

Quick Reference Guide

Tiny Pushbutton and Toggle Series Switches

TE Connectivity offers the Tiny line of switches in a range of ratings from 0.4VA up to 3A @125 VAC. The extensive product line includes pushbuttons (sealed and unsealed), toggles (sealed and unsealed) and environmental toggles. The Tiny toggles offer many different toggle bat designs and are available in different mounting and termination options to fit your application need.

FEATURES AND BENEFITS

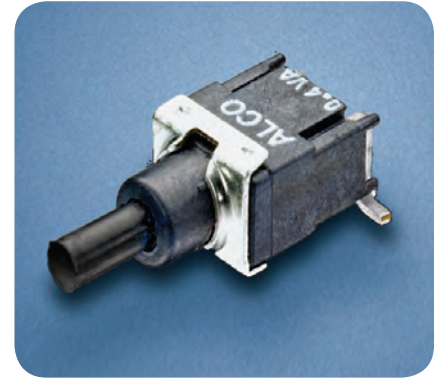
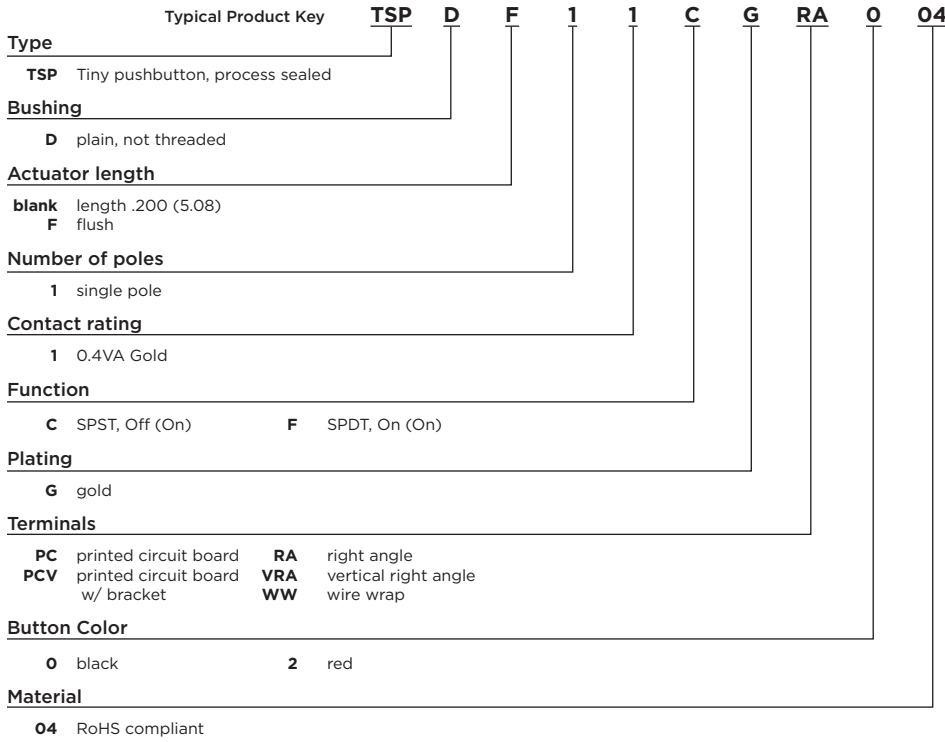
- Washable process sealed construction (internal "O" ring)
- Compact design
- Round or rectangular actuator buttons
- Vertical or right angle versions
- Process and non-process sealed
- Liquid Crystal Polymer (LCP) case

PRODUCT APPLICATIONS

- Military/ Aerospace
- Commercial Appliance
- Radio Communication Equipment
- Set Top Boxes
- Industrial Machines
- Instrumentation
- Telecommunications Equipment

