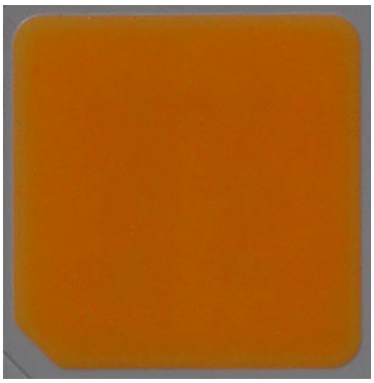
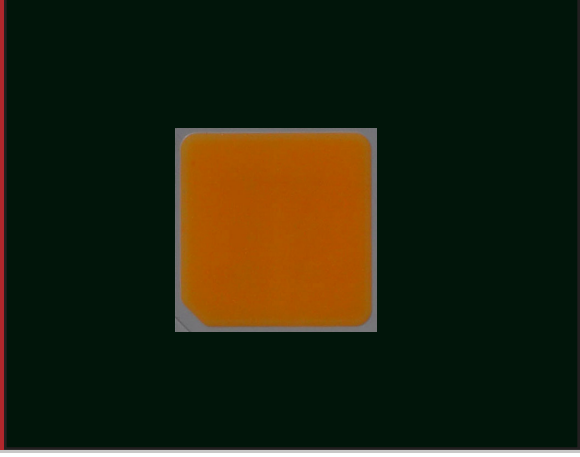


# Bridgelux® SMD 5050 5W 6V

**Product Data Sheet DS676**

# Introduction

SMD 5050



The Bridgelux SMD 5050  high power LED is hot-color targeted, which ensures that the LEDs fall within their specified color bin at the typical application conditions of 85˚C. With its broad lumen coverage and wide range of CCT and CRI options, the SMD 5050 provides unparalleled design-in flexibility for indoor and outdoor lighting applications. The SMD 5050 is ideal as a drop-in replacement for emitters with an industry standard 5.0mm x 5.0mm footprint.

## Features

- Industry-standard 5050 footprint
- 2 color bin options enable tight color control
- Hot-color targeting ensures that color is within the bin at the typical application condition of 85˚C
- 3- and 5-step MacAdam ellipse options
- RoHS compliant and lead free
- Multiple CCT and CRI configurations for a wide range of lighting applications

## Benefits

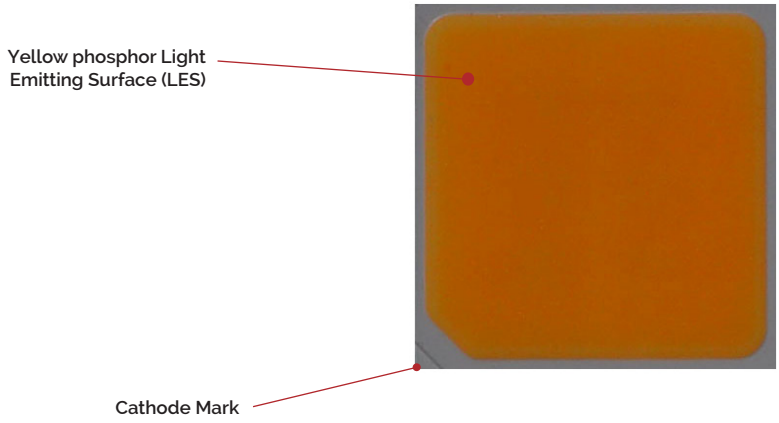
- Lower operating and manufacturing cost
- Ease of design and rapid go-to-market
- Uniform consistent white light
- Compliant with environmental standards
- Design flexibility

Pb free RoHS

# Contents

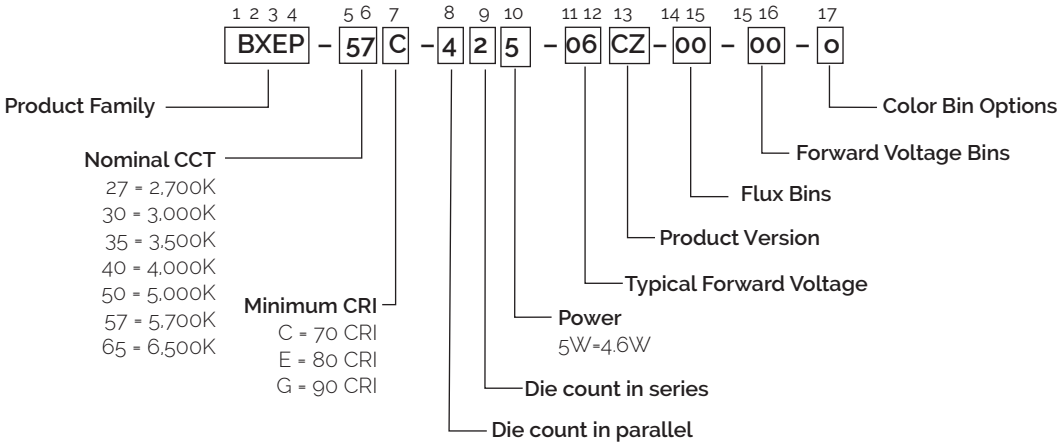
# Product Feature Map

Bridgelux SMD LED products come in industry standard package sizes and follow ANSI binning standards. 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 5050 is explained as follows:




## Product Test Conditions

Bridgelux SMD 5050 LEDs are tested and binned with a 10ms pulse of 750mA at $T_j$ (junction temperature)=$T_{sp}$ (solder point temperature) =25˚C. Forward voltage and luminous flux are binned at a $T_j$=$T_{sp}$=25˚C, while color is hot targeted at a $T_{sp}$ of 85˚C.

# Product Selection Guide

The following product configurations are available:

**Table 1:** Selection Guide, Pulsed Measurement Data at 750mA ($T_j$=$T_{sp}$=25˚C)

| Part Number[1,6] | Nominal CCT[2] (K) | CRI[3, 5] | Nominal Drive Current (mA) | Forward Voltage[4, 5] (V) | | | Typical Pulsed Flux (lm)[4, 5] | Typical Power (W) | Typical Efficacy (lm/W) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Min | Typical | Max | | | |
| BXEP-18C-425-06CZ-00-00-0 | 1800 | 70 | 750 | 5.8 | 6.2 | 6.4 | 585 | 4.7 | 126 |
| BXEP-18E-425-06CZ-00-00-0 | 1800 | 80 | 750 | 5.8 | 6.2 | 6.4 | 526 | 4.7 | 113 |
| BXEP-22C-425-06CZ-00-00-0 | 2200 | 70 | 750 | 5.8 | 6.2 | 6.4 | 678 | 4.7 | 146 |
| BXEP-22E-425-06CZ-00-00-0 | 2200 | 80 | 750 | 5.8 | 6.2 | 6.4 | 617 | 4.7 | 133 |
| BXEP-24C-425-06CZ-00-00-0 | 2400 | 70 | 750 | 5.8 | 6.2 | 6.4 | 697 | 4.7 | 150 |
| BXEP-24E-425-06CZ-00-00-0 | 2400 | 80 | 750 | 5.8 | 6.2 | 6.4 | 627 | 4.7 | 135 |
| BXEP-27C-425-06CZ-00-00-0 | 2700 | 70 | 750 | 5.8 | 6.2 | 6.4 | 740 | 4.7 | 159 |
| BXEP-27E-425-06CZ-00-00-0 | 2700 | 80 | 750 | 5.8 | 6.2 | 6.4 | 689 | 4.7 | 148 |
| BXEP-27G-425-06CZ-00-00-0 | 2700 | 90 | 750 | 5.8 | 6.2 | 6.4 | 583 | 4.7 | 125 |
| BXEP-30C-425-06CZ-00-00-0 | 3000 | 70 | 750 | 5.8 | 6.2 | 6.4 | 763 | 4.7 | 164 |
| BXEP-30E-425-06CZ-00-00-0 | 3000 | 80 | 750 | 5.8 | 6.2 | 6.4 | 704 | 4.7 | 151 |
| BXEP-30G-425-06CZ-00-00-0 | 3000 | 90 | 750 | 5.8 | 6.2 | 6.4 | 602 | 4.7 | 129 |
| BXEP-35C-425-06CZ-00-00-0 | 3500 | 70 | 750 | 5.8 | 6.2 | 6.4 | 783 | 4.7 | 168 |
| BXEP-35E-425-06CZ-00-00-0 | 3500 | 80 | 750 | 5.8 | 6.2 | 6.4 | 723 | 4.7 | 155 |
| BXEP-40C-425-06CZ-00-00-0 | 4000 | 70 | 750 | 5.8 | 6.2 | 6.4 | 810 | 4.7 | 174 |
| BXEP-40E-425-06CZ-00-00-0 | 4000 | 80 | 750 | 5.8 | 6.2 | 6.4 | 750 | 4.7 | 161 |
| BXEP-40G-425-06CZ-00-00-0 | 4000 | 90 | 750 | 5.8 | 6.2 | 6.4 | 634 | 4.7 | 136 |
| BXEP-50C-425-06CZ-00-00-0 | 5000 | 70 | 750 | 5.8 | 6.2 | 6.4 | 810 | 4.7 | 174 |
| BXEP-50E-425-06CZ-00-00-0 | 5000 | 80 | 750 | 5.8 | 6.2 | 6.4 | 750 | 4.7 | 161 |
| BXEP-50G-425-06CZ-00-00-0 | 4000 | 90 | 750 | 5.8 | 6.2 | 6.4 | 634 | 4.7 | 136 |
| BXEP-57C-425-06CZ-00-00-0 | 5700 | 70 | 750 | 5.8 | 6.2 | 6.4 | 800 | 4.7 | 172 |
| BXEP-57E-425-06CZ-00-00-0 | 5700 | 80 | 750 | 5.8 | 6.2 | 6.4 | 739 | 4.7 | 159 |
| BXEP-57G-425-06CZ-00-00-0 | 5700 | 90 | 750 | 5.8 | 6.2 | 6.4 | 627 | 4.7 | 135 |
| BXEP-65C-425-06CZ-00-00-0 | 6500 | 70 | 750 | 5.8 | 6.2 | 6.4 | 800 | 4.7 | 172 |
| BXEP-65E-425-06CZ-00-00-0 | 6500 | 80 | 750 | 5.8 | 6.2 | 6.4 | 739 | 4.7 | 159 |
| BXEP-65G-425-06CZ-00-00-0 | 6500 | 90 | 750 | 5.8 | 6.2 | 6.4 | 624 | 4.7 | 134 |

Notes for Table 1 :

1. The last 7 characters (including hyphens '-') refer to flux bins, forward voltage bins, and color bin options, respectively. "00-00-0" denotes the full distribution of flux, forward voltage, and 5 SDCM color.

   Example: BXEP-57C-425-06CZ-00-00-0 refers to the full distribution of flux, forward voltage, and color within a 5700K 5-step ANSI standard chromaticity region with a minimum of 70CRI, 4x2 die configuration, 4.6w power, 6.2V typical forward voltage.
2. Product CCT is hot targeted at $T_{sp}$ = 85˚C. Nominal CCT as defined by ANSI C78.377-2011.
3. Listed CRIs are minimum values and include test tolerance.
4. Products tested under pulsed condition (10ms pulse width) at nominal drive current where $T_j$=$T_{sp}$=25˚C.
5. Bridgelux maintains a ±7.5% tolerance on luminous flux measurements, ±0.1V tolerance on forward voltage measurements, and ±2 tolerance on CRI measurements for the SMD 5050 .
6. Refer to Table 6 and Table 7 for Bridgelux SMD 5050 Luminous Flux Binning and Forward Voltage Binning information.

