



## Specifications

|                    |                          |
|--------------------|--------------------------|
| Electrical Ratings | 100mA @ 12VDC            |
| Electrical Life    | 1,000,000 cycles typical |
| Mechanical Life    | 5,000,000 cycles typical |
| Actuation Force    | 250 ± 50gF               |
| Actuator Travel    | 4.5 ± .5mm; 3.5 ± .5mm   |

|                       |                             |
|-----------------------|-----------------------------|
| Contact Resistance    | ≤ 100mΩ initial             |
| Dielectric Strength   | 500Vrms min between contact |
| Insulation Resistance | ≥ 100MΩ min @ 250VDC        |
| Operating Temperature | -20°C to 70°C               |
| Storage Temperature   | -20°C to 70°C               |

## Materials

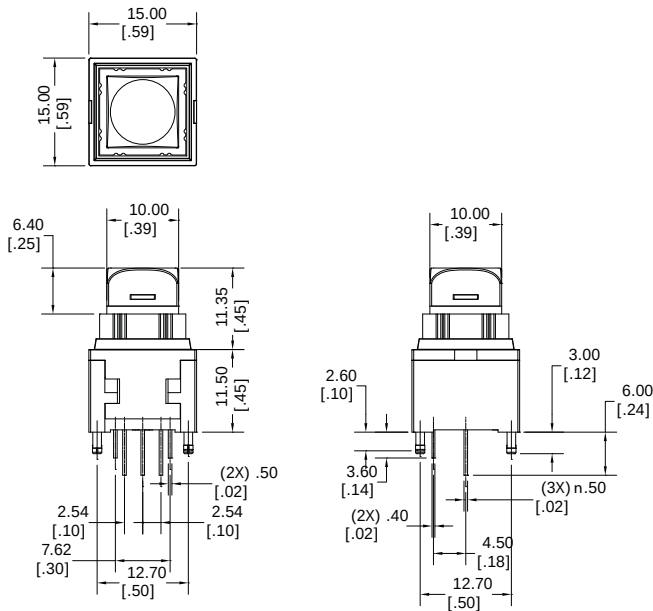
|                   |                                        |
|-------------------|----------------------------------------|
| Actuator Cap      | Polycarbonate (PC)                     |
| Actuator Diffuser | Polycarbonate (PC)                     |
| Actuator          | Acetal Polyoxymethylene (POM), UL94V-0 |
| Housing           | Polymide (PA), UL94V-0                 |
| Terminal Base     | Polymide (PA), UL94V-0                 |
| Contacts          | Brass rivet, gold over nickel          |
| Terminals         | Brass, silver plated                   |

