

Mini Half-Watt SMD 3.5mm (120° Viewing Angle)



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 Angle | Emitted Color | Typ. Luminous Flux (lm) | Forward Voltage V_F | Power Dissipation @ 150 mA | Lens Color |
|-------------|---------------|---------------|-------------------------|-----------------------|----------------------------|------------|
| OVS5MWBCR4 | 120 | White | 50 | 3.4 | 0.51 W | Clear |
| OVS5MWWBCR4 | | Warm White | 30 | 3.6 | 0.54 W | |
| OVS5MBBCR4 | | Blue | 8.2 | 3.4 | 0.51 W | |
| OVS5MGBCR4 | | Green | 22 | 3.4 | 0.51 W | |

| Part Number | Viewing Angle | Emitted Color | Typ. Luminous Intensity (mcd) | Forward Voltage V_F | Power Dissipation @ 150 mA | Lens Color |
|-------------|---------------|---------------|-------------------------------|-----------------------|----------------------------|------------|
| OVS5MRBCR4 | 120 | Red | 7150 | 2.2 | 0.33 W | Clear |
| OVS5MABCR4 | | Amber | 7150 | 2.2 | 0.33 W | |
| OVS5MYBCR4 | | Yellow | 7150 | 2.2 | 0.33 W | |



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

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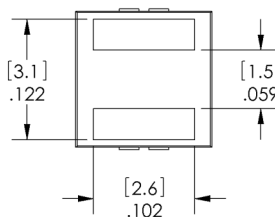
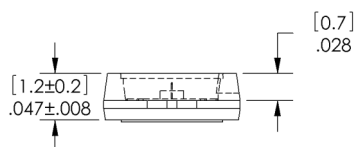
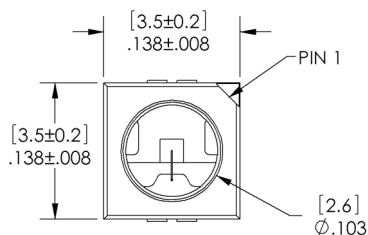
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Electrical Specifications

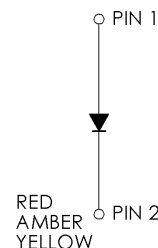
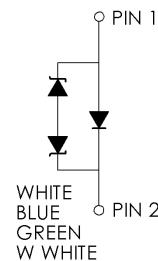
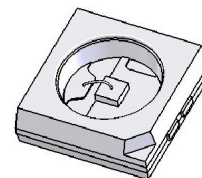
| Absolute Maximum Ratings (T _A = 25° C unless otherwise noted) | | | | |
|--|--------------------|-------------------------------|-------------------------------|-------------------------------|
| | Red, Amber, Yellow | Green, Blue | White | Warm White |
| DC Forward Current | 200 mA a | 180 mA | 180 mA | 180 mA |
| Peak Pulsed Forward Current ¹ | 1000 mA | 350 mA | 350 mA | 350 mA |
| Reverse Voltage | 12V @ 10 uA | Not designed for reverse bias | Not designed for reverse bias | Not designed for reverse bias |
| Junction Temperature ² | 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 $t_p \leq 10\mu s$, Duty cycle = 0.1
2. Thermal Resistance = 5 C/W



DIMENSIONS ARE IN INCHES [MM].



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

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OVS5MxBCR4 Series

Optical and Electrical Characteristics - Red, Amber, Yellow ($I_F = 140 \text{ mA}$, $T_A = 25^\circ \text{ C}$)

