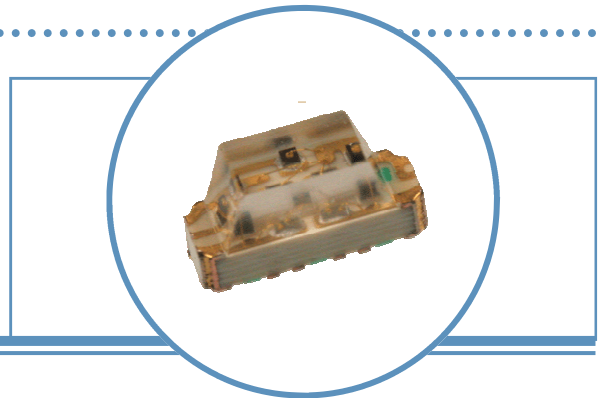


# Full-Color Right-Angle SMD (120° Viewing Angle)

## OVSRRGBBC9

- Full-color type
- Compatible with automatic placement equipment
- Compatible with infrared and vapor phase reflow solder process

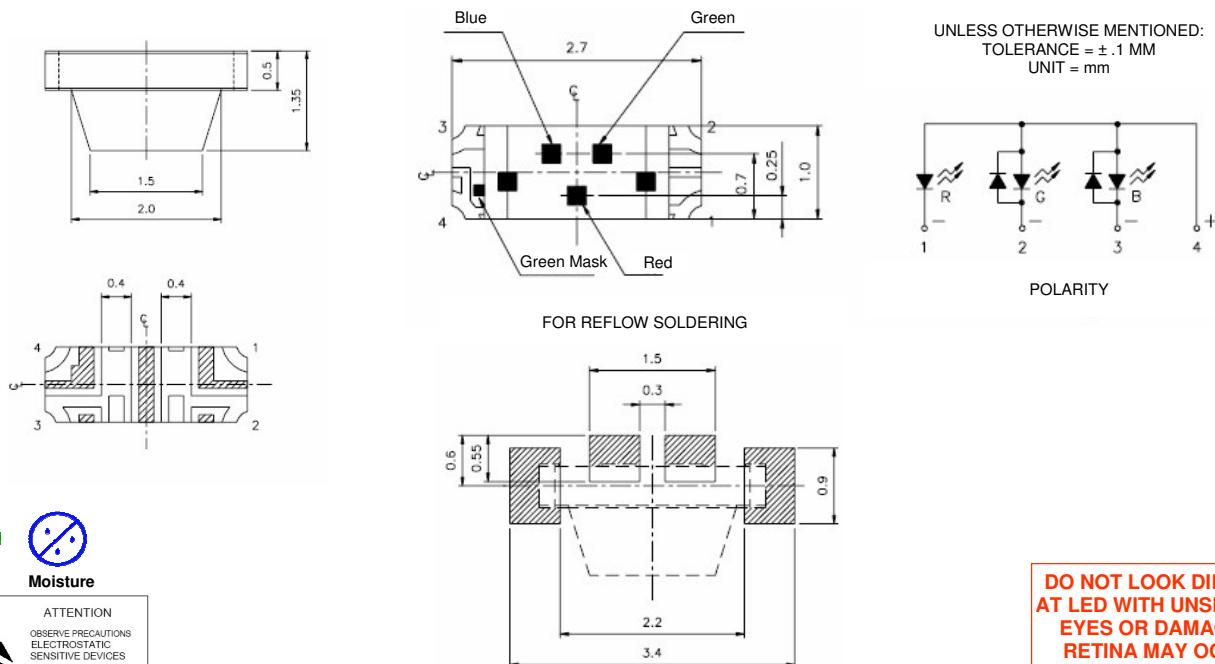


The **OVSRRGBBC9** is a compact full-color (RGB) right-angle surface mount LED with a 120° viewing angle. The device can be used in smaller boards with a higher packing density, which reduces storage space and makes it practical for use in miniature and portable applications.

