

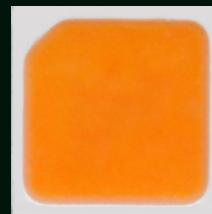


Bridgelux® SMD 3030 2W 6V

Product Data Sheet DS934

Introduction

SMD 3030



Features

- Industry-standard 3030 footprint
- Enables 3- and 6-step MacAdam ellipse custom binning kits
- RoHS compliant and lead free
- Multiple CCT configurations for a wide range of lighting applications

Benefits

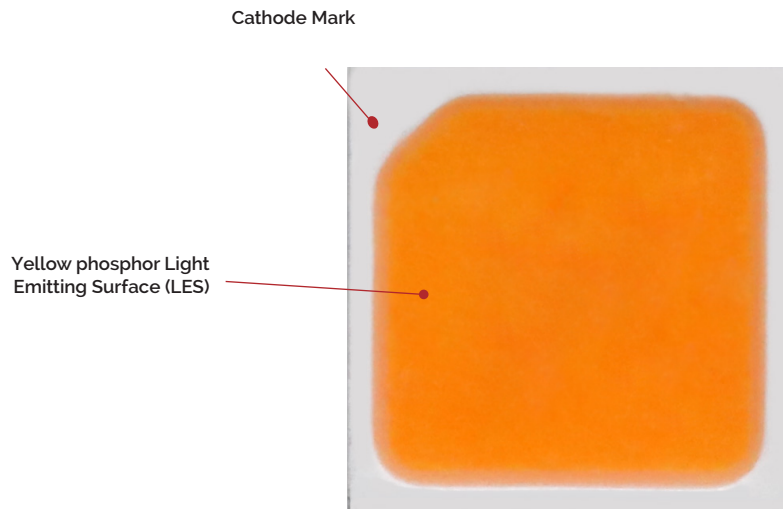
- Lower operating and manufacturing cost
- Ease of design and rapid go-to-market
- Uniform, consistent white light
- Reliable and constant white point
- Compliant with environmental standards
- Design flexibility

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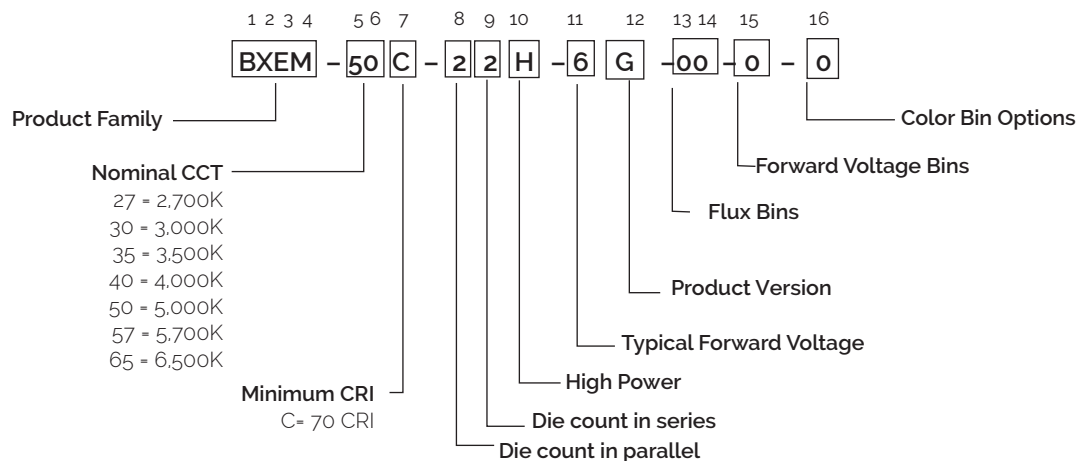
Product Feature Map

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 3030 is explained as follows:



Product Selection Guide

The following product configurations are available:

Table 1: Selection Guide, Pulsed Measurement Data at 300mA ($T_j = T_{sp} = 25^\circ\text{C}$)

