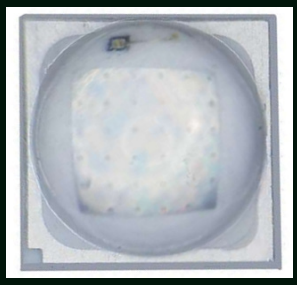


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Bridgelux® SMD3535 BLUE LED

Product Data Sheet

SMD 3535 BLUE LED



Introduction

SMD 3535 BLUE LED offer exceptional performance in an ultra compact size. SMD 3535 BLUE LED is advanced for color palette application, which designed for color mixing and high CRI tunable white with blackbody Locus. With its superior performance without bonding wires and ability to assemble a densely populated and high luminous flux LED board, SMD 3535 BLUE LED provides unparalleled design-in flexibility for indoor and outdoor lighting applications. SMD 3535 BLUE LED is ideal as a drop in replacement for emitters with an industry standard 3.5mm x 3.5mm footprint.

Features

- Industry-standard 3535 footprint
- RoHS compliant and lead free
- For RGBW entertainment lighting application.
- For landscape lighting and stage lighting application.

Benefits

- Lower operating and manufacturing cost
- Ease of design and rapid go-to-market
- Compliant with environmental standards
- Design flexibility

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Pb free RoHS

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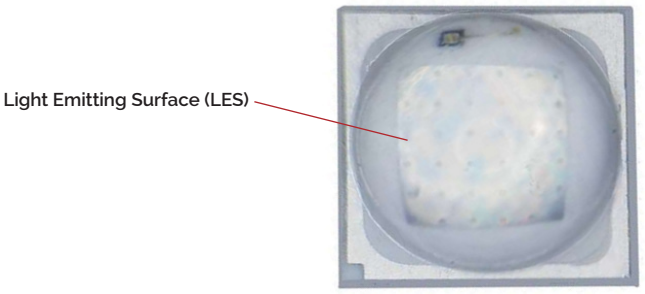
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Product Feature Map

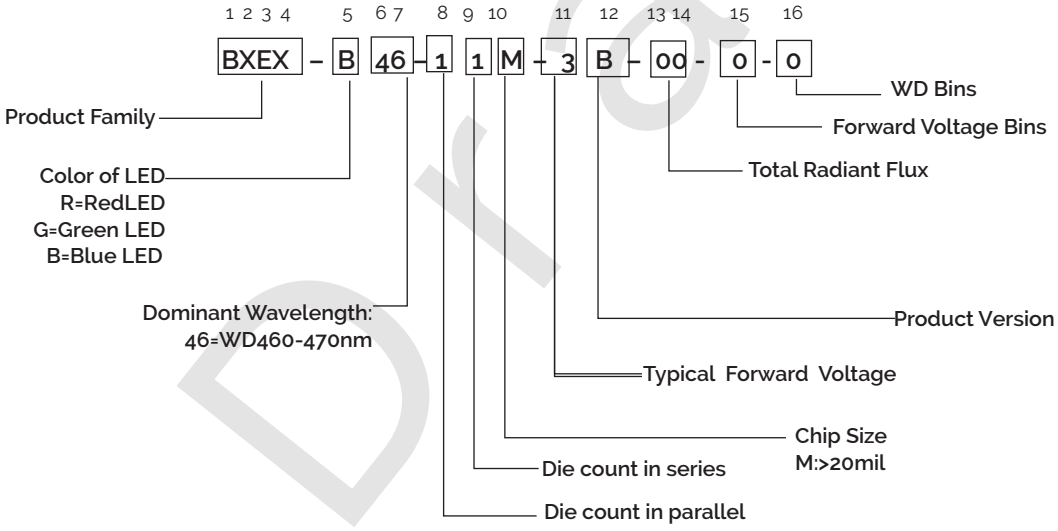
Bridgelux 3535 LED products offer exceptional performance and color quality all in a highly reliable, cost effective, compact package. Our 3535 products come in industry standard package sizes.

These LEDs are optimized for cost and performance, helping to ensure highly competitive system lumen per dollar performance while addressing the stringent efficacy and reliability standards required for modern lighting applications.



