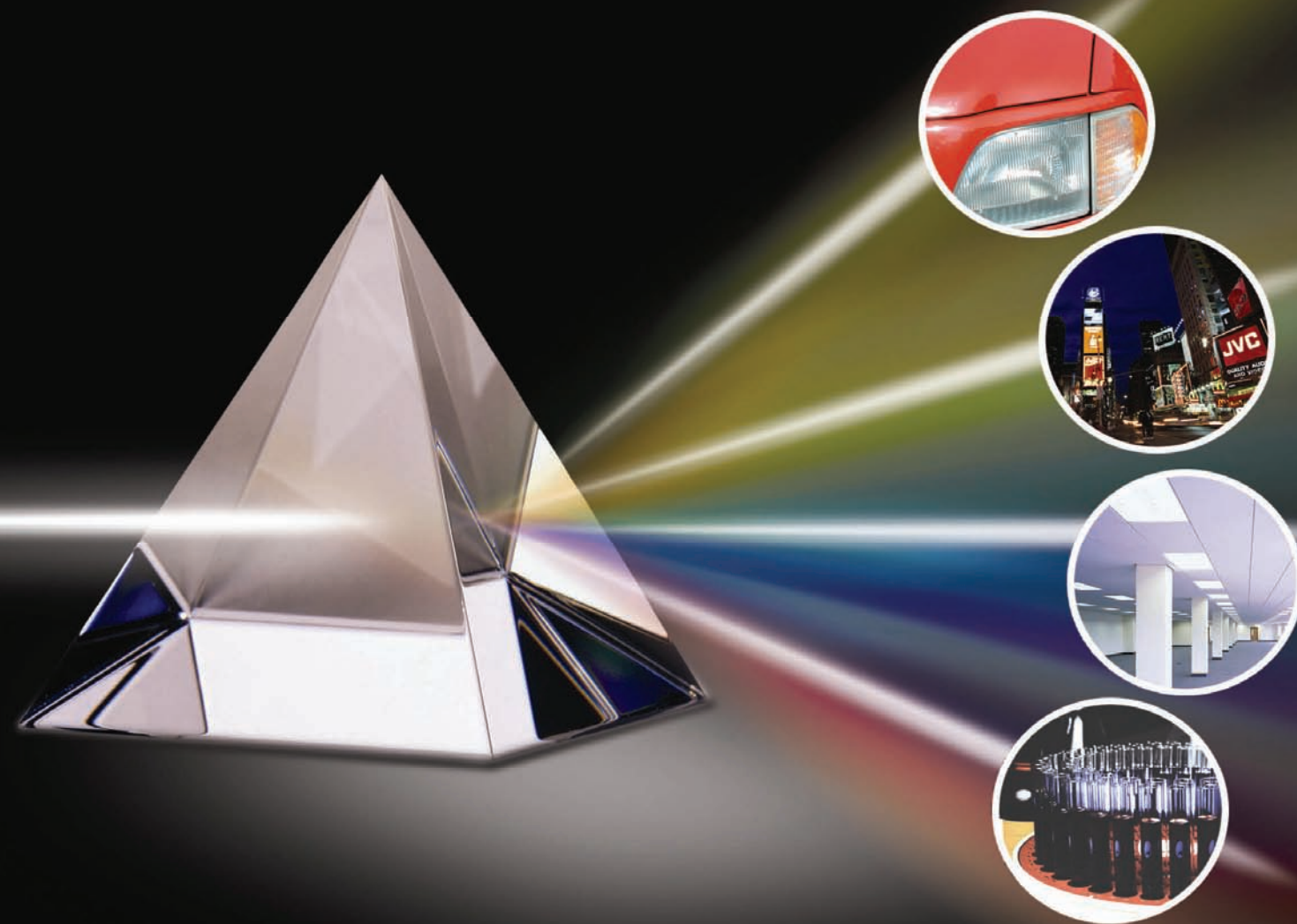




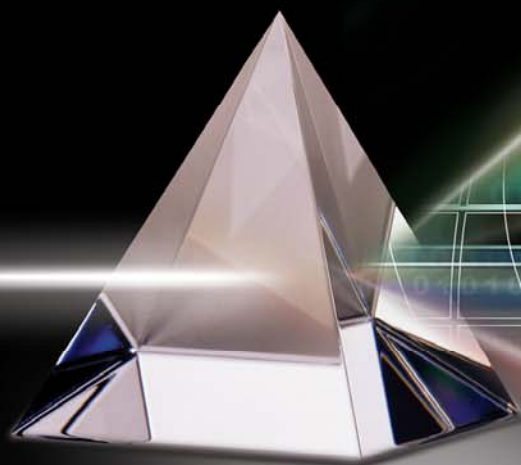
## Visible LEDs and Assemblies

**TT**electronics  
**OPTEK Technology**

*A Part Of Everyday Technology*

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COVERING THE FULL  
LIGHT SPECTRUM



## Leadership in Manufacturing

As a global leader in compound semiconductor design and packaging, OPTEK begins with the most advanced High-Brightness Light Emitting Diode starting materials. The dice, or chips for OPTEK's Phosphored White, Blue, Blue-Green and Green are InGaN on sapphire and SiC. The Red, Orange, Amber and Yellow LEDs are made from the most advanced AlInGaP on gallium arsenide in the most robust of structures for new challenging applications in Solid State Lighting and Illumination.

Advanced chip technology is the heart of the device, whether it is an industry standard or application-specific surface mount power or leaded component. It is the advances in all of these materials that continues to expand the use of the LED beyond traditional status indicator applications.

## Discrete LED Capabilities

OPTEK high-brightness LED applications range from outdoor LED Video Message signs to cell phone displays and camera flash. Design engineers in solid-state traffic and pedestrian signals find standard OPTEK product designed specifically for their use.

The following is a sample of the package portfolio and typical uses of OPTEK product in the Visible Spectrum.

|                                          |                                                                                                                                                                                                                     |                                                                                                                                                                                                          |
|------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>High Brightness Through-hole LEDs</b> | OPTEK offers all colors with high light output in a variety of diameters, shapes and viewing angles, using AlInGaP and InGaN material. Binning by wavelength, forward voltage, and luminous intensity is available. | Applications include displays and signs, indoors and in full sunlight; automotive interior and exterior lighting; information signage; architectural and decorative lighting.                            |
| <b>Surface Mount</b>                     | Reflective PLCC and chip LED packages are available in single- and multi-color packages, including tunable full-color RGB for dynamic and static lighting effects.                                                  | Surface mount LEDs provide bright light output with low $V_F$ to backlight LCDs in handheld appliances. Reds, greens, and blues form pixels for outdoor and indoor signs, displays, and channel letters. |
| <b>High Flux</b>                         | OPTEK's 4-pin square-shaped LEDs are available in multiple viewing angles and 5 colors.                                                                                                                             | This package provides lighting solutions for automotive applications and is used in the signage industry in arrays and housings to replace neon.                                                         |
| <b>High Power</b>                        | 1-watt and greater components complete with thermal management deliver bright solid-state lighting solutions.                                                                                                       | For general illumination, emergency lighting, and task lighting, OPTEK offers long-life energy efficient devices and reduced maintenance costs.                                                          |

## LED Assembly and Special Product Capability

Thermally managed LED components and arrays are the key to safely and reliably replacing older technologies. These solutions are found in the OPTEK toolbox. You'll find a number of standard LED assemblies in this selection guide. You may consider this just a starting point in your search for the optimum solutions for your unique requirement.

Automotive interior and exterior lighting designers turn to OPTEK's optoelectronics engineering teams for application-specific lighting assemblies as well as discrete LEDs. When an application requires tight bin and rank segmentation or other special care, OPTEK LEDs are always the answer.

The extensive engineering support for customer designs using LEDs for color on demand is ready, willing and able to meet the challenge.

## OVAL THROUGH-HOLE LED – Multiple Viewing Angles

| Oval Through-Hole                                                                 | Part Number | Size | Chip     |               |         | Lens Color     | I <sub>V</sub> (mcd)  |      | Typ. V <sub>F</sub> | Viewing Angle ° | Package # |
|-----------------------------------------------------------------------------------|-------------|------|----------|---------------|---------|----------------|-----------------------|------|---------------------|-----------------|-----------|
|                                                                                   |             |      | Material | Emitted Color | λD (nm) |                | at I <sub>F</sub> =mA | Typ. |                     |                 |           |
|  | OVLHBKD8    | 5 mm | InGaP    | Blue          | 470     | Color Diffused | 20                    | 500  | 3.4                 | 110° / 50°      | 200       |
|                                                                                   | OVLHGKD8    |      | InGaP    | Green         | 525     |                |                       | 1100 | 3.6                 |                 |           |
|                                                                                   | OVLHQKD8    |      | AllnGaP  | Red-Orange    | 618     |                |                       | 800  | 2.3                 |                 |           |
|                                                                                   | OVLHRKD8    |      | AllnGaP  | Red           | 624     |                |                       | 900  | 2.1                 |                 |           |
|                                                                                   | OVLJBGD8    |      | InGaP    | Blue          | 470     |                |                       | 300  | 3.6                 |                 |           |
|                                                                                   | OVLJGGD8    | 4 mm | InGaP    | Green         | 525     |                | 20                    | 1200 | 3.6                 | 100° / 50°      | 201       |
|                                                                                   | OVLJRGD8    |      | AllnGaP  | Red           | 624     |                |                       | 400  | 2.2                 |                 |           |
|                                                                                   | OVLKGBT6    |      | InGaP    | Blue          | 470     |                |                       | 300  | 3.4                 |                 |           |
|                                                                                   | OVLKGGT6    | 4 mm | InGaP    | Green         | 525     |                | 20                    | 1100 | 3.3                 | 100° / 60°      | 202       |
|                                                                                   | OVLKQGT6    |      | AllnGaP  | Red-Orange    | 616     |                |                       | 430  | 2.1                 |                 |           |

## 5mm ROUND HIGH-INTENSITY THROUGH-HOLE LED

| 5mm Through-Hole                                                                   | Part Number | Size | Chip     |               |         | Lens Color  | I <sub>V</sub> (mcd)  |       | Typ. V <sub>F</sub> | Viewing Angle | Package # |
|------------------------------------------------------------------------------------|-------------|------|----------|---------------|---------|-------------|-----------------------|-------|---------------------|---------------|-----------|
|                                                                                    |             |      | Material | Emitted Color | λD (nm) |             | at I <sub>F</sub> =mA | Typ.  |                     |               |           |
|  | OVLGB0C6B9  | 5 mm | InGaP    | Blue          | 470     | Water Clear | 20                    | 3800  | 3.4                 | 6°            | 203       |
|                                                                                    | OVLGC0C6B9  |      | InGaP    | Blue-Green    | 505     |             |                       | 9800  | 3.4                 |               |           |
|                                                                                    | OVLGG0C5B9  |      | InGaP    | Green         | 525     |             |                       | 5000  | 3.4                 |               |           |
|                                                                                    | OVLGY0C9B9  |      | AllnGaP  | Yellow        | 589     |             |                       | 10300 | 2.0                 |               |           |
|                                                                                    | OVLGS0C8B9  |      | AllnGaP  | Red           | 623     |             |                       | 8550  | 2.0                 |               |           |
|                                                                                    | OVLFB3C7    | 5 mm | InGaP    | Blue          | 470     | Water Clear | 20                    | 1350  | 3.4                 | 30°           | 204       |
|                                                                                    | OVLFG3C7    |      | InGaP    | Green         | 525     |             |                       | 5200  | 3.4                 |               |           |
|                                                                                    | OVLFY3C7    |      | AllnGaP  | Yellow        | 589     |             |                       | 5700  | 2.2                 |               |           |
|                                                                                    | OVLFR3C7    |      | AllnGaP  | Red           | 623     |             |                       | 5000  | 2.2                 |               |           |