## Applications

- Automotive backlighting for dashboard and switches
- Telecommunications (backlighting for telephones and faxes)
- Flat backlight for LCD, switch and symbol

| Part Number | Material | Emitted Color | Intensity Typ. mcd | Lens Color  |
|-------------|----------|---------------|--------------------|-------------|
| OVSRRGBBC9  | AllInGaN | Red           | 72 mcd             | Water Clear |
|             | InGaN    | Green         | 180 mcd            |             |
|             | InGaN    | Blue          | 45 mcd             |             |



**RoHS** **Moisture**

ATTENTION  
OBSERVE PRECAUTIONS  
ELECTROSTATIC  
SENSITIVE DEVICES

OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

### Absolute Maximum Ratings

T<sub>A</sub> = 25° C (on metal core PCB<sup>1</sup>) unless otherwise noted

|   |  |
|---|--|
| Storage Temperature Range                   | -40 ~ +90° C                                   |
| Operating Temperature Range                 | -40 ~ +85° C                                   |
| Reverse Voltage                             | 5 V  |
| Continuous Forward Current                  | 25 mA  |
| Peak Forward Current (10% Duty Cycle, 1KHz) | Red = 60 mA<br>Green = 100 mA<br>Blue = 100 mA |
| Power Dissipation                           | Red = 60 mW<br>Green = 110 mW<br>Blue = 110 mW |
| Soldering Temperature (for 5 seconds)       | +260° C  |

### Electrical Characteristics

| RED                |   |      |      |      |       |                        |
|--------------------|---|------|------|------|-------|------------------------|
| SYMBOL             | PARAMETER                               | MIN  | TYP  | MAX  | UNITS | CONDITIONS             |
| I <sub>V</sub>     | Luminous Intensity<br>(axial direction) | 45   | 72   | ---- | mcd   | I <sub>F</sub> = 20 mA |
| 2 Θ <sub>1/2</sub> | Viewing Angle                           | ---- | 120  | ---- | deg   | I <sub>F</sub> = 20 mA |
| λ <sub>P</sub>     | Peak Wavelength                         | ---- | 632  | ---- | nm    | I <sub>F</sub> = 20 mA |
| λ <sub>D</sub>     | Dominant Wavelength                     | 615  | ---- | 630  | nm    | I <sub>F</sub> = 20 mA |
| Δλ                 | Spectrum Radiation Bandwidth            | ---- | 20   | ---- | nm    | I <sub>F</sub> = 20 mA |
| V <sub>F</sub>     | Forward Voltage                         | ---- | 2.0  | 2.4  | V     | I <sub>F</sub> = 20 mA |
| I <sub>R</sub>     | Reverse Current                         | ---- | ---- | 10   | μA    | V <sub>R</sub> = 5 V   |

### Electrical Characteristics

| GREEN              |   |      |      |      |       |                        |
|--------------------|---|------|------|------|-------|------------------------|
| SYMBOL             | PARAMETER                               | MIN  | TYP  | MAX  | UNITS | CONDITIONS             |
| I <sub>V</sub>     | Luminous Intensity<br>(axial direction) | 112  | 180  | ---- | mcd   | I <sub>F</sub> = 20 mA |
| 2 Θ <sub>1/2</sub> | Viewing Angle                           | ---- | 120  | ---- | deg   | I <sub>F</sub> = 20 mA |
| λ <sub>P</sub>     | Peak Wavelength                         | ---- | 518  | ---- | nm    | I <sub>F</sub> = 20 mA |
| λ <sub>D</sub>     | Dominant Wavelength                     | 510  | ---- | 540  | nm    | I <sub>F</sub> = 20 mA |
| Δλ                 | Spectrum Radiation Bandwidth            | ---- | 35   | ---- | nm    | I <sub>F</sub> = 20 mA |
| V <sub>F</sub>     | Forward Voltage                         | ---- | 3.3  | 3.9  | V     | I <sub>F</sub> = 20 mA |
| I <sub>R</sub>     | Reverse Current                         | ---- | ---- | 50   | μA    | V <sub>R</sub> = 5 V   |

Notes:

1. Luminous intensity tolerance is ± 10%.
2. Dominant wavelength tolerance is ± 1 nm.
3. Forward voltage tolerance is ± 0.1 V.