## Illuminated Pushbutton

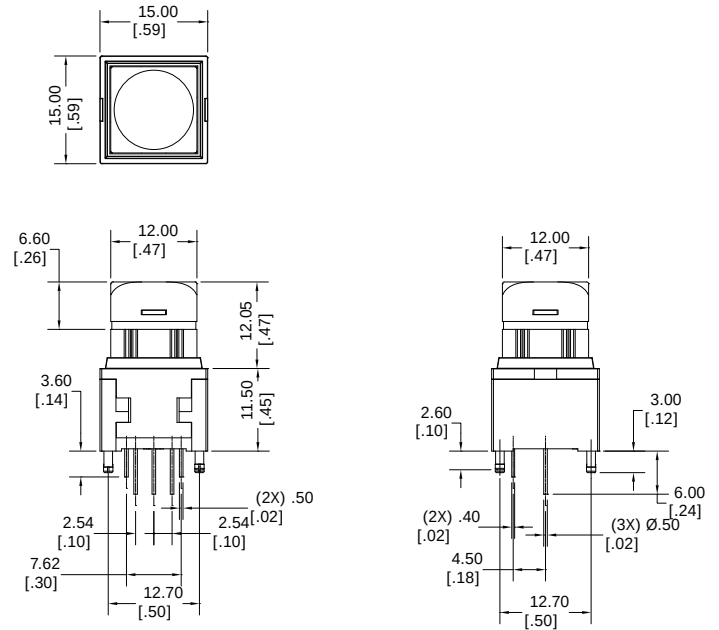
### Ordering Information

|                                                                                                                                                                                                                                                                                       |    |    |    |    |    |   |    |    |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----|----|----|----|----|---|----|----|
| 1. Series                                                                                                                                                                                                                                                                             | AD | 01 | NT | BV | RR | R | 10 | BJ |
| AD                                                                                                                                                                                                                                                                                    |    |    |    |    |    |   |    |    |
| 2. Switch Function<br>01 = 4.5mm total travel (standard)<br>02 = 3.5mm total travel                                                                                                                                                                                                   |    |    |    |    |    |   |    |    |
| 3. Switch Function<br>NT = SPST Off-(On) (momentary, tactile)<br>NN = SPST Off-(On) (momentary, non-tactile)<br>NC = SPST Off-(On) (momentary, with click sound)<br>L = SPST Off-On (latching)                                                                                        |    |    |    |    |    |   |    |    |
| 4a. Actuator Options<br>A = 10.0mm square<br>B = 12.0mm square<br>C = 15.0mm square<br>D = 17.4mm square                                                                                                                                                                              |    |    |    |    |    |   |    |    |
| 4b. Actuator Options<br>V = Sculptured (standard)<br>F = Flat<br>H = Home key                                                                                                                                                                                                         |    |    |    |    |    |   |    |    |
| 5. LED Color<br>RR = Red<br>GG = Green<br>YY = Yellow<br>BB = Blue<br>WW = White<br>RY = Red/Yellow<br>RG = Red/Green<br>RB = Red/Blue<br>YG = Yellow/Green<br>BY = Yellow/Blue<br>GB = Green/Blue<br>RGB = RGB LED<br>2RGB = 2 RGB LEDs                                              |    |    |    |    |    |   |    |    |
| 6. Contact Material<br>R = Gold                                                                                                                                                                                                                                                       |    |    |    |    |    |   |    |    |
| 7. Diffuser Color Options<br>1 = White (standard)<br>3 = Red<br>4 = Yellow<br>5 = Green<br>7 = Blue                                                                                                                                                                                   |    |    |    |    |    |   |    |    |
| 7a. Cap Color Options<br>0 = Clear transparent (standard)<br>3 = Red semi-transparent<br>3T = Red transparent<br>4 = Yellow semi-transparent<br>4T = Yellow transparent<br>5 = Green semi-transparent<br>5T = Green transparent<br>7 = Blue semi-transparent<br>7T = Blue transparent |    |    |    |    |    |   |    |    |
| 8. Laser Etching Colors<br>Blank = No etching color<br>MS = Misty Silver<br>B = Black                                                                                                                                                                                                 |    |    |    |    |    |   |    |    |
| 8a. Laser Etching Styles<br>Blank = no etching style<br>A G<br>B H<br>C I<br>D J<br>E K<br>F L<br><br>*A colored film is applied to the actuator and is laser etched to allow the LED to shine through the pattern. Contact factory for custom styles or finishes                     |    |    |    |    |    |   |    |    |
| 9. Pad Printing<br>Blank = No pad printing<br><br>**Contact factory for custom printing options                                                                                                                                                                                       |    |    |    |    |    |   |    |    |

