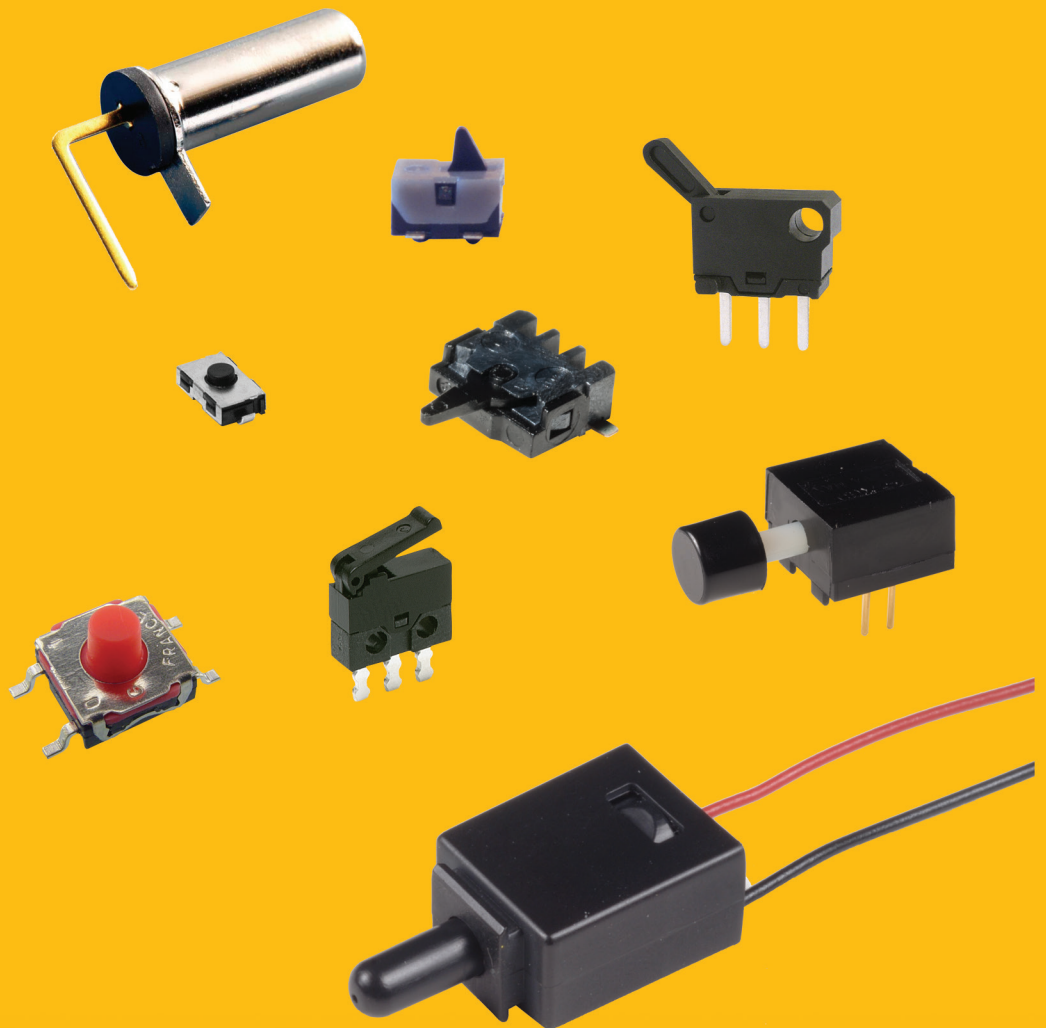
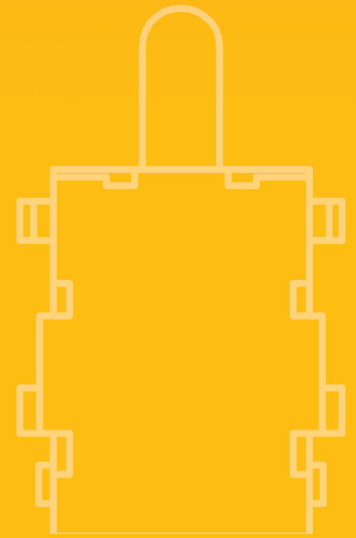
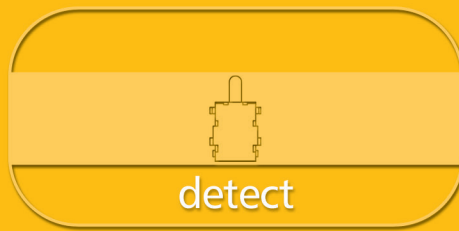


audio
automotive
aerospace
communication devices
consumer appliances
consumer electronics
datacom
data storage
handheld devices
industrial
industrial equipment
instrumentation
medical
military
mobile phones
portable tools
pumps & motors
security alarms
telecom
test equipment
thermostatic controls

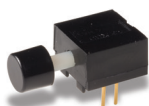


detect

Detect Switches

Product Selection Guide

Detect					
Series	HDT	DS	HDS	HDP	SDS
Travel to Make (mm)	0,3	See datasheet	0,17	0,24	0,35
Overtravel (mm)	0,75	See datasheet	0,5	1,66	1,65
Total Travel (mm)	1,05	See datasheet	1,07	1,9	2,0
Actuator Length (mm)	1,4	See datasheet	1,17	2,15	2,5
Life Expectancy	100,000 cycles	20,000; 50,000; 100,000 cycles	100,000 cycles	100,000 cycles	50,000 cycles
Contact Type	SPST N.O.	SPST SPDT	SPST N.O.	SPST N.O.	SPST N.O. SPST N.C.
Max. Voltage (V)	5	5 V; 16 V 30 V	5	5	12
Max. Switching Current (mA)	1 mA	1 mA; 5 mA 100 mA	1 mA	1 mA	100 mA
Sealing	No	No	No	No	No
Mounting	Surface mount	Thru-hole Solder lug	Surface mount	Surface mount	Surface mount
Page number	E-4	E-8	E-14	E-16	E-18

Detect					
Series	DDS	FDSD	FDSE	KDS	KM
Travel to Make (mm)	0,45	1,6 (15°)	1,44	1,25 max.	4,06
Overtravel (mm)	1,95	1,45	1,07	8,9	1,78
Total Travel (mm)	2,4	3,05 (60°)	3,14 (60°)	10,16	5,84
Actuator Length (mm)	2,6	2,3	2,67	10,16	10,11
Life Expectancy	50,000 cycles	50,000 cycles	50,000 cycles	10,000 cycles	10,000 cycles
Contact Type	SPST N.O.	SPST N.O.	SPST N.C.	SPST N.O. SPST N.C.	SPDT
Max. Voltage (V)	30	5	5	20	125 V AC
Max. Switching Current (mA)	100 mA	10 mA	1 mA	0.4 VA	250 mA
Sealing	No	No	No	No	Flux tight
Mounting	Thru-hole	Surface Mount	Surface Mount	Snap-in panel	Thru-hole
Page Number	E-19	E-23	E-25	E-27	E-28



E

Detect

Detect Switches

Product Selection Guide

Detect						
Series	MPS	MPSR	KSU	KSR2D	KSC4D	KSJ
Travel to Make (mm)	See datasheet	See datasheet	0,5	0,3	0,6	0,3
Overtravel (mm)	See datasheet	See datasheet	1,0	N/A	N/A	0,75
Total Travel (mm)	See datasheet	See datasheet	1,5	0,3	0,6	1,05
Actuator Length (mm)	N/A	N/A	1,5	0,8	2,6	1,4
Life Expectancy	4,000,000 cycles	4,000,000 cycles	100,000 cycles	100,000 cycles	500,000 and 2,000,000 cycles	100,000 cycles
Contact Type	SPST N.O.	SPDT N.O./N.C.	SPST N.O.	SPST N.O.	SPST N.O.	SPST N.O.
Max. Voltage (V)	30	30	32	32	32	5
Max. Switching Current (mA)	300 mA	300 mA	50 mA	10 mA	50 mA	1 mA
Sealing	Yes	Yes	Dust and water drop proof	Dust and flux tight	IP67	IP60
Mounting	Wire lead	Wire lead	Surface mount	Surface mount	Surface mount	Surface mount
Page number	E-31	E-33	E-35	E-37	E-39	E-41

Detect		
Series	RB	ATS
Travel to Make (mm)	See datasheet	0,7 (to break)
Overtravel (mm)	N/A	0,4
Total Travel (mm)	N/A	1,1
Actuator Length (mm)	N/A	1,55
Life Expectancy	20,000; 100,000 cycles	5,000 cycles
Contact Type	SPST SPDT	SPST N.C.
Max. Voltage (V)	5V; 24V	32 V
Max. Switching Current (mA)	1 mA; 25 mA	10 mA; 50 mA
Sealing	No	IP54
Mounting	Thru-hole	Surface mount
Page number	E-43	E-46



E

Detect

HDT Series

Micro Mini Surface Mount Detect Switches



Features/Benefits

- Low profile package
- Design allows top or side actuation
- Low actuation force, 35 grams max.
- Pick and place compatible, available in tape & reel packaging
- RoHS compliant and compatible
- Halogen free

Typical Applications

- Consumer electronics
- Computers
- Medical devices
- ATCA and MicroTCA devices

Specifications

CONTACT RATING: 1 mA 5 VDC

MECHANICAL AND ELECTRICAL LIFE: 100,000 cycles min.

CONTACT RESISTANCE: 500 m Ω max. initial.

INSULATION RESISTANCE: 100 M Ω min. between adjacent contacts.

OPERATING TEMPERATURE: -40°C to + 85°C

STORAGE TEMPERATURE: -40°C to + 85°C

PACKAGING: Tape & reel

Materials

BASE: PA 46 (UL94V-0)

COVER: PA 46 (UL94V-0)

ACTUATOR: PA 46 (UL94V-0)

MOVABLE BLADE: Stainless Steel, Ag over Ni plating.

TERMINALS: Phosphor Bronze, Ag over Ni plating.

SOLDERABILITY: Lead free compatible - No clean.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

Complete part numbers for HDT Series are shown below.

PART NUMBER	PACKAGING	SCHEMATIC
HDT0001	TAPE & REEL 2,450 per reel	

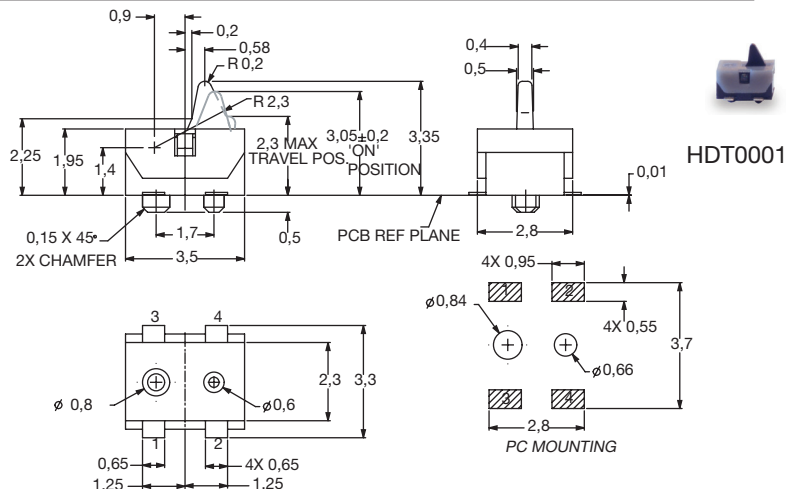
NOTE: Available with no locating posts by adding "NP" (HDT0001NP) to Part Number.

TRAVEL:

Pre-travel: 0.3 mm

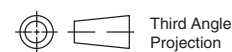
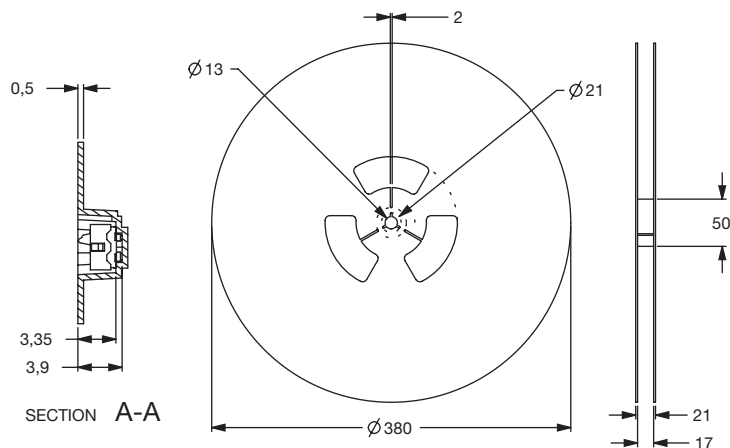
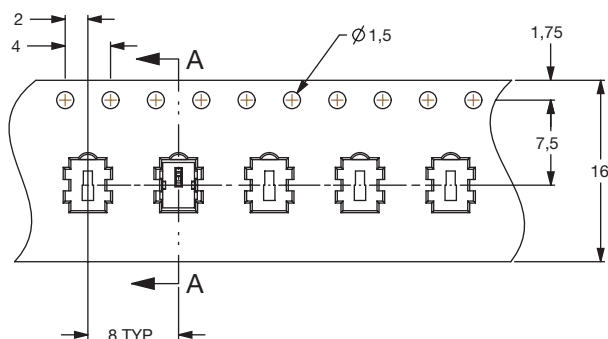
Overtravel: 0.75 mm

Total: 1.05 mm



TAPE & REEL

HDT0001



Third Angle
Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

HDT Series Micro Mini Surface Mount Detect Switches

HDT0004

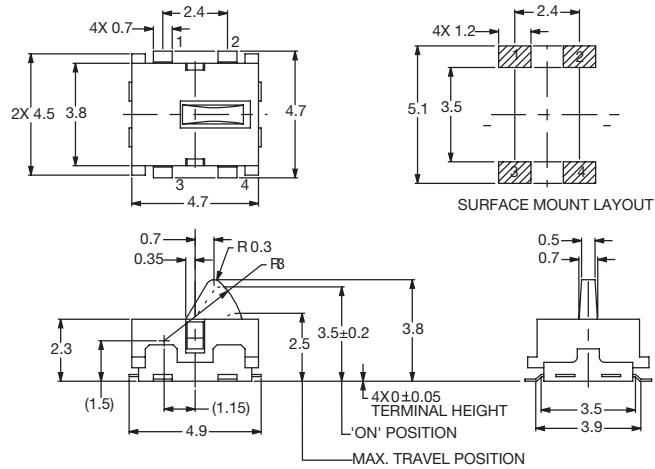


HDT0004

PART NUMBER	PACKAGING	SCHEMATIC
HDT0004	TAPE & REEL 2,800 per reel	

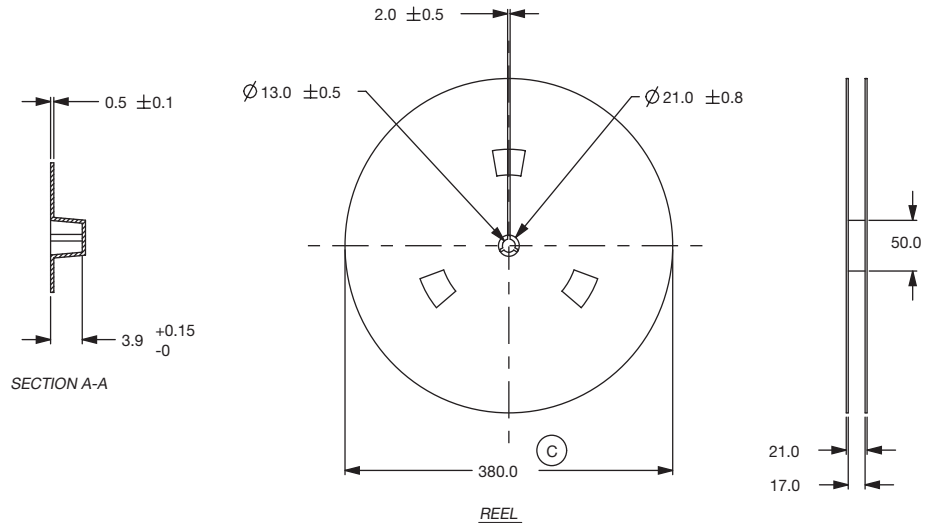
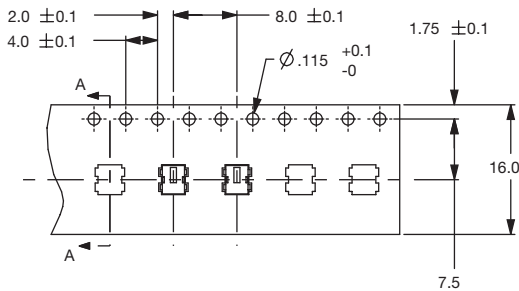
TRAVEL:

Pre-travel: 0.3 mm
Overtravel: 1.0 mm
Total: 1.3 mm



TAPE & REEL

HDT0004



HDT0104



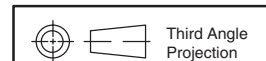
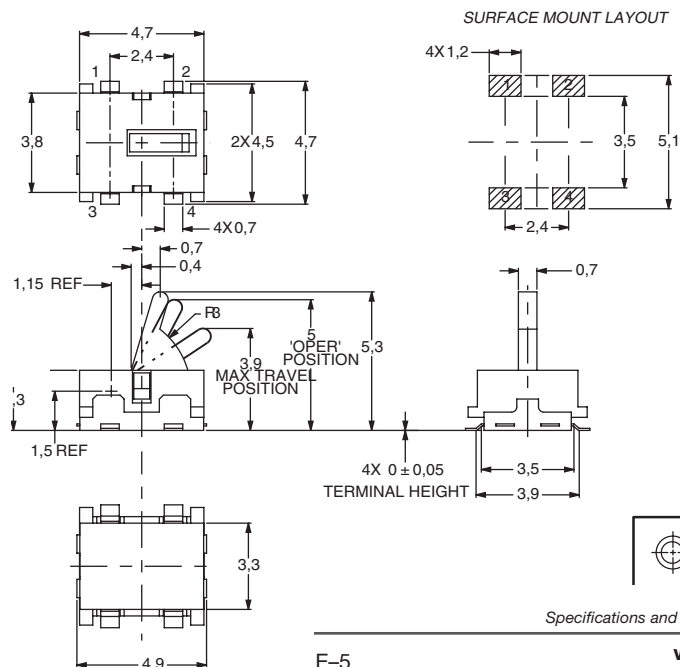
HDT0104

PART NUMBER	PACKAGING	SCHEMATIC
HDT0104	TAPE & REEL 2,500 per reel	

NOTE: This product comes without locating post

TRAVEL:

