

# 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:

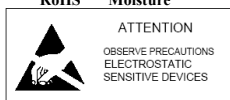
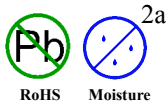
The mini-half watt is an energy-efficient packaged LED source that offers high luminance, and a long operating lifespan. This device offers a 120° viewing angle and an ultra-low profile (1.2 mm) making it highly suitable for conventional lighting and specialized applications.

### 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
OVS5MWBCR4		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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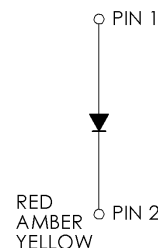
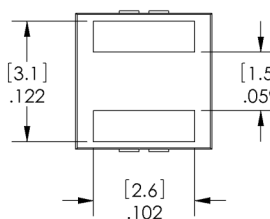
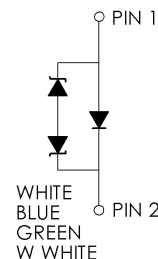
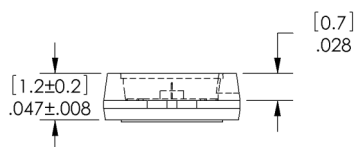
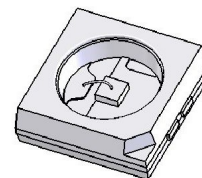
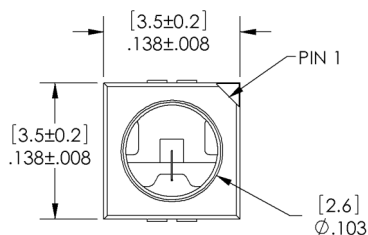
## OVS5MxB CR4 Series

### 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 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 reverse bias	Not designed for reverse 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  $t_p \leq 10\mu s$ , 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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# Mini Half-Watt SMD 3.5mm (120° Viewing Angle)



## 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	
$\Phi$	Luminous Intensity	Red	4500	7150	9000	mcd
		Amber				
		Yellow				
$\lambda_D$	Dominant Wavelength	Red	620	625	630	nm
		Amber	610	615	621	
		Yellow	585	590	594	
$I_R$	Reverse Current @ 12 V	----	10	----	$\mu\text{A}$	
$2\theta_{\frac{1}{2}}$	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	
$\Phi$	Luminous Flux	Blue	6.3	8.2	10.7	lm
		Green	18.1	22.0	30.6	
$\lambda_D$	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		
$\Phi$	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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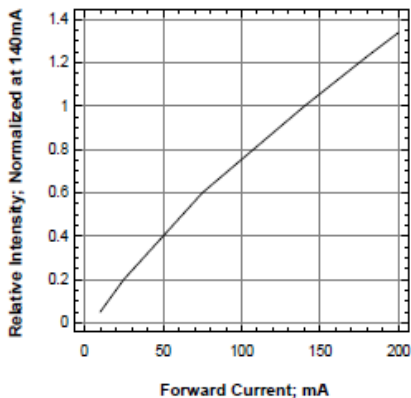
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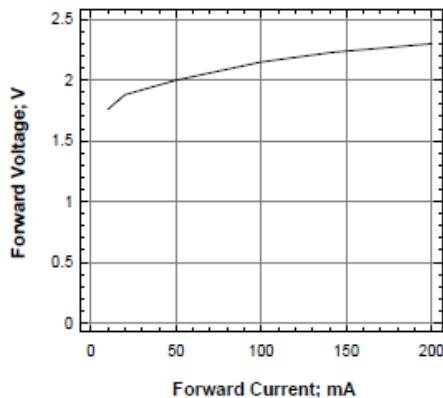
## OVS5MxBCR4 Series