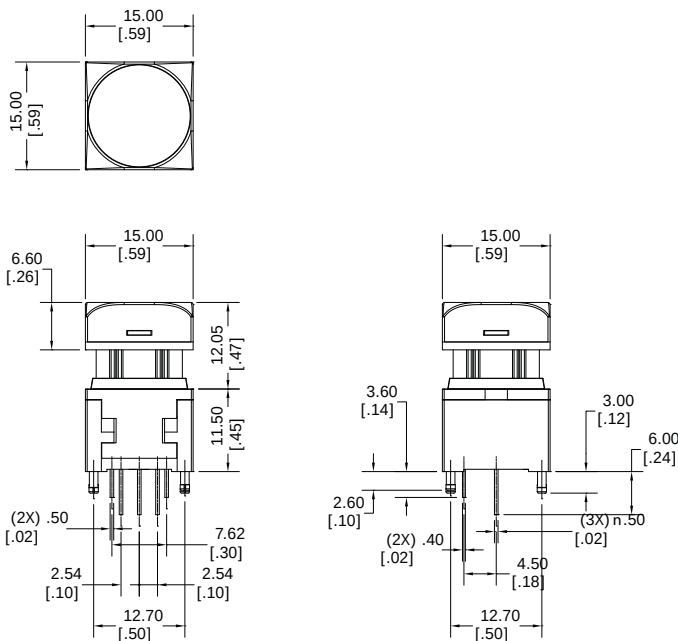
## Dimensions



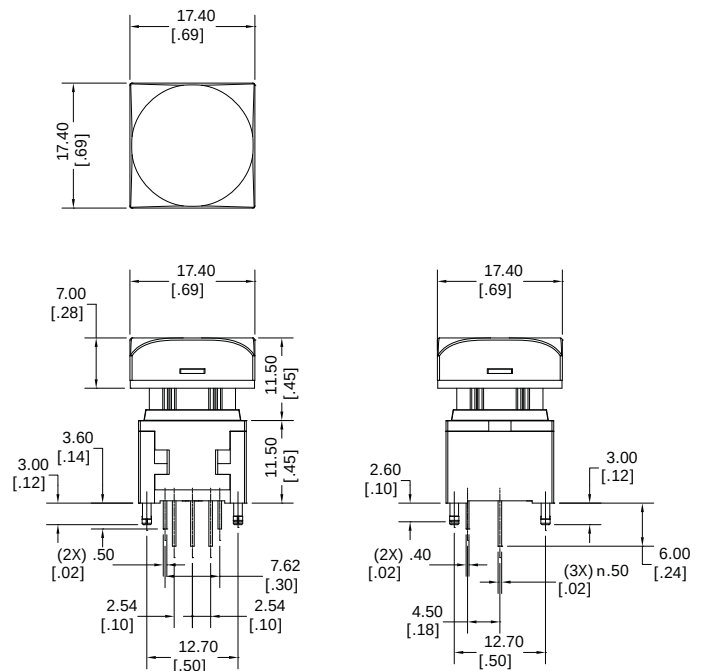
**AV = 10.0mm Square Sculptured**



**BV = 12.0mm Square Sculptured**



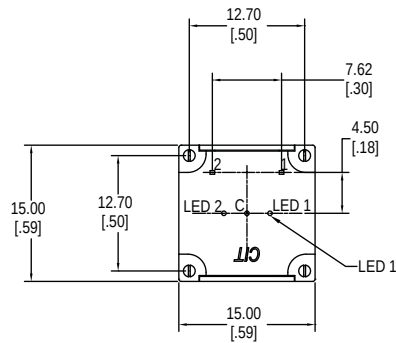
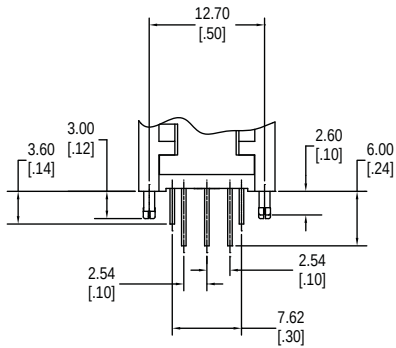
**CV = 15.0mm Square Sculptured**