# Product Selection Guide

The following product configurations are available:

**Table 2:** Selection Guide, Stabilized DC Performance ($T_{sp}$ = 85°C)[6,7]

| Part Number[1,6] | Nominal CCT[2] (K) | CRI[3,5] | Nominal Drive Current (mA) | Forward Voltage[4,5] (V) | | | Typical Pulsed Flux (lm)[4,5] | Typical Power (W) | Typical Efficacy (lm/W) |
|---|---|---|---|---|---|---|---|---|---|
| | | | | Min | Typical | Max | | | |
| BXEP-18C-425-06CZ-00-00-0 | 1800 | 70 | 750 | 5.7 | 6.1 | 6.3 | 532 | 4.6 | 116 |
| BXEP-18E-425-06CZ-00-00-0 | 1800 | 80 | 750 | 5.7 | 6.1 | 6.3 | 479 | 4.6 | 105 |
| BXEP-22C-425-06CZ-00-00-0 | 2200 | 70 | 750 | 5.7 | 6.1 | 6.3 | 618 | 4.6 | 135 |
| BXEP-22E-425-06CZ-00-00-0 | 2200 | 80 | 750 | 5.7 | 6.1 | 6.3 | 562 | 4.6 | 123 |
| BXEP-24C-425-06CZ-00-00-0 | 2400 | 70 | 750 | 5.7 | 6.1 | 6.3 | 634 | 4.6 | 139 |
| BXEP-24E-425-06CZ-00-00-0 | 2400 | 80 | 750 | 5.7 | 6.1 | 6.3 | 571 | 4.6 | 125 |
| BXEP-27C-425-06CZ-00-00-0 | 2700 | 70 | 750 | 5.7 | 6.1 | 6.3 | 674 | 4.6 | 147 |
| BXEP-27E-425-06CZ-00-00-0 | 2700 | 80 | 750 | 5.7 | 6.1 | 6.3 | 628 | 4.6 | 137 |
| BXEP-27G-425-06CZ-00-00-0 | 2700 | 90 | 750 | 5.7 | 6.1 | 6.3 | 531 | 4.6 | 116 |
| BXEP-30C-425-06CZ-00-00-0 | 3000 | 70 | 750 | 5.7 | 6.1 | 6.3 | 695 | 4.6 | 152 |
| BXEP-30E-425-06CZ-00-00-0 | 3000 | 80 | 750 | 5.7 | 6.1 | 6.3 | 641 | 4.6 | 140 |
| BXEP-30G-425-06CZ-00-00-0 | 3000 | 90 | 750 | 5.7 | 6.1 | 6.3 | 548 | 4.6 | 120 |
| BXEP-35C-425-06CZ-00-00-0 | 3500 | 70 | 750 | 5.7 | 6.1 | 6.3 | 713 | 4.6 | 156 |
| BXEP-35E-425-06CZ-00-00-0 | 3500 | 80 | 750 | 5.7 | 6.1 | 6.3 | 658 | 4.6 | 144 |
| BXEP-40C-425-06CZ-00-00-0 | 4000 | 70 | 750 | 5.7 | 6.1 | 6.3 | 737 | 4.6 | 161 |
| BXEP-40E-425-06CZ-00-00-0 | 4000 | 80 | 750 | 5.7 | 6.1 | 6.3 | 683 | 4.6 | 149 |
| BXEP-40G-425-06CZ-00-00-0 | 4000 | 90 | 750 | 5.7 | 6.1 | 6.3 | 577 | 4.6 | 126 |
| BXEP-50C-425-06CZ-00-00-0 | 5000 | 70 | 750 | 5.7 | 6.1 | 6.3 | 737 | 4.6 | 161 |
| BXEP-50E-425-06CZ-00-00-0 | 5000 | 80 | 750 | 5.7 | 6.1 | 6.3 | 683 | 4.6 | 149 |
| BXEP-50G-425-06CZ-00-00-0 | 4000 | 90 | 750 | 5.7 | 6.1 | 6.3 | 577 | 4.6 | 126 |
| BXEP-57C-425-06CZ-00-00-0 | 5700 | 70 | 750 | 5.7 | 6.1 | 6.3 | 728 | 4.6 | 159 |
| BXEP-57E-425-06CZ-00-00-0 | 5700 | 80 | 750 | 5.7 | 6.1 | 6.3 | 673 | 4.6 | 147 |
| BXEP-57G-425-06CZ-00-00-0 | 5700 | 90 | 750 | 5.7 | 6.1 | 6.3 | 571 | 4.6 | 125 |
| BXEP-65C-425-06CZ-00-00-0 | 6500 | 70 | 750 | 5.7 | 6.1 | 6.3 | 728 | 4.6 | 159 |
| BXEP-65E-425-06CZ-00-00-0 | 6500 | 80 | 750 | 5.7 | 6.1 | 6.3 | 673 | 4.6 | 147 |
| BXEP-65G-425-06CZ-00-00-0 | 6500 | 90 | 750 | 5.7 | 6.1 | 6.3 | 568 | 4.6 | 124 |

Notes for Table 2:

1. The last 7 characters (including hyphens '-') refer to flux bins, forward voltage bins, and color bin options, respectively. "00-00-0" denotes the full distribution of flux, forward voltage, and 5 SDCM color.

   Example: BXEP-57C-425-06CZ-00-00-0 refers to the full distribution of flux, forward voltage, and color within a 5700K 5-step ANSI standard chromaticity region with a minimum of 70CRI, 4x2 die configuration, 4.6w power, 6.2V typical forward voltage.
2. Product CCT is hot targeted at $T_{sp}$ = 85°C. Nominal CCT as defined by ANSI C78.377-2011.
3. Listed CRIs are minimum values and include test tolerance.
4. Bridgelux maintains a ±7.5% tolerance on luminous flux measurements, ±0.1V tolerance on forward voltage measurements, and ±2 tolerance on CRI measurements for the SMD 5050 .
5. Refer to Table 6 and Table 7 for Bridgelux SMD 5050 Luminous Flux Binning and Forward Voltage Binning information.
6. Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.
7. Typical performance is estimated based on operation under DC (direct current) with LED emitter mounted onto a heat sink with thermal interface material and the solder point temperature maintained at 85°C. Based on Bridgelux test setup, values may vary depending on the thermal design of the luminaire and/or the exposed environment to which the product is subjected.

# Performance at Commonly Used Drive Currents

SMD 5050 LEDs are tested to the specifications shown using the nominal drive currents in Table 1. SMD 5050 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 Figure 2 and the relative luminous flux vs. current characteristics shown in Figure 3. The performance at commonly used drive currents is summarized in Table 3.

**Table 3:** Performance at Commonly Used Drive Currents

| Part Number | CRI | 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 DC Flux[3] $T_{sp}$ = 85°C (lm) | Typical Efficacy $T_{sp}$ = 25°C (lm/W) |
|---|---|---|---|---|---|---|---|
| BXEP-18C-425-06CZ-00-00-0 | 70 | 150 | 5.4 | 0.8 | 127 | 120 | 157 |
| | | 180 | 5.4 | 1.0 | 152 | 143 | 155 |
| | | 300 | 5.6 | 1.7 | 249 | 232 | 147 |
| | | 450 | 5.8 | 2.6 | 365 | 338 | 139 |
| | | 600 | 6.0 | 3.6 | 477 | 438 | 132 |
| | | 640 | 6.1 | 3.9 | 506 | 463 | 130 |
| | | **750** | **6.2** | **4.7** | **585** | **532** | **126** |
| | | 800 | 6.3 | 5.0 | 620 | 563 | 124 |
| | | 1000 | 6.5 | 6.5 | 754 | 679 | 116 |
| BXEP-18E-425-06CZ-00-00-0 | 80 | 150 | 5.4 | 0.8 | 115 | 108 | 142 |
| | | 180 | 5.4 | 1.0 | 137 | 128 | 140 |
| | | 300 | 5.6 | 1.7 | 224 | 208 | 133 |
| | | 450 | 5.8 | 2.6 | 329 | 304 | 126 |
| | | 600 | 6.0 | 3.6 | 429 | 394 | 119 |
| | | 640 | 6.1 | 3.9 | 456 | 417 | 117 |
| | | **750** | **6.2** | **4.7** | **526** | **479** | **113** |
| | | 800 | 6.3 | 5.0 | 558 | 507 | 111 |
| | | 1000 | 6.5 | 6.5 | 679 | 611 | 104 |

# Performance at Commonly Used Drive Currents

**Table 3:** Performance at Commonly Used Drive Currents

| Part Number | CRI | 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 DC Flux[3] $T_{sp}$ = 85°C (lm) | Typical Efficacy $T_{sp}$ = 25°C (lm/W) |
|---|---|---|---|---|---|---|---|
| BXEP-22C-425-06CZ-00-00-0 | 70 | 150 | 5.4 | 0.8 | 148 | 139 | 183 |
| | | 180 | 5.4 | 1.0 | 176 | 165 | 180 |
| | | 300 | 5.6 | 1.7 | 288 | 269 | 171 |
| | | 450 | 5.8 | 2.6 | 424 | 392 | 162 |
| | | 600 | 6.0 | 3.6 | 553 | 508 | 153 |
| | | 640 | 6.1 | 3.9 | 587 | 537 | 151 |
| | | **750** | **6.2** | **4.7** | **678** | **618** | **146** |
| | | 800 | 6.3 | 5.0 | 719 | 653 | 143 |
| | | 1000 | 6.5 | 6.5 | 875 | 788 | 135 |
| BXEP-22E-425-06CZ-00-00-0 | 80 | 150 | 5.4 | 0.8 | 134 | 126 | 166 |
| | | 180 | 5.4 | 1.0 | 160 | 150 | 164 |
| | | 300 | 5.6 | 1.7 | 262 | 244 | 155 |
| | | 450 | 5.8 | 2.6 | 385 | 356 | 147 |
| | | 600 | 6.0 | 3.6 | 503 | 462 | 139 |
| | | 640 | 6.1 | 3.9 | 534 | 489 | 138 |
| | | **750** | **6.2** | **4.7** | **617** | **562** | **133** |
| | | 800 | 6.3 | 5.0 | 654 | 594 | 130 |
| | | 1000 | 6.5 | 6.5 | 796 | 717 | 122 |

# Performance at Commonly Used Drive Currents

**Table 3:** Performance at Commonly Used Drive Currents

| Part Number | CRI | 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 DC Flux[3] $T_{sp}$ = 85°C (lm) | Typical Efficacy $T_{sp}$ = 25°C (lm/W) |
|---|---|---|---|---|---|---|---|
| BXEP-24C-425-06CZ-00-00-0 | 70 | 150 | 5.4 | 0.8 | 152 | 142 | 188 |
| | | 180 | 5.4 | 1.0 | 181 | 170 | 185 |
| | | 300 | 5.6 | 1.7 | 296 | 276 | 176 |
| | | 450 | 5.8 | 2.6 | 435 | 403 | 166 |
| | | 600 | 6.0 | 3.6 | 568 | 522 | 157 |
| | | 640 | 6.1 | 3.9 | 603 | 552 | 155 |
| | | **750** | **6.2** | **4.7** | **697** | **634** | **150** |
| | | 800 | 6.3 | 5.0 | 738 | 671 | 147 |
| | | 1000 | 6.5 | 6.5 | 899 | 810 | 138 |
| BXEP-24E-425-06CZ-00-00-0 | 80 | 150 | 5.4 | 0.8 | 137 | 128 | 169 |
| | | 180 | 5.4 | 1.0 | 163 | 153 | 166 |
| | | 300 | 5.6 | 1.7 | 267 | 248 | 158 |
| | | 450 | 5.8 | 2.6 | 392 | 362 | 150 |
| | | 600 | 6.0 | 3.6 | 511 | 470 | 142 |
| | | 640 | 6.1 | 3.9 | 543 | 497 | 140 |
| | | **750** | **6.2** | **4.7** | **627** | **571** | **135** |
| | | 800 | 6.3 | 5.0 | 664 | 604 | 133 |
| | | 1000 | 6.5 | 6.5 | 809 | 729 | 124 |