Pre-travel: 0.3 mm
Overtravel: 1.1 mm
Total: 1.4 mm



Dimensions are shown: mm
Specifications and dimensions subject to change



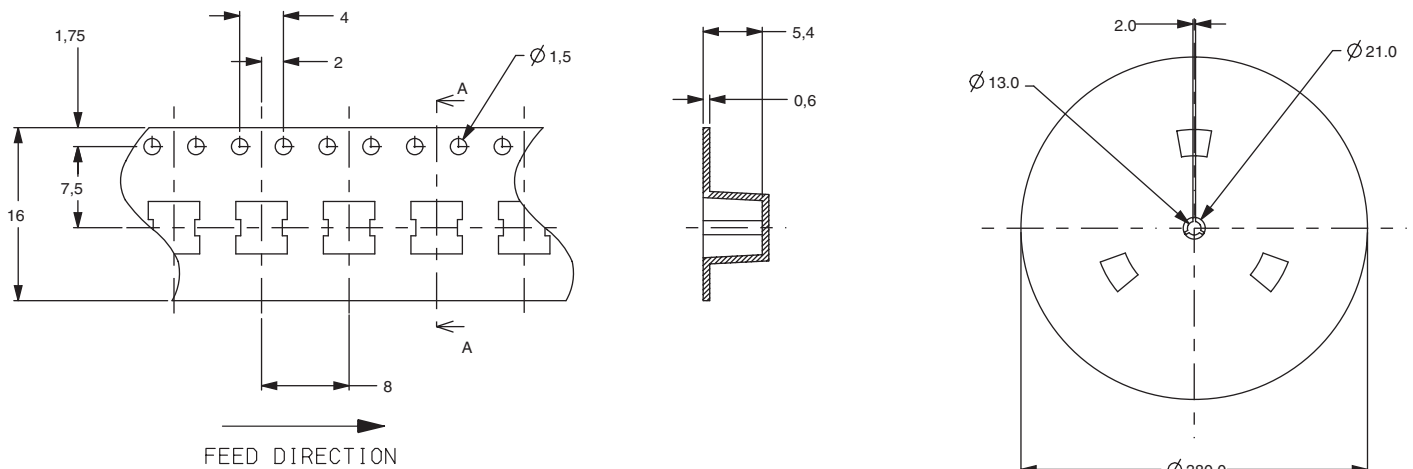
Detect

HDT Series

Micro Mini Surface Mount Detect Switches

TAPE & REEL

HDT0104



HDT0204



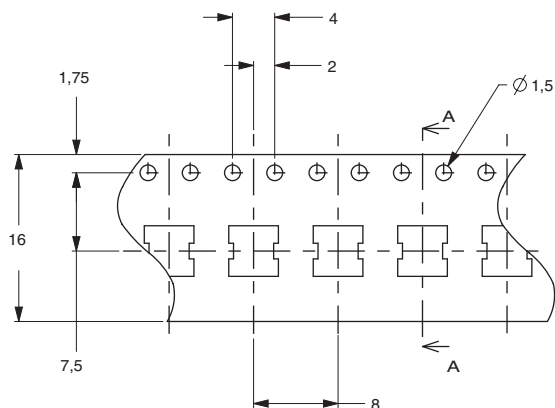
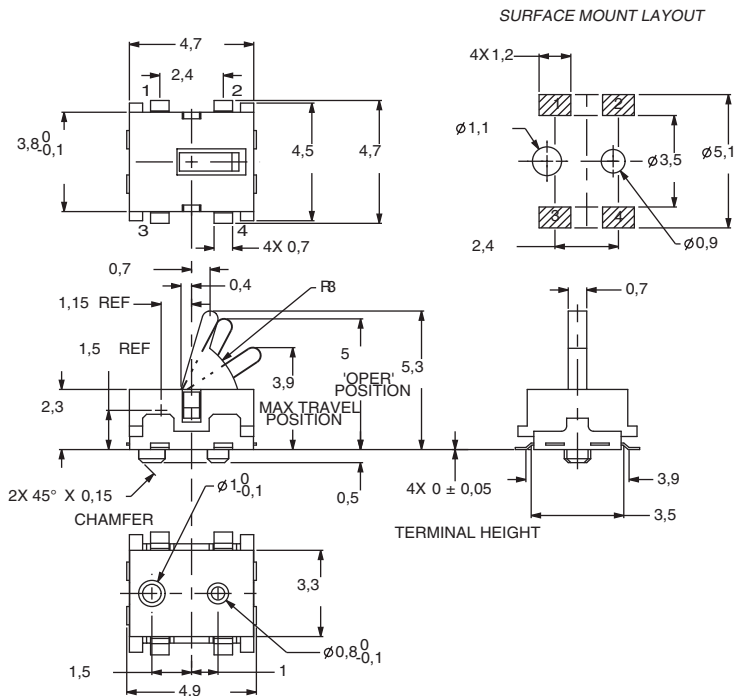
HDT0204

PART NUMBER	PACKAGING	SCHEMATIC
HDT0204	TAPE & REEL 1,400 per reel	

NOTE: This product comes with locating post

TRAVEL:

Pre-travel: 0.3 mm
Overtravel: 1.1 mm
Total: 1.4 mm



Detect

HDT Series

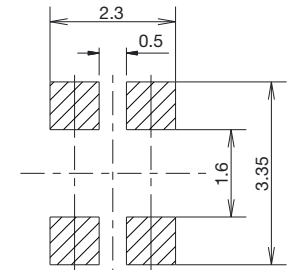
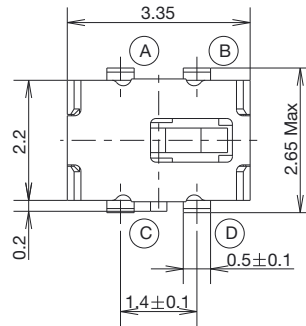
Micro Mini Surface Mount Detect Switches

HDT0301



HDT0301

PART NUMBER	PACKAGING	SCHEMATIC
HDT0301	TAPE & REEL 3,000 per reel	



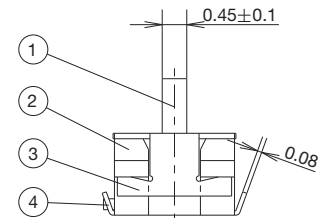
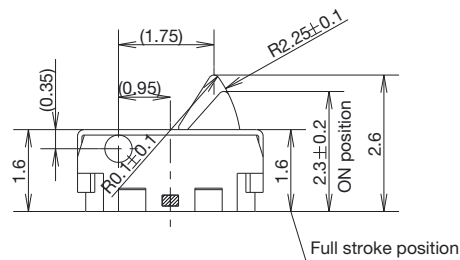
PCB LAND DIMENSION ± 0.05

TRAVEL:

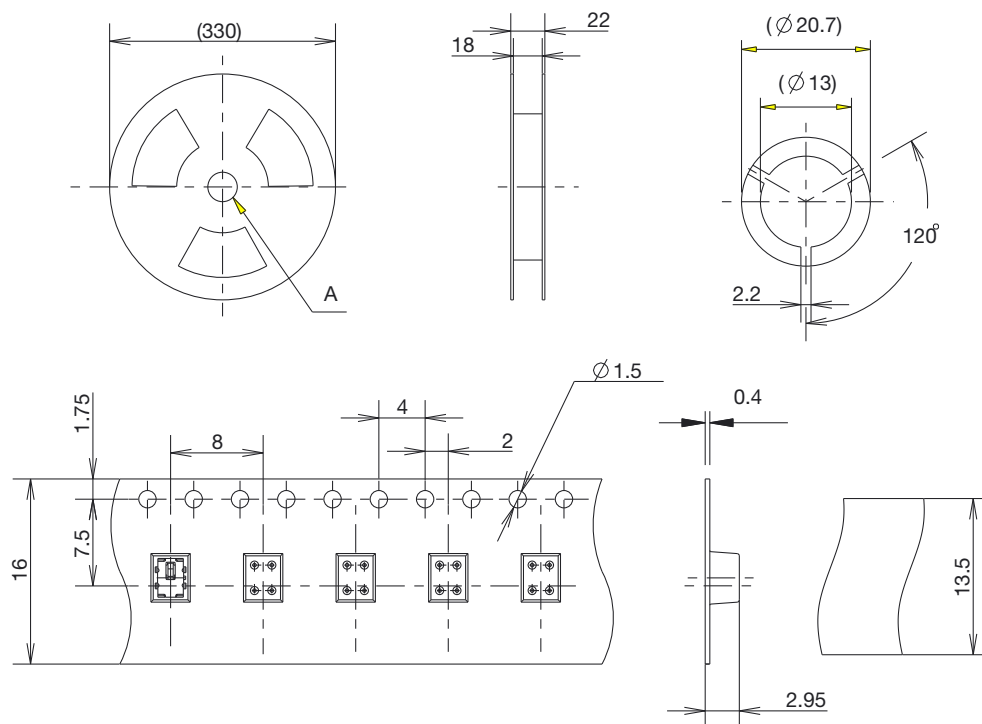
Pre-travel: 0.3 mm

Overtravel: 0.7 mm

Total: 1.0 mm



TAPE & REEL



→ Roll-direction



12 Nov 19

E-7

Dimensions are shown: mm
Specifications and dimensions subject to change

www.ckswitches.com



Detect

DS Series Detect Switch

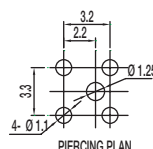
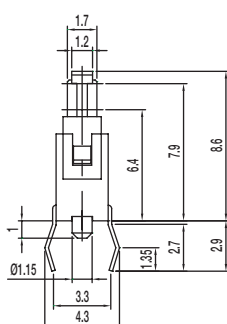
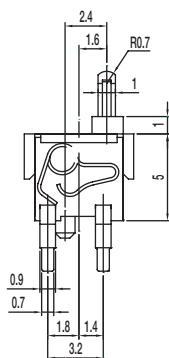
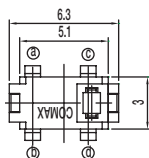


Features/Benefits

- Compact design
- Low actuation force
- Detect mechanical movement
- Left and right options
- Right angle options

Typical Applications

- Computer peripherals
- Office equipment
- Consumer electronics
- Appliances
- Audio and visual equipment



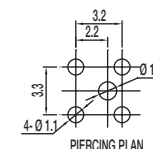
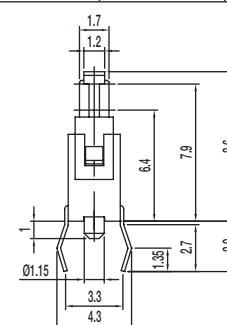
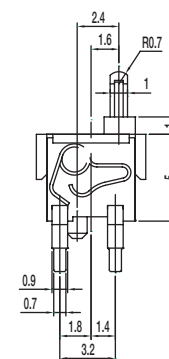
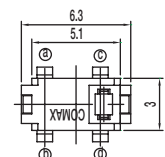
PART NUMBER	PACKAGING	SCHEMATIC
DS-02005	1,000 pieces	1P-1T

Specifications

CONTACT ARRANGEMENT: SPST, NO
 CONTACT RATING: 100mA @ 30 VDC
 OPERATING LIFE: 50,000 cycles
 OPERATING FORCE: 50 gf max.
 PRE-TRAVEL: 0.7 mm
 TOTAL TRAVEL: 2.6 mm
 INITIAL CONTACT RESISTANCE: 1 Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 100 VDC 60 sec.
 DIELECTRIC STRENGTH: 100 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -40°C to +85°C.

Materials

KNOB: PA
 COVER: PA
 SPRING: Gold plated, copper alloy
 HOUSING: PA
 TERMINAL: Silver plated, copper alloy



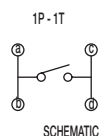
PART NUMBER	PACKAGING	SCHEMATIC
DS-02005 (30)	1,000 pieces	1P-1T

Specifications

CONTACT ARRANGEMENT: SPST, NO
 CONTACT RATING: 100mA @ 30 VDC
 OPERATING LIFE: 50,000 cycles
 OPERATING FORCE: 30 gf max.
 PRE-TRAVEL: 0.7 mm
 TOTAL TRAVEL: 2.2 mm
 INITIAL CONTACT RESISTANCE: 1 Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 100 VDC 60 sec.
 DIELECTRIC STRENGTH: 100 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -40°C to +85°C.

Materials

KNOB: PA
 COVER: PA
 SPRING: Gold plated, copper alloy
 HOUSING: PA
 TERMINAL: Silver plated, copper alloy



DS Series Detect Switch



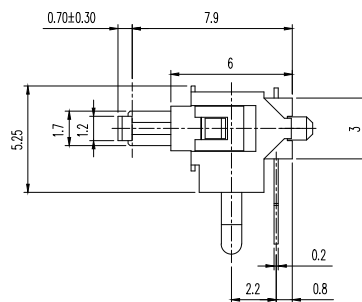
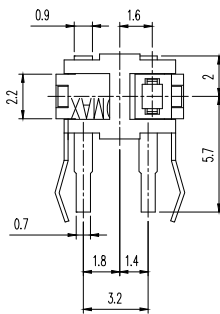
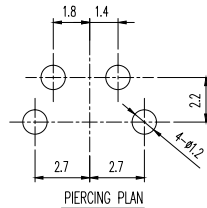
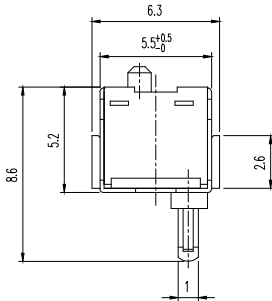
PART NUMBER	PACKAGING	SCHEMATIC
DS-02005-A	1,000 pieces	1P-1T N.O.

Specifications

CONTACT ARRANGEMENT: SPST, NO
 CONTACT RATING: 100mA @ 30 VDC
 OPERATING LIFE: 50,000 cycles
 OPERATING FORCE: 50 gf max.
 PRE-TRAVEL: 0.7 mm
 TOTAL TRAVEL: 2.6 mm
 INITIAL CONTACT RESISTANCE: 1 Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 100 VDC 60 sec.
 DIELECTRIC STRENGTH: 100 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -40°C to +85°C.

Materials

KNOB: PA
 COVER: PA
 SPRING: Gold plated, copper alloy
 HOUSING: PA
 TERMINAL: Silver plated, copper alloy



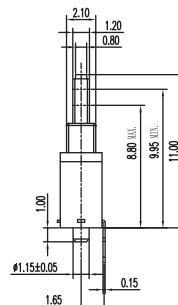
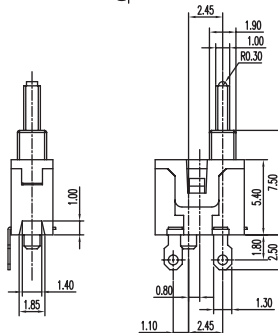
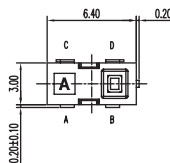
PART NUMBER	PACKAGING	SCHEMATIC
DS-21805	2,500 pieces	C D A B N.O.

Specifications

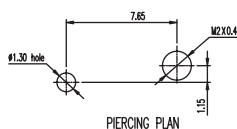
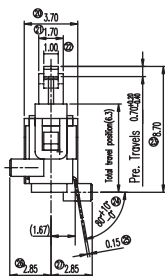
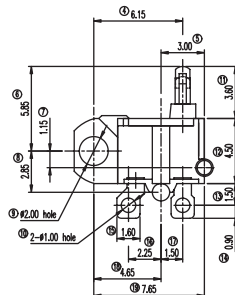
CONTACT ARRANGEMENT: SPDT
 CONTACT RATING: 5mA @ 5 VDC
 OPERATING LIFE: 100,000 cycles
 OPERATING FORCE: 36 gf
 TOTAL TRAVEL: 2.20 mm
 INITIAL CONTACT RESISTANCE: 1 Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 100 VDC 60 sec.
 DIELECTRIC STRENGTH: 100 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -20°C to +70°C.

Materials

KNOB: POM
 COVER: PA46
 SPRING: Silver plated
 HOUSING: PPS
 TERMINAL: Silver plated



Technical drawing of a mechanical assembly. The drawing shows a cross-section of a component with a central hole. Dimensions are indicated: a total width of 9.00 and a hole diameter of #1.20. A small detail view of a hole is shown in the bottom right corner, labeled #1.20.

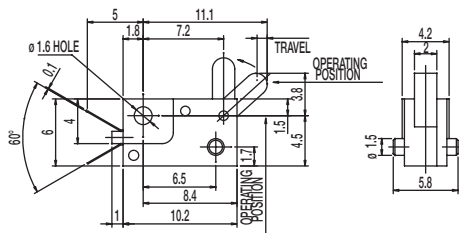
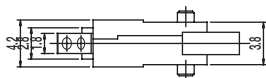


CONTACT ARRANGEMENT: SPST
CONTACT RATING: 100mA @ 30 VDC
OPERATING LIFE: 50,000 cycles
OPERATING FORCE: 36 gf
PRE TRAVEL: 0.70 +0.20/-0.40 mm
INITIAL CONTACT RESISTANCE: 1 Ω max.
INSULATION RESISTANCE: 50 M Ω min. @ 250 VDC 60 sec.
DIELECTRIC STRENGTH: 250 V AC (50-60Hz) 60 sec.
OPERATING TEMPERATURE: -20°C to +70°C.

KNOB: POM
 COVER: PA
 SPRING: Gold plated
 HOUSING: PA
 TERMINAL: Silver plated



PART NUMBER	PACKAGING	SCHEMATIC
DS-040-02	1,000 pieces	1P-1T  N.O.



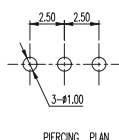
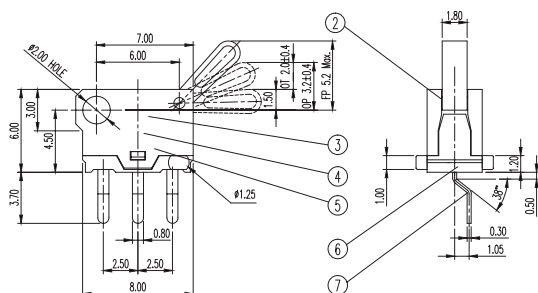
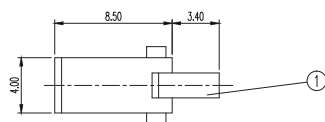
CONTACT ARRANGEMENT: SPST, NO
CONTACT RATING: 0.1A @ 16 VDC
OPERATING LIFE: 20,000 cycles
OPERATING FORCE: 30 ± 15 gf
TRAVEL: 0.90 ± 0.20 mm
INITIAL CONTACT RESISTANCE: 40 m Ω max.
INSULATION RESISTANCE: 100 M Ω min. @ 250 VDC 60 sec.
DIELECTRIC STRENGTH: 250 V AC (50-60Hz) 60 sec.
OPERATING TEMPERATURE: -20°C to +70°C.

