

# 13000X778 series

High performance pushbutton switches • threaded bushing Ø 11.9 mm • momentary



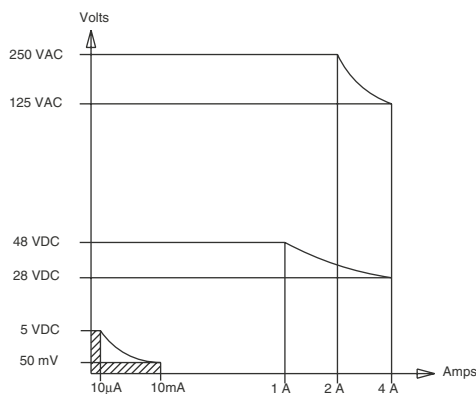
## DISTINCTIVE FEATURES

- Fully sealed, black
- Double shell case for high mechanical strength and electrical insulation
- CECC approved (CECC 96401-001)
- Highly reliable contacts
- Compact size



## ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 4 A 28 VDC
- Minimum load : 10 mA 50 mV, 10 µA 5 VDC  
When used above 300 mA 28 VDC, the gold plating is removed on contact areas and is considered only as a protection against oxidation during storage.
- Initial contact resistance : 10 mΩ max.
- Insulation resistance : 1,000 MΩ min. at 500 VDC
- Dielectric strength :  
1,000 Vrms 50 Hz min. between terminals  
2,000 Vrms 50 Hz min. between poles  
2,000 Vrms 50 Hz min. between terminals and frame
- Contact bounce : 2 ms max.
- Electrical life :  
- At 4 A 28 VDC : 10,000 cycles  
- At low level (50 mV 10 mA) : 150,000 cycles



The company reserves the right to change specifications without notice.



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## ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP67 according to IEC 60529
- Shock test : 50 g - 11 ms (IEC 68-2-27)
- Vibrations : 10-500 Hz - 10 g (IEC68-2-6)
- Operating temperature : -40 °C to +85 °C (-40 °F to +185 °F)
- Humidity test : 56 days, 93 % R.H., 40 °C (IEC 68-2-3)
- Salt spray test : 96 hours (IEC 68-2-11)

## GENERAL SPECIFICATIONS

- Total travel : 2 mm (.078) - Pre-travel : 1 mm (.039)
- Torque : 1.50 Nm (1.10 Ft.lb) max. applied to nut
- Panel thickness : 5 mm (.196) max.

## MATERIALS

- Case : diallyphthalate (DAP) with PBT external shell (epoxy sealed)
- Actuator : brass, black chrome plated
- Bushing : brass, black chrome plated
- Contacts : silver inlay - gold plated over nickel barrier

APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

## AGENCY APPROVALS

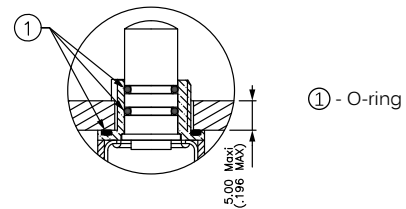


CECC 96401-001

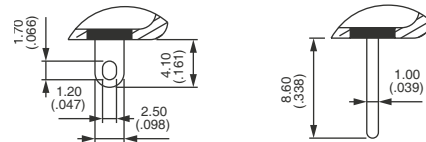
Many double pole models have full CECC approval. Consult factory for details of approved models. To order switches marked CECC, complete appropriate box of ordering format.

## SEALING

- Front panel sealing by two O-rings
- Panel seal withstands 1 bar pressure and remains sealed even when the switch is operated.
- Epoxy sealed terminals
- Splash-proof case

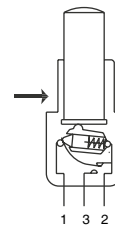


## TERMINALS

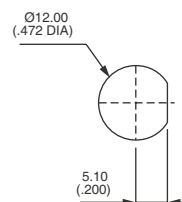


## ELECTRICAL FUNCTION

→ FLAT



## PANEL CUT-OUT



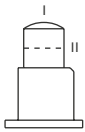
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## POSITIONS AND CONNECTIONS

Function	BUTTON POSITION AND CONNECTIONS		TERMINAL IDENTIFICATION
	I	II	
DOUBLE POLE 13245 13445	ON	MOM	→ FLAT 
	A 1-2 B 1-2	A 1-3 B 1-3	
THREE POLE 13255 13455	A 1-2 B 1-2 C 1-2	A 1-3 B 1-3 C 1-3	

