

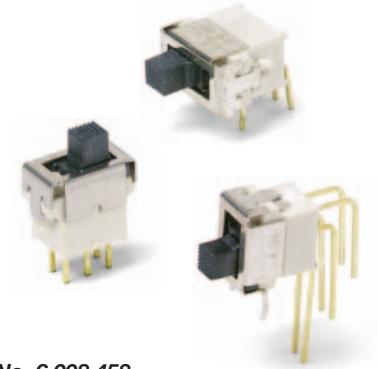
# ES Series Sealed Tiny Slide Switches

## Features/Benefits

- Process compatible—internal o-ring and epoxy base seal
- Thru-hole & surface mount models
- Reliable contact design ensures long electrical life
- Robust actuator for easy actuation
- RoHS compliant

## Typical Applications

- Computer peripherals & network products
- Test & measurement equipment
- Telephone & cable modems



Patent No. 6,008,458

## Specifications

CONTACT RATING: 0.4 VA max. @ 20 V AC or DC max.  
 MECHANICAL & ELECTRICAL LIFE: 40,000 make-and-break cycles at full load.  
 CONTACT RESISTANCE: 50 m Ω max. initial @ 2-4 V DC, 100 mA.  
 INSULATION RESISTANCE: 10<sup>9</sup> Ω min.  
 DIELECTRIC STRENGTH: 500 Vrms min.  
 OPERATING TEMPERATURE: -30°C to 85°C.  
 SOLDERABILITY: Per MIL-STD-202F method 208D, or EIA RS-186E method 9.  
 DEGREE OF PROTECTION: IP57; Protection against harmful dust deposit, full-scale voltage protection, temporary immersion.  
 ESD ENDURANCE: 8kv min. (EIA 545).  
 PACKAGING: Thru-hole switches supplied in anti-static trays. Surface mount switches available in tape and reel packaging.

## Materials

HOUSING & BASE: Nylon (UL 94V-0).  
 ACTUATOR: LCP (UL 94V-0) black, standard.  
 SURFACE PLATE: Stainless steel with tin plate.  
 MOVABLE CONTACT: Bronze with gold plate over nickel plate.  
 STATIONARY CONTACTS: Copper alloy, with gold plate over nickel plate.  
 TERMINALS: Copper alloy, with gold over nickel plate. All terminals insert molded.  
 BASE & TERMINAL SEAL: Epoxy.

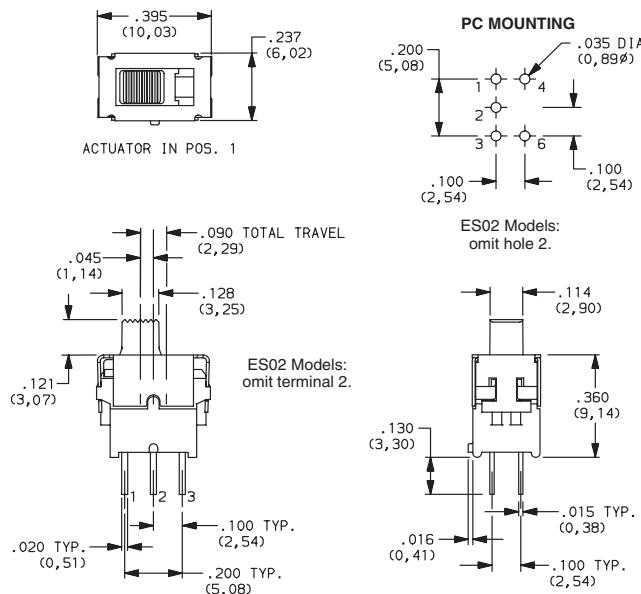
**NOTE:** All models RoHS compliant and compatible with all options.

**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 ES Series Sealed Tiny Slide Switches are shown on pages I-5 through I-7. These unique tiny slide switches are process compatible. An internal o-ring and epoxy base seal protects the switch from wave and reflow soldering, as well as cleaning processes.

PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
<b>ES01MCBE</b>	ON	NONE	ON
<b>ES03MCBE</b>	ON	OFF	ON
CONN. TERMINALS	2-3	OPEN	2-1
SCHEMATIC			
SPDT			
<b>ES02MCBE</b>	OFF	NONE	ON
CONN. TERMINALS	OPEN	N/A	3-1
SCHEMATIC			
SPST			



ES01MCBE  
SPDT



Dimensions are shown: Inch (mm)