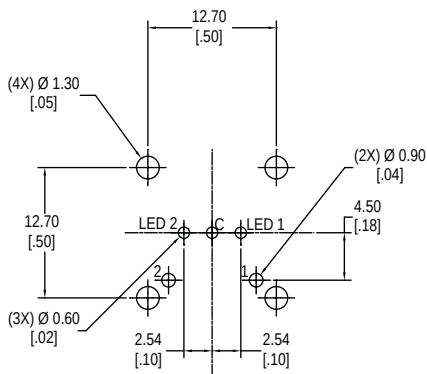
**DV = 17.4mm Square Sculptured**

### PCB Layout & Schematic

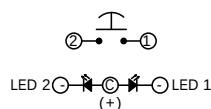
#### Single or Dual color LED



#### Bottom View

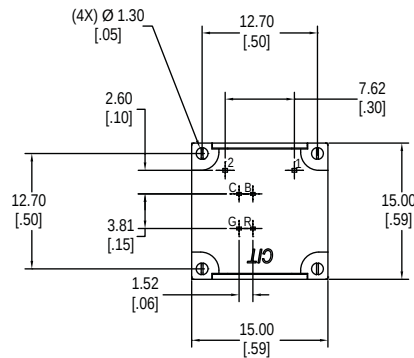
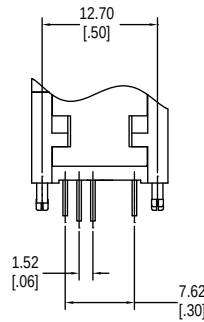


#### Suggested PCB Layout Top View

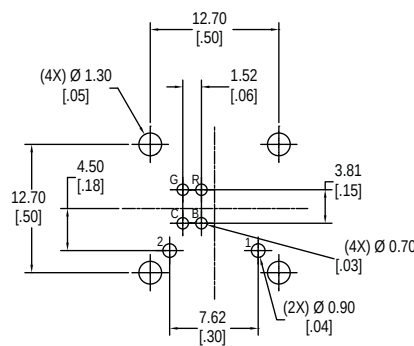


#### Schematic Bottom View

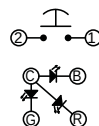
#### RGB LED



#### Bottom View

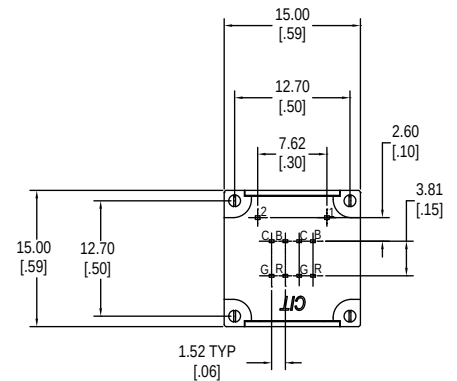
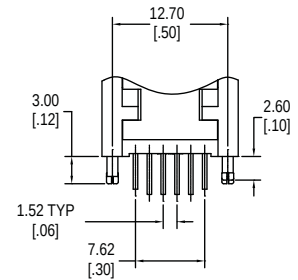


#### Suggested PCB Layout Top View

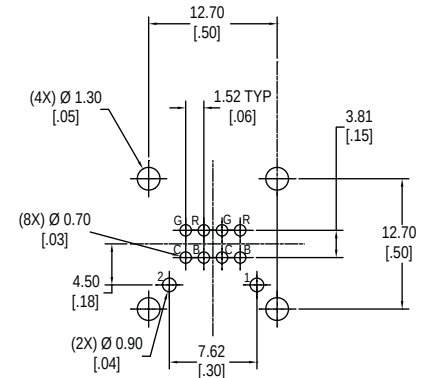


#### Schematic Bottom View

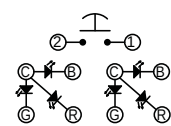
#### 2 RGB LEDs



#### Bottom View

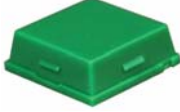
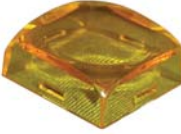


#### Suggested PCB Layout Top View

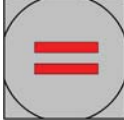
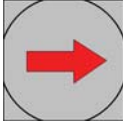
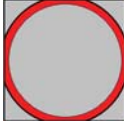


