

SERIES 10 SERIES 4000 SPST, 1 and 3 Amp

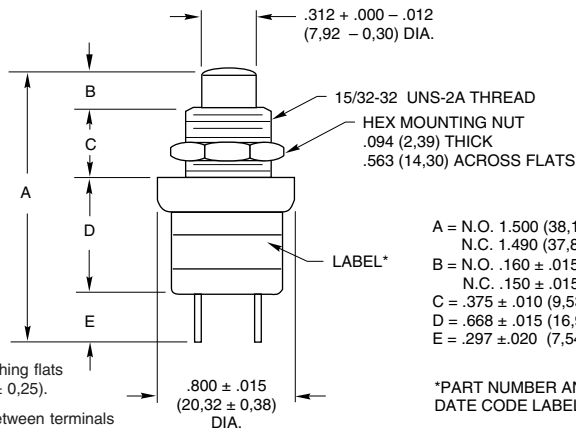
FEATURES

- Momentary or Momentary With Positive Feel
- UL Recognized at 3 Amps



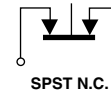
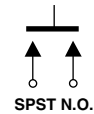
DIMENSIONS In Inches (and millimeters)

4001(UL)
10-09 (UL)
10-100
4002 (UL)
10-10 (UL)
10-101



Action	Part No.	Circuitry	Oper. at Rated Load	Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Actuating Force
Momentary	4001 10-09	SPST-N.O.	100,000	1 Amp	1/2 Amp	22 oz. ± 8
Momentary	4002 10-10	SPST-N.C.	100,000	1 Amp	1/2 Amp	23 oz. ± 7
Pos. Feel	10-100	SPST-N.O.	100,000	1 Amp	1/2 Amp	35 oz. ± 8
Pos. Feel	10-101	SPST-N.C.	100,000	1 Amp	1/2 Amp	35 oz. ± 10
Underwriters Laboratory Recognized						
Momentary	4001 UL 10-09 UL	SPST-N.O.	6,000	3 Amp	—	22 oz. ± 8
Momentary	4002 UL 10-10 UL	SPST-N.C.	6,000	3 Amp	—	23 oz. ± 7

CIRCUITRY



ACCESSORIES



Decorative Mounting Nut
Part No. 07C1040-1



Button Guard
Part No. 10C1015-1

SPECIFICATIONS

Rating Criteria

Rated: See chart above

Contact Resistance: 25 milliohms or less on a new switch

Voltage Breakdown: 1,000 Vac between mutually insulated parts

Insulation Resistance: 1,000 megohms minimum

Additional Characteristics

Total Travel: Normally open .140 ± .032 (3,56 ± 0,81). Normally closed .110 ± .010/ - .020 (2,79 + 0,25/ - 0,51).

Overtravel: Normally open .020 (0,51) minimum

Pretravel: Normally closed .010 (0,25) minimum

Operating Temperature: -40°C to +85°C

UL Recognition: See chart above for rating. UL file number is 35289.

Materials and Finishes

Mounting Nut: Brass, tin zinc

Mounting Bushing and Cover: Zinc, zinc trivalent chromate-plated

Button and Base: Thermoset plastic

Shorting Bar: Brass, silver-plated

Spring: Tinned music wire

Contact Terminals: Beryllium copper, silver-plated .0003" to .0005"

STANDARD OPTIONS

Epoxy sealed terminals are not available through distributors.

For terminals bent at 90°, contact Grayhill.

ORDERING INFORMATION

Description & Button Color	Part No.
SPST, N.O., Red	4001
SPST, N.O., Black	10-09
SPST, N.O., UL, Red	4001UL
SPST, N.O., UL, Black	10-09 UL
SPST, N.O., Positive Feel, Red	10-100
SPST, N.C., Positive Feel, Black	10-101
SPST, N.C., Red	10-10
SPST, N.C., Black	4002
SPST, N.C., UL, Red	10-10 UL
SPST, N.C., UL Black	4002 UL
Accessory Nut	07C1040-1
Accessory Button Guard	10C1015-1

Available from your local Grayhill Distributor.
For prices and discounts, contact a local Sales Office, an authorized local Distributor or Grayhill.