## 5mm CYLINDER THROUGH-HOLE LED

| 5mm Through-Hole                                                                   | Part Number | Size | Chip     |               |         | Lens Color  | I <sub>V</sub> (mcd)  |      | Typ. V <sub>F</sub> | Viewing Angle | Package # |
|------------------------------------------------------------------------------------|-------------|------|----------|---------------|---------|-------------|-----------------------|------|---------------------|---------------|-----------|
|                                                                                    |             |      | Material | Emitted Color | λD (nm) |             | at I <sub>F</sub> =mA | Typ. |                     |               |           |
|  | OVLB8C7     | 5 mm | InGaP    | Blue          | 470     | Water Clear | 20                    | 300  | 3.4                 | 85°           | 207       |
|                                                                                    | OVLG8C7     |      | InGaP    | Green         | 525     |             |                       | 670  | 3.4                 |               |           |
|                                                                                    | OVLly8C7    |      | AllnGaP  | Yellow        | 589     |             |                       | 650  | 2.2                 |               |           |
|                                                                                    | OVLlR8C7    |      | AllnGaP  | Red           | 623     |             |                       | 570  | 2.2                 |               |           |

## 3mm ROUND THROUGH-HOLE LED

| 3mm Through-Hole                                                                   | Part Number | Size | Chip     |               |         | Lens Color  | I <sub>V</sub> (mcd)  |      | Typ. V <sub>F</sub> | Viewing Angle | Package # |
|------------------------------------------------------------------------------------|-------------|------|----------|---------------|---------|-------------|-----------------------|------|---------------------|---------------|-----------|
|                                                                                    |             |      | Material | Emitted Color | λD (nm) |             | at I <sub>F</sub> =mA | Typ. |                     |               |           |
|  | OVLAB6CB8   | 3 mm | InGaP    | Blue          | 470     | Water Clear | 20                    | 600  | 3.6                 | 65°           | 205       |
|                                                                                    | OVLAG6CB8   |      | InGaP    | Green         | 527     |             |                       | 2000 | 3.6                 |               |           |
|                                                                                    | OVLAS6CB8   |      | AllnGaP  | Red           | 628     |             |                       | 1100 | 2.3                 |               |           |
|                                                                                    | OVLBB4C7    | 3 mm | InGaP    | Blue          | 470     | Water Clear | 20                    | 900  | 3.4                 | 45°           | 206       |
|                                                                                    | OVLBG4C7    |      | InGaP    | Green         | 525     |             |                       | 2000 | 3.4                 |               |           |
|                                                                                    | OVLBY4C7    |      | AllnGaP  | Yellow        | 589     |             |                       | 2400 | 2.2                 |               |           |
|                                                                                    | OVLBR4C7    |      | AllnGaP  | Red           | 623     |             |                       | 1800 | 2.2                 |               |           |

## SURFACE MOUNT POWER LED – 6mm<sup>2</sup>

| 6mm <sup>2</sup><br>SMD                                                           | Part Number | Package                   | Chip     |               |            | Lens<br>Color  | Φ <sub>V</sub> (lm)   |      | Typ.<br>V <sub>F</sub> | Viewing<br>Angle | Package<br># |
|-----------------------------------------------------------------------------------|-------------|---------------------------|----------|---------------|------------|----------------|-----------------------|------|------------------------|------------------|--------------|
|                                                                                   |             |                           | Material | Emitted Color | λD(nm, °K) |                | at I <sub>F</sub> =mA | Typ. |                        |                  |              |
|  | OVSPBBCR4   | 6 mm <sup>2</sup><br>Flat | InGaN    | Blue          | 470nm      | Water<br>Clear | 350                   | 9    | 3.6                    | 120°             | 220          |
|                                                                                   | OVSPGBCR4   |                           | InGaN    | Green         | 525nm      |                | 350                   | 48   | 3.6                    |                  |              |
|                                                                                   | OVSPRBCR4   |                           | AlInGaP  | Red           | 625nm      |                | 400                   | 26   | 2.5                    |                  |              |
|                                                                                   | OVSPWBCR4   |                           | InGaN    | White         | 7000°K     |                | 350                   | 48   | 3.6                    |                  |              |
|                                                                                   | OVSPYBCR4   |                           | AlInGaP  | Yellow        | 587nm      |                | 400                   | 35   | 2.5                    |                  |              |
|  | OVSPRBCR44  | 6 mm <sup>2</sup><br>Dome | AlInGaP  | Red           | 625nm      |                | 400                   | 30   | 2.5                    | 40°              | 221          |
|                                                                                   | OVSPYBCR44  |                           | AlInGaP  | Yellow        | 589nm      |                | 400                   | 35   | 2.5                    | 60°              |              |
|                                                                                   | OVSPWBCR44  |                           | InGaN    | White         | 7000°K     |                | 350                   | 52   | 3.6                    |                  |              |
|                                                                                   | OVS5RCR44   |                           | AlInGaP  | Red           | 625nm      |                | 175                   | 8    | 2.2                    |                  |              |
|                                                                                   | OVS5YCR44   |                           | AlInGaP  | Yellow        | 589nm      |                | 175                   | 11   | 2.2                    |                  |              |

## TOP-VIEW SURFACE MOUNT LED with FLAT LENS

| PLCC4<br>SMD                                                                       | Part Number | Package | Chip     |               |                  | Lens<br>Color  | I <sub>V</sub> (mcd)  |      | Typ.<br>V <sub>F</sub> | Viewing<br>Angle | Package<br># |
|------------------------------------------------------------------------------------|-------------|---------|----------|---------------|------------------|----------------|-----------------------|------|------------------------|------------------|--------------|
|                                                                                    |             |         | Material | Emitted Color | $\lambda_D$ (nm) |                | at I <sub>F</sub> =mA | Typ. |                        |                  |              |
|  | OVSABBC2R8  | PLCC4   | InGaP    | Blue          | 470              | Water<br>Clear | 30                    | 200  | 3.9                    | 120°             | 210          |
|                                                                                    | OVSACBC2R8  |         | InGaP    | Blue-Green    | 505              |                |                       | 560  | 3.9                    |                  |              |
|                                                                                    | OVSAGBC2R8  |         | InGaP    | Green         | 527              |                |                       | 700  | 3.9                    |                  |              |
|                                                                                    | OVSAAABC2R8 |         | AlInGaP  | Amber         | 591              |                | 50                    | 700  | 2.6                    |                  |              |
|                                                                                    | OVSASBC2R8  |         | AlInGaP  | Red           | 628              |                |                       | 900  | 2.5                    |                  |              |
|                                                                                    | OVSABBCR4   |         | InGaP    | White         | —                |                |                       | 1050 | 3.4                    |                  |              |
|                                                                                    |             |         |          |               |                  |                |                       |      |                        |                  |              |

## TOP-VIEW SURFACE MOUNT LED with DOMED LENS

| PLCC4<br>SMD                                                                        | Part Number | Package | Chip     |               |                  | Lens<br>Color  | I <sub>V</sub> (mcd)  |      | Typ.<br>V <sub>F</sub> | Viewing<br>Angle | Package<br># |
|-------------------------------------------------------------------------------------|-------------|---------|----------|---------------|------------------|----------------|-----------------------|------|------------------------|------------------|--------------|
|                                                                                     |             |         | Material | Emitted Color | $\lambda_D$ (nm) |                | at I <sub>F</sub> =mA | Typ. |                        |                  |              |
|  | OVSAABLCR8  | PLCC4   | AlInGaP  | Amber         | 594              | Water<br>Clear | 50                    | 1650 | 2.6                    | 60°              | 211          |
|                                                                                     | OVSAQBLCR8  |         | AlInGaP  | Red-Orange    | 618              |                |                       | 2800 | 2.5                    |                  |              |
|                                                                                     | OVSASBLCR8  |         | AlInGaP  | Red           | 628              |                |                       | 900  | 2.5                    |                  |              |

## SIDE EMITTING SURFACE MOUNT LED

| RA PLCC<br>SMD                                                                      | Part Number | Package | Chip     |               |                  | Lens<br>Color  | I <sub>V</sub> (mcd)  |      | Typ.<br>V <sub>F</sub> | Viewing<br>Angle | Package<br># |
|-------------------------------------------------------------------------------------|-------------|---------|----------|---------------|------------------|----------------|-----------------------|------|------------------------|------------------|--------------|
|                                                                                     |             |         | Material | Emitted Color | $\lambda_D$ (nm) |                | at I <sub>F</sub> =mA | Typ. |                        |                  |              |
|  | OVSR9BBCR8  | RA PLCC | InGaP    | Blue          | 470              | Water<br>Clear | 20                    | 120  | 3.6                    | 120°             | 212          |
|                                                                                     | OVSR9CBCR8  |         | InGaP    | Blue-Green    | 505              |                |                       | 400  | 3.6                    |                  |              |
|                                                                                     | OVSR9GBCR8  |         | InGaP    | Green         | 527              |                |                       | 560  | 3.6                    |                  |              |
|                                                                                     | OVSR9ABCR8  |         | AlInGaP  | Amber         | 594              |                |                       | 350  | 2.3                    |                  |              |
|                                                                                     | OVSR9RBCR8  |         | AlInGaP  | Red           | 624              |                |                       | 400  | 2.3                    |                  |              |
|                                                                                     | OVSR9WBCR8  |         | InGaP    | White         | —                |                |                       | 600  | 3.4                    |                  |              |
|                                                                                     |             |         |          |               |                  |                |                       |      |                        |                  |              |

## SUPER FLUX 4-PIN LED – 7.6mm<sup>2</sup>

\*Dome Height = 1.9mm

| 7.6mm <sup>2</sup><br>Through-hole                                                | Part Number | Package             | Chip     |               |                  | Lens Color  | $\Phi_V$ (mlm) |      | Typ. $V_F$ | Viewing Angle | Package # |
|-----------------------------------------------------------------------------------|-------------|---------------------|----------|---------------|------------------|-------------|----------------|------|------------|---------------|-----------|
|                                                                                   |             |                     | Material | Emitted Color | $\lambda_D$ (nm) |             | at $I_F = mA$  | Typ. |            |               |           |
|  | OVFSB6C8    | 7.6 mm <sup>2</sup> | InGaN    | Blue          | 470              | Water Clear | 30             | 850  | 4.0        | 60°           | 209       |
|                                                                                   | OVFSG6C8    |                     | InGaN    | Green         | 527              |             |                | 2500 | 4.0        |               |           |
|                                                                                   | OVFSAAC8    |                     | AlInGaP  | Amber         | 591              |             | 70             | 5000 | 2.5        | 100°          |           |
|                                                                                   | OVFSQ4C8    |                     | AlInGaP  | Red-Orange    | 618              |             |                | 4500 | 2.6        | 40°           |           |
|                                                                                   | OVFSRAC8    |                     | AlInGaP  | Red           | 624              |             |                | 4500 | 2.5        | 100°          |           |
|                                                                                   | OVFSW6C8    |                     | InGaN    | White         | —                |             | 30             | 1200 | 4.0        | 60°           |           |
|                                                                                   |             |                     |          |               |                  |             |                |      |            |               |           |

