



# THE DATASHEET OF OVSA1ABLCR8



# PLCC4 Surface Mount LED with Dome Lens



## OVSA1xBLCR8 Series

### Features:

- High intensity with low power consumption
- PLCC4 packaged in 8 mm tape on 7" diameter reel
- Compatible with automatic placement equipment
- Dimensions: 3.2 x 2.7 x 1.95 mm
- 60° viewing angle



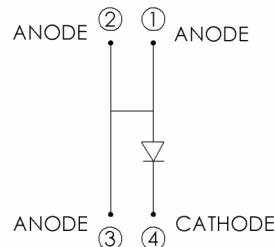
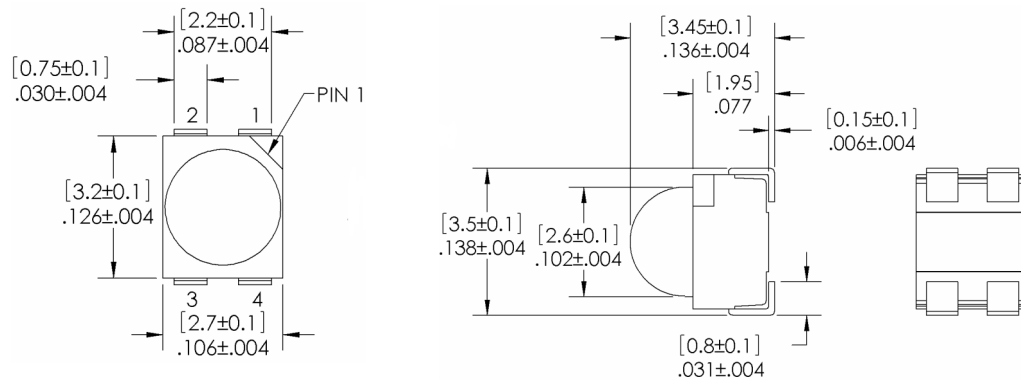
### Description:

The OVSA1xBLCR8 series is designed for focused, uniform light output. Its internal reflector and colorless clear lens optimize luminous intensity and make it ideal for backlighting applications and for coupling with light guides.

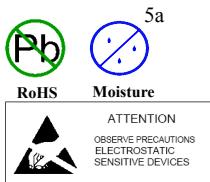
### Applications:

- Traffic lights
- Signal and symbol luminaire
- Mono-color indicators
- Backlighting (LCD, switches, displays, illuminated advertising)
- Interior automotive lighting (instrumentation clusters)
- Safety marker lights (steps, exit ways)

| Part Number | Material | Emitted Color | Intensity<br>Typ. mcd | Lens Color  |
|-------------|----------|---------------|-----------------------|-------------|
| OVSA1ABLCR8 | AllnGaP  | Amber         | 5000                  | Water Clear |
| OVSA1SBLCR8 | AllnGaP  | Red           | 3700                  | Water Clear |



DIMENSIONS ARE IN INCHES AND [ MM ]



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

### General Note

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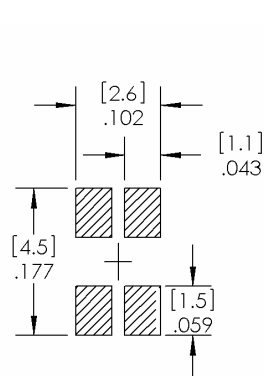
### Electrical Specifications

| Absolute Maximum Ratings (T <sub>A</sub> = 25° C unless otherwise noted) |                     |
|--|---------------------|
| Storage Temperature Range  | -40 ~ +100 °C       |
| Operating Temperature Range  | -40 ~ +100 °C       |
| Reverse Voltage  | 5 V                 |
| Continuous Forward Current   | 70 mA               |
| Peak Forward Current (Pulse width ≤10 msec, duty cycle ≤10%)             | 200 mA              |
| Power Dissipation  | 210 mW              |
| Thermal Resistance Junction to Solder <sup>1</sup>                       | 150° C/W            |
| Electrostatic Discharge Classification (MIL-STD-883E)                    | Class 2             |
| LED Junction Temperature   | 110° C              |
| Lead Soldering Temperature   | 250° C / 10 seconds |