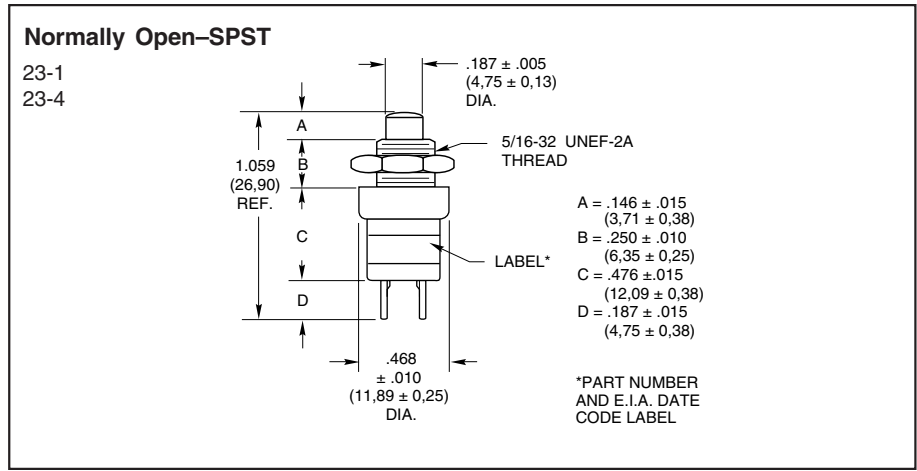
SERIES 23
SPST, 1/4 Amp

FEATURES

- Momentary Contact
- 100,000 Cycles of Operation



DIMENSIONS In Inches (and millimeters)



SPECIFICATIONS

Rating Criteria

Rated: To-Make-and-Break: 1/4 Amp at 115 Vac, or 1/8 Amp at 220 Vac resistive.

Contact Resistance: 25 milliohms maximum on a new switch.

Voltage Breakdown: 1,000 Vac between mutually insulated parts.

Insulation Resistance: 1,000 megohms minimum.

Materials and Finishes

Mounting Nut and Cover Bushing: Brass, tin zinc

Base: Phenolic per MIL-M-14, Type CFG.

Button: Polycarbonate

Terminals: Brass, silver-plated.

Spring: Tinned music wire

Shorting Bar: Phosphor bronze, silver-plated.

Operating Temperature: -40° to +85°C

Operating Features

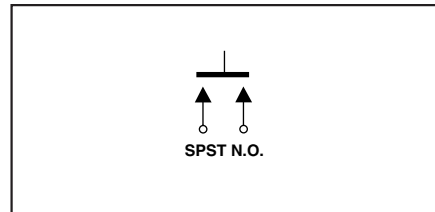
Total Button Travel: .095 ± .010 (2,41 ± 0,25)

Overtravel: .005 (0,13) minimum

Actuating Force: 16 ± 4 ounces

Mounting Hole: 21/64" (8,33)

CIRCUITRY



ACCESSORY



ORDERING INFORMATION

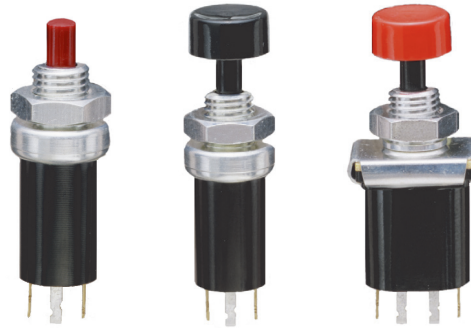
Description & Button Color	Part No.
SPST, N.O., Red	23-1
SPST, N.O., Black	23-4
Accessory Nut	23C1024-1

Available From Your Local Grayhill Distributor.
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SERIES 46 SPST and DPDT, 1/4 Amp

