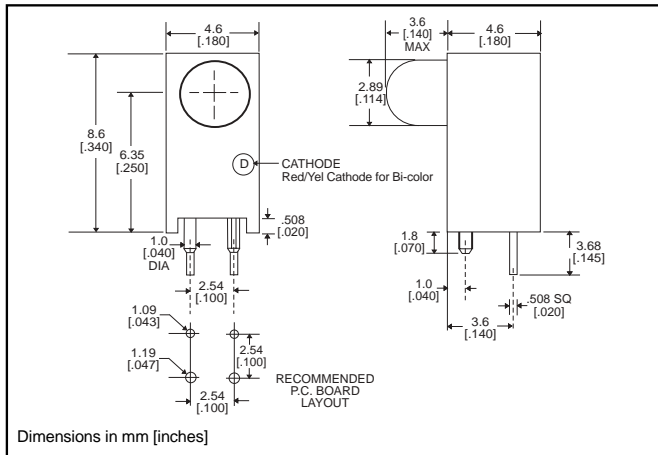


3mm

# LED CBI® Circuit Board Indicator .250" High LED Centerline

# Dialight

## 551-xx03



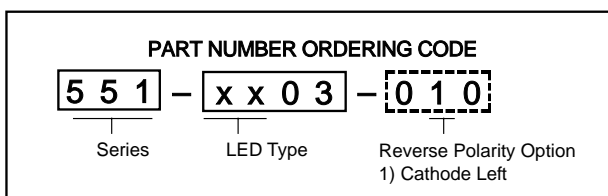
Standard Polarity shown in drawing: Cathode right

### Features

- Multiple CBIs form horizontal LED arrays on 4.7mm (0.185") center-lines
- High Contrast, UL 94 V-0 rated, black housing
- Oxygen index: 31.5%
- Polymer content: PBT, 0.190 g
- Housing stand-offs facilitate PCB cleaning
- Locating pins provide stability during soldering
- Solderability per MIL-STD-202F, method 208F
- LEDs are safe for direct viewing per IEC 825-1, EN-60825-1

### 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

551-0203  
551-0303  
551-0403  
551-2503

### COLOR

Green  
Yellow  
Red  
Orange

#### INTEGRAL RESISTOR, 5 VOLTS

551-0503  
551-0603  
551-0703

Red  
Green  
Yellow

#### LOW CURRENT

551-1103  
551-1203  
551-1303

Red  
Yellow  
Green

#### BI-COLOR

551-3003  
551-3103

Red/Green  
Yellow/Green

To order any of the 551-xx03 part numbers with Reverse Polarity (Cathode Left), please add -010 to the part numbers shown above.

## 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 $2\theta_{\%}$ | LED Data sheet | Page # |
|-------------|--------|--------------------|-----------|-------------|-------------------|------------------------------|----------------|--------|
| 551-0203    | Green  | 563                | 16        | 2.1         | 10                | 45°                          | 521-9408       | 4-64   |
| 551-0303    | Yellow | 585                | 6.3       | 2.1         | 10                | 45°                          | 521-9428       | 4-64   |
| 551-0403    | Red    | 650                | 10        | 2           | 10                | 45°                          | 521-9427       | 4-64   |
| 551-2503    | 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 $2\theta_{\%}$ | LED Data sheet | Page # |
|-------------|--------|--------------------|-----------|--------------|----------------------|------------------------------|----------------|--------|
| 551-0503    | Red    | 635                | 29        | 5            | 10                   | 60°                          | 521-9215       | 4-59   |
| 551-0603    | Green  | 565                | 19        | 5            | 10                   | 60°                          | 521-9323       | 4-59   |
| 551-0703    | 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 $2\theta_{\%}$ | LED Data sheet | Page # |
|-------------|--------|--------------------|-----------|-------------|-------------------|------------------------------|----------------|--------|
| 551-1103    | Red    | 635                | 1.6       | 1.7         | 2                 | 60°                          | 521-9324       | 4-60   |
| 551-1203    | Yellow | 585                | 1.6       | 1.8         | 2                 | 60°                          | 521-9325       | 4-60   |
| 551-1303    | 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 $2\theta_{\%}$ | LED Data sheet | Page # |
|-------------|--------------|--------------------|-----------|-------------|-------------------|------------------------------|----------------|--------|
| 551-3003    | Red/Green    | 635/565            | 4.7/10    | 2/2.1       | 10                | 50°                          | 521-9459       | 4-63   |
| 551-3103    | Yellow/Green | 585/565            | 4.3/6.3   | 2.1*/2.1*   | 10                | 80°                          | 521-9478       | 4-62   |