Typical Performance Characteristics		Exclusive to:
Contact configuration	TSP	SPST, SPDT
	TP, TP_ES	SPST, SPDT, DPDT
Contact timing		break-before-make
Contact rating, max		gold 0.4 VA @ 20 VAC/DC
	TP, TP_ES	silver: 1A @ 125 VAC or 28 VDC resistive
	TT	silver (2 position): 3 A @ 125 VAC or 28 VDC resistive
	TT	silver (3 position): 2 A @ 125 VAC or 28 VDC resistive
Electrical life	TSP	C Function 80k F 60k
	TP	1 Pole 0.4VA 100k 2 Pole 80k
	TP	1 Pole 1 Amp 60k 2 Pole 50k
	TST	D Function 80K,E 60k, F,G 30k
	TT	1 Pole 0.4VA 80k (2 Pos.) 60k (3 Pos.)
	TT	3 Amp 20k (2 Pos.) 10k (3 Pos.)
	TT	For 4 Pole see Catalog
Contact resistance, initial		max .20 mOhms
Insulation resistance		1,000 MOhms @ 500 VDC
Dielectric strength		1,000 volts RMS @ sea level
Actuator travel	TSP, TP, TP_ES	Approx. .035" (.89mm)
	TST, TT	22° for D and E function
	TST, TT	18° for F and G function
Environmental Specifications		
Operating temperature		-30°C -+85°C
	TP	-30°C - +65°C
Storage temperature		-55°C - +85°C
	TP	-30°C - +65°C
Solder heat resistance		wave solder capable to 265°C
Terminal Seal	TT	single pole: epoxy, double pole: epoxy optional
Seal	TSP, TST	process sealed with internal "O" ring
	TP_ES	versions with process seal, with disposable cap
Material Specifications		
Contacts		copper or brass alloy, gold over nickel finish
	TP, TP_ES	clad with silver over nickel finish
	TT	copper or brass alloy, gold over nickel finish or silver clad copper alloy
Actuator	TSP, TP, TP_ES	thermoplastic
	TST	brass alloy, nickel finish
	TT	stainless steel or thermoplastic
Terminals		brass with gold over nickel in solder area
	TSP, TST	tin over nickel in solder area
	TT	brass alloy, gold over nickel finish or silver clad copper alloy tin over nickel in solder area
Case		thermoplastic
Bushing	TT	brass alloy finish nickel over copper
Internal actuator	TST, TT	thermoplastic or PTFE
Spring	TSP, TST, TT	music wire zinc plated
Support bracket	TSP, TST, TT	steel tin plated
Frame and support bracket	TP, TP_ES	steel with tin over copper finish
Seal	TSP, TST	'O' ring rubber
RoHS Directive 2002/95/EC		compliant

