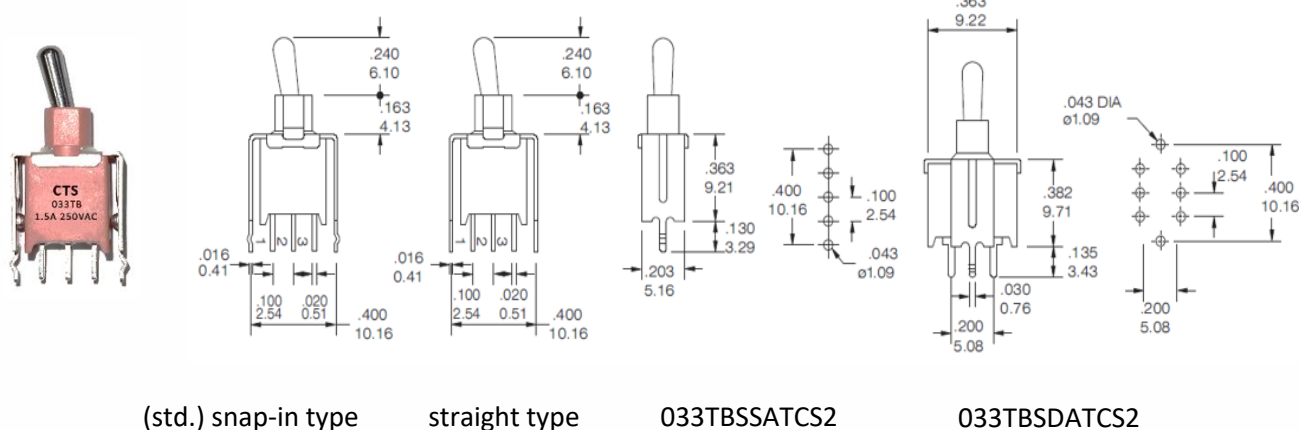


### Contact Material Options

Code	Contact Material	Terminal Material	Rating
S	Silver plated	Silver plated	3A@120VAC or 28VDC; 1.5A@250VAC
B	Gold plated over Nickel plated	Gold plated over Nickel plated	0.4VA Max. @20VAC or DC Max.
G	Gold plated over Silver plated	Gold plated over Silver plated	0.4VA Max. @20VAC or DC Max or 3A@120VAC or 28VDC. 1.5A@250VAC
T	Gold plated over Nickel plated	Tin over Nickel plated	0.4VA Max. @20VAC or DC Max.

Note: Please contact factory for option "T".

### Vertical Support Bracket Options (S terminal type)



# Mouser Electronics

Authorized Distributor

Click to View Pricing, Inventory, Delivery & Lifecycle Information:

[CTS:](#)

[033TBHDATB](#) [033TBSSATCB1](#) [033TBHSATG](#) [033TBSSATCB](#) [033TBSSATCS1](#) [033TBSSBTCB](#) [033TBHSATB](#)