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## Electrical Characteristics

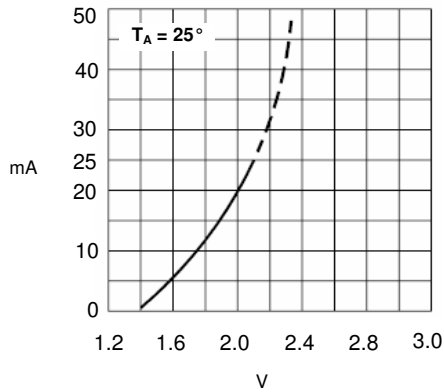
| BLUE             |   |      |      |      |               |                       |
|------------------|---|------|------|------|---------------|-----------------------|
| SYMBOL           | PARAMETER                               | MIN  | TYP  | MAX  | UNITS         | CONDITIONS            |
| $I_V$            | Luminous Intensity<br>(axial direction) | 28.5 | 45   | ---- | mcd           | $I_F = 20 \text{ mA}$ |
| $2 \Theta_{1/2}$ | Viewing Angle                           | ---- | 120  | ---- | deg           | $I_F = 20 \text{ mA}$ |
| $\lambda_P$      | Peak Wavelength                         | ---- | 468  | ---- | nm            | $I_F = 20 \text{ mA}$ |
| $\lambda_D$      | Dominant Wavelength                     | 460  | ---- | 480  | nm            | $I_F = 20 \text{ mA}$ |
| $\Delta\lambda$  | Spectrum Radiation Bandwidth            | ---- | 35   | ---- | nm            | $I_F = 20 \text{ mA}$ |
| $V_F$            | Forward Voltage                         | ---- | 3.3  | 3.9  | V             | $I_F = 20 \text{ mA}$ |
| $I_R$            | Reverse Current                         | ---- | ---- | 50   | $\mu\text{A}$ | $V_R = 5 \text{ V}$   |

Notes:

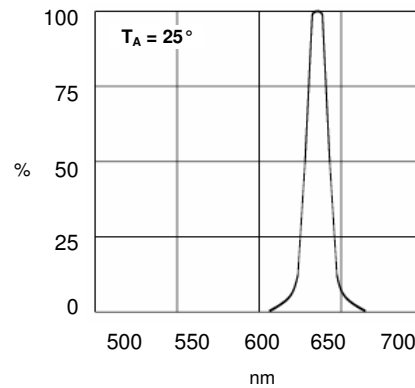
1. Luminous intensity tolerance is  $\pm 10\%$ .
2. Dominant wavelength tolerance is  $\pm 1 \text{ nm}$ .
3. Forward voltage tolerance is  $\pm 0.1 \text{ V}$ .

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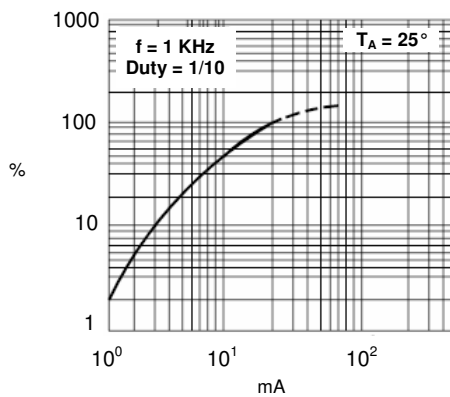
### Typical Electro-Optical Characteristics Curves – Red



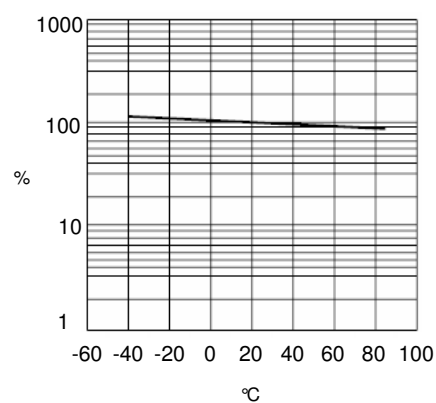
Forward Current vs Forward Voltage



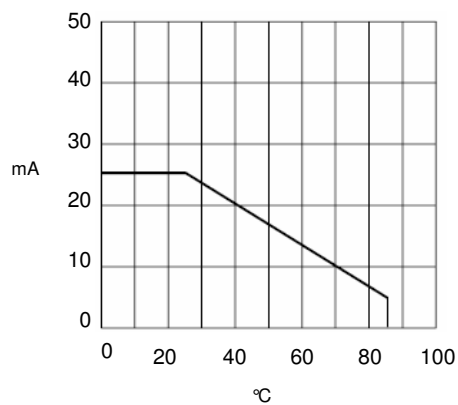
Relative Luminous Intensity vs Wavelength



