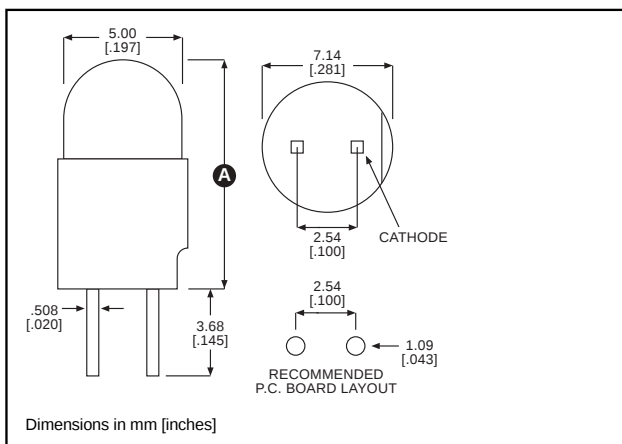


5mm

# LED CBI® Circuit Board Indicator Vertical, Various Heights

**Dialight**

**561-xx0x-xxx**



## Features

- Multiple CBIs form horizontal LED arrays on 7.24mm (0.285") center-lines.
- 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
- High Contrast, UL 94 V-0 rated, black housing
- Oxygen index: 29%(all sizes)

## Custom Devices

- Contact factory for other LED types or alternate heights

## Tolerance note: As noted, otherwise:

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

## PART NO.

### INTEGRAL RESISTOR, 5 VOLTS

561-0104-xxx

## COLOR

Red

### LOW CURRENT

561-1101-xxx

Red

561-1201-xxx

Yellow

561-1301-xxx

Green

### HIGH EFFICIENCY

561-0901-xxx

Orange

561-2101-xxx

Red

561-2201-xxx

Green

561-2301-xxx

Yellow

### HIGH EFFICIENCY, TINTED, NON DIFFUSED

561-2401-xxx

Red

561-2501-xxx

Green

561-2601-xxx

Yellow

### SUPER BRIGHT, DIFFUSED

561-5101-xxx

Red

561-5201-xxx

Green

561-5301-xxx

Yellow

### SUPER BRIGHT, WATER CLEAR (Non-Tinted, Non-Diffused)

561-5501-xxx

Red

561-5601-xxx

Green

561-5701-xxx

Yellow

### BI-COLOR

561-3001-xxx

Red/Green

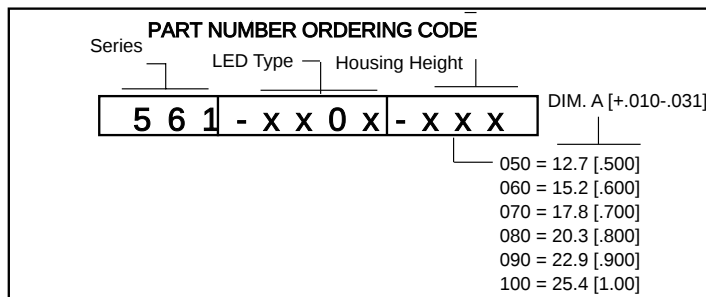
561-3101-xxx

Yellow/Green

6

NEW

NEW



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

See LED data sheet for additional information

**INTEGRAL RESISTOR, 5 VOLTS** See page 6-55 and 6-56 for Reference Only LED Drive Circuit Examples. See page 6-57 for Pin Out

| Part Number  | Color | Peak Wavelength nm | $I_V$ mcd | Test Voltage | Forward Current (mA) | Viewing Angle $2\theta_{1/2}$ | LED Data sheet | Page # |
|--------------|-------|--------------------|-----------|--------------|----------------------|-------------------------------|----------------|--------|
| 561-0104-xxx | Red   | 635                | 8         | 5            | 10                   | 60°                           | 521-9183       | 6-41   |

## 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 # |
|--------------|--------|--------------------|-----------|-------------|-------------------|-------------------------------|----------------|--------|
| 561-1101-xxx | Red    | 635                | 2         | 1.8         | 2                 | 50°                           | 521-9320       | 6-42   |
| 561-1201-xxx | Yellow | 583                | 1.8       | 1.9         | 2                 | 50°                           | 521-9321       | 6-42   |
| 561-1301-xxx | Green  | 565                | 1.8       | 1.8         | 2                 | 50°                           | 521-9327       | 6-42   |

