Switches

BOURNS®

I. Product Selection Guide 340

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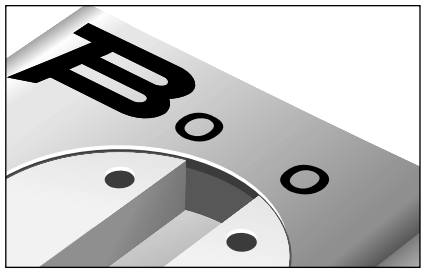

Ultra-Miniature and Standard Switches

BOURNS®

Model Number	Function						Mounting Type		Sealed/Open		Size			Packaging Options See Note 1	Actuation		Page No.
	DIP	SIP	Rotary	Tact	Coded	Selector	SMT	Leaded	Sealed	Open	3mm	4mm	6mm		Top	Side	
7643						•	•	•	•				•	E,T	•		341
7644						•	•	•	•			•		E,T	•		343
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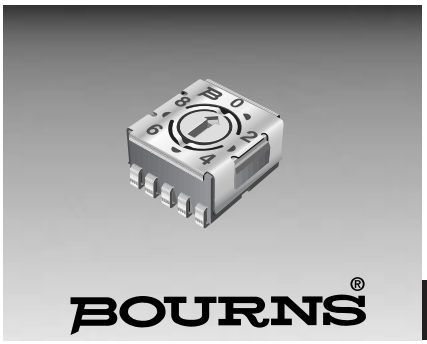
STJN-5				•			•		•	•	5mm			E	•		368
SDI	•							•	•	•	3.5 to 26.3mm			T	•		370
SDS	•							•	•	•	6.4 to 31.8mm			T	•		371
SDA	•							•	•	•	6.4 to 31.8mm			T		•	371
SDP	•							•	•	•	6.4 to 31.8mm			T		•	371
SDM	•						•		•	•	3.5 to 26.3mm			T,E	•		373
SPI		•						•	•	•	22.86mm			T	•		374
SDH	•						•		•		11.56mm			E	•		375

NOTE 1: Standard packaging; some options may require alternate packaging. Consult factory.
T = Tube, B = Bulk, E = Embossed Tape - 7" Reel, A = Ammo Pack

** Patented model.

* H - Leaded
M - SMT - Gull wing
J - SMT - J Lead



BOURNS®

Features

- 10 position selector switch
- Miniature industrial switch
- Vertical adjust
- Rugged surface mount design
- Break-before make timing

Applications

- Test equipment
- Instrumentation
- Computer hardware

7643 SMD 7mm Square Sealed Selector Switch

Electrical Characteristics

Contact Rating
Maximum Current .....100mA max.
Maximum Voltage 24V
Contact Resistance
.....100 milliohms max.
Insulation Resistance
.....1000 megohms
Dielectric Strength.....250 volts

General Characteristics

Operating Temperature Range
.....-55°C to +125°C
Storage Temperature Range
.....-55°C to +125°C
Seal Test.....85°C Fluorinert*

Mechanical Characteristics

Switch Type.....SP9T
Adjustment Detent Torque
..... 0.2-2.0 N-cm

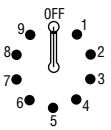
Environmental Characteristics

Shock 100G
0.1 ms. max. discontinuity
Vibration 30G
0.1 ms. max. discontinuity
Thermal Shock (5 cycles)
.....-55°C to +125°C
Actuation Life .....1,000 detents no load
Maximum Soldering Heat .....260°C,
.....5 seconds
Standard Packaging .....(see packaging specifications)

How to Order

7643 J - 1 - 10 E

Model
Terminal
Switch Type
1 = SP9T
Number of Positions
10 = 10 Positions
("0" Position is Off; Common)
Embossed Tape Option (Styles J, G only)

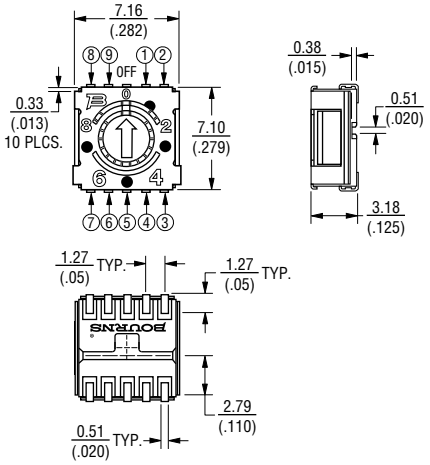


SCHEMATIC

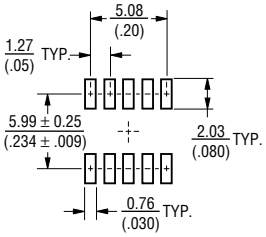
TOLERANCES: ±.2 EXCEPT WHERE NOTED.
DIMENSIONS: MM (IN)
"OFF" POSITION IS COMMON.

Product Dimensions

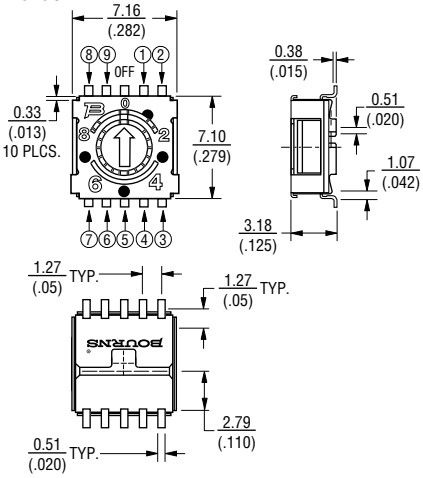
7643J



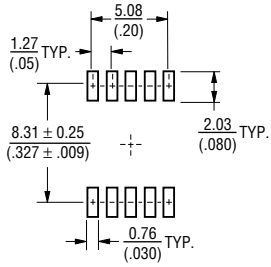
RECOMMENDED PCB LAYOUT



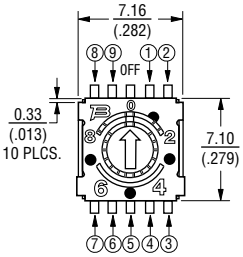
7643G

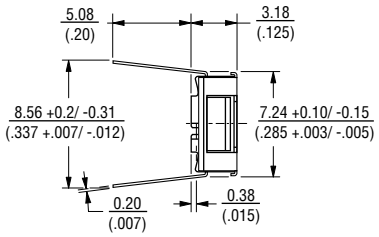


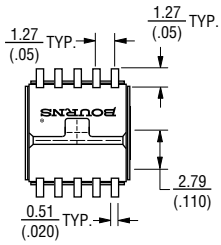
RECOMMENDED PCB LAYOUT



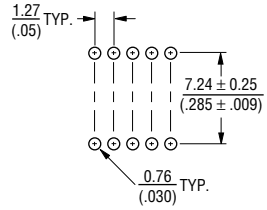
7643H





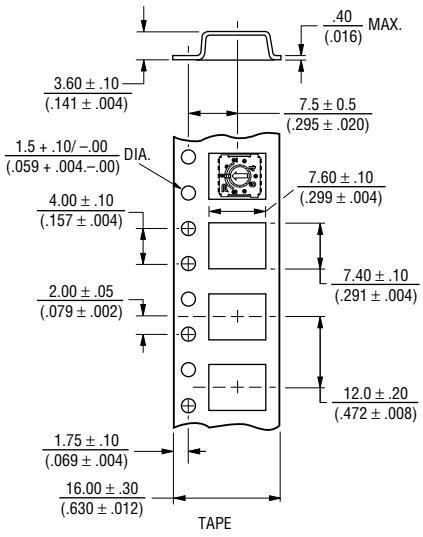


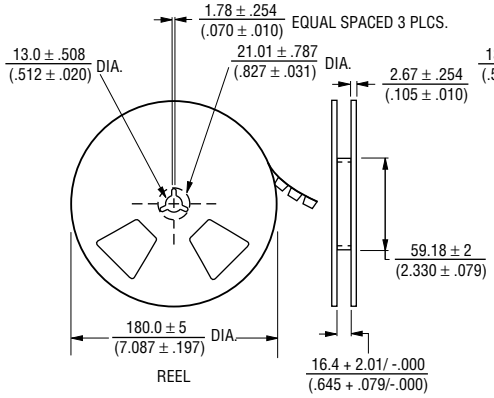
RECOMMENDED PCB LAYOUT



Packaging Specifications

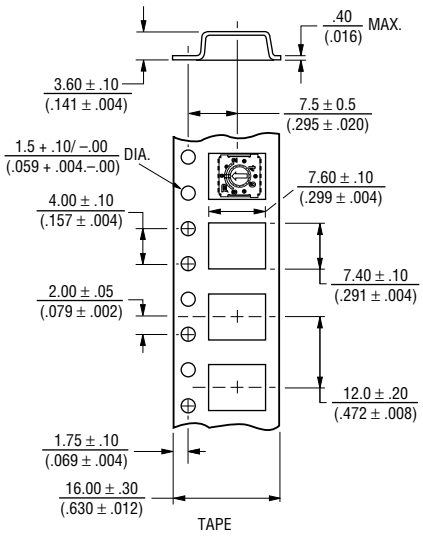
(J Style)

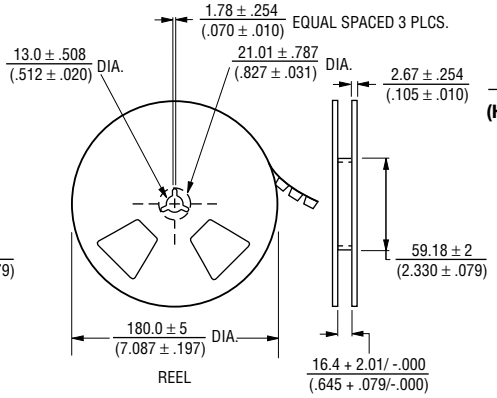




Meets EIA specification 481.

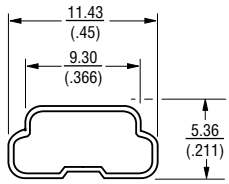
(G Style)





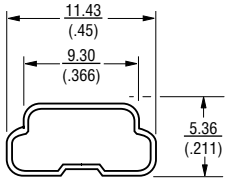
Meets EIA specification 481.

(J Style)



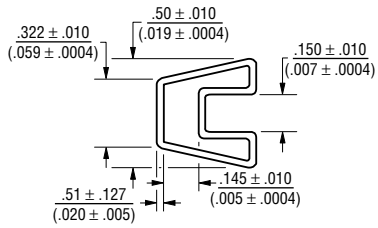
TUBE LENGTH - 358MM.
UNITS PACKAGED 50 PIECES PER TUBE.

(G Style)



TUBE LENGTH - 358MM.
UNITS PACKAGED 50 PIECES PER TUBE.

(H Style)



TUBE LENGTH - 14MM.
UNITS PACKAGED 100 PIECES PER TUBE.

BOURNS®

Features

- 5 position selector switch
- Miniature industrial switch multi-position
- Vertical adjust
- Rugged surface mount design
- Break-before make timing

Applications

- Signal/circuit select
- Filter select
- Test equipment
- TV, radio

7644 SMD 4mm Square Sealed Selector Switch

Electrical Characteristics

Contact Rating
Maximum Current .....100mA max.
Maximum Voltage 24V
Contact Resistance
.....100 milliohms max.
Insulation Resistance .....1000 megohms
Dielectric Strength .....250 volts

General Characteristics

Operating Temperature Range
.....-55°C to +125°C
Storage Temperature Range
.....-55°C to +125°C
Seal Test .....85°C Fluorinert*

Mechanical Characteristics

Switch Type SP4T
Adjustment Detent Torque
..... 0.2-2.0 N-cm

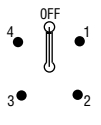
Environmental Characteristics

Shock 100G
0.1 ms. max. discontinuity
Vibration 30G
0.1 ms. max. discontinuity
Thermal Shock (5 cycles)
.....-55°C to +125°C
Actuation Life .....1,000 steps no load
Maximum Soldering Heat .....260°C,
5 seconds
Standard Packaging
.....500 pcs./180mm reel

How to Order

7644 J - 1 - 5 E

Model
Terminal
Switch Type
1 = SP4T
Number of Positions
5 = 5 Positions
("0" Position is Off; No Contact)
Embossed Tape Designator
(Omit letter for Tube)

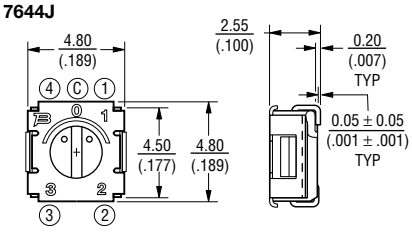


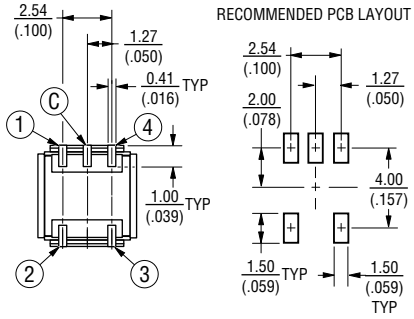
SCHEMATIC

TOLERANCES: ±.38 EXCEPT WHERE NOTED.
DIMENSIONS: MM (IN)

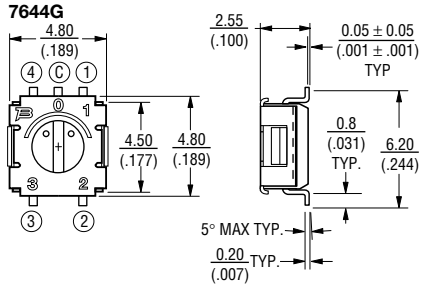
Product Dimensions

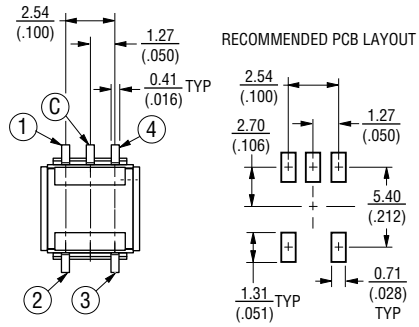
7644J



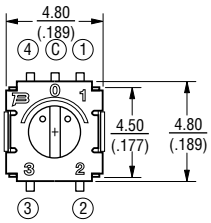


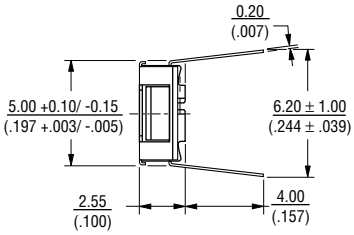
7644G

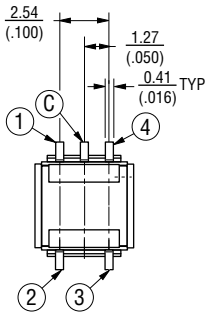


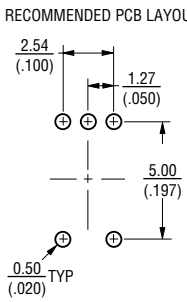


7644H



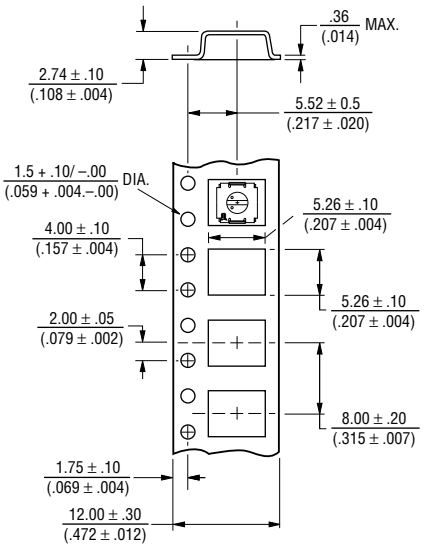




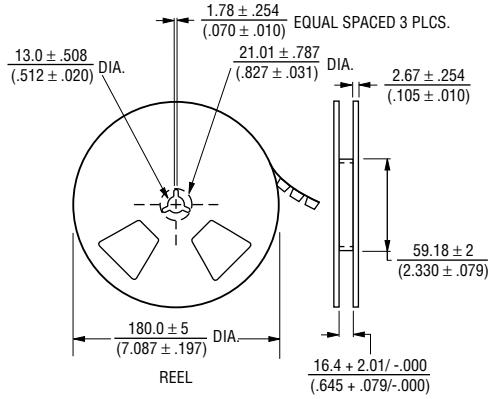


Packaging Specifications

7644 J & G



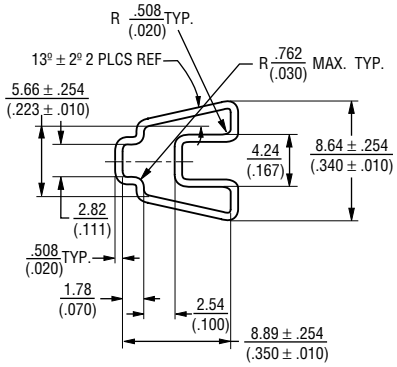
TAPE



REEL

Meets EIA 481

7644 H Tube



BOURNS®

Features

- 8,10 or 16 position coded switch
- Miniature industrial switch multi-position
- Vertical adjust
- Rugged surface mount design
- Rugged lead frame construction

Applications

- Signal/circuit select
- Board address
- Test equipment

7743 SMD 7mm Square Sealed Coded Switch

Electrical Characteristics

Contact Rating
Maximum Current .....100mA max.
Maximum Voltage 24V
Contact Resistance
.....100 milliohms max.
Insulation Resistance .....1000 megohms
Dielectric Strength .....250 volts

General Characteristics

Switch Type .....Binary
Operating Temperature Range
.....-55°C to +125°C
Storage Temperature Range
.....-55°C to +125°C
Seal Test .....85°C Fluorinert*

Mechanical Characteristics

Positions .....8, 10 or 16
Adjustment Detent Torque
..... 0.2-2.0 N-cm

Environmental Characteristics

Shock 100G
0.1 ms. max. discontinuity
Vibration 30G
0.1 ms. max. discontinuity
Thermal Shock (5 cycles)
.....-55°C to +125°C
Contact Resistance
.....100 milliohms max.
Humidity
Insulation Resistance
.....10 megohms min.
Contact Resistance
.....100 milliohms max.
Actuation Life .....1,000 steps no load
Contact Resistance
.....100 milliohms max.
Maximum Soldering Heat .....260°C,
.....5 seconds
Standard Packaging .....50 pcs./tube