LEVER: POM
CASE: PBT
COVER: PC

DS Series Detect Switch



PART NUMBER	PACKAGING	SCHEMATIC
DS-080	1,000 pieces	1P - 2T



PIERCING PLAN

Specifications

CONTACT ARRANGEMENT: SPDT

CONTACT RATING: 100mA @ 30 VDC

OPERATING LIFE: 20,000 cycles

OPERATING FORCE: 30 ± 20 gf

OVER TRAVEL: 2.0 ± 0.40 mm

INITIAL CONTACT RESISTANCE: 200 m Ω max.

INSULATION RESISTANCE: 10 M Ω min. @ 250 VDC 60 sec.

DIELECTRIC STRENGTH: 250 V AC (50-60Hz) 60 sec.

OPERATING TEMPERATURE: -20°C to +70°C.

Materials

KNOB: POM

COVER: PA46

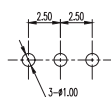
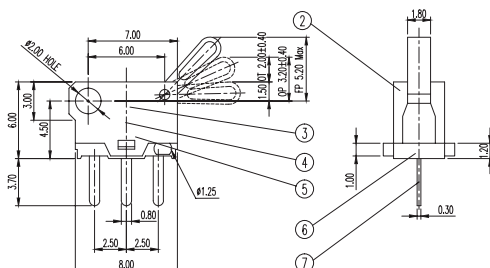
SLIDER: PBT

HOUSING: PA46

TERMINAL: Silver plated



PART NUMBER	PACKAGING	SCHEMATIC
DS-080-C PA	1,000 pieces	1P - 2T



PIERCING PLAN

Specifications

CONTACT ARRANGEMENT: SPDT

CONTACT RATING: 100mA @ 30 VDC

OPERATING LIFE: 20,000 cycles

OPERATING FORCE: 30 ± 20 gf

OVER TRAVEL: 2.0 ± 0.40 mm

INITIAL CONTACT RESISTANCE: 200 m Ω max.

INSULATION RESISTANCE: 10 M Ω min. @ 250 VDC 60 sec.

DIELECTRIC STRENGTH: 250 V AC (50-60Hz) 60 sec.

OPERATING TEMPERATURE: -20°C to +70°C.

Materials

KNOB: POM

COVER: PA46

SLIDER: PBT

HOUSING: PA46

TERMINAL: Silver plated



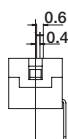
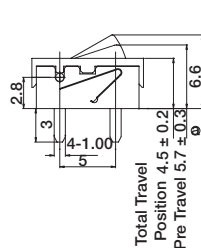
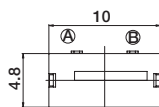
E

Detect

DS Series Detect Switch



PART NUMBER	PACKAGING	SCHEMATIC
DS-09005-02 BK	500 pieces	 N.O.



Specifications

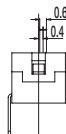
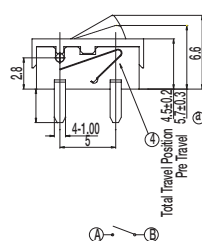
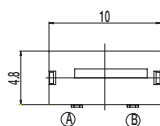
CONTACT ARRANGEMENT: SPST
 CONTACT RATING: 1mA @ 5 VDC
 OPERATING LIFE: 100,000 cycles
 OPERATING FORCE: 50 gf max.
 TOTAL TRAVEL: 4.5±0.2 mm
 INITIAL CONTACT RESISTANCE: 500 m Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 500 VDC 60 sec.
 DIELECTRIC STRENGTH: 500 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -20°C to +70°C.

Materials

LEVER: POM
 COVER: PA
 HOUSING: PA
 TERMINAL: Silver plated



PART NUMBER	PACKAGING	SCHEMATIC
DS-09005-02 RP	500 pieces	 N.O.



Specifications

CONTACT ARRANGEMENT: SPST
 CONTACT RATING: 1mA @ 5 VDC
 OPERATING LIFE: 100,000 cycles
 OPERATING FORCE: 50 gf max.
 TOTAL TRAVEL: 4.5±0.2 mm
 INITIAL CONTACT RESISTANCE: 500 m Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 500 VDC 60 sec.
 DIELECTRIC STRENGTH: 500 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -20°C to +70°C.

Materials

LEVER: POM
 COVER: PA
 HOUSING: PA
 TERMINAL: Silver plated



E

Detect

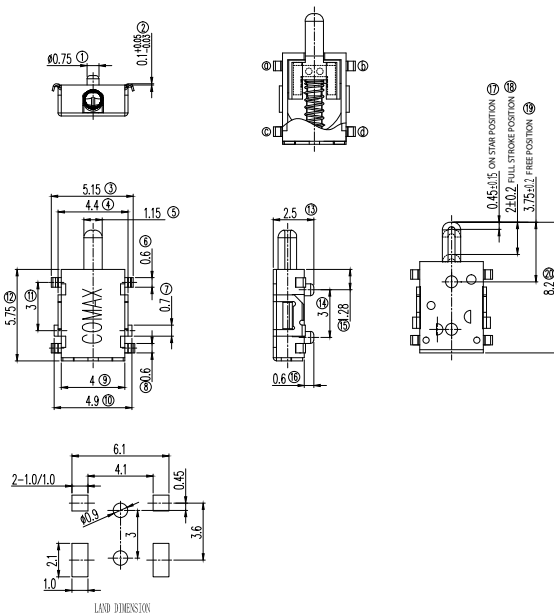
PART NUMBER	PACKAGING	SCHEMATIC
DS-180 RT	3000 pieces	1P - 1T  N.O.

Specifications

CONTACT ARRANGEMENT: SPST NO
 CONTACT RATING: 1mA @ 5 VDC
 OPERATING LIFE: 50,000 cycles
 OPERATING FORCE: 60 gf max.
 TOTAL TRAVEL: 2.0±0.2 mm
 INITIAL CONTACT RESISTANCE: 5Ω max.
 INSULATION RESISTANCE: 100 M Ω min. @ 100 VDC 60 sec.
 DIELECTRIC STRENGTH: 100 V AC (50-60Hz) 60 sec.
 OPERATING TEMPERATURE: -40°C to +85°C.

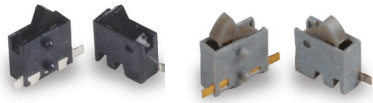
Materials

KNOB: PA
 COVER: SPTE
 SPRING: SUS
 HOUSING: LCP
 TERMINAL: Silver plated



HDS Series

Micro Mini Side Actuated Surface Mount Detect Switches



Features/Benefits

- Low profile package sits just 1.4 mm off PCB
- Design allows top or side actuation
- Right and left options available
- Low actuation force, 30 grams max.
- Pick and place compatible, available in tape & reel packaging
- RoHS compliant and compatible

Typical Applications

- Consumer electronics
- Computers
- Medical devices
- Mobile Communications
- ATCA and MicroTCA devices

Specifications

CONTACT RATING: 1 mA 5 VDC

MECHANICAL AND ELECTRICAL LIFE: 100,000 cycles min.

CONTACT RESISTANCE: 1 Ω max. initial.

INSULATION RESISTANCE: 100 M Ω min. between adjacent contacts.

OPERATING TEMPERATURE: -40°C to + 80°C

STORAGE TEMPERATURE: -40°C to + 80°C

PACKAGING: tape & reel; 5,000 per reel.

TRAVEL:

Pre-travel .17 mm min.

Overtravel: .5 mm min.

Total: 1.07 mm

Materials

BASE: LCP HDS001L: Gray HDS001R: Black

COVER: PA 46 (UL94V-0)

ACTUATOR: PA 46 (UL94V-0) HDS001L: Gray HDS001R: Black

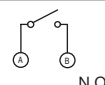
MOVABLE BLADE: Stainless Steel, Ag over Ni plating.

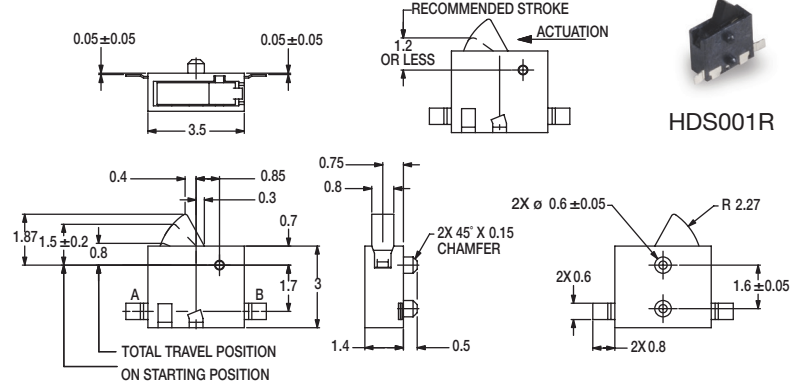
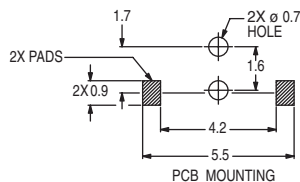
TERMINALS: Phosphor Bronze, Ag plating.

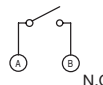
NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

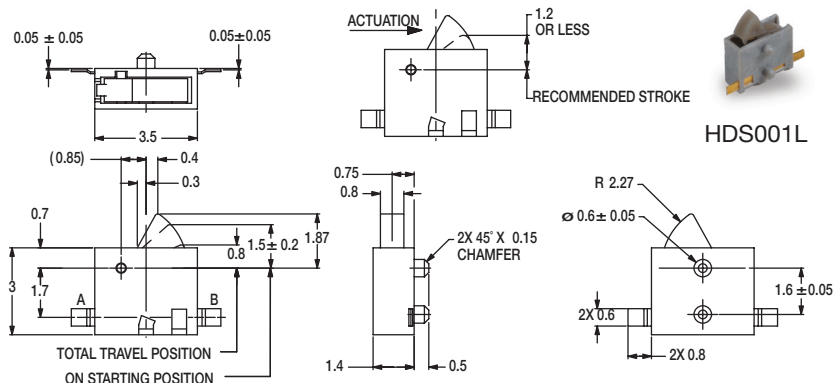
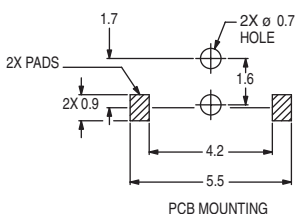
Build-A-Switch

Complete part numbers for HDS Series are shown below.

PART NUMBER	PACKAGING	SCHEMATIC
HDS001R	TAPE & REEL	



PART NUMBER	PACKAGING	SCHEMATIC
HDS001L	TAPE & REEL	



Third Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change



TAPE & REEL

CARRIER REEL
ø 380

Detect



HDP Series

Micro Mini Side Actuated Surface Mount Detect Switches



Features/Benefits

- Low profile
- Side actuation
- Right and left options available
- Low actuation force
- Lead free and halogen free

Typical Applications

- Consumer electronics
- Computers
- Medical devices
- Mobile Communications
- ATCA and MicroTCA devices

Specifications

CONTACT RATING: 1 mA 5 VDC

MECHANICAL AND ELECTRICAL LIFE: 100,000 cycles min.

CONTACT RESISTANCE: < 500 m Ω initial.

INSULATION RESISTANCE: > 100 M Ω

OPERATING TEMPERATURE: -20°C to + 70°C

STORAGE TEMPERATURE: -30°C to + 80°C

PACKAGING: tape & reel; 2,500 per reel.

TRAVEL:

Pre-travel	0.15 mm min.
"ON" starting position	2.96 +/- 0.25 mm
Total Travel Position:	1.3 mm
Total Travel:	1.9 mm

Materials

BASE: PA 46 (UL94HB) - halogen free

ACTUATOR: PA 46 (UL94HB) - halogen free

HDP001R - black body/actuator

HDP001L - grey body/actuator

MOVABLE CONTACTS: Stainless Steel, Silver over nickel plate.

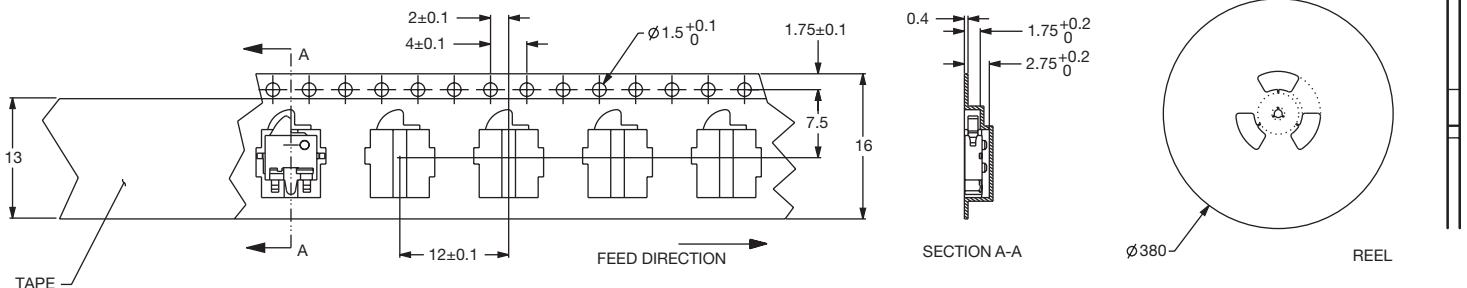
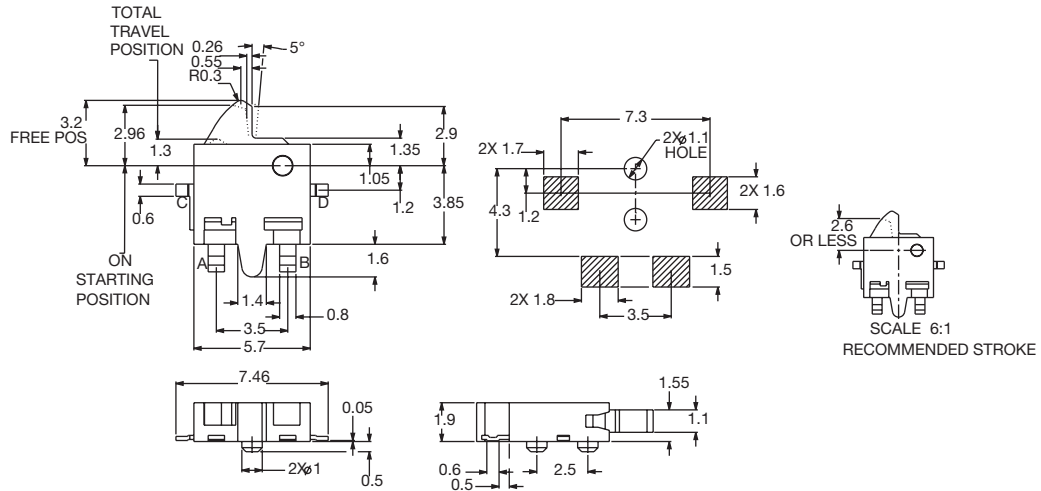
FIXED CONTACTS/TERMINALS: Phosphor Bronze, Silver plate.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Build-A-Switch

Complete part numbers for HDP Series are shown below.

PART NUMBER	PACKAGING	SCHEMATIC
HDP001R Black body/ actuator	TAPE & REEL	

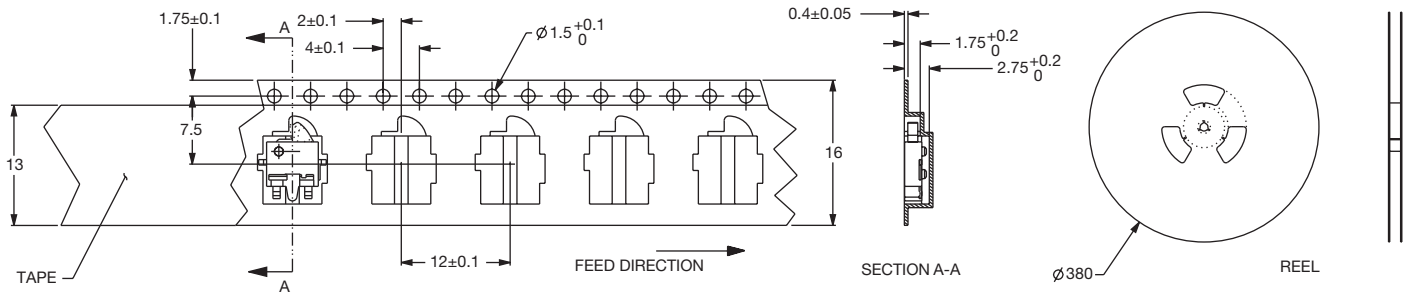
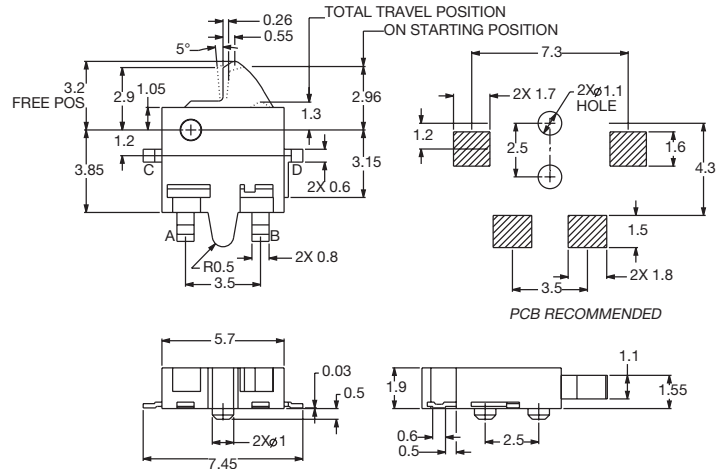


HDP Series

Micro Mini Side Actuated Surface Mount Detect Switches



PART NUMBER	PACKAGING	SCHEMATIC
HDP001L		
Grey body/ actuator	TAPE & REEL	



SDS Series Side Actuated Detect Switches

Features/Benefits

- Low profile package sits just 2mm off PCB
- 2mm overtravel ideal for detector applications
- Low actuation force (75 grams max.)
- Pick & place compatible, available in tape & reel packaging
- RoHS compliant and compatible

Typical Applications

- Medical devices
- Consumer electronic devices
- PCB lock cam detect
- Smart card detect
- ATCA and MicroTCA



Specifications

CONTACT RATING: 100 mA @ 12 VDC.
MECHANICAL & ELECTRICAL LIFE: 50,000 cycles.
CONTACT RESISTANCE: 100 m Ω max. initial.
INSULATION RESISTANCE: 10 M Ω min. @ 100 VDC.
OPERATING TEMPERATURE: -40°C to +85°C.
SOLDERABILITY: IR compatible, no wash. 260°C max.
PACKAGING: Bulk or tape & reel (3000 per reel).