## WHITE InGaN SURFACE MOUNT LED

| Package                                                                             |               | Part Number | Lens Color  | Intensity/Flux |          | Typ. $V_F$ | Viewing Angle | Package # |
|-------------------------------------------------------------------------------------|---------------|-------------|-------------|----------------|----------|------------|---------------|-----------|
|                                                                                     |               |             |             | at $I_F = mA$  | Typ.     |            |               |           |
|    | PLCC2         | OVS9WBCR4   | Water Clear | 20             | 750 mcd  | 3.2        | 120°          | 213       |
|    | RA 2.8x1.2x.8 | OVSRWACR6   |             | 20             | 1000 mcd | 3.4        | x120°, y110°  | 214       |
|    | PLCC4         | OVSABWBCR4  |             | 30             | 1050 mcd | 3.4        | 120°          | 210       |
|   | 6X6 Flat      | OVSPWBCR4   |             | 350            | 48 lm    | 3.6        | 120°          | 220       |
|                                                                                     |               | OVS3WBCR4   |             | 120            | 7 lm     |            |               |           |
|                                                                                     |               | OVS5WBCR4   |             | 150            | 21 lm    | 3.2        |               |           |
|  | 6X6 Dome      | OVSPWBCR44  |             | 350            | 52 lm    | 3.6        | 60°           | 221       |
|                                                                                     |               | OVS3WBCR44  |             | 120            | 7 lm     |            |               |           |
|  | RA PLCC       | OVS9WBCR8   |             | 20             | 600 mcd  | 3.4        | 120°          | 212       |

## WHITE InGaN THROUGH-HOLE LED

| Package                                                                             |            | Part Number | Lens Color  | Intensity/Flux |           | Typ. $V_F$ | Viewing Angle | Package # |
|-------------------------------------------------------------------------------------|------------|-------------|-------------|----------------|-----------|------------|---------------|-----------|
|                                                                                     |            |             |             | at $I_F = mA$  | Typ.      |            |               |           |
|   | Round 3 mm | OVLAW4CB6   | Water Clear | 20             | 1000 mcd  | 3.4        | 45°           | 205       |
|  | Round 5 mm | OVLEW1CB9   |             | 20             | 18000 mcd | 3.4        | 15°           | 203       |
|                                                                                     | Round 5 mm | OVLEW3CB6   |             | 20             | 2100 mcd  | 3.4        | 30°           | 216       |
|                                                                                     |            | OVLEW5CB6   |             |                | 1600 mcd  | 3.4        | 50°           | 208       |
|  | 4-pin Flux | OVFSW6C8    |             | 30             | 1200 mlm  | 4.0        | 60°           | 209       |

## FULL-COLOR (R/G/B) SURFACE MOUNT LED

| Package                                                                           |                                  | Part Number | Lens Color  | I <sub>v</sub> (mcd)  |       |       |         | Typ. V <sub>f</sub>     | Viewing Angle | Package # |
|-----------------------------------------------------------------------------------|----------------------------------|-------------|-------------|-----------------------|-------|-------|---------|-------------------------|---------------|-----------|
|                                                                                   |                                  |             |             | at I <sub>f</sub> =mA | R     | G     | B       |                         |               |           |
|  | Top-view Chip LED<br>2.4x2.4x.95 | OVSTRGBAC6  | Water Clear | 20                    | 100   | 333   | 88      | R=2.8<br>G=3.9<br>B=3.9 | 110°          | 219       |
|  | PLCC4<br>3.2x2.8x1.9             | OVSARGB3R8  |             | 20                    | 300   | 450   | 110     | R=2.3<br>G=3.6<br>B=3.6 | 120°          | 222       |
|  | PLCC6<br>6.0x5.0x2.5             | OVSTRGBBCR8 |             | 3x50                  | 1000  | 900   | 280     | R=2.5<br>G=4.5<br>B=4.5 | 120°          | 223       |
|  | 6X6<br>Flat 1watt                | OVSPRGBCR4  |             | 3x250                 | 21 lm | 32 lm | 7.51 lm | R=2.3<br>G=3.5<br>B=3.5 | 130°          | 215       |

## SECONDARY OPTICS FOR OVSP SERIES

| Package                                                                            |                  | Part Number | Size (mm) | Viewing Angle | Shipping Container | Package Quantity / Tray |
|------------------------------------------------------------------------------------|------------------|-------------|-----------|---------------|--------------------|-------------------------|
|  | Lens with holder | OVLENS154   | 20 diam   | 15            | Tray               | 72                      |
|                                                                                    | Lens with holder | OVLENS234   | 20 diam   | 23            | Tray               | 72                      |

## 1-WATT LEDNIUM SERIES, FLUSH MOUNT, LOW PROFILE 1.10mm

| Package                                                                           | Optek Part No. | Size        | Emitted Color  | $\lambda_D$ (nm) Typ | Forward Current (mA) | Typical $I_v$ /flux (lm) | Typical $V_F$ | Viewing Angle | Package # |
|-----------------------------------------------------------------------------------|----------------|-------------|----------------|----------------------|----------------------|--------------------------|---------------|---------------|-----------|
|  | OVTL01LGAA     | 5.2 x 5.9mm | Amber          | 595                  | 350                  | 38                       | 2.3           | 135°          | 224       |
|                                                                                   | OVTL01LGAB     |             | Blue           | 460                  | 350                  | 15                       | 3.4           |               |           |
|                                                                                   | OVTL01LGAG     |             | Green          | 515                  | 350                  | 52                       | 3.6           |               |           |
|                                                                                   | OVTL01LGAR     |             | Red            | 625                  | 350                  | 53                       | 2.3           |               |           |
|                                                                                   | OVTL01LGAW     |             | Cool White     | 7000 °K              | 350                  | 50                       | 3.4           |               |           |
|                                                                                   | OVTL01LGAWD    |             | Daylight White | 5800 °K              | 350                  | 45                       | 3.4           |               |           |
|                                                                                   | OVTL01LGAWW    |             | Warm White     | 3500 °K              | 350                  | 30                       | 3.4           |               |           |

## 1-WATT LEDNIUM SERIES, SURFACE MOUNT, LOW PROFILE 1.50mm

| Package                                                                            | Optek Part No. | Size        | Emitted Color  | $\lambda_D$ (nm) Typ | Forward Current (mA) | Typical $I_v$ /flux (lm) | Typical $V_F$ | Viewing Angle | Package # |
|------------------------------------------------------------------------------------|----------------|-------------|----------------|----------------------|----------------------|--------------------------|---------------|---------------|-----------|
|  | OVTL01LGAAS    | 5.2 x 5.9mm | Amber          | 595                  | 350                  | 38                       | 2.3           | 135°          | 225       |
|                                                                                    | OVTL01LGABS    |             | Blue           | 460                  | 350                  | 15                       | 3.4           |               |           |
|                                                                                    | OVTL01LGAGS    |             | Green          | 515                  | 350                  | 52                       | 3.6           |               |           |
|                                                                                    | OVTL01LGARS    |             | Red            | 625                  | 350                  | 53                       | 2.3           |               |           |
|                                                                                    | OVTL01LGAWS    |             | Cool White     | 7000 °K              | 350                  | 50                       | 3.4           |               |           |
|                                                                                    | OVTL01LGAWDS   |             | Daylight White | 5800 °K              | 350                  | 45                       | 3.4           |               |           |
|                                                                                    | OVTL01LGAWWS   |             | Warm White     | 3500 °K              | 350                  | 30                       | 3.4           |               |           |

## 10- WATT LEDNIUM SERIES

| Package                                                                             | Part Number | Lens Color  | Die                    |                            | Forward Voltage $V_F$ @ 600mA |          |          | Flux @ 1.05A | Viewing Angle | Package # |
|-------------------------------------------------------------------------------------|-------------|-------------|------------------------|----------------------------|-------------------------------|----------|----------|--------------|---------------|-----------|
|                                                                                     |             |             | Emitted Color          | $\lambda_D$ (nm)           | Min. (V)                      | Typ. (V) | Max. (V) | Typ. (lm)    |               |           |
|  | OVTL09LG3B  | Water Clear | Blue                   | 460 nm                     | 9.5                           | 10.2     | 11.2     | 117          | 120°          | 226       |
|                                                                                     | OVTL09LG3G  |             | Green                  | 515 nm                     | 10.3                          | 11.0     | 11.9     | 423          |               |           |
|                                                                                     | OVTL09LG3A  |             | Amber                  | 595 nm                     | 6.3                           | 7.0      | 7.9      | 297          |               |           |
|                                                                                     | OVTL09LG3R  |             | Red                    | 625 nm                     | 6.3                           | 7.0      | 7.9      | 423          |               |           |
|                                                                                     | OVTL09LG3WD |             | Daylight White         | 5800 (°K)                  | 8.9                           | 9.1      | 9.25     | TBD          |               |           |
|                                                                                     | OVTL09LG3WW |             | Warm White             | 3500 (°K)                  | 8.9                           | 9.1      | 9.25     | TBD          |               |           |
|                                                                                     | OVTL09LG3W  |             | Cool White             | 7000 (°K)                  | 9.5                           | 10.2     | 11.2     | 387          |               |           |
|                                                                                     | OVTL09LG3M  |             | Red/<br>Green/<br>Blue | 625 nm<br>515 nm<br>460 nm | 8.4                           | 8.6      | 8/8      | 266          |               |           |

### OPA729—10 Watt Light Bar on Anotherm® Heat Spreader

Electrical / Optical Characteristics:  $T_A=25^{\circ}\text{C}$ ,  $I_F=700\text{mA}$  I Green dot Power Supply I

|  | Part Number | Typical Forward Voltage (V) | Luminous Flux (lm) | Beam Angle | Color  | $\lambda_D$ (nm) | Package # |
|-----------------------------------------------------------------------------------|-------------|-----------------------------|--------------------|------------|--------|------------------|-----------|
|                                                                                   | OPA729Y     | 12.5                        | 350                | 120°       | Yellow | 587              | 232       |
|                                                                                   | OPA729B     | 18.0                        | 90                 |            | Blue   | 470              |           |
|                                                                                   | OPA729G     | 18.0                        | 480                |            | Green  | 530              |           |
|                                                                                   | OPA729R     | 12.5                        | 260                |            | Red    | 625              |           |
|                                                                                   | OPA729W     | 18.0                        | 480                |            | White  | 7000 °K          |           |
|                                                                                   | OPA729YD    | 12.5                        | 350                | 40°        | Yellow | 587              | 233       |
|                                                                                   | OPA729BD    | 18.0                        | 90                 |            | Blue   | 470              |           |
|                                                                                   | OPA729GD    | 18.0                        | 480                |            | Green  | 530              |           |
|                                                                                   | OPA729RD    | 12.5                        | 260                |            | Red    | 625              |           |
|                                                                                   | OPA729WD    | 18.0                        | 480                | 60°        | White  | 7000 °K          |           |