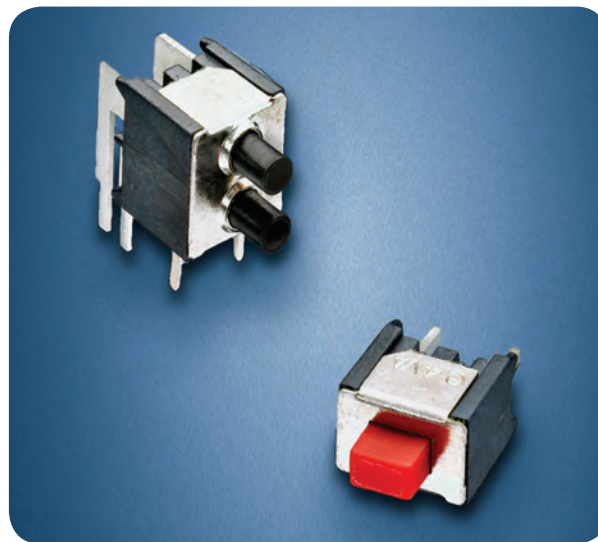
TSP PUSHBUTTON SWITCHES PRODUCT KEY



PART NUMBERS											
Product key	Bushing	Actuator	Poles	Rating	Function	Conn.	Conn.	Plating	Terminals	Button Color	Part Number
TSPD11CGPC004	plain, not threaded	length .200 (5.08)	1	0.4 VA	Off-(On)	Off	1-3	gold	pcb	black	1571990-1
TSPD11CGPC204	plain, not threaded	length .200 (5.08)	1	0.4 VA	Off-(On)	Off	1-3	gold	pcb	red	1571990-2
TSPD11CGPCV004	plain, not threaded	length .200 (5.08)	1	0.4 VA	Off-(On)	Off	1-3	gold	pcb	black	1571990-3
TSPD11CGRA004	plain, not threaded	length .200 (5.08)	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	black	1571990-4
TSPD11CGRA204	plain, not threaded	length .200 (5.08)	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	red	1571990-5
TSPD11CGVRA004	plain, not threaded	length .200 (5.08)	1	0.4 VA	Off-(On)	Off	1-3	gold	vertical r.a.	black	1-1571990-3
TSPD11CGWW004	plain, not threaded	length .200 (5.08)	1	0.4 VA	Off-(On)	Off	1-3	gold	wire wrap	black	1-1571990-4
TSPD11FGPC004	plain, not threaded	length .200 (5.08)	1	0.4 VA	On-(On)	2-3	2-3	gold	pcb	black	1-1571990-5
TSPD11FGPCV004	plain, not threaded	length .200 (5.08)	1	0.4 VA	On-(On)	2-3	2-3	gold	pcb w/ bracket	black	1-1571990-6
TSPD11FGRA004	plain, not threaded	length .200 (5.08)	1	0.4 VA	On-(On)	2-3	2-3	gold	right angle	black	1-1571990-7
TSPD11FGVRA004	plain, not threaded	length .200 (5.08)	1	0.4 VA	On-(On)	2-3	2-3	gold	vertical r.a.	black	2-1571990-1
TSPDF11CGPC004	plain, not threaded	flush	1	0.4 VA	Off-(On)	Off	1-3	gold	pcb	black	2-1571990-2
TSPDF11CGRA004	plain, not threaded	flush	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	black	2-1571990-5
TSPDF11CGVRA004	plain, not threaded	flush	1	0.4 VA	Off-(On)	Off	1-3	gold	vertical r.a.	black	2-1571990-7
TSPDF11FGPC004	plain, not threaded	flush	1	0.4 VA	On-(On)	1-2	2-3	gold	pcb	black	2-1571990-8
TSPDF11FGRA004	plain, not threaded	flush	1	0.4 VA	On-(On)	1-2	2-3	gold	right angle	black	2-1571990-9