## 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 # |
|--------------|--------|--------------------|-----------|-------------|-------------------|-------------------------------|----------------|--------|
| 561-0901-xxx | Orange | 600                | 7         | 1.9         | 10                | 60°                           | 521-9704       | 6-43   |
| 561-2101-xxx | Red    | 635                | 7         | 2.2         | 10                | 60°                           | 521-9246       | 6-43   |
| 561-2201-xxx | Green  | 565                | 32        | 2*          | 10                | 50°                           | 5HD-9270-2     | 6-49   |
| 561-2301-xxx | Yellow | 590                | 10        | 2.4*        | 10                | 70°                           | 5HD-9271-2     | 6-49   |

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

## HIGH EFFICIENCY, TINTED, NON-DIFFUSED

| 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 # |
|--------------|--------|--------------------|-----------|-------------|-------------------|-------------------------------|----------------|--------|
| 561-2401-xxx | Red    | 635                | 60        | 2.2         | 10                | 35°                           | 521-9247       | 6-44   |
| 561-2501-xxx | Green  | 565                | 70        | 2.3         | 10                | 24°                           | 521-9251       | 6-44   |
| 561-2601-xxx | Yellow | 583                | 50        | 2.2         | 10                | 35°                           | 521-9249       | 6-44   |

## SUPER BRIGHT, DIFFUSED

| 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 # |
|--------------|--------|--------------------|-----------|-------------|-------------------|-------------------------------|----------------|--------|
| 561-5101-xxx | Red    | 650                | 34        | 2.1         | 20                | 50°                           | 5SD-9441       | 6-53   |
| 561-5201-xxx | Green  | 563                | 34        | 2.2         | 20                | 50°                           | 5SD-9456       | 6-53   |
| 561-5301-xxx | Yellow | 585                | 34        | 2.2         | 20                | 50°                           | 5SD-9455       | 6-53   |

## SUPER BRIGHT, WATER CLEAR (NON-TINTED, NON-DIFFUSED)

| 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 # |
|--------------|--------|--------------------|-----------|-------------|-------------------|-------------------------------|----------------|--------|
| 561-5501-xxx | Red    | 635                | 125       | 2.2         | 20                | 24°                           | 521-9464       | 6-47   |
| 561-5601-xxx | Green  | 565                | 120       | 2.3         | 20                | 24°                           | 521-9465       | 6-47   |
| 561-5701-xxx | Yellow | 583                | 140       | 2.2         | 20                | 24°                           | 521-9466       | 6-47   |

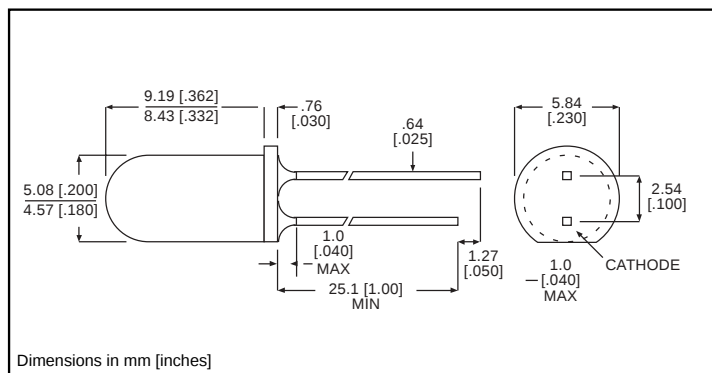
## BI-COLOR

| 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 # |
|--------------|--------------|--------------------|-----------|-------------|-------------------|-------------------------------|----------------|--------|
| 561-3001-xxx | Red/Green    | 660/565            | 90/40     | 1.8/2.1     | 20                | 60°                           | 521-9651       | 6-46   |
| 561-3101-xxx | Yellow/Green | 585/565            | 8.7/8.7   | 2.1/2.1     | 20                | 50°                           | 521-9724       | 6-46   |