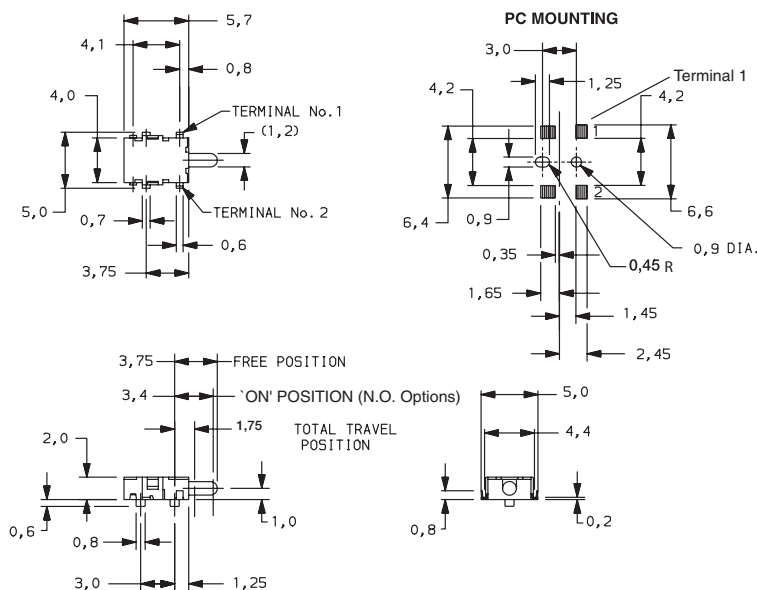
Materials

BASE: Glass filled LCP (UL 94V-0).
ACTUATOR: Glass Filled LCP (UL94V-0).
SURFACE PLATE: Nickel silver w/silver plate.
MOVABLE CONTACT: Phosphor bronze, see table for plating.
TERMINALS: Phosphor bronze, see table for plating.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How to Order

Complete part numbers for SDS Series Switches are shown below.

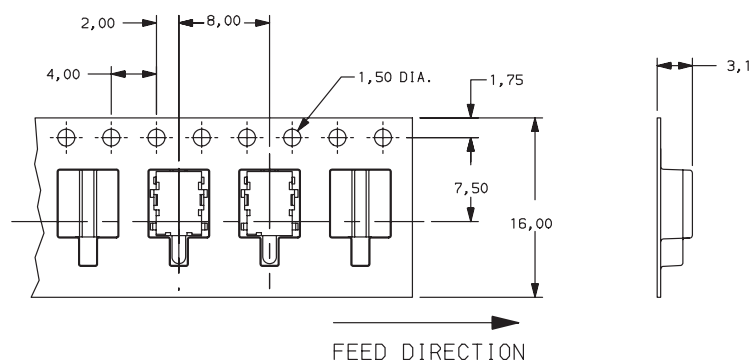


PART NUMBER	HOUSING COLOR	PACKAGING	SCHEMATIC	Contact Plating	Terminal Plating
SDS001	Black	Bulk	N.O. 2 1	Silver Clad	Silver Plate
SDS001R		Tape & Reel			
SDS002	White	Bulk	N.C. 2 1		
SDS002R		Tape & Reel			
SDS004	Black	Bulk	N.O. 2 1	Gold Flash	Gold Flash
SDS004R		Tape & Reel			
SDS005	White	Bulk	N.C. 2 1		
SDS005R		Tape & Reel			



SDS001
SPST

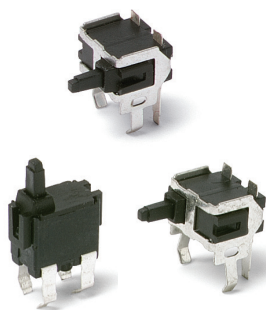
TAPE & REEL



Dimensions are shown: mm
Specifications and dimensions subject to change

DDS Series

Micro Mini Thru-hole Detect Switches



Features/Benefits

- Vertical or horizontal actuation
- 2mm overtravel—Ideal for detector applications
- Low actuations force (less than 40 grams)
- RoHS compliant and compatible

Typical Applications

- Detect the presence of a mechanical device
- Medical devices
- Consumer electronic devices

Specifications

CONTACT RATING: 0.1A @ 30 VDC.
 MECHANICAL & ELECTRICAL LIFE: 50,000 cycles.
 CONTACT RESISTANCE: 150 m Ω max. initial.
 INSULATION RESISTANCE: 100 M Ω min. @ 100 VDC.
 OPERATING TEMPERATURE: -40°C to +85°C.
 DIELECTRIC STRENGTH: 100 volts AC @ 60 Hz.
 PACKAGING: Bulk.

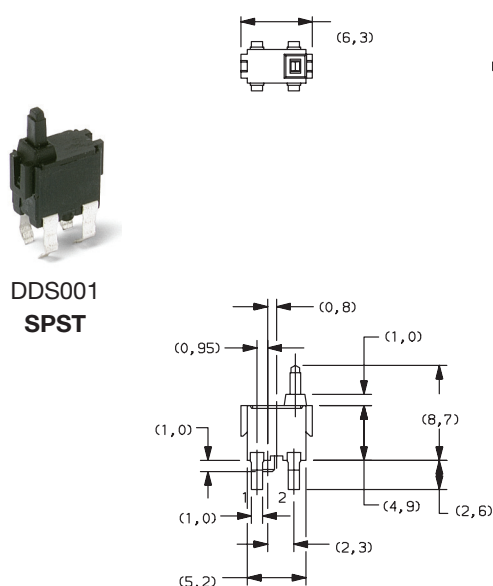
Materials

HOUSING: P.P.S.
 ACTUATOR: PA66
 MOVABLE CONTACT: Tin bronze, silver plated.

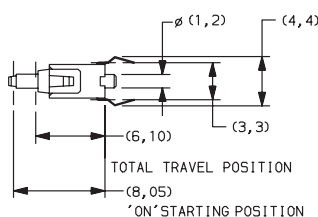
NOTE: Specifications and materials listed above are for switches with standard options.
 For information on specific and custom switches, consult Customer Service Center.

How To Order

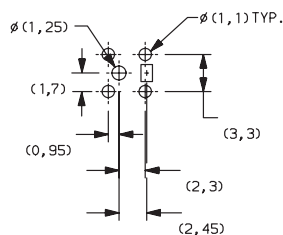
Complete part numbers for DDS Series Switches are shown below.



DDS001
SPST



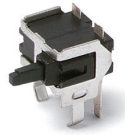
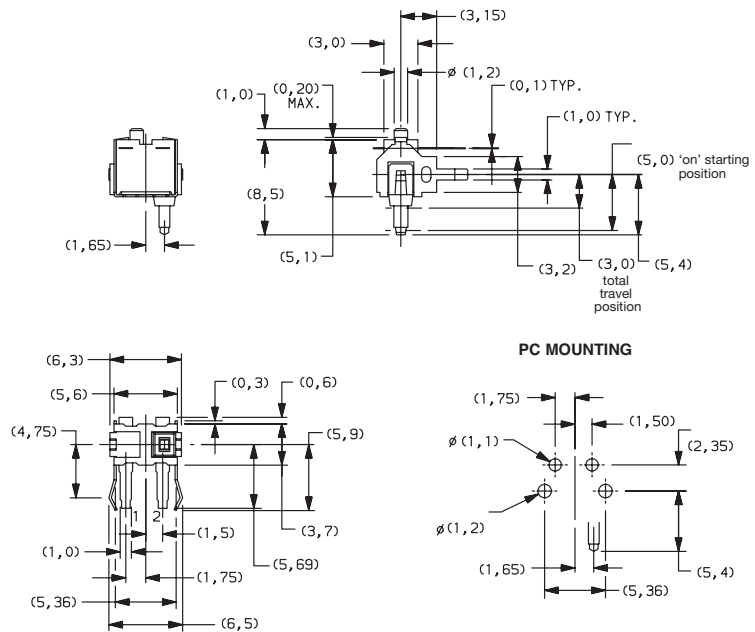
PC MOUNTING



PART NUMBER	DESCRIPTION	SCHEMATIC
DDS001	Vertical Actuator	 SPST N.O.

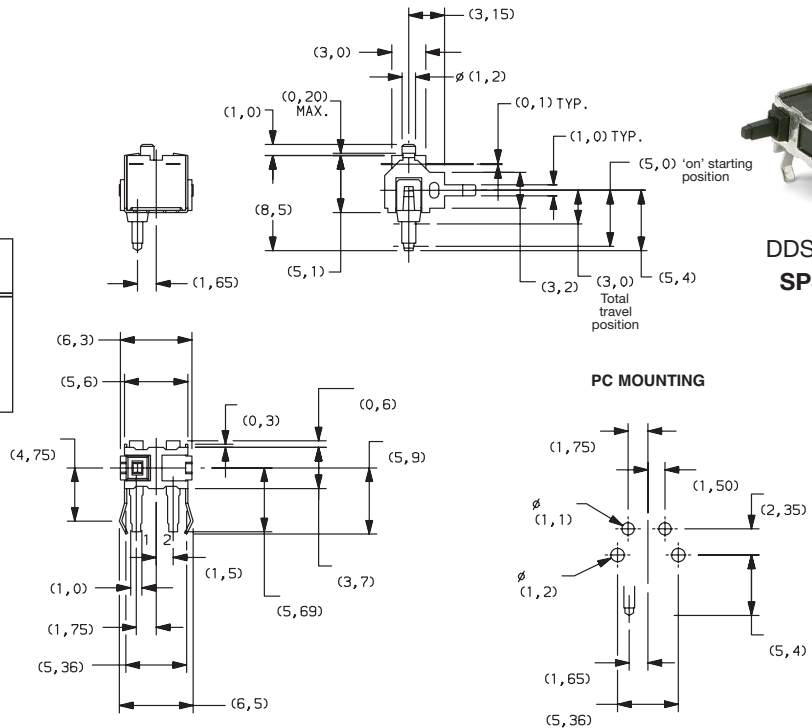
DDS Series Micro Mini Thru-hole Detect Switches

PART NUMBER	DESCRIPTION	SCHEMATIC
DDS002	Right angle, actuator right	 SPST N.O.



DDS002
SPST

PART NUMBER	DESCRIPTION	SCHEMATIC
DDS003	Right angle, actuator left	 SPST N.O.

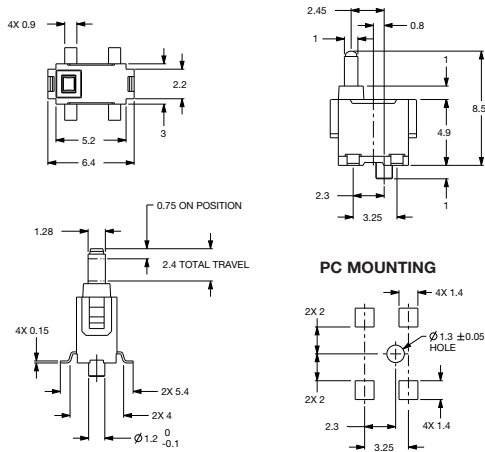


DDS003
SPST

DDS Series Micro Mini Thru-hole Detect Switches



DDS004
SPST



PART NUMBER	DESCRIPTION	SCHEMATIC
DDS004	Vertical actuator	 SPST N.O.

FDSD Series Micro Mini Side Actuated Detect Switches

NEW



Features/Benefits

- Extremely small package size
- Vertical Side Actuation
- Flat or Bending Terminations
- Long Travel Type
- RoHS Compatible and Compliant

Typical Applications

- Consumer electronics
- Medical devices
- Safety control devices

Specifications

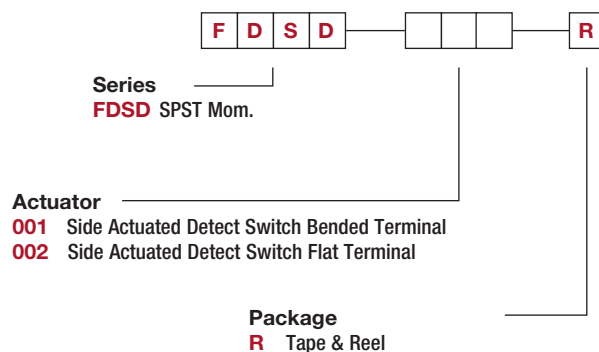
CONTACT RATING: 50 μ A @ 3VDC, 10 mA @ 5 VDC
 MECHANICAL & ELECTRICAL LIFE: 50,000 operations
 CONTACT RESISTANCE: 1 Ω max
 INSULATION RESISTANCE: 100M Ω min
 DIELECTRIC STRENGTH: 100VAC @ 1 minute
 OPERATING TEMPERATURE: -40°C to +85°C
 OPERATING FORCE: 40gf max.
 TRAVEL: 3.05 mm or 60°
 SOLDERABILITY: According to lead free solder profiles
 PACKAGING: 3,500 pieces per reel.

Materials

BASE: PA9T
 COVER: C7701R
 ACTUATOR: PA 46
 MOVABLE CONTACT: Beryllium Copper
 TERMINALS: Phosphor Bronze, Ag over Ni Plating

Build-A-Switch

Complete part numbers for FDSD Series are shown below.



E

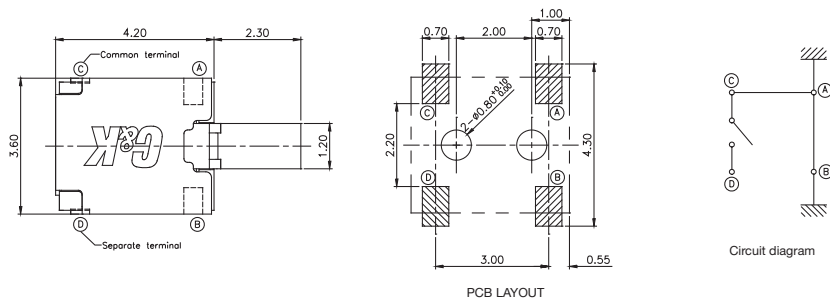
Detect

NEW

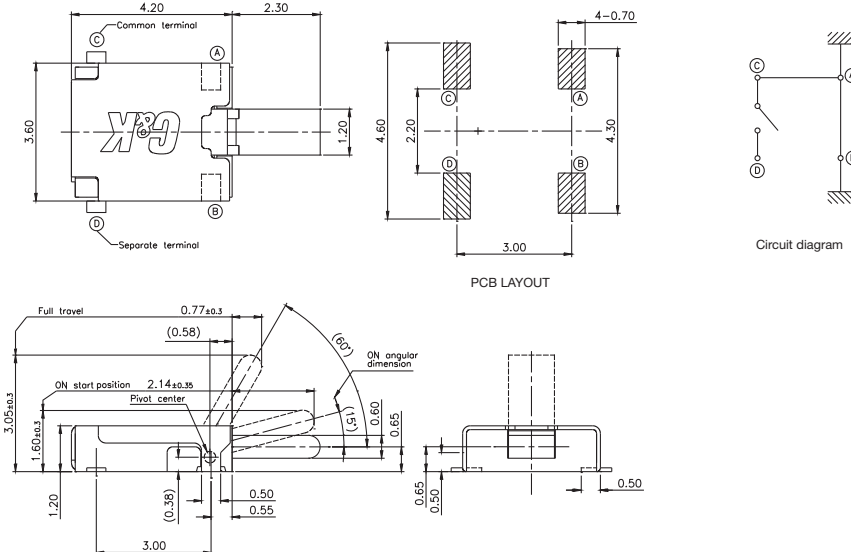
FDSD Series Micro Mini Side Actuated Detect Switches

SERIES

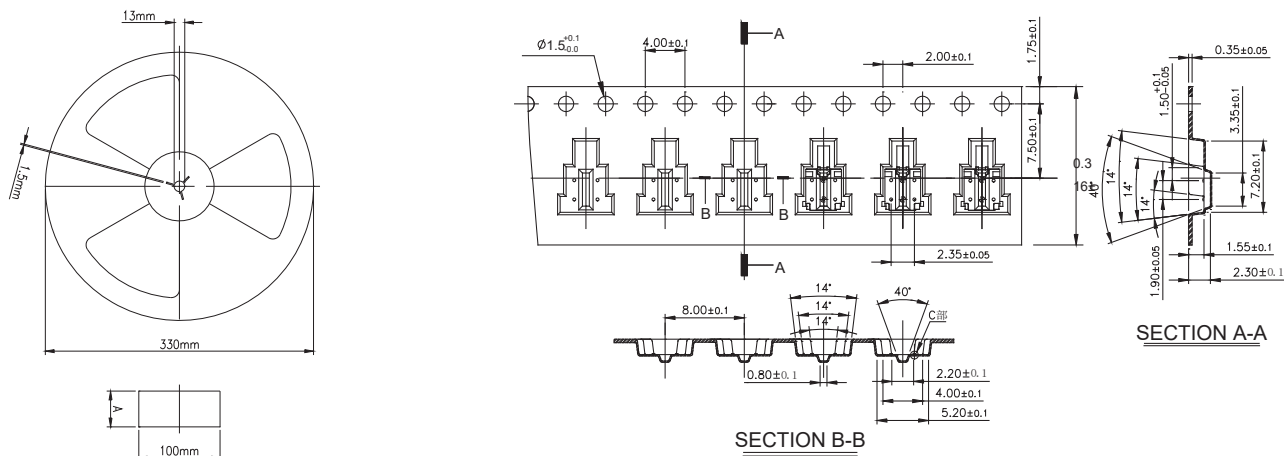
FDSD001R



FDSD002R

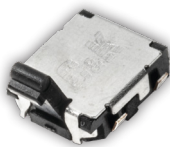


TAPE & REEL



FDSE Series Micro Mini Angled Actuated Detect Switches

NEW



Features/Benefits

- *Extremely small package size*
- *Angled Actuation*
- *Flat or Bending Terminations*
- *Long Travel Type*
- *RoHS Compatible and Compliant*

Typical Applications

- *Consumer electronics*
- *Medical devices*
- *Safety control devices*

Specifications

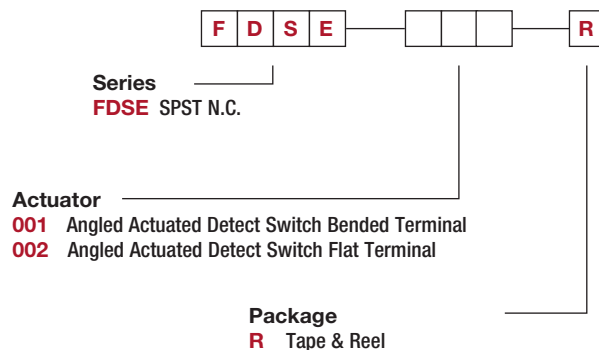
CONTACT RATING: 100 μ A @ 3VDC, 1 mA @ 5 VDC
MECHANICAL & ELECTRICAL LIFE: 50,000 operations
CONTACT RESISTANCE: 3 Ω max
INSULATION RESISTANCE: 100M Ω min 100 VDC
DIELECTRIC STRENGTH: 100VAC @ 1 minute
OPERATING TEMPERATURE: -40°C to +85°C
OPERATING FORCE: 35 gf max.
TRAVEL: 3.14 mm or 60°
SOLDERABILITY: According to lead free solder profiles
PACKAGING: 2,000 pieces per reel.

