

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:

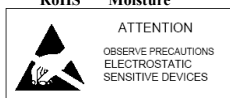
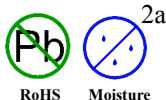
The mini-half watt is an energy-efficient packaged LED source that offers high luminance, and a long operating lifespan. This device offers a 120° viewing angle and an ultra-low profile (1.2 mm) making it highly suitable for conventional lighting and specialized applications.

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	
OVS5MBCR4		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**

General Note

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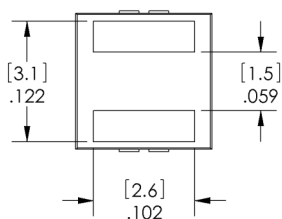
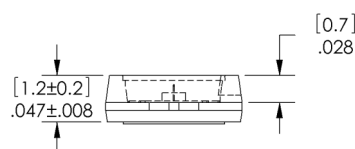
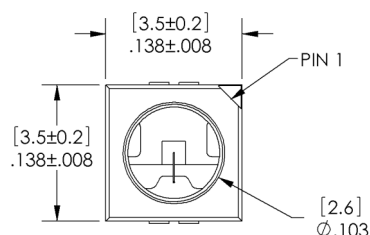


Electrical Specifications

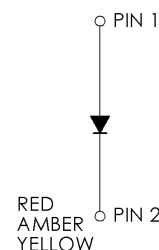
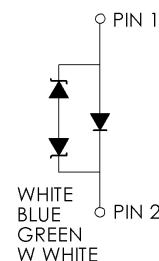
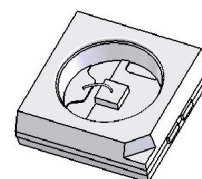
Absolute Maximum Ratings (T _A = 25° C unless otherwise noted)				
	Red, Amber, Yellow	Green, Blue	White	Warm White
DC Forward Current	200 mA a	180 mA	180 mA	180 mA
Peak Pulsed Forward Current ¹	1000 mA	350 mA	350 mA	350 mA
Reverse Voltage	12V @ 10 uA	Not designed for reverse bias	Not designed for reverse 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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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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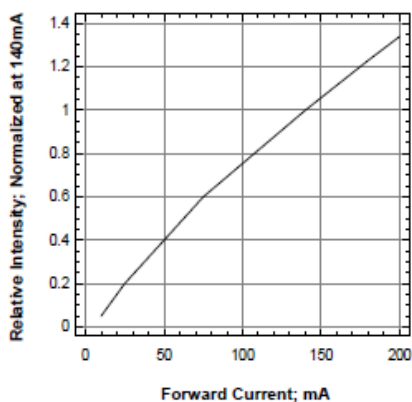
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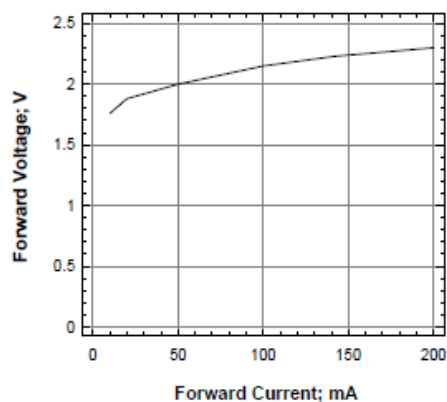
OVS5MxBCR4 Series