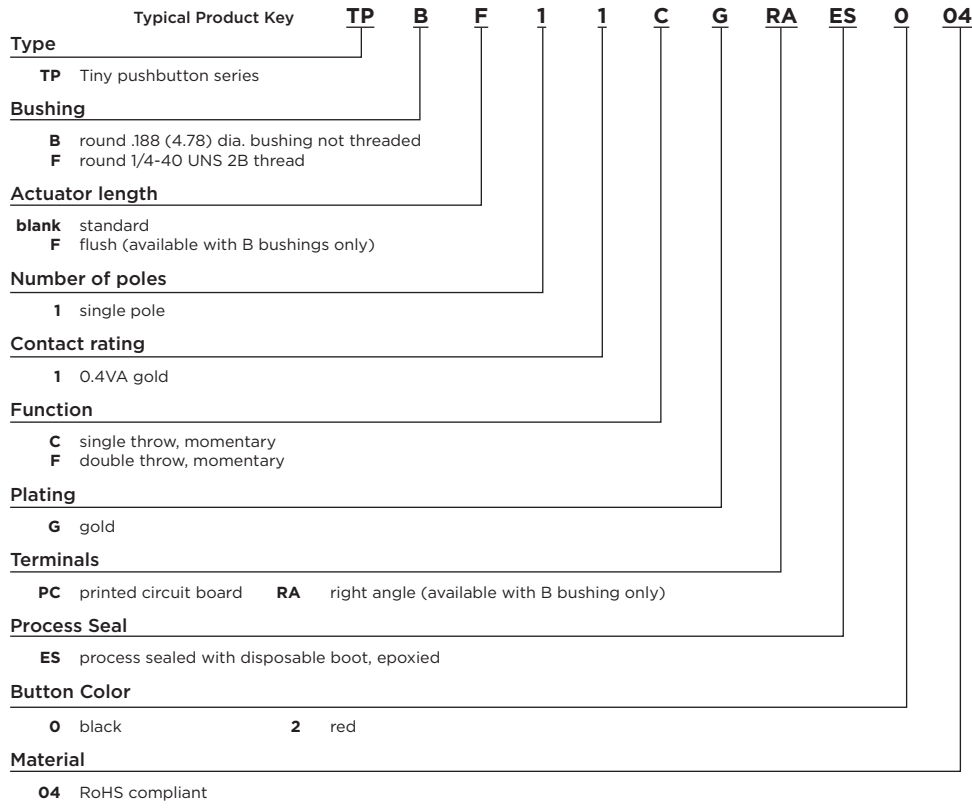
TP PUSHBUTTON SWITCHES PRODUCT KEY

	Typical Product Key	TP	B	F	1	1	C	G	PC	O	O4
Type											
TP	Tiny pushbutton series										
Bushing											
blank	square, no bushing										
A	round, no bushing										
B	round .188 (4.78) dia. bushing not threaded										
C	round 10/48 UNS 2B thread										
D	.250" (6.35) dia. bushing, not threaded										
F	round 1/4-40 UNS 2B thread										
Actuator length											
blank	standard										
F	flush (available with B or C bushings only)										
Number of poles											
1	single pole										
3	double pole										
Contact rating											
1	0.4VA gold										
2	1.0 A silver (available only in wire lug and PC termination)										
Function											
Single pole											
C	single throw, momentary										
F	double throw, momentary										
CC	dual function C - 2 x single throw, momentary										
FF	dual function F - 2 x double throw, momentary										
Double pole											
M	single throw, momentary										
R	double throw, momentary										
Plating											
G	gold										
blank	silver (available only in wire lug and PC termination)										
Terminals											
blank	printed circuit board										
PCV	printed circuit board w/ bracket										
RA	right angle										
VRA	vertical right angle										
Button Color											
O	black										
2	red										
Material											
O4	RoHS compliant										