FEATURES

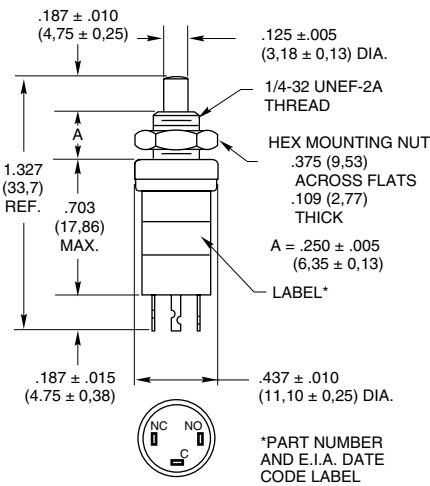
- Long Wipe Contact Assures High Reliability
- 250,000 Cycles of Operation



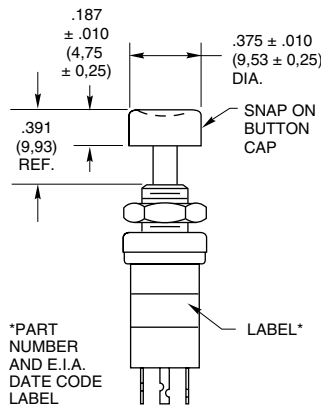
DIMENSIONS In Inches (and millimeters)

Single Pole/Double Throw

46-101* (BBM)
46-110* (MBB)

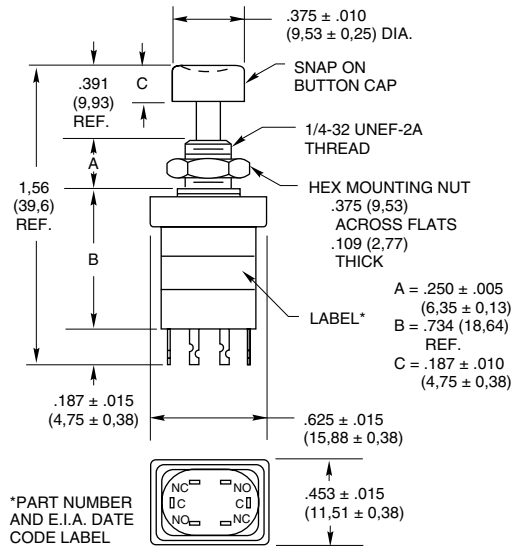


46-102* (BBM)
46-111* (MBB)



Double Pole/Double Throw

46-200* (BBM)
46-201* (MBB)



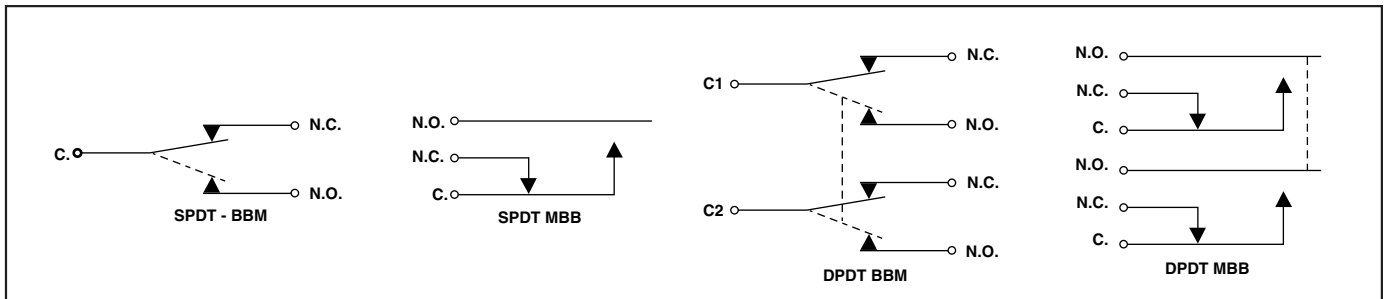
Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Operations at Rated Load	*Complete Part Number	Button or Cap Color
1/4 Amp	1/8 Amp	250,000	46-101 RED	Red
			46-101 BLK	Black
			46-102 RED	Red
			46-102 BLK	Black
			46-110 RED	Red
			46-110 BLK	Black
46-111 RED	Red			
46-111 BLK	Black			