# 5mm Discrete LED Integral Resistor, 5 Volts Diffused

# Dialight

## 521-9183, -9284



### PART NO.

521-9183

521-9284

### LED COLOR

Red

Yellow

**MOUNTING CLIP:** 515-0004  
located on page 6-48

| <b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A=25^\circ\text{C}$ ) | Red<br><b>-9183</b>                                | Yellow<br><b>-9284</b> |
|------------------------------------------------------------|----------------------------------------------------|------------------------|
| Forward Voltage (V)                                        | 7.5                                                | 7.5                    |
| Derating ( $V/^\circ\text{C}$ ) From $50^\circ\text{C}$    | .071                                               | .071                   |
| Operating Temperature ( $^\circ\text{C}$ )                 | -40/+85                                            | -40/+85                |
| Storage Temperature ( $^\circ\text{C}$ )                   | -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

| <b>OPERATING CHARACTERISTICS</b> ( $T_A=25^\circ\text{C}$ ) |         | Red<br><b>-9183</b> | Yellow<br><b>-9284</b> |
|-------------------------------------------------------------|---------|---------------------|------------------------|
| Luminous Intensity (mcd)                                    | Min.    | 2                   | 2                      |
| $V_F = 5\text{V}$                                           | Typical | 8                   | 8                      |
| Peak Wavelength (nm)                                        | Typical | 635                 | 583                    |
| $\lambda$ Peak                                              |         |                     |                        |
| Viewing Angle ( $2\theta^{1/2}$ )                           | Typical | 60 $^\circ$         | 60 $^\circ$            |
| Forward Current (I)                                         | Typical | 10                  | 10                     |
| $V_F = 5\text{V}$                                           | Max     | 15                  | 15                     |
| Reverse Voltage (V), $I_R=100\mu\text{A}$                   | Min.    | 5                   | 5                      |

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

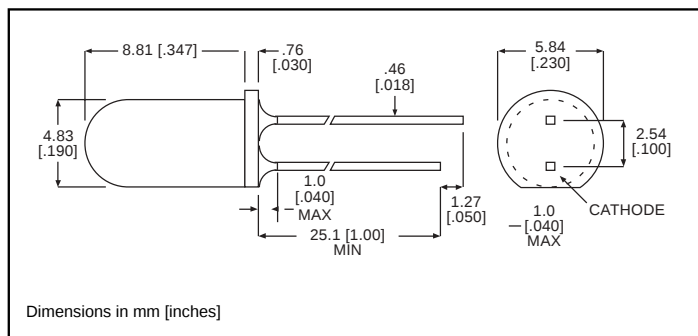
# 5mm Discrete LED

## Low Current, 2mA

## Diffused

# Dialight

## 521-9320, -9321, -9327



### PART NO.

521-9320

521-9321

521-9327

### COLOR

Red

Yellow

Green

**MOUNTING CLIP:** 515-0004  
located on page 6-48

### ABSOLUTE MAXIMUM RATINGS (TA=25°C)

|                                          | Red<br>-9320                       | Yellow<br>-9321 | Green<br>-9327 |
|------------------------------------------|------------------------------------|-----------------|----------------|
| Power Dissipation (mW)                   | 27                                 | 36              | 24             |
| Derating (mA/°C) From 92°C               | 1                                  | 1               | 1              |
| Forward Current (mA)                     | 7                                  | 7               | 7              |
| Peak Current (mA)<br>Pulse width = 10 μs | 500                                | 500             | 500            |
| Operating Temperature (°C)               | -55/+100                           | -55/+100        | -55/+100       |
| 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 (TA=25°C)

|                                           |         | Red<br>-9320 | Yellow<br>-9321 | Green<br>-9327 |
|-------------------------------------------|---------|--------------|-----------------|----------------|
| Luminous Intensity (mcd)                  | Min.    | 1.2          | 1.2             | 1.2            |
| I <sub>F</sub> =2mA                       | Typical | 2            | 1.8             | 1.8            |
| Peak Wavelength (nm)                      | Typical | 635          | 583             | 565            |
| λ Peak                                    |         |              |                 |                |
| Viewing Angle (2Θ <sup>1/2</sup> )        | Typical | 50°          | 50°             | 50°            |
| Forward Voltage (V)                       | Typical | 1.8          | 1.9             | 1.8            |
| I <sub>F</sub> =2mA                       | Max.    | 2.2          | 2.7             | 2.2            |
| Reverse Voltage (V), I <sub>R</sub> =50μA | Min.    | 5            | 5               | 5              |