Materials

BASE: PA9T
COVER: C7701R
ACTUATOR: PA 46
MOVABLE CONTACT: Beryllium Copper
TERMINALS: Phosphor Bronze, Ag over Ni Plating

Build-A-Switch

Complete part numbers for FDSE Series are shown below.



E

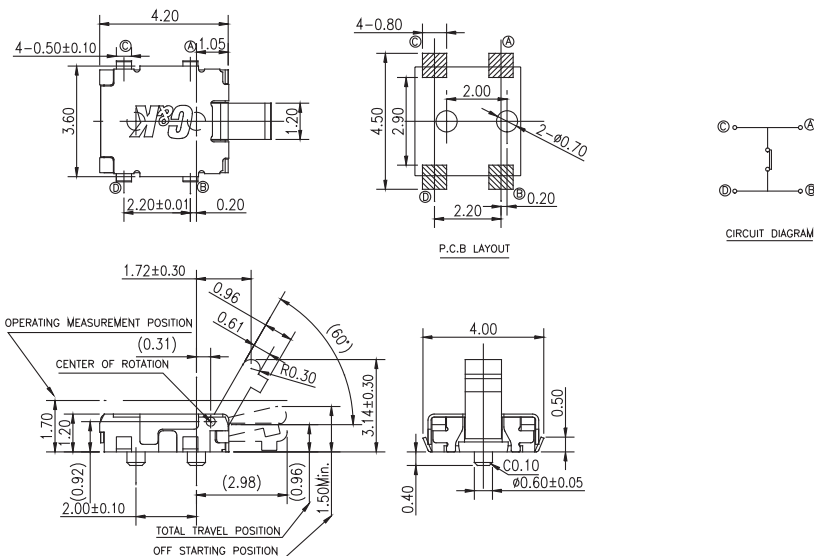
Detect

NEW

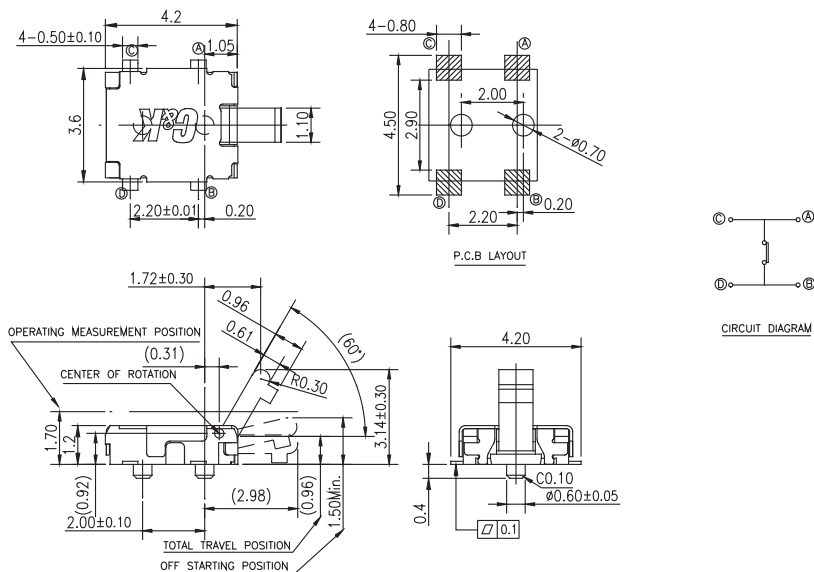
FDSE Series Micro Mini Angled Actuated Detect Switches

SERIES

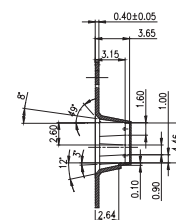
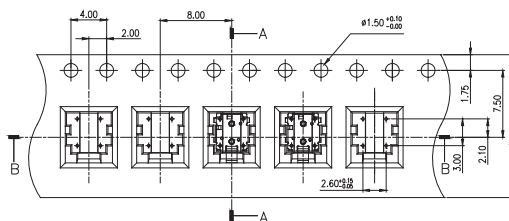
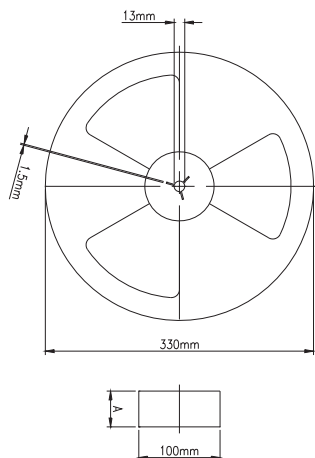
FDSE001R



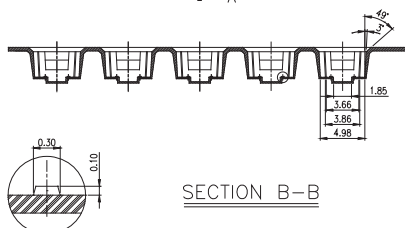
FDSE002R



TAPE & REEL

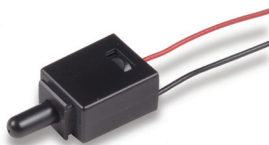


SECTION A-A



SECTION B-B

KDS Series Intrusion Switches



Features/Benefits

- Slot mount into chassis to reduce installation cost
- Wire harness length & connector easily customized
- Available in N.O. or N.C. configuration
- RoHS compliant

Typical Applications

- Intrusion/Alarm switch in network desktop PC
- Intrusion/Alarm switch in telecommunication equipment
- Intrusion/Alarm switch in cellular base station

Specifications

CONTACT RATING: 0.4 VA max. @ 20 V AC or DC.

MECHANICAL & ELECTRICAL LIFE: 10,000 actuations min. at full load.

CONTACT RESISTANCE: 200 m Ω max. initial @ 2-4 V DC, 100mA.

INSULATION RESISTANCE: $10^9 \Omega$ min.

OPERATING TEMPERATURE: -40°C to +85°C

TRAVEL: KDS11: Pre-travel 0.180" TYP; Overtravel 0.223"

KDS33: No pre-travel, full travel 0.403"

DIELECTRIC STRENGTH: 500 Vrms min. @ sea level.

PACKAGING: Bulk packaging.

Materials

HOUSING: Nylon 6/6 (UL 94V-0)

ACTUATOR: Nylon 6/6 (UL 94V-0)

MOVABLE CONTACT: Copper alloy, gold plate over nickel plate.

FIXED CONTACT: Brass, gold plate over nickel plate.

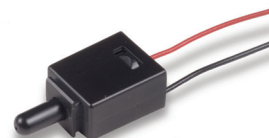
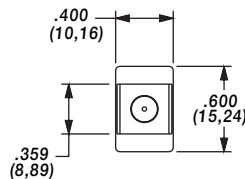
WIRE: UL 1061-24 AWG.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

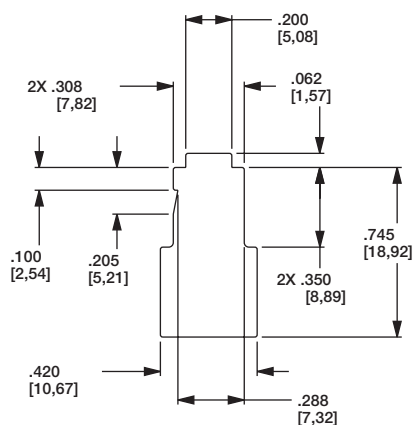
How To Order

Complete part numbers for KDS Series Switches are shown below.

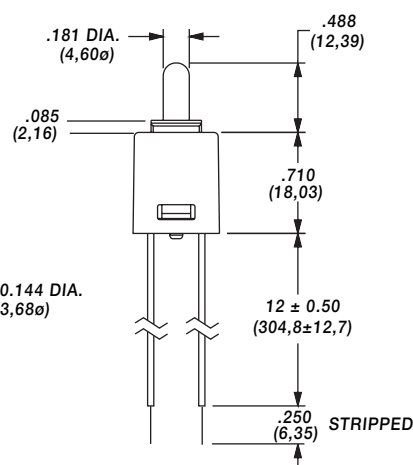
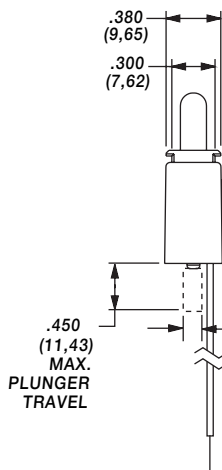
PART NUMBER	SWITCH FUNCTION		SCHEMATIC
	POS. 1	POS. 2	
KDS11	OFF	MOM.	SPST N.O.
KDS33	ON	OFF	SPST N.C.



KDS33



PANEL CUT-OUT
THICKNESS 1,02



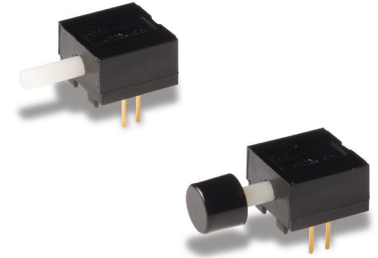
Detect

Features/Benefits

- **Reliable contact design**
- **Available with pretravel and overtravel**
- **RoHS compliant**

Typical Applications

- **Alarm systems**
- **Computers**
- **Detector switch application**



Models Available

Specifications

CONTACT RATING: Q contact material:
0.25 AMPS @ 125 V AC or DC (UL). See page F-29 for additional ratings.

ELECTRICAL LIFE: 10,000 actuations min. at full load.

CONTACT RESISTANCE: Below 30 mΩ typ. initial @ 2-4 V DC, 100 mA, for both silver and gold plated contacts.

INSULATION RESISTANCE: 10⁹Ω min.

DIELECTRIC STRENGTH: 1,000 Vrms min. @ sea level.

OPERATING TEMPERATURE: -30°C to 85°C.

CAP INSTALLATION FORCE: 10 lbs. max. permissible.

NOTE: Any models supplied with Q or B contact material are RoHS compliant.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

Materials

HOUSING & BUSHING: 6/6 nylon (UL94V-2), black.

ACTUATOR: 6/6 nylon (UL 94V-2), natural.

MOVABLE CONTACT: B contact material: Bronze or copper, with gold plate over nickel plate. See page F-39 for additional contact materials.

STATIONARY CONTACTS & TERMINALS: B contact material: Copper, with gold plate over nickel plate. See page F-29 for additional contact materials.

RETURN SPRING: Music wire, phosphor coated.

MOUNTING NUT: Brass, nickel plated.

TERMINAL SEAL: Epoxy.

Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on pages E-28 and E-29. For additional options not shown in catalog, consult Customer Service Center.

	☐	☐	☐	☐	☐	☐	☐
Switch Function							
KM12 On-Mom., SPDT							
Actuator							
02 .398" high, .122" dia. KM12							
Bushing/Mounting Style							
A Right angle							
Terminations							
08 Right angle, PC thru-hole							
Contact Material							
B Gold							
Q Silver							
Seal							
E Epoxy							



E

Detect

KM Series

Subminiature Detect Switches

SWITCH FUNCTION

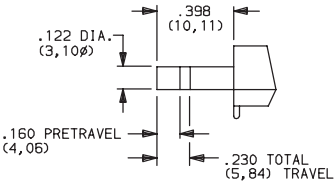


NO. POLES	MODEL NO.	SWITCH FUNCTION		CONNECTED TERMINALS		SCHEMATIC
		POS. 1	POS. 2	POS. 1	POS. 2	
SP	KM12	ON	MOM.	2-1	4-3	
SPDT						

ACTUATOR



02 .398" HIGH, .122" DIA.

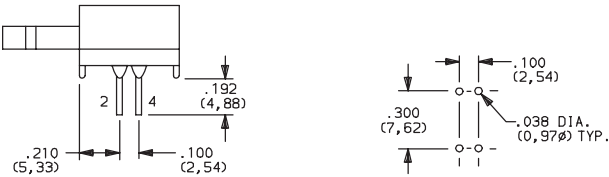


NOTE: Caps available for plunger options, see page E-29.

BUSHING/ MOUNTING STYLE



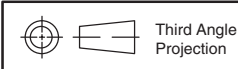
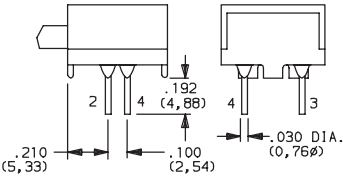
A RIGHT ANGLE



TERMINATIONS



08 RIGHT ANGLE, PC THRU-HOLE



Third Angle
Projection



Dimensions are shown: mm
Specifications and dimensions subject to change



Detect

CONTACT MATERIAL

SEAL

AVAILABLE HARDWARE



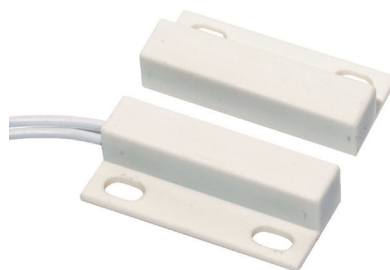
MPS Series Magnetic Proximity Sensors

Features/Benefits

- Long life—4M operations
- Sealed contacts
- Quality construction
- Quick and easy installation
- UL 61058 approved

Typical Applications

- Automotive sensors and indicators
- Industrial sensors
- Factory automation equipment
- Server / storage
- Security, alarms for windows



Specifications

CONTACT RATINGS: 50V AC/DC 50/60Hz 5W (0.25A maximum)
RESISTIVE

CONTACT RESISTANCE: 100 m Ω max. initial.

DIELECTRIC STRENGTH: 200 V DC min.

ELECTRICAL CIRCUIT: SPST NO (Contact Form A). Reed switch opens when magnet is removed from proximity. Contacts are held closed when magnet is within actuation range.

OPERATING TEMPERATURE: -40°F to 212°F (-40°C to 100°C).

OPERATING DISTANCE/ALIGNMENT: Operate (pull-in or make) points are nominal values with $\pm 10\%$ tolerance. Release points are 110% to 150% of the operating points.

MECHANICAL & ELECTRICAL LIFE: 4 million operations.

PACKAGING: Bulk packaging, 10 switch and magnet pairs per package.

Materials

HOUSING/SPACER/COVER: ABS plastic (UL94V-0), white.

REED SWITCH: Rhodium coated reed contacts in hermetically sealed, nitrogen filled glass capsule. Closed when magnet is in close proximity. Used in closed loop circuits.

WIRE LEADS: UL 1061/ UL1007 / UL2468

All are 22 AWG wire: stranded, made of copper or aluminum; Length: 12 in. with ends stripped; Color: white.

POTTING (around wires): Epoxy.

MAGNETS: NdFeB

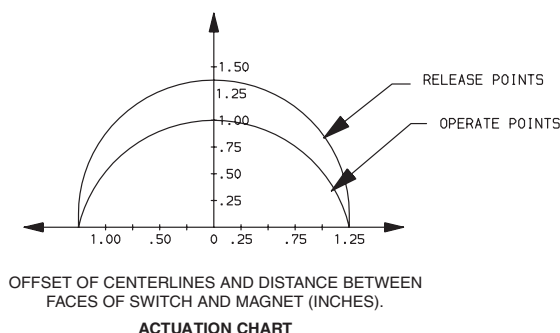
ADHESIVE MOUNTING: Foam-backed, pressure-sensitive adhesive with release liner.

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

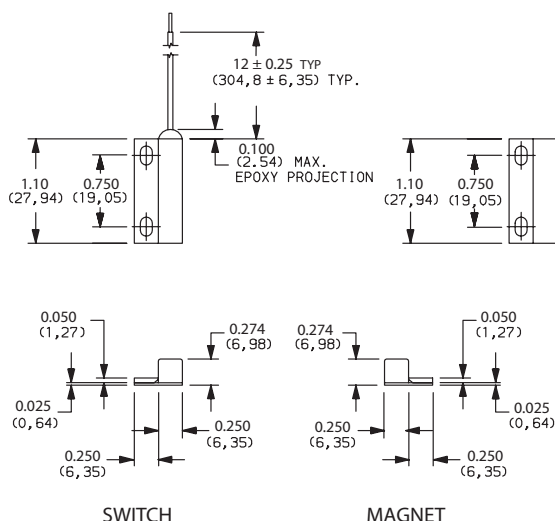
How To Order

PART NUMBER	SWITCH TYPE
MPS45WGW	Subminiature surface mount (adhesive or flange), side exit leads, 1" make gap.

UL 61058



NOTE: UL 61058 Rating



Third Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

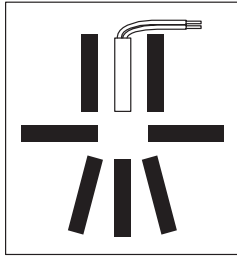
Actuating Positions

When installing recessed and surface mount contacts, magnet position is very important. The switch and magnet must always be parallel or end to end, and never in a 'T' configuration.

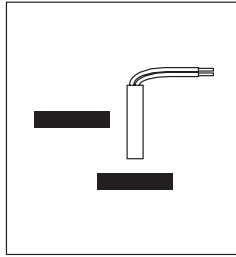
Gap Distance

Gap distance is a combination of the horizontal and vertical plane separation of the switch and magnet. Example: if a recessed magnet is 1/4" off the centerline of the switch, the make gap is reduced by 1/4"

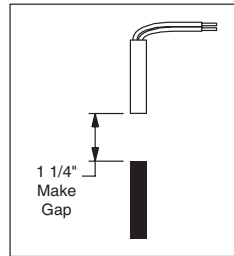
Correct Configuration



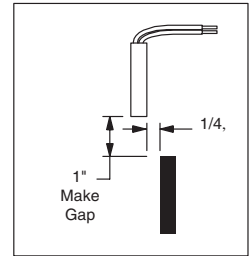
Incorrect Configuration



Center Alignment



Off Center Alignment



m

Detect

MPSR Series Ruggedized Magnetic Proximity Sensors

NEW

Features/Benefits

- Long life—4M operations
- Sealed contacts
- Quality construction
- Quick and easy installation
- IP69 rating
- Form C SPDT contacts

Typical Applications

- Automotive sensors and indicators
- Industrial sensors
- Factory automation equipment
- Server / storage
- Security, alarms for windows



Specifications

CONTACT RATINGS: 30 VDC 3W (0.2A maximum)
RESISTIVE

CONTACT RESISTANCE: 300 m Ω max. initial.