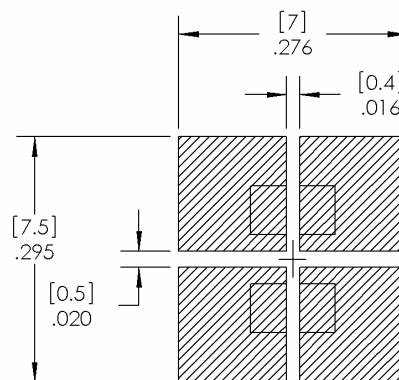
Note:

1. Rth test condition: Mounted on PC board FR 4 (pad size ≥16 mm<sup>2</sup>)

| Electrical Characteristics (T <sub>A</sub> = 25° C unless otherwise noted) |                     |                 |      |      |       |                 |                        |
|--|---------------------|-----------------|------|------|-------|-----------------|------------------------|
| SYMBOL   | PARAMETER           | MIN             | TYP  | MAX  | UNITS | TEST CONDITIONS |                        |
| I <sub>v</sub>   | Luminous Intensity  | Red             | 2240 | 3700 |       | mcd             | I <sub>F</sub> = 50 mA |
| V <sub>F</sub>   | Forward Voltage     | Forward Voltage | ---- | 2.5  | 3.0   | V               | I <sub>F</sub> = 50 mA |
| I <sub>R</sub>   | Reverse Current     | Reverse Current | ---- | ---- | 10    | μA              | V <sub>R</sub> = 5 V   |
| λ <sub>D</sub>   | Dominant Wavelength | Red             | 618  | 624  | 630   | nm              | I <sub>F</sub> = 50 mA |
| 2Θ <sub>½H-H</sub>   | 50% Power Angle     | 50% Power Angle |      | 60   |       | deg             | I <sub>F</sub> = 50 mA |



RECOMMENDED SOLDER PASTE PATTERN



RECOMMENDED COPPER PATTERN

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## OVSA1xBLCR8 Series

### Standard Bins

LEDs are sorted to luminous intensity ( $I_V$ ) and dominant wavelength (nm) bins listed below. Each reel consists of a single intensity bin and a single color bin. Orders are filled using all intensity and color bins listed in the following tables. Optek will not accept orders for single intensity bins or single color bins.

#### Luminous Intensity ( $I_V$ ) @ 50mA

| RED: OVSA1SBLCR8 |           |           |
|------------------|-----------|-----------|
| IV Code          | Min (mcd) | Max (mcd) |
| Xb               | 2240      | 2800      |
| Ya               | 2800      | 3550      |
| Yb               | 3550      | 4500      |
| Z0               | 4500      | 5600      |

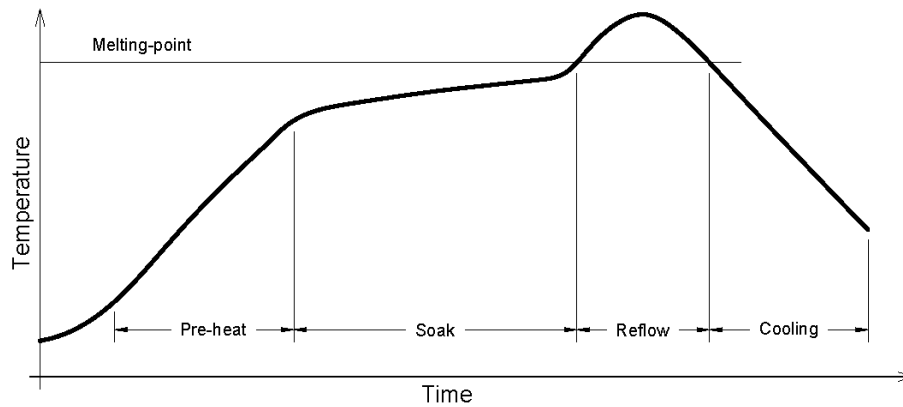
#### Dominant Wavelength (nm)

| RED: OVSA1SBLCR8 |     |     |
|------------------|-----|-----|
| nm Code          | Min | Max |
| RA               | 618 | 630 |

| AMBER: OVSA1ABLCR8 |           |           |
|--------------------|-----------|-----------|
| IV Code            | Min (mcd) | Max (mcd) |
| Yb                 | 3550      | 4500      |
| Z0                 | 4500      | 5600      |
| A0                 | 5600      | 7100      |
| B0                 | 7100      | 9000      |

| AMBER: OVSA1ABLCR8 |     |     |
|--------------------|-----|-----|
| nm Code            | Min | Max |
| A2                 | 584 | 587 |
| A3                 | 587 | 590 |
| A4                 | 590 | 593 |
| A5                 | 593 | 596 |
| A6                 | 596 | 599 |

