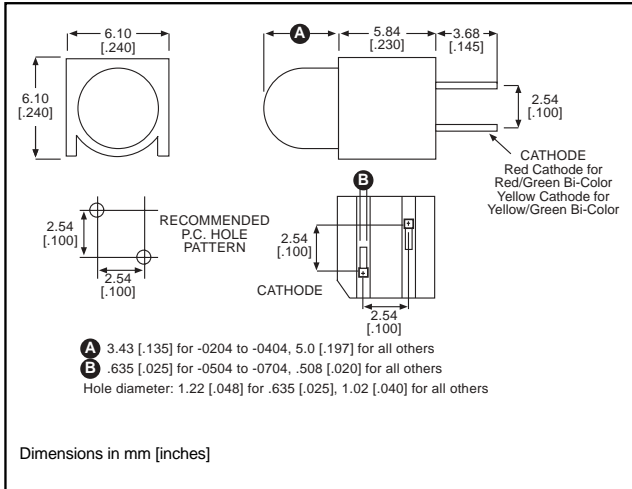


# 5mm LED CBI® Circuit Board Indicator Top View, Single

# Dialight

## 550-xx04



Standard Polarity shown in drawing: Cathode same side as notch

### Features

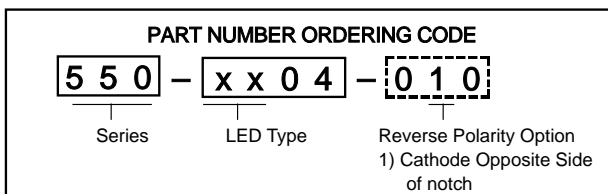
- Multiple CBIs form horizontal LED arrays on 6.35mm (0.250") center-lines.
- High Contrast, UL 94 V-0 rated, black housing
- Oxygen index: 32%
- Polymer content: PBT, 0.160 g
- Housing stand-offs facilitate PCB cleaning
- Solderability per MIL-STD-202F, method 208F
- LEDs are safe for direct viewing per IEC 825-1, EN-60825-1
- Compatible with:  
550-xx04-004 quad block

### Custom

- For custom LEDs contact factory.

### 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.

### COLOR

#### GENERAL PURPOSE

|          |        |
|----------|--------|
| 550-0204 | Green  |
| 550-0304 | Yellow |
| 550-0404 | Red    |

#### INTEGRAL RESISTOR

|          |            |
|----------|------------|
| 550-0504 | Red, 5V    |
| 550-0704 | Green, 5V  |
| 550-0804 | Yellow, 5V |

#### LOW CURRENT

|          |        |
|----------|--------|
| 550-1104 | Red    |
| 550-1204 | Yellow |
| 550-1304 | Green  |

#### HIGH EFFICIENCY

|          |        |
|----------|--------|
| 550-2204 | Green  |
| 550-2304 | Yellow |
| 550-2404 | Red    |
| 550-2504 | Orange |

#### BI-COLOR

|          |              |
|----------|--------------|
| 550-3004 | Red/Green    |
| 550-3104 | Yellow/Green |

**NEW**

#### SUPER BRIGHT, DIFFUSED

|          |        |
|----------|--------|
| 550-5104 | Red    |
| 550-5204 | Green  |
| 550-5304 | Yellow |

#### SUPER BRIGHT, WATER CLEAR (Non-tinted, Non-diffused)

|          |        |
|----------|--------|
| 550-5504 | Red    |
| 550-5604 | Green  |
| 550-5704 | Yellow |

To order any of the 550-xx04 part numbers with Reverse Polarity (Cathode opposite side of notch), please add -010 to the part numbers shown above.

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

See LED data sheet for additional information

**GENERAL PURPOSE** 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 | $V_F$ Volts | Test Current (mA) | Viewing Angle $2\theta_{\frac{1}{2}}$ | LED Data sheet | Page # |
|-------------|--------|--------------------|-----------|-------------|-------------------|---------------------------------------|----------------|--------|
| 550-0204    | Green  | 565                | 12.3      | 2.1         | 20                | 60°                                   | 5ND-9674       | 6-51   |
| 550-0304    | Yellow | 585                | 12.3      | 2.1         | 20                | 60°                                   | 5ND-9673       | 6-51   |
| 550-0404    | Red    | 635                | 12.3      | 2           | 20                | 60°                                   | 5ND-9672       | 6-51   |