Action	Total Travel	Bottoming Force (oz.)	Mtg. Hole
Momentary	.180 (4,57) Min.	17 ± 5	17/64" (6,75)

Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Operations at Rated Load	*Complete Part Number	Cap Color
1/4 Amp	1/8 Amp	250,000	46-200 RED	Red
			46-200 BLK	Black
			46-201 RED	Red
			46-201 BLK	Black

Action	Total Travel	Bottoming Force (oz.)	Mtg. Hole
Momentary	.180 (4,57) Min.	35 ± 9	17/64" (6,75)

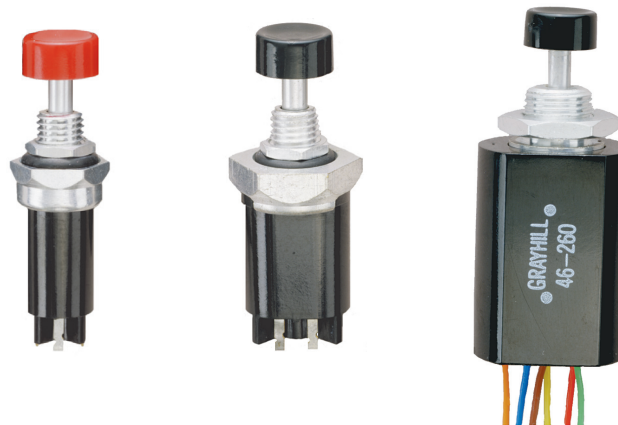
CIRCUITRY



SERIES 46
SPST and DPDT, 1/4 Amp

FEATURES

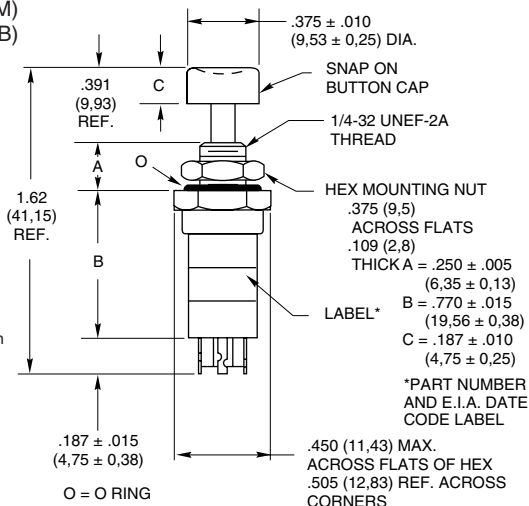
- Bushing and Button Seal
- Environmentally Sealed



DIMENSIONS In Inches (and millimeters)

Sealed Bushing and Button Single Pole/Double Throw

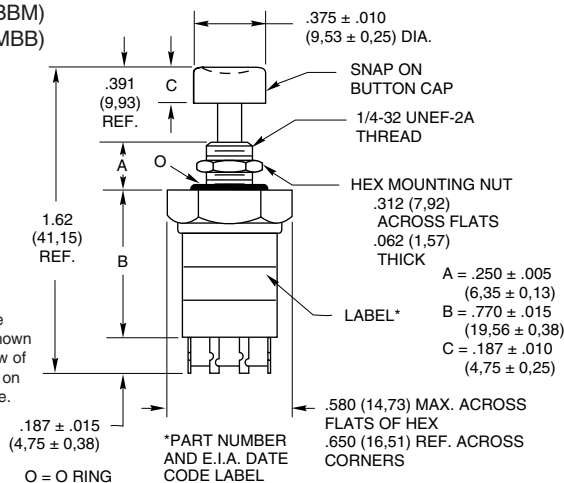
46-150* (BBM)
46-151* (MBB)



Terminals are marked as shown in bottom view of SPDT switch on previous page.