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



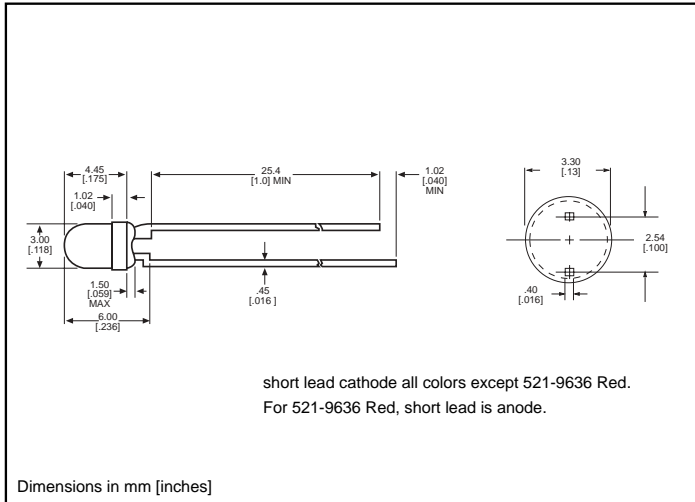
# 3mm Discrete LED

## High Efficiency

### Diffused

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

# Dialight



#### 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

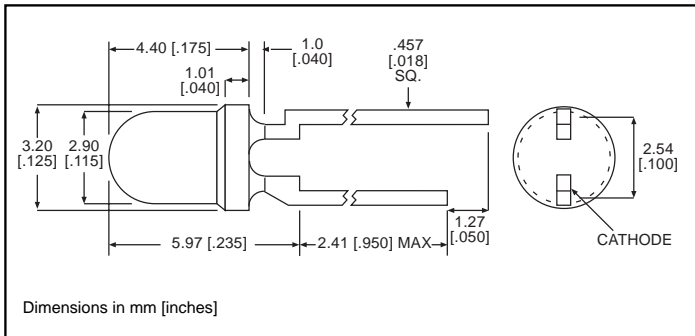
| <b>OPERATING CHARACTERISTICS</b> ( $T_A=25^\circ\text{C}$ ) |         | Green<br><b>-9210</b> | Yellow<br><b>-9211</b> | Red<br><b>-9216</b> | Orange<br><b>-9498</b> | Red<br><b>-9636</b> |
|---|---------|-----------------------|------------------------|---------------------|------------------------|---------------------|
| 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                 |
| Viewing Angle ( $2\theta$ °)                                | 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. | COLOR  |
|----------|--------|
| 521-9215 | Red    |
| 521-9322 | Yellow |
| 521-9323 | Green  |

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

| <b>ABSOLUTE MAXIMUM RATINGS</b> ( $T_A=25^\circ\text{C}$ ) | Red  | Yellow       | Green        |
|--|--|--------------|--------------|
|  | <b>-9215</b>                                       | <b>-9322</b> | <b>-9323</b> |
| Forward Voltage (V)  | 7.5  | 7.5          | 7.5          |
| Derating ( $V/^\circ\text{C}$ ) From $50^\circ\text{C}$    | .086   | .086         | .071         |
| Operating Temperature ( $^\circ\text{C}$ )                 | -40/+85  | -40/+85      | -20/+85      |
| 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          | Yellow       | Green        |
|---|---------|--------------|--------------|--------------|
|   |         | <b>-9215</b> | <b>-9322</b> | <b>-9323</b> |
| Luminous Intensity (mcd)                                    | Min.    | 8.7          | 3.7          | 5.6          |
|   | Typical | 29           | 12.6         | 19           |
| Peak Wavelength (nm)  | Typical | 635          | 585          | 565          |
| $\lambda$ Peak  |         |              |              |              |
| Viewing Angle ( $2\theta_{1/2}$ )                           | Typical | 60 $^\circ$  | 60 $^\circ$  | 60 $^\circ$  |
| Forward Current (mA)  | Typical | 10           | 10           | 10           |
|   | Max.    | 20           | 20           | 20           |
| 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