| SYMBOL | PARAMETER | MIN | TYP | MAX | UNITS | |
|-------------------------|------------------------|--------|------|------|---------------|-----|
| V_F | Forward Voltage | 1.9 | 2.2 | 2.65 | V | |
| Φ | Luminous Intensity | Red | 4500 | 7150 | 9000 | mcd |
| | | Amber | | | | |
| | | Yellow | | | | |
| λ_D | Dominant Wavelength | Red | 620 | 625 | 630 | nm |
| | | Amber | 610 | 615 | 621 | |
| | | Yellow | 585 | 590 | 594 | |
| I_R | Reverse Current @ 12 V | ---- | 10 | ---- | μA | |
| $2\theta_{\frac{1}{2}}$ | 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 | TYP | MAX | UNITS | |
|-------------------------|---------------------|-------|------|------|-------|----|
| V_F | 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 | |
| λ_D | Dominant Wavelength | Blue | 460 | 465 | 470 | nm |
| | | Green | 520 | 525 | 535 | |
| $2\theta_{\frac{1}{2}}$ | 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 | TYP | MAX | UNITS | |
|-------------------------|-----------------|------------|------|------|-------|----|
| V_F | Forward Voltage | White | 3.0 | 3.4 | 4.1 | V |
| | | Warm White | | 3.6 | | |
| Φ | Luminous Flux | White | 30.6 | 50 | 67.2 | lm |
| | | Warm White | 23.5 | 30 | 39.8 | |
| $2\theta_{\frac{1}{2}}$ | 50% Power Angle | ---- | 120 | ---- | deg | |

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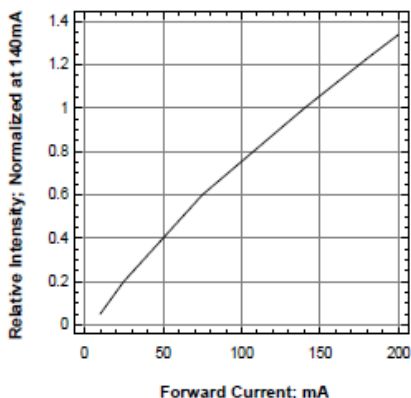
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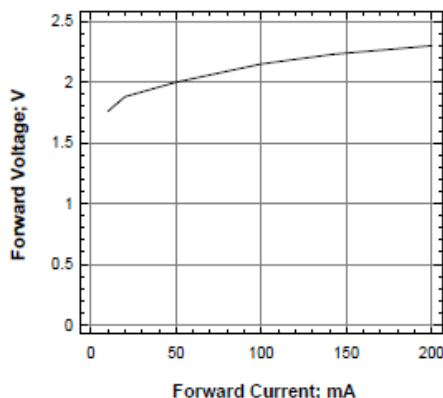
OVS5MxBCR4 Series