DIELECTRIC STRENGTH: 150V DC min.

ELECTRICAL CIRCUIT: SPDT NO/NC (Contact Form C). Reed switch normally open contact opens when magnet is removed from proximity. Normally open contact contacts are held closed when magnet is within actuation range.

OPERATING TEMPERATURE: -40°F to 176°F (-40°C to 80°C).

OPERATING DISTANCE/ALIGNMENT: Operate (pull-in or make) points are nominal values with $\pm 10\%$ tolerance. Release points are 110% to 150% of the operating points.

MECHANICAL & ELECTRICAL LIFE: 4 million operations.

PACKAGING: Bulk packaging, 1 switch and magnet pairs per package.

Materials

HOUSING/SPACER/COVER: Aluminum, black.

REED SWITCH: Rhodium coated reed contacts in hermetically sealed, nitrogen filled glass capsule. Used in closed loop circuits.

WIRE LEADS: UL 1061/ UL1007 / UL2468

All are 22 AWG wire: stranded, made of copper or aluminum; Length: 2 meters with ends stripped; Jacket: Stainless steel.

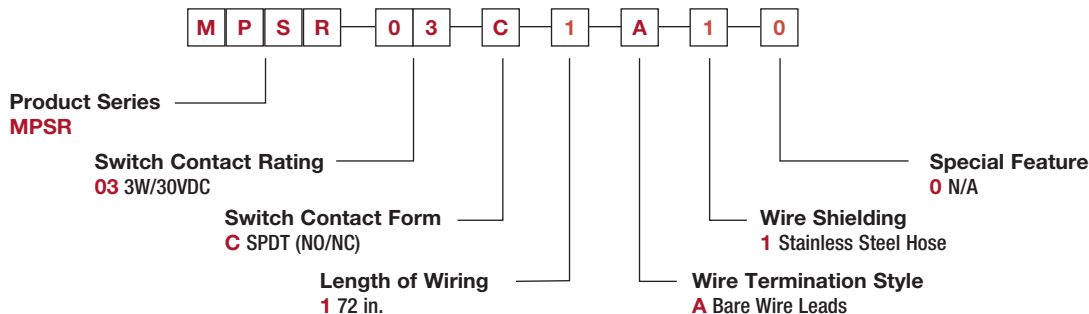
POTTING (around wires): Epoxy.

MAGNETS: NdFeB

NOTE: Specifications and materials listed above are for switches with standard options. For information on specific and custom switches, consult Customer Service Center.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.



* Please consult factory to see if your custom application requirements can be accommodated by a tailored solution



17 Nov 20



Third Angle
Projection

Dimensions shown in inches
Specifications and dimensions subject to change

www.ckswitches.com



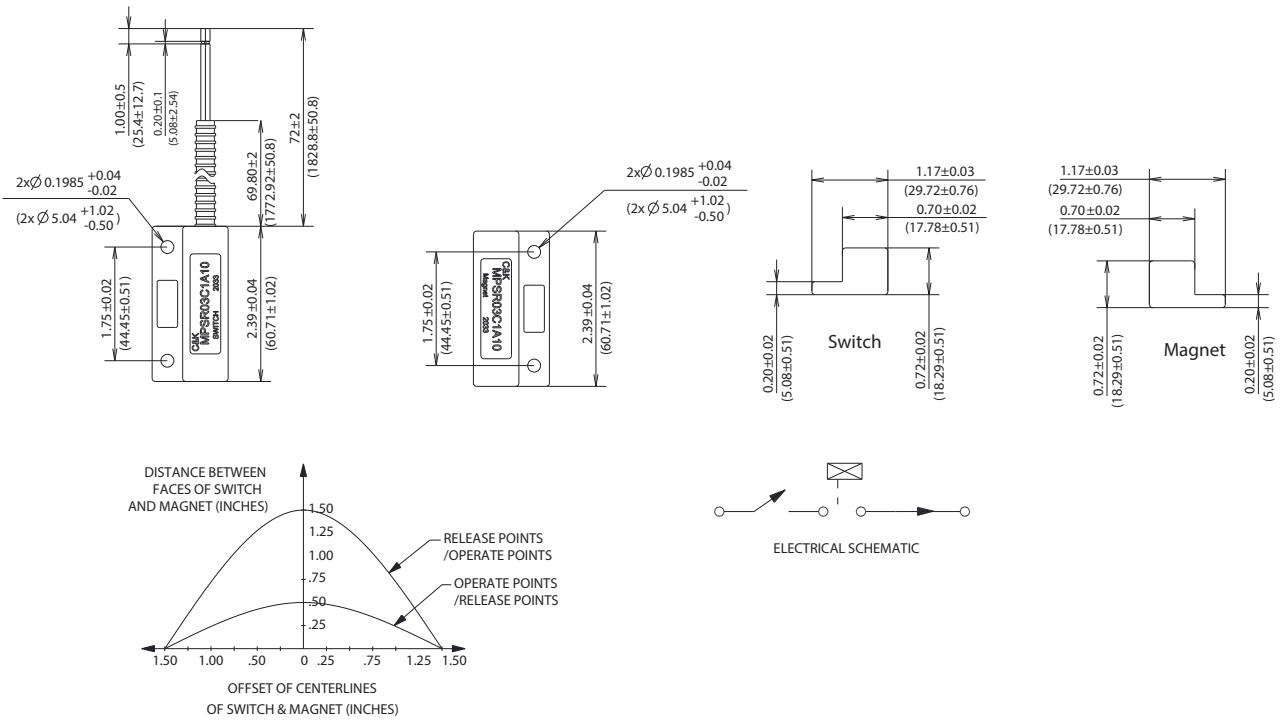
E

Detect

NEW

MPSR Series Ruggedized Magnetic Proximity Sensors

Dimensions unit: inch (mm)



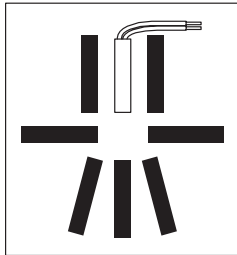
Actuating Positions

When installing recessed and surface mount contacts, magnet position is very important. The switch and magnet must always be parallel or end to end, and never in a 'T' configuration.

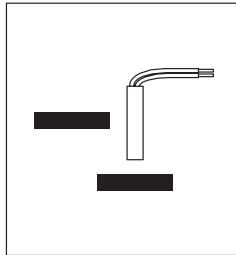
Gap Distance

Gap distance is a combination of the horizontal and vertical plane separation of the switch and magnet. Example: if a recessed magnet is 1/4" off the centerline of the switch, the make gap is reduced by 1/4"

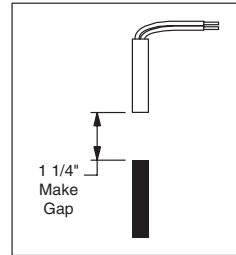
Correct Configuration



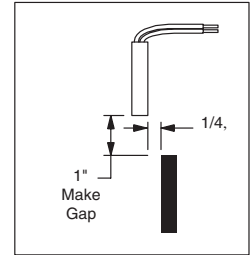
Incorrect Configuration



Center Alignment



Off Center Alignment



m

Detect

C&K

17 Nov 20

E E-34



Third Angle
Projection

Dimensions are shown: inch (mm)
Specifications and dimensions are subject to change

www.candkswitches.com

KSU Series

Micro Mini Surface Mount Detect Switches



Features/Benefits

- New multi contact construction
- Metal actuator
- Low actuating force
- RoHS compliant and compatible

Typical Applications

- Mobile phones and other handheld devices
- Portable medical devices
- Audio devices
- Alarm devices
- Payment terminals
- Smart meters

Specifications

FUNCTION: Momentary action.

CONTACT TYPE: SPST Normally open.

TERMINALS: Gullwing type for SMT.

Mechanical

SWITCHING FORCE: $0,7 \pm 0,5$ N

TRAVEL TO MAKE: $0,65$ mm - $0,45/+0,25$ mm

MECHANICAL TRAVEL: $1,5 \pm 0,2$ mm

OPERATING LIFE: 100,000 cycles

Packaging

Switches are delivered on continuous tape, in reels of 1,000 pieces

Electrical

MAXIMUM POWER:

MAXIMUM VOLTAGE:

MINIMUM VOLTAGE:

MAXIMUM CURRENT:

MINIMUM CURRENT:

CONTACT RESISTANCE:

INSULATION RESISTANCE:

DIELECTRIC STRENGTH:

BOUNCE TIME:

GOLD

0.2 VA

32 VDC

20 mV

10 mA

0.01 mA

≤ 100 m Ω

(100 VDC) 10^9 Ω

≥ 250 Vrms

≤ 3 ms

SILVER

0.1 VA

32 VDC

20 mV

50 mA

1 mA

Environmental

OPERATING TEMPERATURE: -40°C to $+125^{\circ}\text{C}$ -40°C to $+85^{\circ}\text{C}$

STORAGE TEMPERATURE: -55°C to $+125^{\circ}\text{C}$ -40°C to $+85^{\circ}\text{C}$

Process

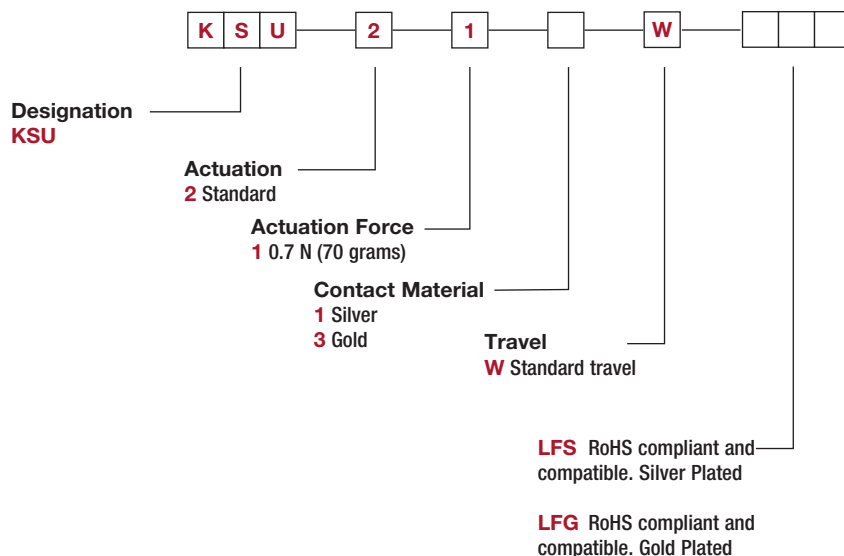
SOLDERING: Compatible with lead free reflow process

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

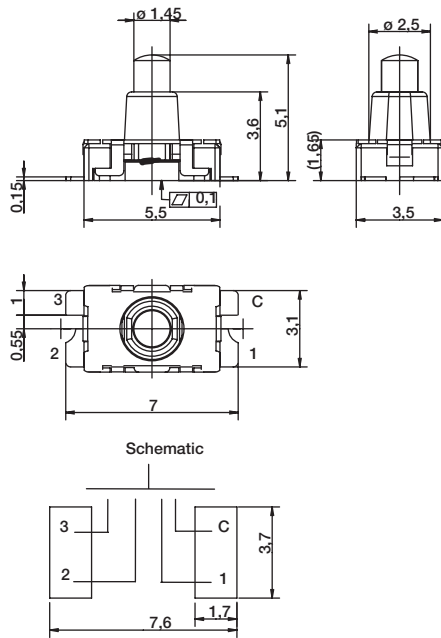
How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

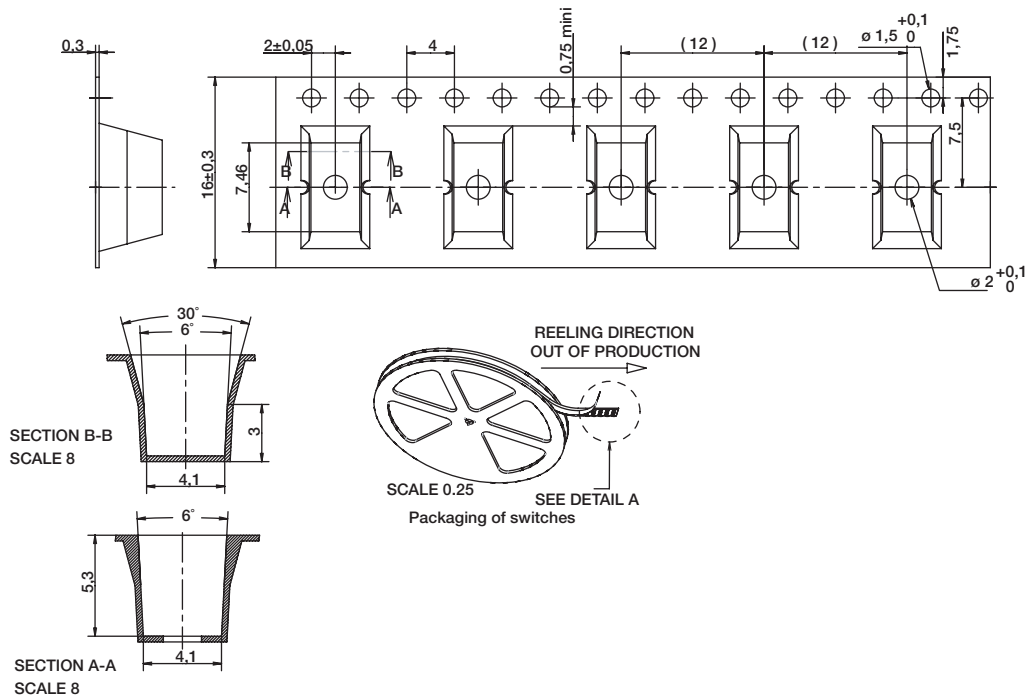
For any part number different from those listed above, please consult your local representative.



KSU Series Micro Mini Surface Mount Detect Switches



TAPE & REEL



SECTION B-B
SCALE 8

SECTION A-A
SCALE 8

REELING DIRECTION
OUT OF PRODUCTION

SCALE 0.25

SEE DETAIL A
Packaging of switches



Dimensions are shown: mm
Specifications and dimensions subject to change

KSR2D/M Series

Subminiature Detect Switch for SMT



Features/Benefits

- Gold contacts
- G terminations
- Soft actuator
- RoHS compliant and compatible

Typical Applications

- Automotive
- Industrial electronics
- Medical equipment
- Detector switch applications

Specification

FUNCTION: momentary action
CONTACT ARRANGEMENT: N.O.
TERMINALS: Gullwing type for SMT

Mechanical

Type	Operating force Newtons	Operating life (operations)	Travel (mm)
KSR2D3MG LFG	1,5 ± 0,5N	100,000	0,3 ± 0,15
KSR2M3G LFG	0,8 ± 0,4N	100,000	0,19 ± 0,11

Packaging

Switches are delivered on continuous tape, in reels of 2,500 pieces.
For information on specific and custom switches, consult Customer Service Center.

Electrical

MAXIMUM POWER:	Gold
MAXIMUM VOLTAGE:	0.2 VA
MINIMUM VOLTAGE:	32 VDC
MAXIMUM CURRENT DC:	20 mV
MINIMUM CURRENT DC:	10 mA
CONTACT RESISTANCE:	1 mA
INSULATION RESISTANCE	100 mΩ
BOUNCE TIME:	(100 V): 10°Ω
	1 ms

Environmental

OPERATING TEMPERATURE:	Gold
STORAGE TEMPERATURE:	-40°C to 125°C
	-55°C to 125°C

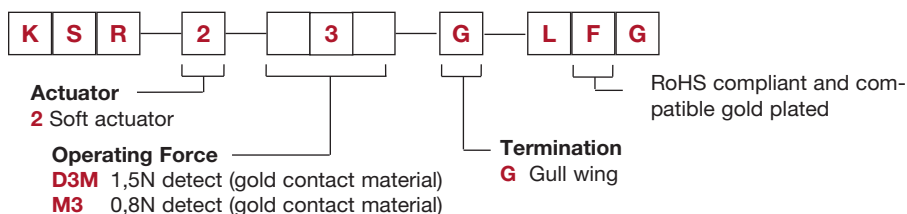
Process

SOLDERING: Compatible with lead free reflow soldering process

How To Order

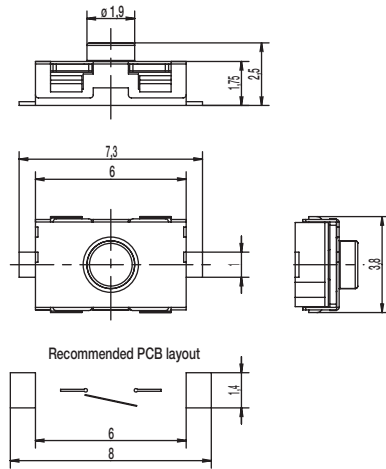
Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

For any part number different from those listed above, please consult your local representative.

