

### **OVS5MxBCR4** Series

#### Features:

- Compact Package Outline of 3.5 x 3.5 x 1.2 mm
- Robust energy-efficient design with long operating life
- Low thermal resistance
- Exceptional spatial uniformity
- Compatible to IR reflow soldering
- High Lumens output



#### **Description:**

The mini-half watt is an energy-efficient packaged LED source that offers high luminance, and a long operating lifespan. This device offers a 120° viewing angle and an ultra-low profile (1.2 mm) making it highly suitable for conventional lighting and specialized applications.

#### **Applications:**

- Automotive exterior and interior lighting
- Architectural indoor and outdoor lighting
- General lighting
- Display Backlighting
- Electronic signs and signals

| Part Number | Viewing<br>Angle | Emitted Color | Typ. Luminous Flux<br>(lm)         | Forward Voltage<br>V <sub>F</sub> | Power Dissipation @<br>150 mA | Lens Color |  |
|-------------|------------------|---------------|------------------------------------|-----------------------------------|-------------------------------|------------|--|
| OVS5MWBCR4  |                  | White         | 50                                 | 3.4                               | 0.51 W                        |            |  |
| OVS5MWWBCR4 | 120              | Warm White    | 30                                 | 3.6                               | 0.54 W                        | Clear      |  |
| OVS5MBBCR4  | 120              | Blue          | 8.2                                | 3.4                               | 0.51 W                        |            |  |
| OVS5MGBCR4  |                  | Green         | 22                                 | 3.4                               | 0.51 W                        |            |  |
| Part Number | Viewing<br>Angle | Emitted Color | Typ. Luminous In-<br>tensity (mcd) | Forward Voltage<br>V <sub>F</sub> | Power Dissipation @<br>150 mA | Lens Color |  |
| OVS5MRBCR4  |                  | Red           | 7150                               | 2.2                               | 0.33 W                        |            |  |
| OVS5MABCR4  | OVS5MABCR4 120   |               | 7150                               | 2.2                               | 0.33 W                        | Clear      |  |
| OVS5MYBCR4  |                  | Yellow        | 7150                               | 2.2                               | 0.33 W                        |            |  |



DO NOT LOOK DIRECTLY AT LED WITH UNSHIELDED EYES OR DAMAGE TO RETINA MAY

General Note

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## OVS5MxBCR4 Series

### **Electrical Specifications**

| Absolute Maximum Ratings (T <sub>A</sub> = 25° C unless otherwise noted) |                    |                                    |                                    |                               |  |  |  |  |
|--|--------------------|------------------------------------|------------------------------------|-------------------------------|--|--|--|--|
|  | Red, Amber, Yellow | Green, Blue                        | White                              | Warm White                    |  |  |  |  |
| DC Forward Current   | 200 mA<br>a        | 180 mA                             | 180 mA                             | 180 mA                        |  |  |  |  |
| Peak Pulsed Forward Current <sup>1</sup>                                 | 1000 mA            | 350 mA                             | 350 mA                             | 350 mA                        |  |  |  |  |
| Reverse Voltage  | 12V @ 10 uA        | Not designed for re-<br>verse bias | Not designed for re-<br>verse bias | Not designed for reverse bias |  |  |  |  |
| Junction Temperature <sup>2</sup>  | 125°C              | 125°C                              | 125°C                              | 125°C                         |  |  |  |  |
| Power Dissipation  | 750mW              | 750mW                              | 750mW                              | 750mW                         |  |  |  |  |
| Storage and Operating Temperature  | -40° ~ +100 ° C    | -40° ~ +100 ° C                    | -40° ~ +100 ° C                    | -40° ~ +100 ° C               |  |  |  |  |
| ESD (JEDEC-JESD22-A114F)   | Class 2            | Class 2                            | Class 2                            | Class 2                       |  |  |  |  |
| MSL (IPC / JEDEC J-STD-020C)   | 2a / 672 Hrs       | 2a / 672 Hrs                       | 2a / 672 Hrs                       | 2a / 672 Hrs                  |  |  |  |  |

Notes:

1. Pulse width tp  $\leq 10 \mu s$ , Duty cycle = 0.1

2. Thermal Resistance = 5 C/W





[2.6] .102

DIMENSIONS ARE IN INCHES [MM].

