

Full Color PLCC4 LED

OVSARGB3R8

- Surface mount device packaged in 8 mm tape on 7" diameter reel
- Compatible with automatic placement equipment
- Compatible with infrared and vapor phase reflow solder
- Dimensions: 3.5 x 2.8 x 1.9 mm
- 120° viewing angle

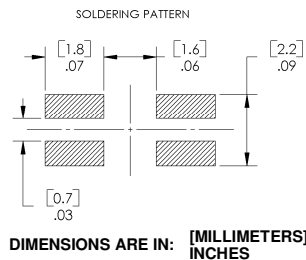
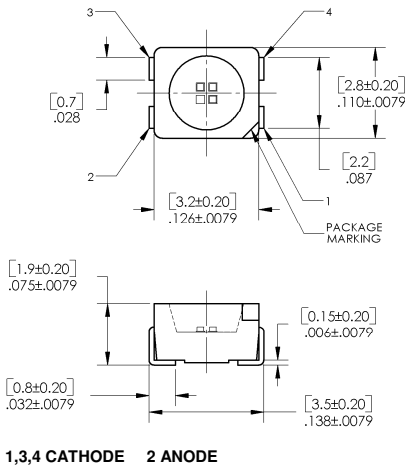


The **OVSARGB3R8** provides full color light output from a single package, 3-die design. This surface mount package is an efficient solution in modular applications that require uniform brightness and color-on-demand. Light output is optimized by an interior reflector and the wide viewing angle adds flexibility for applications ranging from hand-held appliances to automotive interiors.

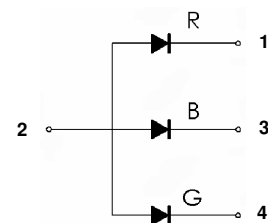
Applications

- RGB + white full-color indoor and outdoor displays
- Backlighting
- Coupling into light guides
- Automotive interiors
- Entertainment equipment

| Part Number | Chip | | | | Lens Color |
|-------------|------|----------|---------------|--------------------|-------------|
| | Type | Material | Emitted Color | Intensity Typ. mcd | |
| OVSARGB3R8 | R | AlInGaP | Red | 300 | Water Clear |
| | G | InGaN | Green | 450 | |
| | B | InGaN | Blue | 110 | |



| Pin # | Description |
|-------|---------------|
| 1 | Red-Cathode |
| 2 | Common Anode |
| 3 | Blue-Cathode |
| 4 | Green-Cathode |



RoHS



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

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

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Absolute Maximum Ratings

$T_A = 25^\circ\text{C}$ unless otherwise noted

| PARAMETER | RATING | | | UNIT |
|---|------------|-----|-----|---------------------------|
| | R | G | B | |
| Storage Temperature | -40 ~ +100 | | | $^\circ\text{C}$ |
| Operating Temperature | -40 ~ +100 | | | $^\circ\text{C}$ |
| Reverse Voltage | 5 | | | V |
| Continuous Forward Current ¹ | 50 | 25 | 25 | mA |
| Peak Forward Current (10% Duty Cycle, PW \leq 100 μsec) | 200 | 100 | 100 | mA |
| Power Dissipation | 130 | 105 | 105 | mW |
| Junction Temperature | 110 | 110 | 110 | $^\circ\text{C}$ |
| Junction/ambient (1 chip on) ² | 450 | 400 | 450 | $^\circ\text{C}/\text{W}$ |
| Junction/ambient (3 chips on) ² | 650 | 580 | 680 | $^\circ\text{C}/\text{W}$ |
| Junction/solder point (1 chip on) | 300 | 280 | 300 | $^\circ\text{C}/\text{W}$ |
| Junction/solder point (3 chips on) | 450 | 430 | 480 | $^\circ\text{C}/\text{W}$ |

Notes:

1. Single color light
2. Rth test condition: Mounted on PC board FR 4 (pad size \geq 16mm²)

Electrical Characteristics

$T_A = 25^\circ\text{C}$ unless otherwise noted

| SYMBOL | PARAMETER | VALUES | | | | UNIT | CONDITIONS |
|-----------------|------------------------------|--------|---------|---------|---------|---------------|----------------------|
| | | | R | G | B | | |
| I_V | Luminous Intensity | Min | 180 | 280 | 71 | mcd | $I_F = 20\text{ mA}$ |
| | | Typ | 300 | 450 | 110 | | |
| V_F | Forward Voltage | Typ | 2.3 | 3.6 | 3.6 | V | $I_F = 20\text{ mA}$ |
| | | Max | 2.6 | 4.2 | 4.2 | | |
| I_R | Reverse Current (max) | | 10 | 10 | 10 | μA | $V_R = 5\text{ V}$ |
| λ_D | Dominant Wavelength | | 612–625 | 520–540 | 460–480 | nm | $I_F = 20\text{ mA}$ |
| λ_P | Wavelength at Peak Emission | | 620 | 520 | 465 | nm | $I_F = 20\text{ mA}$ |
| $2\theta_{1/2}$ | 50% Power Angle | | 120 | 120 | 120 | deg | $I_F = 20\text{ mA}$ |
| $\Delta\lambda$ | Spectrum Radiation Bandwidth | | 24 | 38 | 28 | nm | $I_F = 20\text{ mA}$ |

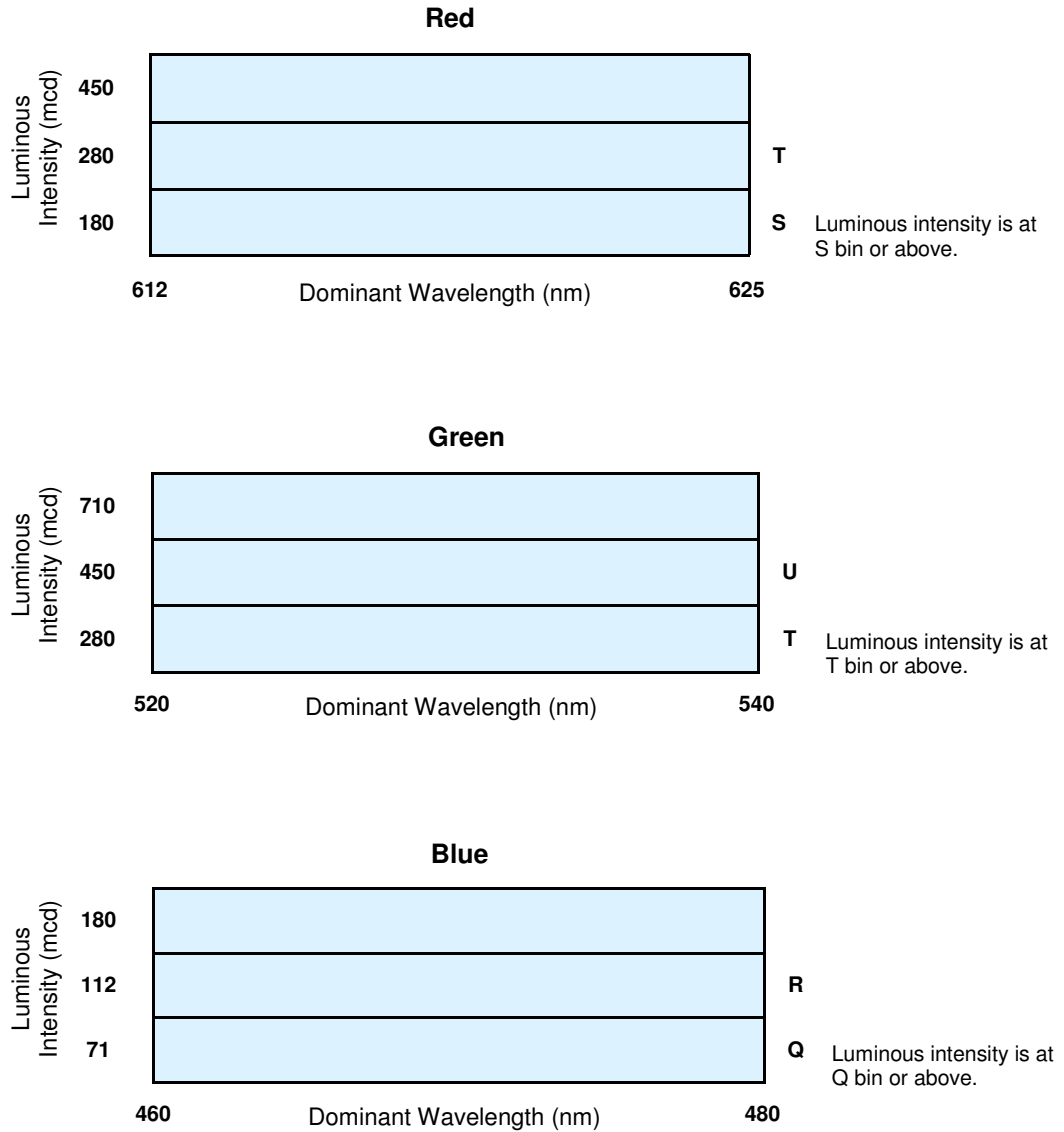
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Standard Bins ($I_F=20\text{ mA}$)