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

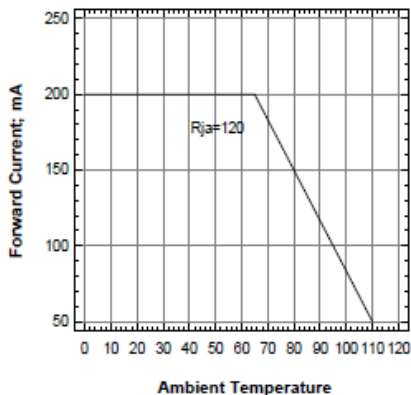
Relative Intensity Vs Forward Current



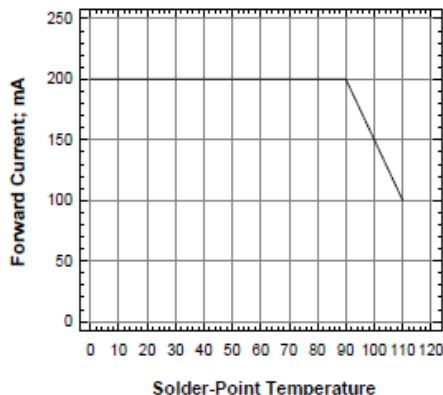
Forward Voltage Vs Forward Current



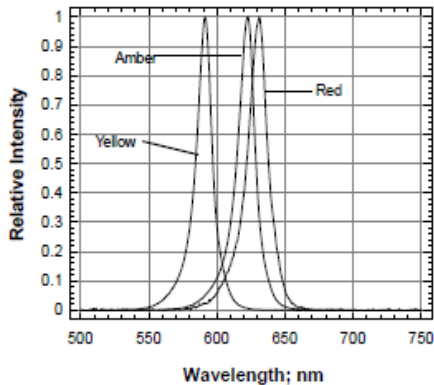
Maximum Current Vs Ambient Temperature



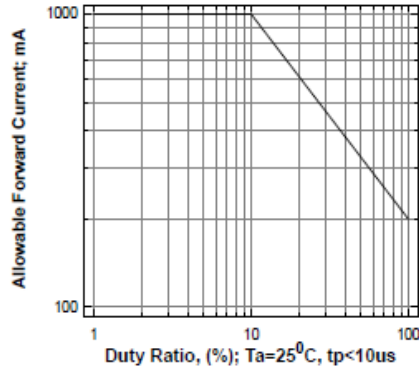
Maximum Current vs Solder-Point Temperature



Relative Intensity Vs Wavelength



Allowable Forward Current Vs Duty Ratio



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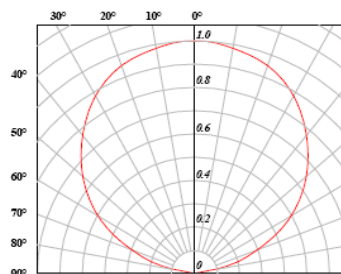
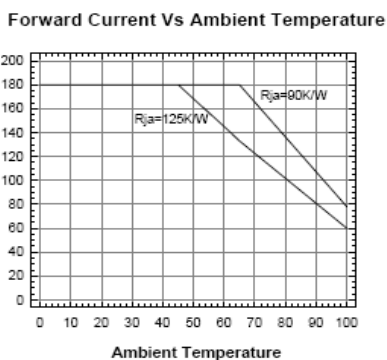
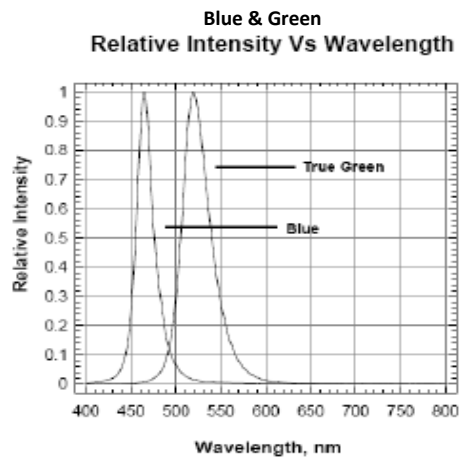
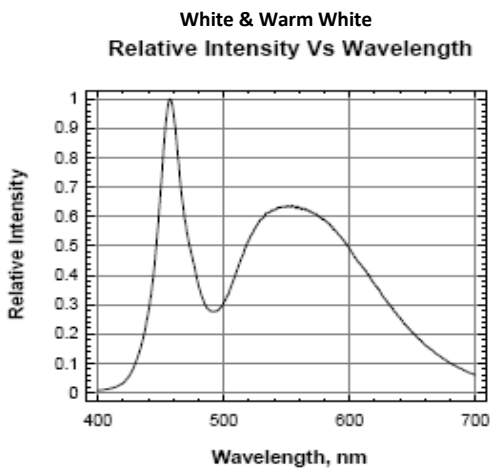
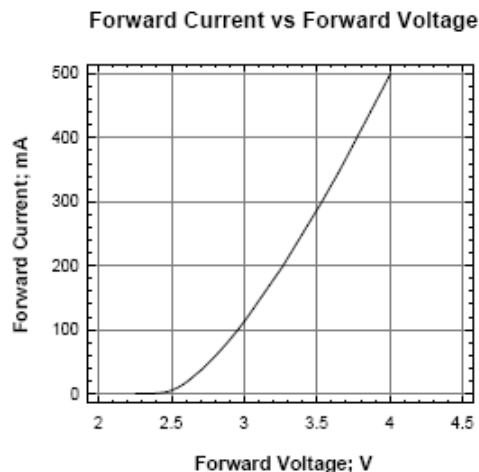
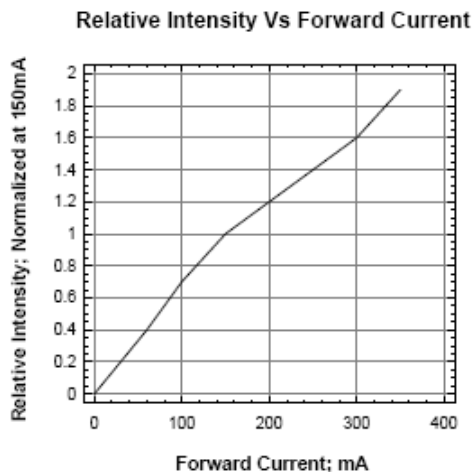
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## OVS5MxBCR4 Series