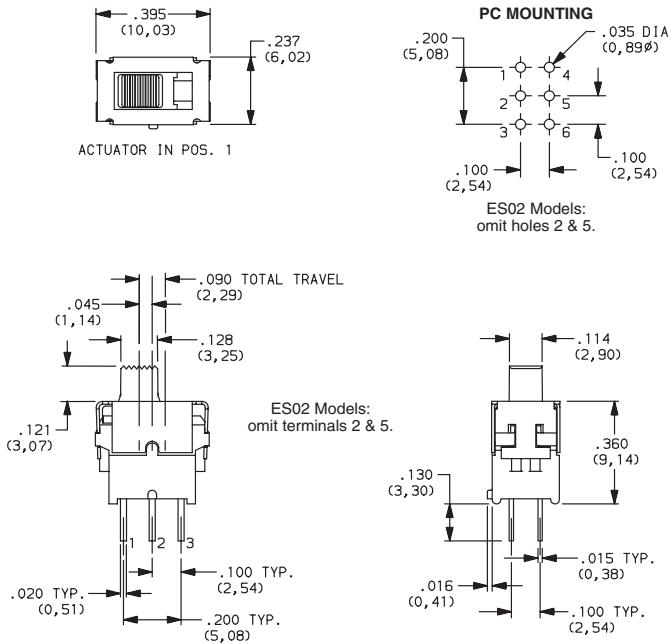
Specifications and dimensions subject to change



# ES Series Sealed Tiny Slide Switches



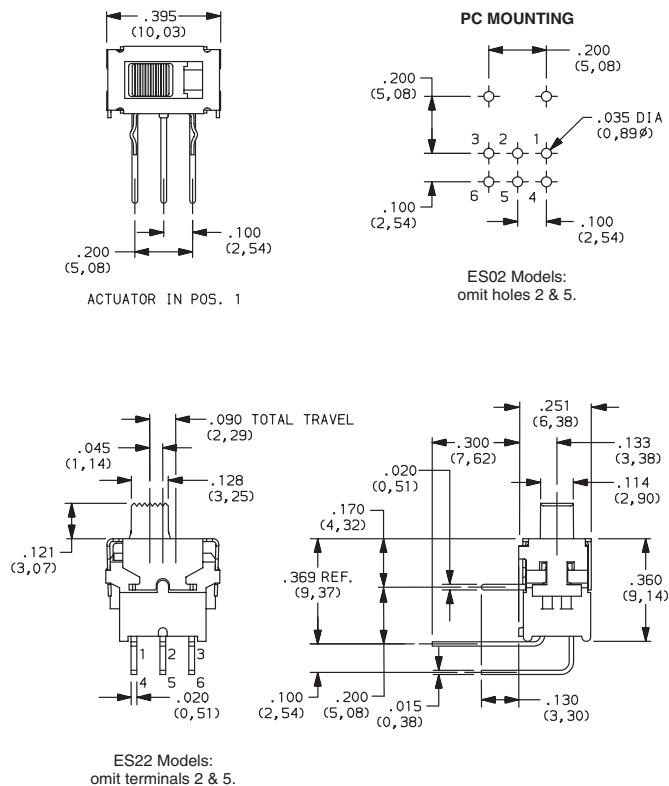
ES21MCBE  
DPDT



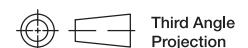
PART NUMBER	SWITCH FUNCTION		
	POS. 1 POS. 3	POS. 2	POS. 3
<b>ES21MCBE</b>	ON	NONE	ON
<b>ES23MCBE</b>	ON	OFF	ON
CONN. TERMINALS	2-3, 5-6	OPEN	2-1, 5-4
SCHEMATIC			
DPDT			
<b>ES22MCBE</b>	OFF	NONE	ON
CONN. TERMINALS	OPEN	N/A	3-1, 6-4
SCHEMATIC			
DPST			



ES21MABE  
DPDT



PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
<b>ES21MABE</b>	ON	NONE	ON
<b>ES23MABE</b>	ON	OFF	ON
CONN. TERMINALS	2-3, 5-6	OPEN	2-1, 5-4
SCHEMATIC			
DPDT			
<b>ES22MABE</b>	OFF	NONE	ON
CONN. TERMINALS	OPEN	N/A	3-1
SCHEMATIC			
DPST			



Third Angle Projection

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



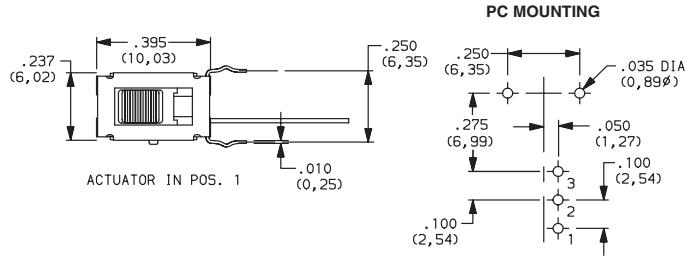
Slide

# ES Series Sealed Tiny Slide Switches

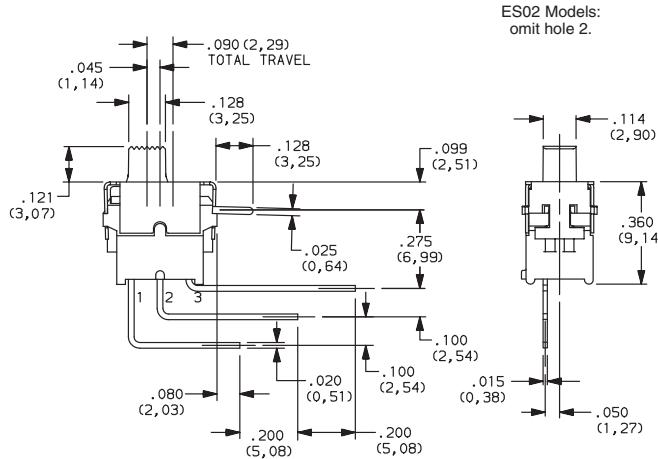


Slide

PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
<b>ES01MAVBE</b>	ON	NONE	ON
<b>ES03MAVBE</b>	ON	OFF	ON
CONN. TERMINALS	2-3	OPEN	2-1
SCHEMATIC			