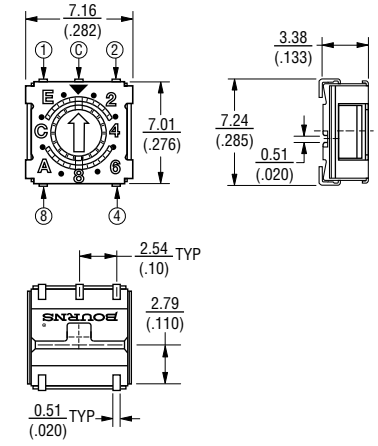
How to Order

7743 J - 1 - 8 E

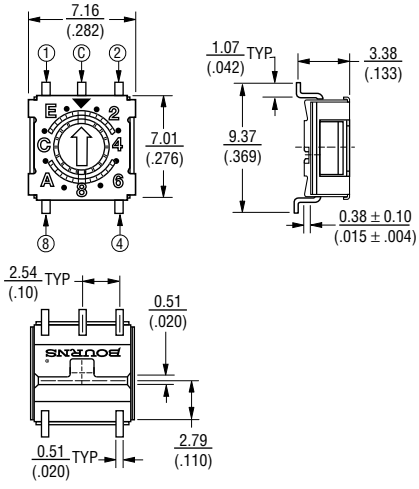
Model
Terminal
Switch Type
1 = Std. (Binary)
Number of Positions
8 = 8 Positions
10 = 10 Positions
16 = 16 Positions
Embossed Tape Option
(Omit letter for tube)

Product Dimensions

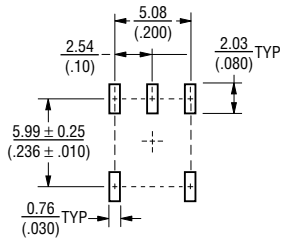
7743J



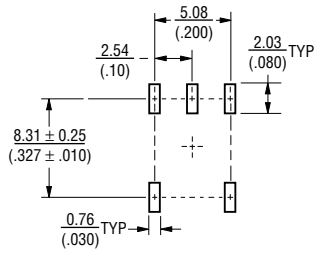
7743G



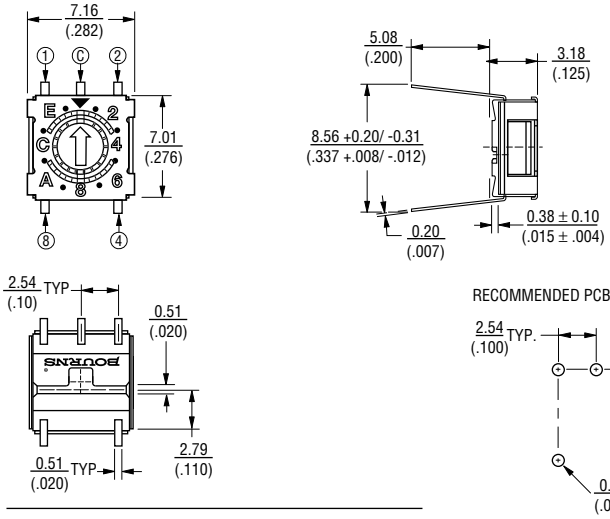
RECOMMENDED PCB LAYOUT



RECOMMENDED PCB LAYOUT



7743H

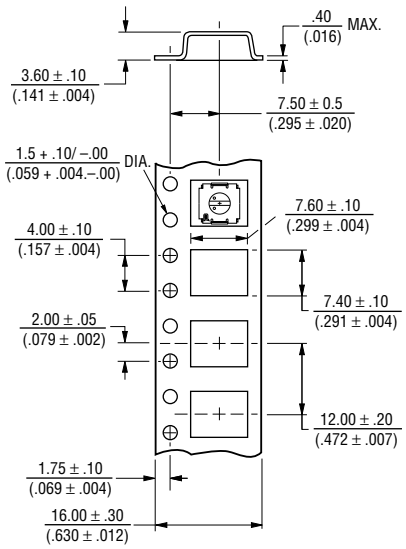


RECOMMENDED PCB LAYOUT

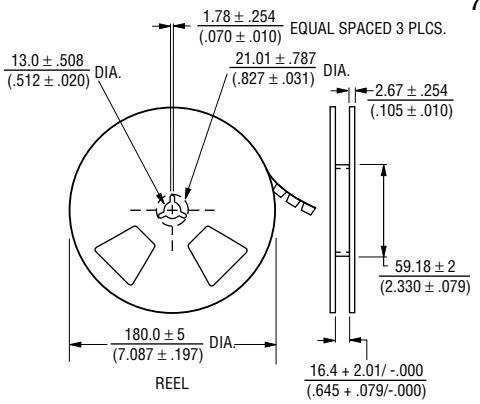
TOLERANCES: ±.2 EXCEPT WHERE NOTED.
DIMENSIONS: MM / (IN)
"OFF" POSITION IS COMMON.

Packaging Specifications

7743 J&G



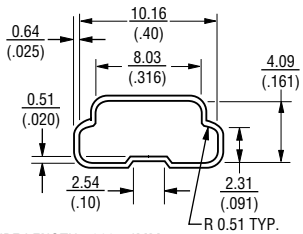
TAPE



REEL

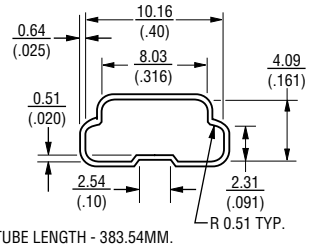
Meets EIA 481

7743 J



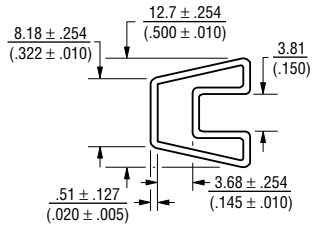
TUBE LENGTH - 383.54MM.
UNITS PACKAGED 50 PIECES PER TUBE.

7743 G



TUBE LENGTH - 383.54MM.
UNITS PACKAGED 50 PIECES PER TUBE.

7743 H



TUBE LENGTH - 523.24MM.
UNITS PACKAGED 100 PIECES PER TUBE.

Binary (REAL) Code

8 POSITIONS

	1	2	4	C	S
0				X	NC
1	X			X	NC
2		X		X	NC
3	X	X		X	NC
4			X	X	NC
5	X		X	X	NC
6		X	X	X	NC
7	X	X	X	X	NC

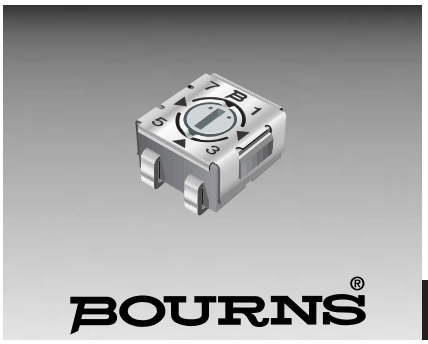
10 POSITIONS

	1	2	4	8	C
0					X
1	X				X
2		X			X
3	X	X			X
4			X		X
5	X		X		X
6		X	X		X
7	X	X	X		X
8				X	X
9	X			X	X

16 POSITIONS

	1	2	4	8	C
0					X
1	X				X
2		X			X
3	X	X			X
4			X		X
5	X		X		X
6		X	X		X
7	X	X	X		X
8				X	X
9	X			X	X
A		X		X	X
B	X	X		X	X
C			X	X	X
D	X		X	X	X
E		X	X	X	X
F	X	X	X	X	X

X = Connection



BOURNS®

Features

- 8 or 10 position coded switch
- Miniature industrial switch multi-position
- Vertical adjust
- Rugged surface mount design
- Rugged lead frame construction

Applications

- Board address
- Instrumentation
- Test equipment

7744 SMD 4mm Square Sealed Coded Switch

Electrical Characteristics

Contact Rating
Maximum Current .....100mA max.
Maximum Voltage 24V
Contact Resistance
.....100 milliohms max.
Insulation Resistance .....1000 megohms
Dielectric Strength .....250 volts

General Characteristics

Switch Type .....Binary
Operating Temperature Range
.....-55°C to +125°C
Storage Temperature Range
.....-55°C to +125°C
Seal Test .....85°C Fluorinert*

Mechanical Characteristics

Positions .....8 or 10
Adjustment Detent Torque
..... 0.1-2.5 N-cm

Environmental Characteristics

Shock 100G
.....0.1 ms. max. discontinuity
Vibration 20G
.....0.1 ms. max. discontinuity
Thermal Shock (5 cycles)
.....-55°C to +125°C
Contact Resistance
.....100 milliohms max.
Humidity
Insulation Resistance
.....10 megohms min.
Contact Resistance
.....100 milliohms max.
Actuation Life
8 Position .....500 cycles
10 Position .....200 cycles
Contact Resistance
.....100 milliohms max.
Maximum Soldering Heat .....245°C, 5 seconds
Standard Packaging
Tube .....50 pcs.
Tape & Reel .....500 pcs.

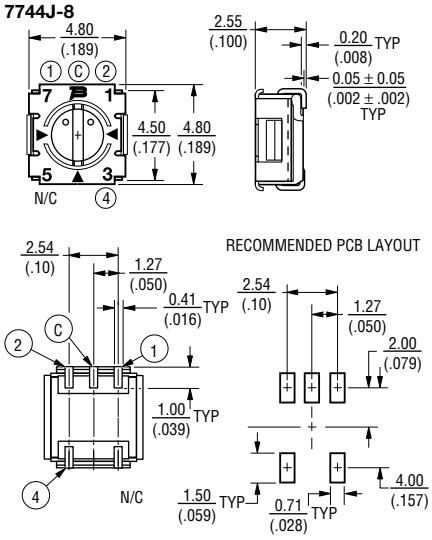
How to Order

7744 J - 1 - 8 E

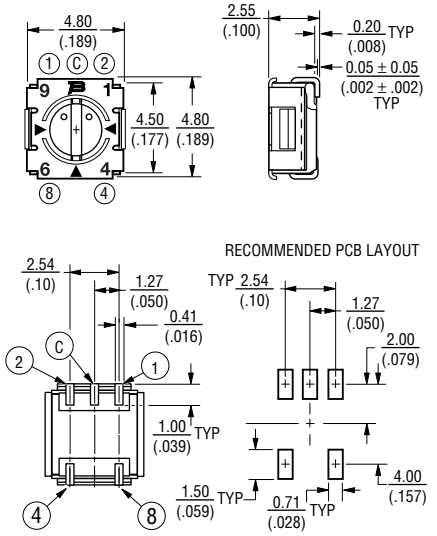
Model
Terminal
Switch Type
1 = Std. (Binary)
Number of Positions
8 = 8 Positions
10 = 10 Positions
Embossed Tape Option
(Omit letter for tube)

Product Dimensions

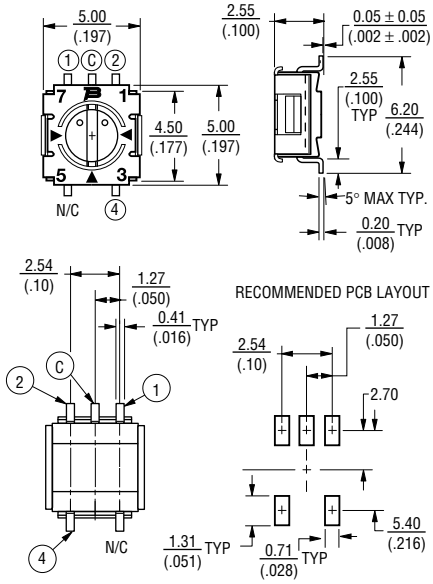
7744J-8



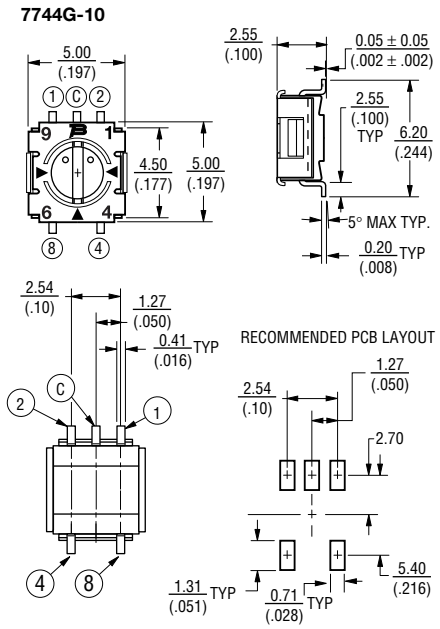
7744J-10



7744G-8



7744G-10



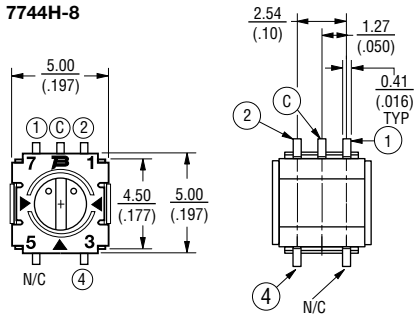
TOLERANCES: ±.2 EXCEPT WHERE NOTED.
DIMENSIONS: MM / (IN)
"OFF" POSITION IS COMMON.

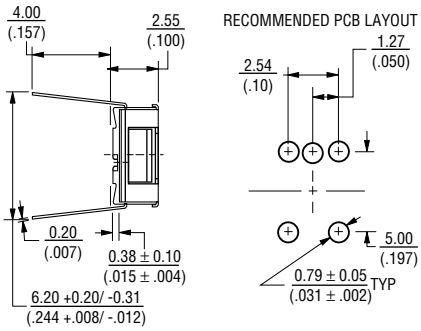
7744 SMD 4mm Square Sealed Coded Switch

BOURNS®

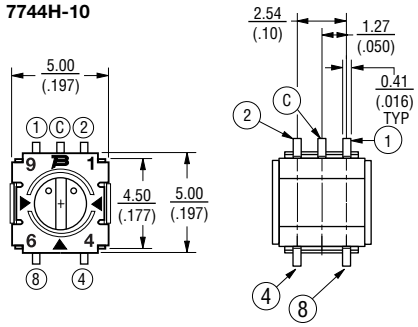
Product Dimensions

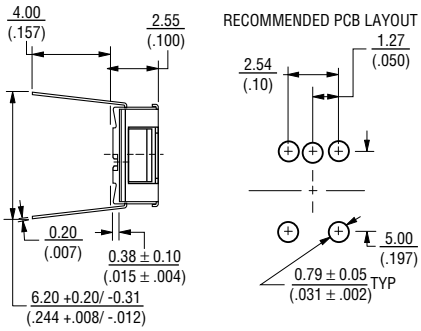
7744H-8





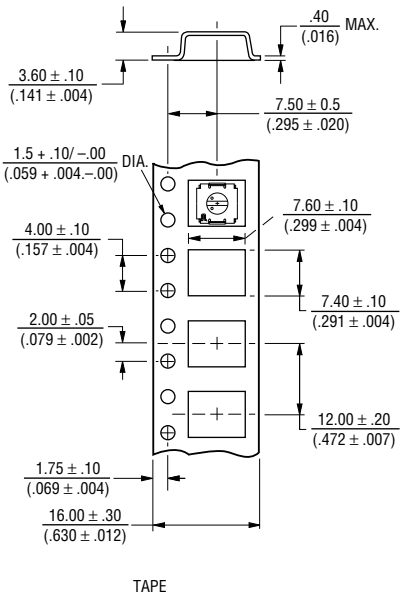
7744H-10



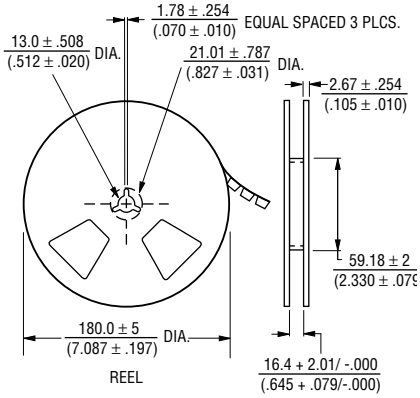


Packaging Specifications

7744J&G

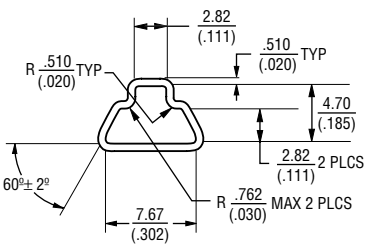


TAPE



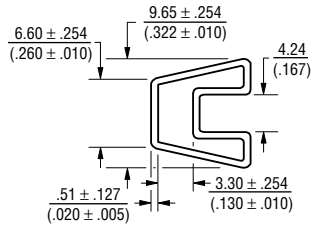
REEL

Meets EIA 481



Packaging Specifications

7744H



TUBE LENGTH - 523.24MM.
UNITS PACKAGED 100 PIECES PER TUBE.

Binary (REAL) Code

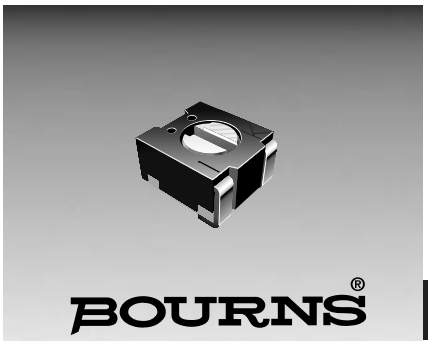
10 POSITIONS

	1	2	4	8	C
0					X
1	X				X
2		X			X
3	X	X			X
4			X		X
5	X		X		X
6		X	X		X
7	X	X	X		X
8				X	X
9	X			X	X

8 POSITIONS

	1	2	4	C
0				X
1	X			X
2		X		X
3	X	X		X
4			X	X
5	X		X	X
6		X	X	X
7	X	X	X	X

X = CONNECTION



BOURNS®

U.S. Patent No. 5043695

Features

- Single pole/double throw
- Compatible with most surface mount manufacturing processes
- 50 or 2000 cycle rotational life
- Tape and reel packaged
- Withstands 260° soldering heat

Applications

- Electronic equipment
- Portable electronics
- Security systems
- Control systems

7813 SMD 3mm Square Sealed Rotary Switch

Electrical Characteristics

Contact Rating
Maximum Current .....100mA max.
Maximum Voltage 24V
Contact Timing.....Non-shorting
Contact Resistance.....2 ohms max.
Insulation Resistance
.....100 megohms min. (DC500V)
Dielectric Strength .....250 VAC

General Characteristics

Switch Type .....SPDT
Operating Temperature Range
.....-55°C to +125°C
Storage Temperature Range
.....-55°C to +125°C
Seal Test.....85°C Fluorinert*

Mechanical Characteristics

Mechanical Angle.....245° ± 15°
Positions 2
Adjustment Torque..... .5 N-cm max.
Stop Strength .....1.8 N-cm min.
Switching Angle .....45° ± 5°

Environmental Characteristics

Shock 20G
0.1 ms max. discontinuity
Vibration 100G
0.1 ms max. discontinuity
Thermal Shock .....(5 cycles)
-55°C to +125°C
Humidity
Insulation Resistance
.....10 megohms min.
Rotational Life
-51 .....50 Cycles
-23 .....2000 Cycles
Max. Soldering Heat .....260°C,
5 seconds

