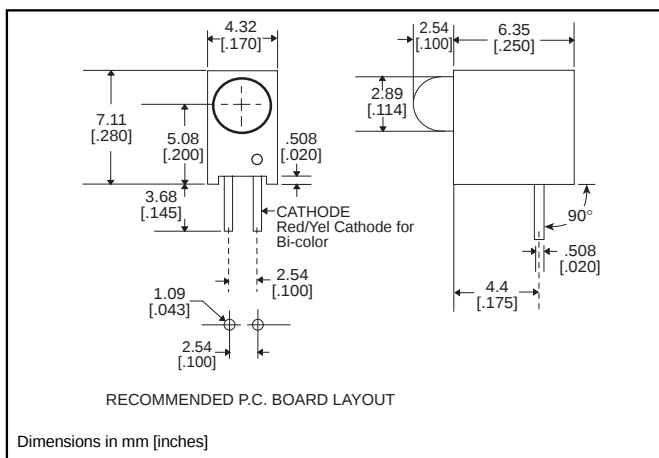


3mm

# LED CBI® Circuit Board Indicator .200" High LED Centerline

# Dialight

## 551-xx07



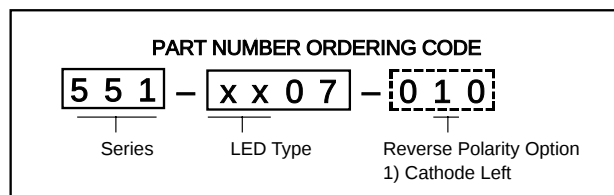
Standard Polarity shown in drawing: Cathode right

## Features

- Multiple CBIs form horizontal LED arrays on 4.45mm (0.175") center-lines
- High Contrast, UL 94 V-0 rated, black housing
- Oxygen index: 31.5%
- Polymer content: PBT, 0.188 g
- Housing stand-offs facilitate PCB cleaning
- Solderability per MIL-STD-202F, method 208F
- LEDs are safe for direct viewing per IEC 825-1, EN-60825-1
- Compatible with:  
551-xx07-004 QuadBlock

## Tolerance note: As noted, otherwise:

- LED Protrusion:  $\pm 0.04$  mm [ $\pm 0.016$ ]
- CBI Housing:  $\pm 0.02$ mm [ $\pm 0.008$ ]



-010 Ordering Code Suffix required ONLY for Reverse Polarity Option

## PART NO.

### HIGH EFFICIENCY

551-0207  
551-0307  
551-0407  
551-0807  
551-2507

## COLOR

Green  
Yellow  
Red  
Blue<sup>3</sup>  
Orange

**NEW**

### INTEGRAL RESISTOR, 5 VOLTS

551-0507  
551-0607  
551-0707

Red  
Green  
Yellow

### LOW CURRENT

551-1107  
551-1207  
551-1307

Red  
Yellow  
Green

4

### BI-COLOR

551-3007  
551-3107

Red/Green  
Yellow/Green

To order any of the 551-xx07 part numbers with Reverse Polarity (Cathode Left), please add -010 to the part numbers shown above.



**ATTENTION**  
OBSERVE PRECAUTIONS  
FOR HANDLING  
ELECTROSTATIC  
SENSITIVE  
DEVICES

Typical Operating Characteristics ( $T_A=25^{\circ}\text{C}$ )

See LED data sheet for additional information  
See page 4-70 and 4-71 for Reference Only LED Drive Circuit Examples. See page 4-72 for Pin Out

## HIGH EFFICIENCY

| Part Number | Color  | Peak Wavelength nm | $I_V$ mcd | $V_F$ Volts | Test Current (mA) | Viewing Angle $2\theta_{1/2}$ | LED Data sheet | Page # |
|-------------|--------|--------------------|-----------|-------------|-------------------|-------------------------------|----------------|--------|
| 551-0207    | Green  | 563                | 16        | 2.1         | 10                | 45°                           | 521-9408       | 4-64   |
| 551-0307    | Yellow | 585                | 6.3       | 2.1         | 10                | 45°                           | 521-9428       | 4-64   |
| 551-0407    | Red    | 650                | 10        | 2           | 10                | 45°                           | 521-9427       | 4-64   |
| 551-0807    | Blue   | 428                | 12        | 3.5         | 10                | 70°                           | 521-9831       | 4-57   |
| 551-2507    | Orange | 600                | 7         | 2.2         | 10                | 60°                           | 521-9498       | 4-58   |