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

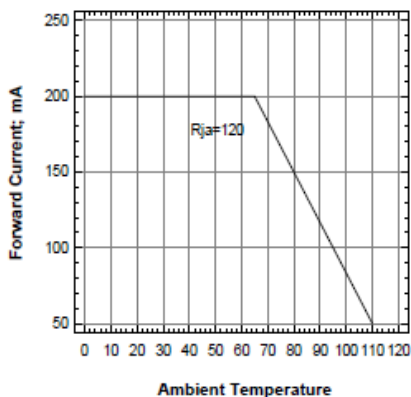
Relative Intensity Vs Forward Current



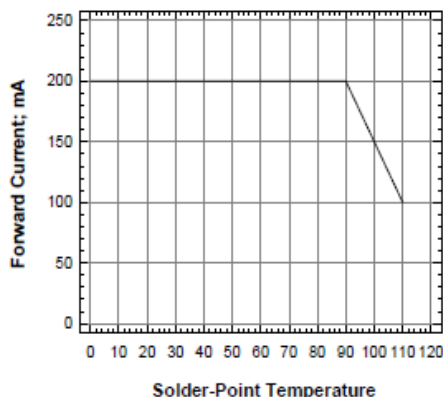
Forward Voltage Vs Forward Current



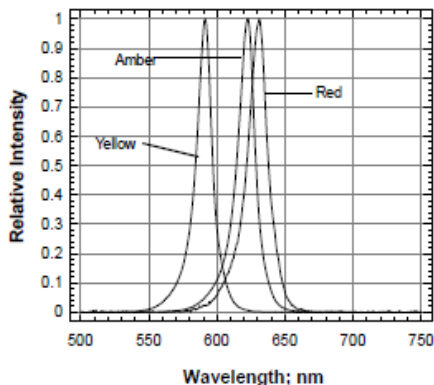
Maximum Current Vs Ambient Temperature



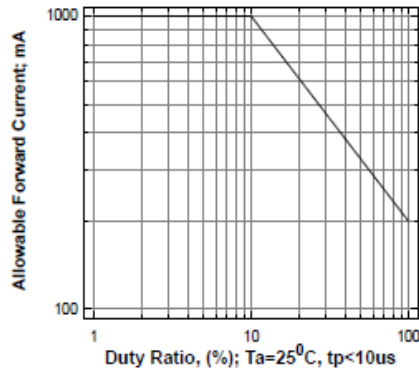
Maximum Current vs Solder-Point Temperature



Relative Intensity Vs Wavelength



Allowable Forward Current Vs Duty Ratio



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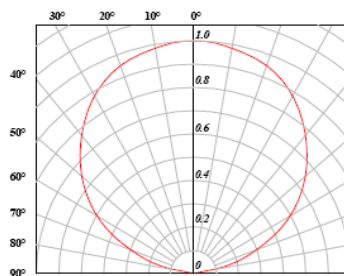
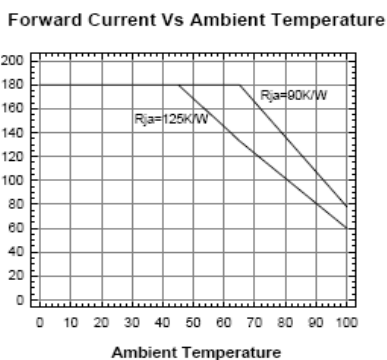
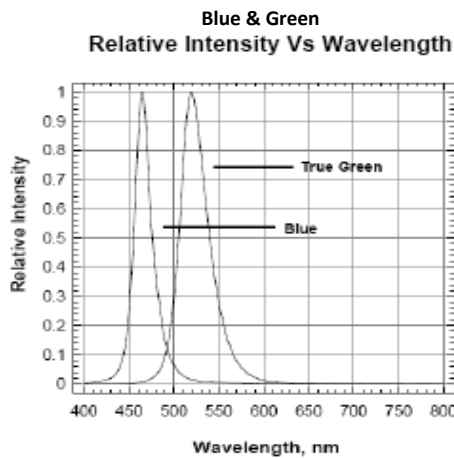
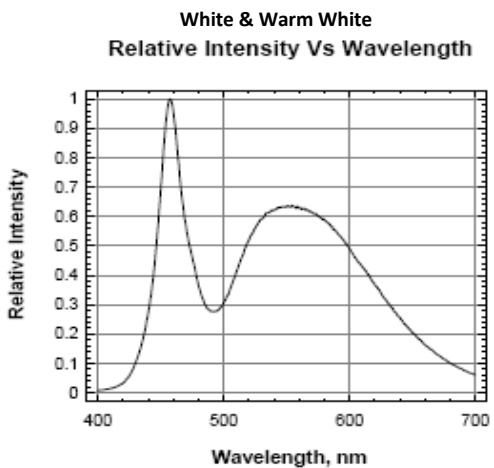
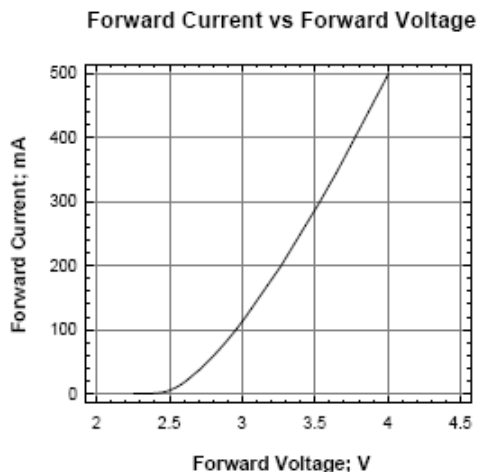
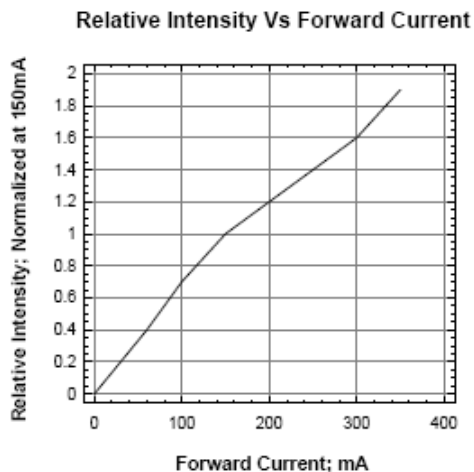
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OVS5MBBCR4 (Blue), OVS5MGBCR4 (Green), OVS5MWBCR4 (White) and OVS5MWWBCR4 (Warm White)