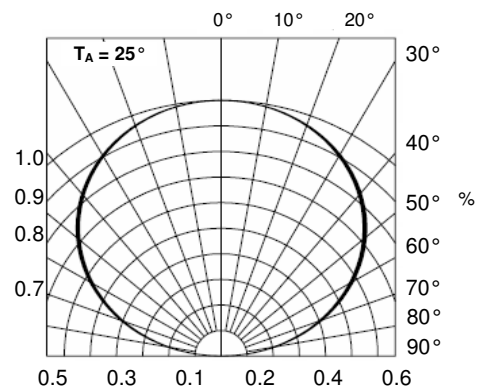
Relative Luminous Intensity vs Forward Current



Relative Luminous Intensity vs Ambient Temperature



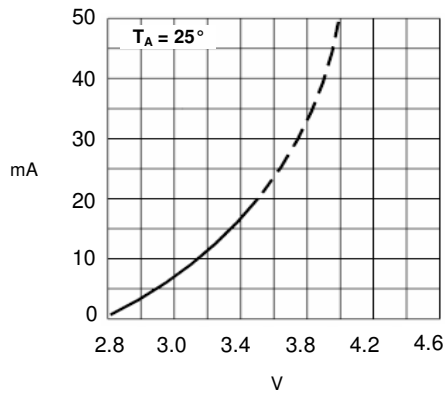
Forward Current vs Ambient Temperature



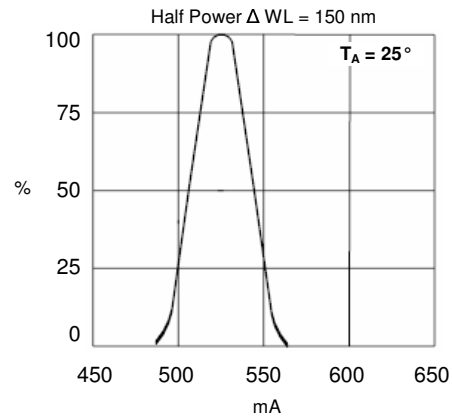
Radiation Diagram

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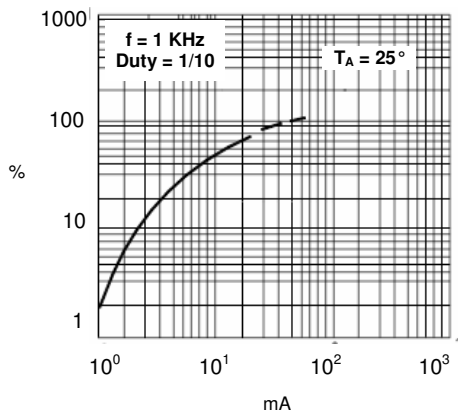
### Typical Electro-Optical Characteristics Curves – Green



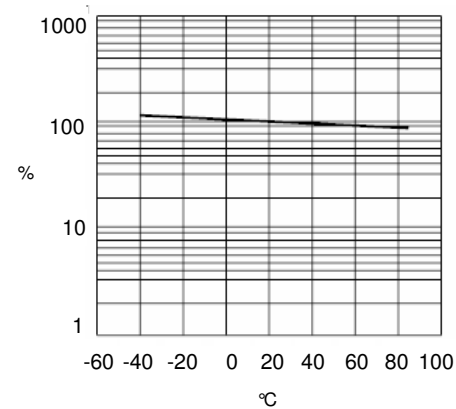
Forward Current vs Forward Voltage



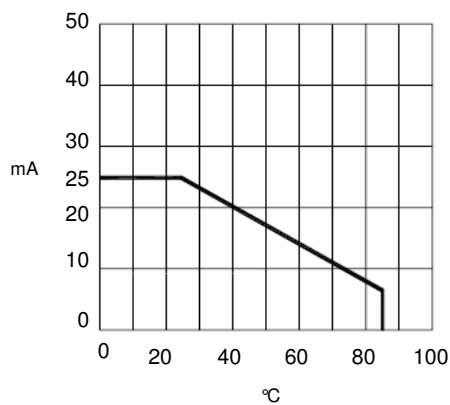
Relative Luminous Intensity vs Wavelength