## INTEGRAL RESISTOR, 5 VOLTS

| Part Number | Color  | Peak Wavelength nm | $I_V$ mcd | Test Voltage | Forward Current (mA) | Viewing Angle $2\theta_{1/2}$ | LED Data sheet | Page # |
|-------------|--------|--------------------|-----------|--------------|----------------------|-------------------------------|----------------|--------|
| 551-0507    | Red    | 635                | 29        | 5            | 10                   | 60°                           | 521-9215       | 4-59   |
| 551-0607    | Green  | 565                | 19        | 5            | 10                   | 60°                           | 521-9323       | 4-59   |
| 551-0707    | Yellow | 585                | 12.6      | 5            | 10                   | 60°                           | 521-9322       | 4-59   |

## LOW CURRENT

| Part Number | Color  | Peak Wavelength nm | $I_V$ mcd | $V_F$ Volts | Test Current (mA) | Viewing Angle $2\theta_{1/2}$ | LED Data sheet | Page # |
|-------------|--------|--------------------|-----------|-------------|-------------------|-------------------------------|----------------|--------|
| 551-1107    | Red    | 635                | 1.6       | 1.7         | 2                 | 60°                           | 521-9324       | 4-60   |
| 551-1207    | Yellow | 585                | 1.6       | 1.8         | 2                 | 60°                           | 521-9325       | 4-60   |
| 551-1307    | Green  | 565                | 1.6       | 1.9         | 2                 | 60°                           | 521-9326       | 4-60   |

## BI-COLOR

| Part Number | Color        | Peak Wavelength nm | $I_V$ mcd | $V_F$ Volts | Test Current (mA) | Viewing Angle $2\theta_{1/2}$ | LED Data sheet | Page # |
|-------------|--------------|--------------------|-----------|-------------|-------------------|-------------------------------|----------------|--------|
| 551-3007    | Red/Green    | 635/565            | 4.7/10    | 2/2.1       | 10                | 50°                           | 521-9459       | 4-63   |
| 551-3107    | Yellow/Green | 585/565            | 4.3/6.3   | 2.1*/2.1*   | 10                | 80°                           | 521-9478       | 4-62   |

\*  $I_F = 20\text{mA}$



3mm Discrete LED  
Tinted, Diffused



521-9831



**PART NO.**  
521-9831

**COLOR**  
Blue<sup>3</sup>

**MOUNTING CLIP:** 515-0006  
located on page 4-65



4

**ABSOLUTE MAXIMUM RATINGS** (T<sub>A</sub>=25°C)

Blue  
-9831

|                            |                                    |
|----------------------------|------------------------------------|
| Power Dissipation (mW)     | 100                                |
| Forward Current (mA)       | 20                                 |
| Derating (mA/°C) From 55°C | .44                                |
| Operating Temperature (°C) | -40/+100                           |
| Storage Temperature (°C)   | -40/+100                           |
| Soldering Temperature      | 260°C, 5 seconds, 1.6 mm from case |

Solder Adherence per MIL-STD-202E, Method 208C

**OPERATING CHARACTERISTICS** (T<sub>A</sub>=25°C)

Blue  
-9831

|                                          |         |     |
|------------------------------------------|---------|-----|
| Luminous Intensity (mcd)                 | Min.    | 6.3 |
| I <sub>F</sub> =10mA                     | Typical | 12  |
| Peak Wavelength (nm)                     | Typical | 428 |
| λ Peak                                   |         |     |
| Viewing Angle (2Θ½)                      | Typical | 70° |
| Forward Voltage (V)                      | Typical | 3.5 |
| I <sub>F</sub> =10mA                     | Max.    | 4.2 |
| Reverse Voltage (V) I <sub>R</sub> =10μA | Min.    | 3   |

Θ½ is the off axis angle at which the luminous intensity is half the axial luminous intensity