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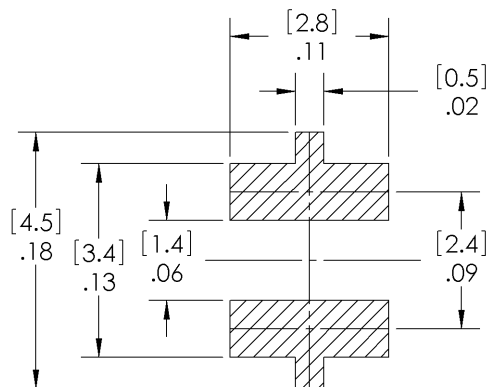
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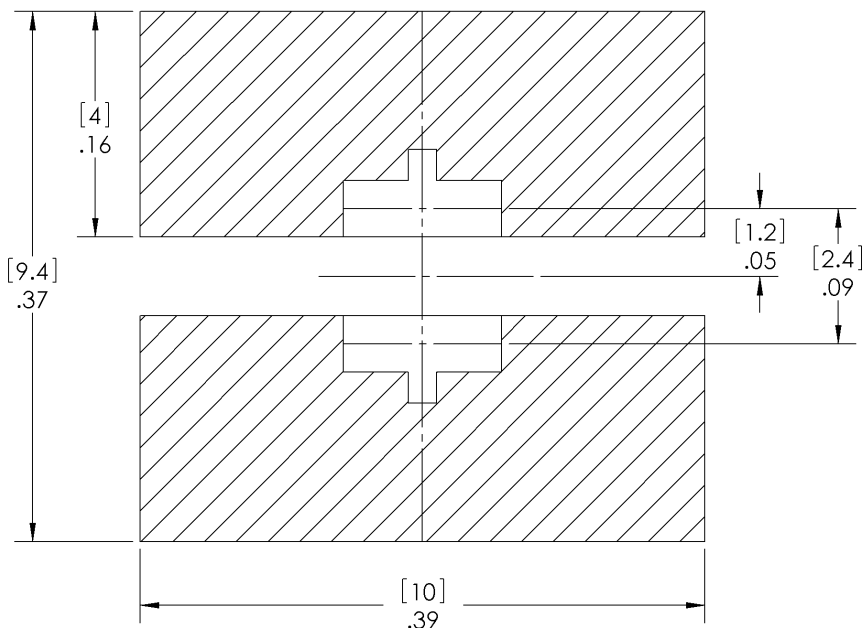
OVS5MxBCR4 Series