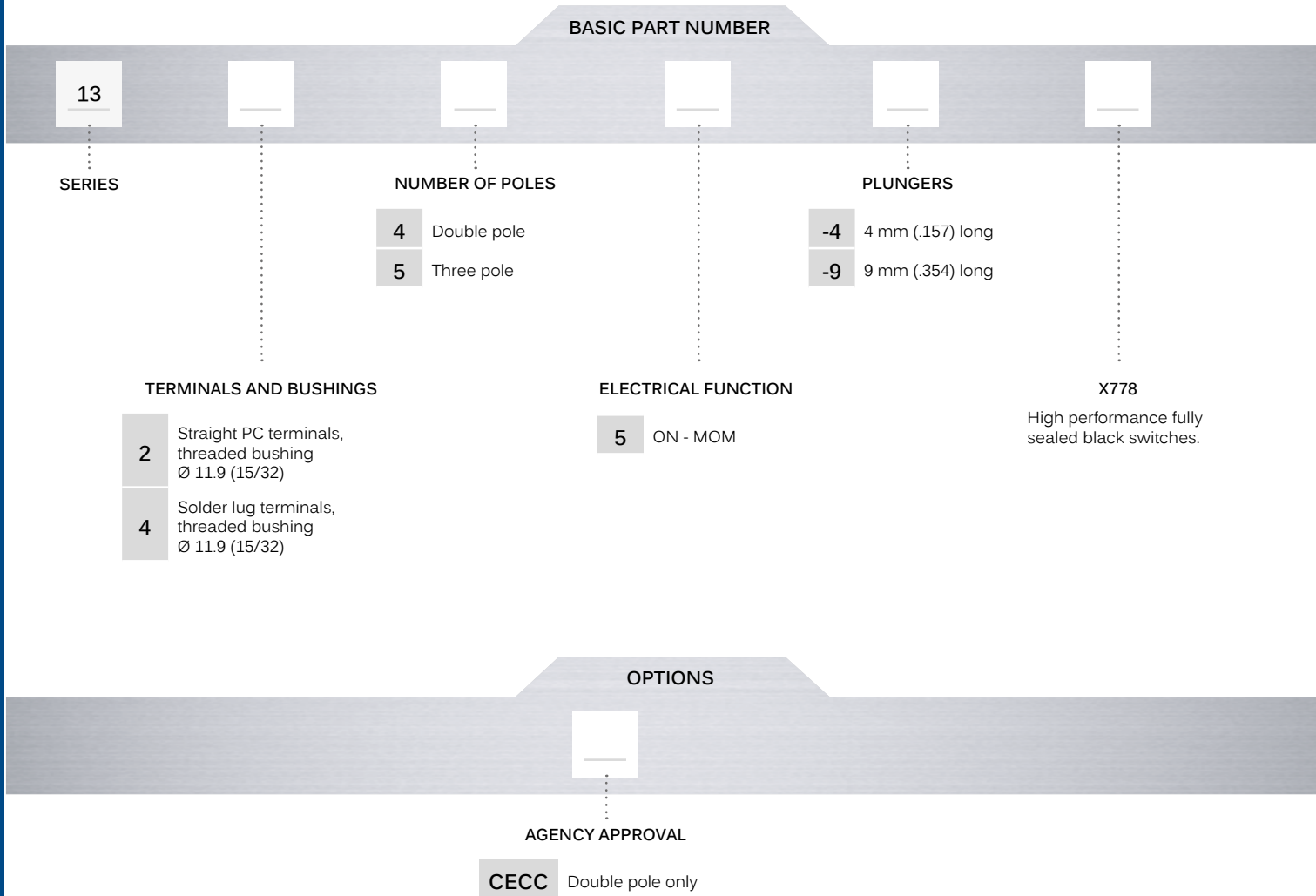


- Pre-travel : 1 mm (.039)
- Over-travel : 1 mm (.039)
- Total travel : 2 mm (.078)

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## BUILD YOUR PART NUMBER



## ABOUT THIS SERIES

On the following pages, you will find successively basic part numbers of switches and options in the same order as in above chart.

-  **Notice** : please note that not all combinations of above numbers are available. Refer to following pages for further information.
-  **Sealing boots** can be used to further protect the switches against dust and water. See "Sealing Boots" section of website.
-  **Mounting accessories** : standard hardware supplied with all models : 1 hex nut 14 (.551) across flats, part number U41. The nut is presented after basic models.
-  **Switch guard** available to prevent inadvertent plunger operation. See "Switch Guards" section of website.