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			
BXEM-22C-22H-6G-00-0-0	2200	70	300	5.8	6.0	6.4	255	1.8	141
BXEM-22E-22H-6G-00-0-0	2200	80	300	5.8	6.0	6.4	234	1.8	130
BXEM-26E-22H-6G-00-0-0	2600	80	300	5.8	6.0	6.4	258	1.8	143
BXEM-27C-22H-6G-00-0-0	2700	70	300	5.8	6.0	6.4	287	1.8	159
BXEM-27E-22H-6G-00-0-0	2700	80	300	5.8	6.0	6.4	263	1.8	146
BXEM-27G-22H-6G-00-0-0	2700	90	300	5.8	6.0	6.4	223	1.8	124
BXEM-30C-22H-6G-00-0-0	3000	70	300	5.8	6.0	6.4	294	1.8	164
BXEM-30E-22H-6G-00-0-0	3000	80	300	5.8	6.0	6.4	273	1.8	152
BXEM-30G-22H-6G-00-0-0	3000	90	300	5.8	6.0	6.4	235	1.8	131
BXEM-35C-22H-6G-00-0-0	3500	70	300	5.8	6.0	6.4	304	1.8	169
BXEM-35E-22H-6G-00-0-0	3500	80	300	5.8	6.0	6.4	277	1.8	154
BXEM-35G-22H-6G-00-0-0	3500	90	300	5.8	6.0	6.4	239	1.8	133
BXEM-40C-22H-6G-00-0-0	4000	70	300	5.8	6.0	6.4	312	1.8	173
BXEM-40E-22H-6G-00-0-0	4000	80	300	5.8	6.0	6.4	286	1.8	159
BXEM-40G-22H-6G-00-0-0	4000	90	300	5.8	6.0	6.4	243	1.8	135
BXEM-50C-22H-6G-00-0-0	5000	70	300	5.8	6.0	6.4	312	1.8	173
BXEM-50E-22H-6G-00-0-0	5000	80	300	5.8	6.0	6.4	286	1.8	159
BXEM-55E-22H-6G-00-0-0	5500	80	300	5.8	6.0	6.4	283	1.8	157
BXEM-50G-22H-6G-00-0-0	5000	90	300	5.8	6.0	6.4	243	1.8	135
BXEM-57C-22H-6G-00-0-0	5700	70	300	5.8	6.0	6.4	310	1.8	172
BXEM-57E-22H-6G-00-0-0	5700	80	300	5.8	6.0	6.4	283	1.8	157
BXEM-57G-22H-6G-00-0-0	5700	90	300	5.8	6.0	6.4	241	1.8	134
BXEM-65C-22H-6G-00-0-0	6500	70	300	5.8	6.0	6.4	310	1.8	172
BXEM-65E-22H-6G-00-0-0	6500	80	300	5.8	6.0	6.4	283	1.8	157
BXEM-65G-22H-6G-00-0-0	6500	90	300	5.8	6.0	6.4	241	1.8	134

Product Selection Guide

The following product configurations are available:

Table 2: Selection Guide, Pulsed Measurement Data at 300mA ($T_j = T_{\text{case}} = 85^\circ\text{C}$)

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 Effi- cacy (lm/W)
				Min	Typical	Max			
BXEM-22C-22H-6G-00-0-0	2200	70	300	5.6	5.8	6.2	231	1.8	132
BXEM-22E-22H-6G-00-0-0	2200	80	300	5.6	5.8	6.2	212	1.8	121
BXEM-26E-22H-6G-00-0-0	2600	80	300	5.6	5.8	6.2	233	1.8	133
BXEM-27C-22H-6G-00-0-0	2700	70	300	5.6	5.8	6.2	259	1.8	148
BXEM-27E-22H-6G-00-0-0	2700	80	300	5.6	5.8	6.2	238	1.8	136
BXEM-27G-22H-6G-00-0-0	2700	90	300	5.6	5.8	6.2	202	1.8	115
BXEM-30C-22H-6G-00-0-0	3000	70	300	5.6	5.8	6.2	266	1.8	152
BXEM-30E-22H-6G-00-0-0	3000	80	300	5.6	5.8	6.2	247	1.8	141
BXEM-30G-22H-6G-00-0-0	3000	90	300	5.6	5.8	6.2	213	1.8	122
BXEM-35C-22H-6G-00-0-0	3500	70	300	5.6	5.8	6.2	275	1.8	157
BXEM-35E-22H-6G-00-0-0	3500	80	300	5.6	5.8	6.2	251	1.8	143
BXEM-35G-22H-6G-00-0-0	3500	90	300	5.6	5.8	6.2	216	1.8	123
BXEM-40C-22H-6G-00-0-0	4000	70	300	5.6	5.8	6.2	282	1.8	161
BXEM-40E-22H-6G-00-0-0	4000	80	300	5.6	5.8	6.2	259	1.8	148
BXEM-40G-22H-6G-00-0-0	4000	90	300	5.6	5.8	6.2	220	1.8	125
BXEM-50C-22H-6G-00-0-0	5000	70	300	5.6	5.8	6.2	282	1.8	161
BXEM-50E-22H-6G-00-0-0	5000	80	300	5.6	5.8	6.2	259	1.8	148
BXEM-55E-22H-6G-00-0-0	5500	80	300	5.6	5.8	6.2	256	1.8	146
BXEM-50G-22H-6G-00-0-0	5000	90	300	5.6	5.8	6.2	220	1.8	125
BXEM-57C-22H-6G-00-0-0	5700	70	300	5.6	5.8	6.2	281	1.8	160
BXEM-57E-22H-6G-00-0-0	5700	80	300	5.6	5.8	6.2	256	1.8	146
BXEM-57G-22H-6G-00-0-0	5700	90	300	5.6	5.8	6.2	218	1.8	124
BXEM-65C-22H-6G-00-0-0	6500	70	300	5.6	5.8	6.2	281	1.8	160
BXEM-65E-22H-6G-00-0-0	6500	80	300	5.6	5.8	6.2	256	1.8	146
BXEM-65G-22H-6G-00-0-0	6500	90	300	5.6	5.8	6.2	218	1.8	124