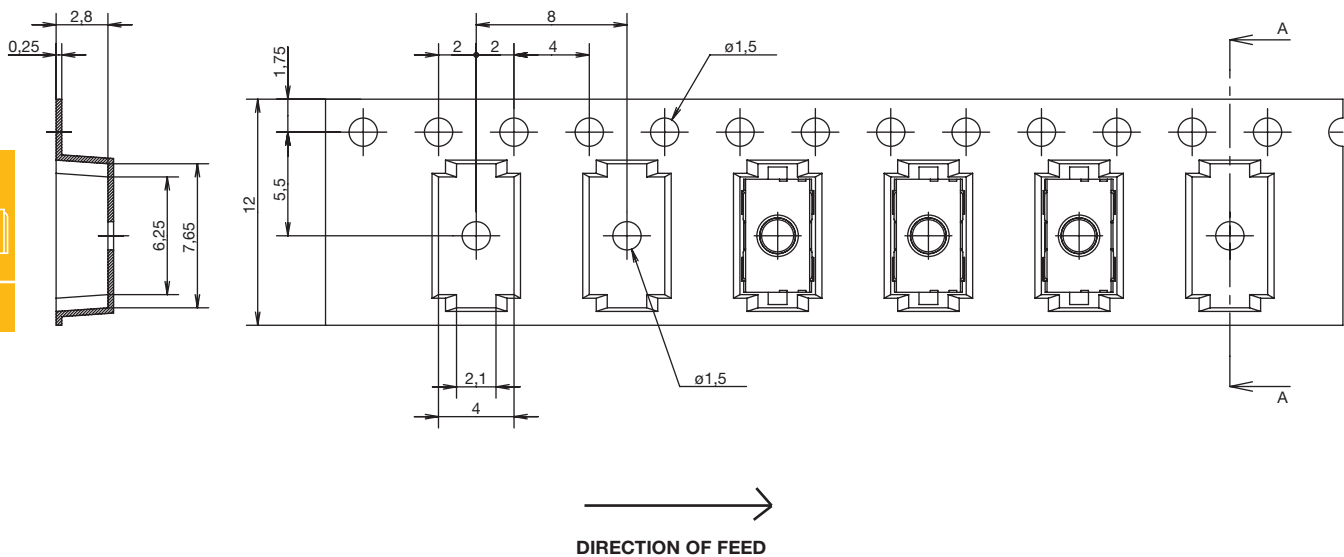


KSR2D/M Series Subminiature Detect Switch for SMT

KSR2D/M



TAPE & REEL



Detect

KSCD Series

Sealed Detect Switch for SMT



Features/Benefits

- **Soft actuator**
- **J or G terminations**
- **Tape & reel**
- **IP 67**
- **RoHS compliant and compatible**

Typical Applications

- **Automotive**
- **Cellular phones**
- **Industrial electronics**
- **Computer infrastructure and IT**

Specification

FUNCTION: momentary action compatible with permanent actuation
 CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.
 TERMINALS: J bend & Gullwing type for SMT
 Compatible with permanent actuation

Mechanical

Type	Operating force FA Newtons	Operating life (operations)	Travel (mm)
KSC2D1	1,0 - 3,0	1,000,000	0,75 ± 0,25
KSC2D2	1,0 - 3,0	2,000,000	0,75 ± 0,25
KSC4D1	1,0 - 3,0	500,000	0,6 ± 0,25
KSC4D2	1,0 - 3,0	2,000,000	0,6 ± 0,25
KSC4D3	1,0 - 3,0	500,000	0,6 ± 0,25

Electrical

MAXIMUM POWER: 1 VA
 MAXIMUM VOLTAGE: 32 VDC
 MINIMUM VOLTAGE: 20 mV
 MAXIMUM CURRENT: 50 mA
 MINIMUM CURRENT: 1 mA
 DIELECTRIC STRENGTH (50 Hz, 1 min.): ≥ 250 V
 CONTACT RESISTANCE: ≤ 100 mΩ
 INSULATION RESISTANCE (100 V): ≥ 10⁹ Ω
 BOUNCE TIME: ≤ 1 ms

Silver Gold
 1 VA 0.2 VA
 32 VDC 32 VDC
 20 mV 20 mV
 50 mA 10 mA
 1 mA 0.1 mA

Electrical

OPERATING TEMPERATURE: -40°C to 85°C
 STORAGE TEMPERATURE: -55°C to 85°C

Process

SOLDERING:
 - Infrared Reflow according to free soldering process with IEC 61760-1.

Packaging

KSC2: Reels of 2,000 pieces.
 KSC4: Reels of 1,000 pieces.
 Dimensions of reels according to EIA RS481 or IEC 60286-3. External diameter 330 mm ± 2 mm.

NOTE: Part numbers listed above do not represent all possible configurations. For information on specific and custom switches, consult Customer Service Center.

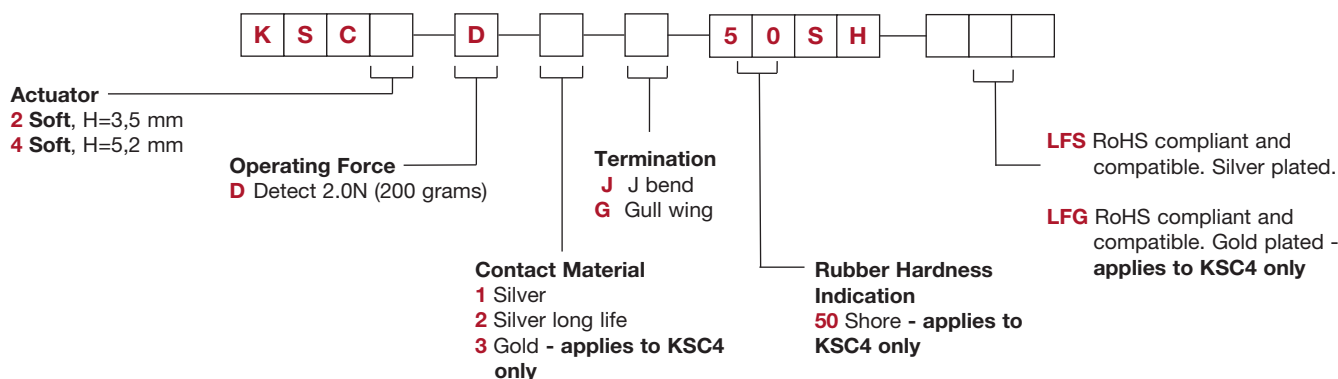
This data sheet does not provide enough information for applications which require a certain level of quality or safety such as automotive, medical systems, safety equipment. Please contact your sales representative to get contractual specification package.

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

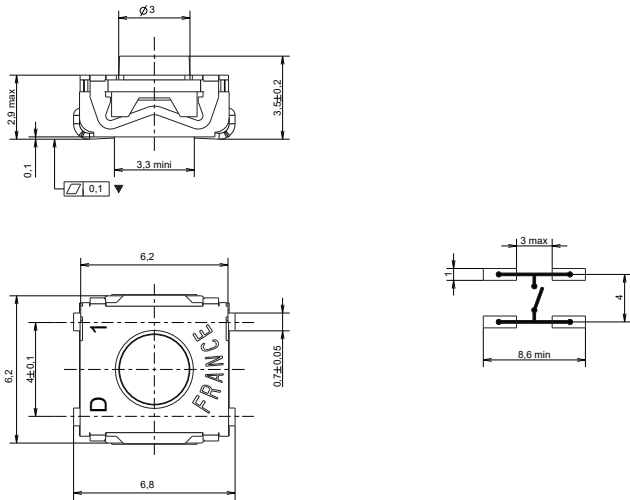
However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.

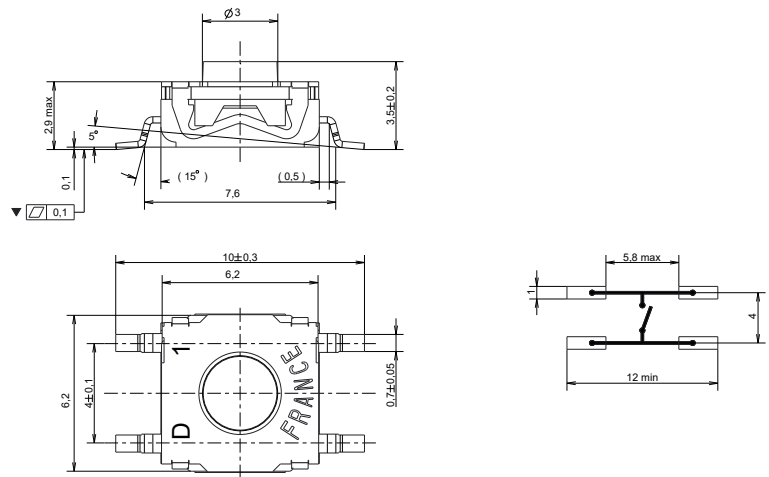


KSC4D Series Sealed Detect Switch for SMT

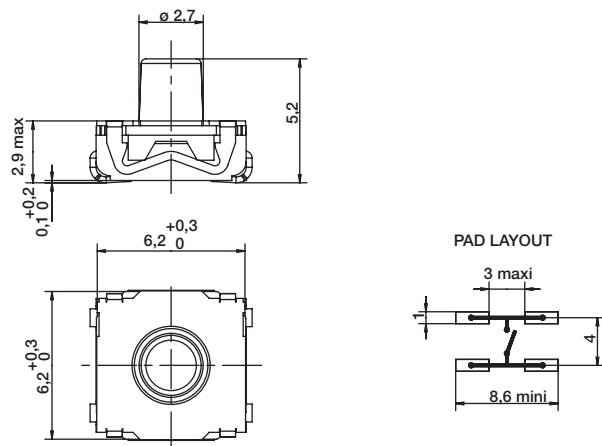
KSC2D1J SOFT, 3,5 mm high



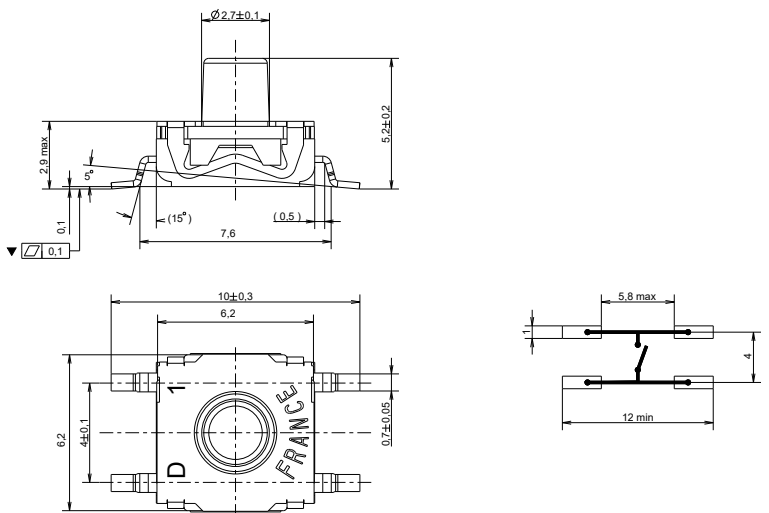
KSC2D1G SOFT, 3,5 mm high



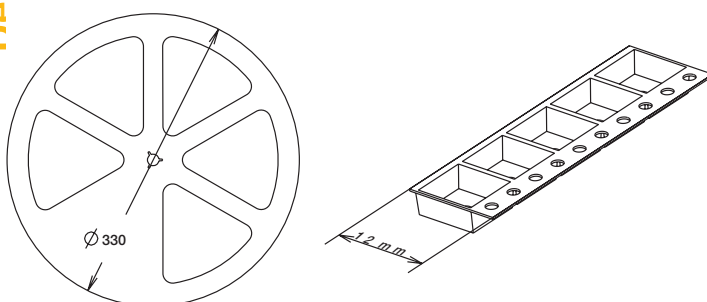
KSC4D1J SOFT, 5,2 mm high



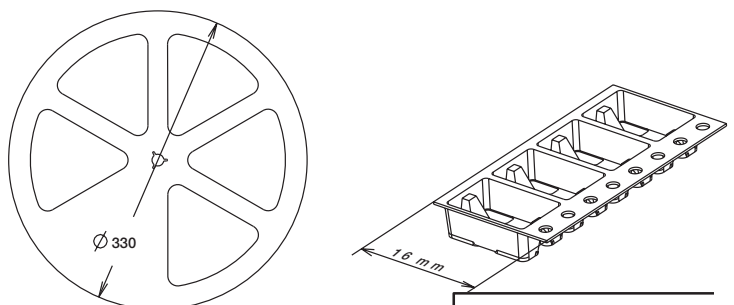
KSC4D1G SOFT, 5,2 mm high



TAPE AND REEL KSC2J



TAPE AND REEL KSC2G & KSC4



First Angle Projection

Dimensions are shown: mm
Specifications and dimensions subject to change

KSJ Detect Series

Spherical Actuator Detect Switches



Features/Benefits

- Straight or vertical detect
- Top or side actuation
- Spherical actuator allows actuation +/- 30°
- High travel
- Adapted for cam actuation
- Sealing IP60

Typical Applications

- Automotive
- Industrial electronics
- Computer infrastructure and IT

Specification

FUNCTION: momentary action

CONTACT ARRANGEMENT: 1 make contact = SPST, N.O.

TERMINALS: PC pins

Compatible with permanent actuation

Mechanical

Type	Operating force FA Newtons (grams)	Operating life (Operations)	Travel
KSJ0VD1860SHLFTR	6,0 (600)	100,000	0,50 ± 0,25
KSJ0MD1860SHLFTR	6,0 (600)	100,000	0,50 ± 0,25

Electrical

	Silver	Gold
OPERATING TEMPERATURE:	-40°C to 85°C	-40°C to 125°C
STORAGE TEMPERATURE:	-40°C to 85°C	-55°C to 125°C

Process

Wave soldering, compatible with lead free soldering.

Packaging

In boxes of 250 pieces

Electrical

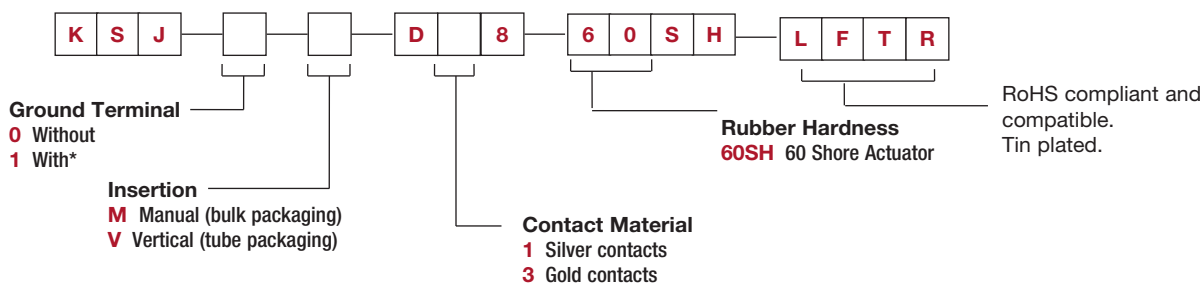
	Silver	Gold
MAXIMUM POWER:	1 VA	0.2 VA
MINIMUM VOLTAGE:	20 mV	20 mV
MAXIMUM VOLTAGE: VDC	32 VDC	32
MINIMUM CURRENT:	1 mA	1 mA
MAXIMUM CURRENT: mA	50 mA	10
DIELECTRIC STRENGTH (50 Hz, 1 min.):	≥ 250 V	
CONTACT RESISTANCE:	≤ 100 m ohms	
INSULATION RESISTANCE (100 V):	≥ 10 ⁹ ohms	
BOUNCE TIME:	≤ 1 ms	

How To Order

Our easy build-a-switch concept allows you to mix and match options to create the switch you need. To order, select desired option from each category and place it in the appropriate box.

However, please note that all the combinations of these options are not feasible.

For any part number different from those listed above, please consult your local representative.



*Note: "1" ground terminal option not available with "V" version.
The bracket for the "V" version plays this role.

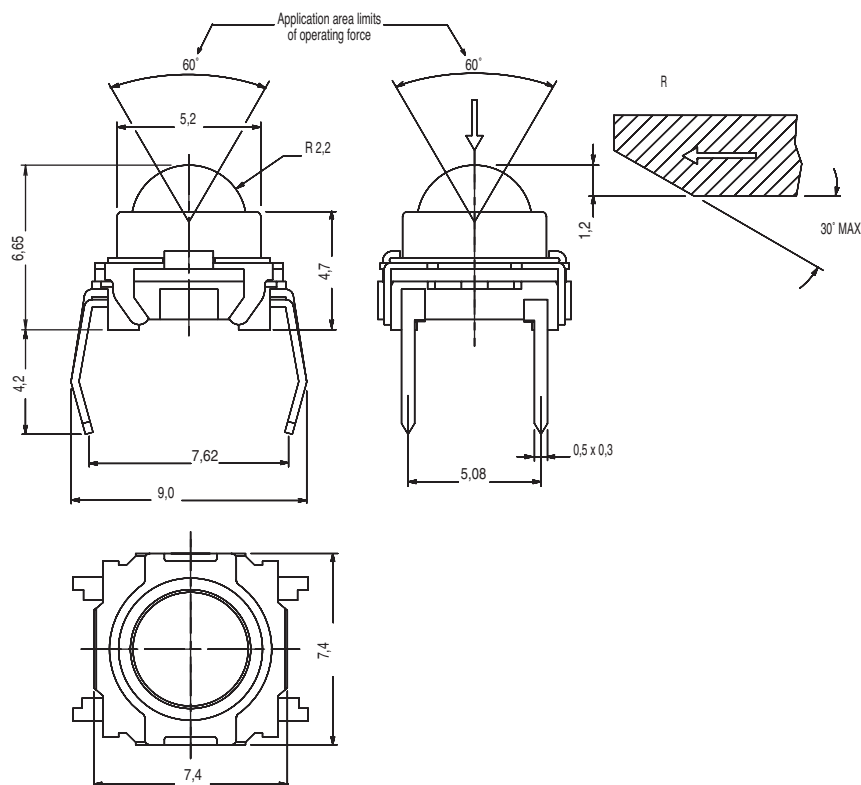


E

Detect

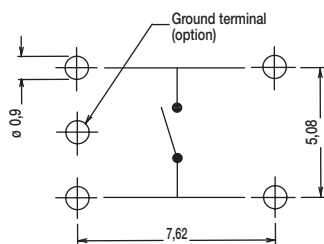
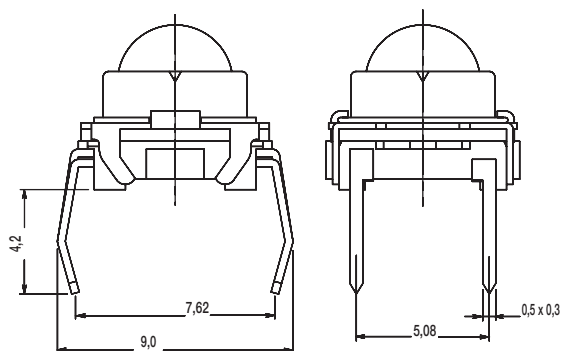
KSJ Detect Series Spherical Actuator Detect Switches

KSJ

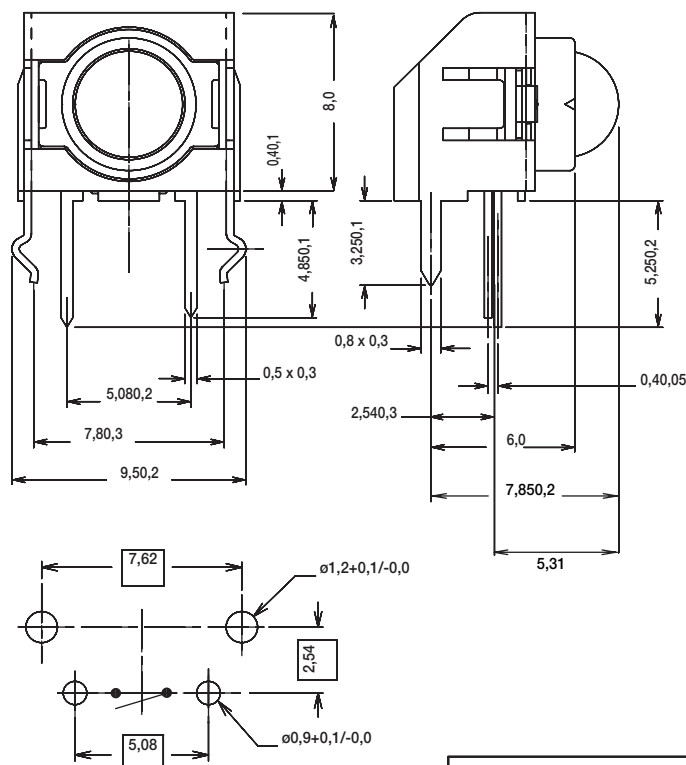


INSERTION

M MANUAL

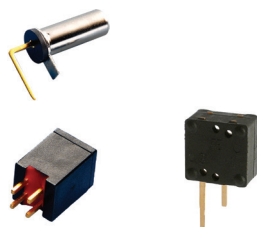


V VERTICAL



Dimensions are shown: mm
Specifications and dimensions subject to change

RB Series Rolling Ball Sensor Switch



Features/Benefits

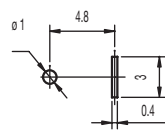
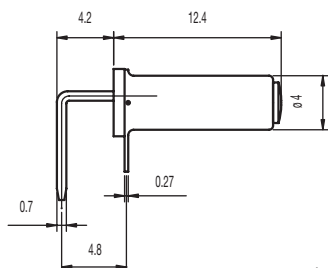
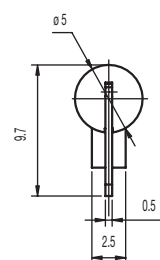
- Different angle options to trigger
- Ultra miniature design
- Patent awarded

Typical Applications

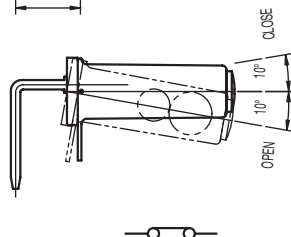
- Household goods
- Electronic toys
- Consumer electronics including irons, portable heaters, games, toys
- Safety and security controls



PART NUMBER	PACKAGING
RB-231X2	1,000 pieces



PCB LAYOUT



Specifications

CONTACT ARRANGEMENT: SPST

SENSOR ANGLE: 0° to -10° scope inside, terminal to disconnection electric current

MINIMUM VOLTAGE: 1 VDC 10mA (resistive load)

MAXIMUM VOLTAGE: 5 VDC 1mA (resistive load)

OPERATING LIFE: 100,000 cycles

INSULATION RESISTANCE: 1000 M Ω min. @ 100 VDC

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz)

OPERATING TEMPERATURE: -20°C to +70°C

Materials

FRAME: Copper alloy, nickel plated

COVER: PA 46 (UL94V-0).