### INTEGRAL RESISTOR

| Part Number | Color  | Peak Wavelength nm | $I_V$ mcd | Test Voltage | Forward Current (mA) | Viewing Angle $2\theta_{\frac{1}{2}}$ | LED Data sheet | Page # |
|-------------|--------|--------------------|-----------|--------------|----------------------|---------------------------------------|----------------|--------|
| 550-0504    | Red    | 655                | 2         | 5            | 13                   | 60°                                   | 5RD-9422       | 6-52   |
| 550-0704    | Green  | 565                | 8         | 5            | 12                   | 60°                                   | 5RD-9423       | 6-52   |
| 550-0804    | Yellow | 583                | 8         | 5            | 10                   | 60°                                   | 521-9284       | 6-41   |

### LOW CURRENT

| Part Number | Color  | Peak Wavelength nm | $I_V$ mcd | $V_F$ Volts | Test Current (mA) | Viewing Angle $2\theta_{\frac{1}{2}}$ | LED Data sheet | Page # |
|-------------|--------|--------------------|-----------|-------------|-------------------|---------------------------------------|----------------|--------|
| 550-1104    | Red    | 635                | 2         | 1.8         | 2                 | 50°                                   | 521-9320       | 6-42   |
| 550-1204    | Yellow | 583                | 1.8       | 1.9         | 2                 | 50°                                   | 521-9321       | 6-42   |
| 550-1304    | 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 $2\theta_{\frac{1}{2}}$ | LED Data sheet | Page # |
|-------------|--------|--------------------|-----------|-------------|-------------------|---------------------------------------|----------------|--------|
| 550-2204    | Green  | 563                | 10        | 2.1         | 10                | 65°                                   | 5HD-9270-5     | 6-49   |
| 550-2304    | Yellow | 585                | 6.3       | 2.1         | 10                | 50°                                   | 5HD-9271-5     | 6-49   |
| 550-2404    | Red    | 650                | 7         | 2.2         | 10                | 50°                                   | 5HD-9269       | 6-49   |
| 550-2504    | Orange | 600                | 7         | 1.9         | 10                | 60°                                   | 521-9704       | 6-43   |

### BI-COLOR

| Part Number | Color        | Peak Wavelength nm | $I_V$ mcd | $V_F$ Volts | Test Current (mA) | Viewing Angle $2\theta_{\frac{1}{2}}$ | LED Data sheet | Page # |
|-------------|--------------|--------------------|-----------|-------------|-------------------|---------------------------------------|----------------|--------|
| 550-3004    | Red/Green    | 660/565            | 90/40     | 1.8/2.1     | 20                | 60°                                   | 521-9651       | 6-46   |
| 550-3104    | Yellow/Green | 585/565            | 8.7/8.7   | 2.1/2.1     | 20                | 50°                                   | 521-9724       | 6-46   |

### SUPER BRIGHT, DIFFUSED

| Part Number | Color  | Peak Wavelength nm | $I_V$ mcd | $V_F$ Volts | Test Current (mA) | Viewing Angle $2\theta_{\frac{1}{2}}$ | LED Data sheet | Page # |
|-------------|--------|--------------------|-----------|-------------|-------------------|---------------------------------------|----------------|--------|
| 550-5104    | Red    | 650                | 34        | 2.1         | 20                | 50°                                   | 5SD-9441       | 6-53   |
| 550-5204    | Green  | 563                | 34        | 2.2         | 20                | 50°                                   | 5SD-9456       | 6-53   |
| 550-5304    | 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 $2\theta_{\frac{1}{2}}$ | LED Data sheet | Page # |
|-------------|--------|--------------------|-----------|-------------|-------------------|---------------------------------------|----------------|--------|
| 550-5504    | Red    | 635                | 125       | 2.2         | 20                | 24°                                   | 521-9464       | 6-47   |
| 550-5604    | Green  | 565                | 120       | 2.3         | 20                | 24°                                   | 521-9465       | 6-47   |
| 550-5704    | Yellow | 583                | 140       | 2.2         | 20                | 24°                                   | 521-9466       | 6-47   |



# 5mm Discrete LED Integral Resistor, 5 Volts Diffused

# Dialight

## 521-9183, -9284



| PART NO. | LED COLOR |
|----------|-----------|
| 521-9183 | Red       |
| 521-9284 | Yellow    |