Notes for Table 1&2 :

1. The last 6 characters (including hyphens '-') refer to flux bins, forward voltage bins, and color bin options, respectively. "00-0-0" denotes the full distribution of flux, forward voltage, and color bin.
Example: BXEM-50C-22H-6G-00-0-0 refers to the full distribution of flux, forward voltage, and color within a 5000K 6-step ANSI standard chromaticity region with a typical of 70CRI, 2x2 die configuration, high power, 6.0V typical forward voltage.
2. Product CCT is cold targeted at $T_{\text{sp}} = 25^\circ\text{C}$. Nominal CCT as defined by ANSI C78.377-2011.
3. Listed CRIs are typical values.
4. Products tested under pulsed condition (10ms pulse width) at nominal drive current.
5. Bridgelux maintains a $\pm 7.5\%$ tolerance on luminous flux measurements, $\pm 0.15\text{V}$ tolerance on forward voltage measurements, and ± 2 tolerance on CRI measurements for the SMD 3030.
6. Refer to Table 4 and Table 5 for Bridgelux SMD 3030 Luminous Flux Binning and Forward Voltage Binning information.
7. Typical pulsed test performance values are provided as reference only and are not a guarantee of performance.
8. Typical performance is estimated based on operation under pulsed current with LED emitter mounted onto a heat sink with thermal interface material and the solder point temperature maintained at 25°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 3030 LEDs are tested to the specifications shown using the nominal drive currents in Table 1. SMD 3030 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 $T_{sp} = 25^\circ\text{C}$ (V)	Typical Power $T_{sp} = 25^\circ\text{C}$ (W)	Typical Pulsed Flux ² $T_{sp} = 25^\circ\text{C}$ (lm)	Typical DC Flux ³ $T_{sp} = 85^\circ\text{C}$ (lm)	Typical Efficacy $T_{sp} = 25^\circ\text{C}$ (lm/W)
BXEM-22C-22H-6G-00-0-0	70	50	5.4	0.3	46	41	171
		100	5.5	0.6	91	82	164
		150	5.7	0.8	134	121	158
		200	5.8	1.2	176	159	152
		250	5.9	1.5	216	196	147
		300	6.0	1.8	255	231	142
		350	6.1	2.1	293	265	137
BXEM-22E-22H-6G-00-0-0	80	50	5.4	0.3	42	38	153
		100	5.5	0.6	83	75	147
		150	5.7	0.9	123	111	141
		200	5.8	1.2	161	146	136
		250	5.9	1.5	198	180	131
		300	6.0	1.9	234	212	126
		350	6.1	2.2	269	244	122
BXEM-26E-22H-6G-00-0-0	80	50	5.4	0.3	46	42	169
		100	5.5	0.6	92	83	162
		150	5.7	0.9	135	123	156
		200	5.8	1.2	178	161	150
		250	5.9	1.5	219	198	145
		300	6.0	1.9	258	233	139
		350	6.1	2.2	297	269	135
BXEM-27C-22H-6G-00-0-0	70	50	5.4	0.3	52	47	188
		100	5.5	0.6	102	92	180
		150	5.7	0.9	150	136	173
		200	5.8	1.2	197	179	166
		250	5.9	1.5	243	220	161
		300	6.0	1.9	287	259	155
		350	6.1	2.2	330	298	150
BXEM-27E-22H-6G-00-0-0	80	50	5.4	0.3	47	43	172
		100	5.5	0.6	93	85	165
		150	5.7	0.9	138	125	159
		200	5.8	1.2	181	164	153
		250	5.9	1.5	223	202	147
		300	6.0	1.9	263	238	142
		350	6.1	2.2	303	274	138