OVS5MBCR4 (Blue), OVS5MGBCR4 (Green), OVS5MWBCR4 (White) and OVS5MWWBCR4 (Warm White)



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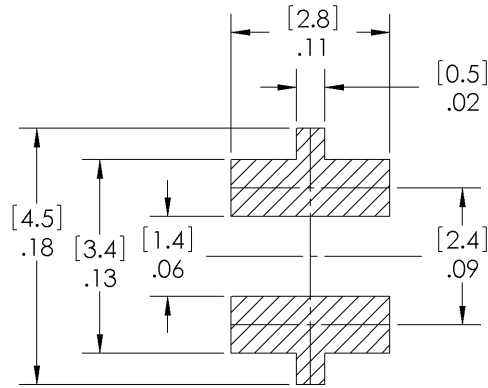
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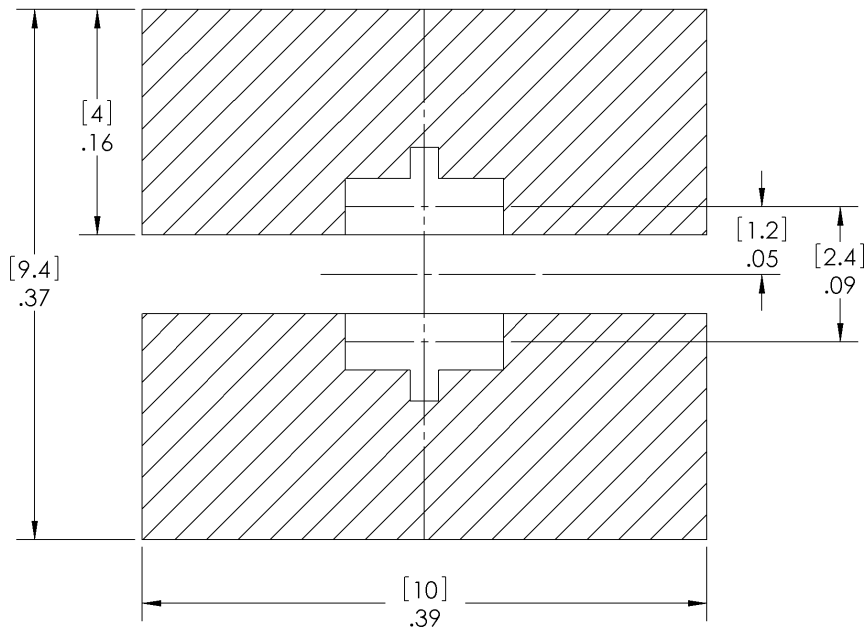
## OVS5MxBCR4 Series