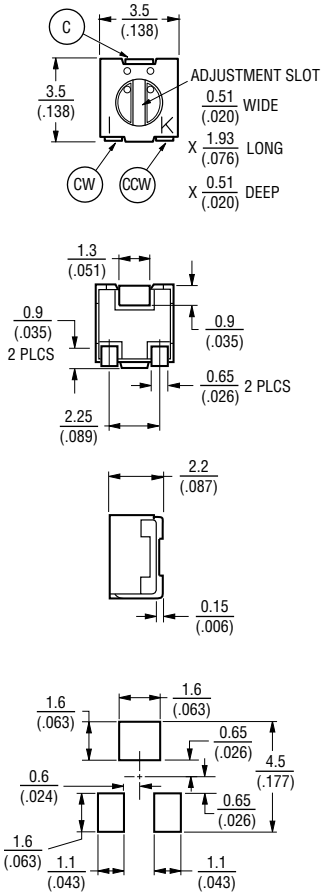
How to Order

7813 J - 1 - 51 E

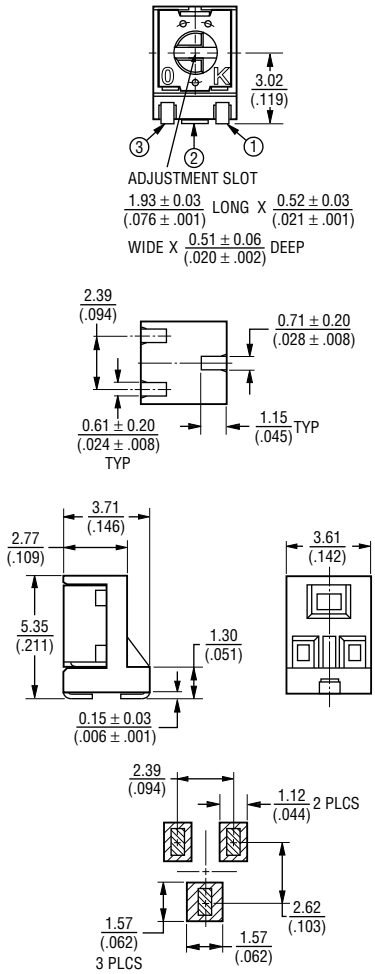
Model
Terminal
Switch Type
1 = SPDT
Rotational Life
-51 = 50 Cycles
-23 = 2000 Cycles
Embossed Tape
E = 1000 Pcs./180mm Reel (Standard)

Product Dimensions

7813J



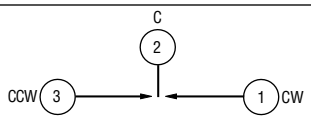
7813S



RECOMMENDED LAND PATTERN

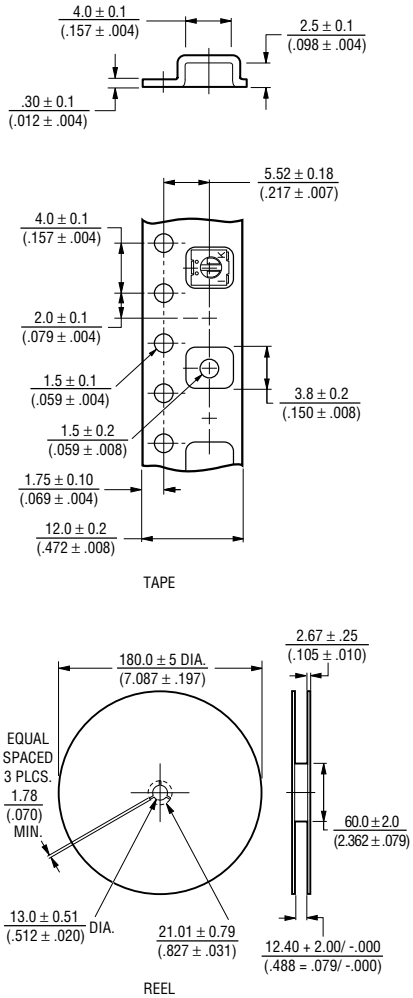
DIMENSIONS ARE: METRIC / (INCHES)

TOLERANCES: ±.2 EXCEPT WHERE NOTED.



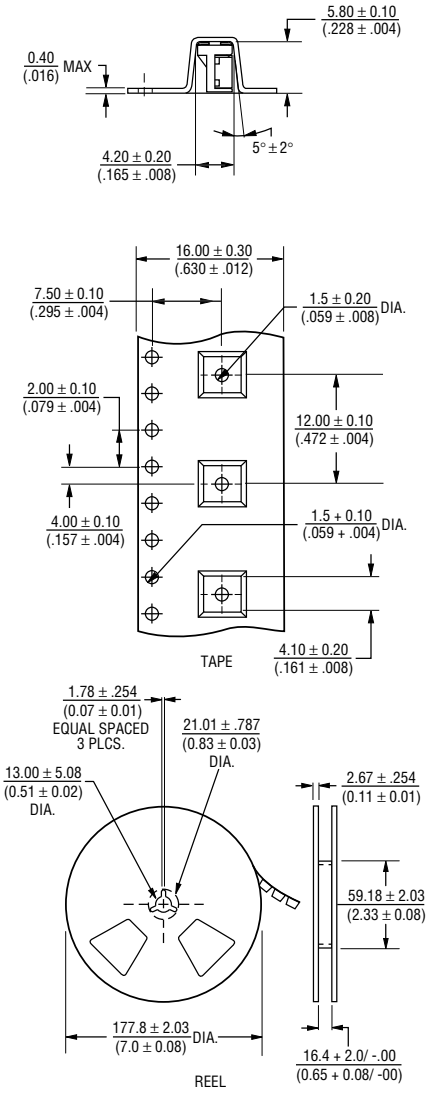
Packaging Specifications

7813J



Meets EIA 481

7813S



Meets EIA 481

BOURNS®

7814 SMD 4mm Square Sealed Rotary Switch

Features

- Single pole/double throw
- Compatible with most surface mount soldering processes
- 50 or 2000 cycle rotational life
- Compatible with popular vacuum pick-and-place equipment

Applications

- Security systems
- Portable instruments
- Electronic equipment

Electrical Characteristics

Contact Rating
Maximum Current .....100mA max.
Maximum Voltage 24V
Contact Timing.....Non-shorting
Contact Resistance.....2 ohms max.
Insulation Resistance
.....100 megohms min. (DC500V)
Dielectric Strength .....250 VAC

General Characteristics

Switch Type .....SPDT
Operating Temperature Range
.....-55°C to +125°C
Storage Temperature Range
.....-55°C to +125°C
Seal Test.....85°C Fluorinert*
Vibration .....20G TRS
Shock .....100G TRS

Mechanical Characteristics

Mechanical Angle.....240° ± 15°
Positions 2
Adjustment Torque.....1.8 N-cm max.
Stop Strength.....2.5 N-cm min.
Switching Angle .....45° ± 5°
Pushover Strength (S Style)
.....2 kilograms minimum
Weight.....Approximately 0.2 gm.
Marking .....Manufacturer's trademark, life code and date code

Environmental Characteristics

Vibration 20G
Shock 100G
Thermal Shock.....(5 cycles)
-55°C to +125°C
Humidity
Insulation Resistance
.....10 megohms min.
Rotational Life
-51 .....50 Cycles
-23 .....2000 Cycles
Max. Soldering Heat .....260°C, 10 seconds
Packaging Options
J & G .....500 pcs./180mm reel
S.....200 pcs./180mm reel
H .....50 pcs./tube

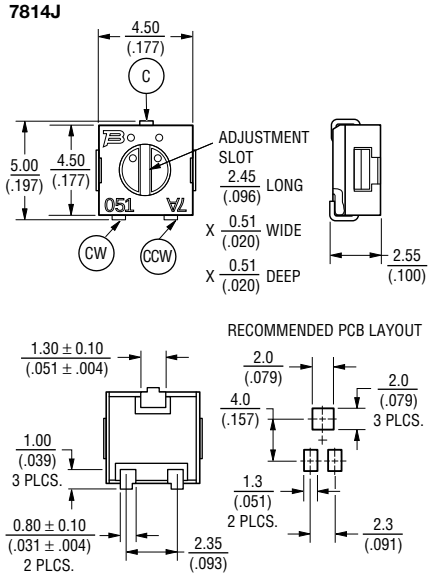
How to Order

7814 J - 1 - 51 E

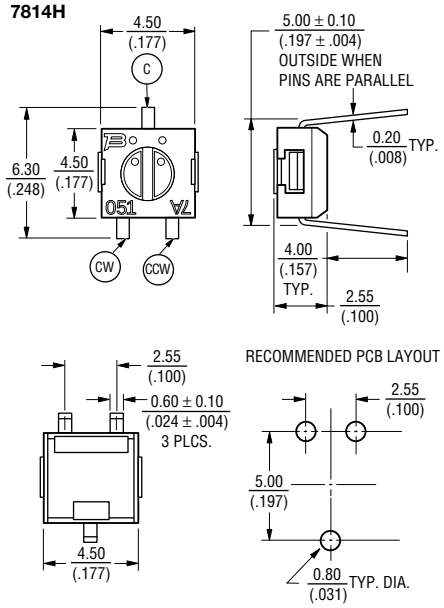
Model
Terminal
Switch Type
1 = SPDT
Rotational Life
-51 = 50 Cycles
-23 = 2000 Cycles
Optional Embossed Tape Designator
(For pin styles J, G, S only - omit for tube packaging)

Product Dimensions

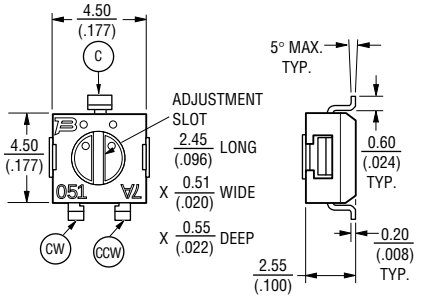
7814J



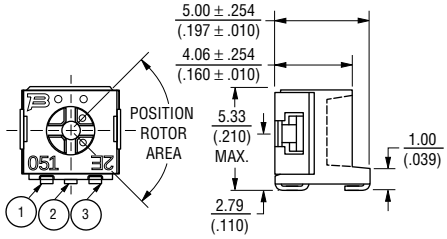
7814H

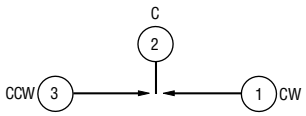


7814G



7814S





DIMENSIONS ARE: METRIC / (INCHES)

TOLERANCES: ±.2 EXCEPT WHERE NOTED.

Additional Features

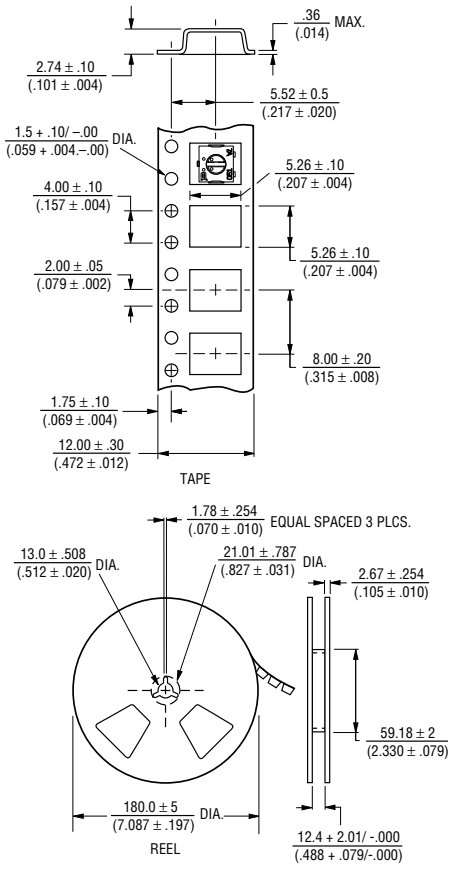
- J-hook, gull-wing and through hole
- Meets EIA/EIAJ/IPC/VRCI SMD standard outline dimensions

7814 SMD 4mm Square Sealed Rotary Switch

BOURNS®

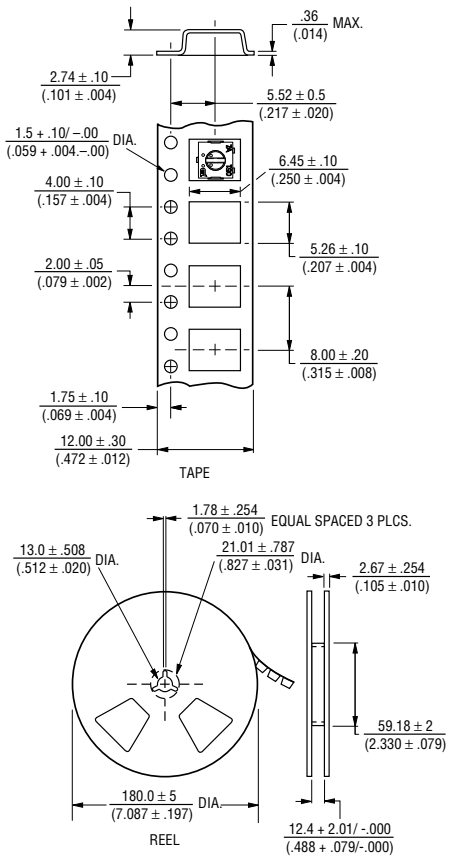
Packaging Specifications

(J Style)



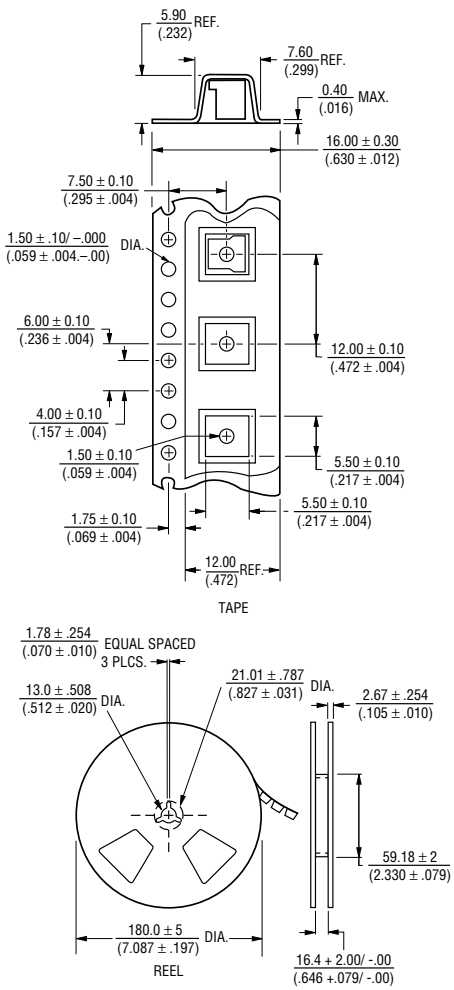
Meets EIA specification 481.

(G Style)



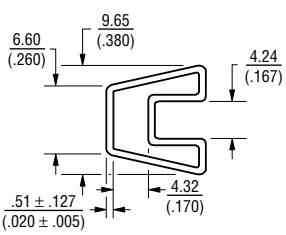
Meets EIA specification 481.

(S Style)

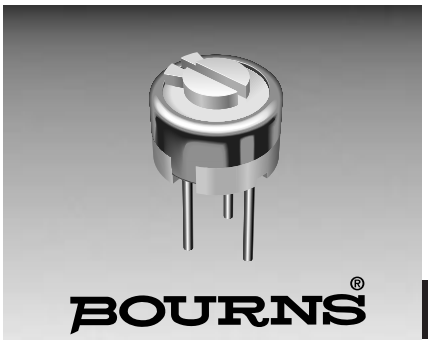


Meets EIA Specification 481.

(H Style)



TUBE LENGTH - 523.24MM.
UNITS PACKAGED 100 PIECES PER TUBE.



Features

- Single pole/double throw
- Vertical adjust
- Rugged construction
- Board washable
- Wave solderable

Applications

- Remote controls
- Security systems
- Medical equipment
- Test equipment

7829 6mm Through-hole Sealed Rotary Switch

Electrical Characteristics

Contact Rating
Maximum Current .....100mA max.
Maximum Voltage 24V
Contact Timing.....Non-shorting
Contact Resistance.....2 ohms max.

General Characteristics

Switch Type .....SPDT
Operating Temperature Range
.....-55°C to +125°C
Storage Temperature Range
.....-55°C to +125°C
Thermal Shock.....5 cycles
.....-55°C to +125°C
Seal Test.....85°C Fluorinert*
Humidity.....IR 10 megohms min.

Mechanical Characteristics

Stop Strength .....3.5 N.cm
Mechanical Angle.....245° ± 15°
Positions 2
Switching Angle .....45° ± 5°

Environmental Characteristics

Vibration 30G
Shock 100G
Thermal Shock .....(5 cycles)
-55°C to +125°C
Humidity
Insulation Resistance
.....10 megohms min.
Rotational Life
-51 .....50 Cycles
-23 .....2000 Cycles
Standard Packaging .....50 pcs/tube

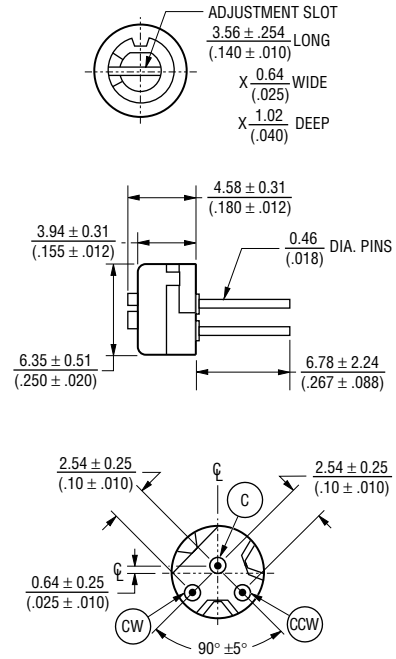
How to Order

7829 H - 1 - 51

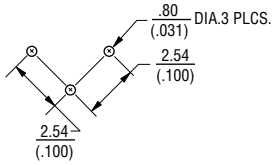
Model
Terminal
Switch Type
1 = SPDT
Rotational Life
-51 = 50 Cycles
-23 = 2000 Cycles

Product Dimensions

7829H

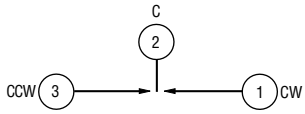


RECOMMENDED PCB LAYOUT

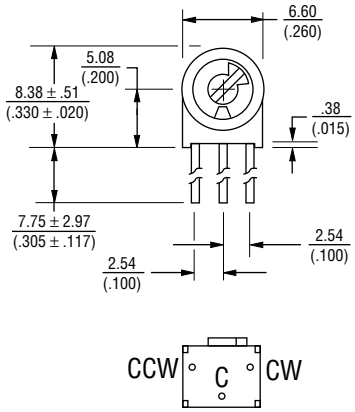


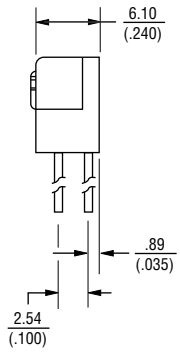
DIMENSIONS ARE: METRIC / (INCHES)

TOLERANCES: ±.2 EXCEPT WHERE NOTED.

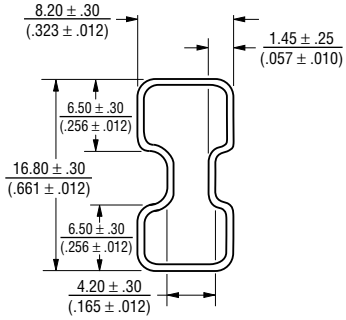


7829S





Packaging Specifications



.TUBE LENGTH - 356 ± 1.50 MM.
UNITS PACKAGED 50 PIECES PER TUBE.