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

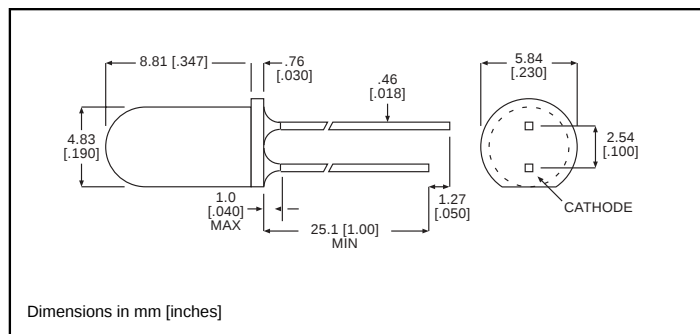
# 5mm Discrete LED

## High Efficiency

## Diffused

# Dialight

## 521-9246, -9248, -9250, -9704



| PART NO. | COLOR  |
|----------|--------|
| 521-9246 | Red    |
| 521-9248 | Yellow |
| 521-9250 | Green  |
| 521-9704 | Orange |

**MOUNTING CLIP:** 515-0004  
located on page 6-48

| <b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A=25^{\circ}\text{C}$ )                                                        | Red<br>-9246                                         | Yellow<br>-9248 | Green<br>-9250 | Orange<br>-9704 |
|---------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-----------------|----------------|-----------------|
| Power Dissipation (mW)                                                                                              | 135                                                  | 85              | 135            | 135             |
| Derating (mW/ $^{\circ}\text{C}$ ) From $25^{\circ}\text{C}$ 1. (mA/ $^{\circ}\text{C}$ ) From $50^{\circ}\text{C}$ | 1.8                                                  | 1.6             | 1.8            | .5 <sup>1</sup> |
| Forward Current (mA)                                                                                                | 25                                                   | 20              | 25             | 30              |
| Peak Current (mA)<br>Pulse width = 10 $\mu\text{s}$                                                                 | 500                                                  | 500             | 500            | 500             |
| Operating Temperature ( $^{\circ}\text{C}$ )                                                                        | -55/+100                                             | -55/+100        | -20/+100       | -55/+100        |
| Storage Temperature ( $^{\circ}\text{C}$ )                                                                          | -55/+100                                             | -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

| <b>OPERATING CHARACTERISTICS</b> ( $T_A=25^{\circ}\text{C}$ ) |         | Red<br>-9246  | Yellow<br>-9248 | Green<br>-9250 | Orange<br>-9704 |
|---------------------------------------------------------------|---------|---------------|-----------------|----------------|-----------------|
| Luminous Intensity (mcd)                                      | Min.    | 4             | 4               | 4.2            | 4               |
|                                                               | Typical | 7             | 8               | 5.2            | 7               |
| Peak Wavelength (nm)<br>$\lambda$ Peak                        | Typical | 635           | 583             | 565            | 600             |
| Viewing Angle ( $2\theta^{\circ}$ )                           | Typical | 60 $^{\circ}$ | 60 $^{\circ}$   | 60 $^{\circ}$  | 60 $^{\circ}$   |
| Forward Voltage (V)                                           | Typical | 2.2           | 2.2             | 2.3            | 1.9             |
|                                                               | Max.    | 3             | 3               | 3              | 2.4             |
| Reverse Voltage (V), $I_R=100\mu\text{A}$                     | Min.    | 5             | 5               | 5              | 5               |

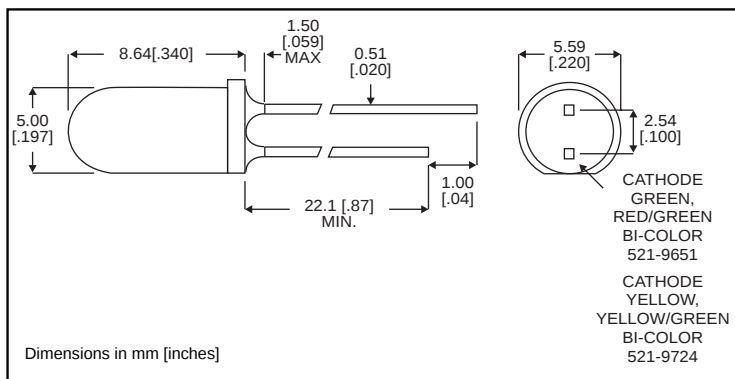
$\theta^{\circ}$  is the off axis angle at which the luminous intensity is half the axial luminous intensity