# Performance at Commonly Used Drive Currents

**Table 3:** Performance at Commonly Used Drive Currents

| Part Number | CRI | 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 DC Flux[3] $T_{sp}$ = 85°C (lm) | Typical Efficacy $T_{sp}$ = 25°C (lm/W) |
|---|---|---|---|---|---|---|---|
| BXEP-27C-425-06CZ-00-00-0 | 70 | 150 | 5.4 | 0.8 | 161 | 151 | 199 |
| | | 180 | 5.4 | 1.0 | 192 | 180 | 196 |
| | | 300 | 5.6 | 1.7 | 314 | 293 | 186 |
| | | 450 | 5.8 | 2.6 | 462 | 427 | 176 |
| | | 600 | 6.0 | 3.6 | 603 | 554 | 167 |
| | | 640 | 6.1 | 3.9 | 641 | 586 | 165 |
| | | **750** | **6.2** | **4.7** | **740** | **674** | **159** |
| | | 800 | 6.3 | 5.0 | 784 | 712 | 156 |
| | | 1000 | 6.5 | 6.5 | 954 | 859 | 147 |
| BXEP-27E-425-06CZ-00-00-0 | 80 | 150 | 5.4 | 0.8 | 150 | 141 | 185 |
| | | 180 | 5.4 | 1.0 | 179 | 168 | 183 |
| | | 300 | 5.6 | 1.7 | 293 | 273 | 174 |
| | | 450 | 5.8 | 2.6 | 431 | 398 | 164 |
| | | 600 | 6.0 | 3.6 | 562 | 516 | 156 |
| | | 640 | 6.1 | 3.9 | 597 | 546 | 154 |
| | | **750** | **6.2** | **4.7** | **689** | **628** | **148** |
| | | 800 | 6.3 | 5.0 | 730 | 664 | 146 |
| | | 1000 | 6.5 | 6.5 | 889 | 801 | 137 |
| BXEP-27G-425-06CZ-00-00-0 | 90 | 150 | 5.4 | 0.8 | 127 | 119 | 157 |
| | | 180 | 5.4 | 1.0 | 152 | 142 | 155 |
| | | 300 | 5.6 | 1.7 | 248 | 231 | 147 |
| | | 450 | 5.8 | 2.6 | 364 | 337 | 139 |
| | | 600 | 6.0 | 3.6 | 475 | 437 | 132 |
| | | 640 | 6.1 | 3.9 | 505 | 462 | 130 |
| | | **750** | **6.2** | **4.7** | **583** | **531** | **125** |
| | | 800 | 6.3 | 5.0 | 618 | 562 | 123 |
| | | 1000 | 6.5 | 6.5 | 752 | 678 | 116 |

# Performance at Commonly Used Drive Currents

**Table 3:** Performance at Commonly Used Drive Currents

| Part Number | CRI | 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 DC Flux[3] $T_{sp}$ = 85°C (lm) | Typical Efficacy $T_{sp}$ = 25°C (lm/W) |
|---|---|---|---|---|---|---|---|
| BXEP-30C-425-06CZ-00-00-0 | 70 | 150 | 5.4 | 0.8 | 166 | 156 | 205 |
| | | 180 | 5.4 | 1.0 | 198 | 186 | 202 |
| | | 300 | 5.6 | 1.7 | 324 | 302 | 192 |
| | | 450 | 5.8 | 2.6 | 477 | 441 | 182 |
| | | 600 | 6.0 | 3.6 | 622 | 571 | 172 |
| | | 640 | 6.1 | 3.9 | 661 | 604 | 170 |
| | | **750** | **6.2** | **4.7** | **763** | **695** | **164** |
| | | 800 | 6.3 | 5.0 | 808 | 735 | 161 |
| | | 1000 | 6.5 | 6.5 | 984 | 886 | 151 |
| BXEP-30E-425-06CZ-00-00-0 | 80 | 150 | 5.4 | 0.8 | 154 | 144 | 190 |
| | | 180 | 5.4 | 1.0 | 183 | 172 | 187 |
| | | 300 | 5.6 | 1.7 | 299 | 279 | 178 |
| | | 450 | 5.8 | 2.6 | 440 | 407 | 168 |
| | | 600 | 6.0 | 3.6 | 574 | 528 | 159 |
| | | 640 | 6.1 | 3.9 | 610 | 558 | 157 |
| | | **750** | **6.2** | **4.7** | **704** | **641** | **151** |
| | | 800 | 6.3 | 5.0 | 746 | 678 | 149 |
| | | 1000 | 6.5 | 6.5 | 909 | 818 | 140 |
| BXEP-30G-425-06CZ-00-00-0 | 90 | 150 | 5.4 | 0.8 | 131 | 123 | 162 |
| | | 180 | 5.4 | 1.0 | 156 | 147 | 160 |
| | | 300 | 5.6 | 1.7 | 256 | 238 | 152 |
| | | 450 | 5.8 | 2.6 | 376 | 348 | 144 |
| | | 600 | 6.0 | 3.6 | 491 | 451 | 136 |
| | | 640 | 6.1 | 3.9 | 521 | 477 | 134 |
| | | **750** | **6.2** | **4.7** | **602** | **548** | **129** |
| | | 800 | 6.3 | 5.0 | 638 | 580 | 127 |
| | | 1000 | 6.5 | 6.5 | 776 | 699 | 120 |

# Performance at Commonly Used Drive Currents

**Table 3:** Performance at Commonly Used Drive Currents

| Part Number | CRI | 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 DC Flux[3] $T_{sp}$ = 85°C (lm) | Typical Efficacy $T_{sp}$ = 25°C (lm/W) |
|---|---|---|---|---|---|---|---|
| BXEP-35C-425-06CZ-00-00-0 | 70 | 150 | 5.4 | 0.8 | 171 | 160 | 211 |
| | | 180 | 5.4 | 1.0 | 203 | 191 | 208 |
| | | 300 | 5.6 | 1.7 | 333 | 310 | 197 |
| | | 450 | 5.8 | 2.6 | 489 | 452 | 187 |
| | | 600 | 6.0 | 3.6 | 638 | 586 | 177 |
| | | 640 | 6.1 | 3.9 | 678 | 620 | 175 |
| | | **750** | **6.2** | **4.7** | **783** | **713** | **168** |
| | | 800 | 6.3 | 5.0 | 829 | 754 | 166 |
| | | 1000 | 6.5 | 6.5 | 1009 | 909 | 155 |
| BXEP-35E-425-06CZ-00-00-0 | 80 | 150 | 5.4 | 0.8 | 158 | 148 | 194 |
| | | 180 | 5.4 | 1.0 | 188 | 176 | 192 |
| | | 300 | 5.6 | 1.7 | 307 | 286 | 182 |
| | | 450 | 5.8 | 2.6 | 452 | 418 | 172 |
| | | 600 | 6.0 | 3.6 | 589 | 541 | 163 |
| | | 640 | 6.1 | 3.9 | 626 | 573 | 161 |
| | | **750** | **6.2** | **4.7** | **723** | **658** | **155** |
| | | 800 | 6.3 | 5.0 | 766 | 696 | 153 |
| | | 1000 | 6.5 | 6.5 | 932 | 840 | 143 |

# Performance at Commonly Used Drive Currents

**Table 3:** Performance at Commonly Used Drive Currents

| Part Number | CRI | 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 DC Flux[3] $T_{sp}$ = 85°C (lm) | Typical Efficacy $T_{sp}$ = 25°C (lm/W) |
|---|---|---|---|---|---|---|---|
| BXEP-40C-425-06CZ-00-00-0 | 70 | 150 | 5.4 | 0.8 | 177 | 166 | 218 |
| | | 180 | 5.4 | 1.0 | 211 | 198 | 215 |
| | | 300 | 5.6 | 1.7 | 344 | 321 | 204 |
| | | 450 | 5.8 | 2.6 | 506 | 468 | 193 |
| | | 600 | 6.0 | 3.6 | 660 | 607 | 183 |
| | | 640 | 6.1 | 3.9 | 701 | 642 | 181 |
| | | **750** | **6.2** | **4.7** | **810** | **737** | **174** |
| | | 800 | 6.3 | 5.0 | 858 | 780 | 171 |
| | | 1000 | 6.5 | 6.5 | 1045 | 941 | 161 |
| BXEP-40E-425-06CZ-00-00-0 | 80 | 150 | 5.4 | 0.8 | 163 | 153 | 202 |
| | | 180 | 5.4 | 1.0 | 195 | 183 | 199 |
| | | 300 | 5.6 | 1.7 | 319 | 297 | 189 |
| | | 450 | 5.8 | 2.6 | 469 | 433 | 179 |
| | | 600 | 6.0 | 3.6 | 611 | 561 | 169 |
| | | 640 | 6.1 | 3.9 | 649 | 594 | 167 |
| | | **750** | **6.2** | **4.7** | **750** | **683** | **161** |
| | | 800 | 6.3 | 5.0 | 794 | 722 | 159 |
| | | 1000 | 6.5 | 6.5 | 967 | 871 | 149 |
| BXEP-40G-425-06CZ-00-00-0 | 90 | 150 | 5.4 | 0.8 | 138 | 130 | 171 |
| | | 180 | 5.4 | 1.0 | 165 | 155 | 168 |
| | | 300 | 5.6 | 1.7 | 269 | 251 | 160 |
| | | 450 | 5.8 | 2.6 | 396 | 366 | 151 |
| | | 600 | 6.0 | 3.6 | 516 | 475 | 143 |
| | | 640 | 6.1 | 3.9 | 549 | 502 | 141 |
| | | **750** | **6.2** | **4.7** | **634** | **577** | **136** |
| | | 800 | 6.3 | 5.0 | 671 | 610 | 134 |
| | | 1000 | 6.5 | 6.5 | 817 | 736 | 126 |

# Performance at Commonly Used Drive Currents

**Table 3:** Performance at Commonly Used Drive Currents

| Part Number | CRI | 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 DC Flux[3] $T_{sp}$ = 85°C (lm) | Typical Efficacy $T_{sp}$ = 25°C (lm/W) |
|---|---|---|---|---|---|---|---|
| BXEP-50C-425-06CZ-00-00-0 | 70 | 150 | 5.4 | 0.8 | 177 | 166 | 218 |
| | | 180 | 5.4 | 1.0 | 211 | 198 | 215 |
| | | 300 | 5.6 | 1.7 | 344 | 321 | 204 |
| | | 450 | 5.8 | 2.6 | 506 | 468 | 193 |
| | | 600 | 6.0 | 3.6 | 660 | 607 | 183 |
| | | 640 | 6.1 | 3.9 | 701 | 642 | 181 |
| | | **750** | **6.2** | **4.7** | **810** | **737** | **174** |
| | | 800 | 6.3 | 5.0 | 858 | 780 | 171 |
| | | 1000 | 6.5 | 6.5 | 1045 | 941 | 161 |
| BXEP-50E-425-06CZ-00-00-0 | 80 | 150 | 5.4 | 0.8 | 163 | 153 | 202 |
| | | 180 | 5.4 | 1.0 | 195 | 183 | 199 |
| | | 300 | 5.6 | 1.7 | 319 | 297 | 189 |
| | | 450 | 5.8 | 2.6 | 469 | 433 | 179 |
| | | 600 | 6.0 | 3.6 | 611 | 561 | 169 |
| | | 640 | 6.1 | 3.9 | 649 | 594 | 167 |
| | | **750** | **6.2** | **4.7** | **750** | **683** | **161** |
| | | 800 | 6.3 | 5.0 | 794 | 722 | 159 |
| | | 1000 | 6.5 | 6.5 | 967 | 871 | 149 |
| BXEP-50G-425-06CZ-00-00-0 | 90 | 150 | 5.4 | 0.8 | 138 | 130 | 171 |
| | | 180 | 5.4 | 1.0 | 165 | 155 | 168 |
| | | 300 | 5.6 | 1.7 | 269 | 251 | 160 |
| | | 450 | 5.8 | 2.6 | 396 | 366 | 151 |
| | | 600 | 6.0 | 3.6 | 516 | 475 | 143 |
| | | 640 | 6.1 | 3.9 | 549 | 502 | 141 |
| | | **750** | **6.2** | **4.7** | **634** | **577** | **136** |
| | | 800 | 6.3 | 5.0 | 671 | 610 | 134 |
| | | 1000 | 6.5 | 6.5 | 817 | 736 | 126 |