### OPA740—10 Watt Light Bar on Anotherm® Heat Spreader with Lens

Electrical / Optical Characteristics:  $T_A=25^{\circ}\text{C}$ ,  $I_F=700\text{mA}$  I Green dot Power Supply I

|  | Part Number | Typical Forward Voltage (V) | Luminous Flux (lm) | Beam Angle | Color  | $\lambda_D$ (nm) | Package # |
|-------------------------------------------------------------------------------------|-------------|-----------------------------|--------------------|------------|--------|------------------|-----------|
|                                                                                     | OPA740Y23   | 12.5                        | 297                | 23°        | Yellow | 587              | 228       |
|                                                                                     | OPA740B23   | 18.0                        | 76                 |            | Blue   | 470              |           |
|                                                                                     | OPA740G23   | 18.0                        | 408                |            | Green  | 530              |           |
|                                                                                     | OPA740R23   | 12.5                        | 221                |            | Red    | 625              |           |
|                                                                                     | OPA740W23   | 18.0                        | 408                |            | White  | 7000 °K          |           |

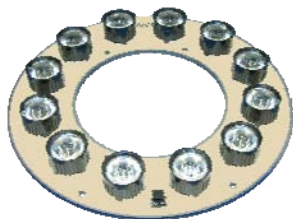
### OPA731—20 Watt Light Flood on Anotherm® Heat Spreader

Electrical / Optical Characteristics:  $T_A=25^{\circ}\text{C}$ ,  $I_F=1.4\text{A}$  I Red dot Power Supply I

|  | Part Number | Typical Forward Voltage (V) | Luminous Flux (lm) | Beam Angle | Color  | $\lambda_D$ (nm) | Package # |
|-------------------------------------------------------------------------------------|-------------|-----------------------------|--------------------|------------|--------|------------------|-----------|
|                                                                                     | OPA731Y     | 12.5                        | 700                | 120°       | Yellow | 587              | 234       |
|                                                                                     | OPA731B     | 18.0                        | 180                |            | Blue   | 470              |           |
|                                                                                     | OPA731G     | 18.0                        | 960                |            | Green  | 530              |           |
|                                                                                     | OPA731R     | 12.5                        | 520                |            | Red    | 625              |           |
|                                                                                     | OPA731W     | 18.0                        | 960                |            | White  | 7000 °K          |           |
|                                                                                     | OPA731YD    | 12.5                        | 700                | 40°        | Yellow | 587              | 235       |
|                                                                                     | OPA731BD    | 18.0                        | 180                |            | Blue   | 470              |           |
|                                                                                     | OPA731GD    | 18.0                        | 960                |            | Green  | 530              |           |
|                                                                                     | OPA731RD    | 12.5                        | 520                |            | Red    | 625              |           |
|                                                                                     | OPA731WD    | 18.0                        | 960                | 60°        | White  | 7000 °K          |           |

## OPA741—12 Watt Light Ring on Anotherm® Heat Spreader with Lens

Electrical / Optical Characteristics:  $T_A=25^{\circ}\text{C}$ ,  $I_F=700\text{mA}$  | Green dot Power Supply 1



| Part Number | Typical Forward Voltage (V) | Luminous Flux (lm) | Beam Angle | Color  | $\lambda_D$ (nm) | Package # |
|-------------|-----------------------------|--------------------|------------|--------|------------------|-----------|
| OPA741Y23   | 15.0                        | 357                | 23°        | Yellow | 587              | 229       |
| OPA741B23   | 21.6                        | 92                 |            | Blue   | 470              |           |
| OPA741G23   | 21.6                        | 490                |            | Green  | 530              |           |
| OPA741R23   | 15.0                        | 265                |            | Red    | 625              |           |
| OPA741W23   | 21.6                        | 490                |            | White  | 7000 °K          |           |

## OPA730—12 Watt Light Ring on Anotherm® Heat Spreader

Electrical / Optical Characteristics:  $T_A=25^{\circ}\text{C}$ ,  $I_F=700\text{mA}$  | Green dot Power Supply 1



| Part Number | Typical Forward Voltage (V) | Luminous Flux (lm) | Beam Angle | Color  | $\lambda_D$ (nm) | Package # |
|-------------|-----------------------------|--------------------|------------|--------|------------------|-----------|
| OPA730Y     | 15.0                        | 420                | 120°       | Yellow | 587              | 236       |
| OPA730B     | 21.6                        | 108                |            | Blue   | 470              |           |
| OPA730G     | 21.6                        | 576                |            | Green  | 530              |           |
| OPA730R     | 15.0                        | 312                |            | Red    | 625              |           |
| OPA730W     | 21.6                        | 576                |            | White  | 7000 °K          |           |
| OPA730YD    | 15.0                        | 420                | 40°        | Yellow | 587              | 237       |
| OPA730BD    | 21.6                        | 108                |            | Blue   | 470              |           |
| OPA730GD    | 21.6                        | 576                |            | Green  | 530              |           |
| OPA730RD    | 15.0                        | 312                |            | Red    | 625              |           |
| OPA730WD    | 21.6                        | 576                | 60°        | White  | 7000 °K          |           |

## OPA739—3 Watt Light Bar on Anotherm® Heat Spreader

Electrical / Optical Characteristics:  $T_A=25^{\circ}\text{C}$ ,  $I_F=350\text{mA}$  | Blue dot Power Supply 1



| Part Number | Typical Forward Voltage (V) | Luminous Flux (lm) | Beam Angle | Color  | $\lambda_D$ (nm) | Package # |
|-------------|-----------------------------|--------------------|------------|--------|------------------|-----------|
| OPA739Y     | 7.5                         | 105                | 120°       | Yellow | 587              | 230       |
| OPA739B     | 10.8                        | 27                 |            | Blue   | 470              |           |
| OPA739G     | 10.8                        | 144                |            | Green  | 530              |           |
| OPA739R     | 7.5                         | 78                 |            | Red    | 625              |           |
| OPA739W     | 10.8                        | 144                |            | White  | 7000 °K          |           |
| OPA739YD    | 7.5                         | 105                | 40°        | Yellow | 587              | 231       |
| OPA739BD    | 10.8                        | 27                 |            | Blue   | 470              |           |
| OPA739GD    | 10.8                        | 144                |            | Green  | 530              |           |
| OPA739RD    | 7.5                         | 78                 |            | Red    | 625              |           |
| OPA739WD    | 10.8                        | 144                | 60°        | White  | 7000 °K          |           |

## OPA742—1 Watt Light Spot on Anotherm® Heat Spreader with Lens

Electrical / Optical Characteristics:  $T_A=25^{\circ}\text{C}$ ,  $I_F=350\text{mA}$  I Blue dot Power Supply I

|  | Part Number | Typical Forward Voltage (V) | Luminous Flux (lm) | Beam Angle | Color  | $\lambda_D$ (nm) | Package # |
|-----------------------------------------------------------------------------------|-------------|-----------------------------|--------------------|------------|--------|------------------|-----------|
|                                                                                   | OPA742Y23   | 2.5                         | 22                 | 23°        | Yellow | 587              | 227       |
|                                                                                   | OPA742B23   | 3.6                         | 8                  |            | Blue   | 470              |           |
|                                                                                   | OPA742G23   | 3.6                         | 41                 |            | Green  | 530              |           |
|                                                                                   | OPA742R23   | 2.5                         | 30                 |            | Red    | 625              |           |
|                                                                                   | OPA742W23   | 3.6                         | 41                 |            | White  | 7000 °K          |           |

## OPA733—1 Watt Light Spot on Anotherm® Heat Spreader

Electrical / Optical Characteristics:  $T_A=25^{\circ}\text{C}$ ,  $I_F=350\text{mA}$  I Blue dot Power Supply I

|  | Part Number | Typical Forward Voltage (V) | Luminous Flux (lm) | Beam Angle | Color  | $\lambda_D$ (nm) | Package # |
|------------------------------------------------------------------------------------|-------------|-----------------------------|--------------------|------------|--------|------------------|-----------|
|                                                                                    | OPA733Y     | 2.5                         | 26                 | 120°       | Yellow | 587              | 238       |
|                                                                                    | OPA733B     | 3.6                         | 9                  |            | Blue   | 470              |           |
|                                                                                    | OPA733G     | 3.6                         | 48                 |            | Green  | 530              |           |
|                                                                                    | OPA733R     | 2.5                         | 35                 |            | Red    | 625              |           |
|                                                                                    | OPA733W     | 3.6                         | 48                 |            | White  | 7000 °K          |           |
|                                                                                    | OPA733YD    | 2.5                         | 26                 | 40°        | Yellow | 587              | 239       |
|                                                                                    | OPA733BD    | 3.6                         | 9                  |            | Blue   | 470              |           |
|                                                                                    | OPA733GD    | 3.6                         | 48                 |            | Green  | 530              |           |
|                                                                                    | OPA733RD    | 2.5                         | 35                 |            | Red    | 625              |           |
|                                                                                    | OPA733WD    | 3.6                         | 48                 | 60°        | White  | 7000 °K          |           |

## Power Cubes\*

|                                                                                     | Advance Part Number | Input Voltage | Input Power  | Output Current | Output Voltage  | Dot Color |
|-------------------------------------------------------------------------------------|---------------------|---------------|--------------|----------------|-----------------|-----------|
|  | LED-120A-0350C-33F  | 120 VAC 60 Hz | 15 Watts Max | 350 mA         | 2.6 to 32.6 VDC | Blue      |
|                                                                                     | LED-120A-0700C-24F  | 120 VAC 60 Hz | 17 Watts Max | 700 mA         | 7.8 to 24.6 VDC | Green     |
|  | LED-120A-1400C-24F  | 120 VAC 60 Hz | 51 Watts Max | 1400 mA        | 7.8 to 24.6 VDC | Red       |

\* Power Cubes may be purchased from:

Advance — 10275 Higgins Road — Rosemont, IL. 60018 — 800-322-2086

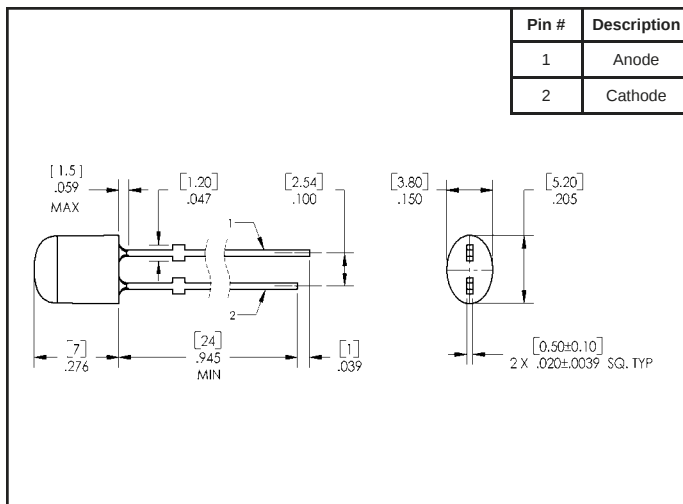
## OPTEK's In-House VLED Lab

We have a state-of-the-art in-house visible LED lab to help our customers make the transition from traditional light sources to solid-state solutions. Our expertise with the equipment and years of optical experience gives you:

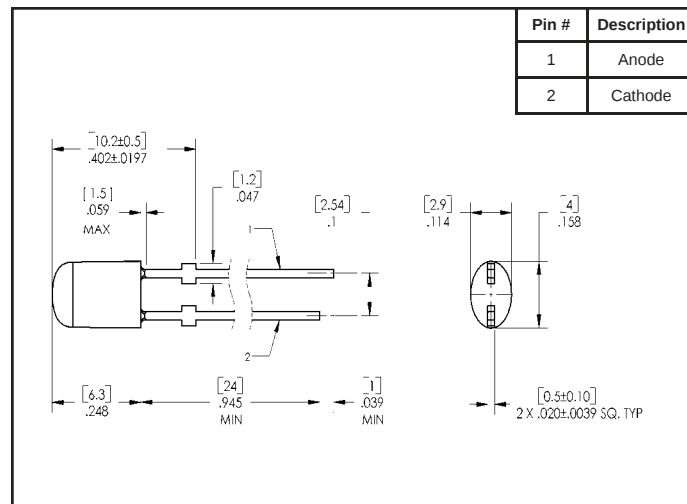
- Spectral analysis of LEDs in both ultraviolet and visible wavelength spectrums for analysis
- Detailed analysis on custom LED assemblies which validate the light output of the entire array as well as individual components
- Validation data for reliability testing as well as full-failure analysis
- Optimization of thermal management designs

The OPTEK visible LED lab enables us to provide you the full spectrum of data required to ensure your lighting designs are efficient, long lasting and at optimum light output.