6

# 5mm Discrete LED Bi-Color Non-Tinted, Diffused

# Dialight

## 521-9651, -9724



### PART NO.

521-9651

521-9724

### LED COLOR

Red/Green

Yellow/Green

**MOUNTING CLIP:** 515-0005  
located on page 6-48

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

|                                                              | Red/Green<br><b>-9651</b>                            | Yellow/Green<br><b>-9724</b> |
|--------------------------------------------------------------|------------------------------------------------------|------------------------------|
| Power Dissipation (mW)                                       | 100/100                                              | 60/100                       |
| Forward Current (mA)                                         | 40/30                                                | 20/30                        |
| Derating (mA/ $^{\circ}\text{C}$ ) From $50^{\circ}\text{C}$ | .5/.4                                                | .25/.40                      |
| Peak Current (mA)<br>Pulse width = 100 $\mu\text{s}$         | 200/120                                              | 80/120                       |
| Operating Temperature ( $^{\circ}\text{C}$ )                 | -55/+100                                             | -55/+100                     |
| Storage Temperature ( $^{\circ}\text{C}$ )                   | -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/Green<br><b>-9651</b> | Yellow/Green<br><b>-9724</b> |
|-------------------------------------|---------|---------------------------|------------------------------|
| Luminous Intensity (mcd)            | Min.    | 29/12.6                   | 2.5/2.5                      |
|                                     | Typical | 90/40                     | 8.7/8.7                      |
| Peak Wavelength (nm)                | Typical | 660/565                   | 585/565                      |
| $\lambda_{\text{Peak}}$             |         |                           |                              |
| Viewing Angle ( $2\theta^{\circ}$ ) | Typical | 60 $^{\circ}$             | 50 $^{\circ}$                |
| Forward Voltage (V)                 | Typical | 1.8/2.1                   | 2.1/2.1                      |
|                                     | Max.    | 2.4/2.8                   | 2.8/2.8                      |

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

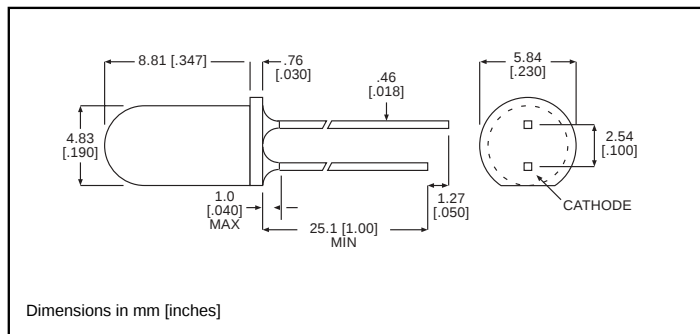
# 5mm Discrete LED

## High Brightness

## Non-Diffused

# Dialight

## 521-9247, -9249, -9251



### PART NO.

521-9247

521-9249

521-9251

### COLOR

Red

Yellow

Green

**MOUNTING CLIP:** 515-0004

located on page 6-48

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

|                                                                      | Red<br>-9247                                       | Yellow<br>-9249  | Green<br>-9251 |
|----------------------------------------------------------------------|----------------------------------------------------|------------------|----------------|
| Power Dissipation (mW)                                               | 135                                                | 85               | 135            |
| Derating (mW/ $^\circ\text{C}$ )                                     | 1.8                                                | 1.6 <sup>1</sup> | 1.8            |
| Forward Current (mA)                                                 | 30                                                 | 20               | 30             |
| Peak Current (mA)<br><i>Pulse width = 10<math>\mu\text{s}</math></i> | 500                                                | 500              | 500            |
| Operating Temperature ( $^\circ\text{C}$ )                           | -55/+100                                           | -55/+100         | -20/+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>-9247 | Yellow<br>-9249 | Green<br>-9251 |
|-------------------------------------------|---------|--------------|-----------------|----------------|
| Luminous Intensity (mcd)                  | Min.    | 25           | 25              | 25             |
|                                           | Typical | 60           | 50              | 70             |
| Peak Wavelength (nm)                      | Typical | 635          | 583             | 565            |
| $\lambda$ Peak                            |         |              |                 |                |
| Viewing Angle ( $2\theta^{1/2}$ )         | Typical | 35 $^\circ$  | 35 $^\circ$     | 24 $^\circ$    |
| Forward Voltage (V)                       | Typical | 2.2          | 2.2             | 2.3            |
|                                           | Max.    | 3            | 3               | 3              |
| Reverse Voltage (V), $I_R=100\mu\text{A}$ | Min.    | 5            | 5               | 5              |