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

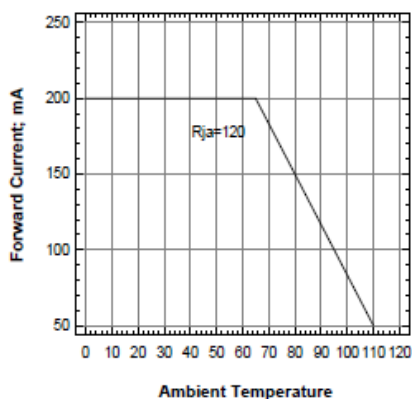
Relative Intensity Vs Forward Current



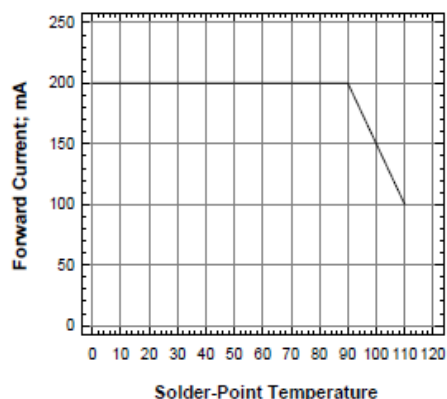
Forward Voltage Vs Forward Current



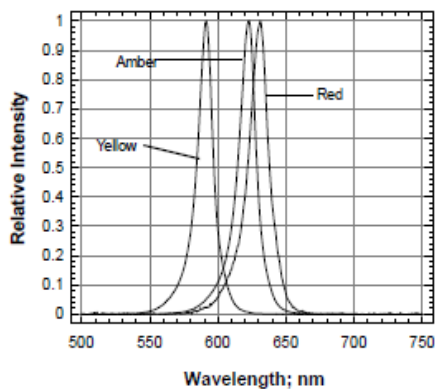
Maximum Current Vs Ambient Temperature



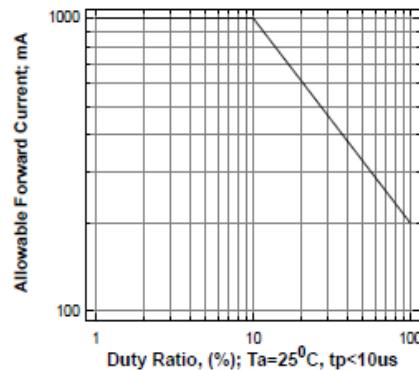
Maximum Current vs Solder-Point Temperature



Relative Intensity Vs Wavelength



Allowable Forward Current Vs Duty Ratio



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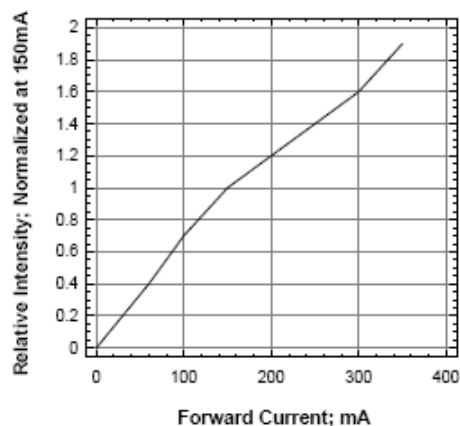
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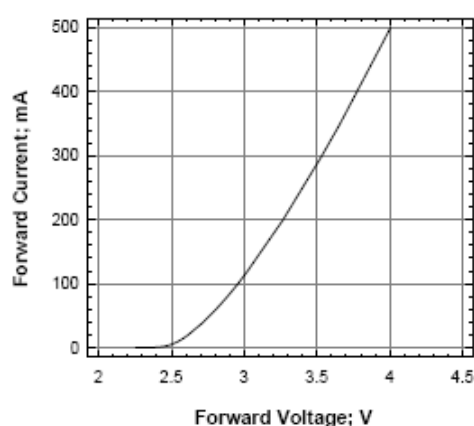
OVS5MxBCR4 Series