Performance at Commonly Used Drive Currents

Table 3: Performance at Commonly Used Drive Currents

Part Number	CRI	Drive Current ¹ (mA)	Typical V_f $T_{sp} = 25^\circ\text{C}$ (V)	Typical Power $T_{sp} = 25^\circ\text{C}$ (W)	Typical Pulsed Flux ² $T_{sp} = 25^\circ\text{C}$ (lm)	Typical DC Flux ³ $T_{sp} = 85^\circ\text{C}$ (lm)	Typical Efficacy $T_{sp} = 25^\circ\text{C}$ (lm/W)
BXEM-27G-22H-6G-00-0-0	90	50	5.4	0.3	40	36	146
		100	5.5	0.6	79	72	140
		150	5.7	0.9	117	106	135
		200	5.8	1.2	154	139	129
		250	5.9	1.5	189	171	125
		300	6.0	1.9	223	202	120
		350	6.1	2.2	256	232	117
BXEM-30C-22H-6G-00-0-0	70	50	5.4	0.3	53	48	193
		100	5.5	0.6	105	95	185
		150	5.7	0.9	155	140	178
		200	5.8	1.2	203	184	171
		250	5.9	1.5	250	226	165
		300	6.0	1.9	294	266	159
		350	6.1	2.2	339	306	154
BXEM-30E-22H-6G-00-0-0	80	50	5.4	0.3	49	44	179
		100	5.5	0.6	97	88	171
		150	5.7	0.9	143	130	165
		200	5.8	1.2	188	170	159
		250	5.9	1.5	232	210	153
		300	6.0	1.9	273	247	147
		350	6.1	2.2	314	284	143
BXEM-30G-22H-6G-00-0-0	90	50	5.4	0.3	42	38	154
		100	5.5	0.6	84	76	148
		150	5.7	0.9	124	112	142
		200	5.8	1.2	162	147	137
		250	5.9	1.5	200	181	132
		300	6.0	1.9	235	213	127
		350	6.1	2.2	271	245	123
BXEM-35C-22H-6G-00-0-0	70	50	5.4	0.3	55	49	199
		100	5.5	0.6	108	98	191
		150	5.7	0.9	160	145	184
		200	5.8	1.2	209	190	177
		250	5.9	1.5	258	234	170
		300	6.0	1.9	304	275	164
		350	6.1	2.2	350	317	159

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)
BXEM-35E-22H-6G-00-0-0	80	50	5.4	0.3	50	45	181
		100	5.5	0.6	98	89	174
		150	5.7	0.9	145	132	167
		200	5.8	1.2	191	173	161
		250	5.9	1.5	235	213	155
		300	6.0	1.9	277	251	149
		350	6.1	2.2	318	288	145
BXEM-35G-22H-6G-00-0-0	90	50	5.4	0.3	43	39	156
		100	5.5	0.6	85	77	150
		150	5.7	0.9	125	113	144
		200	5.8	1.2	164	149	139
		250	5.9	1.5	202	183	134
		300	6.0	1.9	239	216	129
		350	6.1	2.2	275	248	125
BXEM-40C-22H-6G-00-0-0	70	50	5.4	0.3	56	51	204
		100	5.5	0.6	111	100	196
		150	5.7	0.9	164	148	188
		200	5.8	1.2	215	194	181
		250	5.9	1.5	265	240	175
		300	6.0	1.9	312	282	168
		350	6.1	2.2	359	325	163
BXEM-40E-22H-6G-00-0-0	80	50	5.4	0.3	51	47	187
		100	5.5	0.6	102	92	180
		150	5.7	0.9	150	136	173
		200	5.8	1.2	197	178	166
		250	5.9	1.5	243	220	160
		300	6.0	1.9	286	259	154
		350	6.1	2.2	329	298	149
BXEM-40G-22H-6G-00-0-0	90	50	5.4	0.3	44	40	159
		100	5.5	0.6	86	78	153
		150	5.7	0.9	128	115	147
		200	5.8	1.2	167	151	141
		250	5.9	1.5	206	187	136
		300	6.0	1.9	243	220	131
		350	6.1	2.2	279	253	127