# 3mm Discrete LED

## High Efficiency

## Diffused

# Dialight

## 521-9210, -9211, -9216, -9498, -9636



### PART NO. COLOR

521-9210 Green

521-9211 Yellow

521-9216 Red

521-9498 Orange

521-9636 Red



**MOUNTING CLIP: 515-0006**  
located on page 4-65

| <b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A=25^\circ\text{C}$ ) | Green<br><b>-9210</b>              | Yellow<br><b>-9211</b> | Red<br><b>-9216</b> | Orange<br><b>-9498</b> | Red<br><b>-9636</b> |
|------------------------------------------------------------|------------------------------------|------------------------|---------------------|------------------------|---------------------|
| Power Dissipation (mW)                                     | 100                                | 60                     | 100                 | 135                    | 100                 |
| Forward Current (mA)                                       | 30                                 | 20                     | 30                  | 25                     | 40                  |
| Derating (mA/°C) From 50°C <sup>1</sup> from 25°C          | .4                                 | .25                    | .4                  | .5                     | .5 <sup>1</sup>     |
| Operating Temperature (°C)                                 | -55/+100                           | -55/+100               | -55/+100            | -55/+100               | -55/+100            |
| Storage Temperature (°C)                                   | -55/+100                           | -55/+100               | -55/+100            | -55/+100               | -55/+100            |
| Soldering Temperature                                      | 260°C, 5 seconds, 1.6 mm from body |                        |                     |                        |                     |

Solder Adherence per MIL-STD-202E, Method 208C

| <b>OPERATING CHARACTERISTICS</b> ( $T_A=25^\circ\text{C}$ ) |                         | Green<br><b>-9210</b> | Yellow<br><b>-9211</b> | Red<br><b>-9216</b> | Orange<br><b>-9498</b> | Red<br><b>-9636</b> |
|-------------------------------------------------------------|-------------------------|-----------------------|------------------------|---------------------|------------------------|---------------------|
| Luminous Intensity (mcd)                                    | Min.                    | 4.7                   | 7.4                    | 7.4                 | 3.4                    | 8.7 <sup>1</sup>    |
|                                                             | Typical                 | 12.6                  | 10                     | 10                  | 7                      | 48 <sup>1</sup>     |
| Peak Wavelength (nm)                                        | Typical                 | 565                   | 585                    | 635                 | 600                    | 660                 |
|                                                             | $\lambda_{\text{Peak}}$ |                       |                        |                     |                        |                     |
| Viewing Angle ( $2\theta^{\circ}$ )                         | Typical                 | 60°                   | 60°                    | 60°                 | 60°                    | 60°                 |
| Forward Voltage (V)                                         | Typical                 | 2.1 <sup>1</sup>      | 2.1 <sup>1</sup>       | 2 <sup>1</sup>      | 2.2                    | 1.8 <sup>1</sup>    |
|                                                             | Max.                    | 2.8 <sup>1</sup>      | 2.8 <sup>1</sup>       | 2.8 <sup>1</sup>    | 3                      | 2.4 <sup>1</sup>    |
| Reverse Voltage (V), $I_R=100\mu\text{A}$                   | Max.                    | 5                     | 5                      | 5                   | 5                      | 4                   |

<sup>1</sup>  $\theta$  is the off axis angle at which the luminous intensity is half the axial luminous intensity

# 3mm Discrete LED Integral Resistor, 5V Diffused

# Dialight

## 521-9215, -9322, -9323



### PART NO.

521-9215  
521-9322  
521-9323

### COLOR

Red  
Yellow  
Green

**MOUNTING CLIP:** 515-0006  
located on page 4-65

4

### ABSOLUTE MAXIMUM RATINGS (T<sub>A</sub>=25°C)

|                                                  | Red<br>-9215                       | Yellow<br>-9322 | Green<br>-9323 |
|--------------------------------------------------|------------------------------------|-----------------|----------------|
| Forward Voltage (V)<br>Derating (V/°C) From 50°C | 7.5<br>.086                        | 7.5<br>.086     | 7.5<br>.071    |
| Operating Temperature (°C)                       | -40/+85                            | -40/+85         | -20/+85        |
| Storage Temperature (°C)                         | -55/+100                           | -55/+100        | -55/+100       |
| Soldering Temperature                            | 260°C, 5 seconds, 1.6 mm from case |                 |                |