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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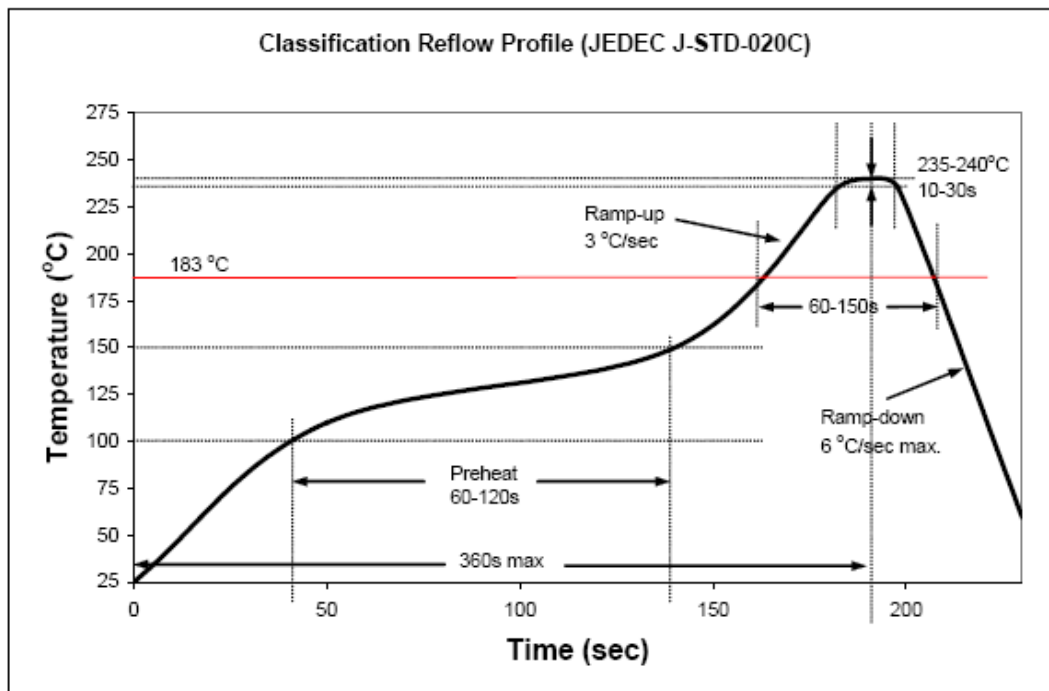
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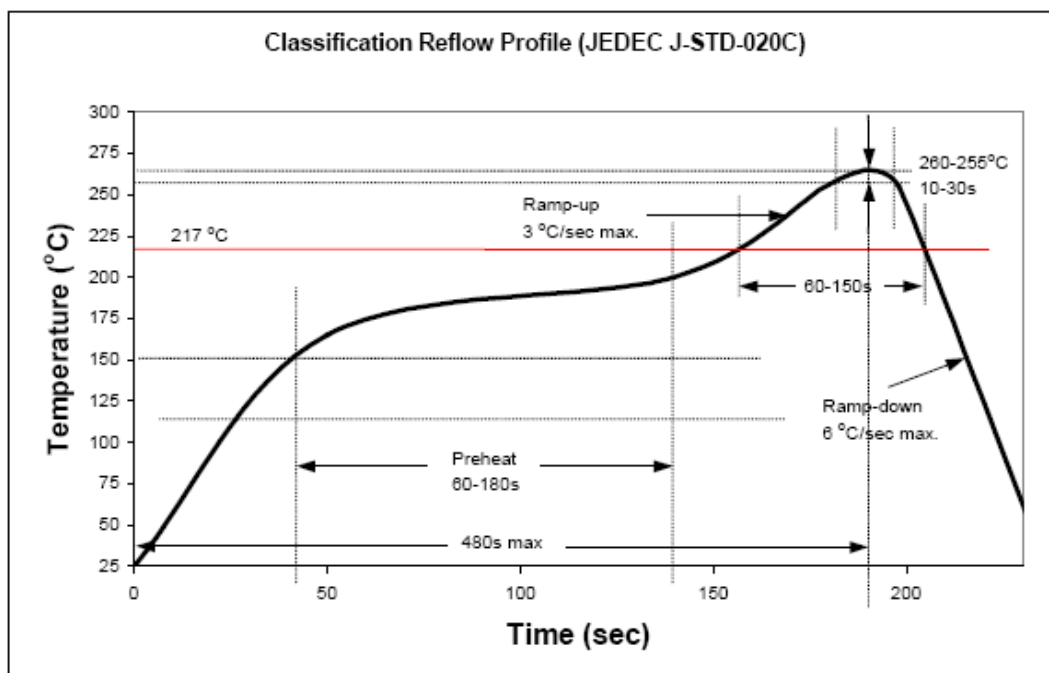


OVS5MxBCR4 Series

Recommended Sn-Pb IR-Reflow Soldering Profile.