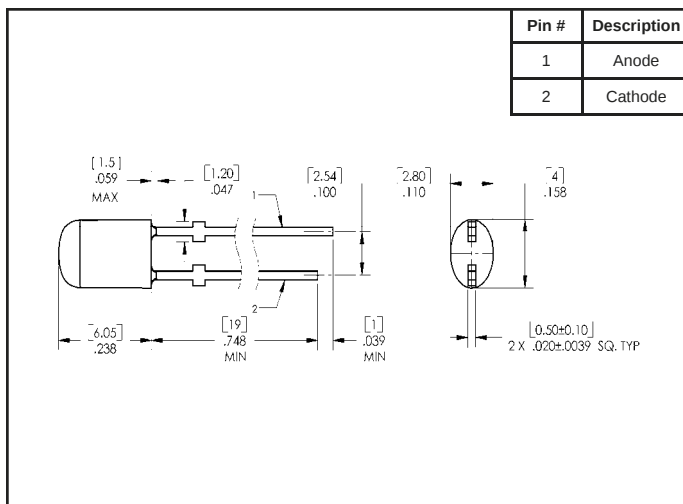




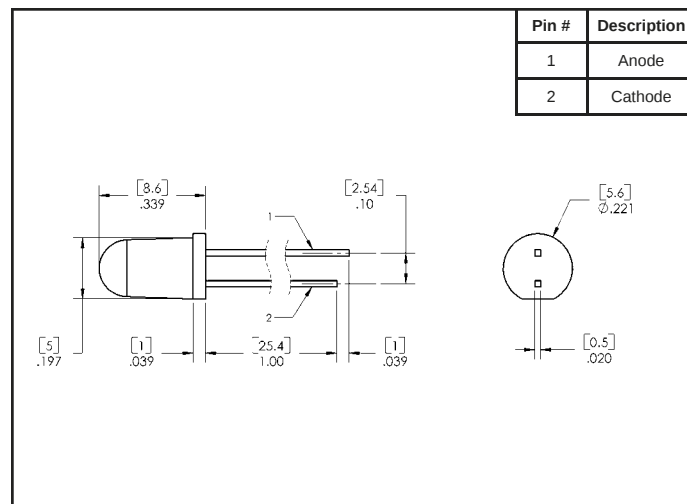
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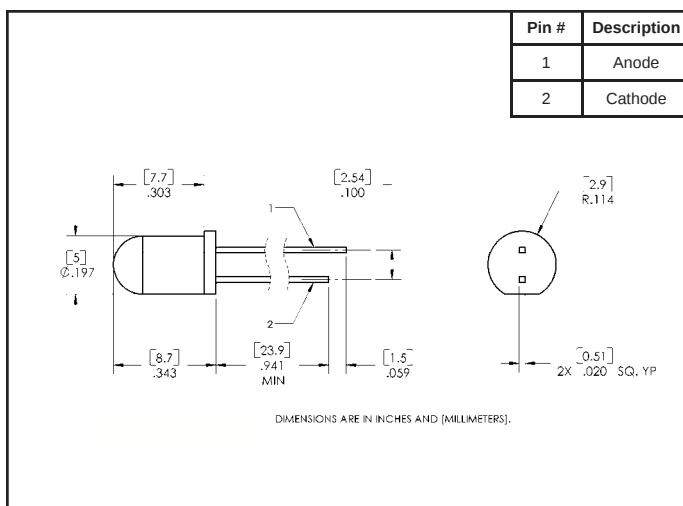
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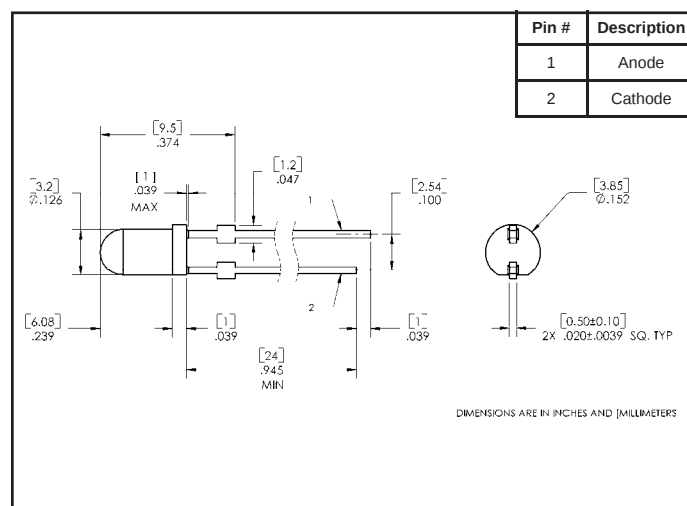
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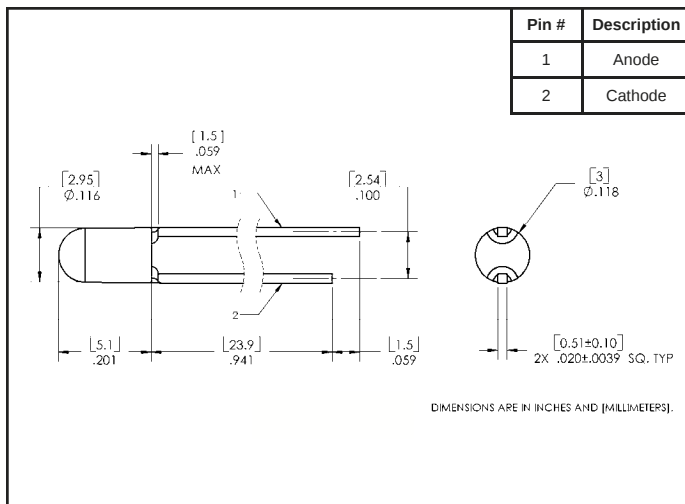


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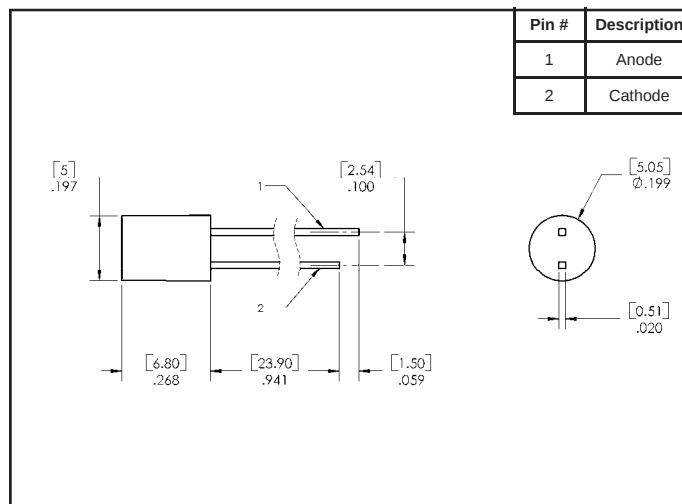