BOURNS®

Features

- Single pole/single throw
- Bulk or ammo pack packaging
- Vertical or horizontal actuation
- With or without ground terminal
- Wave solderable

Applications

- Recorders
- Camcorders
- Smoke alarms
- Electronic toys

7906 6mm Square Key Switch

Electrical Characteristics

Contact Rating
Maximum Current 20mA
Maximum Voltage .....15 VDC
Contact Resistance
.....100 milliohms max.
Insulation Resistance
.....50 megohms min. (100 VDC)
Dielectric Strength .....250 VAC
Contact Bounce .....3ms max. (on)
.....10ms max. (off)

General Characteristics

Switch Type .....(N.O.) SPST
Operating Temperature Range
.....-20°C to +70°C
Storage Temperature Range
.....-40°C to +85°C

Mechanical Characteristics

Operating Force.....160gf ±40gf
Push Stroke .....0.25mm ±0.1
Operating Life .....100,000 Actuations
Max. Soldering Heat .....260°C,
5 seconds

How to Order

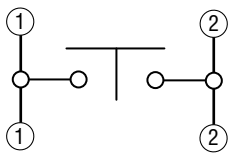
7906 H - 1 - A

Model
Terminal
Switch Type
001 = Standard
002 = Ground Terminal
Optional Tape & Ammo Pack Packaging
Std. Packaging.....500 pcs./Bag
Tape .....1000 pcs./Ammo Pack

Note: Ammo pack modifies pin pattern

DIMENSIONS ARE: METRIC / (INCHES)

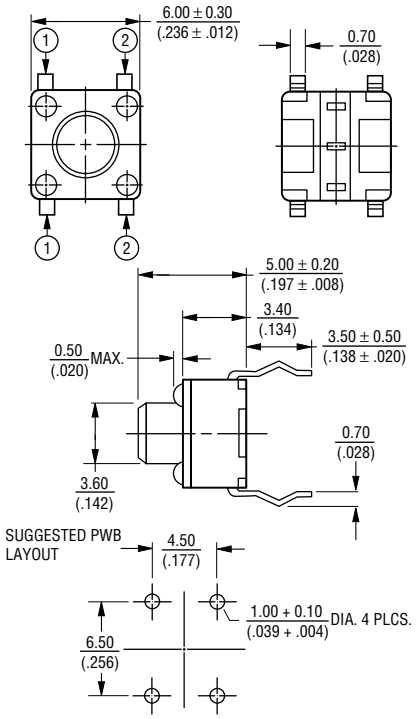
TOLERANCES: ±.2 EXCEPT WHERE NOTED.



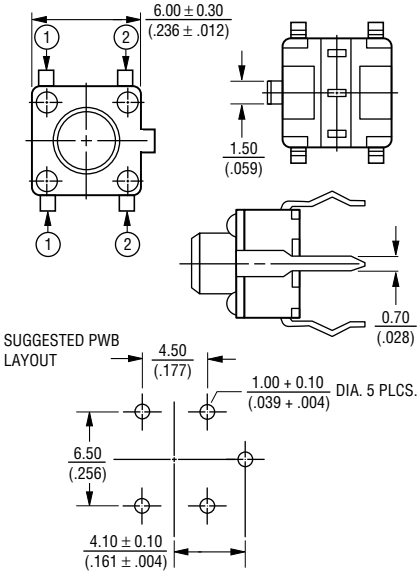
PUSH ON

Product Dimensions

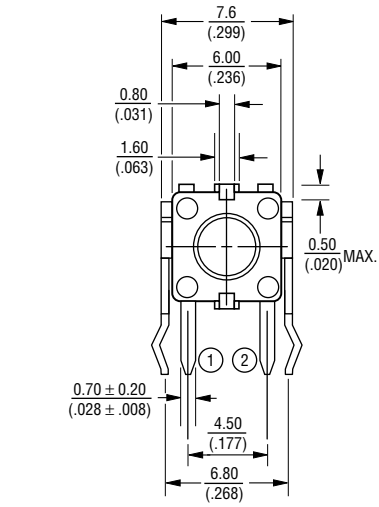
7906H-1

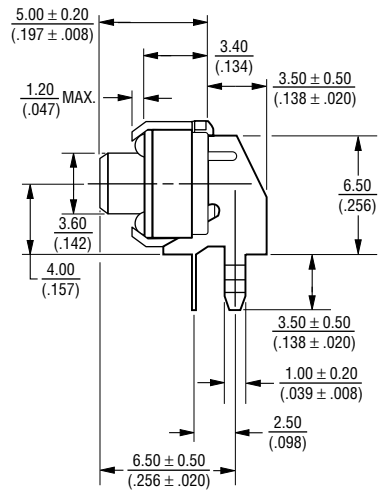


7906H-2

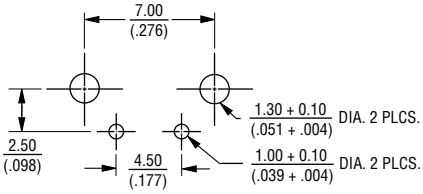


7906S-1



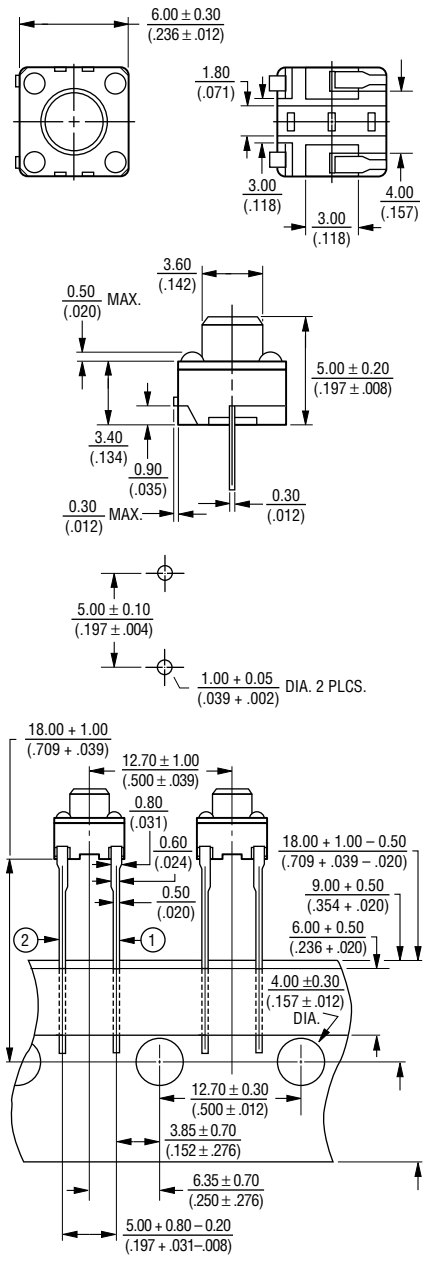


SUGGESTED PWB LAYOUT

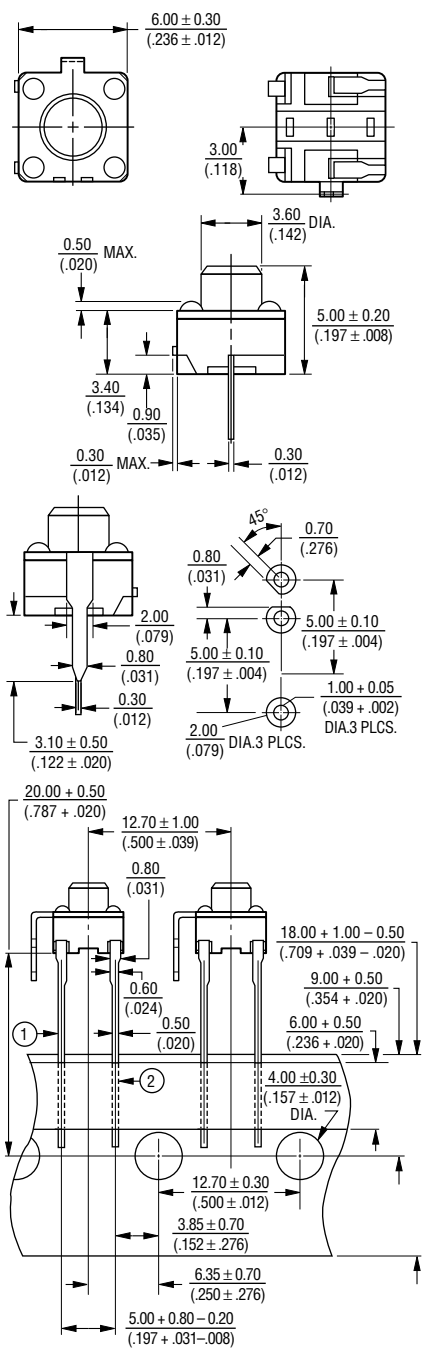


Packaging Specifications

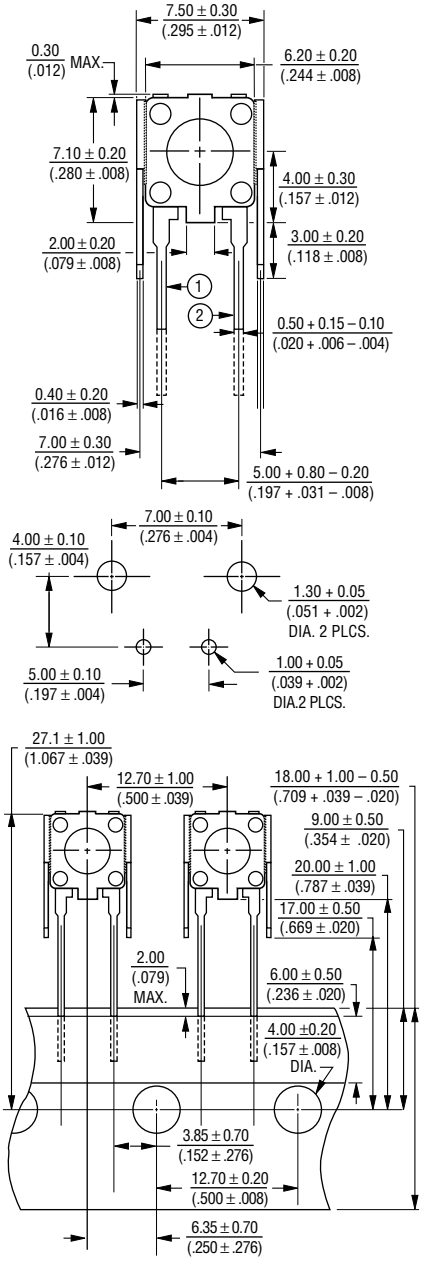
7906H-1

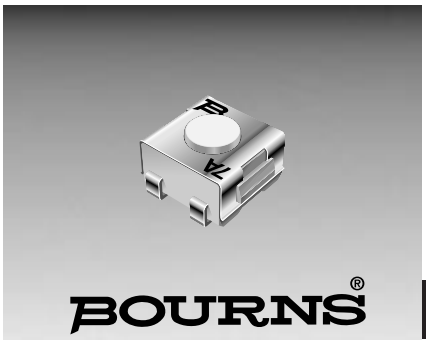


7906H-2



7906S-1





BOURNS®

Features

- Compatible with most surface mount soldering processes
- Compatible with popular vacuum pick-and-place equipment
- J-hook, gull-wing & pinned configurations
- Sealed for board washing

Applications

- Camcorders
- Remote controls
- Security systems
- Electronic games

7914 4mm SMD & Through-hole Sealed Key Switch

Electrical Characteristics

Contact Rating
Maximum Current .....100mA max.
Maximum Voltage 24V
Contact Resistance
.....100 milliohms max.
Insulation Resistance
.....100 megohms min. (DC500V)
Dielectric Strength .....250 VAC

General Characteristics

Switch Type .....Normally open
Operating Temperature Range
.....-55°C to +125°C
Storage Temperature Range
.....-55°C to +125°C
Seal Test .....85°C Fluorinert*
Vibration 20G
Shock 100G

Mechanical Characteristics

Pushover Strength (S Style)
.....2 kilograms minimum
Cycle life, loaded .....100,000 actuations
Contact resistance
.....100 milliohms max.
Marking .....Manufacturer's code and date code
Packaging Options
J, G & Z .....100 pcs./tube
H .....100 pcs./tube

How to Order

7914 G - 2 - 000 E

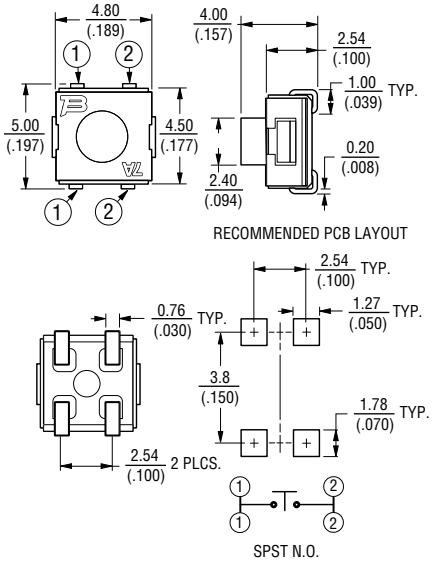
Model
Terminal
Switch Type
001 = N.O. Optional Contacts Au
002 = Std. N.O. Contacts Ag
Product Code for Pin Styles J, G and H
000 = 4.0mm Height FMS
024 = 2.4mm Height (Flush Actuator) FMS
032 = 3.2mm Height FMS
Embossed Tape
(Option Applicable to Styles J, G and Z only - Consult Factory. Omit for Tube packaging.)

DIMENSIONS ARE: METRIC / (INCHES)

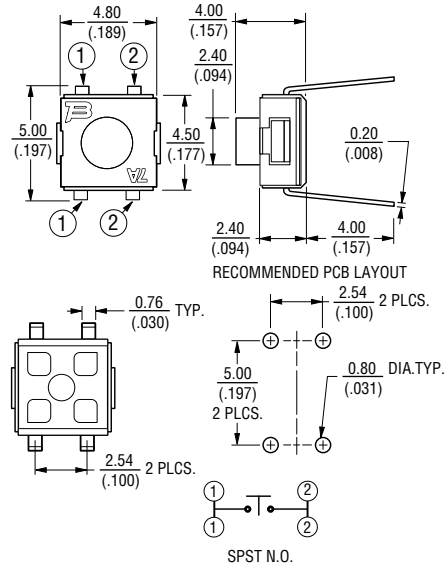
TOLERANCES: ±.2 EXCEPT WHERE NOTED.

Product Dimensions

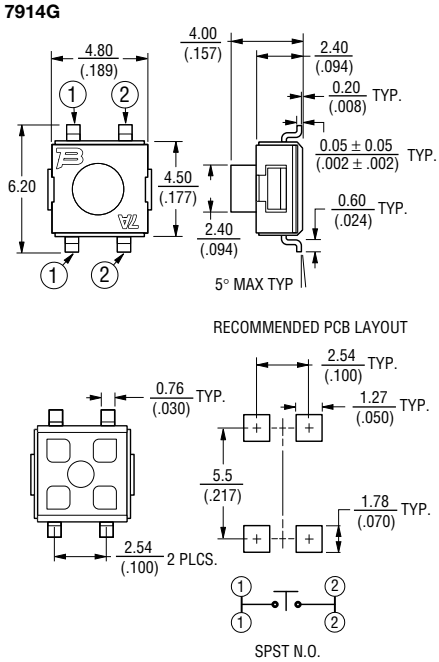
7914J



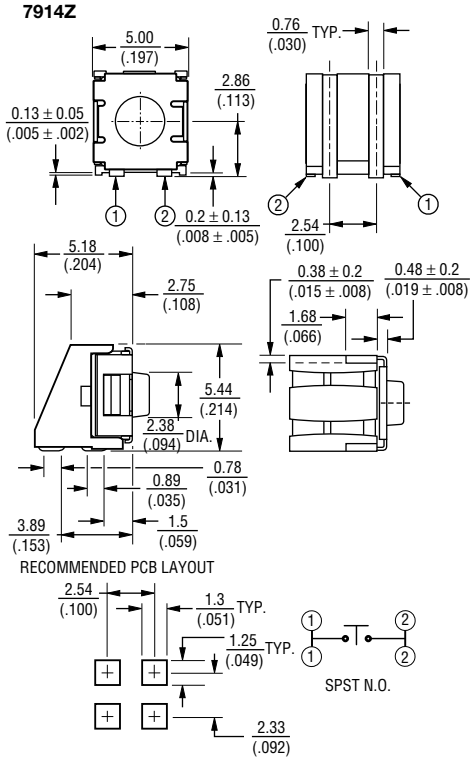
7914H



7914G



7914Z



Additional Features

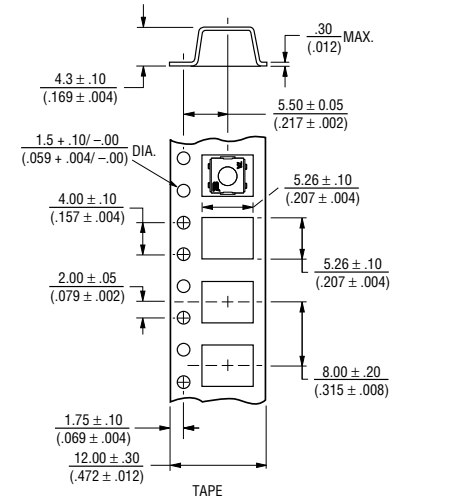
- Meets EIA/EIAJ/IPC/VRCI SMD standard outline dimensions
- Top or side actuated

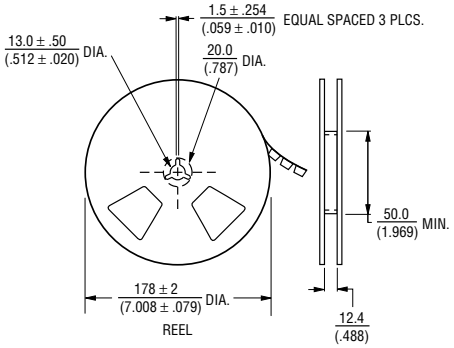
7914 4mm SMD & Through-hole Sealed Key Switch

BOURNS®

Packaging Specifications

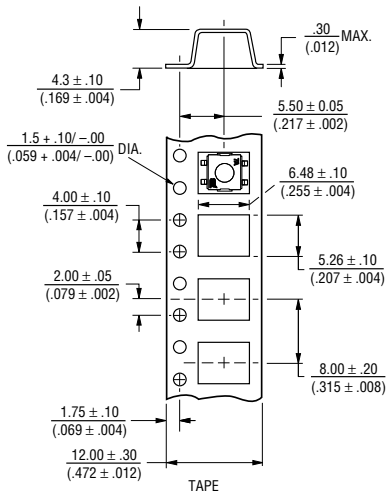
7914J

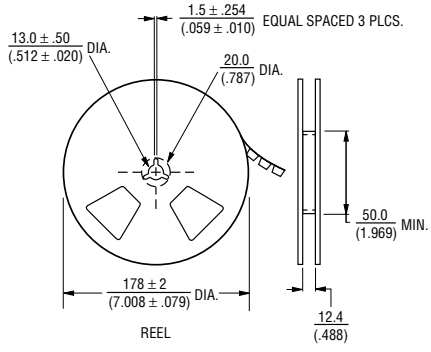




Meets EIA specification 481.