# Performance at Commonly Used Drive Currents

**Table 3:** Performance at Commonly Used Drive Currents

| Part Number | CRI | 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 DC Flux[3] $T_{sp}$ = 85°C (lm) | Typical Efficacy $T_{sp}$ = 25°C (lm/W) |
|---|---|---|---|---|---|---|---|
| BXEP-57C-425-06CZ-00-00-0 | 70 | 150 | 5.4 | 0.8 | 174 | 164 | 215 |
| | | 180 | 5.4 | 1.0 | 208 | 195 | 212 |
| | | 300 | 5.6 | 1.7 | 340 | 317 | 202 |
| | | 450 | 5.8 | 2.6 | 500 | 462 | 191 |
| | | 600 | 6.0 | 3.6 | 652 | 599 | 181 |
| | | 640 | 6.1 | 3.9 | 693 | 634 | 178 |
| | | **750** | **6.2** | **4.7** | **800** | **728** | **172** |
| | | 800 | 6.3 | 5.0 | 848 | 770 | 169 |
| | | 1000 | 6.5 | 6.5 | 1032 | 930 | 159 |
| BXEP-57E-425-06CZ-00-00-0 | 80 | 150 | 5.4 | 0.8 | 161 | 151 | 199 |
| | | 180 | 5.4 | 1.0 | 192 | 180 | 196 |
| | | 300 | 5.6 | 1.7 | 314 | 292 | 186 |
| | | 450 | 5.8 | 2.6 | 462 | 427 | 176 |
| | | 600 | 6.0 | 3.6 | 602 | 553 | 167 |
| | | 640 | 6.1 | 3.9 | 640 | 585 | 165 |
| | | **750** | **6.2** | **4.7** | **739** | **673** | **159** |
| | | 800 | 6.3 | 5.0 | 783 | 711 | 156 |
| | | 1000 | 6.5 | 6.5 | 953 | 858 | 147 |
| BXEP-57G-425-06CZ-00-00-0 | 90 | 150 | 5.4 | 0.8 | 137 | 128 | 169 |
| | | 180 | 5.4 | 1.0 | 163 | 153 | 166 |
| | | 300 | 5.6 | 1.7 | 266 | 248 | 158 |
| | | 450 | 5.8 | 2.6 | 392 | 362 | 150 |
| | | 600 | 6.0 | 3.6 | 511 | 469 | 142 |
| | | 640 | 6.1 | 3.9 | 543 | 497 | 140 |
| | | **750** | **6.2** | **4.7** | **627** | **571** | **135** |
| | | 800 | 6.3 | 5.0 | 664 | 603 | 133 |
| | | 1000 | 6.5 | 6.5 | 808 | 728 | 124 |

# Performance at Commonly Used Drive Currents

**Table 3:** Performance at Commonly Used Drive Currents

| Part Number | CRI | 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 DC Flux[3] $T_{sp}$ = 85°C (lm) | Typical Efficacy $T_{sp}$ = 25°C (lm/W) |
|---|---|---|---|---|---|---|---|
| BXEP-65C-425-06CZ-00-00-0 | 70 | 150 | 5.4 | 0.8 | 174 | 164 | 215 |
| | | 180 | 5.4 | 1.0 | 208 | 195 | 212 |
| | | 300 | 5.6 | 1.7 | 340 | 317 | 202 |
| | | 450 | 5.8 | 2.6 | 500 | 462 | 191 |
| | | 600 | 6.0 | 3.6 | 652 | 599 | 181 |
| | | 640 | 6.1 | 3.9 | 693 | 634 | 178 |
| | | **750** | **6.2** | **4.7** | **800** | **728** | **172** |
| | | 800 | 6.3 | 5.0 | 848 | 770 | 169 |
| | | 1000 | 6.5 | 6.5 | 1032 | 930 | 159 |
| BXEP-65E-425-06CZ-00-00-0 | 80 | 150 | 5.4 | 0.8 | 161 | 151 | 199 |
| | | 180 | 5.4 | 1.0 | 192 | 180 | 196 |
| | | 300 | 5.6 | 1.7 | 314 | 292 | 186 |
| | | 450 | 5.8 | 2.6 | 462 | 427 | 176 |
| | | 600 | 6.0 | 3.6 | 602 | 553 | 167 |
| | | 640 | 6.1 | 3.9 | 640 | 585 | 165 |
| | | **750** | **6.2** | **4.7** | **739** | **673** | **159** |
| | | 800 | 6.3 | 5.0 | 783 | 711 | 156 |
| | | 1000 | 6.5 | 6.5 | 953 | 858 | 147 |
| BXEP-65G-425-06CZ-00-00-0 | 90 | 150 | 5.4 | 0.8 | 136 | 128 | 168 |
| | | 180 | 5.4 | 1.0 | 162 | 152 | 165 |
| | | 300 | 5.6 | 1.7 | 265 | 247 | 157 |
| | | 450 | 5.8 | 2.6 | 390 | 360 | 149 |
| | | 600 | 6.0 | 3.6 | 508 | 467 | 141 |
| | | 640 | 6.1 | 3.9 | 540 | 494 | 139 |
| | | **750** | **6.2** | **4.7** | **624** | **568** | **134** |
| | | 800 | 6.3 | 5.0 | 661 | 601 | 132 |
| | | 1000 | 6.5 | 6.5 | 805 | 725 | 124 |

Notes for Table 3:

1. Alternate drive currents in Table 3 are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a ± 7.5% tolerance on flux measurements.
3. Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.

# Electrical Characterstics

**Table 4:** Electrical Characteristics

| Part Number [1] | Drive Current (mA) | Forward Voltage (V) [2,3] | | | Typical Temperature Coefficient of Forward Voltage $\Delta V_f/\Delta T$ (mV/°C) | Typical Thermal Resistance Junction to Solder Point[4] $R_{j\text{-}sp}$ (°C/W) |
|---|---|---|---|---|---|---|
| | | Minimum | Typical | Maximum | | |
| BXEP-XXX-425-06CZ-00-00-0 | 750 | 5.8 | 6.2 | 6.4 | -2.37 | 3.2 |

Notes for Table 4:

1. The last 7 characters (including hyphens '-') refer to flux bins, forward voltage bins, and color bin options, respectively. "00-00-0" denotes the full distribution of flux, forward voltage, and 5 SDCM color.

   Example: BXEP-57C-425-06CZ-00-00-0 refers to the full distribution of flux, forward voltage, and color within a 5700K 5-step ANSI standard chromaticity region with a minimum of 70CRI, 4X2 die configuration, 4.6w power, 6.2V typical forward voltage.
2. Bridgelux maintains a tolerance of ± 0.1V on forward voltage measurements. Voltage minimum and maximum values at the nominal drive current are guaranteed by 100% test.
3. Products tested under pulsed condition (10ms pulse width) at nominal drive current where $T_{sp}$ = 25°C.
4. Thermal Resistance values based on 3000K 70CRI product.
5. Thermal resistance value was calculated using total electrical input power; optical power was not subtracted from input power.

# Absolute Maximum Ratings

**Table 5:** Maximum Ratings

| Parameter | Maximum Rating |
|---|---|
| LED Junction Temperature ($T_j$) | 125˚C |
| Storage Temperature | -40˚C to +105˚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[1] | 1000 mA |
| Maximum Peak Pulsed Forward Current[2] | 1200 mA |
| Maximum Reverse Voltage[3] | - |
| Moisture Sensitivity Rating | MSL 3 |
| Electrostatic Discharge | 8kV HBM. JEDEC-JS-001-HBM and JEDEC-JS-001-2012 |

Notes for Table 5:

1. Maximum drive current may be limited by the solder point temperature. Please see Figure 7 for further details.
2. Bridgelux recommends a maximum duty cycle of 10% and pulse width of 10 ms when operating LED SMD at maximum peak pulsed current specified. Maximum peak pulsed current indicate values where LED SMD can be driven without catastrophic failures.
3. Light emitting diodes are not designed to be driven in reverse voltage and will not produce light under this condition, no rating is provided.

# Product Bin Definitions

Table 6 lists the standard photometric luminous flux bins for Bridgelux SMD 5050 LEDs. Although several bins are listed, product availability in a particular bin varies by production run and by product performance. Not all bins are available in all CCTs.

**Table 6:** Luminous Flux Bin Definitions at 750mA, $T_{sp}$=25˚C

| Bin Code | Minimum | Maximum | Unit | Condition |
|---|---|---|---|---|
| A8 | 500 | 545 | lm | $I_F$=750mA |
| A9 | 545 | 590 | | |
| B1 | 590 | 635 | | |
| B2 | 635 | 685 | | |
| B3 | 685 | 740 | | |
| B4 | 740 | 800 | | |
| B5 | 800 | 865 | | |

Note for Table 6:

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

**Table 7:** Forward Voltage Bin Definition at 750mA, $T_{sp}$=25˚C

| Bin Code | Minimum | Maximum | Unit | Condition |
|---|---|---|---|---|
| BO | 5.8 | 6.0 | V | $I_F$=750mA |
| BP | 6.0 | 6.2 | | |
| BQ | 6.2 | 6.4 | | |

Note for Table 7:

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

# Product Bin Definitions

**Table 8:** 3- and 5-step MacAdam Ellipse Color Bin Definitions

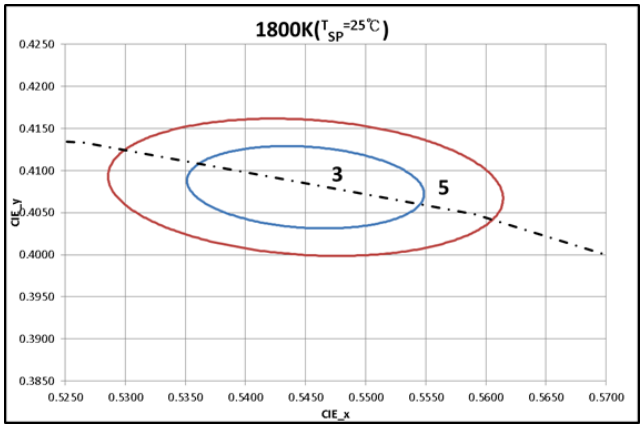
| CCT | Color Space | Center Point | | Major Axis | Minor Axis | Ellipse Rotation Angle | Color Bin |
|---|---|---|---|---|---|---|---|
| | | X | Y | | | | |
| 1800K ($T_{SP}$=25˚C) | 3 SDCM | 0.5450 | 0.4080 | 0.0099 | 0.0048 | 174 | 3 |
| | 5 SDCM | 0.5450 | 0.4080 | 0.0165 | 0.008 | 174 | 5 |
| 2200K | 3 SDCM | 0.5018 | 0.4153 | 0.00863 | 0.00398 | 49.27 | 3 |
| | 5 SDCM | 0.5018 | 0.4153 | 0.01438 | 0.00663 | 49.27 | 5 |
| 2400K ($T_{SP}$=25˚C) | 3 SDCM | 0.4810 | 0.4150 | 0.0096 | 0.00426 | 53.41 | 3 |
| | 5 SDCM | 0.4810 | 0.4150 | 0.016 | 0.0071 | 53.41 | 5 |
| 2700K | 3 SDCM | 0.4578 | 0.4101 | 0.00810 | 0.00420 | 53.70 | 3 |
| | 5 SDCM | 0.4578 | 0.4101 | 0.01350 | 0.00700 | 53.70 | 5 |
| 3000K | 3 SDCM | 0.4338 | 0.4030 | 0.00834 | 0.00408 | 53.22 | 3 |
| | 5 SDCM | 0.4338 | 0.4030 | 0.01390 | 0.00680 | 53.22 | 5 |
| 3500K | 3 SDCM | 0.4073 | 0.3917 | 0.00927 | 0.00414 | 54 | 3 |
| | 5 SDCM | 0.4073 | 0.4917 | 0.01545 | 0.0069 | 54 | 5 |
| 4000K | 3 SDCM | 0.3818 | 0.3797 | 0.00939 | 0.00402 | 53.72 | 3 |
| | 5 SDCM | 0.3818 | 0.3797 | 0.01565 | 0.00670 | 53.72 | 5 |
| 5000K | 3 SDCM | 0.3447 | 0.3553 | 0.00822 | 0.00354 | 59.62 | 3 |
| | 5 SDCM | 0.3447 | 0.3553 | 0.01370 | 0.00590 | 59.62 | 5 |
| 5700K | 3 SDCM | 0.3287 | 0.3417 | 0.00746 | 0.00320 | 59.09 | 3 |
| | 5 SDCM | 0.3287 | 0.3417 | 0.01243 | 0.00533 | 59.09 | 5 |
| 6500K | 3 SDCM | 0.3123 | 0.3282 | 0.00669 | 0.00285 | 58.57 | 3 |
| | 5 SDCM | 0.3123 | 0.3282 | 0.01115 | 0.00475 | 58.57 | 5 |

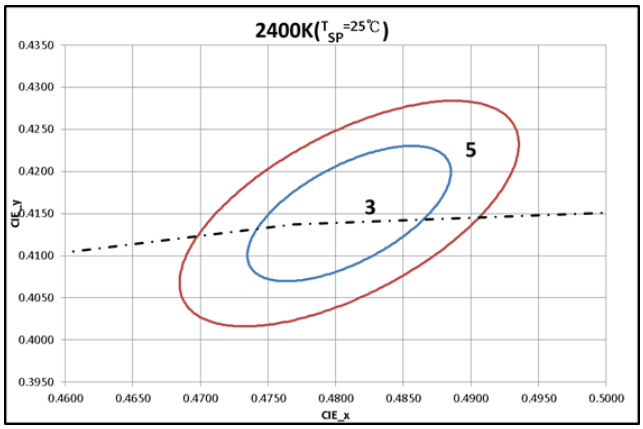
Notes for Table 8:

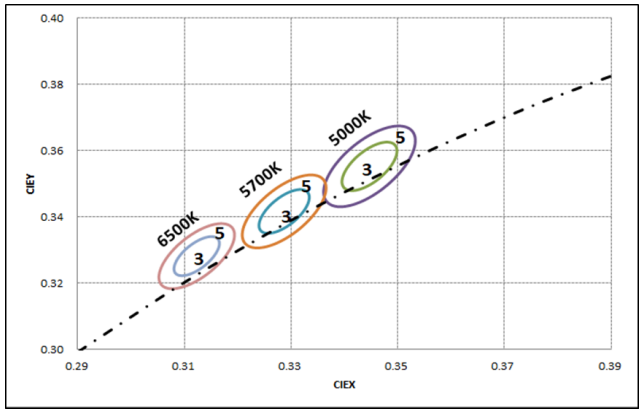
1. Color binning at $T_{sp}$=85˚C
2. Bridgelux maintains a tolerance of ± 0.007 on x and y color coordinates in the CIE 1931 color space.

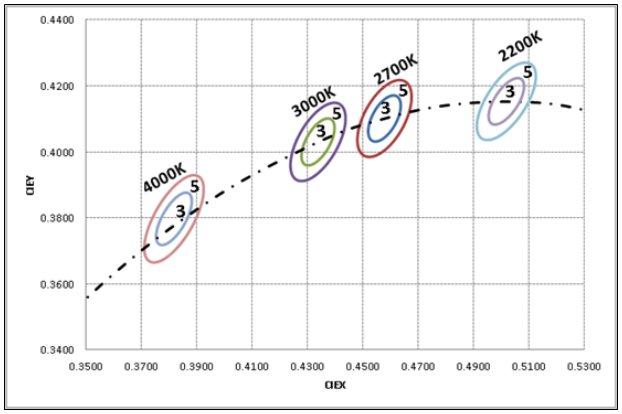
# Product Bin Definitions

**Figure 1:** C.I.E. 1931 Chromaticity Diagram (2 Color Bin Structure, Hot-color Targeted at $T_{sp}$=85˚C)



# Performance Curves

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

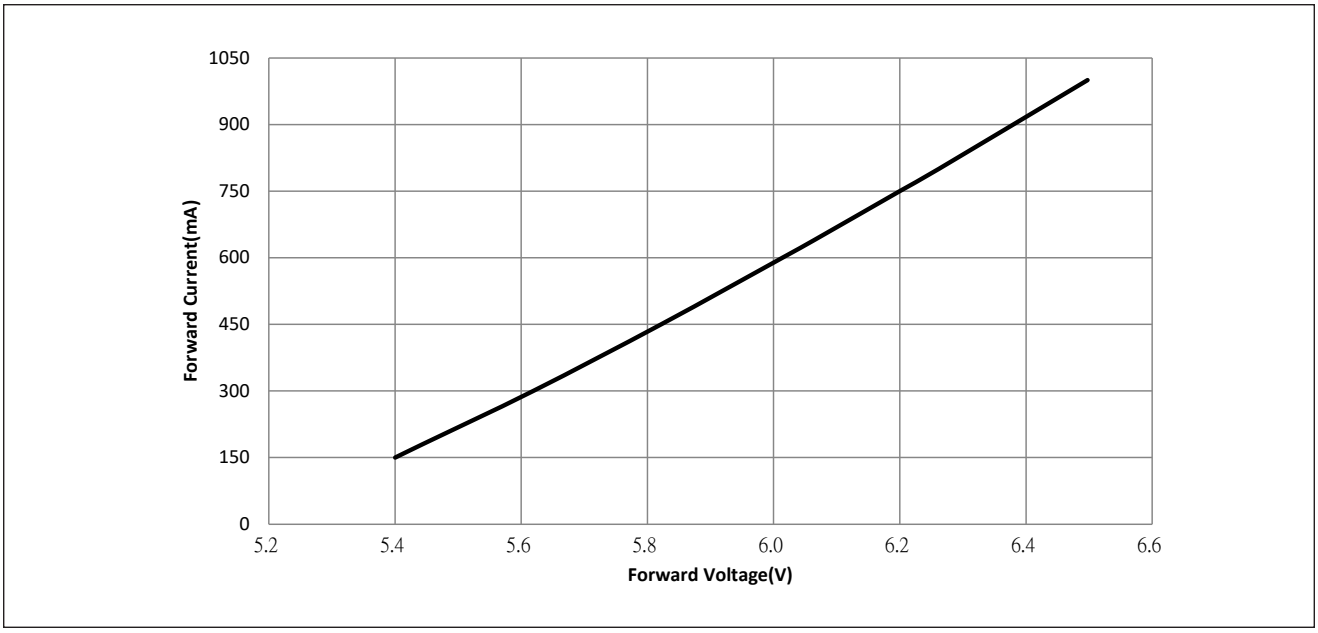
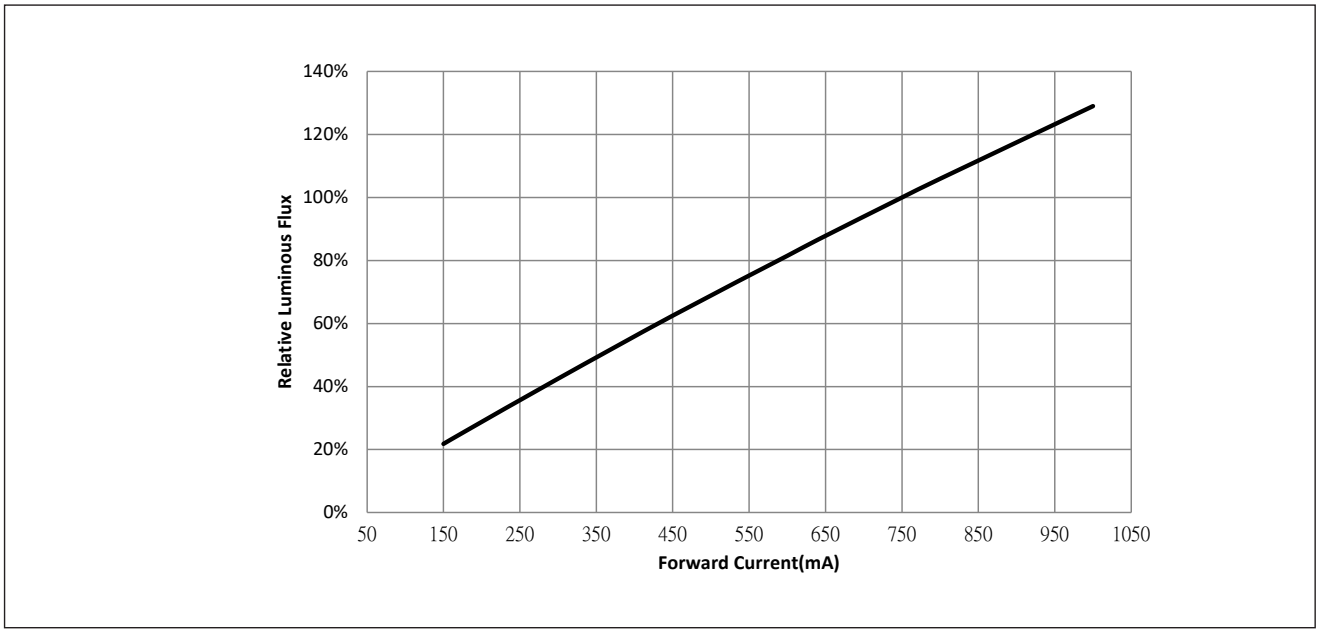



**Figure 3:Relative Luminous Flux vs. Drive Current ($T_{sp}$=25˚C)**




Note for Figure 3:

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

# Performance Curves

**Figure 4:Relative DC Flux vs. Solder Point Temperature**

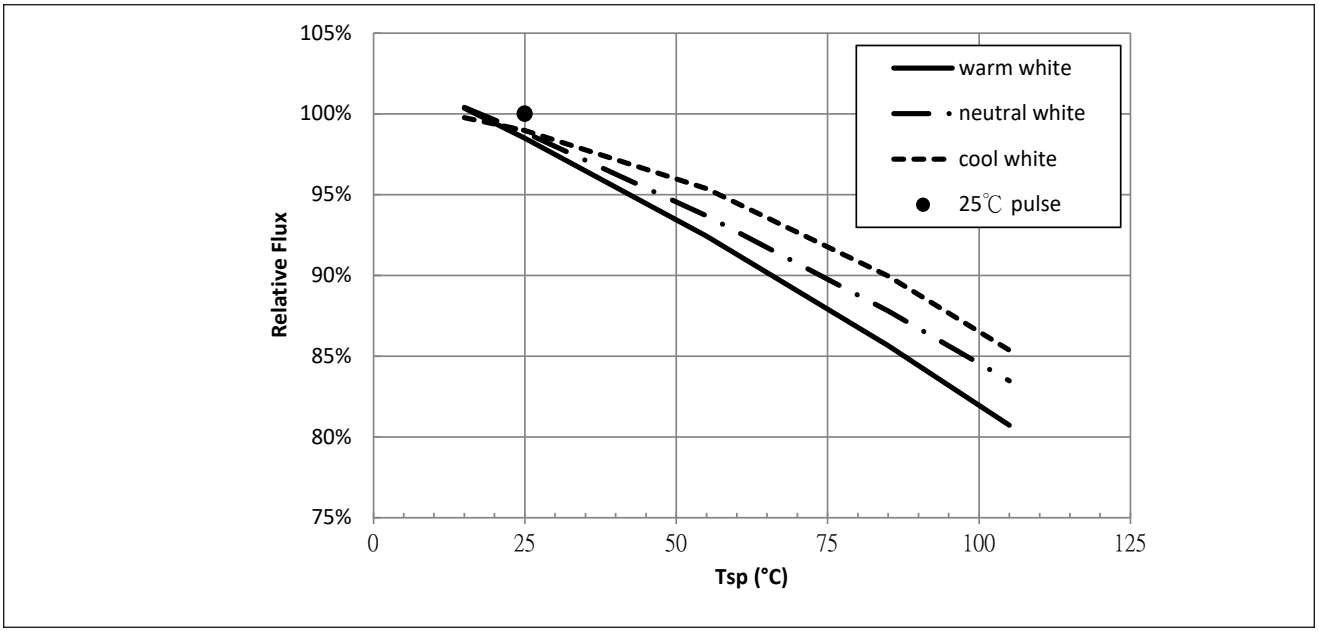
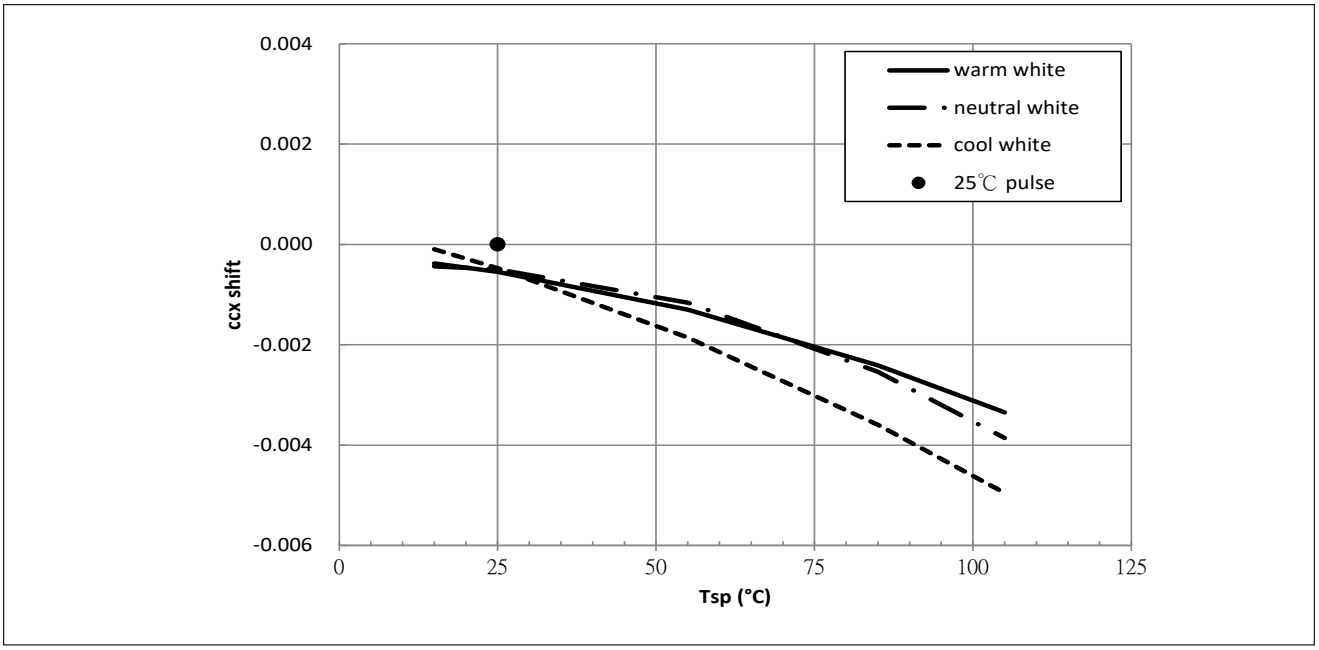



**Figure 5: Typical DC ccx Shift vs. Solder Point Temperature**

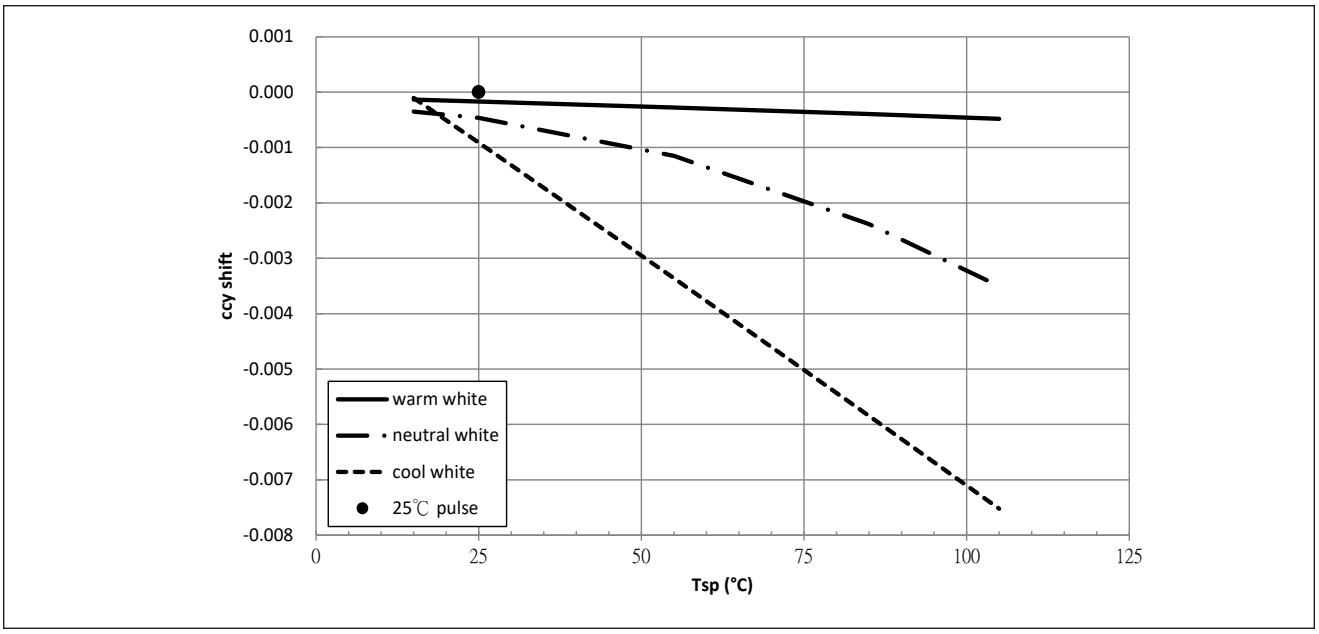



Notes for Figures 4 & 5:

1. Characteristics shown for warm white based on 3000K.
2. Characteristics shown for neutral white based on 4000K.
3. Characteristics shown for cool white based on 5700K.
4. For other color SKUs, the shift in color will vary. Please contact your Bridgelux Sales Representative for more information.

# Performance Curves

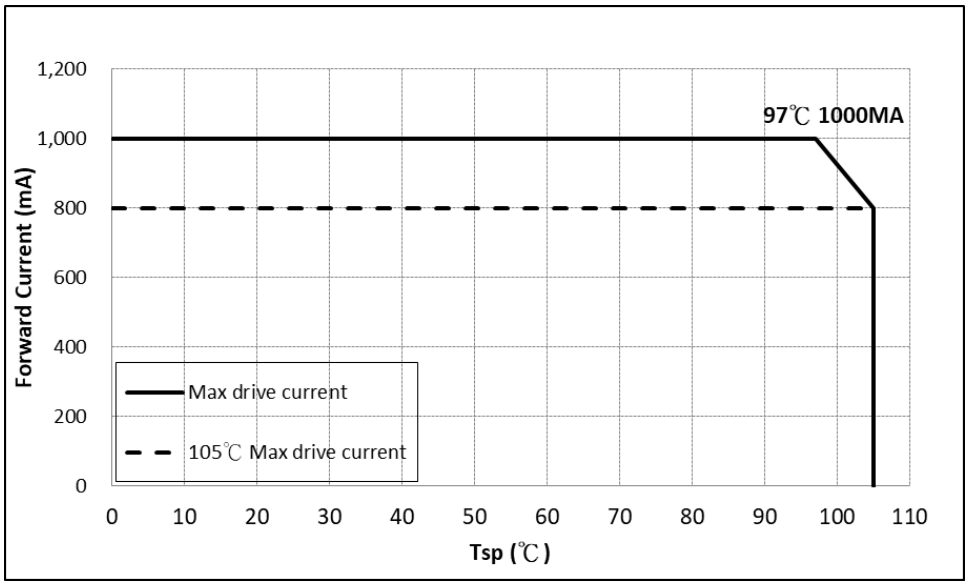
**Figure 6: Typical DC ccy Shift vs. Solder Point Temperature**




Notes for Figure 6:

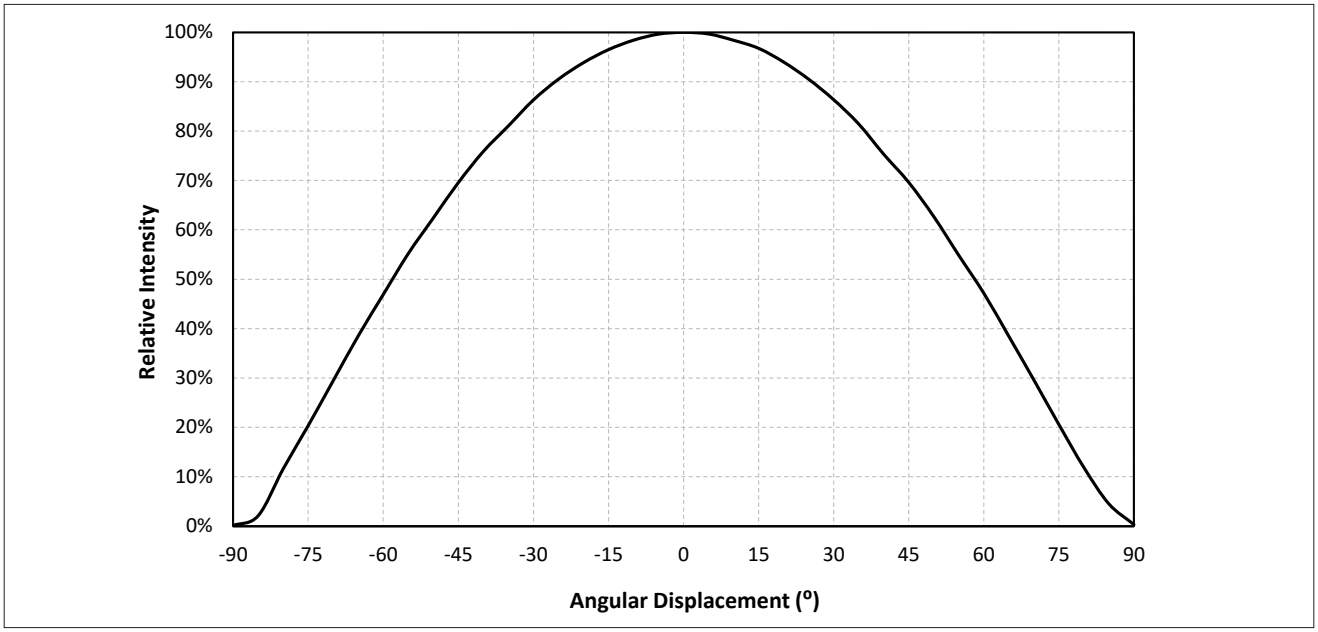
1. Characteristics shown for warm white based on 3000K.
2. Characteristics shown for neutral white based on 4000K.
3. Characteristics shown for cool white based on 5700K.
4. For other color SKUs, the shift in color will vary. Please contact your Bridgelux Sales Representative for more information.