Solder Adherence per MIL-STD-202E, Method 208C

### OPERATING CHARACTERISTICS (T<sub>A</sub>=25°C)

|                                                |                 | Red<br>-9215 | Yellow<br>-9322 | Green<br>-9323 |
|------------------------------------------------|-----------------|--------------|-----------------|----------------|
| Luminous Intensity (mcd)<br>V <sub>F</sub> =5V | Min.<br>Typical | 8.7<br>29    | 3.7<br>12.6     | 5.6<br>19      |
| Peak Wavelength (nm)<br>λ Peak                 | Typical         | 635          | 585             | 565            |
| Viewing Angle (2Θ½)                            | Typical         | 60°          | 60°             | 60°            |
| Forward Current (mA)<br>V <sub>F</sub> =5V     | Typical<br>Max. | 10<br>20     | 10<br>20        | 10<br>20       |
| Reverse Voltage (V), I <sub>R</sub> =100μA     | Min.            | 5            | 5               | 5              |

Θ½ is the off axis angle at which the luminous intensity is half the axial luminous intensity

# 3mm Discrete LED

## Low Current

## Diffused

# Dialight

## 521-9324, -9325, -9326



### PART NO.

### COLOR

521-9324

Red

521-9325

Yellow

521-9326

Green

**MOUNTING CLIP:** 515-0006  
located on page 4-65

### ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ )

|                                                          | Red<br>-9324                                       | Yellow<br>-9325 | Green<br>-9326 |
|----------------------------------------------------------|----------------------------------------------------|-----------------|----------------|
| Power Dissipation (mW)                                   | 20                                                 | 20              | 20             |
| Forward Current (mA)                                     | 7                                                  | 7               | 7              |
| Derating (mA/ $^\circ\text{C}$ ) From $90^\circ\text{C}$ | .7                                                 | .7              | .7             |
| Peak Current (mA)<br>Pulse width = 10 $\mu\text{s}$      | 500                                                | 500             | 500            |
| Operating Temperature ( $^\circ\text{C}$ )               | -55/+100                                           | -55/+100        | -55/+100       |
| Storage Temperature ( $^\circ\text{C}$ )                 | -55/+100                                           | -55/+100        | -55/+100       |
| Soldering Temperature                                    | 260 $^\circ\text{C}$ , 5 seconds, 1.6 mm from case |                 |                |

Solder Adherence per MIL-STD-202E, Method 208C

### OPERATING CHARACTERISTICS ( $T_A=25^\circ\text{C}$ )

|                                          |         | Red<br>-9324 | Yellow<br>-9325 | Green<br>-9326 |
|------------------------------------------|---------|--------------|-----------------|----------------|
| Luminous Intensity (mcd)                 | Min.    | 1            | 1               | 1              |
|                                          | Typical | 1.6          | 1.6             | 1.6            |
| Peak Wavelength (nm)                     | Typical | 635          | 585             | 565            |
| $\lambda$ Peak                           |         |              |                 |                |
| Viewing Angle ( $2\theta$ $^\circ$ )     | Typical | 60 $^\circ$  | 60 $^\circ$     | 60 $^\circ$    |
| Forward Voltage (V)                      | Typical | 1.7          | 1.8             | 1.9            |
|                                          | Max.    | 2.2          | 2.7             | 2.2            |
| Reverse Voltage (V), $I_R=50\mu\text{A}$ | Min.    | 5            | 5               | 5              |

$\theta$  is the off axis angle at which the luminous intensity is half the axial luminous intensity