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

| <b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A=25^\circ\text{C}$ ) | Red                                | Yellow       |
|--|------------------------------------|--------------|
|  | <b>-9183</b>                       | <b>-9284</b> |
| Forward Voltage (V)  | 7.5                                | 7.5          |
| Derating (V/°C) From 50°C                                  | .071                               | .071         |
| Operating Temperature (°C)                                 | -40/+85                            | -40/+85      |
| Storage Temperature (°C)                                   | -55/+100                           | -55/+100     |
| Soldering Temperature                                      | 260°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          | Yellow       |
|---|---------|--------------|--------------|
|   |         | <b>-9183</b> | <b>-9284</b> |
| Luminous Intensity (mcd)                                    | Min.    | 2            | 2            |
|   | Typical | 8            | 8            |
| Peak Wavelength (nm)  | Typical | 635          | 583          |
| Viewing Angle ( $2\theta^{1/2}$ )                           | Typical | 60°          | 60°          |
| Forward Current (I)   | Typical | 10           | 10           |
|   | 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

6

**5mm Discrete LED**  
**Low Current, 2mA**  
**Diffused**

**Dialight**

**521-9320, -9321, -9327**



| <u>PART NO.</u> | <u>COLOR</u> |
|-----------------|--------------|
| 521-9320        | Red          |
| 521-9321        | Yellow       |
| 521-9327        | Green        |

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

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

|  | Red<br><b>-9320</b>                | Yellow<br><b>-9321</b> | Green<br><b>-9327</b> |
|--|------------------------------------|------------------------|-----------------------|
| 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)

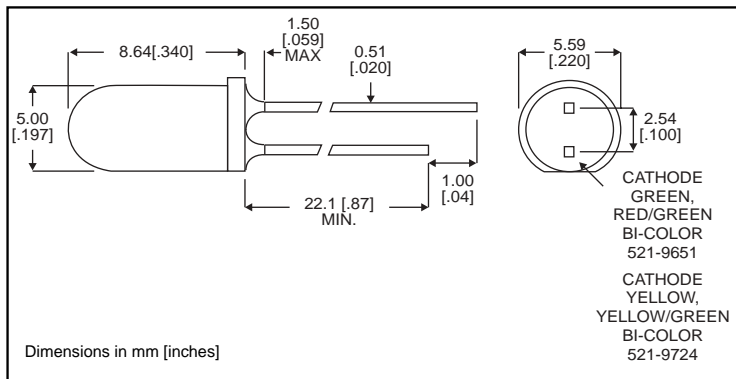
|                                |         | Red<br><b>-9320</b> | Yellow<br><b>-9321</b> | Green<br><b>-9327</b> |
|--------------------------------|---------|---------------------|------------------------|-----------------------|
| Luminous Intensity (mcd)       | Min.    | 1.2                 | 1.2                    | 1.2                   |
|                                | Typical | 2                   | 1.8                    | 1.8                   |
| Peak Wavelength (nm)<br>λ Peak | Typical | 635                 | 583                    | 565                   |
| Viewing Angle (2θ ½)           | Typical | 50°                 | 50°                    | 50°                   |
| Forward Voltage (V)<br>IF=2mA  | Typical | 1.8                 | 1.9                    | 1.8                   |
|                                | Max.    | 2.2                 | 2.7                    | 2.2                   |
| Reverse Voltage (V), IR=50μA   | Min.    | 5                   | 5                      | 5                     |

θ ½ is the off axis angle at which the luminous intensity is half the axial luminous intensity

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

**Dialight**

**521-9651, -9724**



| PART NO. | LED COLOR    |
|----------|--------------|
| 521-9651 | Red/Green    |
| 521-9724 | 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/°C) From 50°C                       | .5/.4                              | .25/.40                      |
| Peak Current (mA)<br><i>Pulse width = 100 μs</i> | 200/120                            | 80/120                       |
| Operating Temperature (°C)                       | -55/+100                           | -55/+100                     |
| Storage Temperature (°C)                         | -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** ( $T_A=25^\circ\text{C}$ )