#### Schematic Bottom View

## Actuators & Diffuser Styles

|                                                                                   |                                                                                   |                                                                                   |                                                                                     |                                                                                     |
|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-----------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|
|  |  |  |  |  |
| 1 = White Diffuser                                                                | 3 = Red Diffuser                                                                  | 4 = Yellow Diffuser                                                               | 5 = Green Diffuser                                                                  | 7 = Blue Diffuser                                                                   |
|                                                                                   |  |  |  |  |
|                                                                                   | 3 = Red Cap<br>Semi-Transparent                                                   | 4 = Yellow Cap<br>Semi-Transparent                                                | 5 = Green Cap<br>Semi-Transparent                                                   | 7 = Blue Cap<br>Semi-Transparent                                                    |
|  |  |  |  |  |
| 0 = Clear Cap                                                                     | 3T = Red Cap<br>Transparent                                                       | 4T = Yellow Cap<br>Transparent                                                    | 5T = Green Cap<br>Transparent                                                       | 7T = Blue Cap<br>Transparent                                                        |

## Laser Etching Styles

|                                                                                     |                                                                                     |                                                                                     |                                                                                     |                                                                                       |                                                                                       |
|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|
|  |  |  |  |  |  |
| A                                                                                   | B                                                                                   | C                                                                                   | D                                                                                   | E                                                                                     | F                                                                                     |
|  |  |  |  |  |  |
| G                                                                                   | H                                                                                   | I                                                                                   | J                                                                                   | K                                                                                     | L                                                                                     |

## LED Characteristics

| LED Ratings                                         |                 | Color     |     |      |     |     |           |     |      | Units |
|-----------------------------------------------------|-----------------|-----------|-----|------|-----|-----|-----------|-----|------|-------|
|                                                     |                 | R         | Y   | B    | W   | PG  | R         | G   | B    |       |
| Reverse Voltage                                     | V <sub>R</sub>  | 5         | 5   | 5    | 5   | 5   | 5         |     |      | V     |
| Forward Current (avg)                               | I <sub>F</sub>  | 25        | 30  | 25   | 25  | 25  | 50        | 30  | 30   | mA    |
| Forward Current (peak)                              | I <sub>FS</sub> | 60        | 80  | 100  | 100 | 100 | 195       | 150 | 150  | mA    |
| Reverse Current V <sub>R</sub> = 5V                 | I <sub>R</sub>  | 10        | 100 | 50   | 50  | 50  | 10        |     |      | μA    |
| Power Dissipation                                   | P <sub>T</sub>  | 30        | 75  | 110  | 110 | 100 | 350       |     |      | mW    |
| Operating & Storage Temperature                     | T <sub>A</sub>  | -40 ~ +85 |     |      |     |     | -40 ~ +85 |     |      | °C    |
| Forward Voltage (typ) I <sub>F</sub> = 20mA         | V <sub>F</sub>  | 1.7       | 2.0 | 2.6  | 2.7 | 3.1 | 1.8       | 2.8 | 2.7  | V     |
| Forward Voltage (max) I <sub>F</sub> = 20mA         | V <sub>F</sub>  | 2.2       | 2.4 | 3.7  | 3.2 | 3.8 | 2.3       | 3.4 | 3.3  | V     |
| Wavelength at Peak Emmission, I <sub>F</sub> = 20mA | λ <sub>P</sub>  | 650       | 590 | 475  | n/a | 525 | 630       | 525 | 470  | nm    |
| Spectral Line Half-Width, I <sub>F</sub> = 20mA     | Δλ              | 20        | 16  | 20   | n/a | 15  | 25        | 35  | 25   | nm    |
| Luminous Intensity, I <sub>F</sub> = 20mA           | LI              | 140       | 70  | 28.5 | 112 | 250 | 177       | 598 | 93.6 | mcd   |
| Viewing Angle                                       | Θ               | 100       | 130 | 120  | 110 | 130 | 120       |     |      | deg   |