**4**

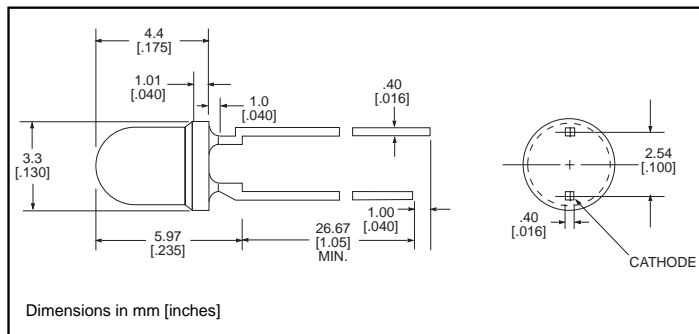
# 3mm Discrete LED

## 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<sub>A</sub>=25°C)

|  | Red<br>-9324                       | Yellow<br>-9325 | Green<br>-9326 |
|--|------------------------------------|-----------------|----------------|
| Power Dissipation (mW)                   | 20                                 | 20              | 20             |
| Forward Current (mA)                     | 7                                  | 7               | 7              |
| Derating (mA/°C) From 90°C               | .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 (T<sub>A</sub>=25°C)

|   |         | Red<br>-9324 | Yellow<br>-9325 | Green<br>-9326 |
|---|---------|--------------|-----------------|----------------|
| Luminous Intensity (mcd)<br>I <sub>F</sub> =2mA | Min.    | 1            | 1               | 1              |
|   | Typical | 1.6          | 1.6             | 1.6            |
| Peak Wavelength (nm)<br>λ Peak                  | Typical | 635          | 585             | 565            |
| Viewing Angle (2Θ °)                            | Typical | 60°          | 60°             | 60°            |
| Forward Voltage (V)<br>I <sub>F</sub> =2mA      | Typical | 1.7          | 1.8             | 1.9            |
|   | Max.    | 2.2          | 2.7             | 2.2            |
| Reverse Voltage (V), I <sub>R</sub> =50μA       | Min.    | 5            | 5               | 5              |

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

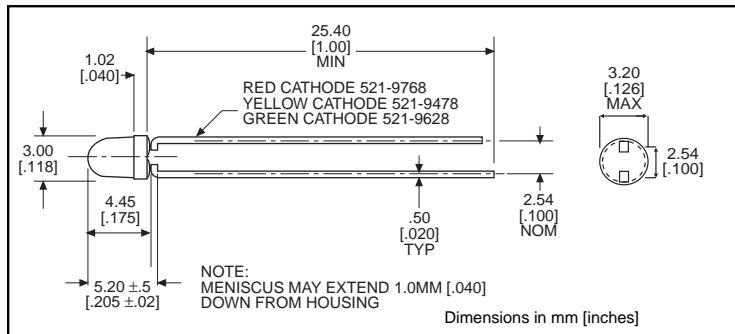
# 3mm Discrete LED

## Bi-Color

### Non-Tinted, Diffused



# 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/°C) From 25°C From 50°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 = 10µs                    | 80/120                              | 200/120                   | 120/80                            |
| Operating Temperature (°C)                                 | -55/+100                            | -55/+100                  | -55/+100                          |
| Storage Temperature (°C)                                   | -55/+100                            | -55/+100                  | -55/+100                          |
| Soldering Temperature                                      | 260°C, 5 seconds, 1.66 mm from case |                           |                                   |

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

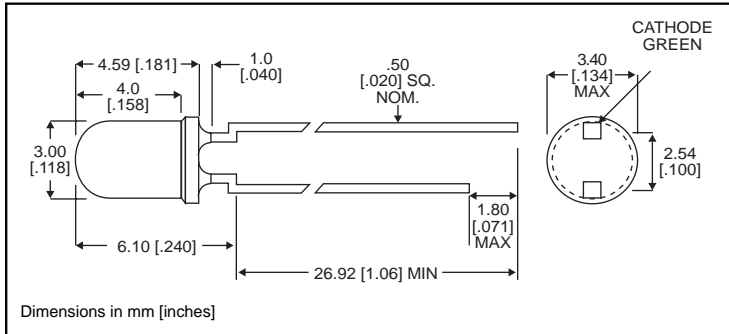
| <b>OPERATING CHARACTERISTICS</b> ( $T_A=25^\circ\text{C}$ ) |         | Yellow/Green<br><b>-9478</b> | Red/Green<br><b>-9628</b> | Red/Yellow<br><b>-9768</b> |
|---|---------|------------------------------|---------------------------|----------------------------|
| Luminous Intensity (mcd)                                    | 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 ( $2\theta$ °)                                | Typical | 80°                          | 200°                      | 80°                        |
| Forward Voltage (V)   | Typical | 2.1/2.1                      | 1.8/2.1                   | 2/2.1                      |
|   | Max.    | 2.8/2.8                      | 2.4/2.8                   | 2.8/2.8                    |
| Reverse Voltage (V) $I_R=100\mu\text{a}$                    | 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**