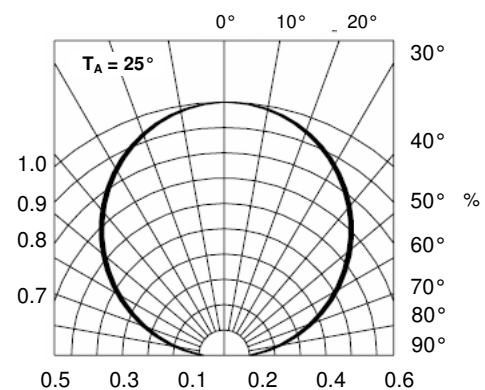
Relative Luminous Intensity vs Forward Current



Relative Luminous Intensity vs Ambient Temperature



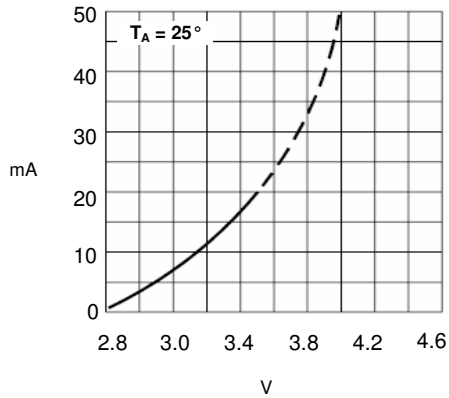
Forward Current vs Ambient Temperature



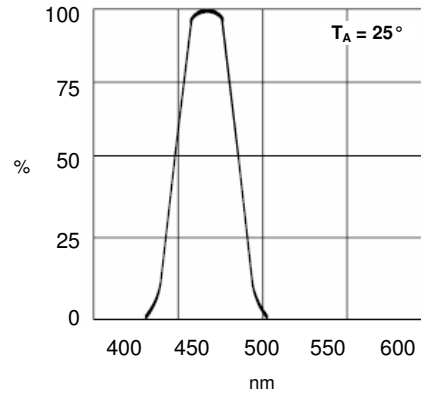
Radiation Diagram

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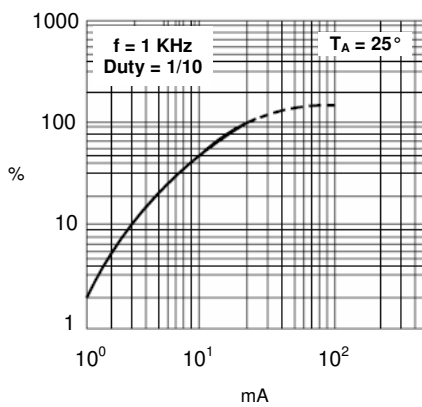
### Typical Electro-Optical Characteristics Curves – Blue



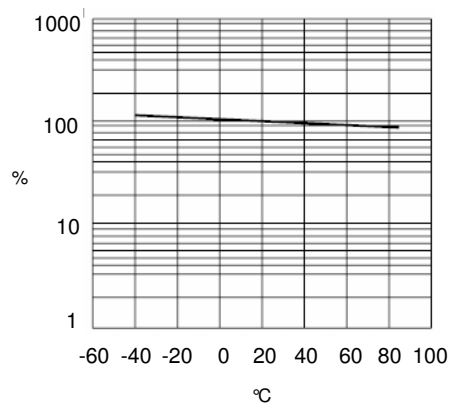
Forward Current vs Forward Voltage



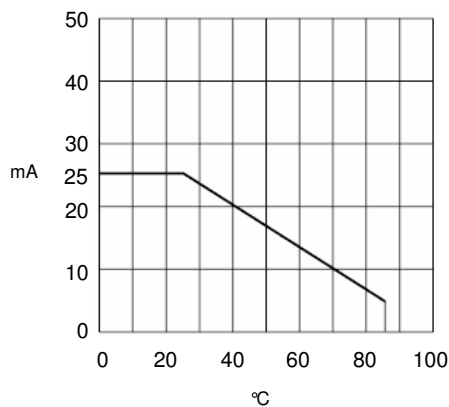
Relative Luminous Intensity vs Wavelength