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## SOLDER LUG TERMINALS DOUBLE POLE - 4 MM (.157) PLUNGER



13445-4X778

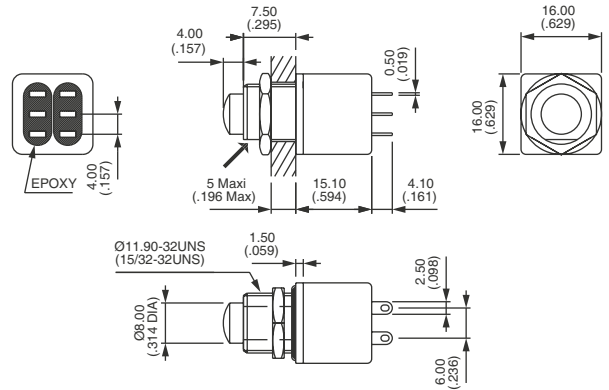


ON



MOM

→ FLAT



## SOLDER LUG TERMINALS DOUBLE POLE - 9 MM (.354) PLUNGER



13445-9X778

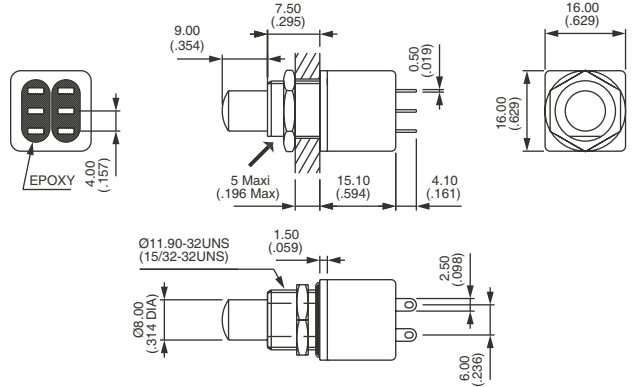


ON



MOM

→ FLAT



## STRAIGHT PC TERMINALS DOUBLE POLE - 4 MM (.157) PLUNGER



13245-4X778

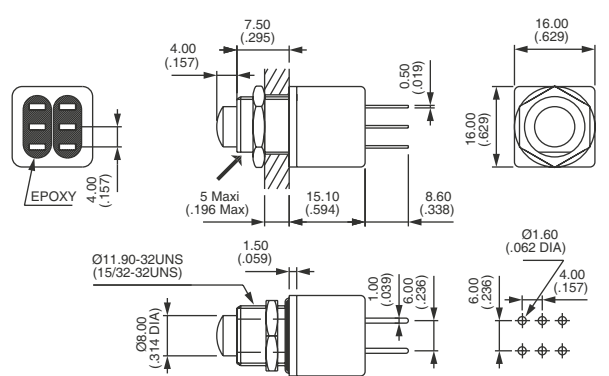


ON



MOM

→ FLAT



## STRAIGHT PC TERMINALS DOUBLE POLE - 9 MM (.354) PLUNGER



13245-9X778

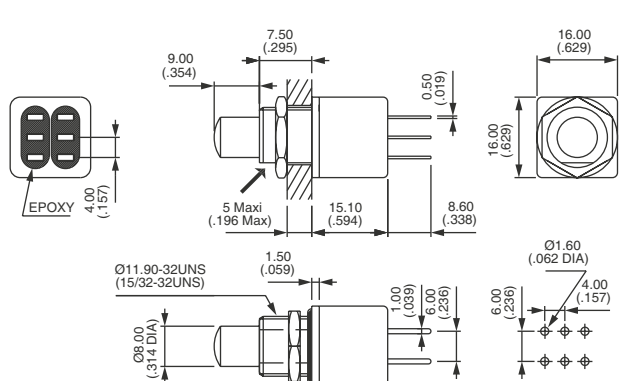


ON



MOM

→ FLAT



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## SOLDER LUG TERMINALS THREE POLE - 4 MM (.157) PLUNGER



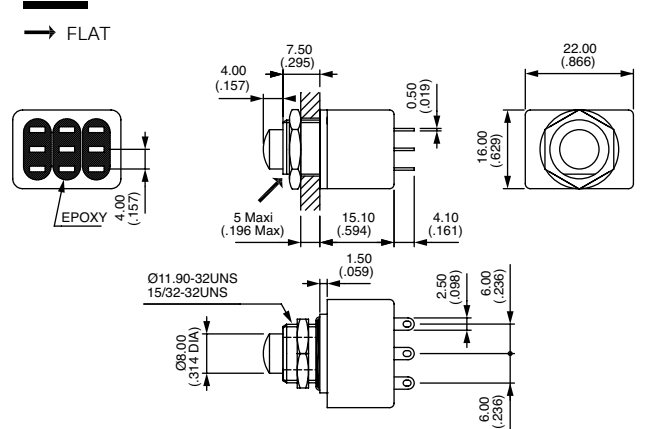
13455-4X778



ON



MOM



## SOLDER LUG TERMINALS THREE POLE - 9 MM (.354) PLUNGER



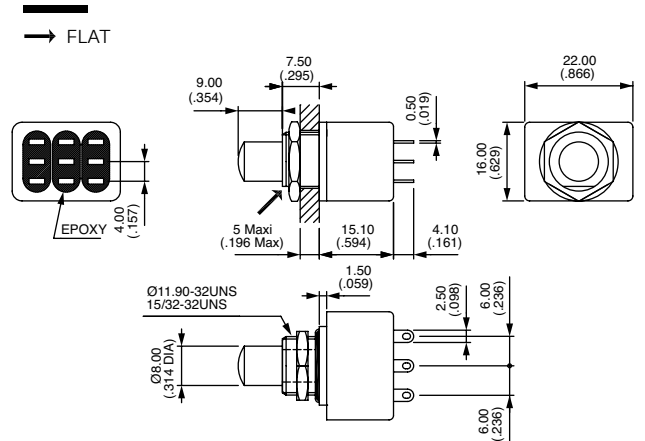
13455-9X778



ON



MOM



## STRAIGHT PC TERMINALS THREE POLE - 4 MM (.157) PLUNGER



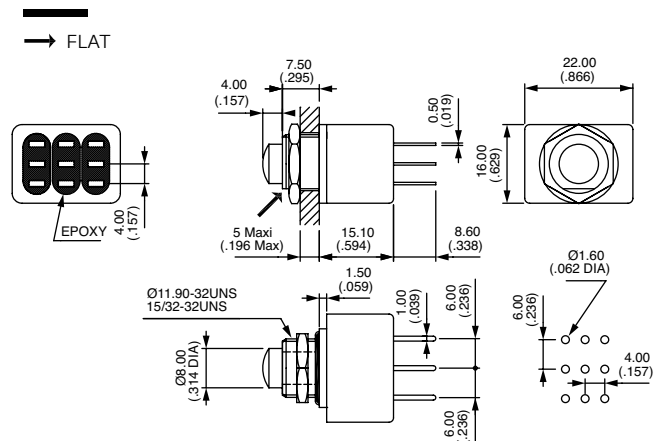
13255-4X778



ON



MOM



## STRAIGHT PC TERMINALS THREE POLE - 9 MM (.354) PLUNGER



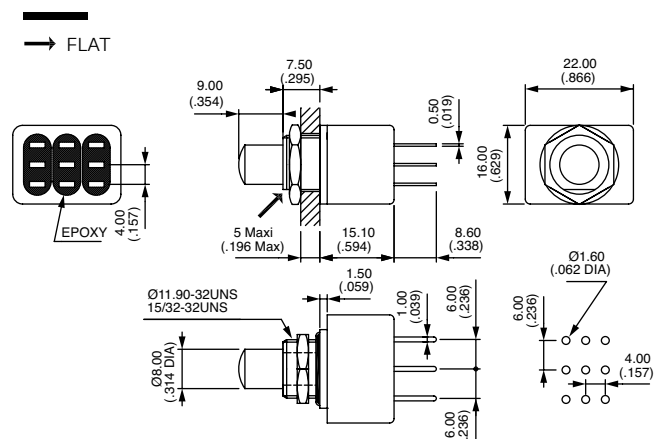
13255-9X778



ON



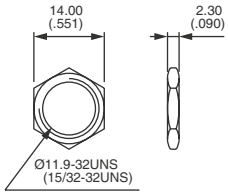
MOM