### 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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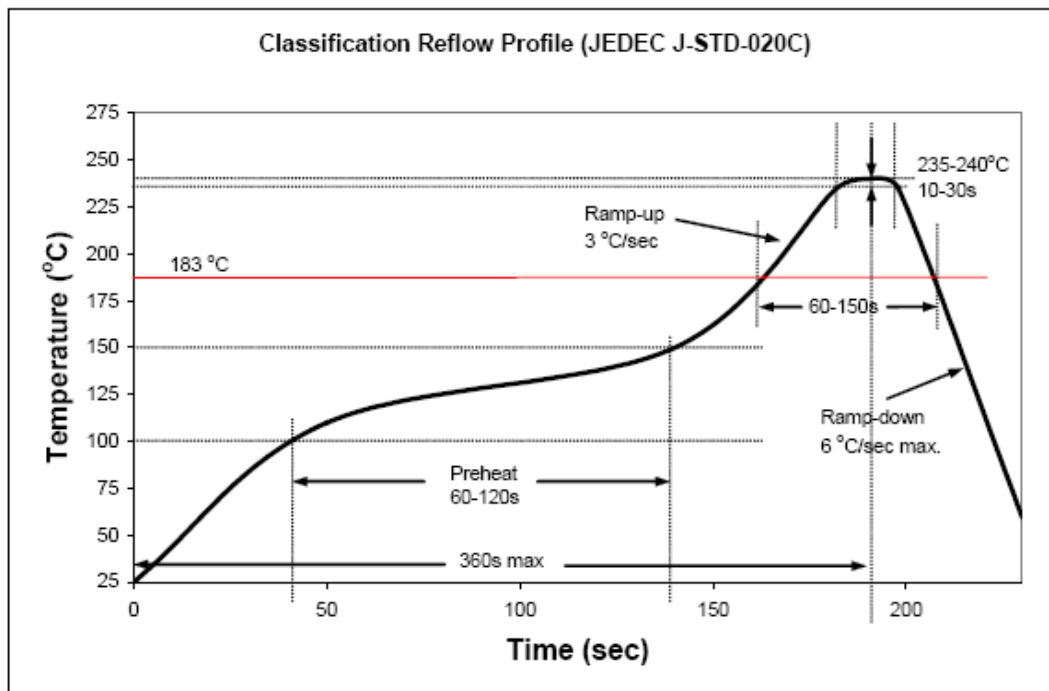
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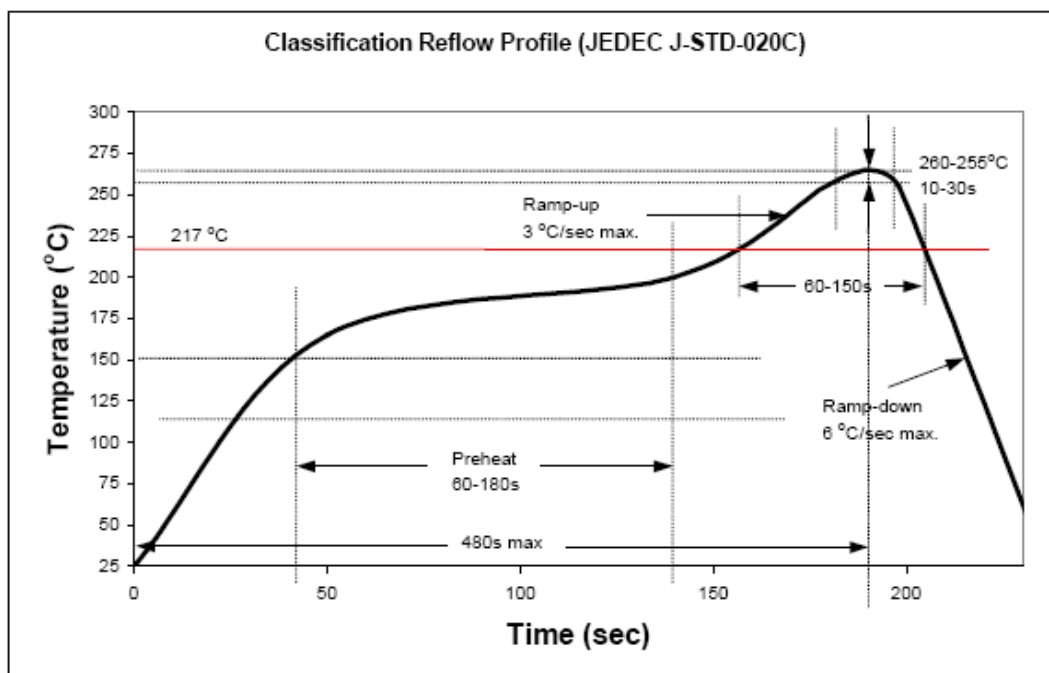