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

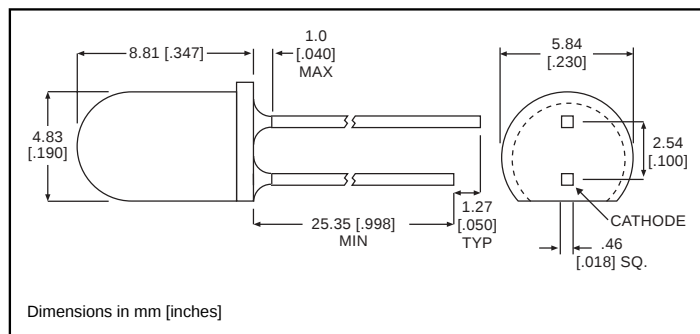
# 5mm Discrete LED

## Super Bright, Water Clear

## Non-Tinted, Non-Diffused

# Dialight

## 521-9464,-9465,-9466



### PART NO.

### COLOR

521-9464

Red

521-9465

Green

521-9466

Yellow

**MOUNTING CLIP:** 515-0004  
located on page 6-48

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

|                                                                       | Red<br>-9464                        | Green<br>-9465 | Yellow<br>-9466  |
|-----------------------------------------------------------------------|-------------------------------------|----------------|------------------|
| Power Dissipation (mW)                                                | 135                                 | 135            | 85               |
| Derating (mW/°C) <i>From 25°C 1. From 50 °C</i>                       | 1.8                                 | 1.8            | 1.6 <sup>1</sup> |
| Forward Current (mA)                                                  | 30                                  | 30             | 20               |
| Peak Current (mA)<br><i>Pulse width = 10 <math>\mu\text{s}</math></i> | 500                                 | 500            | 500              |
| Operating Temperature (°C)                                            | -55/+100                            | -20/+100       | -55/+100         |
| 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 ( $T_A=25^\circ\text{C}$ )

|                                           |         | Red<br>-9464 | Green<br>-9465 | Yellow<br>-9466 |
|-------------------------------------------|---------|--------------|----------------|-----------------|
| Luminous Intensity (mcd)                  | Min.    | 80           | 80             | 80              |
|                                           | Typical | 125          | 120            | 140             |
| Peak Wavelength (nm)<br>$\lambda$ Peak    | Typical | 635          | 565            | 583             |
| Viewing Angle ( $2\theta^{1/2}$ )         | Typical | 24°          | 24°            | 24°             |
| Forward Voltage (V)<br>$I_F=20\text{mA}$  | Typical | 2.2          | 2.3            | 2.2             |
|                                           | Max.    | 3            | 3              | 3               |
| Reverse Voltage (V), $I_R=100\mu\text{A}$ | Min.    | 5            | 5              | 5               |

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

6

5mm  
High Efficiency  
Diffused

**Dialight**

5HD-XXXX

**\* NOT A VALID PART  
NUMBER. THIS SHEET IS FOR  
REFERENCE ONLY.**

| TYPE        | COLOR  |
|-------------|--------|
| *5HD-9269   | Red    |
| *5HD-9270-2 | Green  |
| *5HD-9270-5 | Green  |
| *5HD-9271-2 | Yellow |
| *5HD-9271-5 | Yellow |

#### ABSOLUTE MAXIMUM RATINGS

| (T <sub>A</sub> =25°C)                  | Red<br>-9269                       | Green<br>-9270-2 | Green<br>-9270-5 | Yellow<br>-9271-2 | Yellow<br>-9271-5 |
|-----------------------------------------|------------------------------------|------------------|------------------|-------------------|-------------------|
| Power Dissipation (mW)                  | 60                                 | 140              | 75               | 200               | 60                |
| Derating (mW/°C) From 50°C 1. From 40°C | .66 <sup>1</sup>                   |                  | .66 <sup>1</sup> |                   | .66 <sup>1</sup>  |
| Forward Current (mA)                    | 20                                 | 40               | 25               | 60                | 20                |
| Derating (mA/°C) From 25°C              |                                    | .6               |                  | .8                |                   |
| Peak Current (mA)                       | 60                                 | 500              | 60               | 1000              | 60                |
| Pulse width = 1μs                       |                                    |                  |                  |                   |                   |
| Operating Temperature (°C)              | -25/+85                            | -55/+100         | -25/+85          | -55/+100          | -25/+85           |
| Storage Temperature (°C)                | -30/+100                           | -55/+100         | -30/+100         | -55/+100          | -30/+100          |
| Soldering Temperature                   | 260°C, 5 seconds, 1.6 mm from case |                  |                  |                   |                   |