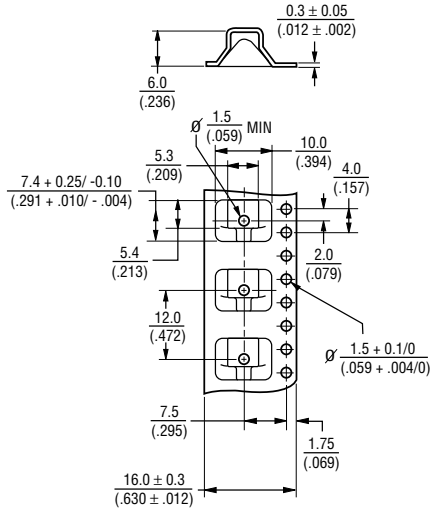
7914G

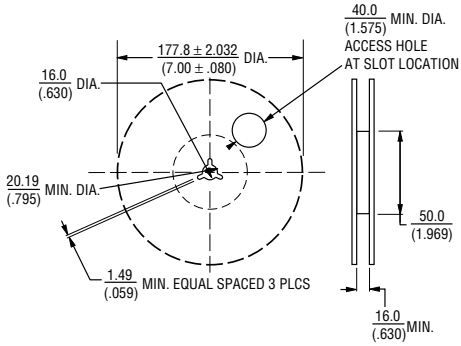




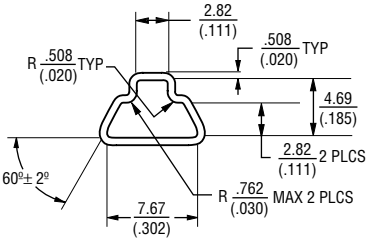
Meets EIA specification 481.

7914Z

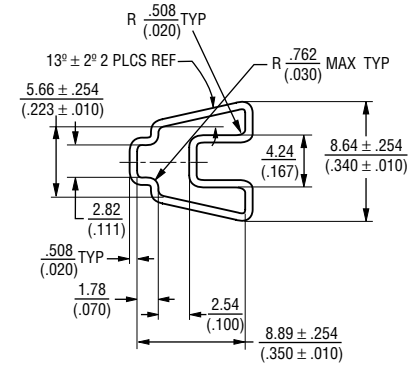




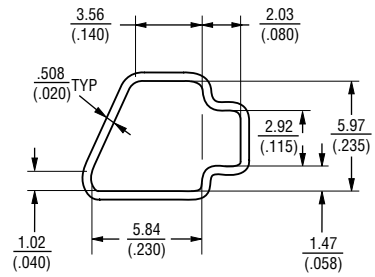
7914J/G



7914H



7914Z



BOURNS®

Features

- Single pole/single throw
- Compatible with surface mount reflow processes
- Tape and reel packaged
- 1mm profile height available
- Low level signal switch

Applications

- Electronic toys
- Personal alerts
- Remote locks
- Panel meters

7916 SMD 6mm Square Key Switch

Electrical Characteristics

Contact Rating
Maximum.....20mA 15 VDC
Minimum.....10 µA 2 VDC
Contact Resistance
.....100 milliohms max.
Insulation Resistance
.....50 megohms min. (DC100V)
Dielectric Strength .....250 VAC
Contact Bounce .....3ms max. (on)
.....10ms max. (off)

General Characteristics

Switch Type .....(N.O.) SPST
Operating Temperature Range
.....-20°C to +70°C
Storage Temperature Range
.....-40°C to +85°C

Mechanical Characteristics

Push Stroke .....0.25mm ±0.1
Actuation Force .....160 ±50 gf
Operating Life .....100,000 Actuations

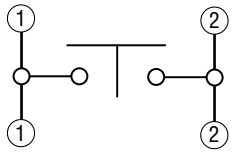
How to Order

7916 X - 1 - E

Model
Terminal
Switch Type
1 = Std. (N.O.)
Embossed Tape Designator
E = 370mm Reel (Standard)
7916X-1 = 2000 pcs./Reel

DIMENSIONS ARE: METRIC / (INCHES)

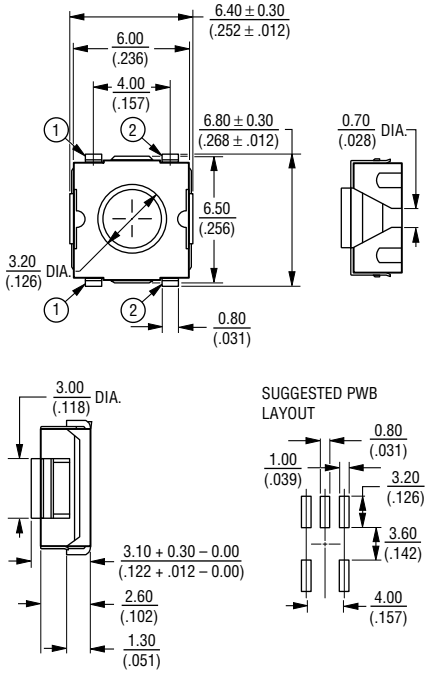
TOLERANCES: ±.2 EXCEPT WHERE NOTED.



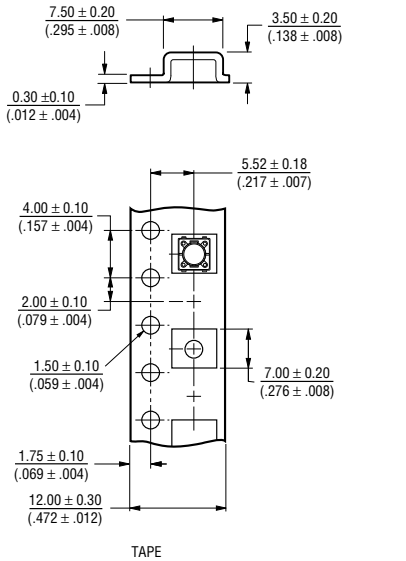
PUSH ON

Product Dimensions

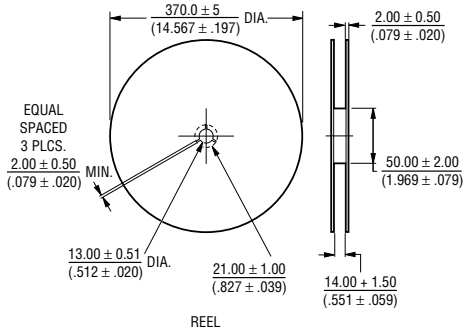
7916X-1
(WITH GROUND LUG)



Packaging Specifications

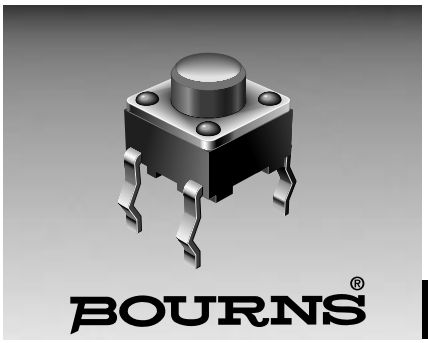


TAPE



REEL

Meets EIA specification 481.



Features

- Available sharp click feel with a positive tactile feedback
- Ultra-miniature and lightweight structure suitable for high density mounting
- Economical with high reliability

Applications

- Electronic toys
- Radios
- Stereos
- Remote controls

SDT Series Tact Switch

Electrical Characteristics

Electrical Life
O. Force R .....100,000 cycles min.
O. Force K+N .....500,000 cycles min.
Rating .....DC 12V 50 mA
Contact Resistance .....100 milliohms max.
Insulation Resistance
.....100 megohms, DC 500V min.
Dielectric Strength ....250V AC for 1 minute
Contact Arrangement.....1 pole 1 position

Environmental Characteristics

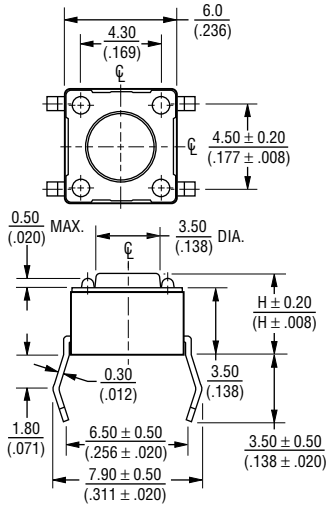
Mechanical Lifetime ....100,000 cycles min.
Operation Force .....260g ±50g, 160g ±50g, 100g ±50g
Stop Strength.....Place the switch such that vertical, a static load of 3kg shall be applied in the direction of actuator operation for a period of 15 sec.
Stroke
6mm type .....0.25 + 0.2/- 0.1mm
12mm type .....0.35 ± 0.1mm
Temperature Range .....-20°C to +70°C
Vibration Test.....Mil-STD-202F, Method 201A
Frequency .....10-55-10 Hz/1 minute
Directions .....X,Y,Z, three mutually perpendicular directions
Time.....2 hours each direction. High reliability
Shock Test .....MIL-STD-202F, Method 213B, Condition A
Gravity .....50G (peak value), 11 msec
Direction & Times.....6 sides and 3 times in each direction. High reliability

Physical Characteristics

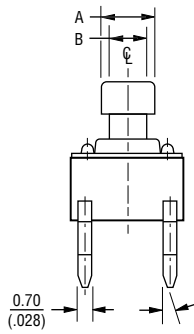
Cover Materials
.....Steel tin plated, 100µ min.
Base Materials .....UL94V-0 PBT plus glass fiber reinforced
Cover/Base Color.....Black
Actuator Materials .....Dulacon POM plus glass fiber reinforced
Actuator Color .....Black, brown, red
Contact Disc Materials ....Phosphor bronze with silver cladding
Terminal Materials
.....Brass with silver cladding
Wave Soldering Process
.....Recommended solder temperature at 260°C (500°F) max., 5 seconds
Hand Soldering Process
.....Use a soldering iron of 30 watts or less, controlled at 320°C (608°F) for approximately 2 seconds while applying solder
Packaging .....1,000 pieces per bag

Product Dimensions

SDTX-610/620/630/650/660



SDTX-644/648



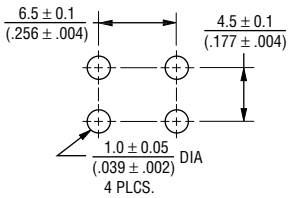
SDTX-644

DIM.	MM	IN.
A	2.4	.094
B	1.6	.063

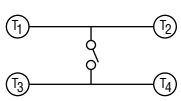
SDTX-648

DIM.	MM	IN.
A	2.8	.110
B	2.0	.079

RECOMMENDED PCB LAYOUT

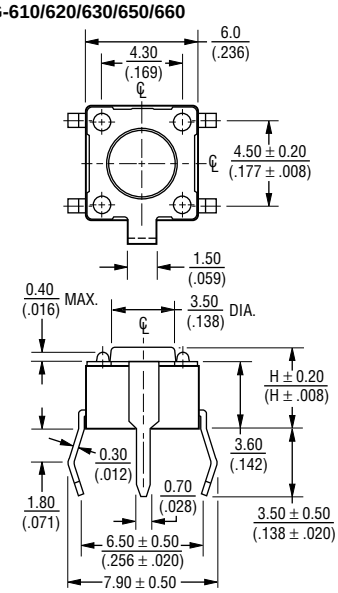


CIRCUIT DIAGRAM

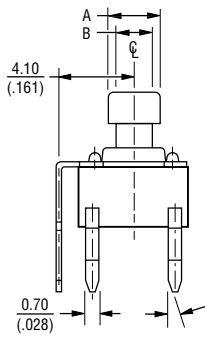


DIMENSIONS: MM (IN)

SDTG-610/620/630/650/660



SDTG-644/648



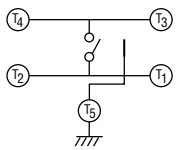
SDTG-644

DIM.	MM	IN.
A	2.4	.094
B	1.6	.063

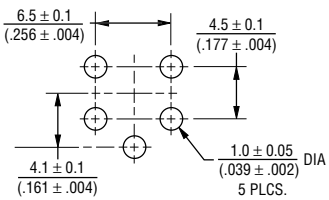
SDTG-648

DIM.	MM	IN.
A	2.8	.110
B	2.0	.079

CIRCUIT DIAGRAM



RECOMMENDED PCB LAYOUT



Additional Features

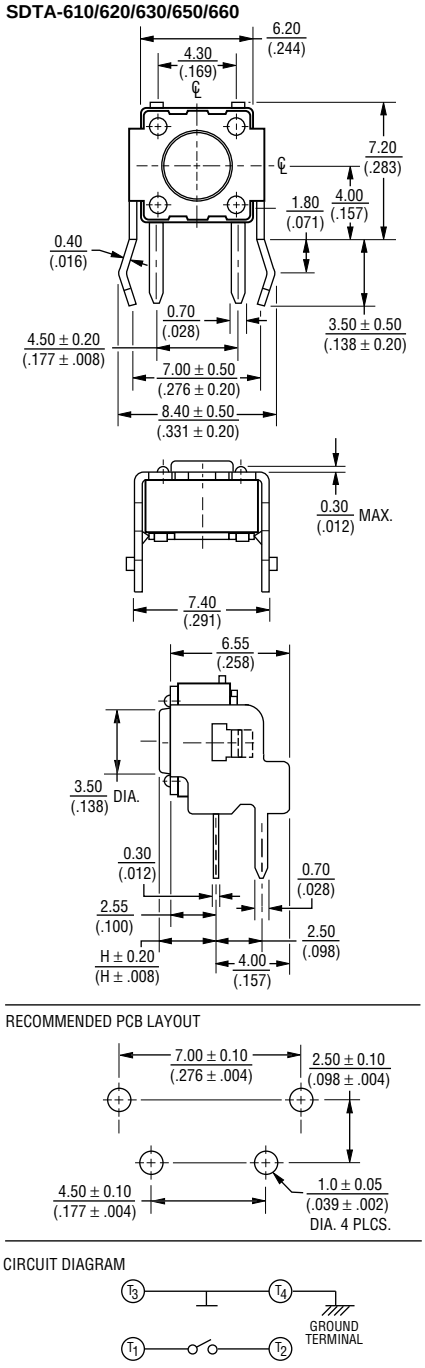
- Insert molding in the contact with special treatment prevents flux buildup during soldering and permits autodipping

SDT Series Tact Switch

BOURNS®

Product Dimensions

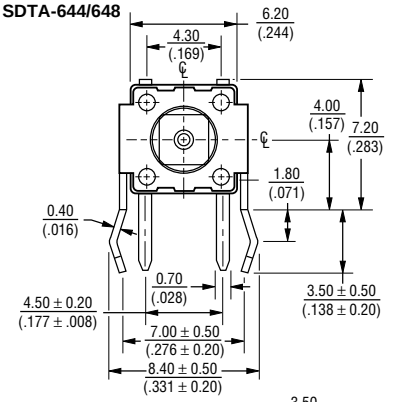
SDTA-610/620/630/650/660



RECOMMENDED PCB LAYOUT

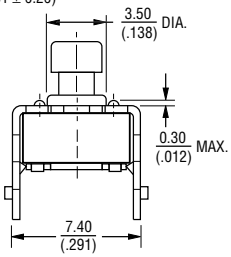
CIRCUIT DIAGRAM

SDTA-644/648



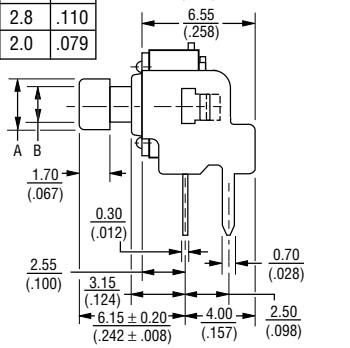
SDTA-644

DIM.	MM	IN.
A	2.4	.094
B	1.6	.063

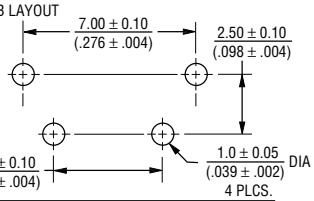


SDTA-648

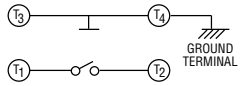
DIM.	MM	IN.
A	2.8	.110
B	2.0	.079



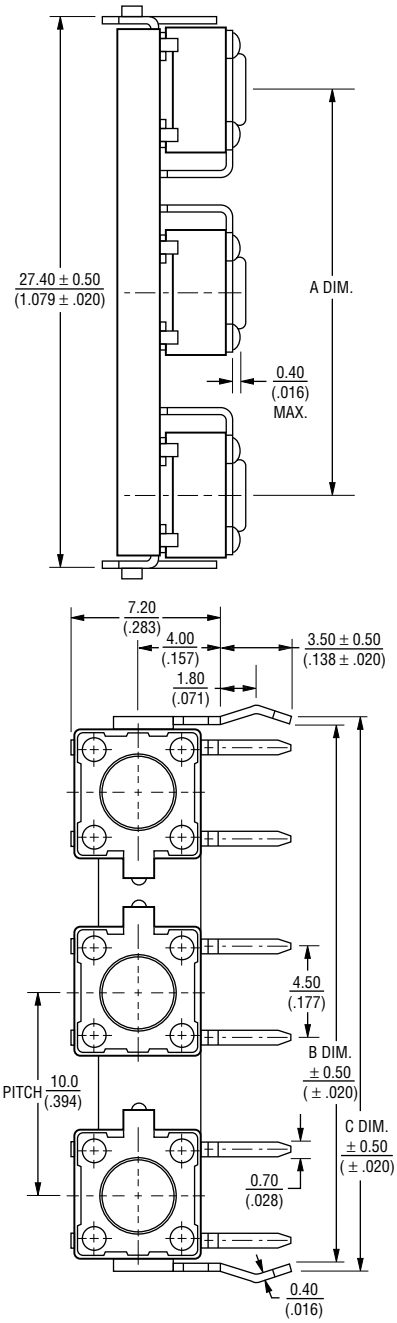
RECOMMENDED PCB LAYOUT



CIRCUIT DIAGRAM

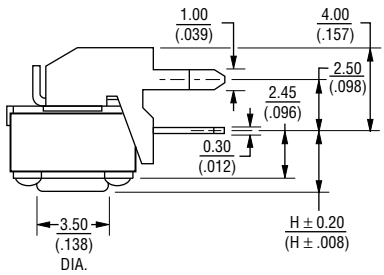


SDTU Series

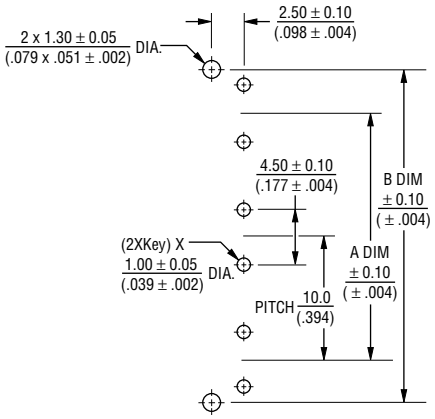


Product Dimensions

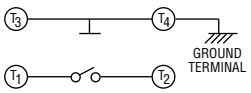
SDTU Series (Continued)