Performance at Commonly Used Drive Currents

Table 3: Performance at Commonly Used Drive Currents

Part Number	CRI	Drive Current ¹ (mA)	Typical V_f $T_{sp} = 25^\circ\text{C}$ (V)	Typical Power $T_{sp} = 25^\circ\text{C}$ (W)	Typical Pulsed Flux ² $T_{sp} = 25^\circ\text{C}$ (lm)	Typical DC Flux ³ $T_{sp} = 85^\circ\text{C}$ (lm)	Typical Efficacy $T_{sp} = 25^\circ\text{C}$ (lm/W)
BXEM-50C-22H-6G-00-0-0	70	50	5.4	0.3	56	51	204
		100	5.5	0.6	111	100	196
		150	5.7	0.9	164	148	188
		200	5.8	1.2	215	194	181
		250	5.9	1.5	265	240	175
		300	6.0	1.9	312	282	168
		350	6.1	2.2	359	325	163
BXEM-50E-22H-6G-00-0-0	80	50	5.4	0.3	51	47	187
		100	5.5	0.6	102	92	180
		150	5.7	0.9	150	136	173
		200	5.8	1.2	197	178	166
		250	5.9	1.5	243	220	160
		300	6.0	1.9	286	259	154
		350	6.1	2.2	329	298	149
BXEM-55E-22H-6G-00-0-0	80	50	5.4	0.3	51	46	185
		100	5.5	0.6	101	91	178
		150	5.7	0.9	149	134	171
		200	5.8	1.2	195	176	164
		250	5.9	1.5	240	217	159
		300	6.0	1.9	283	256	153
		350	6.1	2.2	326	295	148
BXEM-50G-22H-6G-00-0-0	90	50	5.4	0.3	44	40	159
		100	5.5	0.6	86	78	153
		150	5.7	0.9	128	115	147
		200	5.8	1.2	167	151	141
		250	5.9	1.5	206	187	136
		300	6.0	1.9	243	220	131
		350	6.1	2.2	279	253	127
BXEM-57C-22H-6G-00-0-0	70	50	5.4	0.3	56	50	203
		100	5.5	0.6	110	100	195
		150	5.7	0.9	163	147	187
		200	5.8	1.2	213	193	180
		250	5.9	1.5	263	238	174
		300	6.0	1.9	310	281	167
		350	6.1	2.2	357	323	162

Performance at Commonly Used Drive Currents

Table 3: Performance at Commonly Used Drive Currents

Part Number	CRI	Drive Current ¹ (mA)	Typical V_f $T_{sp} = 25^\circ\text{C}$ (V)	Typical Power $T_{sp} = 25^\circ\text{C}$ (W)	Typical Pulsed Flux ² $T_{sp} = 25^\circ\text{C}$ (lm)	Typical DC Flux ³ $T_{sp} = 85^\circ\text{C}$ (lm)	Typical Efficacy $T_{sp} = 25^\circ\text{C}$ (lm/W)
BXEM-57E-22H-6G-00-0-0	80	50	5.4	0.3	51	46	185
		100	5.5	0.6	101	91	178
		150	5.7	0.9	149	134	171
		200	5.8	1.2	195	176	164
		250	5.9	1.5	240	217	159
		300	6.0	1.9	283	256	153
		350	6.1	2.2	326	295	148
BXEM-57G-22H-6G-00-0-0	90	50	5.4	0.3	43	39	158
		100	5.5	0.6	86	77	151
		150	5.7	0.9	127	114	145
		200	5.8	1.2	166	150	140
		250	5.9	1.5	204	185	135
		300	6.0	1.9	241	218	130
		350	6.1	2.2	277	251	126
BXEM-65C-22H-6G-00-0-0	70	50	5.4	0.3	56	50	203
		100	5.5	0.6	110	100	195
		150	5.7	0.9	163	147	187
		200	5.8	1.2	213	193	180
		250	5.9	1.5	263	238	174
		300	6.0	1.9	310	281	167
		350	6.1	2.2	357	323	162
BXEM-65E-22H-6G-00-0-0	80	50	5.4	0.3	51	46	185
		100	5.5	0.6	101	91	178
		150	5.7	0.9	149	134	171
		200	5.8	1.2	195	176	164
		250	5.9	1.5	240	217	159
		300	6.0	1.9	283	256	153
		350	6.1	2.2	326	295	148
BXEM-65G-22H-6G-00-0-0	90	50	5.4	0.3	43	39	158
		100	5.5	0.6	86	77	151
		150	5.7	0.9	127	114	145
		200	5.8	1.2	166	150	140
		250	5.9	1.5	204	185	135
		300	6.0	1.9	241	218	130
		350	6.1	2.2	277	251	126