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

6

#### OPERATING CHARACTERISTICS

| (T <sub>A</sub> =25°C)                      |         | Red<br>-9269 | Green<br>-9270-2 | Green<br>-9270-5 | Yellow<br>-9271-2 | Yellow<br>-9271-5 |
|---------------------------------------------|---------|--------------|------------------|------------------|-------------------|-------------------|
| Luminous Intensity (mcd)                    | Min.    | 2.2          | 4                | 3.6              | 4                 | 2.2               |
| I <sub>F</sub> =10mA                        | Typical | 7            | 32               | 10               | 10                | 6.3               |
| Peak Wavelength (nm)                        | Typical | 650          | 565              | 563              | 590               | 585               |
| λ Peak                                      |         |              |                  |                  |                   |                   |
| Viewing Angle (2Θ °)                        | Typical | 50°          | 50°              | 65°              | 70°               | 50°               |
| Forward Voltage (V)                         | Typical | 2.2          | 2*               | 2.1              | 2.4*              | 2.1               |
| I <sub>F</sub> =10mA, *I <sub>F</sub> =20mA | Max.    | 2.5          | 2.6*             | 3                | 3*                | 3                 |
| Reverse Voltage (V),                        | Min.    | 5            | 5*               | 3*               | 5*                | 3                 |
| I <sub>R</sub> =100μA *I <sub>R</sub> =10μA |         |              |                  |                  |                   |                   |

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

5mm  
General Purpose  
Diffused

**Dialight**

5ND-xxxx

**\* NOT A VALID PART  
NUMBER. THIS SHEET IS FOR  
REFERENCE ONLY.**

TYPE

\*5ND-9672  
\*5ND-9673  
\*5ND-9674

COLOR

Red  
Yellow  
Green

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

|                                                                                | Red<br>-9672                                         | Yellow<br>-9673 | Green<br>-9674 |
|--------------------------------------------------------------------------------|------------------------------------------------------|-----------------|----------------|
| Power Dissipation (mW)                                                         | 80                                                   | 60              | 100            |
| Forward Current (mA)                                                           | 40                                                   | 20              | 30             |
| Derating (mA/ $^{\circ}\text{C}$ ) <i>From 25<math>^{\circ}\text{C}</math></i> | .5                                                   | .25             | .4             |
| Peak Current (mA)<br><i>Pulse width = 10 <math>\mu\text{s}</math></i>          | 200                                                  | 80              | 120            |
| 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>-9672  | Yellow<br>-9673 | Green<br>-9674 |
|-------------------------------------------|---------|---------------|-----------------|----------------|
| Luminous Intensity (mcd)                  | Min.    | 3.5           | 3.5             | 3.5            |
| $I_F=20\text{mA}$                         | Typical | 12.3          | 12.3            | 12.3           |
| Peak Wavelength (nm)                      | Typical | 635           | 585             | 565            |
| $\lambda_{\text{Peak}}$                   |         |               |                 |                |
| Viewing Angle ( $2\theta_{\frac{1}{2}}$ ) | Typical | 60 $^{\circ}$ | 60 $^{\circ}$   | 60 $^{\circ}$  |
| Forward Voltage (V)                       | Typical | 2             | 2.1             | 2.1            |
| $I_F=20\text{mA}$                         | Max.    | 2.8           | 2.8             | 2.8            |
| Reverse Voltage (V), $I_R=100\mu\text{A}$ | Min.    | 5             | 5               | 5              |

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

6

5mm  
Integral Resistor  
Diffused

**Dialight**

5RD-XXXX

**\* NOT A VALID PART  
NUMBER. THIS SHEET IS FOR  
REFERENCE ONLY.**

| <u>TYPE</u> | <u>COLOR</u> | <u>VOLTS</u> |
|-------------|--------------|--------------|
| *5RD-9378   | Green        | 12           |
| *5RD-9379   | Yellow       | 12           |
| *5RD-9422   | Red          | 5            |
| *5RD-9423   | Green        | 5            |