Product Nomenclature

The part number designation for Bridgelux SMD 3535 BLUE LED is explained as follows:



Product Test Conditions

Bridgelux SMD 3535 BLUE LED are tested and binned with a 10ms pulse of 350mA at T_j (junction temperature)=T_{sp} (solder point temperature) =25˚C. Luminous flux, Dominant Wavelength and forward voltage are binned at T_j=T_{sp}=25˚C.

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Product Selection Guide

The following product configurations are available:

Table 1: Selection Guide, BLUE LED pulsed Measurement Data at 350mA (T_j=T_{sp}=25˚C)

Part Number[1,6]	Dominant Wavelength(nm)			Nominal Drive Current (mA)	Forward Voltage[4, 5] (V)			Typical Pulsed Flux[4, 5] (lm)	Typical Power (W)	Typical Efficacy (lm/W)
	Min	Typical	Max		Min	Typical	Max			
BXEX-B46-11M-3B-00-0-0	460	\	470	350	2.80	3.00	3.20	26.0	1.1	25

Notes for Tables 1 :

1. Products tested under pulsed condition (10ms pulse width) at nominal drive current where Tj=Tsp=25˚C.
2. Bridgelux maintains a ±7.5% tolerance on luminous flux measurements, ±0.1V tolerance on forward voltage measurements for the SMD 3535.
3. Typical pulsed test performance values are provided as reference only and are not a guarantee of performance.

Table 2: Selection Guide, BLUE LED pulsed Measurement Data at 350mA (T_j=T_{sp}=85˚C)

Part Number[1,6]	Dominant Wavelength(nm)			Nominal Drive Current (mA)	Forward Voltage[4, 5] (V)			Typical Pulsed Flux[4, 5] (lm)	Typical Power (W)	Typical Efficacy (lm/W)
	Min	Typical	Max		Min	Typical	Max			
BXEX-B46-11M-3B-00-0-0	460	\	472.5	350	2.70	2.90	3.20	26.3	1.0	26

Notes for Tables 2 :

1. Products tested under pulsed condition (10ms pulse width) at nominal drive current where Tj=Tsp=85˚C.
2. Bridgelux maintains a ±7.5% tolerance on luminous flux measurements, ±0.1V tolerance on forward voltage measurements for the SMD 3535.
3. Typical pulsed test performance values are provided as reference only and are not a guarantee of performance.

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Performance at Commonly Used Drive Currents

BLUE LED are tested to the specifications shown using the nominal drive current in Table1&2. BLUE LED may also be driven at other drive currents dependent on specific application design requirements. The performance at any drive current can be derived from the current vs. voltage characteristics shown in Figure2 and the flux vs. current characteristics shown in Figure3 .The perrormance at commonly used drive currents is summarized in Table3.

Table 3: Performance at Commonly Used Drive Currents

Part Number	Drive Current[1] (mA)	Typical V_f T_{sp} = 25°C (V)	Typical Power T_{sp} = 25°C (W)	Typical Pulsed Flux[2] T_{sp} = 25°C (lm)	Typical Pulsed Flux[3] T_{sp} = 85°C (lm)	Typical Efficacy T_{sp} = 25°C (lm/W)
BXEX-B46-11M-3B-00-0-0	50	2.73	0.1	4.6	4.9	34
	150	2.84	0.4	12.6	13.1	30
	200	2.88	0.6	16.3	16.7	28
	300	2.96	0.9	22.9	23.3	26
	350	**3.00**	**1.1**	**26.0**	**26.3**	**25**
	450	3.08	1.4	31.8	32.0	23
	500	3.11	1.6	34.8	34.6	22
	600	3.18	1.9	39.2	38.0	21
	700	3.25	2.3	42.6	41.3	19
	800	3.31	2.6	46.3	43.8	17
	900	3.37	3.0	49.2	45.7	16
	1000	3.42	3.4	51.5	46.8	15

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Notes for Tables 3:

1. Bridgelux maintains a ±7.5% tolerance on luminous flux measurements, ±0.1V tolerance on forward voltage measurements for the SMD 3535.
2. Typical pulsed test performance values are provided as reference only and are not a guarantee of performance.

