



Chipsmall Limited consists of a professional team with an average of over 10 year of expertise in the distribution of electronic components. Based in Hongkong, we have already established firm and mutual-benefit business relationships with customers from,Europe,America and south Asia,supplying obsolete and hard-to-find components to meet their specific needs.

With the principle of “Quality Parts,Customers Priority,Honest Operation,and Considerate Service”,our business mainly focus on the distribution of electronic components. Line cards we deal with include Microchip,ALPS,ROHM,Xilinx,Pulse,ON,Everlight and Freescale. Main products comprise IC,Modules,Potentiometer,IC Socket,Relay,Connector.Our parts cover such applications as commercial,industrial, and automotives areas.

We are looking forward to setting up business relationship with you and hope to provide you with the best service and solution. Let us make a better world for our industry!



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IP series

Pushbutton switches for harsh environments •
bushing Ø 12 mm • latching



DISTINCTIVE FEATURES

- Latching action
- Illuminated or non-illuminated
- Compact
- Flat round actuator for optional marking
- Sealed to IP67



ENVIRONMENTAL SPECIFICATIONS

- Front panel sealing : IP67 according to IEC 60529
- Shock resistance : 100 g according to IEC 512-4, test 6c
- Vibration resistance : 10-500Hz - 10 g according to IEC 512-4, test 6d
- Salt spray : IEC 512-6, test 11f
- Robustness (non-illuminated) : IK06 according to EN 62262 (1 joule)
- Operating temperature : -40 °C to +85 °C (-40 °F to +185 °F)



ELECTRICAL SPECIFICATIONS

- Max. current/voltage rating with resistive load:

4 A 12 VDC, 200,000 cycles
1 A 48 VDC, 200,000 cycles
2 A 48 VDC, 100,000 cycles
3 A 48 VDC, 75,000 cycles
1 A 72 VDC, 15,000 cycles

For W terminals, current has
to be limited to 400 mA.

- Initial contact resistance : 100 mΩ max.
- Insulation resistance : 1 GΩ min. at 500 VDC
- Dielectric strength : 1,500 Vrms between terminals
1,000 Vrms between terminals and frame



LED COMPONENT SPECIFICATIONS

LED color	Forward current	Typ. forward voltage	Max. forward voltage
Super red (LOS)	20 mA	1.95 V	1.95 V
Yellow (LOY)	20 mA	2 V	2.05 V
Green (LOG)	20 mA	2.1 V	2.5 V
Blue (LOB)	20 mA	3.2 V	4 V

A resistor must be series-connected by the user.
Resistor value = $\frac{\text{supply voltage} - \text{LED forward voltage}}{\text{LED forward current}}$

The company reserves the right to change specifications without notice.

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GENERAL SPECIFICATIONS

- Panel thickness : 1.5 mm (.059) min.
5.5 mm (.217) max.
- Total travel : 2.5 mm (.098) ± 0.3 mm
- Typical operating force : 10 N
- Low level/mech. life : 200.000 cycles
- Torque : 1.5 Nm max. applied to nut
- Soldering : 320 °C (608 °F) max. for 3 sec.

MATERIALS

- Case : thermoplastic, UL 94-V0
- Actuator : polyamide 6/6
- Bushing/bezel : zinc die-cast (zamak), black painted
- Contacts : silver, gold plated
- Output wires (flying lead terminals) :
F version : AWG20, section 0.6 mm²
W version : AWG24, section 0.23 mm²
- LED wires :
F version : AWG26, section 0.12 mm²
W version : AWG24, section 0.23 mm²
- Lens : polycarbonate
- Terminal seal : epoxy

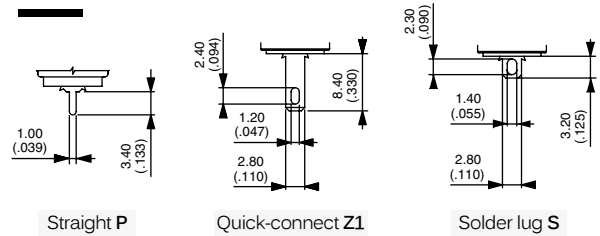
APEM products may be recycled at end-of-life for the re-claiming of valuable metal components.