RECOMMENDED PCB LAYOUT

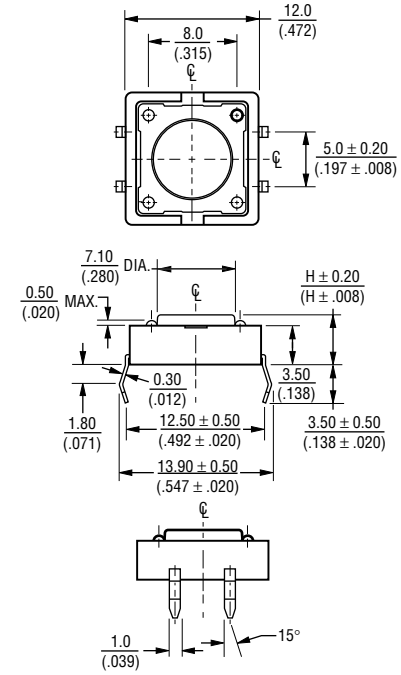


CIRCUIT DIAGRAM

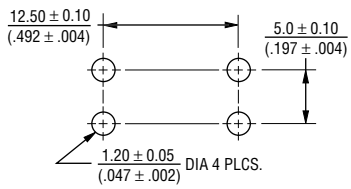


DIM.	3 KEYS (-11)	4 KEYS (-12)	6 KEYS (-13)
A	20 (.787)	30 (1.181)	50 (1.969)
B	27 (1.063)	37 (1.457)	57 (2.244)
C	28.4 (1.118)	38.4 (1.512)	58.4 (2.299)

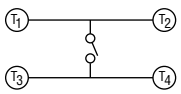
SDTX-210



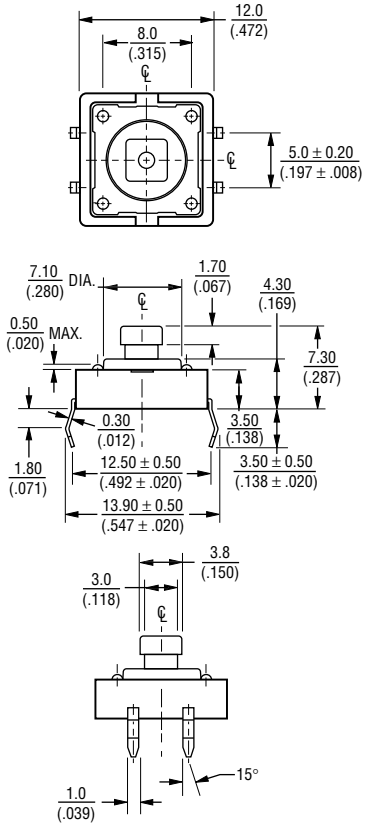
RECOMMENDED PCB LAYOUT



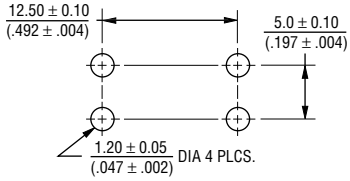
CIRCUIT DIAGRAM



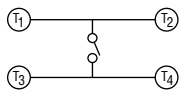
SDTX-244



RECOMMENDED PCB LAYOUT

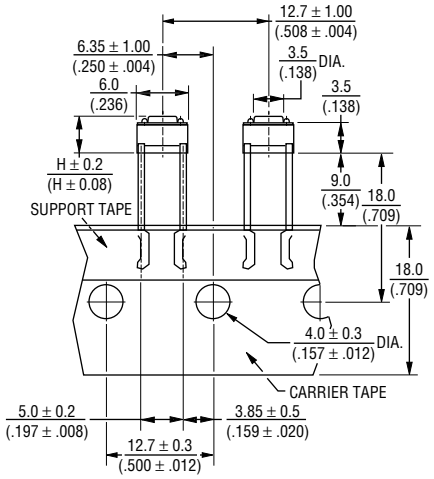


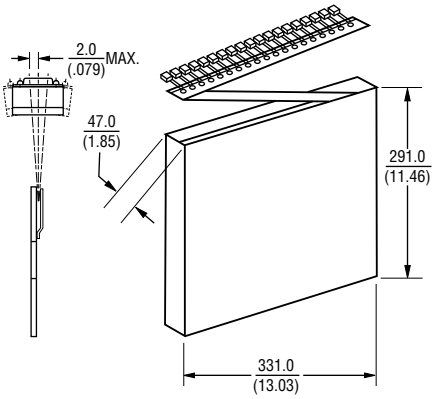
CIRCUIT DIAGRAM



Packaging Specifications

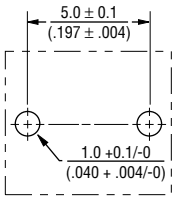
SDTX-610/620/630/644/648/650 Ammo Pack



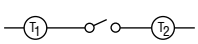


700 pieces per box

RECOMMENDED PCB LAYOUT



CIRCUIT DIAGRAM



How to Order

SDT G - 6 10 - K 2 1

Model

Product Series
- X = Standard
- G = Ground Terminal
- A = Right Angle Type
- U = Multiple Type

Body Size
- 6 = 6mm
- 2 = 12mm *

Distance From First Pin to Top of Head (Right Angle Type)
- 10 = 3.15mm
- 20 = 3.85mm
- 30 = 5.85mm
- 44 = 6.15mm (square head)
- 48 = 6.15mm (square head)
- 50 = 8.35mm
- 60 = 11.85mm

Height (Standard Type)
- 10 = 4.3mm
- 20 = 5.0mm
- 30 = 7.0mm
- 44 = 7.3mm (square head)
- 48 = 7.3mm (square head)
- 50 = 9.5mm
- 50 = 9.5mm
- 60 = 13mm

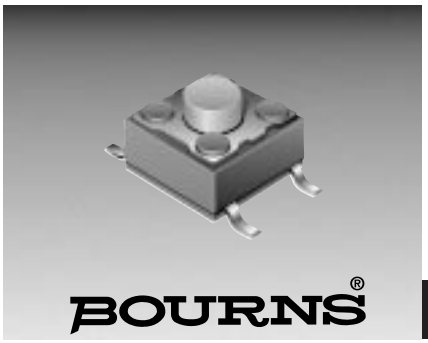
Actuating Force
- K = 100g (black head - 6mm only)
- N = 160g (brown head)
- R = 260g (red head)

**Pitch (U Type Only)
- 1 = 10mm
- 2 = 15mm
- 3 = 18mm

**Number of Switches (U Type Only)
- 1 = 3 switches
- 2 = 4 switches
- 3 = 6 switches

*"X" pin style only: options 10 and 44 are available for Height.

**For X type only, substitute "AP" for Ammo Pack in place of last two digits of part number.



Features

- Available sharp click feel with a positive tactile feedback
- Ultra-miniature and lightweight structure suitable for high density mounting
- Very economical with high reliability

Applications

- Musical equipment
- Electronic equipment
- Test equipment

SDTM Series SMD Tact Switch

Electrical Characteristics

Electrical Life
.....100,000 cycles min. for 260g
500,000 cycles min. for 70g, 100g, 160g
Rating .....DC 12V, 50mA
Contact Resistance.....100 mohms max.
Insulation Resistance ..100Mohms min., DC 500V min.
Dielectric Strength
.....AC 250V for 1 minute
Contact Arrangement...1 pole 1 position

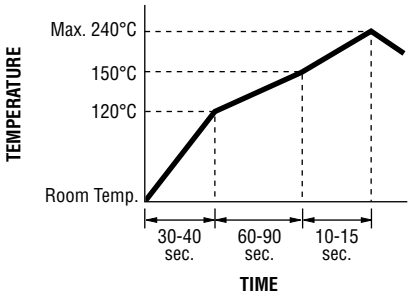
Environmental Characteristics

Mechanical Life.....100,000 cycles min.
Operation Force..70g, 100g, 160g, 260g
Tolerance.....±50g (±20g for 70g)
Stop Strength..Place the switch vertical, a static load of 3kg shall be applied in the direction of actuator operation for a period of 15 seconds
Stroke.....0.25mm (+0.2mm, -0.1mm)
Temperature Range.....-25°C to +70°C
Vibration Test .....MIL-STD-202F, Method 201A
Frequency 10-50-10Hz/1minute
Directions.....X,Y,Z 3 mutually per pendicular directions
Time.....2 hours each direction, high reliability
Shock Test .....MIL-STD-202F, Method 213A, Condition A
Gravity .....50g (peak value), 11msec.
Directions/Time.....6 sides and 3 times in each direction

Physical Characteristics

Cover Materials.....Stainless steel
Base Materials .....Thermoplastic Nylon FG 101, UL94V-0
Actuator Materials.....Thermoplastic Nylon UL94V-0
Color.....Light blue, black, brown, red
Contact Disc. Materials.....Phosphor bronze with silver cladding
Terminal Materials .....Brass with silver cladding

REFLOW SOLDERING PROFILE (SMD MODEL)



SOLDERING PROCESS

Hand Soldering
Soldering iron of 30W or less, controlled at 320°C for approx. 2 seconds while applying solder.

Reflow Soldering
Peak temperature or reflow oven should be set to 240°C max.

HOW TO ORDER

SDT M - 6 10 - K TR

Model

Product Code
M = SMD

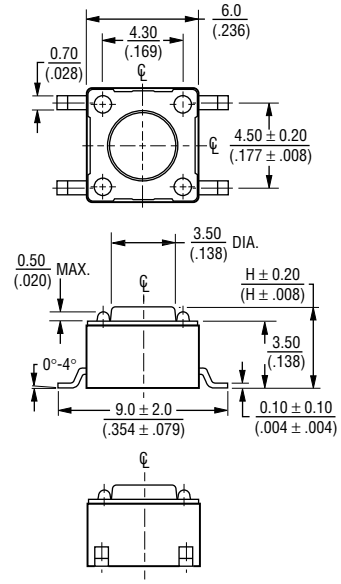
Size
6 = 6mm

Height
10 = 4.3mm
20 = 5.0mm
30 = 7.0mm
44 = 7.3mm (square head)
50 = 9.5mm
60 = 13mm

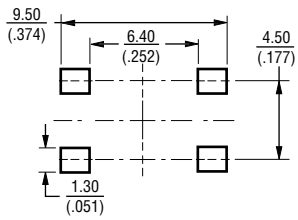
Actuating Force
U = 70g (blue)
K = 100g (black)
N = 160g (brown)
R = 260g (red)

Packaging Option
TR = Embossed tape
610 = 1000 pcs.
620 = 900 pcs.

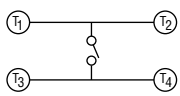
Product Dimensions



RECOMMENDED PCB LAYOUT



CIRCUIT DIAGRAM



DIMENSIONS: MM / (IN)

Additional Features

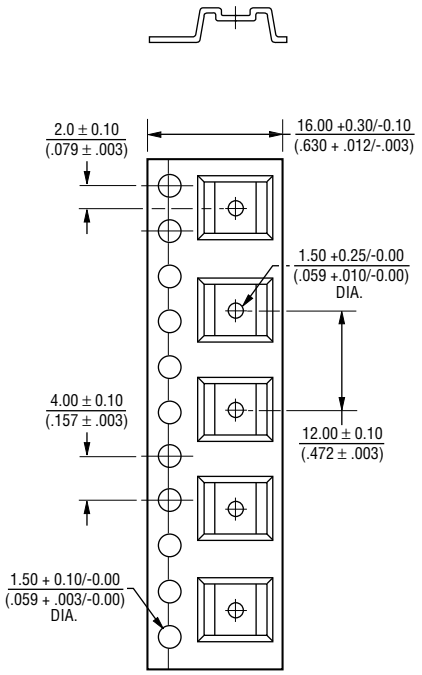
■ Insert molding in the contact with special treatment prevents flux buildup during soldering and permits autodipping

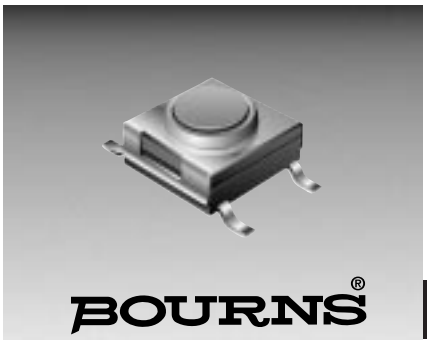
SDTM Series SMD Tact Switch

BOURNS®

Packaging Specifications

SDTM610/620(TR)





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Features

- Through-hole and SMD styles available
- Available sharp click feel with a positive tactile feedback
- Ultra-miniature and lightweight structure suitable for high density mounting
- Designed for washing after soldering

Applications

- Stereos
- Radios
- Television & decoder boxes
- GPS receivers

ST(H,M,J)W Series Sealed Tact Switch

Electrical Characteristics

Electrical Life
.....100,000 cycles min. for 160G, 260g
Rating .....DC 12V, 50mA
Contact Resistance.....100 mohms max.
Insulation Resistance 100Mohms min., DC 500V min.
Dielectric Strength
.....AC 250V for 1 minute
Contact Arrangement ...1 pole 1 position

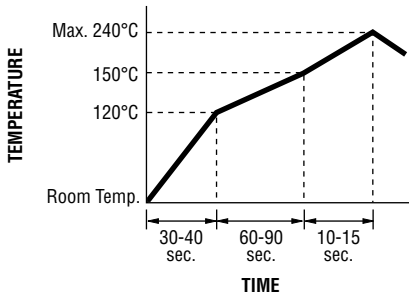
Environmental Characteristics

Mechanical Life .....100,000 cycles min.
Operation Force 160g, 260g
Tolerance .....±50g
Stop Strength ..Place the switch vertical, a static load of 3kg shall be applied in the direction of actuator operation for a period of 15 seconds
Stroke .....0.25mm (+0.2mm, -0.1mm)
Operating Temperature Range
.....-25°C to +70°C
Storage Temperature Range
.....-35°C to +80°C
Vibration Test .....MIL-STD-202F, Method 201A
Frequency 10-55-10Hz/1minute
Directions.....X,Y,Z 3 mutually per pendicular directions
Time.....2 hours each direction, high reliability
Shock Test .....MIL-STD-202F, Method 213B, Condition A
Gravity .....50g (peak value), 11msec.
Directions/Time .....6 sides and 3 times in each direction

Physical Characteristics

Cover Materials.....Stainless steel
Base Materials.....Thermoplastic LCP UL94V-0 black
Actuator Materials .....Thermoplastic Nylon UL94V-0 (680, 690)
Color .....Brown, Red (Silver 680 type)
Contact Disc. Materials .....Phosphor bronze with silver cladding
Terminal Materials .....Brass with silver cladding

REFLOW SOLDERING PROFILE (SMD MODEL)



SOLDERING PROCESS

Hand Soldering
Soldering iron of 30W or less, controlled at 320°C for approx. 2 seconds while applying solder.

Reflow Soldering
Peak temperature or reflow oven should be set to 240°C max.

How to Order

STM W - 6 60 - N TR

Model
STM = SMD
STH = Through-hole
STJ = SMD J-Hook

Product Type
W = Washable

Size
6 = 6mm

Height
60 = 3.1mm (N)
80 = 2.30mm (S)
90 = 3.7mm (N,R)

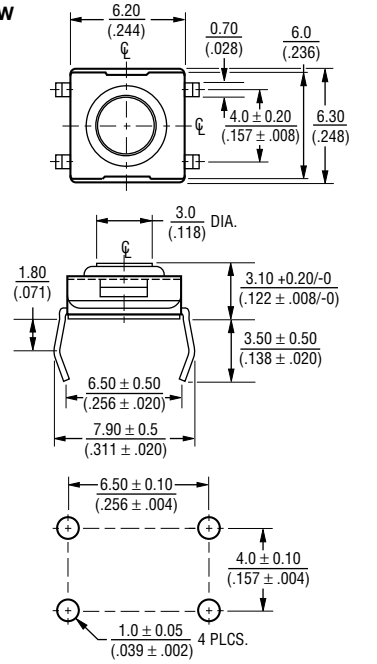
Actuating Force
S = 160g (Silver)
N = 160g (Brown)
R = 260g (Red)

Packaging Option (Type M, J only)
TR = Embossed tape
660, 680 = 2000 pcs.
690 = 1900 pcs.

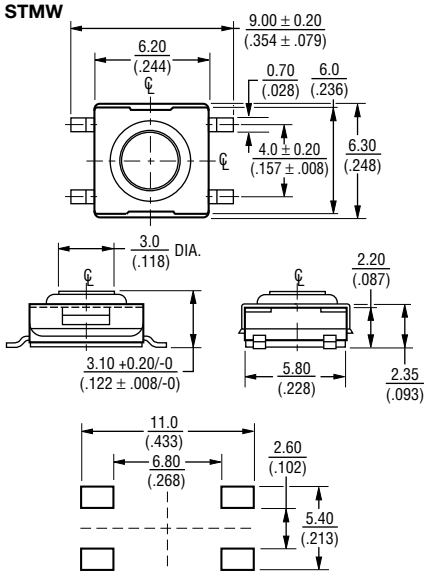
DIMENSIONS: MM / (IN)

Product Dimensions

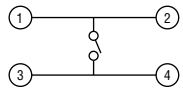
STHW



STMW



CIRCUIT DIAGRAM



Additional Features

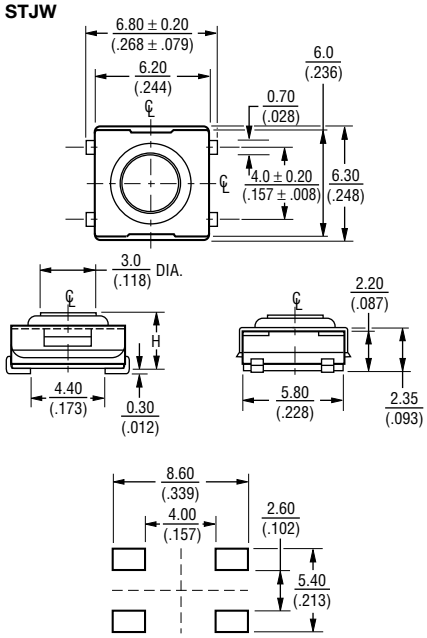
- Insert molding in the contact with special treatment prevents flux buildup during soldering and permits autodipping

ST(H,M,J)W Series Sealed Tact Switch

BOURNS®

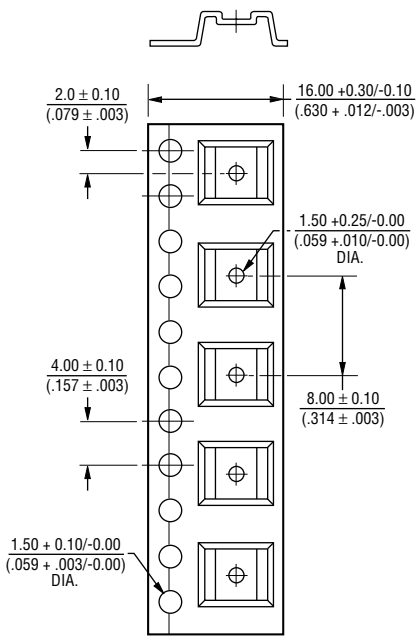
Product Dimensions

STJW



Packaging Specifications

STMW-660/680/690(TR)
STJW-660/680/690(TR)



Features

- Super-thin 4.5mm square SMD
- Two different operating forces
- 0.55mm height without knob
- Compatible with surface mount reflow soldering processes

Applications

- Camcorders
- Audio equipment
- Electronic toys
- Cellular phones, pagers

STJN-4 SMD Super-Thin Tact Switch

Electrical Characteristics

Max. Power Rating ..12VDC max., 20mA
Contact Resistance
.....100 milliohms max.
Insulation Resistance
.....50 megohms min., 100 VDC
Dielectric Strength
.....AC 100V for 1 minute
Bounce
On .....3ms max.
Off .....10ms max.
Circuit .....N.O. SPST

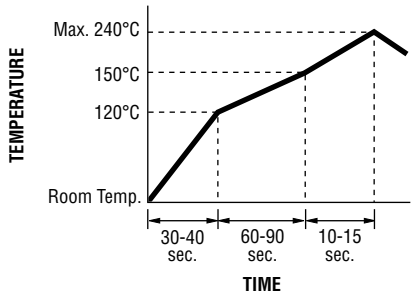
Mechanical Characteristics

Mechanical Life .....50,000 cycles min.
Actuation Force
.....160gf ±50gf (1.6N ±0.5N)
.....240gf ±60gf (2.4N ± 0.6N)
Stroke .....0.2mm ±0.1mm

General Characteristics

Switch Type .....(N.O.) SPST
Operating Temperature Range
.....-20°C to +70°C
Storage Temperature Range
.....-40°C to +85°C

Reflow Soldering Profile



SOLDERING PROCESS

Hand Soldering
Soldering iron of 30W or less, controlled at 320°C for approx. 2 seconds while applying solder.