### Reflow Solder Profile



| Solder = Lead-Free                    |  |
|---------------------------------------|--|
| Average ramp-up rate = 4°C / sec. max | Peak temperature = 250°C max.                            |
| Preheat temperature: 150 - 220°C      | Time within 5°C of actual peak temperature = 10 sec. max |
| Preheat time: 120 sec. max.           |  |
| Ramp-down rate = 6°C / sec. max.      | Duration above 217°C is 60 sec. max                      |

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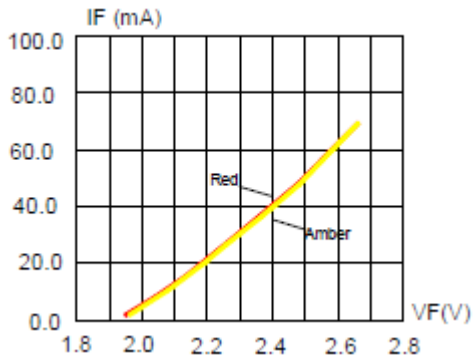
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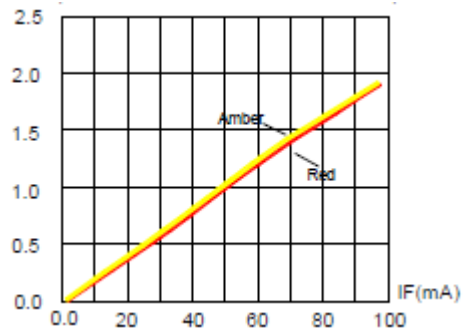


## OVSA1xBLCR8 Series

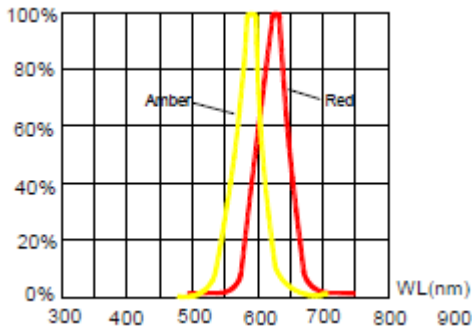
### Typical Electro-Optical Characteristics Curves for OVSA1SBLCR8 (Red) & OVSA1ABLCR8 (Amber)



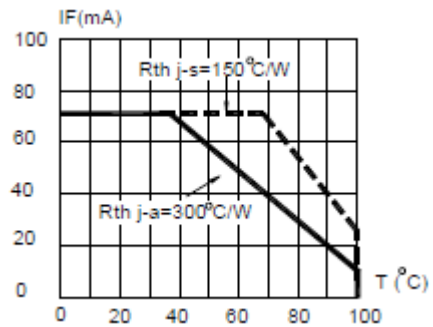
Forward Current vs. Forward Voltage



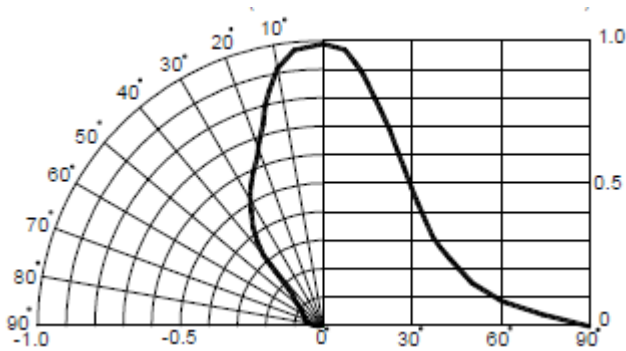
Relative Luminous Intensity vs. Forward Current



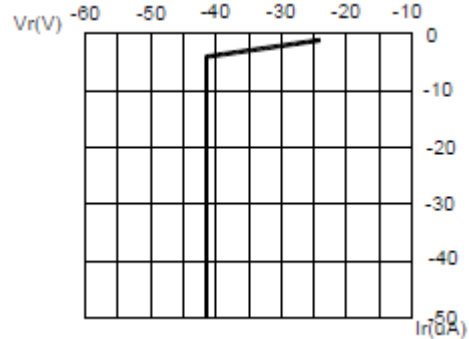
Relative Luminous Intensity vs. Wavelength



Red & Amber Maximum Forward DC Current vs. Ambient



Angular Distribution



Red & Amber Reverse Current vs. Reverse Voltage

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