AGENCY APPROVAL

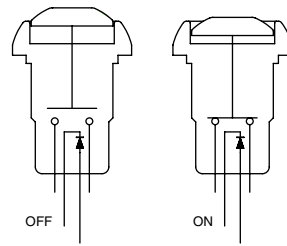


2 A 125 VAC/250 VAC
File E83438
See following pages.

TERMINALS

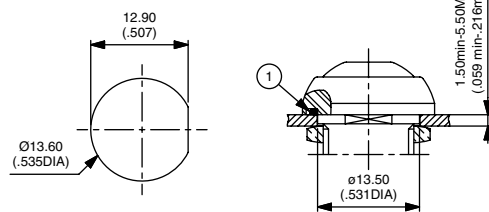


ELECTRICAL FUNCTION



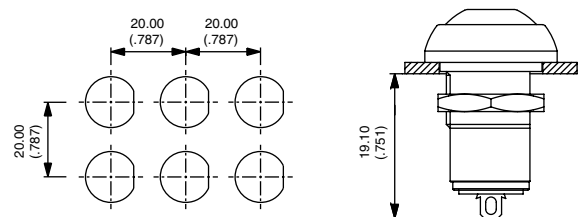
MOUNTING

PANEL CUT-OUT



① - Flat seal

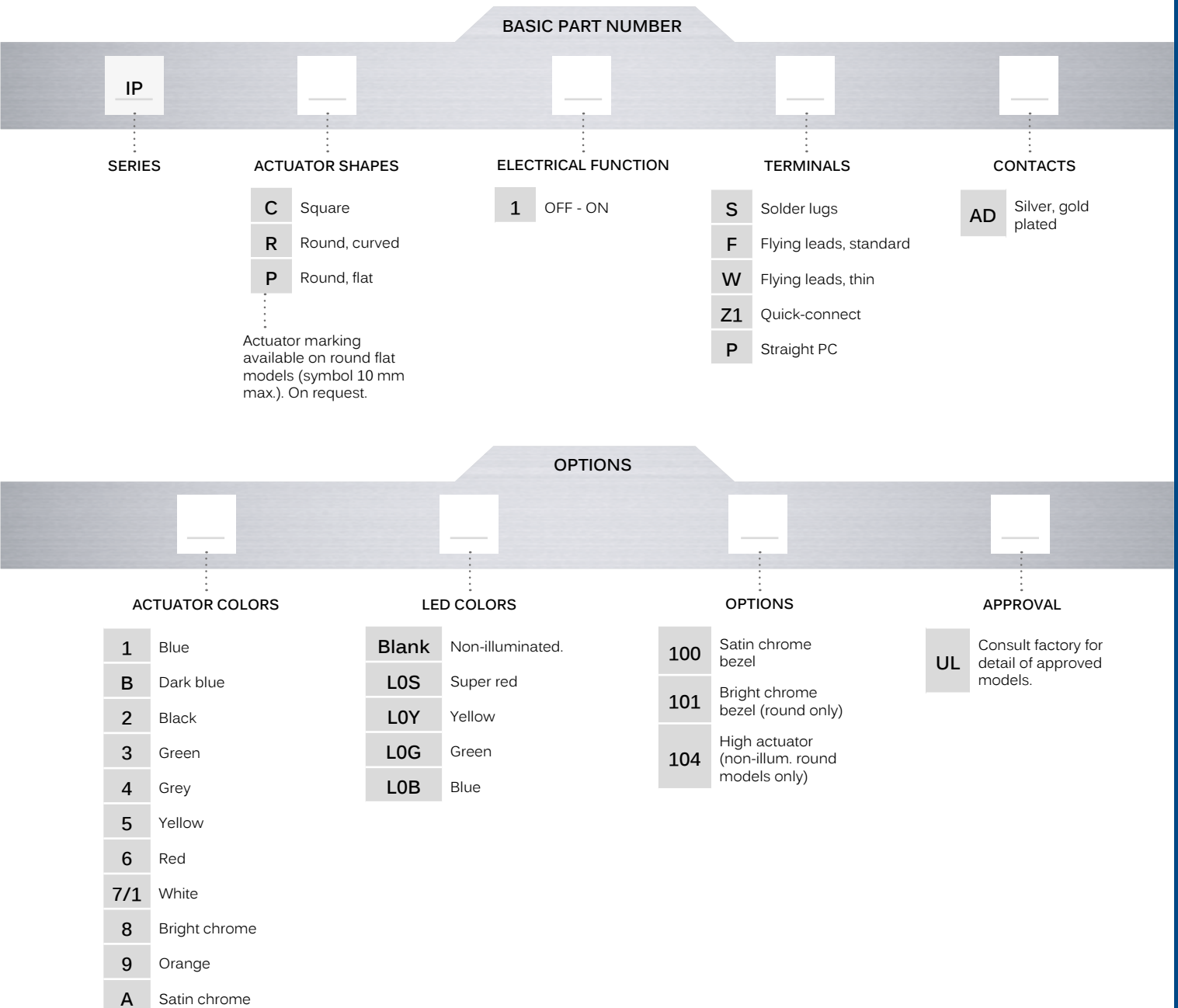
MATRIX MOUNTING - BACK OF PANEL SPACE REQUIREMENT



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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 the following pages for further information.
- A sealing boot** is available to protect the switches against frost and sand (P/N U5125). See "Sealing Boots" section of website.
- Mounting accessories** : Standard hardware supplied : 1 hex nut 14 mm (551) across flats and 1 O-Ring.

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ILLUMINATED - SQUARE MODELS



- Solder lug terminals
 - IPC1SAD** OFF - ON
- Flying lead terminals
 - IPC1FAD** OFF - ON

For THIN flying leads, replace F with W.
Also available with straight PC : **IPC1PAD** or quick-connect terminals : **IPC1Z1AD**.
Wire colors : black : contact, red : LED anode(+), blue : LED cathode(-)

ILLUMINATED - ROUND MODELS



- Solder lug terminals
 - IPR1SAD** OFF - ON
- Flying lead terminals
 - IPR1FAD** OFF - ON

For THIN flying leads, replace F with W.
Also available with straight PC : **IPR1PAD** or quick-connect terminals : **IPR1Z1AD**.
Wire colors : black : contact, red : LED anode(+), blue : LED cathode(-)

NON-ILLUMINATED - SQUARE MODELS



- Solder lug terminals
 - IPC1SAD** OFF - ON
- Flying lead terminals
 - IPC1FAD** OFF - ON

For THIN flying leads, replace F with W.
Also available with straight PC : **IPC1PAD** or quick-connect terminals : **IPC1Z1AD**.