Reflow Soldering
Peak temperature or reflow oven should be set to 240°C max.

How to Order

STJ N - 4 05 - N TR

Model
Thin SMD Tact Switch

Product Code
N = Non-washable

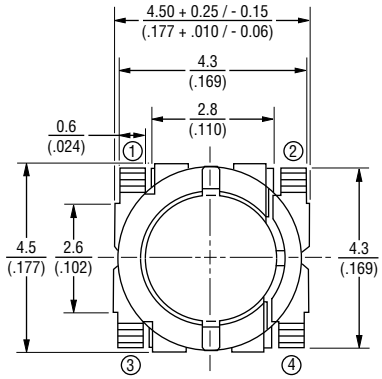
Size
4 = 4.5mm

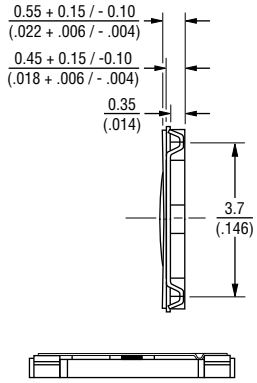
Height
05 = 0.55mm (without knob)

Actuating Force
N = 160gf (1.6N)
P = 240gf (2.4N)

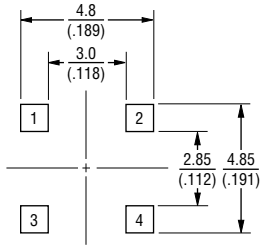
Packaging
TR = Embossed Tape
10,000 pcs./reel

Product Dimensions

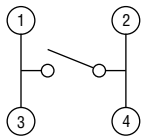




Recommended PCB Layout



Circuit Diagram



Features

- Thin 5mm square SMD
- Three different operating forces
- 0.8mm height without knob (1.5mm with knob)
- Compatible with surface mount reflow soldering processes

Applications

- Camcorders
- Audio equipment
- Electronic toys
- Cellular phones, pagers

STJN-5 SMD Thin Tact Switch

Electrical Characteristics

Max. Power Rating ..12VDC max., 50mA
Contact Resistance
.....100 milliohms max.
Insulation Resistance
.....100 megohms min., 100 VDC
Dielectric Strength
.....AC 250V for 1 minute
Bounce
On.....3ms max.
Off.....10ms max.
Circuit .....N.O. SPST

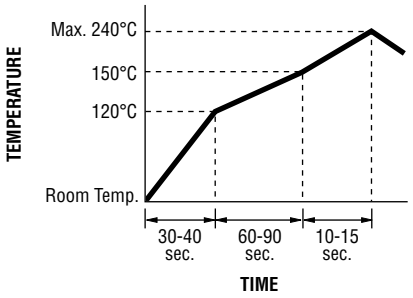
Mechanical Characteristics

Mechanical Life
100gf + 160gf.....500,000 cycles min.
260 gf .....200,000 cycles min.
Actuation Force
.....100gf ±50gf (1.0N ±0.5N)
.....160gf ±50gf (1.6N ±0.5N)
.....260gf ±60gf (2.6N ± 0.6N)
Stroke.....0.25mm +0.10/-0.20

General Characteristics

Switch Type .....(N.O.) SPST
Operating Temperature Range
.....-20°C to +70°C
Storage Temperature Range
.....-40°C to +85°C

Reflow Soldering Profile



SOLDERING PROCESS

Hand Soldering
Soldering iron of 30W or less, controlled at 320°C for approx. 2 seconds while applying solder.

Reflow Soldering
Peak temperature or reflow oven should be set to 240°C max.

How to Order

STJ N - 5 08 - N TR

Model
Thin SMD Tact Switch

Product Code
N = Non-washable

Size
5 = 5mm

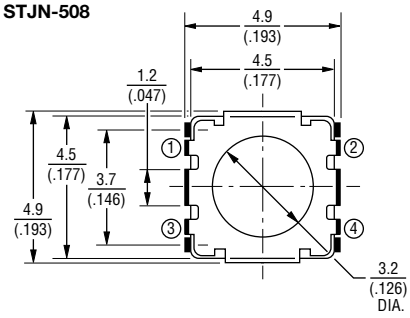
Height
08 = 0.8mm (without knob)
15 = 1.5mm (with knob)

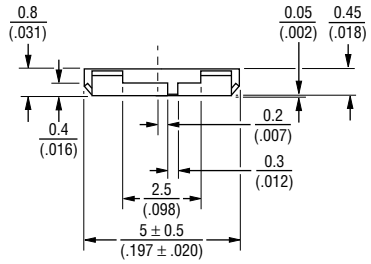
Actuating Force
K = 100gf (1.0N)
N = 160gf (1.6N)
R = 260gf (2.6N)

Packaging
TR = Embossed Tape
5,000 pcs./reel

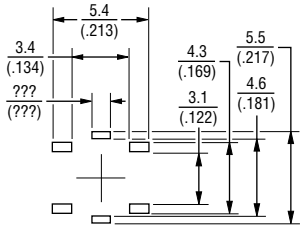
Product Dimensions

STJN-508

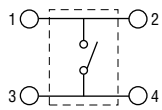




Recommended PCB Layout



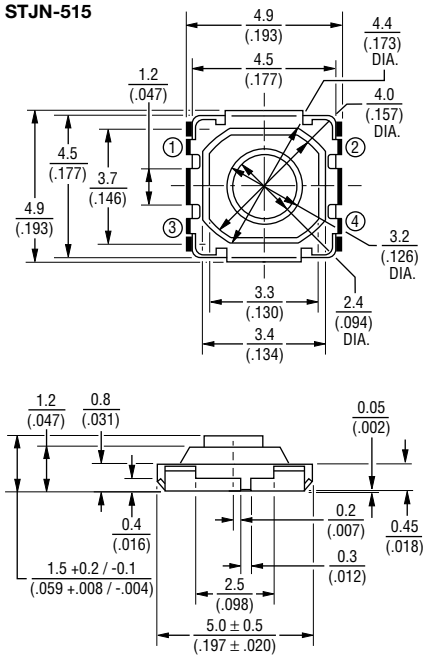
Circuit Diagram



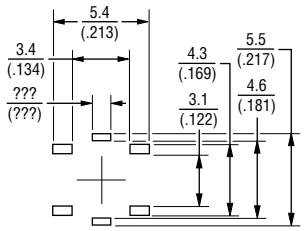
TOLERANCES: ±.38 EXCEPT WHERE NOTED.
DIMENSIONS: MM (IN)

Product Dimensions

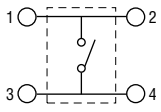
STJN-515

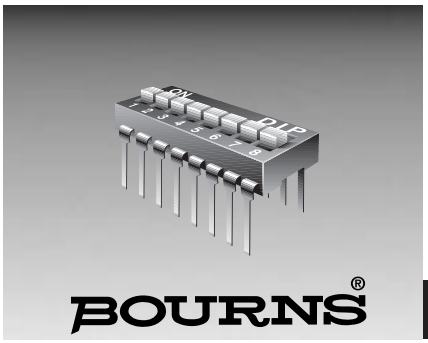


Recommended PCB Layout



Circuit Diagram





BOURNS®

Features

- Double contacts offer high reliability
- Low contact resistance
- Self-clean on contact area
- Splay terminals allow for automatic insertion by IC insertion machine
- Straight terminals are available for manual insertion

Applications

- PC interface boards
- LANs
- Auto dialing systems
- Remote controlled systems

SDI Series DIP Switch (Machine Insertable Type)

Electrical Characteristics

Electrical Life .....2,000 operations min. per switch, 24VDC, 25mA
Non-Switching Rating 100mA, 50VDC
Switching Rating .....25mA, 24 VDC
Contact Resistance (@ current 100mA) .....50 milliohms max. at initial 100 milliohms max. after life test
Insulation Resistance .....100 megohms min. at 500 ±15VDC
Dielectric Strength 500VDC/minute
Capacitance .....5pf max. between adjacent closed switch
Circuit .....Single pole single throw

Environmental Characteristics

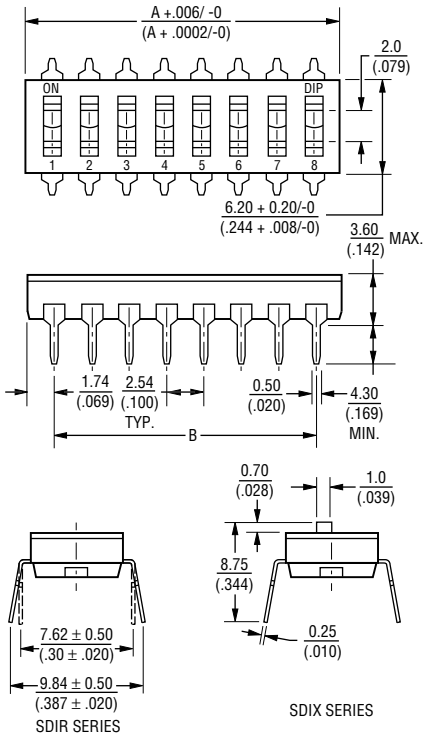
Mechanical Life..2,000 operations per switch
Operation Force .....800g max.
Stroke.....1.0mm
Operating Temp. Range.....-40°C to +85°C
Storage Temperature .....-40°C to +85°C
Vibration Test .....MIL-STD-202F, Method 201A
Frequency .....10-55-10 Hz/minute
Directions .....X,Y,Z, three mutually perpendicular directions
Time.....2 hours each direction. High reliability
Shock Test .....MIL-STD-202F, Method 213B, Condition A
Gravity .....50G (peak value), 11 msec
Direction & Times.....6 sides and 3 times in each direction. High reliability

Physical Characteristics

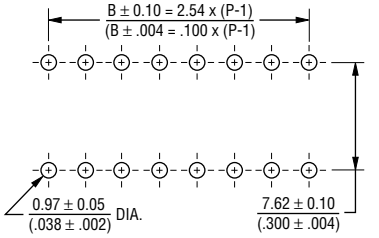
Base and Cover Materials .....UL94V-0 high-temperature thermoplastic PPS
Color .....Black
Actuator Materials .....UL94V-0 Nylon plus glass fiber reinforced
Color .....White
Contact Materials .....Alloy copper
Terminal Materials .....Brass
Contact Plating Materials .....3 micro inches gold plating over 40 micro inches nickel
Terminal Plating Materials.....Gold
Wave Soldering Process* .....Recommended solder temp. at 260°C (500°F) max., 5 sec.
Hand Soldering Process* .....Use a soldering iron of 30 watts or less, controlled at 320°C (608°F) for approx. 2 sec. while applying solder
Cleaning Process* .....Flux clean using force rinse, high agitation or triple bath cleaning method. Freon TF or TE give excellent results. When vapor methods are used, do not subject the switch to solvents at temperatures above 51°C (125°F).
Standard Packaging .....IC tubes/all poles in the "off" position

Product Dimensions

SDI Series



RECOMMENDED PCB LAYOUT



SCHEMATIC (TYP.)
1-10 POSITIONS AVAILABLE

DIMENSIONS: MM / (IN)

How to Order

SDI R - 1 - T S

Model

Actuator
- X = Raised Actuator
- R = Recessed Actuator

Number of Positions
- 1 = 1 Position
- 2 = 2 Positions
- 4 = 4 Positions
- 6 = 6 Positions
- 8 = 8 Positions
- 10 = 10 Positions

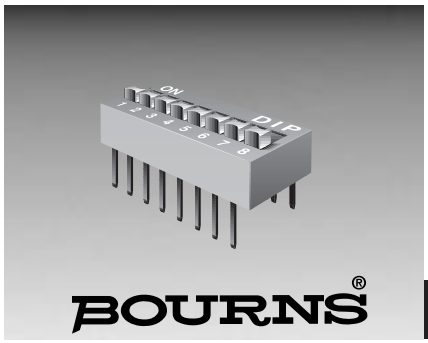
Seal
- X = Standard (Not Sealed)
- T = Top Tap Sealed ("R" actuator only)

Terminal Type
- S = Splay Terminal
- H = Straight Terminal

SDI Series Dimensions

MODEL NO.	POSITIONS	DIM. A	DIM. B
SDI-10	10	26.34	22.86
SDI-8	8	21.26	17.78
SDI-6	6	16.18	12.70
SDI-4	4	11.10	7.62
SDI-2	2	6.02	2.54
SDI-1	1	3.48	—

*For best results, keep all switch contacts in their "off" position for all operations.



BOURNS®

Features

- Normal open contact system
- Low contact resistance
- High reliability
- Self-clean on contact area

Applications

- PC interface boards
- LANs
- Auto dialing systems
- Remote controlled systems

SDS/SDP/SDA Series Slide DIP Switch

Electrical Characteristics

Electrical Life .....2,000 operations min. per switch, 24VDC, 25mA
Non-Switching Rating 100mA, 50VDC
Switching Rating .....25mA, 24 VDC
Contact Resistance (@ current 100mA) .....50 milliohms max. at initial 100 milliohms max. after life test
Insulation Resistance at 500VDC ±15V.....100 megohms min. between adjacent terminals
Dielectric Strength.....500VDC/minute
Capacitance .....5pF max. between adjacent terminals
Circuit .....Single pole single throw

Environmental Characteristics

Mechanical Life..2,000 operations per switch
Operation Force .....800g max.
Stroke.....2.0mm
Operating Temp. Range.....-40°C to +85°C
Storage Temperature .....-40°C to +85°C
Vibration Test .....MIL-STD-202F, Method 201A
Frequency .....10-55-10 Hz/1 minute
Directions .....X,Y,Z, three mutually perpendicular directions
Time.....2 hours each direction. High reliability
Shock Test .....MIL-STD-202F, Method 213B, Condition A
Gravity .....50G (peak value), 11 msec
Direction & Times.....6 sides and 3 times in each direction. High reliability

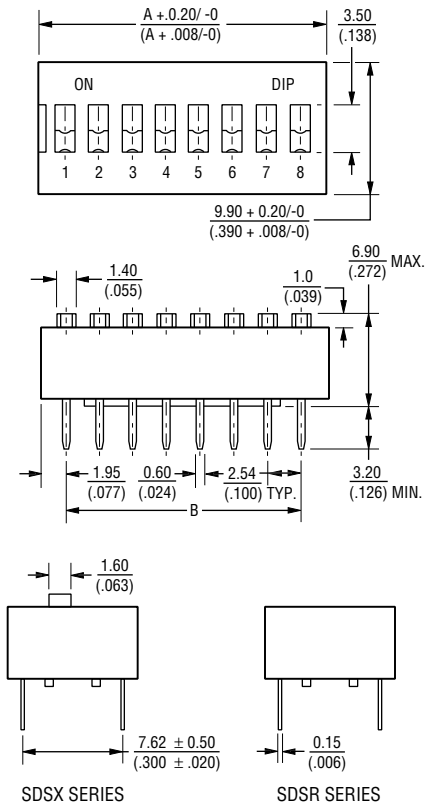
Physical Characteristics

Base and Cover Materials ..UL94V-0 PBT plus glass fiber reinforced
Color .....Black base, red cover
Actuator Materials.....UL94V-0 PBT plus glass fiber reinforced
Color .....White
Contact Materials ....Phosphor bronze with 3 micro inches gold plating over nickel
Top Seal Materials.....Polyester film
Potting Materials .....Epoxy
Wave Soldering Process*
.....Recommended solder temp. at 260°C (500°F) max., 5 sec.
Hand Soldering Process*
.....Use a soldering iron of 30 watts or less, controlled at 320°C (608°F) for approx. 2 sec. while applying solder
Cleaning Process*
.....Flux clean using force rinse, high agitation or triple bath cleaning method. Freon TF or TE give excellent results. When vapor methods are used, do not subject the switch to solvents at temperatures above 51°C (125°F).
Standard Packaging
.....IC tubes/all poles in the "off" position

*For best results, keep all switch contacts in their "off" position for all operations.

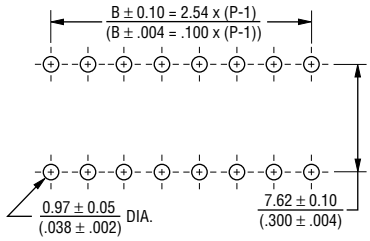
Product Dimensions

SDS Series

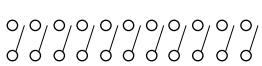


SDSX SERIES SDSR SERIES

RECOMMENDED PCB LAYOUT

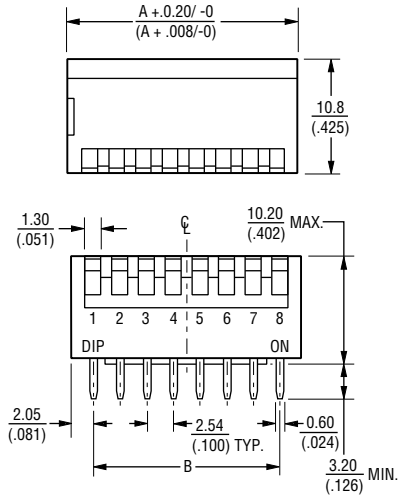


SCHEMATIC (TYP.)
2,3,4,5,6,7,8,9,10,12 POSITIONS AVAILABLE



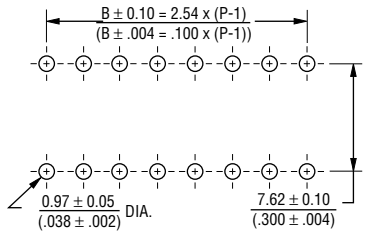
SEE FOLLOWING PAGE FOR A & B DIMENSION CHART.