Absolute Maximum Ratings

Table 4 Maximum Ratings

Parameter	Maximum Rating
LED Junction Temperature (T_j)	135˚C
Storage Temperature	-40˚C to +125˚C
Operating Solder Point Temperature (T_{Sp})	-40˚C to +105˚C
Soldering Temperature	260˚C or lower for a maximum of 10 seconds
Maximum Drive Current	1000mA
Maximum Peak Pulsed Forward Current[1]	1200mA
Maximum Reverse Voltage[2]	-5V
Moisture Sensitivity Rating	MSL 3
Electrostatic Discharge	8kV HBM. JEDEC-JS-001-HBM and JEDEC-JS-001-2012

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Notes for Tables 4:

1. Bridgelux recommends a maximum duty cycle of 10% and pulse width of 10 ms when operating SMD 3535 at maximum peak pulsed current specified. Maximum peak pulsed current indicate values where SMD 3535 can be driven without catastrophic failures.
2. Light emitting diodes are not designed to be driven in reverse voltage and will not produce light under this condition. Maximum rating provided for reference only.

Product Bin Definitions

Table 5: Luminous Flux Bin Definitions at 350mA, T_{sp}=25˚C

Bin Code	Minimum	Maximum	Unit	Condition
A0	20	30	lm	I_F=350mA
A1	30	40		

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Table 6: Dominant Wavelength Bin Definitions at 350mA, T_{sp}=25˚C

Part Number	Bin Code	Minimum	Maximum	Unit	Condition
BXEX-B46-11M-3B-00-0-0	7	460	465	nm	IF=350mA
	8	465	470		

Note for Table 6:

1. Bridgelux maintains a tolerance of ± 7.5% on luminous flux measurements.

Table 7: Forward Voltage Bin Definitions at 350mA, T_{sp}=25˚C

Bin Code	Minimum	Maximum	Unit	Condition
C	2.6	2.8	V	IF=350mA
D	2.8	3.0		
E	3.0	3.2		

Note for Table 7:

1. Bridgelux maintains a tolerance of ± 0.1V on forward voltage measurements.

Product Bin Definitions

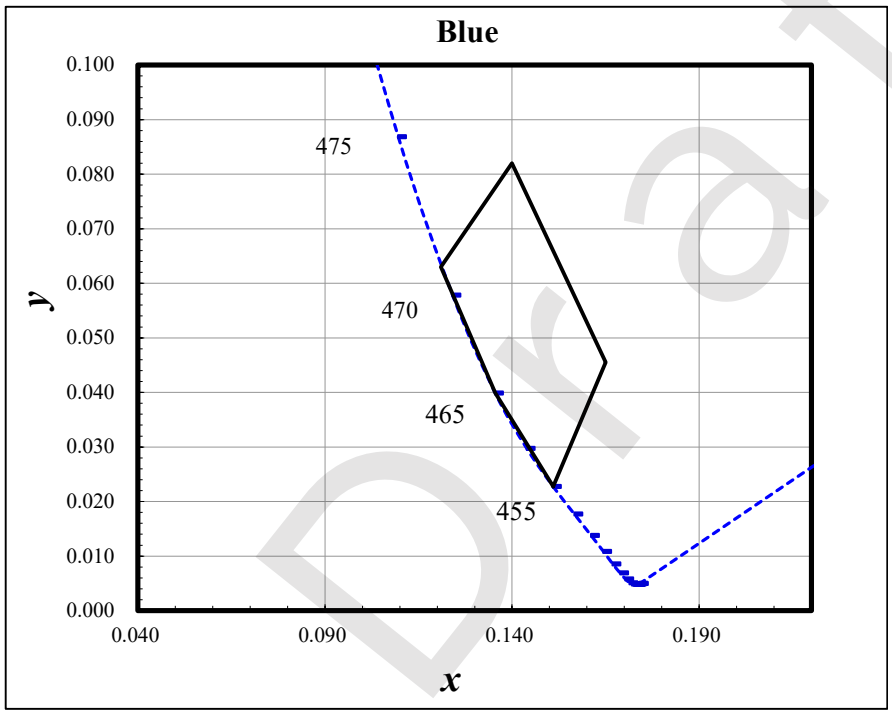
Table 8: Color Bin Definitions

Blue Rank						
X	0.1510	0.1650	0.1400	0.121	0.1355	0.1510
Y	0.0227	0.0455	0.0820	0.063	0.0399	0.0227

Notes for Tables 8:

1. Color binning at T_{sp}=25°C unless otherwise specified
2. Bridgelux maintains a tolerance of ± 0.007 on x and y color coordinates .