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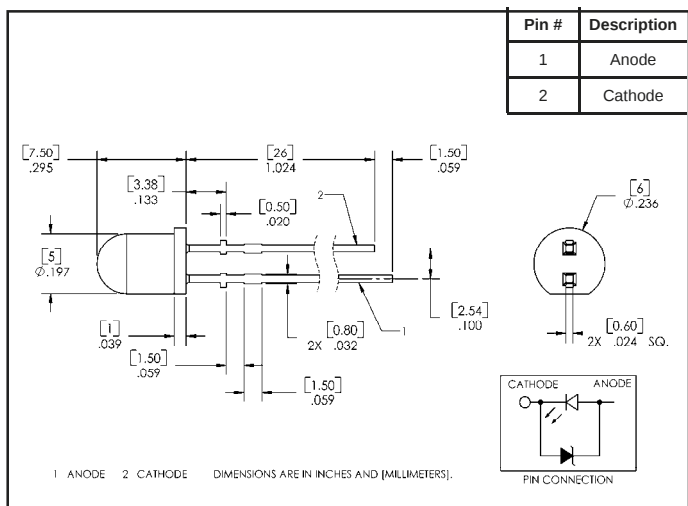
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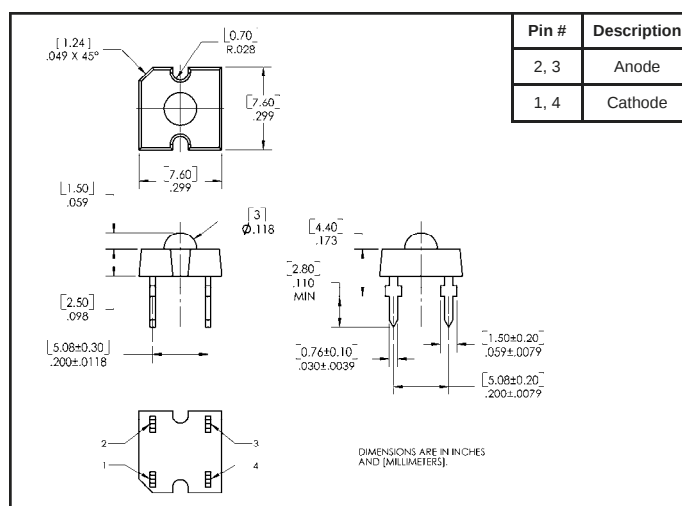
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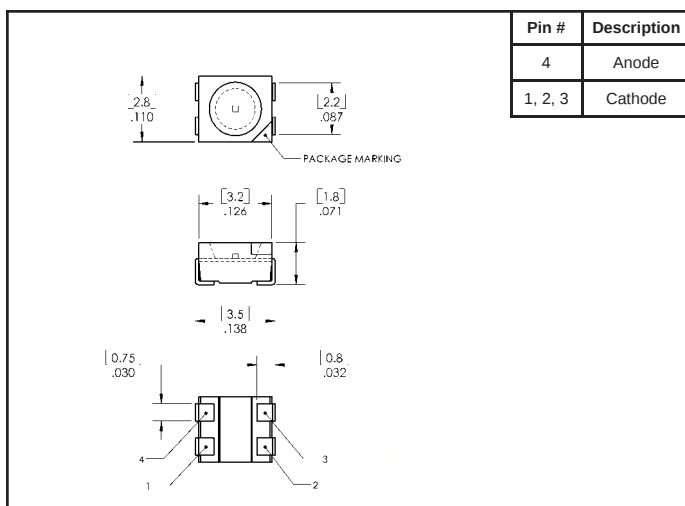
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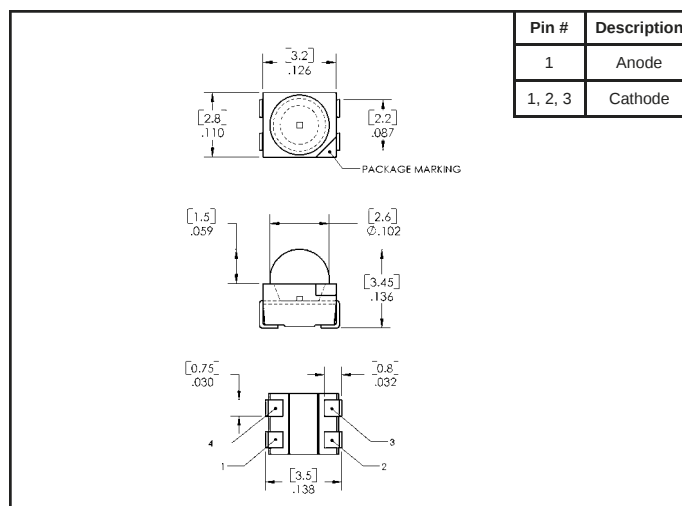
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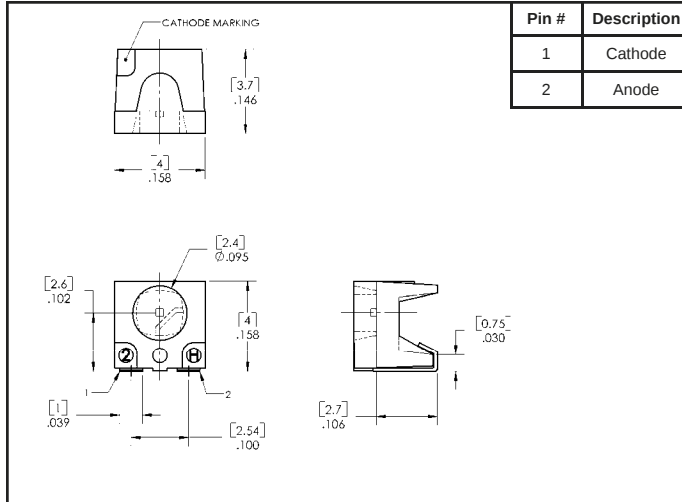
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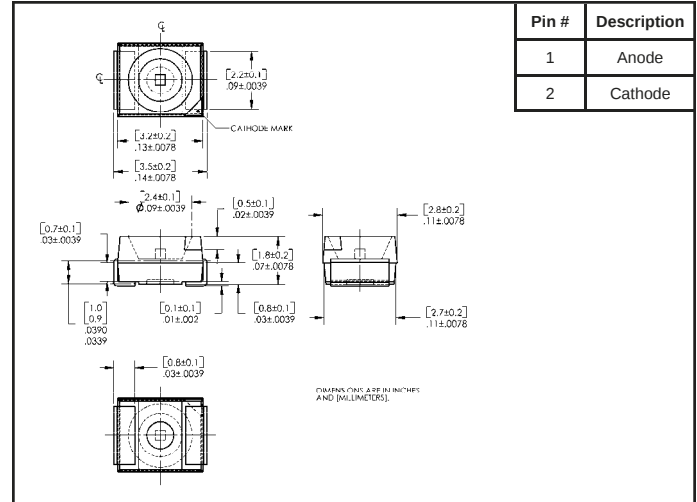
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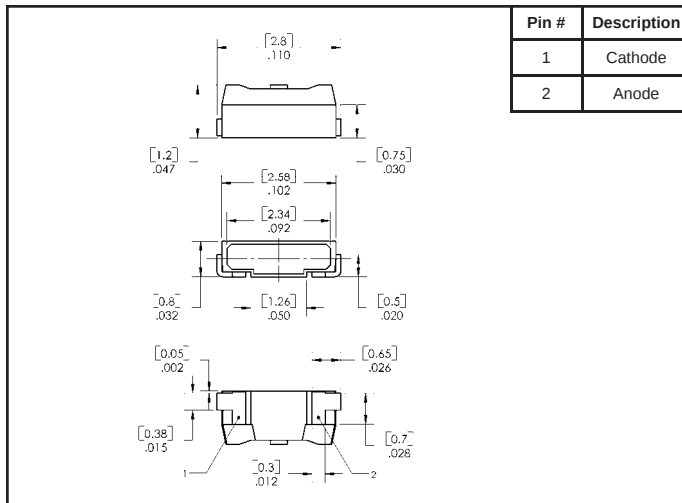
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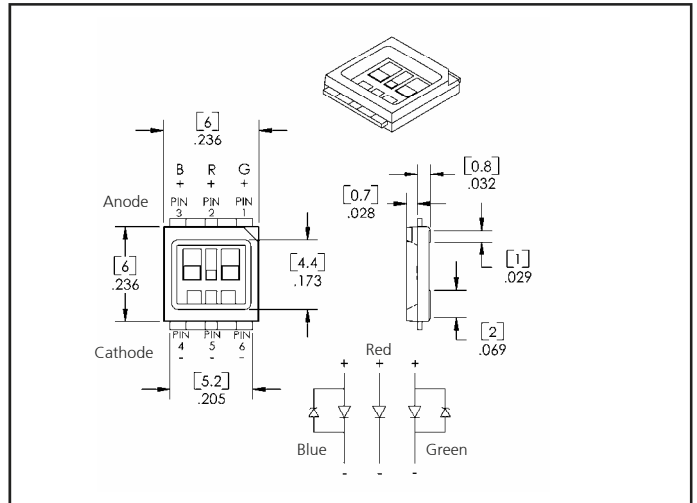
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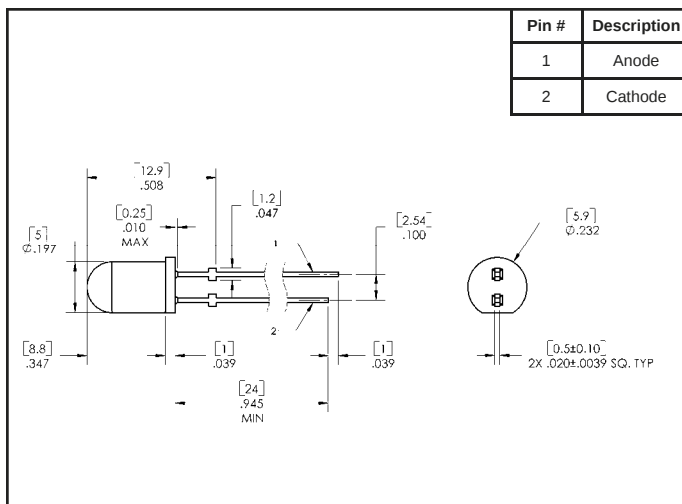
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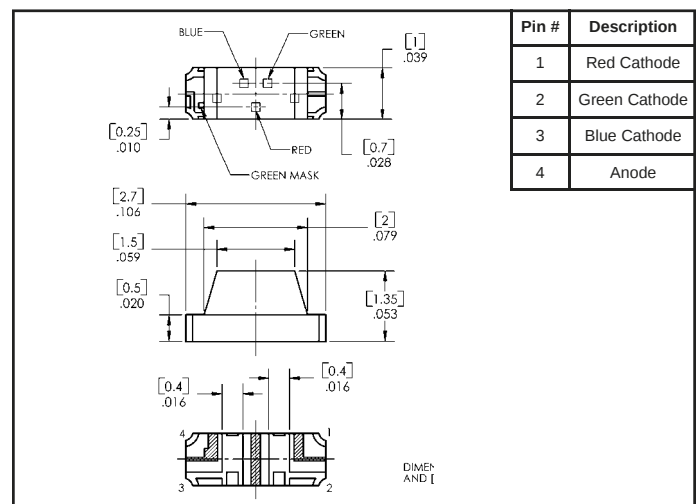
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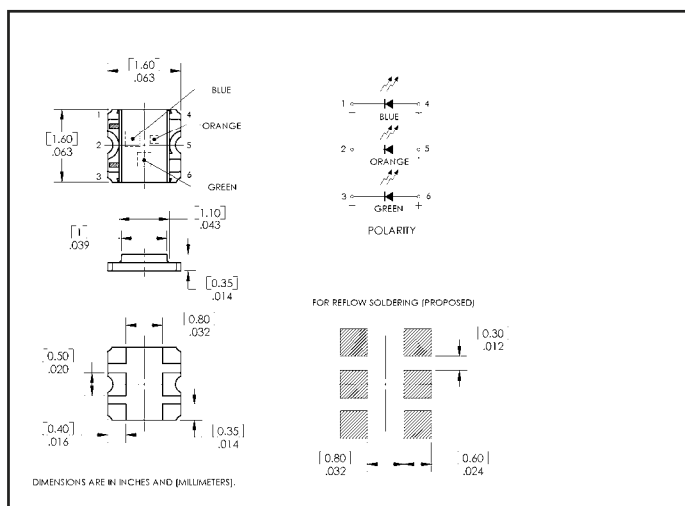


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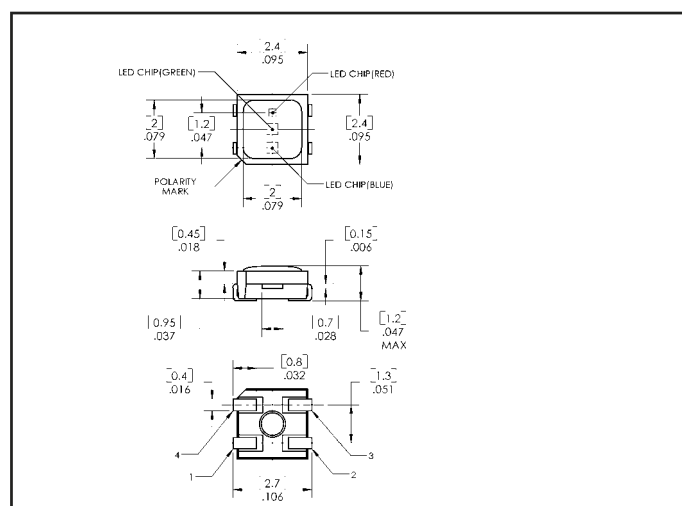