[3.1]

.122

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[1.5]

.059







| PIN 1 | ANODE   |
|-------|---------|
| PIN 2 | CATHODE |

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## OVS5MxBCR4 Series

## Optical and Electrical Characteristics - Red, Amber, Yellow (I<sub>F</sub> = 140 mA, T<sub>A</sub> = 25° C)

| SYMBOL         | PARAMETER              | MIN    | ТҮР  | МАХ  | UNITS |     |
|----------------|------------------------|--------|------|------|-------|-----|
| V <sub>F</sub> | Forward Voltage        | 1.9    | 2.2  | 2.65 | V     |     |
| Ф              | Luminous Intensity     | Red    | 4500 | 7150 | 9000  | mcd |
|                |                        | Amber  |      |      |       |     |
|                |                        | Yellow |      |      |       |     |
| $\lambda_{D}$  | Dominant Wavelength    | Red    | 620  | 625  | 630   |     |
|                |                        | Amber  | 610  | 615  | 621   | nm  |
|                |                        | Yellow | 585  | 590  | 594   |     |
| I <sub>R</sub> | Reverse Current @ 12 V |        |      | 10   |       | μA  |
| 2 0½           | 50% Power Angle        |        |      | 120  |       | deg |

### Optical and Electrical Characteristics - Blue, Green ( $I_F = 150 \text{ mA}, T_A = 25^{\circ} \text{ C}$ )

| SYMBOL         | PARAMETER           | MIN   | ТҮР  | ΜΑΧ  | UNITS |     |
|----------------|---------------------|-------|------|------|-------|-----|
| V <sub>F</sub> | Forward Voltage     | 3.0   | 3.4  | 3.9  | V     |     |
| Φ              | Luminous Flux       | Blue  | 6.3  | 8.2  | 10.7  | lm  |
|                |                     | Green | 18.1 | 22.0 | 30.6  |     |
| $\lambda_{D}$  | Dominant Wayalangth | Blue  | 460  | 465  | 470   | nm  |
|                | Dominant Wavelength | Green | 520  | 525  | 535   |     |
| 2 0½           | 50% Power Angle     |       |      | 120  |       | deg |

### Optical and Electrical Characteristics - White, Warm White $(I_F = 150 \text{ mA}, T_A = 25^{\circ} \text{ C})$

| SYMBOL         | PARAMETER       |            | MIN  | ТҮР | ΜΑΧ  | UNITS |
|----------------|-----------------|------------|------|-----|------|-------|
| V <sub>F</sub> | Forward Voltage | White      | 3.0  | 3.4 | 4.1  | v     |
|                |                 | Warm White |      | 3.6 |      |       |
| Φ              | Luminous Flux   | White      | 30.6 | 50  | 67.2 | Im    |
|                |                 | Warm White | 23.5 | 30  | 39.8 |       |
| 2 0½           | 50% Power Angle |            |      | 120 |      | deg   |

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## **OVS5MxBCR4 Series**

#### OVS5MABCR4 (Amber), OVS5MRBCR4 (Red) and OVS5MYBCR4 (Yellow)



Maximum Current Vs Ambient Temperature







2.5 2 1.5 0 0 50 100 150 200 Forward Current; mA

Forward Voltage Vs Forward Current

Maximum Current vs Solder-Point Temperature



Allowable Forward Current Vs Duty Ratio



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## **OVS5MxBCR4 Series**

OVS5MBBCR4 (Blue), OVS5MGBCR4 (Green), OVS5MWBCR4 (White) and OVS5MWWBCR4 (Warm White)



White & Warm White Relative Intensity Vs Wavelength



Forward Current Vs Ambient Temperature



Forward Current vs Forward Voltage



Blue & Green Relative Intensity Vs Wavelength





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## OVS5MxBCR4 Series

### Solder Pad Design

Note: Metal core circuit board (MCPCB) is highly recommended for high density applications. FR-4 board is recommended for other applications



Solder Paste Pattern



**Copper Pattern** 

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### **OVS5MxBCR4** Series

#### Recommended Sn-Pb IR-Reflow Soldering Profile.



Recommended Pb Free IR-Reflow Soldering Profile.



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### **OVS5MxBCR4 Series**

Reel Dimensions: 7-inch reel



Carrier Tape Dimensions: Loaded quantity 1000 pieces per reel



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# **Mouser Electronics**

Authorized Distributor

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OVS5Y4CR44 OVS5R4CR44 OVS5WBCR4 OVS5MABCR4 OVS5MBBCR4 OVS5MBBCR4 OVS5MBBCR4 OVS5MBCR4 OVS5MBCR4 OVS5MBCR4 OVS5MBCR4A OVS5MABCR4A