Figure 1: Chromaticity Coordinate Group(1 Color Bin Structure, Color Targeted at T_{sp}=25°C)



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Performance Curves

Figure 2: Drive Current vs. Voltage (T_{sp}=25˚C)

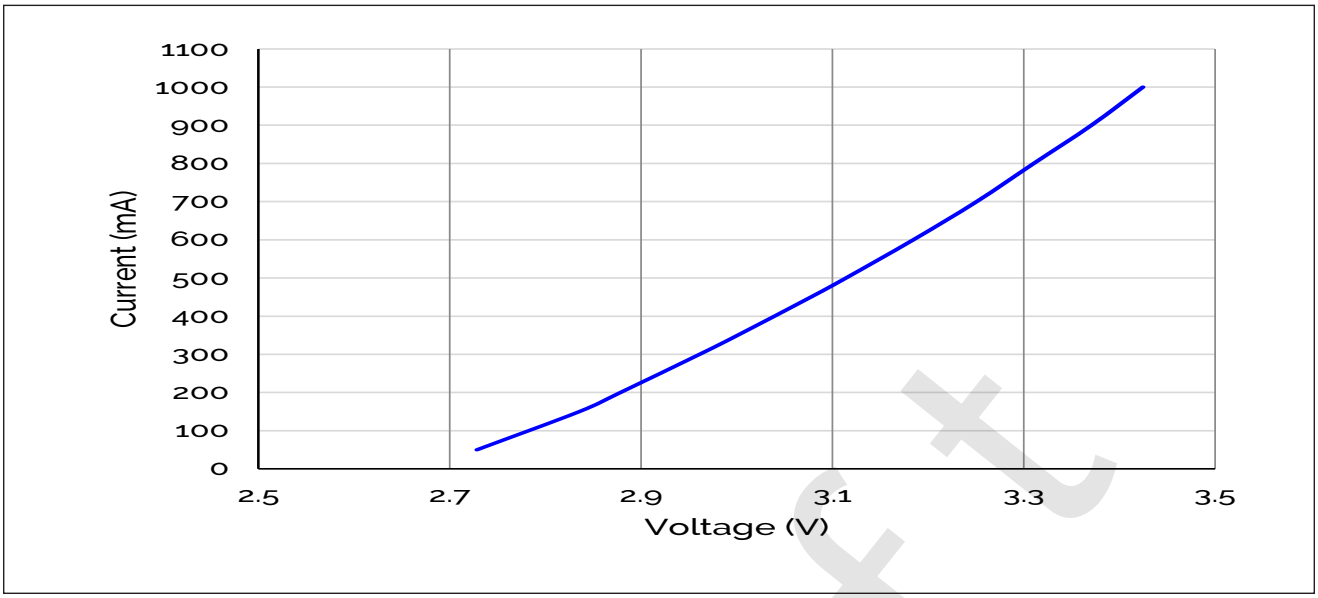
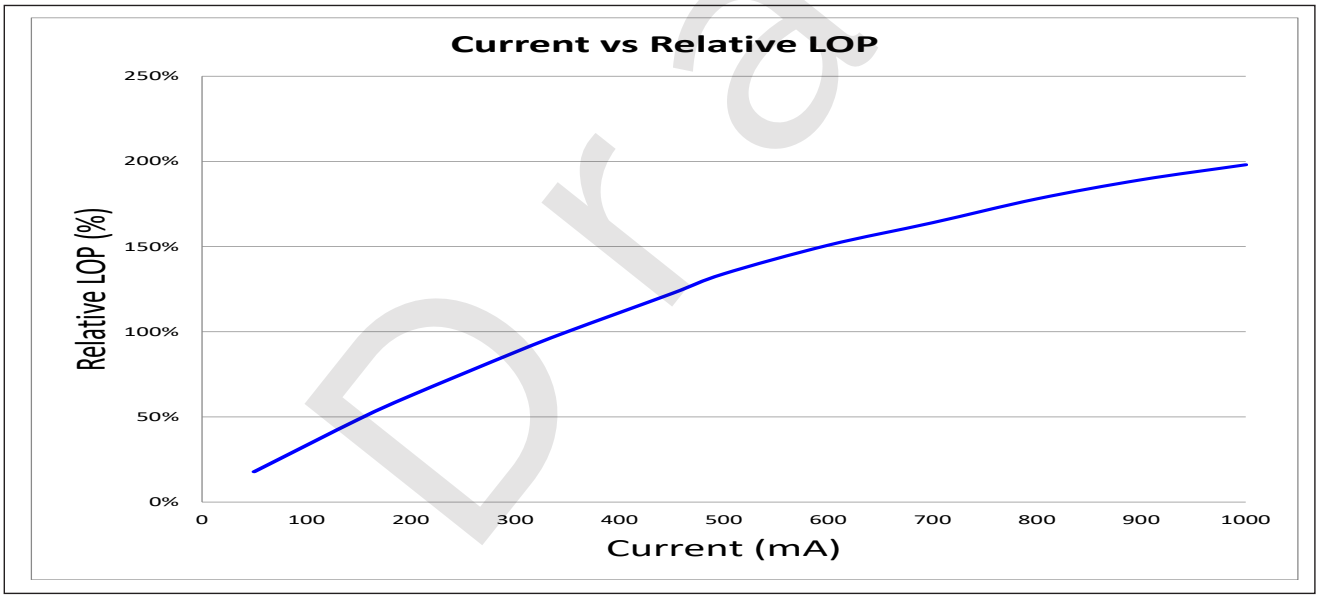