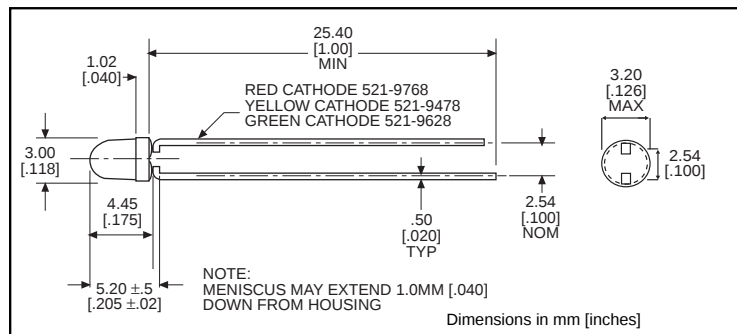
# 3mm Discrete LED

## Bi-Color

### Non-Tinted, Diffused

# Dialight

## 521-9478, -9628, -9768



| PART NO. | COLOR        |
|----------|--------------|
| 521-9478 | Yellow/Green |
| 521-9628 | Red/Green    |
| 521-9768 | Red/Yellow   |

**MOUNTING CLIP:** 515-0006  
located on page 4-65

| <b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A=25^{\circ}\text{C}$ )                                        | Yellow/Green<br><b>-9478</b>                          | Red/Green<br><b>-9628</b> | Red/Yellow<br><b>-9768</b>        |
|-----------------------------------------------------------------------------------------------------|-------------------------------------------------------|---------------------------|-----------------------------------|
| Power Dissipation (mW)                                                                              | 60/100                                                | 140/100                   | 100/60                            |
| Forward Current (mA)                                                                                | 20/30                                                 | 40/30                     | 30/20                             |
| Derating (mA/ $^{\circ}\text{C}$ ) From $25^{\circ}\text{C}$ <sup>1</sup> From $50^{\circ}\text{C}$ | .25 <sup>1</sup> /.40 <sup>1</sup>                    | .5/.4                     | .4 <sup>1</sup> /.25 <sup>1</sup> |
| Peak Current (mA)<br>Pulse width = 10 $\mu\text{s}$                                                 | 80/120                                                | 200/120                   | 120/80                            |
| Operating Temperature ( $^{\circ}\text{C}$ )                                                        | -55/+100                                              | -55/+100                  | -55/+100                          |
| Storage Temperature ( $^{\circ}\text{C}$ )                                                          | -55/+100                                              | -55/+100                  | -55/+100                          |
| Soldering Temperature                                                                               | 260 $^{\circ}\text{C}$ , 5 seconds, 1.66 mm from case |                           |                                   |

Solder Adherence per MIL-STD-202E, Method 208C

| <b>OPERATING CHARACTERISTICS</b> ( $T_A=25^{\circ}\text{C}$ ) |                 | Yellow/Green<br><b>-9478</b> | Red/Green<br><b>-9628</b> | Red/Yellow<br><b>-9768</b> |
|---------------------------------------------------------------|-----------------|------------------------------|---------------------------|----------------------------|
| Luminous Intensity (mcd)                                      | Min.            | 2.5/2.5                      | 3.7*/1.1*                 | 1.7*/1.7*                  |
|                                                               | Typical         | 4.3/6.3                      | 12.6*/3.7*                | 5.6*/5.6*                  |
| Peak Wavelength (nm)<br>$\lambda$ Peak                        | Typical         | 585/565                      | 660/565                   | 630/585                    |
| Viewing Angle ( $2\theta^{\circ}$ )                           | Typical         | 80 $^{\circ}$                | 200 $^{\circ}$            | 80 $^{\circ}$              |
| Forward Voltage (V)<br>$I_F=20\text{mA}$                      | Typical<br>Max. | 2.1/2.1<br>2.8/2.8           | 1.8/2.1<br>2.4/2.8        | 2/2.1<br>2.8/2.8           |
| Reverse Voltage (V) $I_R=100\text{ua}$                        | Min.            | 5                            | 5                         | 5                          |

$\theta^{\circ}$  is the off axis angle at which the luminous intensity is half the axial luminous intensity