**Figure 7: Drive Current Derating Curve**



# Typical Radiation Pattern

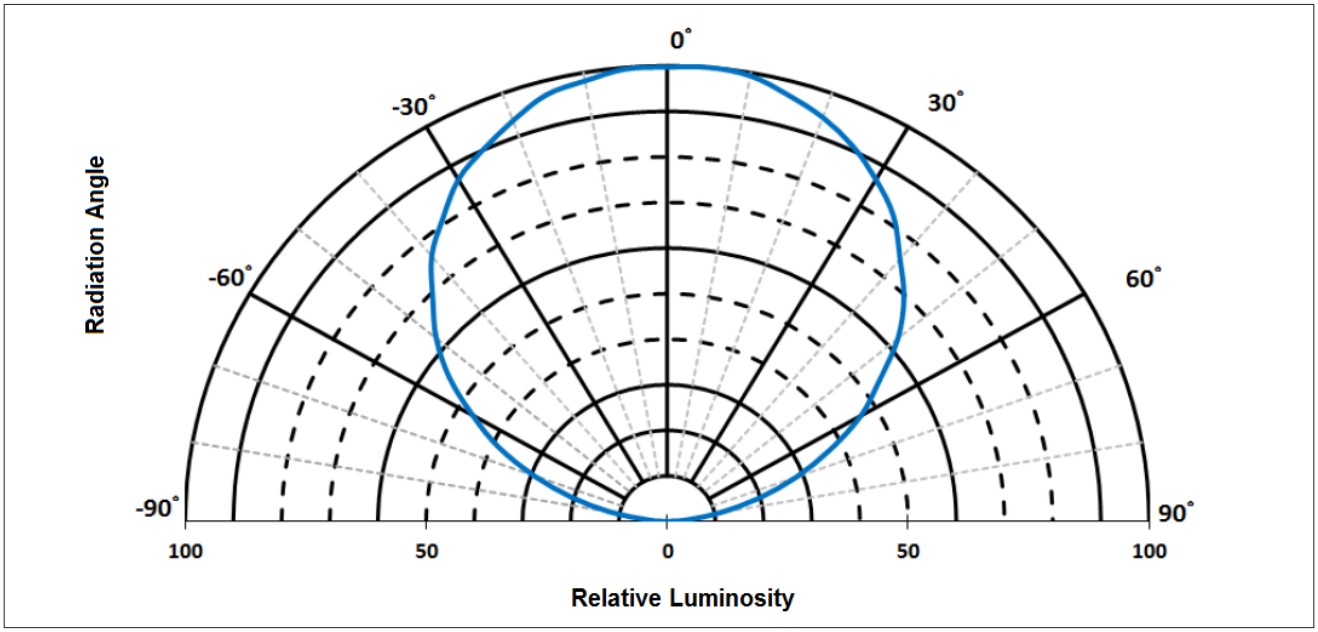
**Figure 8: Typical Spatial Radiation Pattern at 750mA, $T_{sp}$=25°C**




Notes for Figure 8:

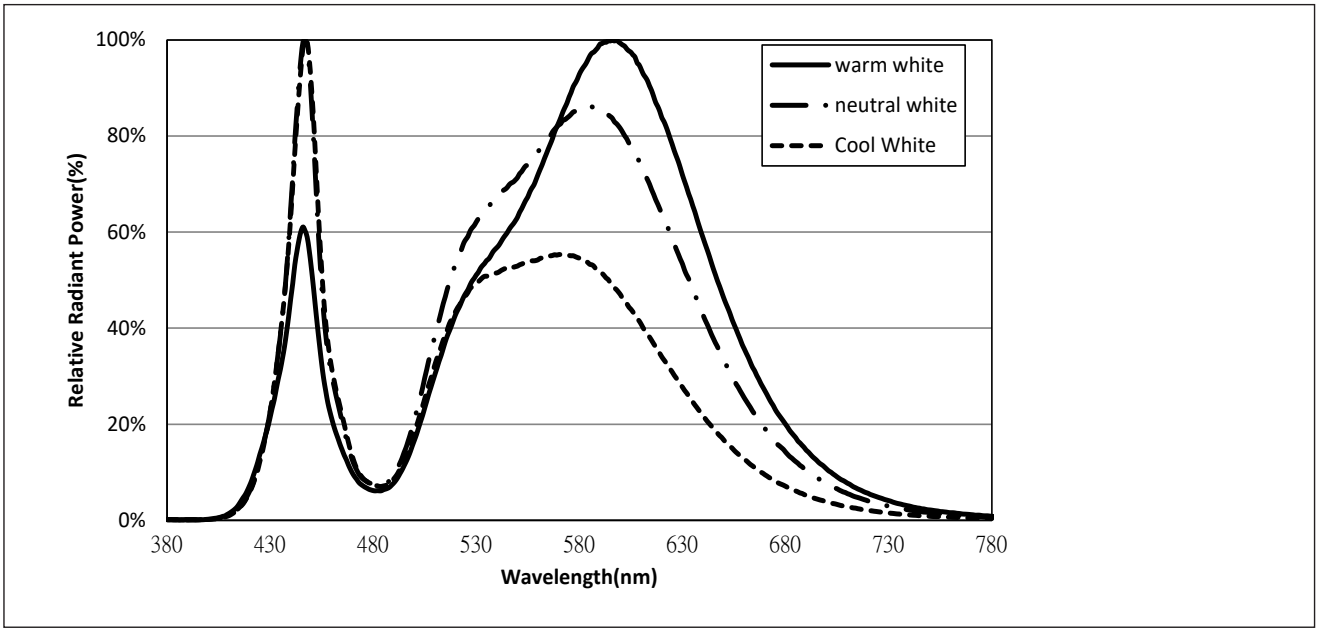
1. Typical viewing angle is 116°.
2. The viewing angle is defined as the off axis angle from the centerline where luminous intensity (Iv) is ½ of the peak value.

**Figure 9: Typical Polar Radiation Pattern at 750mA, $T_{sp}$=25°C**



# Typical Color Spectrum

**Figure 10: Typical Color Spectrum**

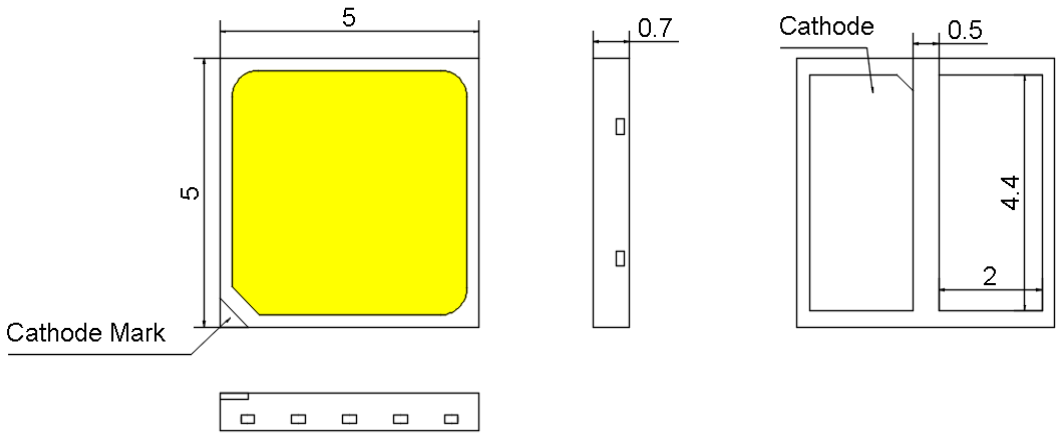



Notes for Figure 10:

1. Color spectra measured at nominal current for $T_{sp}$ = 25°C
2. Color spectra shown for warm white is 3000K
3. Color spectra shown for neutral white is 4000K
4. Color spectra shown for cool white is 5700K

# Mechanical Dimensions

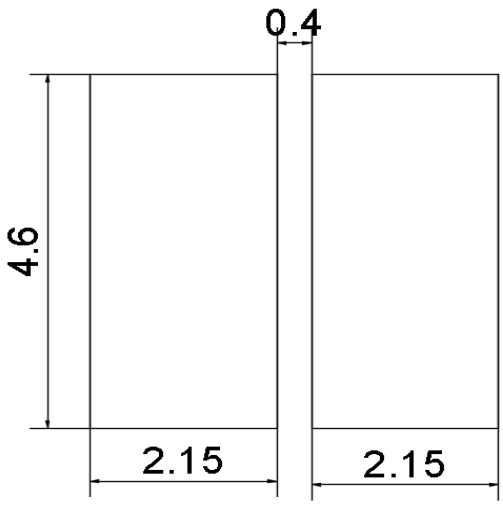
**Figure 11:** Drawing for SMD 5050




Notes for Figure 11:

1. Drawings are not to scale.
2. Drawing dimensions are in millimeters.
3. Unless otherwise specified, tolerances are ± 0.10mm.