Lamps are sorted to luminous intensity (I_V) and dominant wavelength (λ_D) bins shown. Orders for OVSARGB3R8 may be filled with any or all bins contained as below.

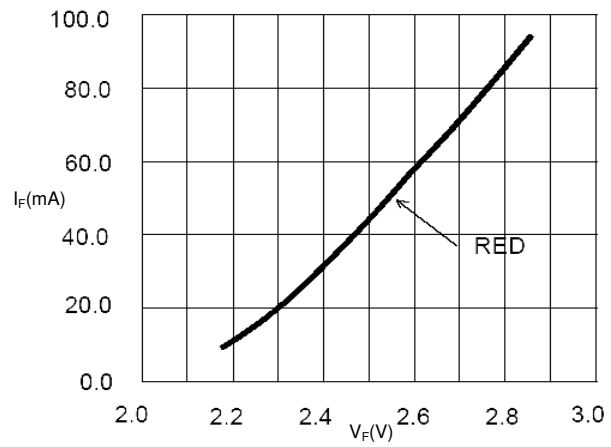
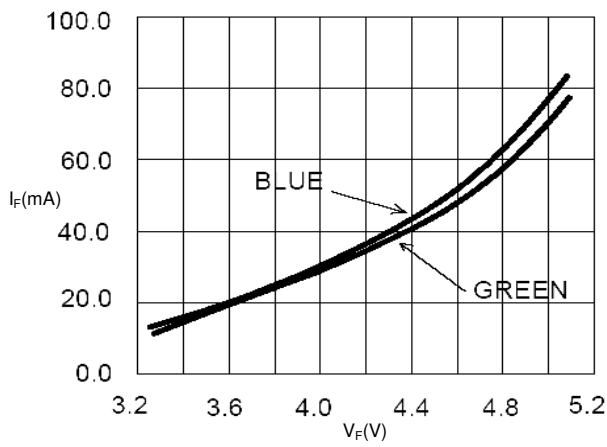
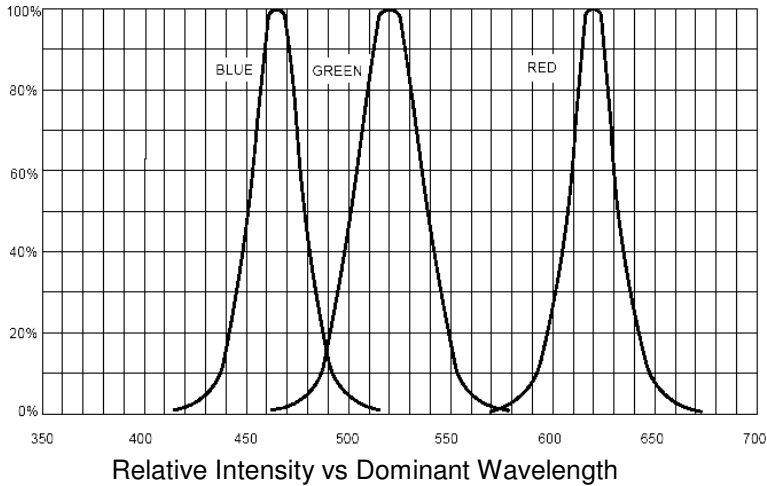


Notes:

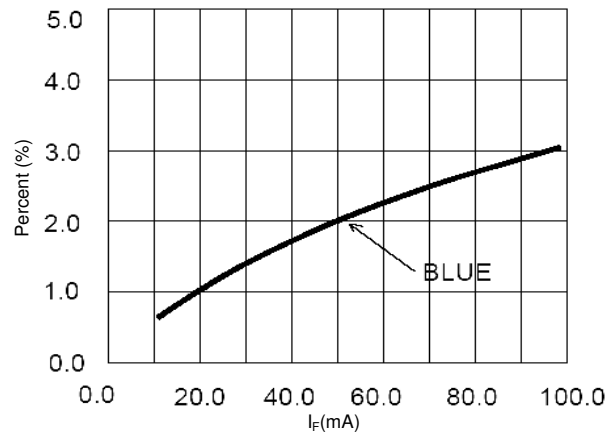
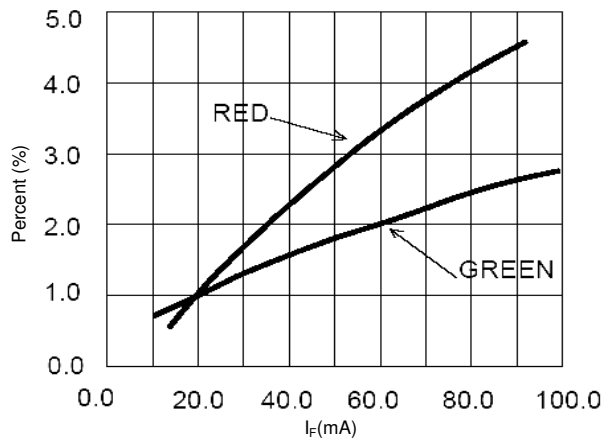
1. All ranks will be included per delivery, rank ratio will be based on the chip distribution.
2. Tolerance of measurement of luminous intensity is $\pm 10\%$.
3. Tolerance of measurement of dominant wavelength is $\pm 1\text{ nm}$.
4. Tolerance of measurement of V_F is $\pm 0.05V$.

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Typical Electro-Optical Characteristics Curves



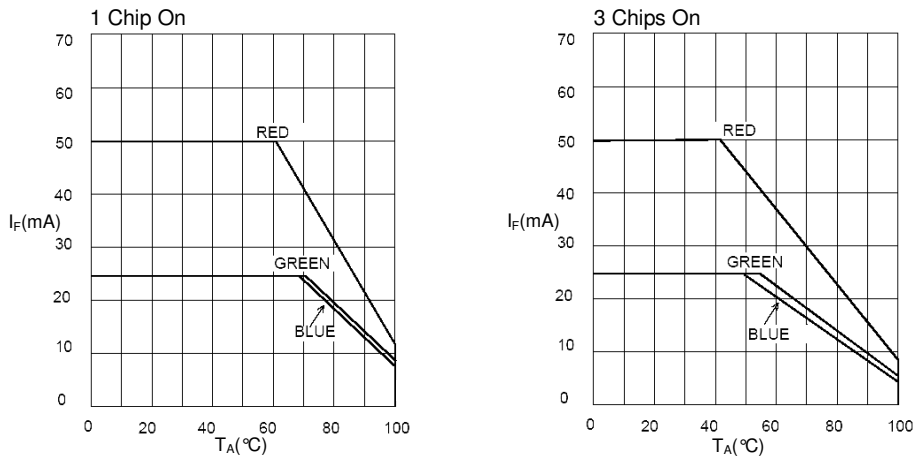
Forward Current vs Forward Voltage



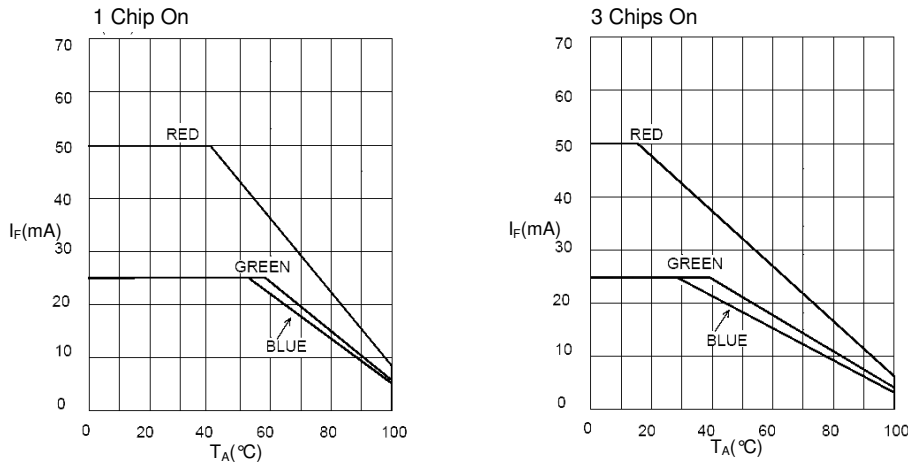
Relative Luminous Intensity vs Forward Current