Recommended Pb Free IR-Reflow Soldering Profile.



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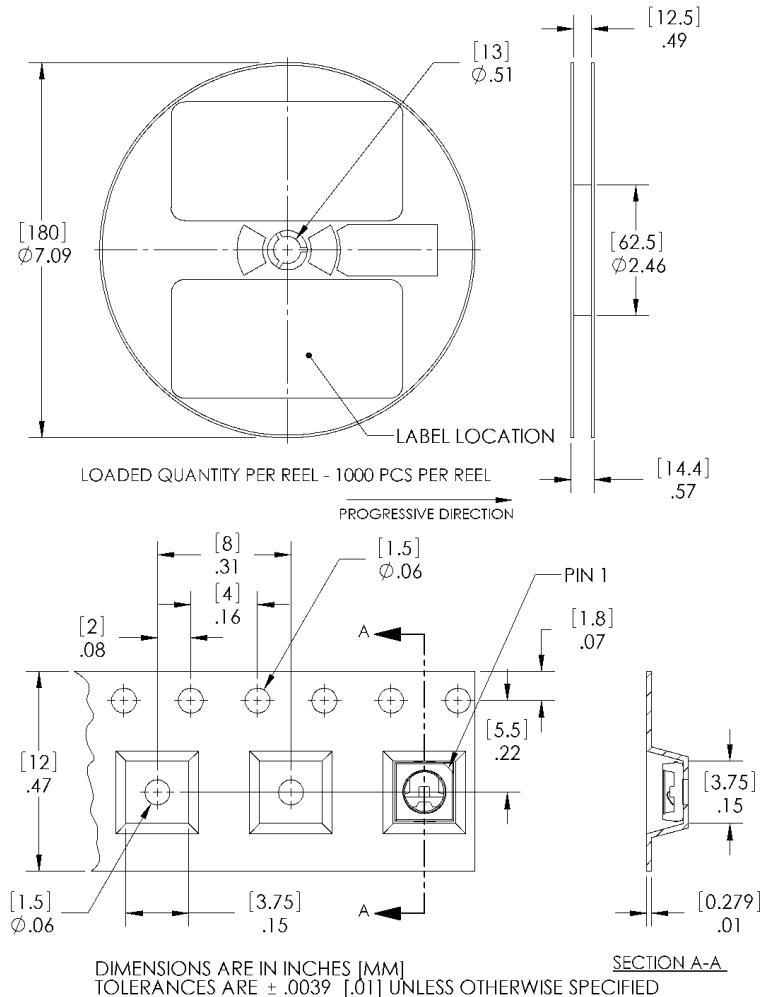
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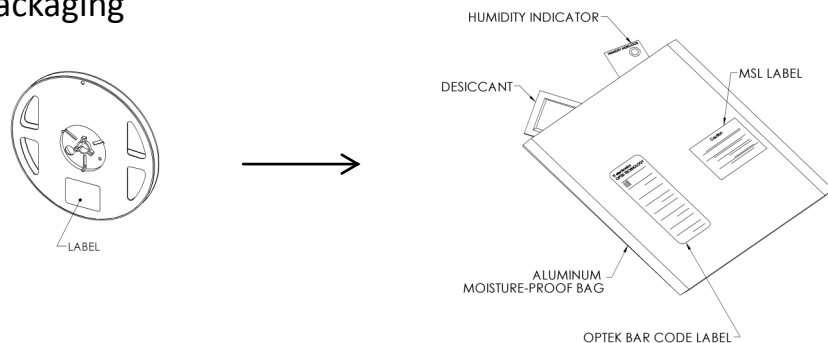
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Reel Dimensions: 7-inch reel



Carrier Tape Dimensions: Loaded quantity 1000 pieces per reel

Moisture Resistant Packaging



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