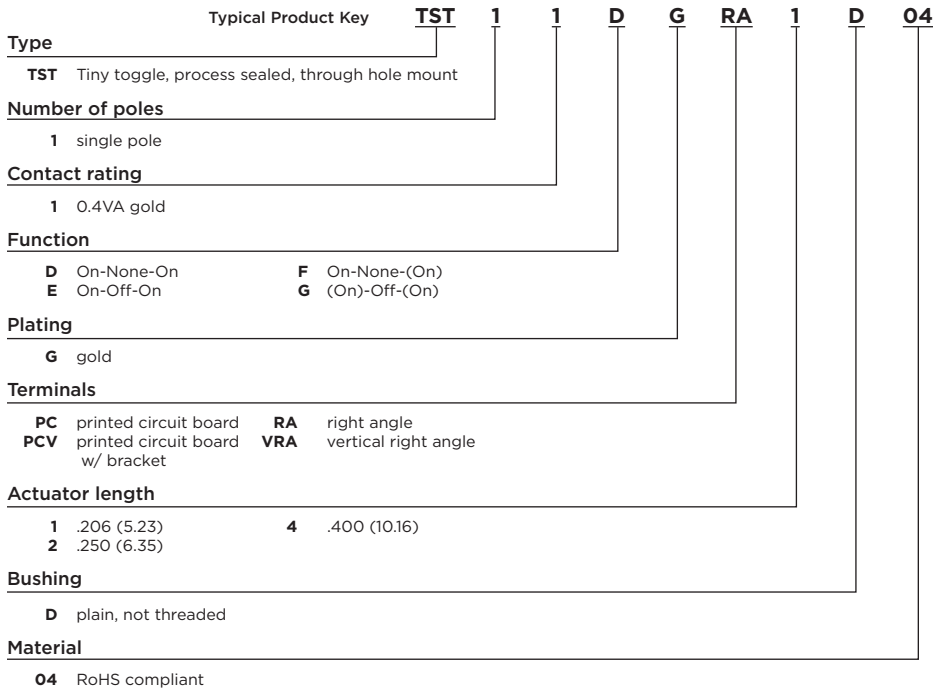
PART NUMBERS											
Product key	Bushing	Actuator	Poles	Rating	Function	Conn.	Conn.	Plating	Terminals	Button Color	Part Number
TP11CGPC004	square	n/a	1	0.4 VA	Off-(On)	Off	1-3	gold	pcb	black	1825095-1
TP11CGPC204	no bushing	n/a	1	0.4 VA	Off-(On)	Off	1-3	gold	pcb	red	1825095-2
TP11CGRA004	no bushing	n/a	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	black	1825095-3
TP11CGRA204	no bushing	n/a	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	red	1825095-4
TP11CGRA604	no bushing	n/a	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	blue	1825095-5
TP11FGPC004	no bushing	n/a	1	0.4 VA	On-(On)	1-2	2-3	gold	pcb	black	1825095-6
TP11FGRA004	no bushing	n/a	1	0.4 VA	On-(On)	1-2	2-3	gold	right angle	black	1825095-8
TPA11CGPC004	round	n/a	1	0.4 VA	Off-(On)	Off	1-3	gold	pcb	black	1825096-1
TPA11CGRA004	no bushing	n/a	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	black	1825096-4
TPA11CGRA204	no bushing	n/a	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	red	1825096-5
TPA11CGRA604	no bushing	n/a	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	blue	1825096-6
TPA11FGPC004	no bushing	n/a	1	0.4 VA	On-(On)	1-2	2-3	gold	pcb	black	1825096-7
TPA11FGRA004	no bushing	n/a	1	0.4 VA	On-(On)	1-2	2-3	gold	right angle	black	1-1825096-0
TPA11FGRA204	no bushing	n/a	1	0.4 VA	On-(On)	1-2	2-3	gold	right angle	red	1-1825096-1
TPA21CGRA004	no bushing	n/a	2 (1+1)	0.4 VA	Off-(On)	Off	1-3, 4-6	gold	right angle	black	1-1825096-4
TPA21FFGRA204	no bushing	n/a	3 (1+1)	0.4 VA	On-(On)	1-2, 4-5	2-3, 5-6	gold	right angle	red	1-1825096-5
TPB11CGPC004	round .188 (4.78) no thread	standard	1	0.4 VA	Off-(On)	Off	1-3	gold	pcb	black	1825097-1
TPB11CGRA004	round .188 (4.78) no thread	standard	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	black	1825097-6
TPB11CGRA204	round .188 (4.78) no thread	standard	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	red	1825097-4
TPB11CGVRA004	round .188 (4.78) no thread	standard	1	0.4 VA	Off-(On)	Off	1-3	gold	vertical r.a.	black	1825097-8
TPB11FGPC004	round .188 (4.78) no thread	standard	1	0.4 VA	On-(On)	1-2	2-3	gold	pcb	black	1825097-9
TPB11FGRA004	round .188 (4.78) no thread	standard	1	0.4 VA	On-(On)	1-2	2-3	gold	right angle	black	1-1825097-1
TPB11FGRA204	round .188 (4.78) no thread	standard	1	0.4 VA	On-(On)	1-2	2-3	gold	right angle	red	1-1825097-2
TPB11FGVRA004	round .188 (4.78) no thread	standard	1	0.4 VA	On-(On)	1-2	2-3	gold	vertical r.a.	black	1-1825097-6
TPBF11CGRA004	round .188 (4.78) no thread	flush	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	black	2-1825097-1
TPC11CGPC004	round 10/48 UNS 2B thread	standard	1	0.4 VA	Off-(On)	Off	1-3	gold	pcb	black	1825098-1
TPC11CGRA004	round 10/48 UNS 2B thread	standard	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	black	1825098-2
TPC11CGRA204	round 10/48 UNS 2B thread	standard	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	red	1825098-3
TPC11FGPC004	round 10/48 UNS 2B thread	standard	1	0.4 VA	On-(On)	1-2	2-3	gold	pcb	black	1825098-5
TPCF13C004	round 10/48 UNS 2B thread	flush	1	1.0 A	Off-(On)	Off	1-3	silver	wire lug	black	2-1825098-0
TPD11CGRA004	.259 dia, no thread	n/a	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	black	1825099-3
TPF11CGPC004	round 1/4-40 UNS 2B thread	n/a	1	0.4 VA	Off-(On)	Off	1-3	gold	pcb	black	1825100-1
TPF11CGRA004	round 1/4-40 UNS 2B thread	n/a	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	black	1825100-4
TPF11FGPC004	round 1/4-40 UNS 2B thread	n/a	1	0.4 VA	On-(On)	1-2	2-3	gold	pcb	black	1825100-7
TPF13C004	round 1/4-40 UNS 2B thread	n/a	1	1.0 A	Off-(On)	Off	1-3	silver	wire lug	black	1-1825100-2