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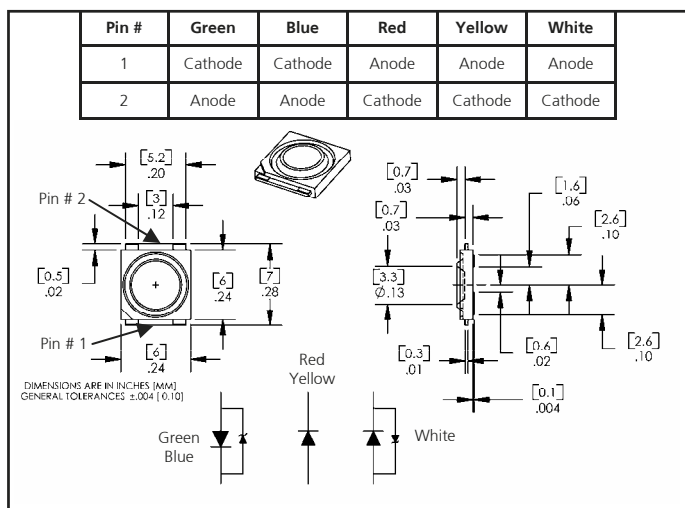
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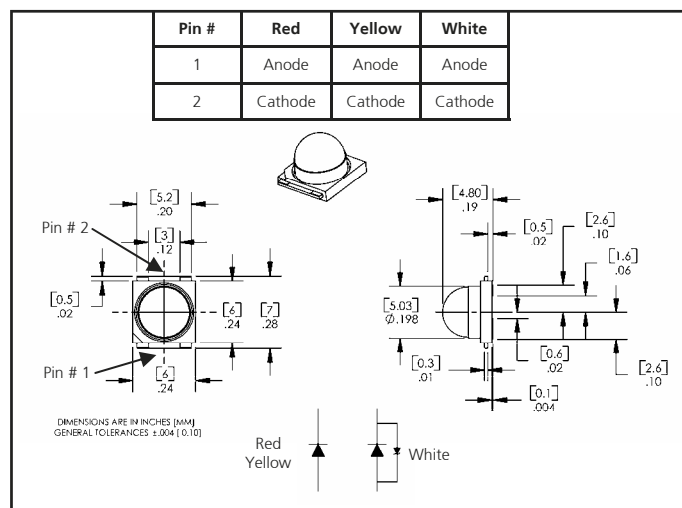
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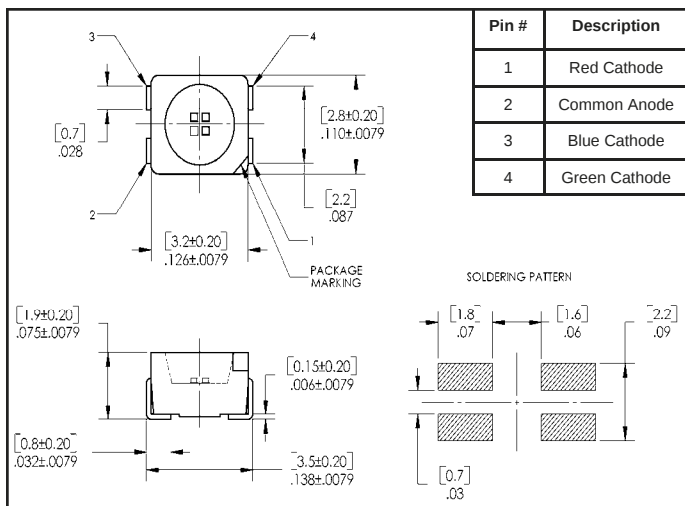
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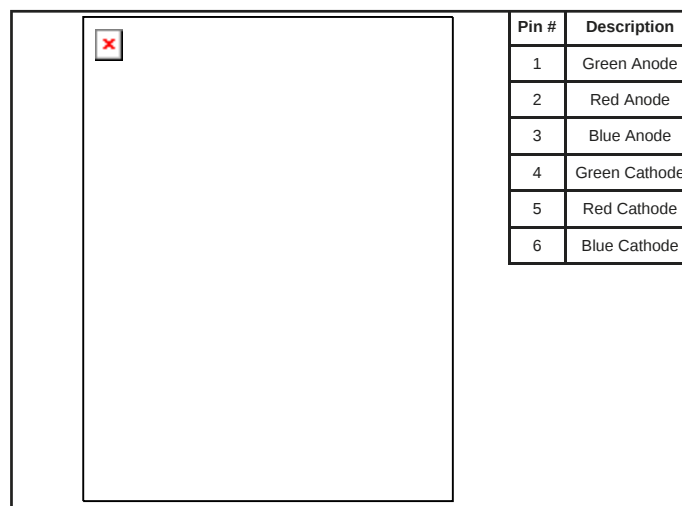
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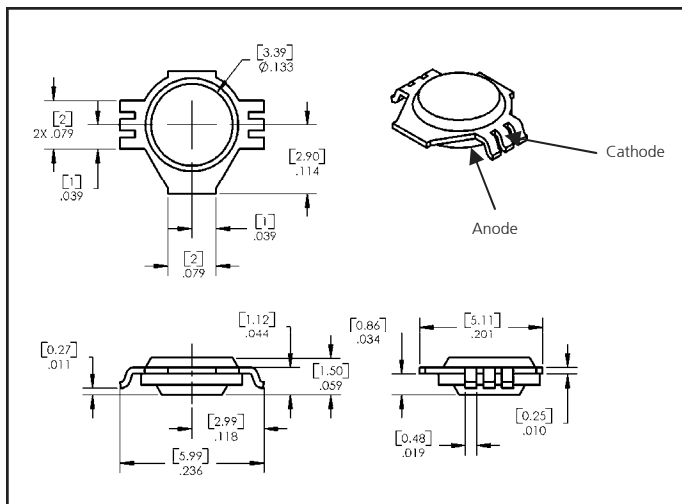
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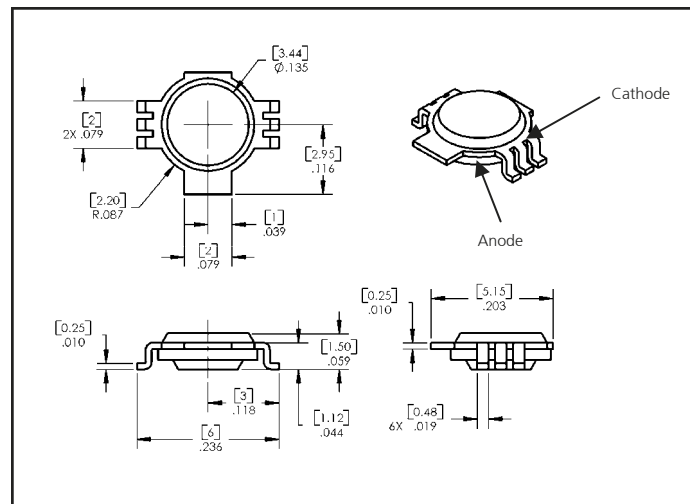
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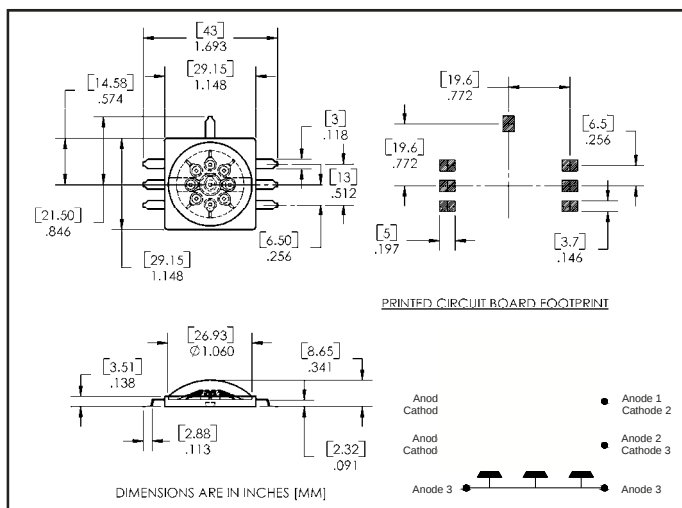
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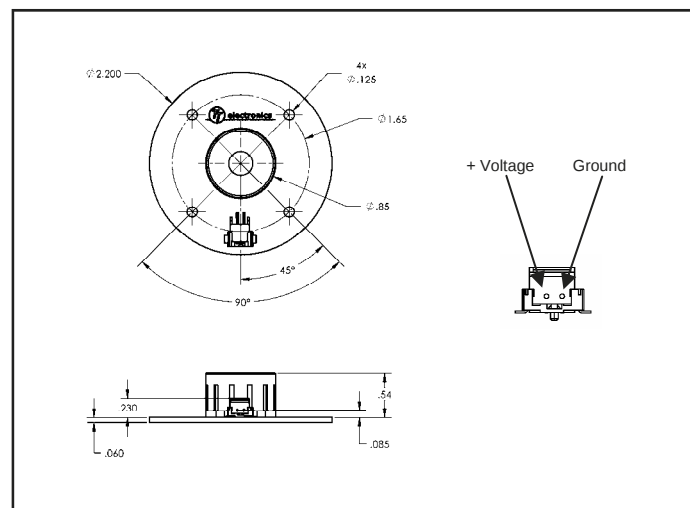
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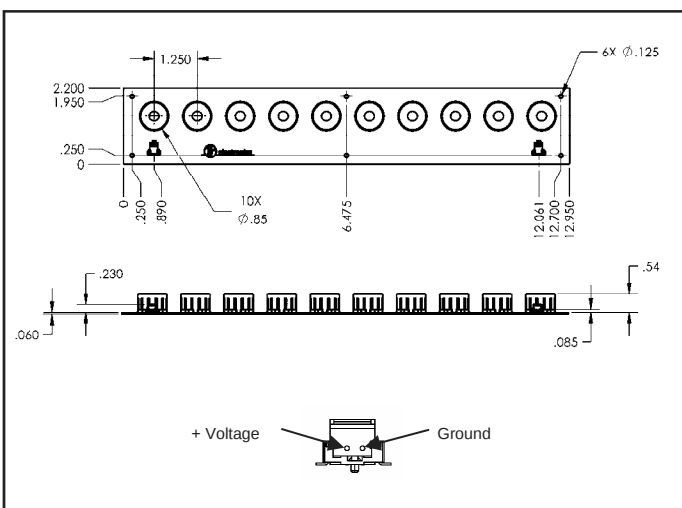
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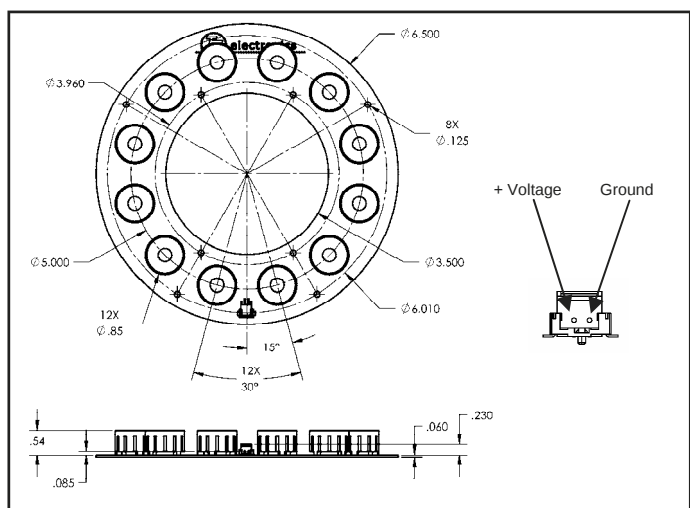
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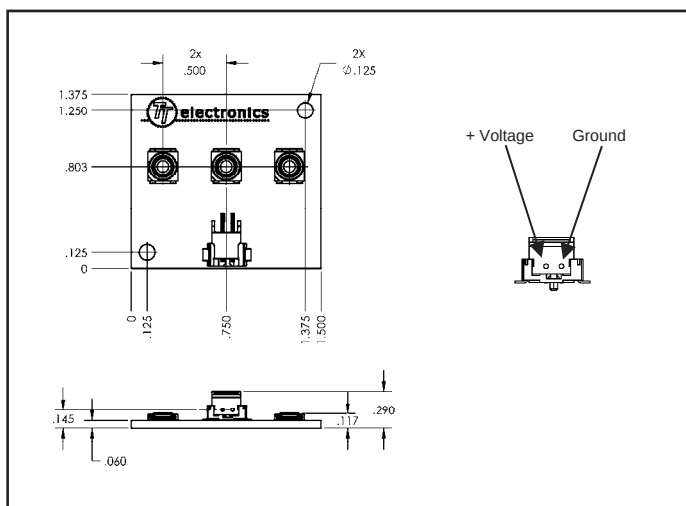