**ABSOLUTE MAXIMUM RATINGS**

(T<sub>A</sub>=25°C)

|                                                | Green 12V<br><b>-9378</b>          | Yellow 12V<br><b>-9379</b> | Red 5V<br><b>-9422</b> | Green 5V<br><b>-9423</b> |
|------------------------------------------------|------------------------------------|----------------------------|------------------------|--------------------------|
| Forward Voltage (V)<br>*(T <sub>A</sub> =70°C) | 15 *                               | 15                         | 7.5                    | 7.5                      |
| Operating Temperature (°C)                     | -20/+85                            | -40/+85                    | -40/+85                | -20/+85                  |
| Storage Temperature (°C)                       | -55/+100                           | -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)

|                                            |         | Green 12V<br><b>-9378</b> | Yellow 12V<br><b>-9379</b> | Red 5V<br><b>-9422</b> | Green 5V<br><b>-9423</b> |
|--------------------------------------------|---------|---------------------------|----------------------------|------------------------|--------------------------|
| Luminous Intensity (mcd)                   | Min.    | 1.5*                      | 1.5*                       | 1                      | 2                        |
| V <sub>F</sub> =5V, *V <sub>F</sub> =12V   | Typical | 4*                        | 4*                         | 2                      | 8                        |
| Peak Wavelength (nm)                       | Typical | 565                       | 583                        | 655                    | 565                      |
| λ Peak                                     |         |                           |                            |                        |                          |
| Viewing Angle (2θ *)                       | Typical | 60°                       | 60°                        | 60°                    | 60°                      |
| Forward Current (mA), V <sub>F</sub> =5V   | Typical | 13*                       | 13*                        | 13                     | 12                       |
| *V <sub>F</sub> =12V                       | Max.    | 20*                       | 20*                        | 20                     | 15                       |
| Reverse Voltage (V), I <sub>R</sub> =100μA | Typical | 5                         | 5                          | 5                      | 5                        |

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

5mm  
Super Bright LED  
Diffused

**Dialight**

5SD-xxxx

**\* NOT A VALID PART  
NUMBER. THIS SHEET IS FOR  
REFERENCE ONLY.**

TYPE  
\*5SD-9441  
\*5SD-9455  
\*5SD-9456

COLOR  
Red  
Yellow  
Green

| <b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A=25^{\circ}\text{C}$ )                                                                                                 | Red<br>-9441                                         | Yellow<br>-9455 | Green<br>-9456 |
|--------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------|-----------------|----------------|
| Power Dissipation (mW)                                                                                                                                       | 75                                                   | 75              | 75             |
| Forward Current (mA)                                                                                                                                         | 25                                                   | 25              | 25             |
| Derating (mA/ $^{\circ}\text{C}$ ) <i>From 50<math>^{\circ}\text{C}</math></i> *( $\text{mW}/^{\circ}\text{C}$ ) <i>From 40<math>^{\circ}\text{C}</math></i> | .66*                                                 | .5              | .5             |
| Peak Current (mA)<br><i>Pulse width = 1 ms</i>                                                                                                               | 60                                                   | 60              | 60             |
| 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*

| <b>OPERATING CHARACTERISTICS</b> ( $T_A=25^{\circ}\text{C}$ ) |         | Red<br>-9441  | Yellow<br>-9455 | Green<br>-9456 |
|---------------------------------------------------------------|---------|---------------|-----------------|----------------|
| Luminous Intensity (mcd)<br>$I_F=20\text{mA}$                 | Min.    | 17            | 17              | 17             |
|                                                               | Typical | 34            | 34              | 34             |
| Peak Wavelength (nm)<br>$\lambda$ Peak                        | Typical | 650           | 585             | 563            |
| Viewing Angle ( $2\theta^{1/2}$ )                             | Typical | 50 $^{\circ}$ | 50 $^{\circ}$   | 50 $^{\circ}$  |
| Forward Voltage (V)<br>$I_F=20\text{mA}$                      | Typical | 2.1           | 2.2             | 2.2            |
|                                                               | Max.    | 2.55          | 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

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Authorized Distributor

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