**521-9459**



**PART NO.**

521-9459

**COLOR**

Red/Green

**MOUNTING CLIP:** 515-0006

located on page 4-65

**4**

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

Red/Green  
**-9459**

|                            |                                    |
|----------------------------|------------------------------------|
| Power Dissipation (mW)     | 140                                |
| Forward Current (mA)       | 45                                 |
| Derating (mA/°C) From 25°C | .6                                 |
| Peak Current (mA)          | 1000                               |
| Pulse width = 10µs         |                                    |
| Operating Temperature (°C) | -55/+100                           |
| Storage Temperature (°C)   | -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  
**-9459**

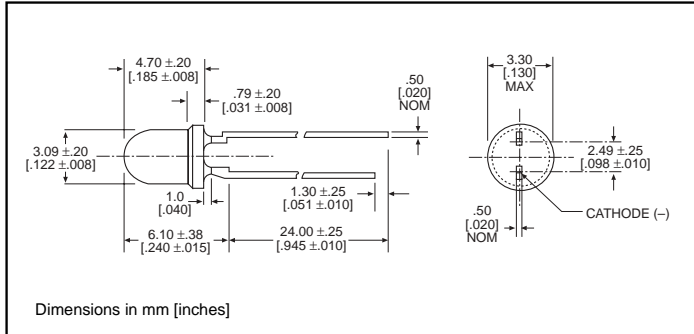
|                                   |         |         |
|-----------------------------------|---------|---------|
| Luminous Intensity (mcd)          | Min.    | 2.5/3.7 |
| $I_F=10\text{mA}$                 | Typical | 4.7/10  |
| Peak Wavelength (nm)              | Typical | 635/565 |
| $\lambda$ 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<sub>A</sub>=25°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/°C) From 50°C | .5                                 | .5                  | .5                     |
| Peak Current (mA)          | 60                                 | 60                  | 60                     |
| Operating Temperature (°C) | -25/+85                            | -25/+85             | -25/+85                |
| Storage Temperature (°C)   | -30/+100                           | -30/+100            | -30/+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<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                    |
| Viewing Angle (2θ <sup>1/2</sup> )        | Typical | 45°                   | 45°                 | 45°                    |
| Forward Voltage (V)                       | Typical | 2.1                   | 2                   | 2.1                    |
|   | Max.    | 3                     | 3                   | 3                      |
| Reverse Voltage (V), I <sub>R</sub> =10μA | Min.    | 3                     | 3                   | 3                      |

θ<sup>1/2</sup> is the off axis angle at which the luminous intensity is half the axial luminous intensity



## Данный компонент на территории Российской Федерации

### Вы можете приобрести в компании MosChip.

Для оперативного оформления запроса Вам необходимо перейти по данной ссылке:

<http://moschip.ru/get-element>

Вы можете разместить у нас заказ для любого Вашего проекта, будь то серийное производство или разработка единичного прибора.

В нашем ассортименте представлены ведущие мировые производители активных и пассивных электронных компонентов.

Нашей специализацией является поставка электронной компонентной базы двойного назначения, продукции таких производителей как XILINX, Intel (ex.ALTERA), Vicor, Microchip, Texas Instruments, Analog Devices, Mini-Circuits, Amphenol, Glenair.

Сотрудничество с глобальными дистрибьюторами электронных компонентов, предоставляет возможность заказывать и получать с международных складов практически любой перечень компонентов в оптимальные для Вас сроки.

На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

moschip.ru

moschip.ru\_4

moschip.ru\_6

moschip.ru\_9