3mm Discrete LED  
Bi-Color  
Non-Tinted, Diffused

Dialight

521-9459



**PART NO.** 521-9459  
**COLOR** Red/Green

**MOUNTING CLIP:** 515-0006  
located on page 4-65

4

| <b>ABSOLUTE MAXIMUM RATINGS</b> (T <sub>A</sub> =25°C) |  | Red/Green<br><b>-9459</b>          |
|--------------------------------------------------------|--|------------------------------------|
| Power Dissipation (mW)                                 |  | 140                                |
| Forward Current (mA)                                   |  | 45                                 |
| Derating (mA/°C) <i>From 25°C</i>                      |  | .6                                 |
| Peak Current (mA)<br><i>Pulse width = 10μs</i>         |  | 1000                               |
| Operating Temperature (°C)                             |  | -55/+100                           |
| Storage Temperature (°C)                               |  | -55/+100                           |
| Soldering Temperature                                  |  | 260°C, 5 seconds, 1.6 mm from case |
| <i>Solder Adherence per MIL-STD-202E, Method 208C</i>  |  |                                    |

| <b>OPERATING CHARACTERISTICS</b> ( $T_A=25^{\circ}\text{C}$ ) |         | Red/Green<br>-9459 |
|---------------------------------------------------------------|---------|--------------------|
| Luminous Intensity (mcd)                                      | Min.    | 2.5/3.7            |
| $I_F=10\text{mA}$                                             | Typical | 4.7/10             |
| Peak Wavelength (nm)                                          | Typical | 635/565            |
| $\lambda$ Peak                                                |         |                    |
| Viewing Angle ( $2\theta_{1/2}$ )                             | Typical | 50°                |
| Forward Voltage (V)                                           | Typical | 2/2.1              |
| $I_F=10\text{mA}$                                             | Max.    | 2.8/2.8            |

$\theta_{1/2}$  is the off axis angle at which the luminous intensity is half the axial luminous intensity

# 3mm Discrete LED High Efficiency Diffused

# Dialight

## 521-94xx



**TYPE**  
 521-9408  
 521-9427  
 521-9428

**COLOR**  
 Green  
 Red  
 Yellow

**MOUNTING CLIP:** 515-0006  
 located on page 4-65

### ABSOLUTE MAXIMUM RATINGS ( $T_A=25^\circ\text{C}$ )

|                                                          | Green<br><b>-9408</b>                              | Red<br><b>-9427</b> | Yellow<br><b>-9428</b> |
|----------------------------------------------------------|----------------------------------------------------|---------------------|------------------------|
| Power Dissipation (mW)                                   | 75                                                 | 60                  | 60                     |
| Forward Current (mA)                                     | 25                                                 | 20                  | 20                     |
| Derating (mA/ $^\circ\text{C}$ ) From $50^\circ\text{C}$ | .5                                                 | .5                  | .5                     |
| Peak Current (mA)                                        | 60                                                 | 60                  | 60                     |
| Operating Temperature ( $^\circ\text{C}$ )               | -25/+85                                            | -25/+85             | -25/+85                |
| Storage Temperature ( $^\circ\text{C}$ )                 | -30/+100                                           | -30/+100            | -30/+100               |
| Soldering Temperature                                    | 260 $^\circ\text{C}$ , 5 seconds, 1.6 mm from case |                     |                        |

Solder Adherence per MIL-STD-202E, Method 208C

### OPERATING CHARACTERISTICS ( $T_A=25^\circ\text{C}$ )

|                                          |         | Green<br><b>-9408</b> | Red<br><b>-9427</b> | Yellow<br><b>-9428</b> |
|------------------------------------------|---------|-----------------------|---------------------|------------------------|
| Luminous Intensity (mcd)                 | Min.    | 5.6                   | 3.6                 | 2.2                    |
|                                          | Typical | 16                    | 10                  | 6.3                    |
| Peak Wavelength (nm)                     | Typical | 563                   | 650                 | 585                    |
| $\lambda$ Peak                           |         |                       |                     |                        |
| Viewing Angle ( $2\theta^{1/2}$ )        | Typical | 45 $^\circ$           | 45 $^\circ$         | 45 $^\circ$            |
| Forward Voltage (V)                      | Typical | 2.1                   | 2                   | 2.1                    |
|                                          | Max.    | 3                     | 3                   | 3                      |
| Reverse Voltage (V), $I_R=10\mu\text{A}$ | Min.    | 3                     | 3                   | 3                      |

$\theta^{1/2}$  is the off axis angle at which the luminous intensity is half the axial luminous intensity