Sealed Bushing and Button Double Pole/Double Throw

46-270* (BBM)
46-271* (MBB)



Terminals are marked as shown in bottom view of DPDT switch on previous page.

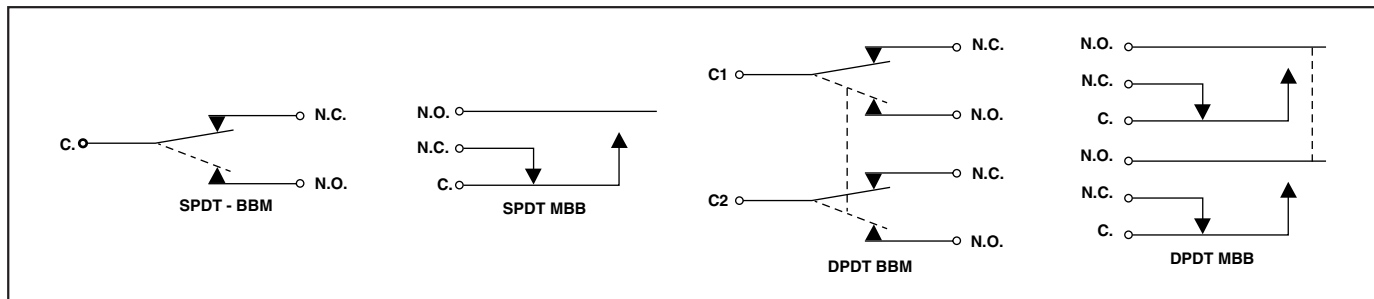
Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Operations at Rated Load	*Complete Part Number	Cap Color
1/4 Amp	1/8 Amp	100,000	46-150 RED	Red
			46-150 BLK	Black
			46-151 RED	Red
			46-151 BLK	Black

Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Operations at Rated Load	*Complete Part Number	Cap Color
1/4 Amp	1/8 Amp	100,000	46-270 RED	Red
			46-270 BLK	Black
			46-271 RED	Red
			46-271 BLK	Black

Action	Total Travel	Bottoming Force (oz.)	Mtg. Hole
Momentary	.180 (4.57) Min.	24 ± 4	17/64" (6.75)

Action	Total Travel	Bottoming Force (oz.)	Mtg. Hole
Momentary	.180 (4.57) Min.	48 ± 4	17/64" (6.75)

CIRCUITRY



Pushbutton Switches

DIMENSIONS In Inches (and millimeters)

Environmentally Sealed Double Pole/Double Throw
46-260* (BBM)

$.375 \pm .010$ (9,53 \pm 0,25) DIA.
 $.390 \pm .010$ (9,90 \pm 0,25)
 $.281 \pm .010$ (7,14 \pm 0,25)
 $.250 \pm .010$ (6,35 \pm 0,25)

SNAP ON BUTTON CAP
 O-RING SEALED
 3/8-32 UNEF-2A THREAD TO .060 (15,24) MAX. FROM SHOULDER
 HEX MOUNTING NUT .562 (14,2) ACROSS FLATS .094 (2,40) THICK

A = 1.14 (29,0) MAX.
 B = 22.00 (558,8) MAX.
 C = .187 \pm .010 (4,75 \pm 0,25)
 D = .125 \pm .005 (3,18 \pm 0,13)