TP_ES PUSHBUTTON SWITCHES PRODUCT KEY



PART NUMBERS											
Product key	Bushing	Actuator	Poles	Rating	Function	Conn.	Conn.	Plating	Terminals	Button Color	Part Number
TPB11CGPCES004	round .188 (4.78) no thread	standard	1	0.4 VA	Off-(On)	Off	1-3	gold	pcb	black	1825097-3
TPB11CGRAES004	round .188 (4.78) no thread	standard	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	black	1825097-5
TPB11CGRAES204	round .188 (4.78) no thread	standard	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	red	1825097-7
TPB11FGPCES204	round .188 (4.78) no thread	standard	1	0.4 VA	On-(On)	1-2	2-3	gold	pcb	red	1-1825097-0
TPB11FGRAES004	round .188 (4.78) no thread	standard	1	0.4 VA	On-(On)	1-2	2-3	gold	right angle	black	1-1825097-4
TPB11FGRAES604	round .188 (4.78) no thread	standard	1	0.4 VA	On-(On)	1-2	2-3	gold	right angle	blue	1-1825097-5
TPBF11CGPCES004	round .188 (4.78) no thread	flush	1	0.4 VA	Off-(On)	Off	1-3	gold	pcb	black	2-1825097-0
TPBF11CGRAES004	round .188 (4.78) no thread	flush	1	0.4 VA	Off-(On)	Off	1-3	gold	right angle	black	2-1825097-2
TPBF11FGPCES004	round .188 (4.78) no thread	flush	1	0.4 VA	On-(On)	1-2	2-3	gold	pcb	black	2-1825097-3
TPBF11FGRAES004	round .188 (4.78) no thread	flush	1	0.4 VA	On-(On)	1-2	2-3	gold	right angle	black	2-1825097-6
TPF11CGPCES004	round 1/4-40 UNS 2B thread	standard	1	0.4 VA	Off-(On)	Off	1-3	gold	pcb	black	1825100-3
TPF11FGPCES004	round 1/4-40 UNS 2B thread	standard	1	0.4 VA	On-(On)	1-2	2-3	gold	pcb	black	1-1825100-0