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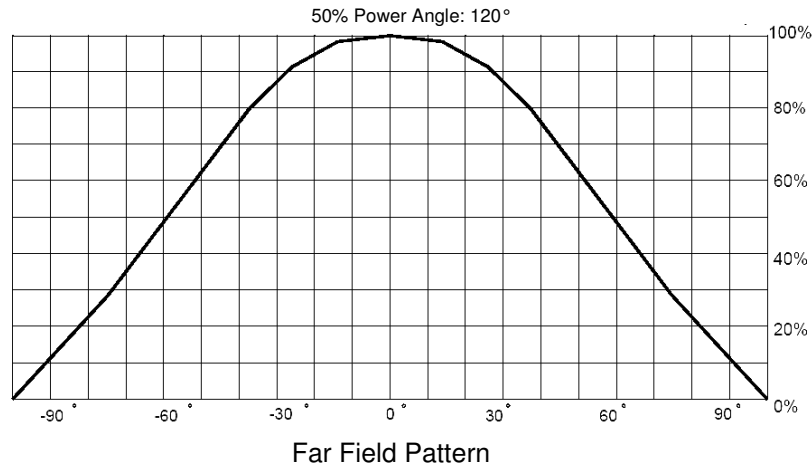
Typical Electro-Optical Characteristics Curves