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## STANDARD HARDWARE - HEX NUT



U41 (black)

AGENCY APPROVAL

BASIC P/N



**CECC** CECC 96401-001 (double pole only)  
**Blank** No agency approval required.

**Marking** : to order switches marked CECC, please complete above box with CECC.

## X-ON Electronics

Largest Supplier of Electrical and Electronic Components

*Click to view similar products for [Pushbutton Switches](#) category:*

*Click to view products by [Apem](#) manufacturer:*

Other Similar products are found below :

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[67021K512](#) [67081K512X](#) [701PB580](#) [7190K101](#) [7199K101](#) [810K12910](#) [810KSV30B](#) [MML21EA2ADK](#) [MML21KA3ABK](#)  
[MML23KA3AC05K-001](#) [MML23KW3AA01W](#) [8418K2](#) [8442K3](#) [8450K1](#) [860K11911T01A](#) [861901](#) [861K11911T01A07](#)  
[861K13810T00A14](#) [861K13911](#) [8646AB6X718UL](#) [8646ABUL](#) [9001KXRK](#) [907AYY100](#) [PMHD155A1](#) [95-313.000](#)  
[9533CD4+U574+U4922](#) [95-414.000](#) [99-450.837](#) [99-453.837](#) [PV3H2B0NN-341](#) [1203MRA](#) [A22NZBGANGA](#) [A22NZBMMNGA](#)  
[A22NZBNANGA](#) [A22NZMPATRA](#) [A2PMA1X03EC56](#) [A3A-5123-02](#) [A3A-7140](#) [A3A-7310](#) [A3A-7340](#) [A3U-TMW-A2C-5M](#) [A595](#)