Recommended PCB Soldering Pad Pattern



# Reliability

**Table 9:**Reliability Test Items and Conditions

| No . | Items | Reference Standard | Test Conditions | Drive Current | Test Duration | Units Failed/Tested |
|---|---|---|---|---|---|---|
| 1 | Moisture/Reflow Sensitivity | J-STD-020E | $T_{sld}$ = 260°C, 10sec, Precondition: 30°C, 60%RH, 168hr | - | 3 reflows | 0/20 |
| 2 | Low Temperature Storage | JESD22-A119 | $T_a$=-40°C | - | 1000 hours | 0/20 |
| 3 | High Temperature Storage | JESD22-A103D | $T_a$= 105°C | - | 1000 hours | 0/20 |
| 4 | Low Temperature Operating Life | JESD22-A108D | $T_a$=-40°C | 750mA | 1000 hours | 0/20 |
| 5 | Temperature Humidity Operating Life | JESD22-A101C | $T_{sp}$=85°C, RH=85% | 750mA | 1000 hours | 0/20 |
| 6 | High Temperature Operating Life | JESD22-A108D | $T_{sp}$=105°C | 750mA | 1000 hours | 0/20 |
| 7 | Thermal Shock | JESD22-A106B | $T_a$=-40°C ~100°C; Dwell : 15min; Transfer: 10sec | - | 200 cycles | 0/20 |
| 8 | Temperature Cycle | JESD22-A104E | $T_a$=-40°C ~100°C; Dwell at extreme temperature: 15min; Ramp rate < 105°C/min | - | 200 cycles | 0/20 |
| 9 | Electrostatic Discharge | JS-001-2012 | HBM, 8KV, 1.5kΩ, 100pF, Alternately positive or negative | - | - | 0/20 |

## Passing Criteria

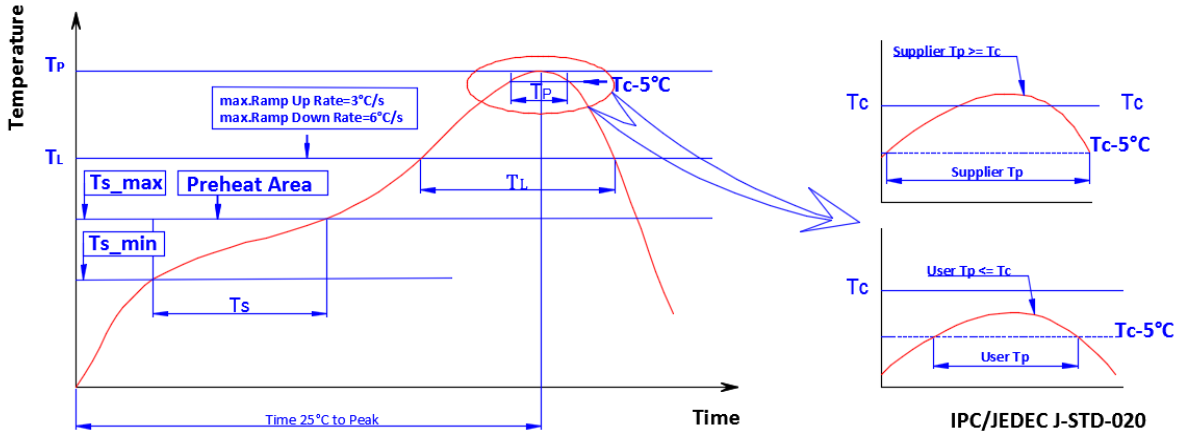
| Item | Symbol | Test Condition | Passing Criteria |
|---|---|---|---|
| Forward Voltage | Vf | 750mA | ΔVf<10% |
| Luminous Flux | Fv | 750mA | ΔFv<30% |
| Chromaticity Coordinates | (x, y) | 750mA | Δu'v'<0.007 |

Notes for Table 9:

1. Measurements are performed after allowing the LEDs to return to room temperature
2. $T_{sld}$ : reflow soldering temperature; $T_a$ : ambient temperature

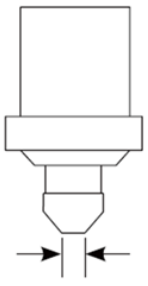
# Reflow Characteristics

**Figure 12 : Reflow Profile**




| Profile Feature | Lead Free Assembly |
|---|---|
| Temperature Min. (Ts_min) | 160˚C |
| Temperature Max. (Ts_max) | 205˚C |
| Time (ts) from Ts_min to Ts_max | 60-150 seconds |
| Ramp-Up Rate (TL to Tp) | 3 ˚C/second |
| Liquidus Temperature (TL) | 220 ˚C |
| Time (TL) Maintained Above TL | 60-150 seconds |
| Peak Temp( Tp) | 260 ˚C max. |
| Time (Tp) Within 5 ˚C of the Specified Classification Temperature (Tc) | 25 seconds max. |
| Ramp-Down Rate (Tp to TL) | 5 ˚C/second max. |
| Time 25 ˚C to Peak Temperature | 10 minutes max. |

**Figure 13: Pick and Place**



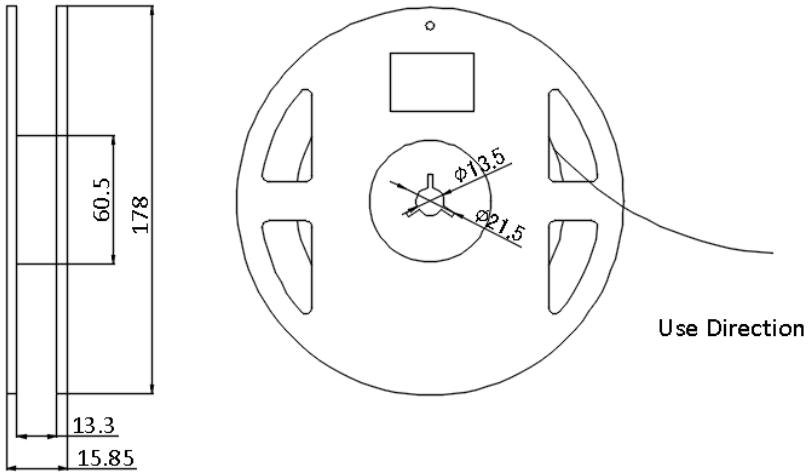
Is greater than LEDs emitting surface

Note for Figure 13:

1. When using a pick and place machine, choose a nozzle that has a larger diameter than the LED's emitting surface. Using a Pick-and-Place nozzle with a smaller diameter than the size of the LEDs emitting surface will cause damage and may also cause the LED to not illuminate.

# Packaging

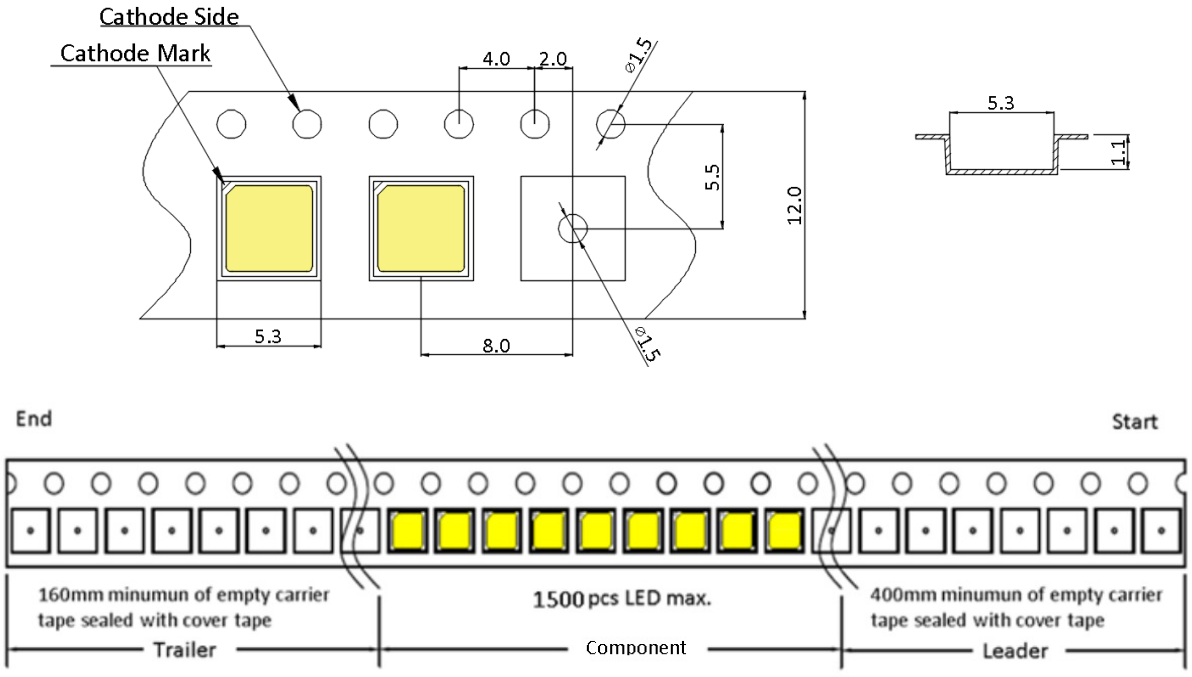
**Figure 14: Emitter Reel Drawings**




Note for Figure 14:

1. Drawings are not to scale. Drawing dimensions are in millimeters.

**Figure 15: Emitter Tape Drawings**

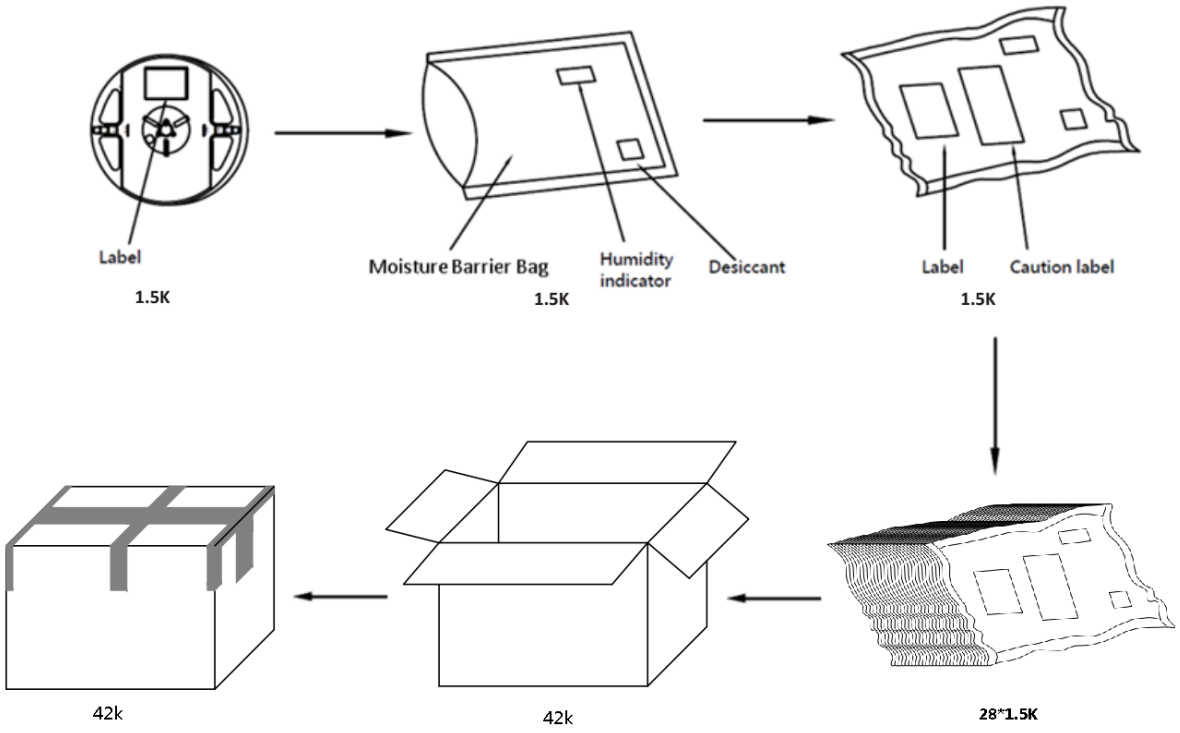



Note for Figure 15:

1. Drawings are not to scale. Drawing dimensions are in millimeters.

# Packaging

**Figure 16: Emitter Reel Packaging Drawings**




Note for Figure 16:

1. Drawings are not to scale.

# 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: EYE SAFETY**

Eye safety classification for the use of Bridgelux SMD LED emitter is in accordance with IEC specification EN62471: Photobiological Safety of Lamps and Lamp Systems. SMD LED emitters are classified as Risk Group 2 when operated at or below the maximum drive current. Please use appropriate precautions. It is important that employees working with LEDs are trained to use them safely.

**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).

# 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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