

# 13000X778 series

High performance pushbutton switches • threaded bushing  $\varnothing$  11.9 mm • alternate action



## DISTINCTIVE FEATURES

Alternate action

Fully sealed at front and back

Double shell case for high mechanical strength and electrical insulation

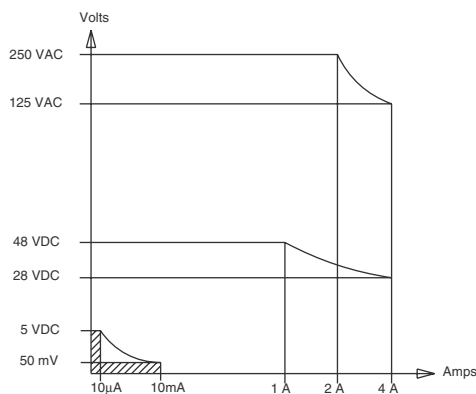
Highly reliable contacts

Compact size



## ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load : 4 A 28 VDC
- Minimum load : 10 mA 50 mV, 10  $\mu$ A 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 m $\Omega$  max.
- Insulation resistance : 1,000 M $\Omega$  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 : 2.5 mm (.098)
- Torque : 1.50 Nm (1.10 Ft.lb) max. applied to nut
- Panel thickness : 8 mm (.315) max.

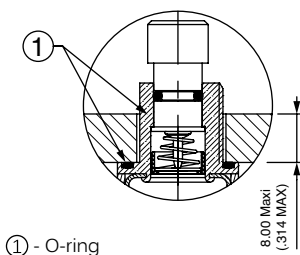
## MATERIALS

- 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

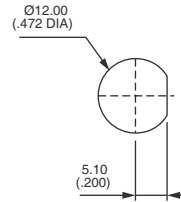
APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

## SEALING

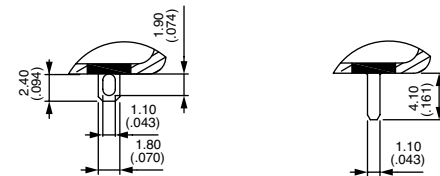
- Front panel sealing by two O-rings
- Panel seal withstands 1 bar pressure and remains sealed even when the switch is operated.
- Epoxy sealed terminals
- Splash-proof case



## PANEL CUT-OUT

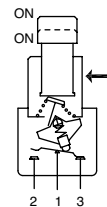


## TERMINALS



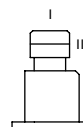
## ELECTRICAL FUNCTION

→ FLAT



## POSITIONS AND CONNECTIONS

Function	BUTTON POSITION AND CONNECTIONS		TERMINAL IDENTIFICATION
	I	II	
13246	ON	ON	→ FLAT 
13446	A 1-2 B 1-2	A 1-3 B 1-3	

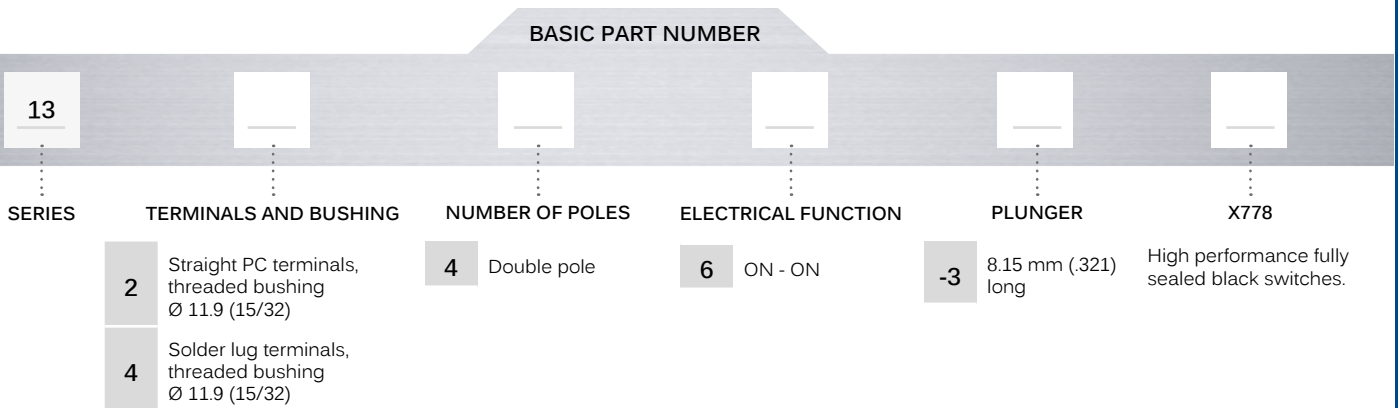


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## BUILD YOUR PART NUMBER



## ABOUT THIS SERIES

Complete part numbers are shown on next page.

-  **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. This nut is presented after basic part numbers.

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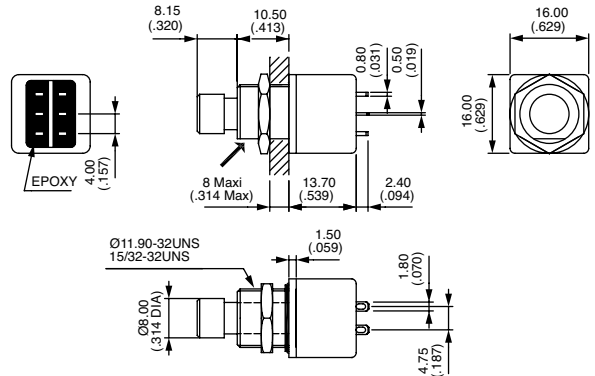
## SOLDER LUG TERMINALS - DOUBLE POLE



13446-3X778

ON ON

→ FLAT



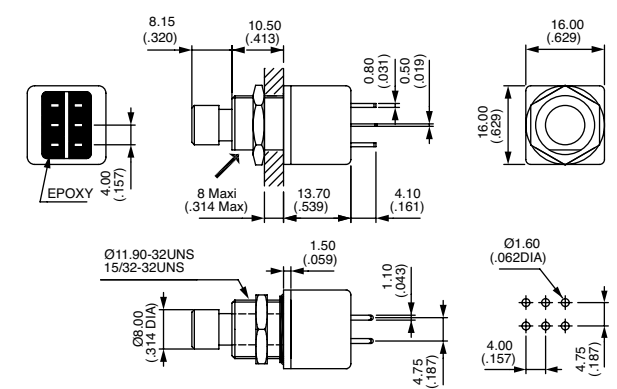
## STRAIGHT PC TERMINALS - DOUBLE POLE



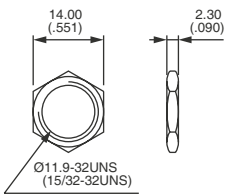
13246-3X778

ON ON

→ FLAT



## STANDARD HARDWARE - HEX NUT



U41 (black)