Figure 3: Typical Relative Luminous Flux vs. Drive Current (T_{sp}=25˚C)



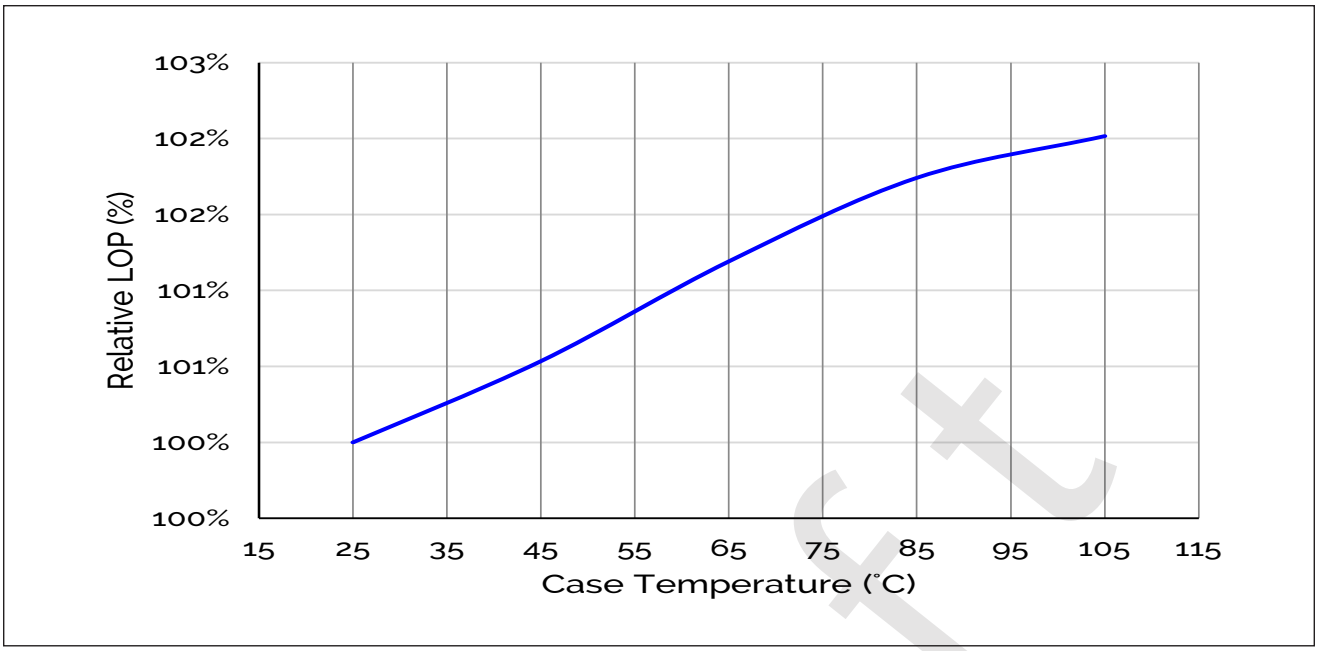
Note for Figure 3:

1. Bridgelux does not recommend driving low power LEDs at low currents. Doing so may produce unpredictable results. Pulse width modulation (PWM) is recommended for dimming effects.

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Performance Curves

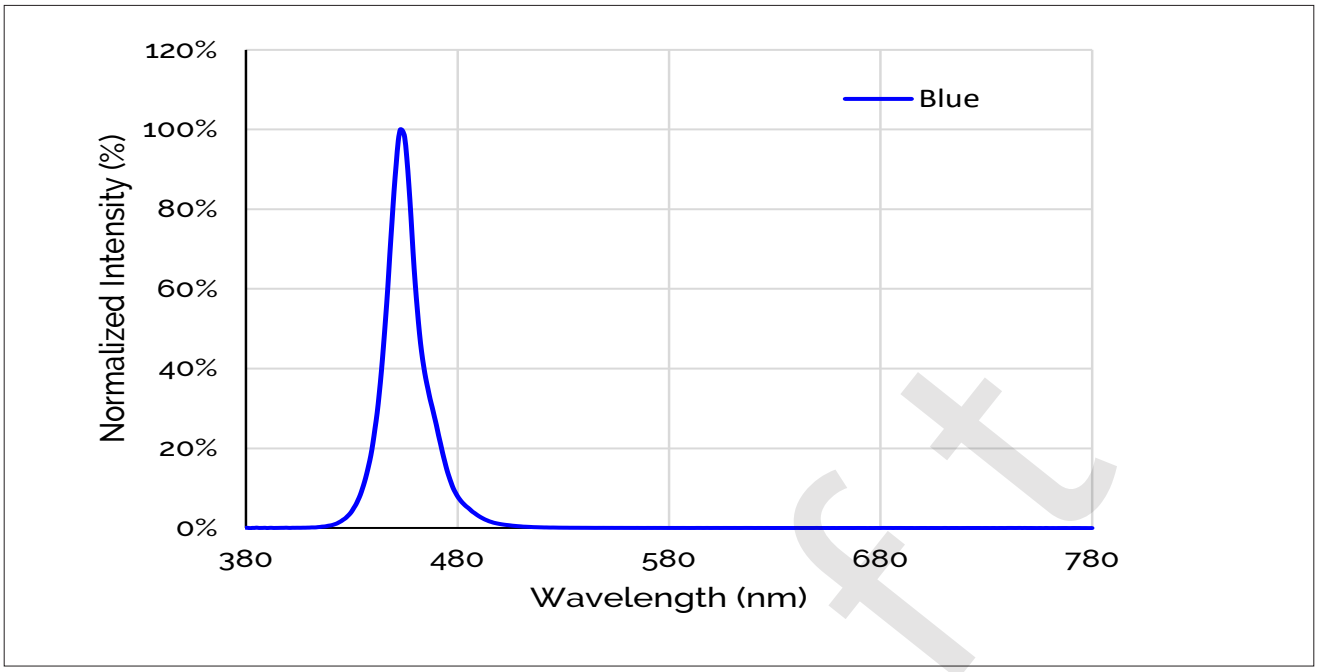
Figure 4: Typical Relative Flux vs. Solder Point Temperature