## OVS5MxBCR4 Series

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



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



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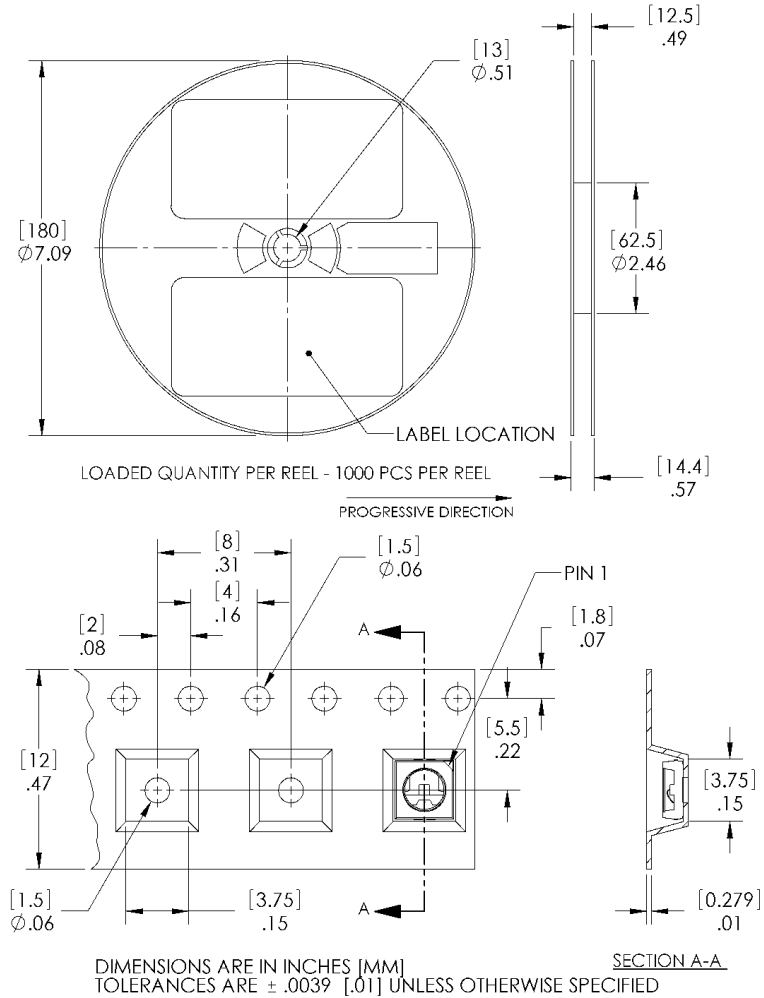
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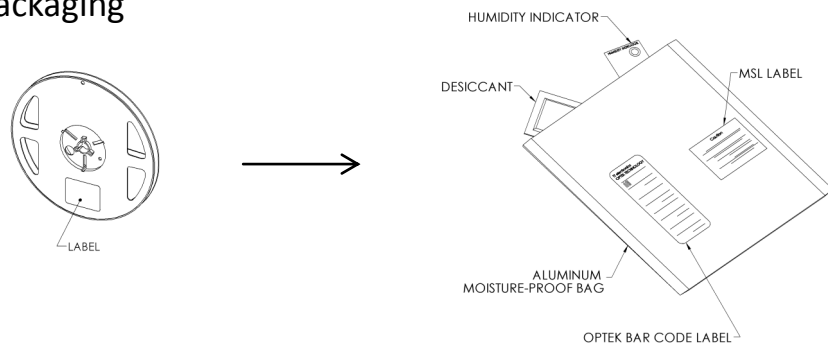
## OVS5MxBCR4 Series

### Reel Dimensions: 7-inch reel



### Carrier Tape Dimensions: Loaded quantity 1000 pieces per reel

### Moisture Resistant Packaging



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