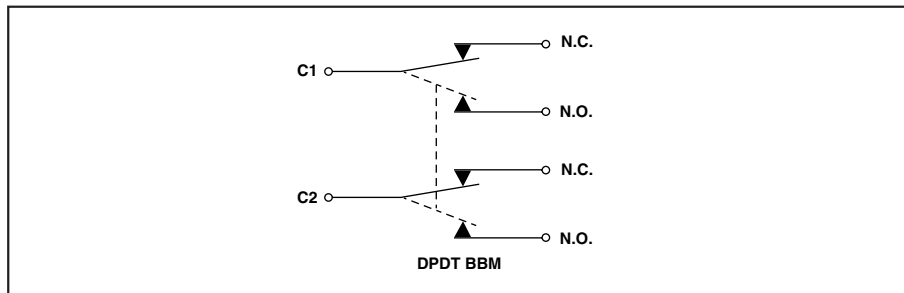
SWITCH AND WIRE LEADS ENCAPSULATED

Rating at 115 Vac Resistive	Rating at 220 Vac Resistive	Operations at Rated Load	*Complete Part Number	Cap Color
1/4 Amp	1/8 Amp	250,000	46-260 RED 46-260 BLK	Red Black

Action	Total Travel	Bottoming Force (oz.)	Mtg. Hole
Momentary	.180 (4,57) Min.	Approx. 45	25/64" (9,92)

Pushbutton Switches

CIRCUITRY



SPECIFICATIONS

Rating Criteria

Contact Resistance: Less than 25 milliohms at the switch initially. Less than 4 milliohms/inch of wire.

Voltage Breakdown: 1,000 Vac between mutually insulated parts

Insulation Resistance: 1,000 megohms minimum

Materials and Finishes

Cover, Bushing, Mounting Nut: Brass, tin zinc

Shorting Bar: Phosphor bronze, silver-plated.

Terminals: Phosphor bronze, silver contact surface. Terminal ends are tin/silver

Base or Potting Shell: Phenolic per MIL-M-14, type CFG

Spring: Tinned music wire

Button Cap: Polyethylene

Button: Polyphenylene sulfide (PPS) for 46-200 and 46-201. Polycarbonate for all other unsealed versions. Aluminum for all sealed versions.

O-Ring Seal: Nitrile per MIL-P-5516, class B

Seal Adapter and Hex Nut (46-260): Brass, zinc trivalent chromate-plated

Wire Leads (46-260): Per MIL-W-16878 type E. #26 AWG, insulated teflon, copper stranded wire

Operating Features

Break-Before-Make: Rest position to N.C. break .020" (0,51) minimum. Rest position to N.O. Make .140" (3,35) maximum.

Make-Before-Break: Rest position to N.O. make .065" \pm .015 (1,65 \pm 0,38). Rest position to N.C. break .130" \pm .015 (3,30 \pm 0,38).

Operating Temperature: -40°C to +85°C

STANDARD OPTIONS

Epoxy sealed terminals and wire leads, see page E-34 and E-35.

Decorative mountings, see pages E-24 to E-26.

ACCESSORY



Decorative Mounting Nut

Part No. 30C1023-1

Fits .250" (6,35) Bushing

For dimensions, materials and finishes, see page E-36.

ORDERING INFORMATION

Description	Part No.
SPDT, BBM, Red Button	46-101 RED
SPDT, BBM, Black Button	46-101 BLK
SPDT, BBM, Red Cap	46-102 RED
SPDT, BBM, Black Cap	46-102 BLK
SPDT, MBB, Red Button	46-110 RED
SPDT, MBB, Black Button	46-110 BLK
SPDT, MBB, Red Cap	46-111 RED
SPDT, MBB, Black Cap	46-111 BLK
SPDT, BBM, Red Cap	46-150 RED
SPDT, BBM, Black Cap	46-150 BLK
SPDT, MBB, Red Cap	46-151 RED
SPDT, MBB, Black Cap	46-151 BLK
DPDT, BBM, Red Cap	46-200 RED
DPDT, BBM, Black Cap	46-200 BLK
DPDT, MBB, Red Cap	46-201 RED
DPDT, MBB, Black Cap	46-201 BLK
DPDT, BBM, Red Cap	46-270 RED
DPDT, BBM, Black Cap	46-270 BLK
DPDT, MBB, Red Cap	46-271 RED
DPDT, MBB, Black Cap	46-271 BLK
DPDT, BBM, Sealed, Red	46-260 RED
DPDT, BBM, Sealed, Black	46-260 BLK
ACCESSORY	
Decorative Nut	30C1023-1

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