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Typical Color Spectrum

Figure 5: Typical Color Spectrum

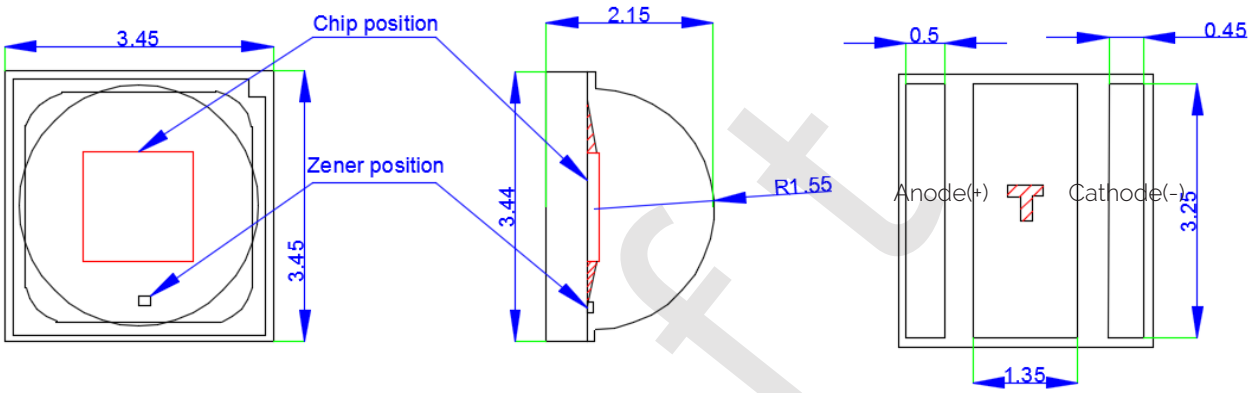


Notes for Figure 5:
Color spectra measured at nominal current for Tsp = 25°C

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Mechanical Dimensions

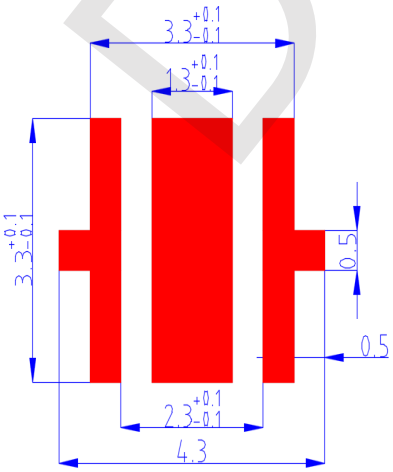
Figure 6: Drawing for SMD 3535



Notes for Figure 6:

1. Drawings are not to scale.
2. Drawing dimensions are in millimeters.
3. Unless otherwise specified, tolerances are ± 0.10mm.
4. The optical center of the LED emitter is nominally defined by the mechanical center of the emitter. The light emitting surface (LES) is centered on the mechanical center of the LED emitter to a tolerance of ± 0.2 mm

Recommended PCB Soldering Pad Pattern



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Design Resources

Please contact your Bridgelux sales representative for assistance.

Precautions

CAUTION: CHEMICAL EXPOSURE HAZARD

Exposure to some chemicals commonly used in luminaire manufacturing and assembly can cause damage to the LED emitter. Please consult Bridgelux Application Note AN51 for additional information.

CAUTION: RISK OF BURN

Do not touch the SMD LED emitter during operation. Allow the emitter to cool for a sufficient period of time before handling. The SMD LED emitter may reach elevated temperatures such that could burn skin when touched.

CAUTION

CONTACT WITH LIGHT EMITTING SURFACE (LES)

Avoid any contact with the LES. Do not touch the LES of the emitter or apply stress to the LES (yellow phosphor resin area). Contact may cause damage to the emitter

Optics and reflectors must not be mounted in contact with the LES (yellow phosphor resin area).

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Disclaimers

MINOR PRODUCT CHANGE POLICY

The rigorous qualification testing on products offered by Bridgelux provides performance assurance. Slight cosmetic changes that do not affect form, fit, or function may occur as Bridgelux continues product optimization.

STANDARD TEST CONDITIONS

Unless otherwise stated, LED emitter testing is performed at the nominal drive current.

About Bridgelux: Bridging Light and Life™

At Bridgelux, we help companies, industries and people experience the power and possibility of light. Since 2002, we've designed LED solutions that are high performing, energy efficient, cost effective and easy to integrate. Our focus is on light's impact on human behavior, delivering products that create better environments, experiences and returns—both experiential and financial. And our patented technology drives new platforms for commercial and industrial luminaires.

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