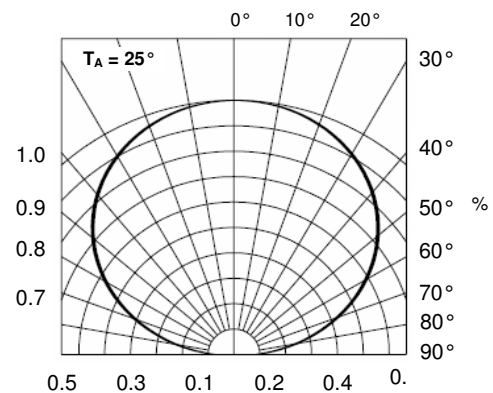
Relative Luminous Intensity vs Forward Current



Relative Luminous Intensity vs Ambient Temperature



Forward Current vs Ambient Temperature

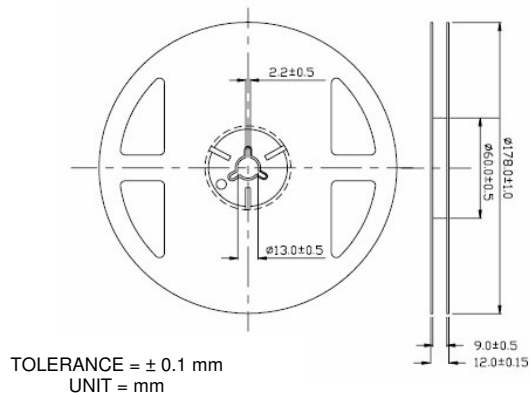


Radiation Diagram

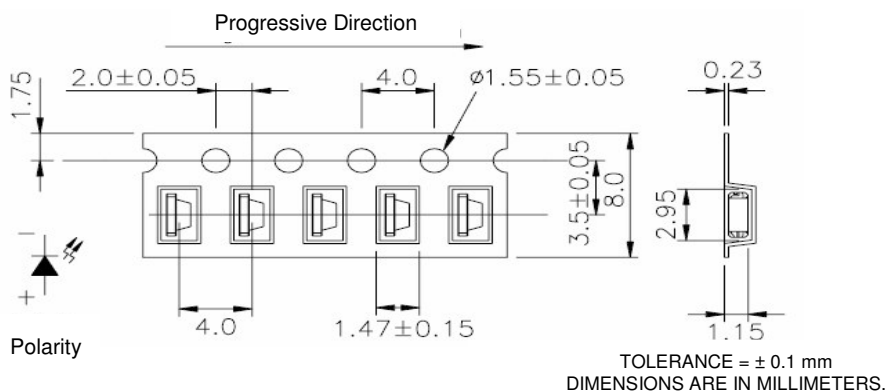
OPTEK reserves the right to make changes at any time in order to improve design and to supply the best product possible.

# Full-Color Right-Angle SMD OVSRRGBBC9

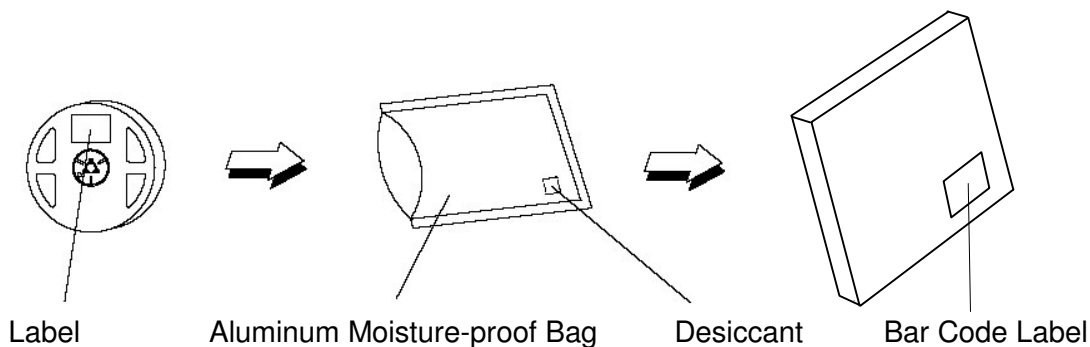
Reel Dimensions: 7-inch reel



Carrier Tape Dimensions: Loaded quantity 2000 pieces per reel



## Moisture Resistant Packaging



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