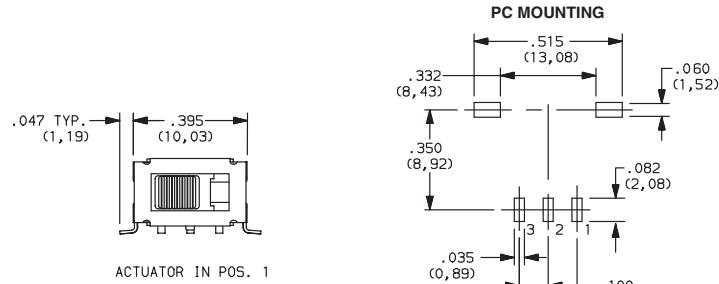


ES01MAVBE  
SPDT



ES02 Models:  
omit terminal 2.

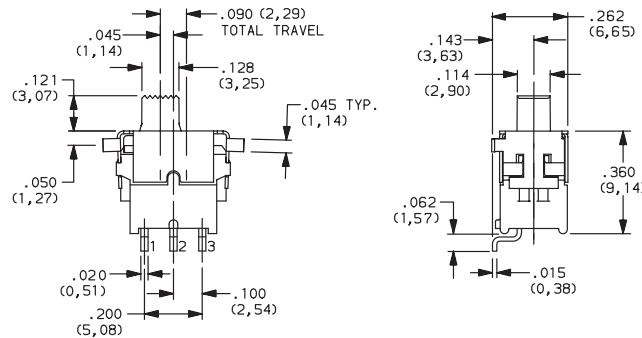
PART NUMBER	SWITCH FUNCTION		
	POS. 1	POS. 2	POS. 3
<b>ES01MSABE</b>	ON	NONE	ON
<b>ES03MSABE</b>	ON	OFF	ON
CONN. TERMINALS	2-3	OPEN	2-1
SCHEMATIC			
SPDT			
<b>ES02MSABE</b>	OFF	NONE	ON
CONN. TERMINALS	OPEN	N/A	3-1
SCHEMATIC			
SPST			



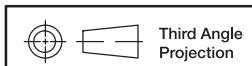
SMT



ES01MSABE  
Horizontal Actuation  
SPDT



ES02 Models:  
omit terminal 2.



Third Angle  
Projection  
Dimensions are shown: Inch (mm)  
Specifications and dimensions subject to change

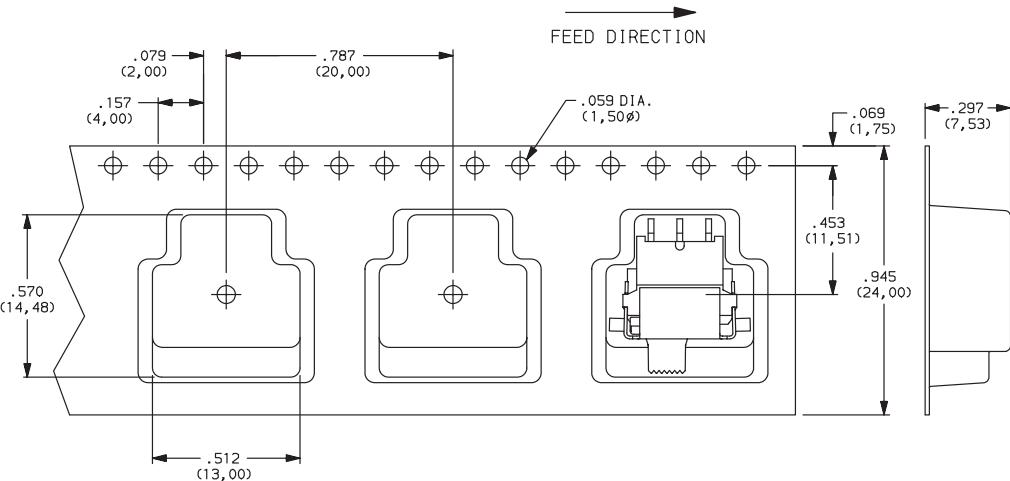


# ES Series Sealed Tiny Slide Switches

## TAPE & REEL

For part numbers ESXXMSABE

REEL INFORMATION	
OUTSIDE DIAMETER	13.00 (330,0)
PILOT HOLE	.512 (13,0)
QUANTITY PER REEL	300



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

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