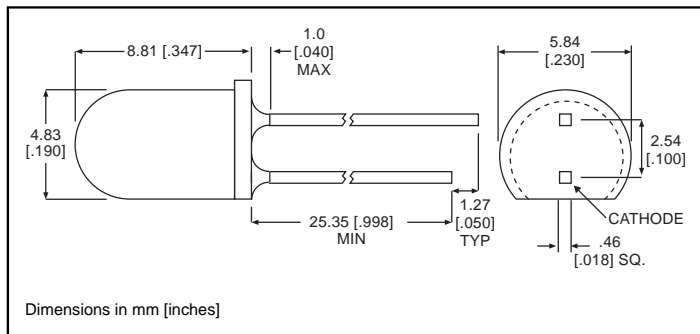
|   |         | Red/Green<br><b>-9651</b> | Yellow/Green<br><b>-9724</b> |
|---|---------|---------------------------|------------------------------|
| Luminous Intensity (mcd)                        | Min.    | 29/12.6                   | 2.5/2.5                      |
|   | Typical | 90/40                     | 8.7/8.7                      |
| Peak Wavelength (nm)<br>$\lambda_{\text{Peak}}$ | Typical | 660/565                   | 585/565                      |
| Viewing Angle ( $2\theta^{1/2}$ )               | Typical | 60°                       | 50°                          |
| Forward Voltage (V)                             | Typical | 1.8/2.1                   | 2.1/2.1                      |
|   | Max.    | 2.4/2.8                   | 2.8/2.8                      |

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

<sup>1</sup>  $\theta$  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)<br>Derating (mW/°C) From 50°C 1. From 40°C | 60<br>.66 <sup>1</sup>             | 140              | 75<br>.66 <sup>1</sup> | 200               | 60<br>.66 <sup>1</sup> |
| Forward Current (mA)<br>Derating (mA/°C) From 25°C                | 20                                 | 40<br>.6         | 25                     | 60<br>.8          | 20                     |
| Peak Current (mA)<br>Pulse width = 1μs                            | 60                                 | 500              | 60                     | 1000              | 60                     |
| 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               |
|                          | 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               |
|                          | 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 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      | COLOR  |
|-----------|--------|
| *5ND-9672 | Red    |
| *5ND-9673 | Yellow |
| *5ND-9674 | Green  |

| ABSOLUTE MAXIMUM RATINGS (T <sub>A</sub> =25°C) | Red                                | Yellow   | Green    |
|---|------------------------------------|----------|----------|
|   | -9672                              | -9673    | -9674    |
| Power Dissipation (mW)                          | 80                                 | 60       | 100      |
| Forward Current (mA)                            | 40                                 | 20       | 30       |
| Derating (mA/°C) <i>From 25°C</i>               | .5                                 | .25      | .4       |
| Peak Current (mA)<br><i>Pulse width = 10 μs</i> | 200                                | 80       | 120      |
| 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 (T <sub>A</sub> =25°C) |         | Red   | Yellow | Green |
|--|---------|-------|--------|-------|
|  |         | -9672 | -9673  | -9674 |
| Luminous Intensity (mcd)                         | Min.    | 3.5   | 3.5    | 3.5   |
|  | Typical | 12.3  | 12.3   | 12.3  |
| Peak Wavelength (nm)                             | Typical | 635   | 585    | 565   |
| Viewing Angle (2θ <sup>½</sup> )                 | Typical | 60°   | 60°    | 60°   |
| Forward Voltage (V)                              | Typical | 2     | 2.1    | 2.1   |
|  | Max.    | 2.8   | 2.8    | 2.8   |
| Reverse Voltage (V), I <sub>R</sub> =100μA       | Min.    | 5     | 5      | 5     |

θ<sup>½</sup> is the off axis angle at which the luminous intensity is half the axial luminous intensity

6



5mm  
Integral Resistor  
Diffused



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

| TYPE      | COLOR  | VOLTS |
|-----------|--------|-------|
| *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>-9378                 | Yellow 12V<br>-9379 | Red 5V<br>-9422 | Green 5V<br>-9423 |
|--|------------------------------------|---------------------|-----------------|-------------------|
| 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>-9378 | Yellow 12V<br>-9379 | Red 5V<br>-9422 | Green 5V<br>-9423 |
|--|---------|--------------------|---------------------|-----------------|-------------------|
| Luminous Intensity (mcd)                   | Min.    | 1.5*               | 1.5*                | 1               | 2                 |
|  | 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                |
|  | 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

# Mouser Electronics

Authorized Distributor

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[550-3104](#)