TST TOGGLE SWITCHES PRODUCT KEY



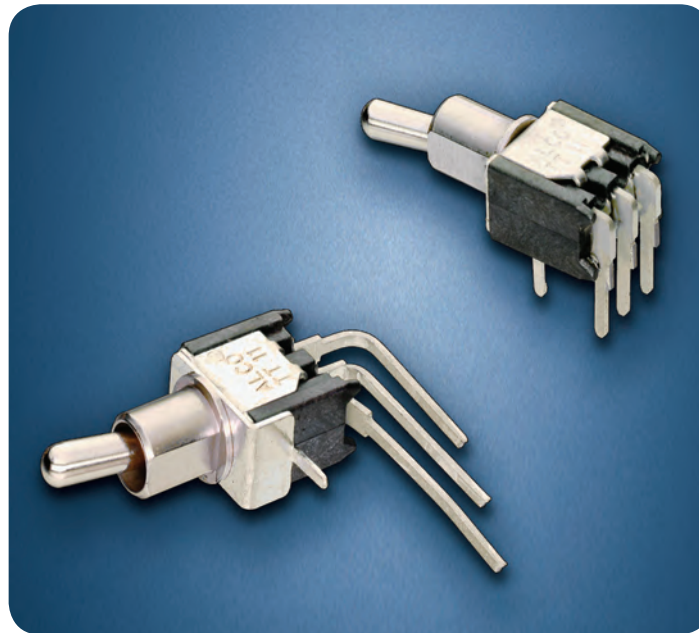
PART NUMBERS								
Product key	Poles	Rating	Function	Plating	Terminals	Actuator	Bushing	Part Number
TST11DGPC1D04	1 pole	0.4 VA	On-None-On	gold	pcb	.206 (5.23)	plain, not threaded	1825455-1
TST11DGPCV1D04	1 pole	0.4 VA	On None On	gold	pcb w/ brack	.206 (5.23)	plain, not threaded	1825455-2
TST11DGRA1D04	1 pole	0.4 VA	On None On	gold	right angle	.206 (5.23)	plain, not threaded	1825455-3
TST11DGVRA1D04	1 pole	0.4 VA	On None On	gold	vertical r.a.	.206 (5.23)	plain, not threaded	1825455-4



TT TOGGLE SWITCHES PRODUCT KEY

		Typical Product Key		TT	E	1	1	D	G	PC	9	T1/4	2	O4
Type														
TT		Tiny toggle switch												
Environmental seal														
blank		no seal												
E		environmental seal (splash proof) not available with actuator 7 or VRA terminals												
Number of poles														
1		4		single pole 4 pole										
2		double pole												
Contact rating														
1		3		0.4VA gold 1 Amp, silver (available only in wire lug and PC termination)										
Function														
Single pole														
A		On-Off*												
D		On-On												
E		On-Off-On												
F		On-(On)												
2 & 4 pole														
K		On-Off*												
N		On-On												
P		On-Off-On												
R		On-(On)												
<i>*Versions A & K available with wire lug & pc terminals only</i>														
Plating														
G		blank		gold silver										
Terminals														
blank		RA		wire lug right angle										
PC		VRA		printed circuit board vertical right angle										
PCV		WW		printed circuit board w/ bracket wire wrap										
Actuator length														
#10 or Unthreaded bushing														
1		.221 (5.61), bat												
2		.296 (7.52), bat												
3		.381 (9.68), bat												
5		na												
6		.401 (10.19), round, colored												
7		na												
8		na												
9		.561 (13.11), bat												
1/4 Bushing														
1		.125 (3.18), bat												
2		.200 (5.1), bat												
3		.286 (7.26), bat												
5		paddle												
6		.306 (7.77), round, colored												
7		.457 (11.61), flat												
8		.567 (14.40), locking												
9		.421 (10.693), bat												
Bushing														
blank		T		#10-48		T1/4		unthreaded 1/4-40						
Actuator Color														
0		2		blank		black red not applicable								
6		9		blue white										
Material														
O4		RoHS compliant												