Maximum Forward DC Current vs Solder Point Temperature

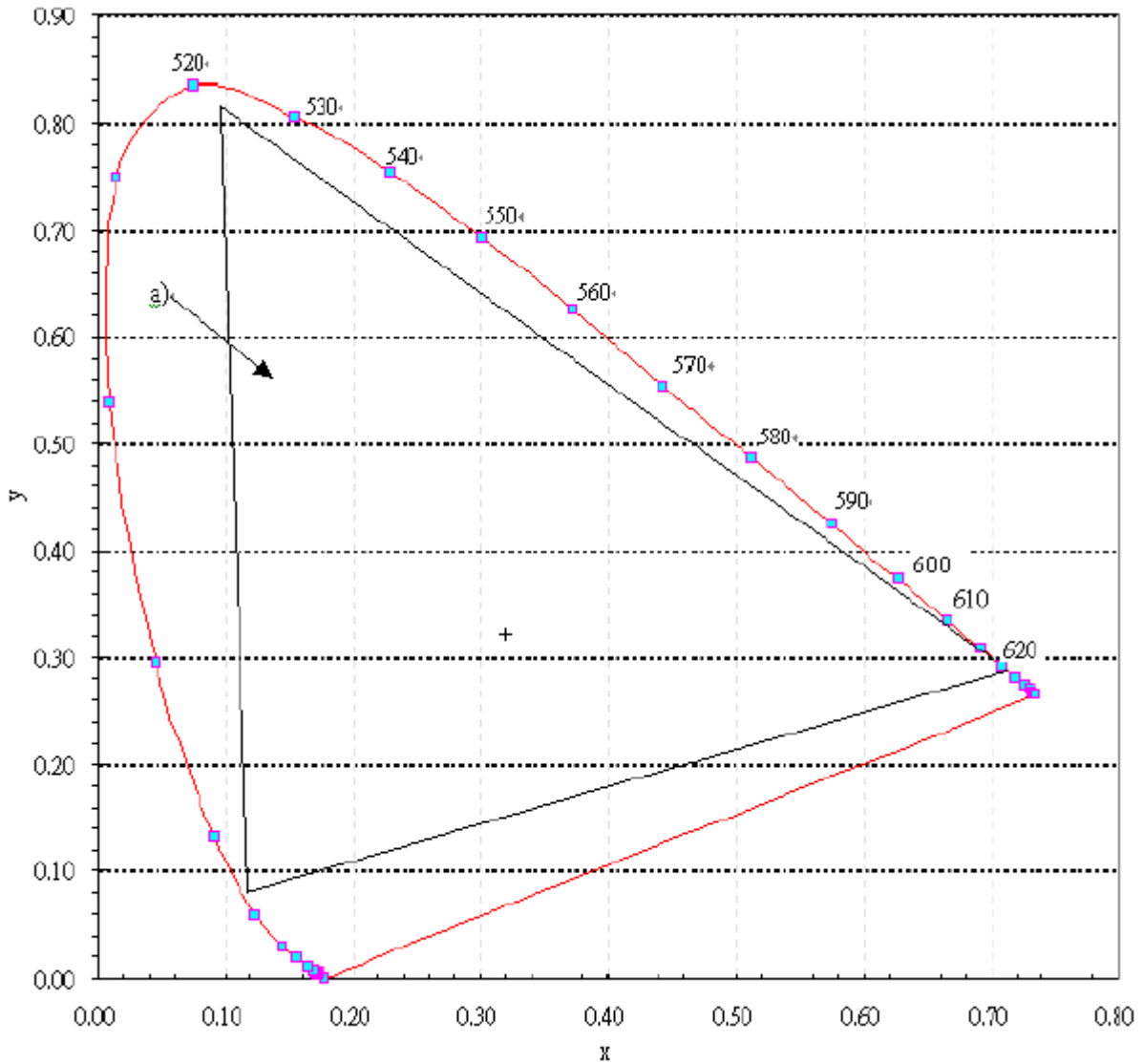


Maximum Forward DC Current vs Ambient Temperature



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CIE Graph



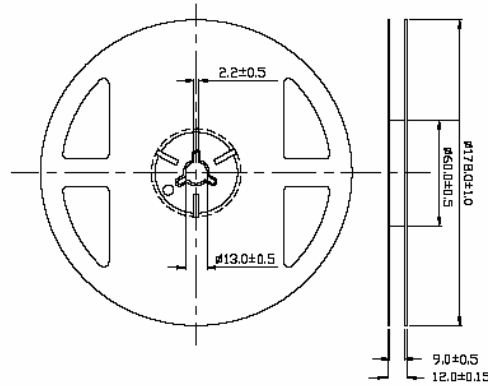
Notes:

1. The color coordinates of the mixed light can be expected within the area of the color triangle marked a).
2. The achromatic point ($x = 0.33, y = 0.33$) is marked "+".

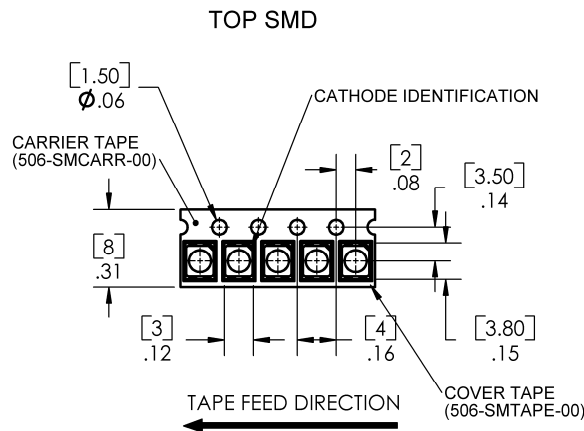
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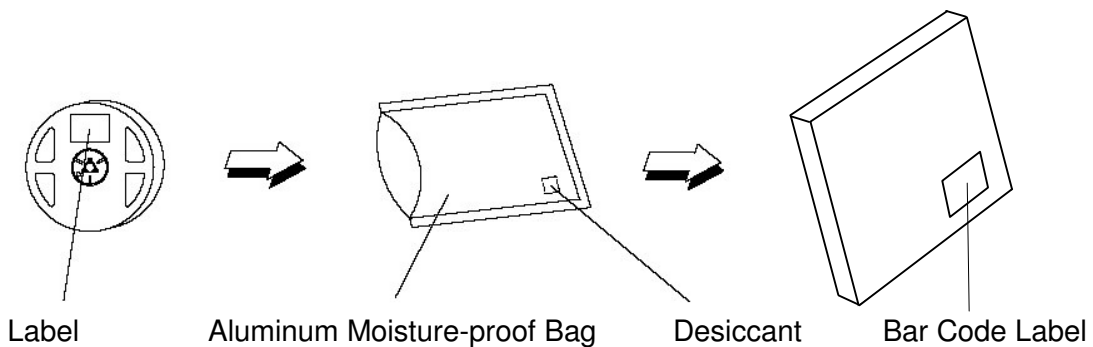
Reel Dimensions: 7-inch reel



Carrier Tape Dimensions: Loaded quantity 2000 pieces per reel



Moisture Resistant Packaging



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