SDP Series



SDPR SERIES SDPX SERIES

RECOMMENDED PCB LAYOUT



SCHEMATIC (TYP.)
2,3,4,5,6,7,8,9,10,12 POSITIONS AVAILABLE

SEE FOLLOWING PAGE FOR A & B DIMENSION CHART.

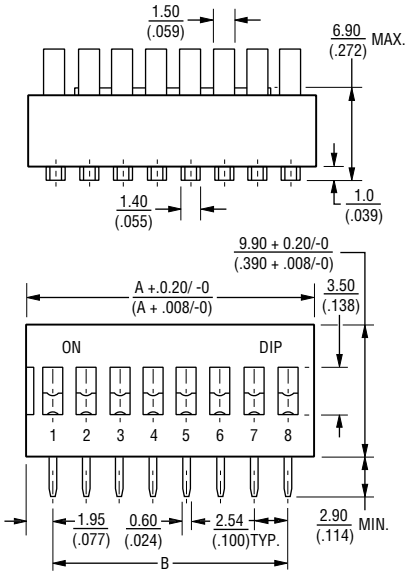
DIMENSIONS: MM / (IN)

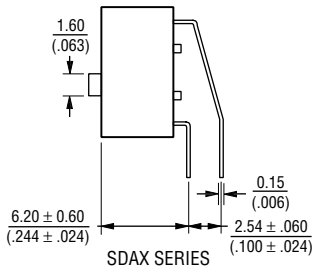
SDS/SDP/SDA Series Slide DIP Switch

BOURNS®

Product Dimensions

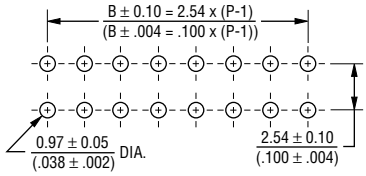
SDA Series





SDAX SERIES

RECOMMENDED PCB LAYOUT



SCHEMATIC (TYP.)
2,3,4,5,6,7,8,10,12 POSITIONS AVAILABLE

SDS/SDP/SDA Series Dimensions

POSITIONS	DIM. A	DIM. B
12	31.84	27.94
10	26.76	22.86
9	24.22	20.32
7	21.68	17.78
7	19.14	15.24
6	16.60	12.70
5	14.06	10.16
4	11.52	7.62
3	8.98	5.08
2	6.44	2.54

How to Order

SD S R - 2 R X - T

Model

Type
- S = Standard
- A = Right Angle Type
- P = Piano Type

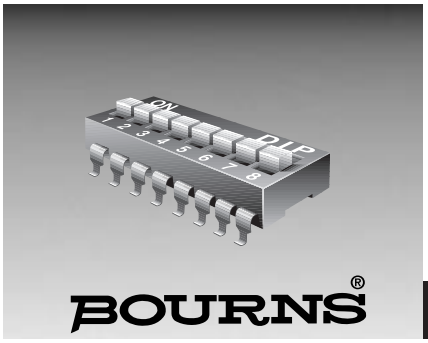
Actuator
- X = Raised Actuator
- R = Recessed Actuator

Number of Positions
- 2 = 2 Positions
- 3 = 3 Positions
- 4 = 4 Positions
- 5 = 5 Positions
- 6 = 6 Positions
- 7 = 7 Positions
- 8 = 8 Positions
- 9 = 9 Positions
- 10 = 10 Positions
- 12 = 12 Positions

Cover Color
- R = Red

Switch Function
(Piano type ONLY - Type "P")
- X = Push Down "On"
- U = Push Down "Off"

Seal
- X = Standard (Not Sealed)
- T = Top Tap Sealed



BOURNS®

Features

- Double contacts
- Low contact resistance
- Self-clean on contact area
- Vapor phase solderable, IR-reflow solderable
- Terminal plating by gold gives excellent results when soldering

Applications

- PC interface boards
- LANs
- Auto dialing systems
- Remote controlled systems

SDM Series Surface Mount DIP Switch

Electrical Characteristics

Electrical Life .....2,000 operations min. per switch, 24VDC, 25mA
Non-Switching Rating 100mA, 50VDC
Switching Rating .....25mA, 24 VDC
Contact Resistance (@ current 100mA) .....50 milliohms max. at initial 100 milliohms max. after life test
Insulation Resistance .....100 megohms min. at 500 ±15VDC
Dielectric Strength.....500VDC/minute
Capacitance .....5pF max. between adjacent closed switch
Circuit .....Single pole single throw

Environmental Characteristics

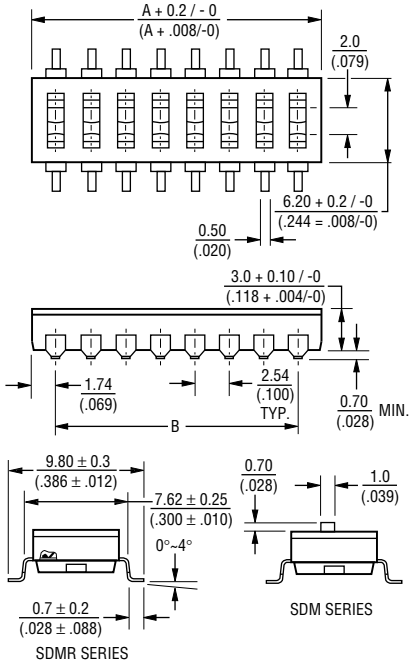
Mechanical Life..2,000 operations per switch
Operation Force .....800g max.
Stroke.....1.0mm
Operating Temp. Range.....-40°C to +85°C
Storage Temperature .....-40°C to +85°C
Vibration Test .....MIL-STD-202F, Method 201A
Frequency .....10-55-10 Hz/1 minute
Directions .....X,Y,Z, three mutually perpendicular directions
Time.....2 hours each direction. High reliability
Shock Test .....MIL-STD-202F, Method 213B, Condition A
Gravity .....50G (peak value), 11 msec
Direction & Times.....6 sides and 3 times in each direction. High reliability

Physical Characteristics

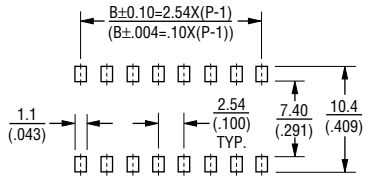
Base and Cover Materials ..UL94V-0 PPS plus glass fiber reinforced
Color .....Black
Actuator Materials .....Nylon plus glass fiber reinforced
Color .....White
Contact Materials .....Alloy copper
Terminal Materials .....Brass
Contact Plating Materials ....3 micro inches gold plating over 40 micro inches nickel
Terminal Plating Materials.....Gold
Soldering Process .....Vapor phase and IR-reflow soldering can be applied
Cleaning Process .....Freon TE, TF or trichloromethane by ultrasonic wave washing for 2 minutes give excellent results
Standard Packaging .....IC tubes/all poles in the "off" position

Product Dimensions

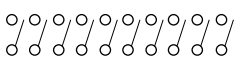
SDM Series



RECOMMENDED PCB LAYOUT



SCHEMATIC (TYP.)
2,3,4,5,6,7,8,9,10,12 POSITIONS AVAILABLE

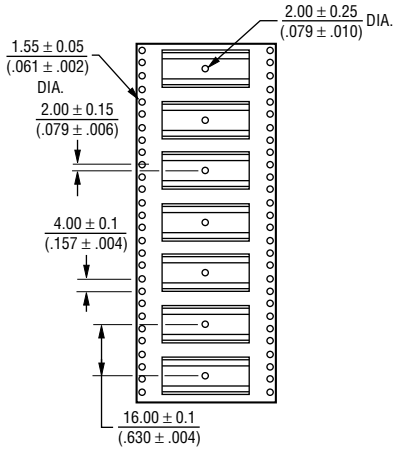


MODEL NO.	POSITIONS	DIM. A	DIM. B
SDM-12	12	31.42	27.94
SDM-10	10	26.34	22.86
SDM-8	8	21.26	17.78
SDM-6	6	16.18	12.70
SDM-4	4	11.10	7.62
SDM-2	2	6.02	2.54

DIMENSIONS: MM (IN)

Packaging Specifications

TAPE AND REEL
PACKAGING SPECIFICATIONS



POLE	TAPE SIZE (W)
2,3	16mm
4,5,6	24mm
7,8	32mm
9,10,12	44mm

How to Order

SDM R - 2 - T R

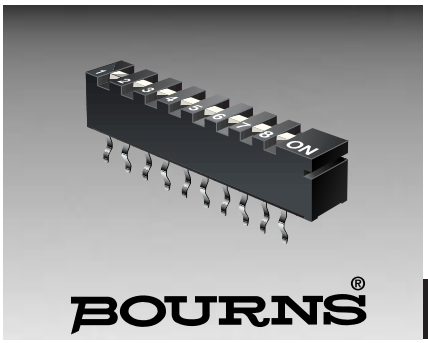
Model

Actuator
- X = Raised Actuator
- R = Recessed Actuator

Number of Positions
- 2 = 2 Positions
- 4 = 4 Positions
- 6 = 6 Positions
- 8 = 8 Positions
- 10 =10 Positions
- 12 =12 Positions

Seal
- X = Standard (Not Sealed)
- T = Top Tap Sealed ("R" Actuator only)

Packaging Option (Top Sealed, Recessed only)
- R = Tape and Reel Packaging (900 pcs./reel)



BOURNS®

Features

- Double contact offers high reliability
- Splay teminals for automatic insertion by IC machine
- Insert molding of terminals and ultrasonic welding
- High density and thinner outline to reduce package space

Applications

- Interface boards from PC to modems, printers, plotters, instruments for IBM
- PC/XT/AT and compatibles
- Portable data logging systems
- Auto dialing & alarm monitoring systems
- I/O modules, signal conditioners
- Converters (communication)

SPI Series Single In Line Package Switch

Electrical Characteristics

Electrical Life .....1,000 operation cycles per switch min.
Non-Switching Rating 100mA, 50VDC
Switching Rating 10mA, 5VDC
Contact Resistance .....100mohms max.
Insulation Resistance .....100Mohms min. DC 100V min.
Dielectric Strength ....AC 300V for 1 minute
Capacitance.....5pF max.
Circuit .....Single pole single throw

Environmental Characteristics

Mechanical Life.....1,000 operations per switch min.
Operation Force .....800g max.
Operating Temp. Range.....-30°C to +80°C
Storage Temperature .....-30°C to +80°C
Vibration Test .....MIL-STD-202F, Method 201A
Frequency .....10-50-10 Hz/1 minute
Directions .....X,Y,Z, three mutually perpendicular directions
Time.....2 hours each direction, high reliability
Shock Test .....MIL-STD-202F, Method 213B, Condition A
Gravity .....50G (peak value), 11 msec
Direction & Times.....6 sides and 3 times in each direction, high reliability

Physical Characteristics

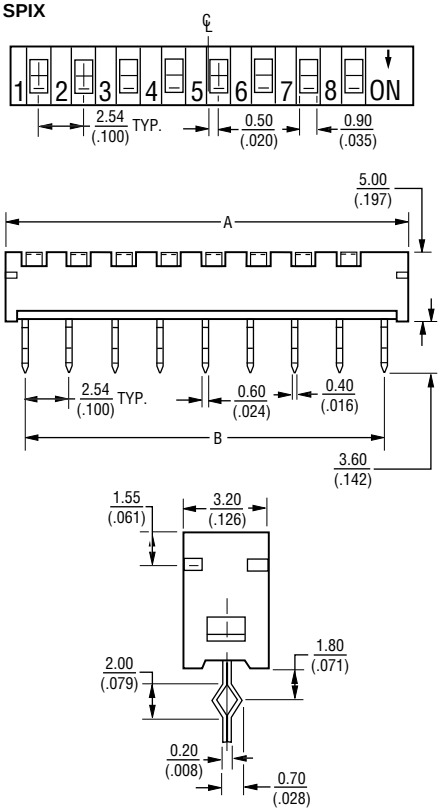
Cover Materials .....Thermoplastic PBT, UL94V-0; black
Base Materials .....Thermoplastic PPS, UL94V-0; black
Actuator Materials .....Thermoplastic Nylon, UL94V-0; white
Contact Materials ..Alloy Copper C5210-EH
Contact Plating .....3 Micro inches gold over 40 micro inches nickel
Terminal Materials .....Brass C2680C-H with 90/10 solder
Hand Soldering Process ....Use a soldering iron of 30 watts or less, controlled at 270°C (608°F) for approx. 3 sec. while applying solder
Wave Soldering .....Recommended solder at 245° C. 5 sec.
Cleaning Process.....Freon TF or TE give excellent results. When vapor methods are used, do not subject the switch to solvents at temperatures above 51°C (125°F).
Packaging .....All poles in the "off" position

DIMENSIONS ARE: METRIC / (INCHES)

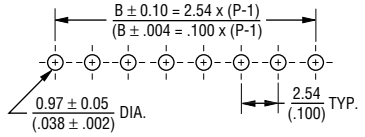
TOLERANCES: ±.2 EXCEPT WHERE NOTED.

Product Dimensions

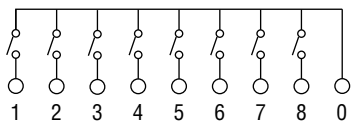
SPIX



RECOMMENDED PCB LAYOUT



CIRCUIT DIAGRAM

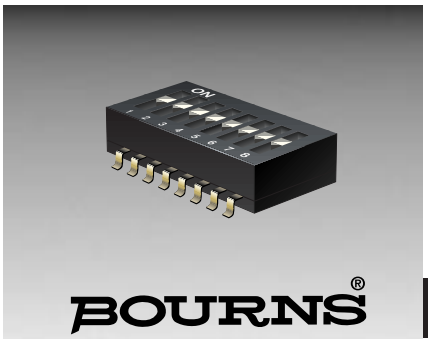


DIMENSION A	DIMENSION B
22.86 (0.900)	17.78 (0.700)

How to Order

SPI X - 8 - X

Model
Terminal Style
X = Straight
Number of positions
8 = 8 positions (9 pins)
Option
X = Standard packaging (tube)



BOURNS®

Features

- Double contact offers high reliability
- Vapor phase and Infra-red solderable
- Terminal plating by gold gives excellent results when soldering
- Just 2.3mm total height
- Half pitch of 1.27mm(.050 in.)

Applications

- Interface boards from PC to modems, printers, plotters, instruments for IBM
- PC/XT/AT and compatibles
- Portable data logging systems
- Auto dialing & alarm monitoring systems
- I/O modules, signal conditioners
- Converters (communication)

SDH Series SMD DIP Switch Half Pitch

Electrical Characteristics

Electrical Life .....1,000 operation cycles per switch min.
Non-Switching Rating 100mA, 50VDC
Switching Rating 25mA, 24VDC
Contact Resistance.....100mohms max.
Insulation Resistance ..100Mohms min., DC 100V min.
Dielectric Strength AC 300V for 1 minute
Capacitance .....5pF max. between adjacent closed switch
Circuit .....Single pole single throw

Environmental Characteristics

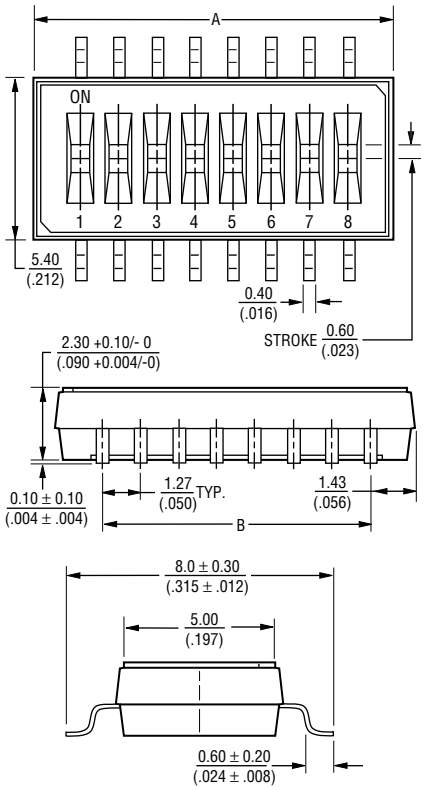
Mechanical Life.....2,000 operations per switch min.
Operation Force .....500g max.
Stroke.....0.6mm
Operating Temp. Range.-30°C to +85°C
Storage Temperature .....-40°C to +85°C
Vibration Test .....MIL-STD-202F, Method 201A
Frequency .....10-50-10 Hz/1 minute
Directions.....X,Y,Z, three mutually perpendicular directions
Time.....2 hours each direction, high reliability
Shock Test .....MIL-STD-202F, Method 213B, Condition A
Gravity .....50G (peak value), 11 msec
Direction & Times .....6 sides and 3 times in each direction. High reliability

Physical Characteristics

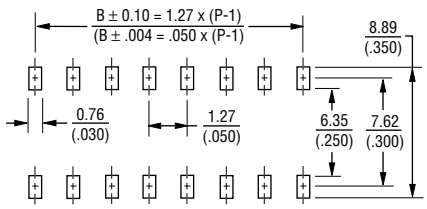
Cover Materials .....Thermoplastic Nylon, UL94V-0; black
Base Materials.....Thermoplastic Nylon, UL94V-0; black
Actuator Materials.....Thermoplastic Nylon, UL94V-0; white
Contact Materials.....Alloy Copper
Contact Plating.....3 Micro inches gold over 40 micro inches nickel
Terminal Materials.....Brass with Gold plating
Reflow Soldering .....Peak temperature or reflow oven should be set to 240° C. max. 2 sec. while applying solder
Cleaning Process .....Freon TF or trichlormethane by ultrasonic wave washing for 2 minutes
Packaging.....All poles in the "off" position

Product Dimensions

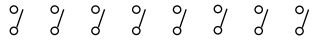
SDHR



RECOMMENDED PCB LAYOUT



CIRCUIT DIAGRAM



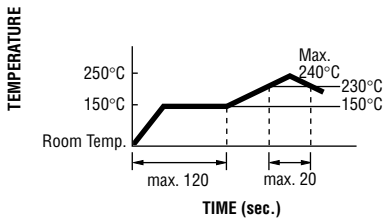
DIMENSION A	DIMENSION B
11.56 (0.455)	8.89 (0.350)

How to Order

SDH R - 8 - T R

Model
Actuator
R = Recessed
Number of positions
8 = 8 positions
Seal
T = Top tap sealed
Packaging
R = Tape and reel

REFLOW TEMPERATURE PROFILE



DIMENSIONS ARE: METRIC / (INCHES)

TOLERANCES: ±.2 EXCEPT WHERE NOTED.