PART NUMBERS								
Product key	Environmental Seal	Poles	Contacts	Function	Terminals	Act. Length	Bushing	Part Number
TT11AGPC104	no	1	0.4 VA gold plated	On-Off	pc	.221 (5.61), bat	unthreaded	1825219-2
TT11DGPC104	no	1	0.4 VA gold plated	On-On	pc	.221 (5.61), bat	unthreaded	1825219-3
TT11DGPC9T1/404	no	1	0.4 VA gold plated	On-On	pc	.457 (11.61), flat	1/4-40	1825192-2
TT11DGRA104	no	1	0.4 VA gold plated	On-On	right angle	.125 (3.18), bat	unthreaded	1825219-4
TT11DGVRA104	no	1	0.4 VA gold plated	On-On	vertical r.a.	.125 (3.18), bat	unthreaded	1825219-5
TT11EGPC104	no	1	0.4 VA gold plated	On-Off-On	pc	.125 (3.18), bat	unthreaded	1825219-6
TT11EGPC5T1/4004	no	1	0.4 VA gold plated	On-Off-On	pc	.490 (12.45)	1/4-40	1825224-1
TT11EGRA104	no	1	0.4 VA gold plated	On-Off-On	right angle	.125 (3.18), bat	unthreaded	1825219-8
TT11EGVRA104	no	1	0.4 VA gold plated	On-Off-On	vertical r.a.	.125 (3.18), bat	unthreaded	1825219-9
TT13A2T04	no	1	1 amp silver plated	On-Off	wire lug	.200 (5.1), bat	#10-48	1825222-2
TT13A3T04	no	1	2 amp silver plated	On-Off	wire lug	.286 (7.26), bat	#10-49	1825223-3
TT13D2T04	no	1	3 amp silver plated	On-On	wire lug	.200 (5.1), bat	#10-50	1825222-3
TT13D3T04	no	1	4 amp silver plated	On-On	wire lug	.286 (7.26), bat	#10-51	1825223-4
TT13E2T04	no	1	5 amp silver plated	On-Off-On	wire lug	.200 (5.1), bat	#10-52	1825222-4
TT21NGPC104	no	1	0.4 VA gold plated	On-Off	pc	.125 (3.18), bat	unthreaded	1-1825219-1
TT21NGPC9T1/404	no	1	0.4 VA gold plated	On-On	pc	.421 (10.69), bat	1/4-40	1825192-8
TT21NGRA104	no	1	0.4 VA gold plated	On-On	right angle	.125 (3.18), bat	unthreaded	1-1825219-2
TT21NGRA7T1/404	no	1	0.4 VA gold plated	On-On	right angle	.457 (11.61), flat	1/4-40	1825226-4
TT21NGRA9T1/404	no	1	0.4 VA gold plated	On-On	right angle	.421 (10.69), bat	1/4-41	1825192-9
TT23N2T04	no	1	1 amp silver plated	On-On	wire lug	.200 (5.1), bat		1825222-7
TTE13D2T04	yes	1	2 amp silver plated	On-On	wire lug	.200 (5.1), bat	#10-48	1-1825222-0
TTE13E8T1/404	yes	1	3 amp silver plated	On-Off-On	wire lug	.567 (14.40), locking	1/4-40	1825227-3



How to Specify in a Switch

Electrical Considerations

Voltage of Applications: _____ Current of Application: _____

Circuitry Configuration: Number of Poles: _____ Number of Throws: _____

Number of Operations anticipated: _____

Agency Approvals or Listings Desired: _____

Mechanical Considerations

Type of Switch (Actuator Type): _____ Toggle _____ Pushbutton _____ Rotary _____ Rocker _____ Other

Switch Function (On/Off/On): _____ On/Off: _____ Momentary: _____

Termination: _____ Thru-Hole (PC) _____ Surface Mount _____ Wire Lug _____ Quick Connect _____ Other

Sealing Contamination Requirements: _____

Product Processing Considerations

Anticipated Soldering Process: _____ Hand _____ Wave _____ SMT _____ Other

FOR MORE INFORMATION

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China:	+86 (0) 400-820-6015

Part numbers in this brochure are RoHS Compliant*, unless marked otherwise.

*as defined www.te.com/leadfree

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2-1773458-4 CIS JG 05/2012

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