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

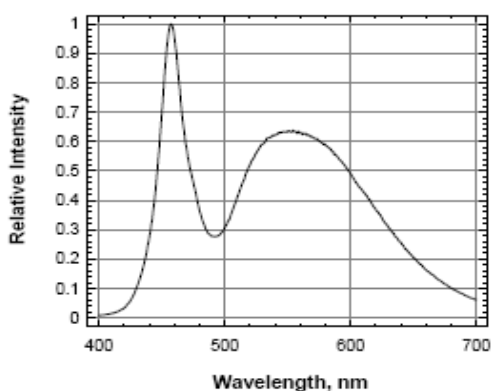
Relative Intensity Vs Forward Current



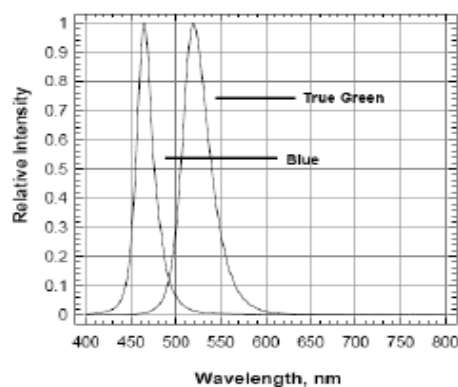
Forward Current vs Forward Voltage



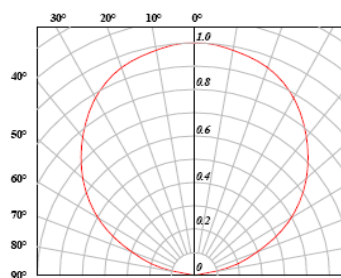
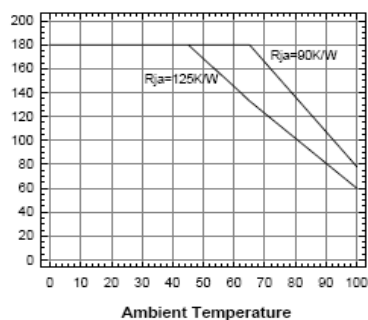
White & Warm White
Relative Intensity Vs Wavelength



Blue & Green
Relative Intensity Vs Wavelength



Forward Current Vs Ambient Temperature



Beam Angle: All Colors

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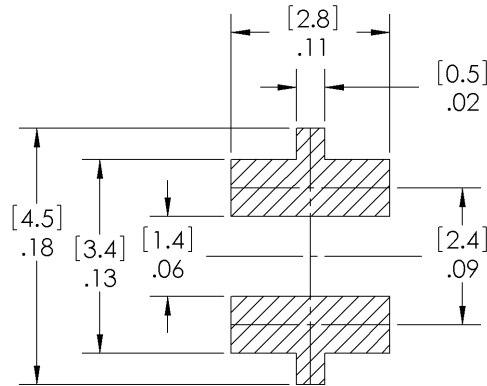
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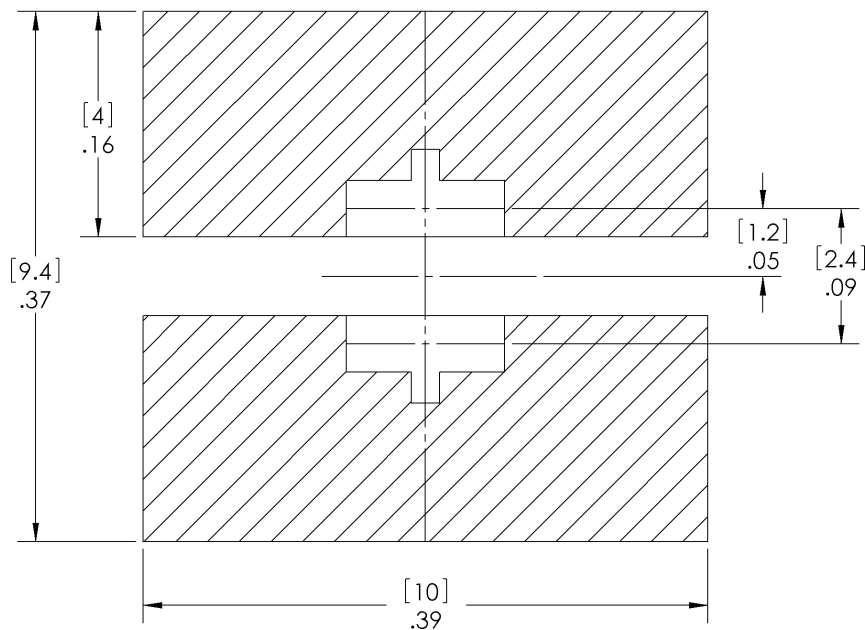
OVS5MxBCR4 Series