MOVABLE CONTACT: Copper alloy, nickel plated

TERMINALS: Copper alloy, gold plated

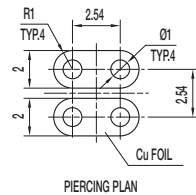
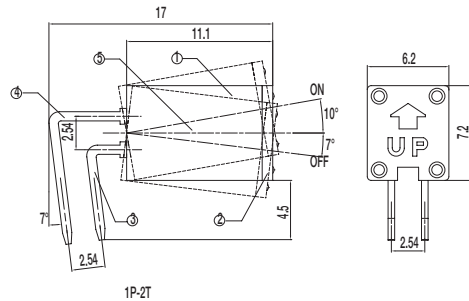
BRASS BALL: Brass, gold plated



Detect

RB Series Rolling Ball Sensor Switch

PART NUMBER	PACKAGING
RB-435B	500 pieces



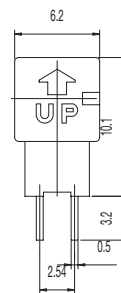
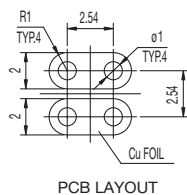
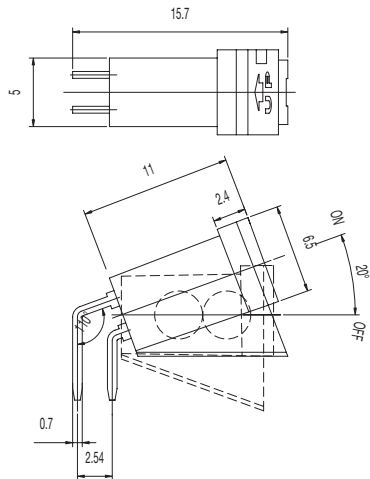
Specifications

CONTACT ARRANGEMENT: SPDT
 MINIMUM VOLTAGE: 1 VDC 10mA (resistive load)
 MAXIMUM VOLTAGE: 5 VDC 1mA (resistive load)
 OPERATING LIFE: 100,000 cycles
 INITIAL CONTACT RESISTANCE: 5 Ω max.
 INSULATION RESISTANCE: 1000 M Ω min. @ 500 VDC
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz)
 OPERATING TEMPERATURE: -20°C to +70°C

Materials

HOUSING: PA (UL94V-0)
 COVER: PA (UL94V-0)
 MOVABLE CONTACT: Copper alloy, nickel plated
 TERMINALS: Gold plated
 BALL: Steel, gold plated

PART NUMBER	PACKAGING
RB-435X2-20	500 pieces



Specifications

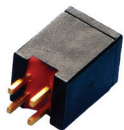
CONTACT ARRANGEMENT: SPDT
 SENSOR ANGLE: -20° to -30° scope inside, terminal to disconnection electric current
 MINIMUM VOLTAGE: 1 VDC 10mA (resistive load)
 MAXIMUM VOLTAGE: 5 VDC 1mA (resistive load)
 OPERATING LIFE: 100,000 cycles
 INSULATION RESISTANCE: 1000 M Ω min. @ 100 VDC
 DIELECTRIC STRENGTH: 500 V AC (50-60 Hz)
 OPERATING TEMPERATURE: -20°C to +70°C

Materials

HOUSING: PBT (UL94V-0)
 COVER: PBT (UL94V-0)
 TERMINALS: Gold plated
 BALL: Steel, gold plated

RB Series

Rolling Ball Sensor Switch



PART NUMBER	PACKAGING
RB-441-45	1500 pieces

Specifications

CONTACT ARRANGEMENT: SPDT

MAXIMUM VOLTAGE: 24 VDC 25mA (resistive load)

OPERATING LIFE: 100,000 cycles

INSULATION RESISTANCE: 1000 M Ω min. @ 100 VDC

DIELECTRIC STRENGTH: 500 V AC (50-60 Hz)

OPERATING TEMPERATURE: -20°C to +70°C

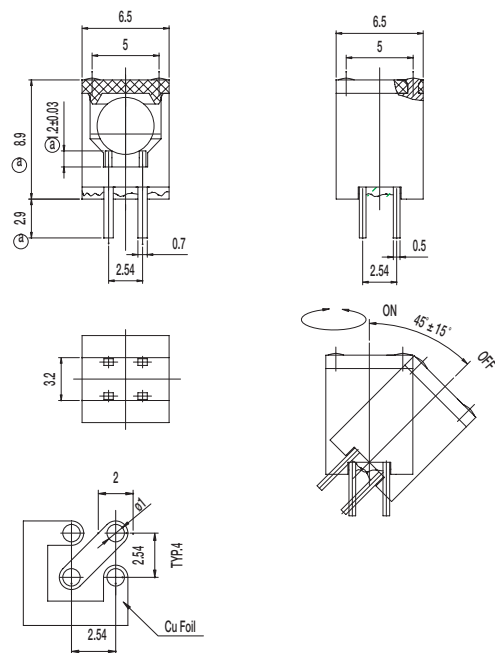
Materials

HOUSING: PBT (UL94V-0)

COVER: PBT (UL94V-0)

TERMINALS: Gold plated

BALL: Gold plated



PCB LAYOUT



Detect

ATS Series

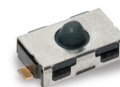
Anti-Tampering Detect Switches

Features/Benefits

- Normally closed function
- Vertical detect
- Reliable long time compression
- IP54
- Tape & reel
- RoHS compliant and compatible

Typical Applications

- Smart meters
- Alarm systems
- Anti-tamper devices



Specifications

FUNCTION: Momentary action.

CONTACT TYPE: SPST Normally Closed.

TERMINALS: Gullwing type for SMT.

Mechanical

SWITCHING FORCE: ≤ 2 N

TRAVEL TO BREAK: 0,7 mm

TOTAL TRAVEL: 1,1 mm

Packaging

Switches are delivered on continuous tape, in reels of 2,000 pieces

Electrical

MAXIMUM POWER:

GOLD

0.2 VA

MAXIMUM VOLTAGE:

32 VDC

MINIMUM VOLTAGE:

20 mVDC

MAXIMUM CURRENT:

10 mA

MINIMUM CURRENT:

1 μ A

CONTACT RESISTANCE:

≤ 350 m Ω

INSULATION RESISTANCE:

> 1 G Ω

DIELECTRIC STRENGTH:

≥ 250 Vrms

SILVER

1 VA

32 VDC

20 mVDC

50 mA

1 mA

Environmental

GOLD

OPERATING TEMPERATURE: -40°C to $+125^{\circ}\text{C}$

SILVER

-40°C to $+85^{\circ}\text{C}$

STORAGE TEMPERATURE: -55°C to $+125^{\circ}\text{C}$

-40°C to $+85^{\circ}\text{C}$

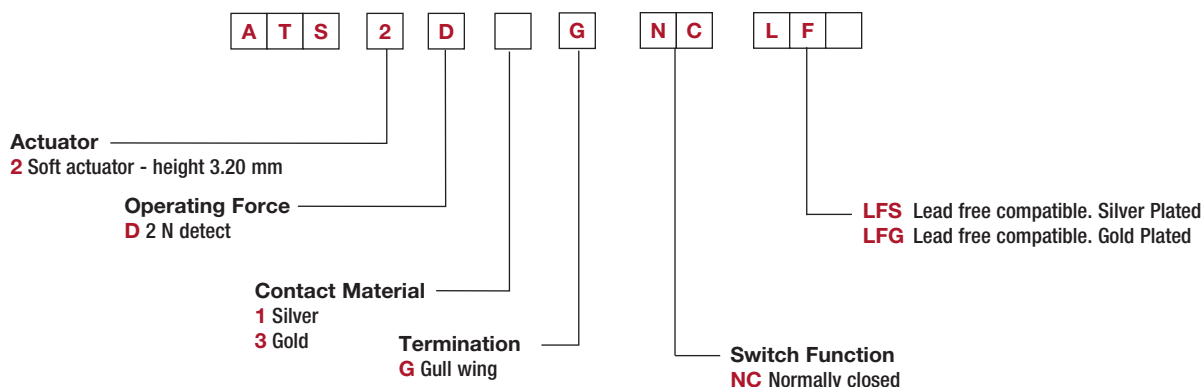
Process

SOLDERING: Compatible with lead free reflow process

NOTE: Specifications listed above are for switches with standard options.
For information on specific and custom switches, consult Customer Service Center.

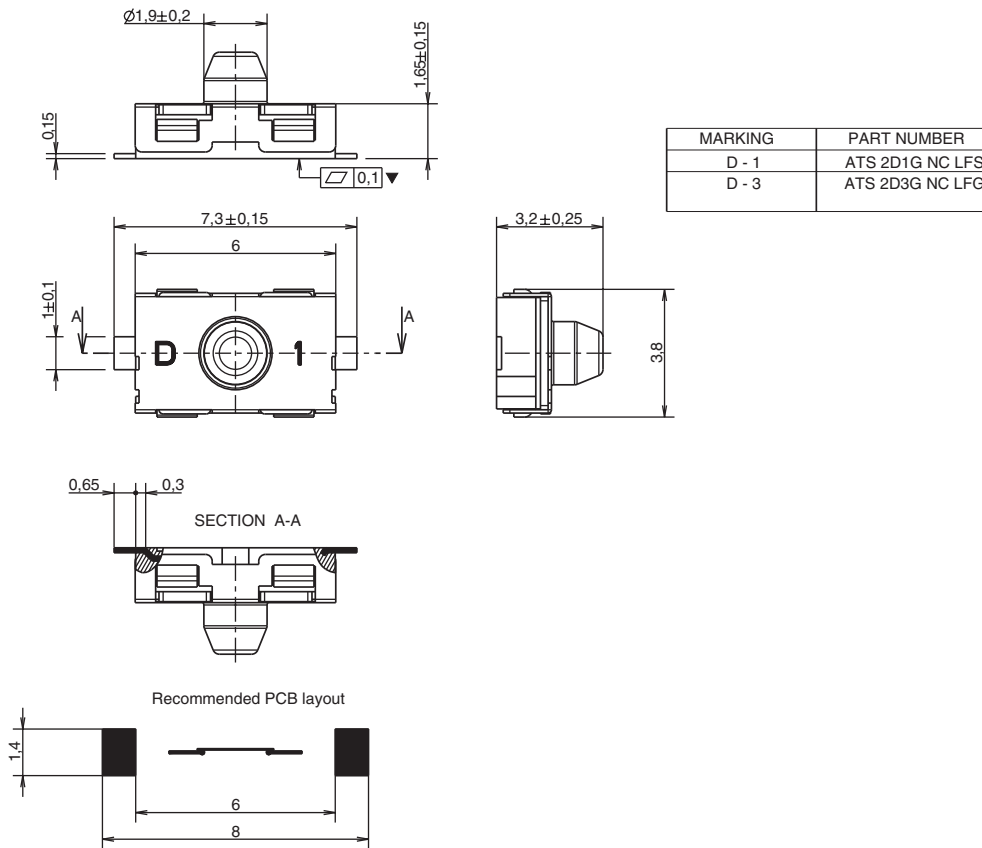
Build-A-Switch

To order, simply select desired option from each category and place in the appropriate box. Available options are shown and described on the next page. For additional options not shown in catalog, consult Customer Service Center.

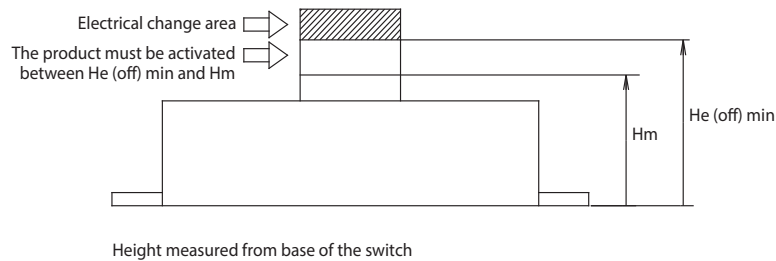


ATS Series Anti-Tampering Detect Switches

SERIES



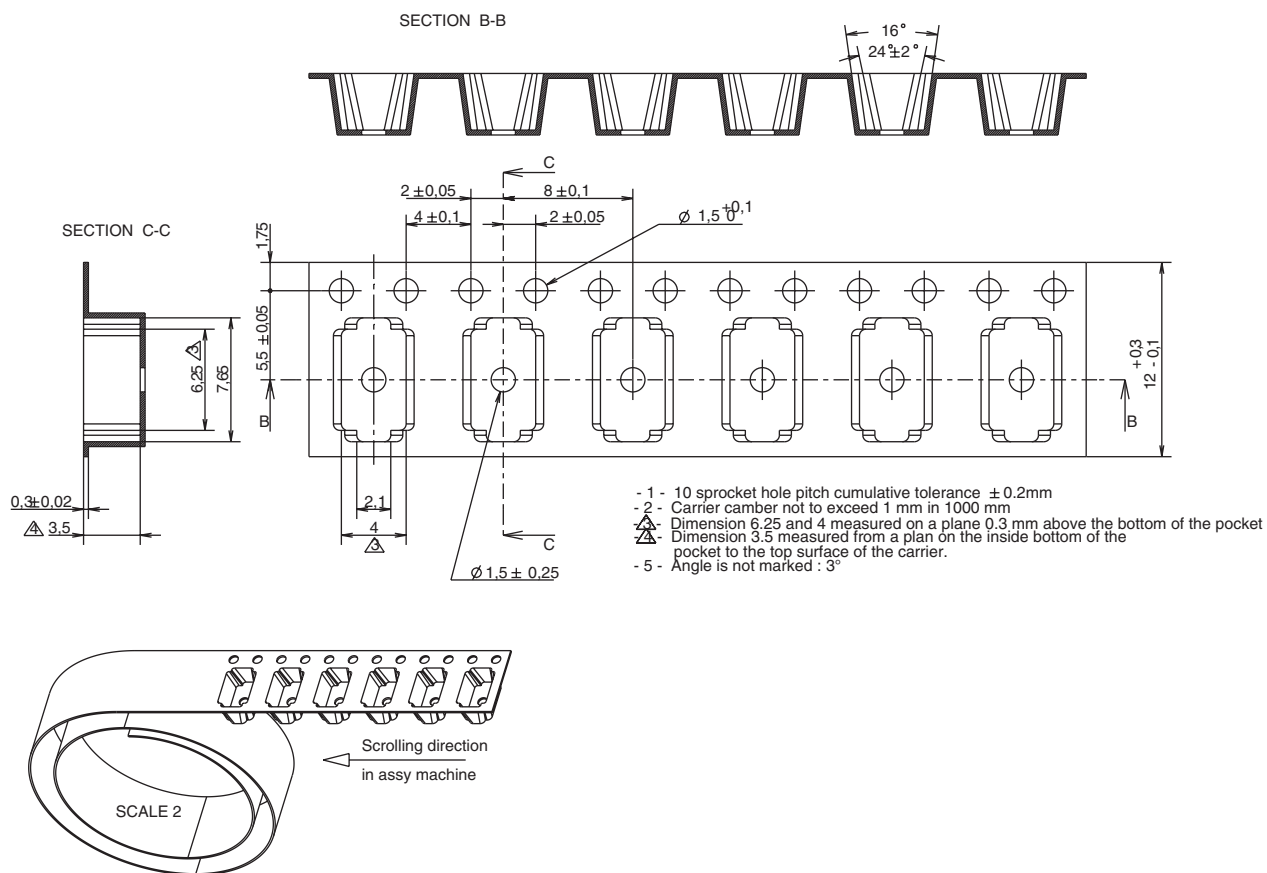
CHARACTERISTICS



Minimum Activation Height (Hm)	Maximum force at Hm = 6N Switch damage can occur if product is actuated below minimum actuation height (Hm)	2.1 mm
Minimum Electrical Height (He (OFF) min)	Product height for contact opening Contact closing: the switch must be completely release	2.5 mm

ATS Series Anti-Tampering Detect Switches

TAPE & REEL



E

Detect