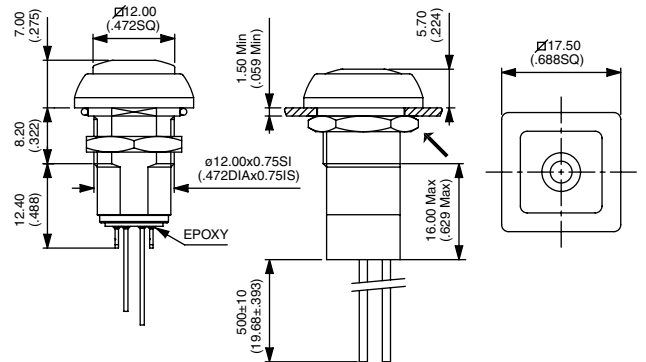
NON-ILLUMINATED - ROUND MODELS



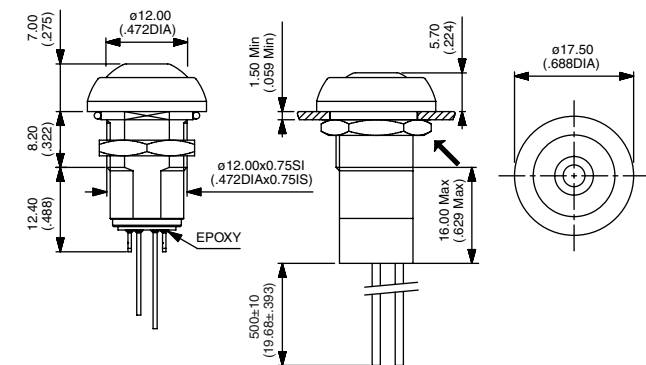
- CURVED ACTUATOR
 - Solder lug terminals **IPR1SAD** OFF - ON
 - Flying lead terminals **IPR1FAD** OFF - ON
- FLAT ACTUATOR
 - Solder lug terminals **IPP1SAD** OFF - ON
 - Flying lead terminals **IPP1FAD** OFF - ON

For THIN flying leads, replace F with W.
Also available with straight PC : **IP•1PAD** or quick-connect terminals : **IP•1Z1AD**

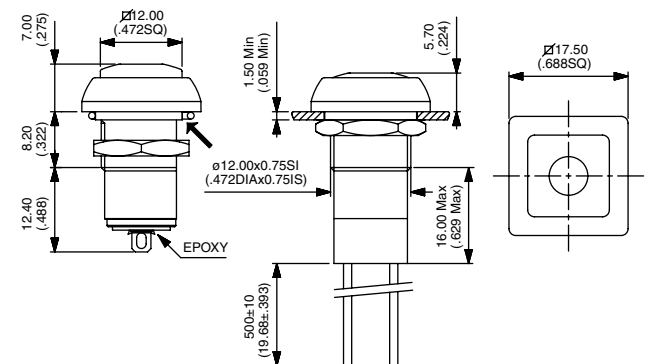
→ FLAT All drawings with standard flying lead terminals.



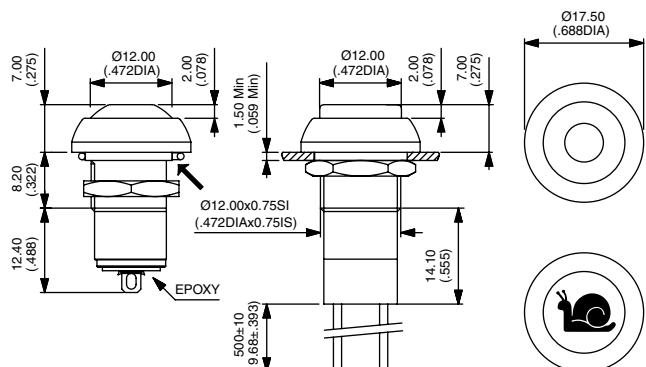
→ FLAT



→ FLAT



→ FLAT



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ACTUATOR COLORS



- | | | | |
|---|-----------|-----|---------------|
| 1 | Blue | 6 | Red |
| B | Dark blue | 7/1 | White |
| 2 | Black | 8 | Bright chrome |
| 3 | Green | 9 | Orange |
| 4 | Grey | A | Satin chrome |
| 5 | Yellow | | |

LED COLORS

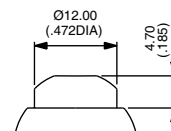


- | | |
|-------|-----------------|
| Blank | Non-illuminated |
| L0S | Super red |
| L0Y | Yellow |
| L0G | Green |
| L0B | Blue |

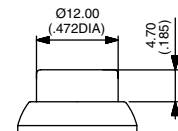
OPTIONS



- | | |
|-----|---|
| 100 | Satin chrome bezel |
| 101 | Bright chrome bezel (round only) |
| 104 | High actuator - For round, non-illuminated only |



104 IPR



104 IPP

AGENCY APPROVAL



- UL**
Consult factory for details of approved models.
To order switches marked UL, complete above box with "UL".