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

General Note

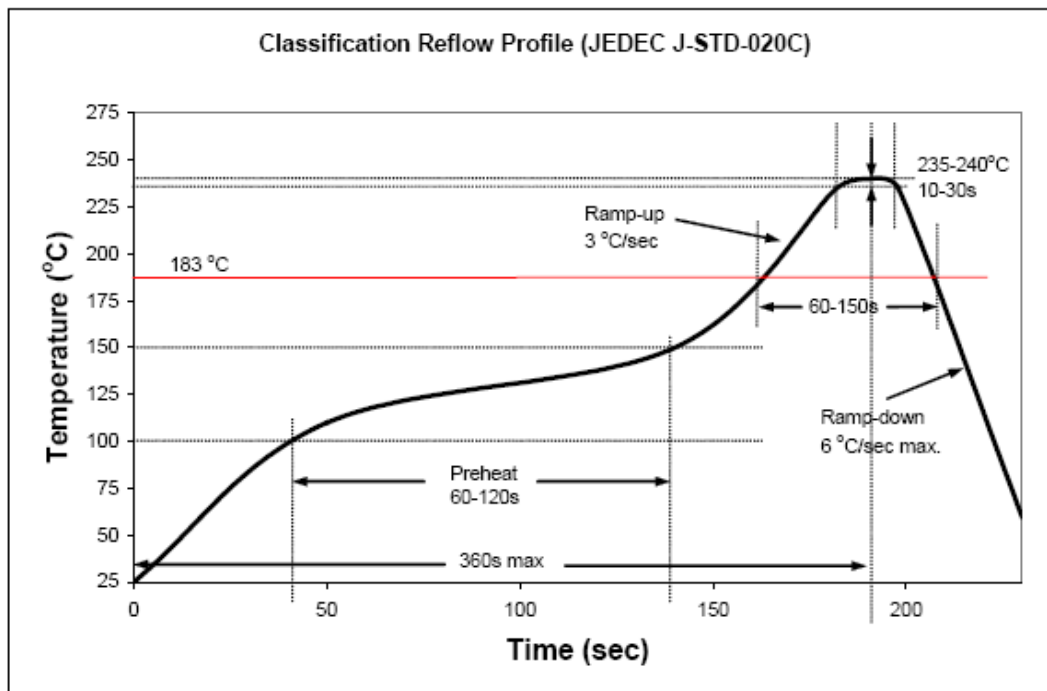
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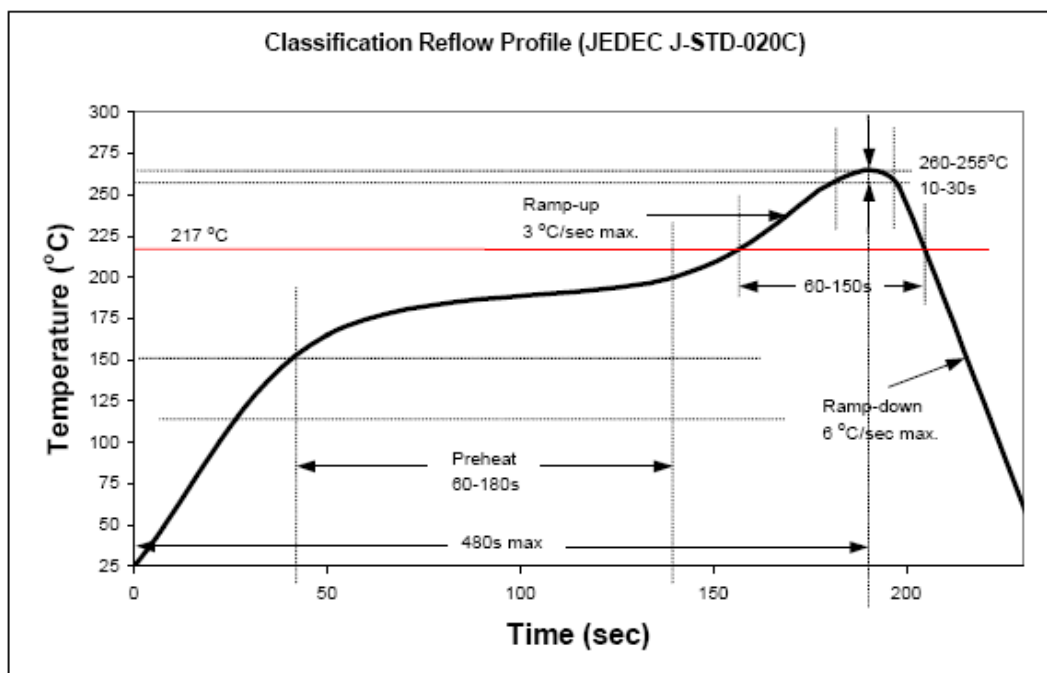


OVS5MxBCR4 Series

Recommended Sn-Pb IR-Reflow Soldering Profile.



Recommended Pb Free IR-Reflow Soldering Profile.



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