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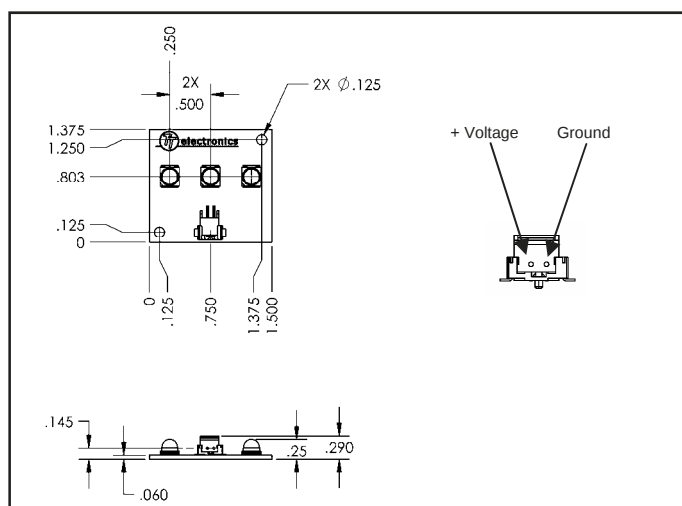


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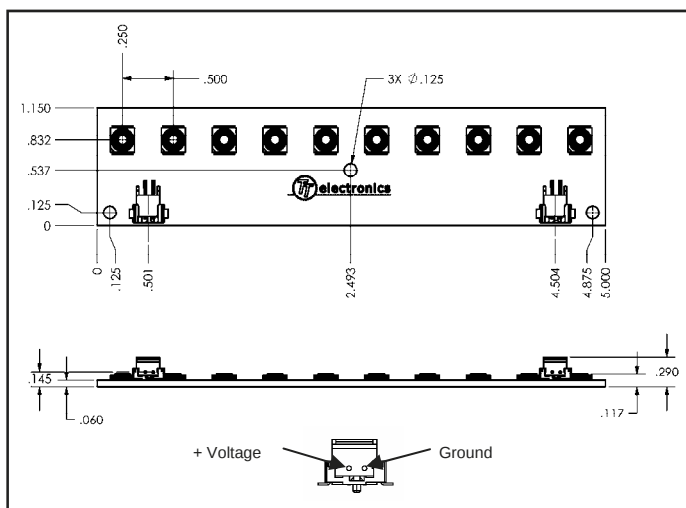
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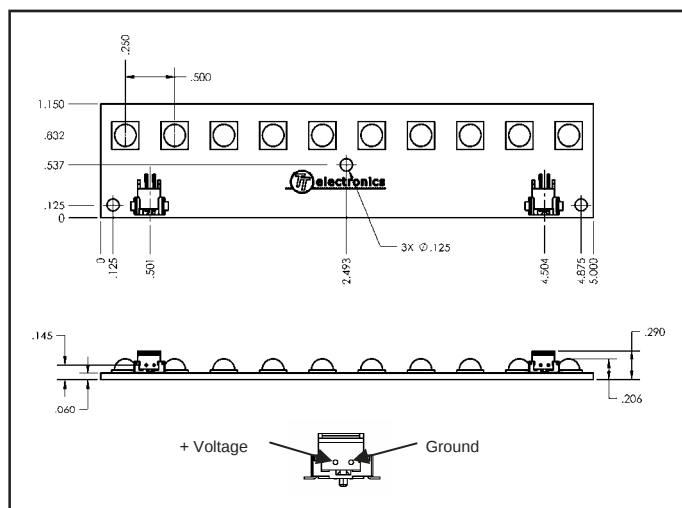
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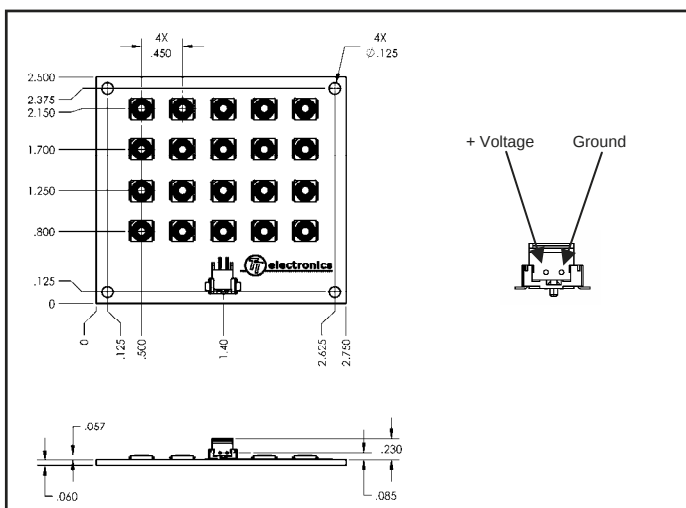
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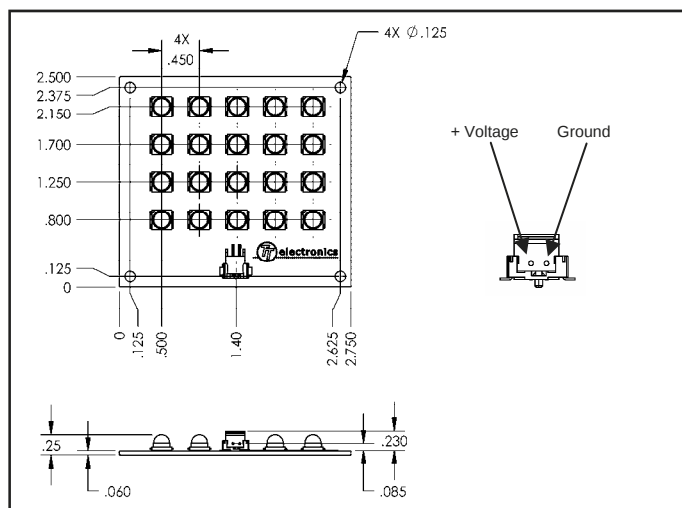
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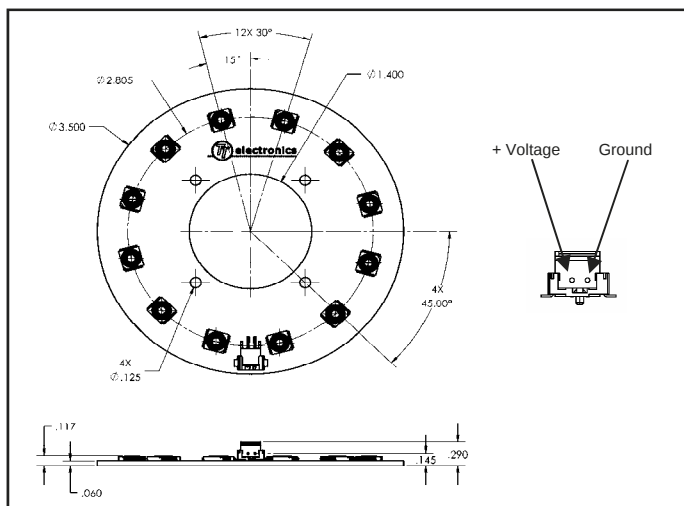
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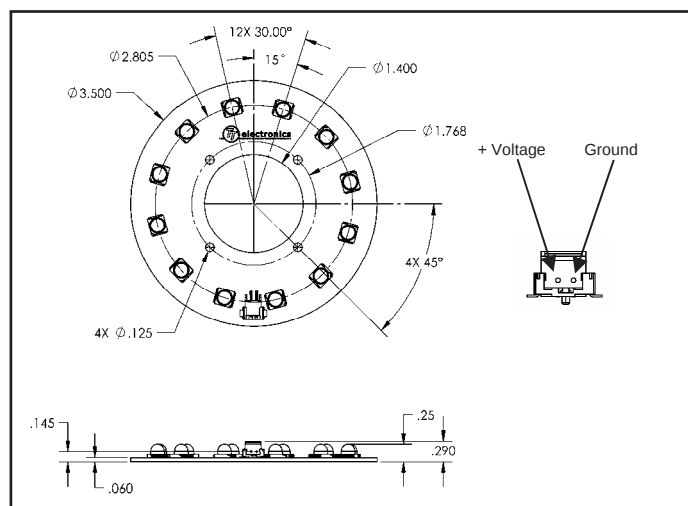
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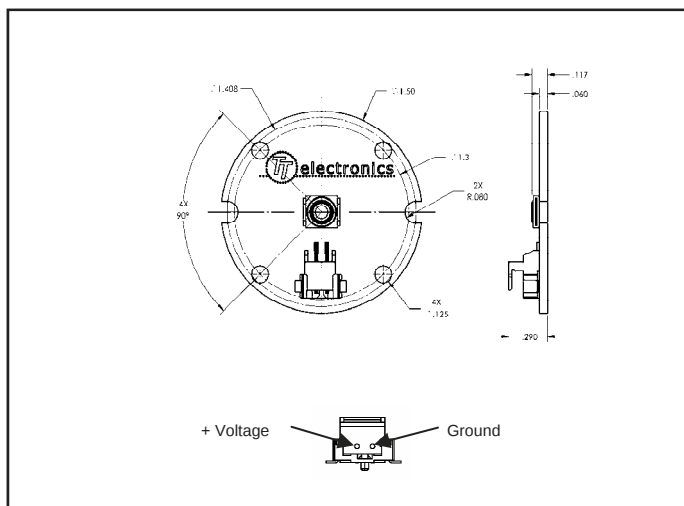
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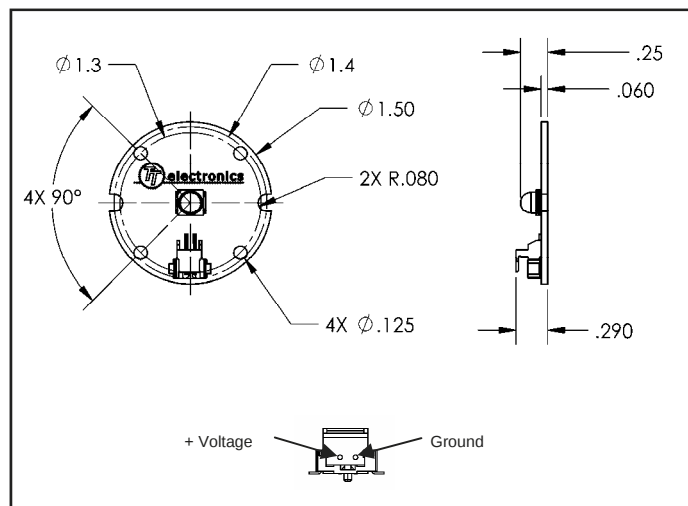
Package # 236



Package # 237



Package # 238



Package # 239

Notes:

Notes:



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