Notes for Table 3:

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

Electrical Characteristics

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-sp} (°C/W)
		Minimum	Typical	Maximum		
BXEM-XXX-22H-6G-00-0-0	300	5.8	6.0	6.4	-2.0 to -4.0	7.5

Notes for Table 4:

1. The last 6 characters (including hyphens '-') refer to flux bins, forward voltage bins, and color bin options, respectively. "00-0-0" denotes the full distribution of flux, forward voltage, and 6 SDCM color.
Example: BXEM-50C-22H-6G-00-0-0 refers to the full distribution of flux, forward voltage, and color within a 5000K 6-step ANSI standard chromaticity region with a typical of 70CRI, 2x2 die configuration, high power, 6.0V typical forward voltage.
2. Bridgelux maintains a tolerance of $\pm 0.1V$ 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 $T_{sp} = 25^{\circ}C$.
4. 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	350mA
Maximum Peak Pulsed Forward Current ¹	700mA
Maximum Reverse Voltage ²	-
Moisture Sensitivity Rating	MSL 3
Electrostatic Discharge	2kV HBM. JEDEC-JS-001-HBM and JEDEC-JS-001-2012

Notes for Table 5:

1. 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.
2. 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 3030 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 300mA, $T_{sp}=25^{\circ}\text{C}$

Bin Code	Minimum	Maximum	Unit	Condition
21	210	220	lm	$I_F=300\text{mA}$
22	220	230		
23	230	240		
24	240	250		
25	250	260		
26	260	270		
27	270	280		
28	280	290		
29	290	300		
30	300	310		
31	310	320		
32	320	330		
33	330	340		

Note for Table 6:

1. Bridgelux maintains a tolerance of $\pm 7.5\%$ on luminous flux measurements.

Table 7: Forward Voltage Bin Definition at 300mA, $T_{sp}=25^{\circ}\text{C}$

Bin Code	Minimum	Maximum	Unit	Condition
P	5.8	6.0	V	$I_F=300\text{mA}$
Q	6.0	6.2		
R	6.2	6.4		

Note for Table 7:

1. Bridgelux maintains a tolerance of $\pm 0.1\text{V}$ on forward voltage measurements.

Product Bin Definitions

Table 8: 3- and 6-step MacAdam Ellipse Color Bin Definitions

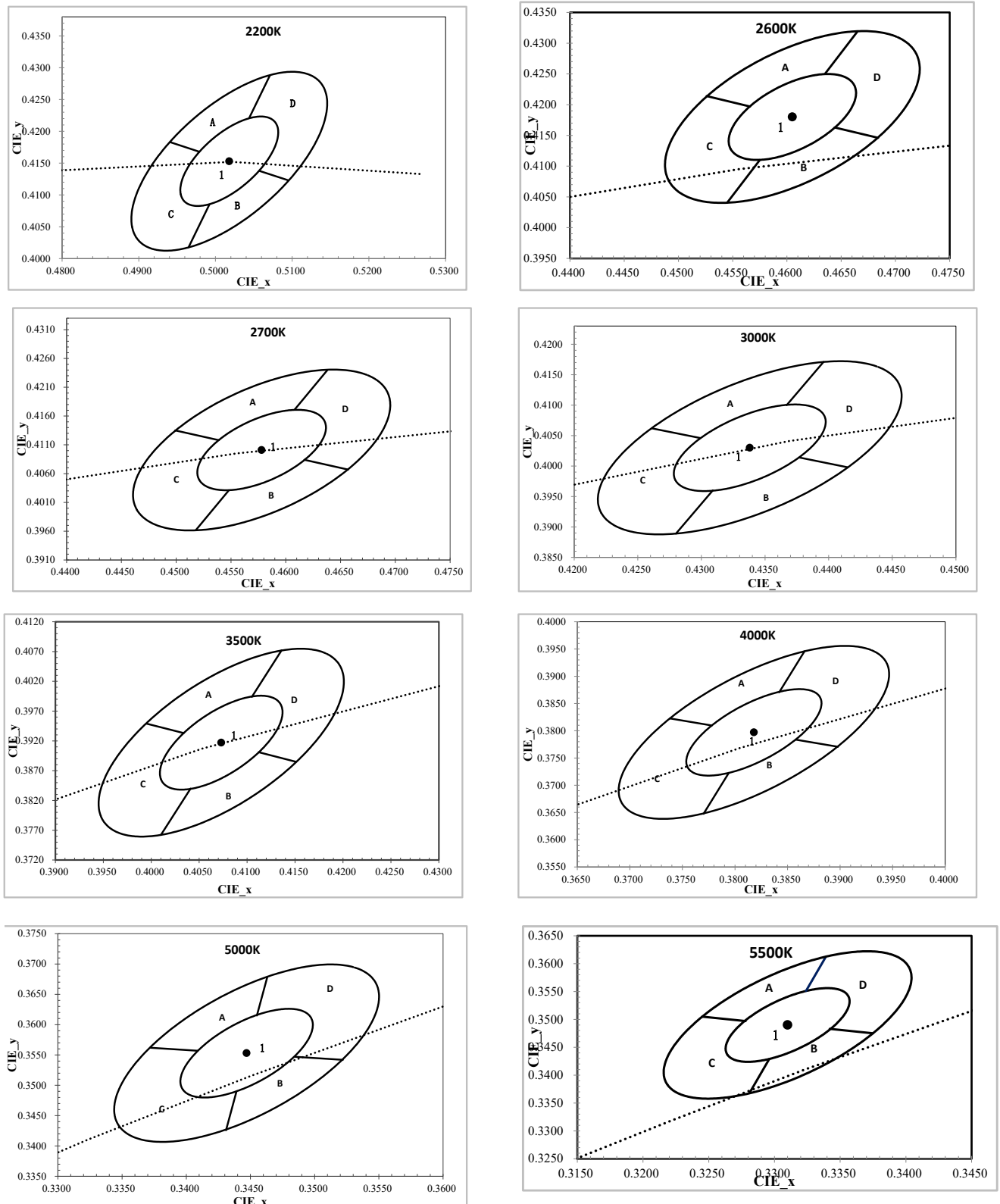
CCT	Color Space	Center Point		Major Axis	Minor Axis	Ellipse Rotation Angle	Color Bin
		X	Y				
2200K	3 SDCM	0.5018	0.4153	0.0086	0.0040	49.3	1
	6 SDCM	0.5018	0.4153	0.01725	0.00795	53.7	1/A/B/C/D
2600K	3 SDCM	0.4605	0.4180	0.0081	0.0042	53.7	1
	6 SDCM	0.4605	0.4180	0.0162	0.0084	53.7	1/A/B/C/D
2700K	3 SDCM	0.4578	0.4101	0.0081	0.0042	53.7	1
	6 SDCM	0.4578	0.4101	0.0162	0.0084	53.7	1/A/B/C/D
3000K	3 SDCM	0.4338	0.4030	0.0083	0.0041	53.2	1
	6 SDCM	0.4338	0.4030	0.0167	0.0082	53.2	1/A/B/C/D
3500K	3 SDCM	0.4073	0.3917	0.0094	0.0040	54.0	1
	6 SDCM	0.4073	0.3917	0.0185	0.0083	54.0	1/A/B/C/D
4000K	3 SDCM	0.3818	0.3797	0.0094	0.0040	53.7	1
	6 SDCM	0.3818	0.3797	0.0188	0.0080	53.7	1/A/B/C/D
5000K	3 SDCM	0.3447	0.3553	0.0082	0.0035	59.6	1
	6 SDCM	0.3447	0.3553	0.0164	0.0071	59.6	1/A/B/C/D
5500K	3 SDCM	0.3310	0.3490	0.00746	0.00320	59.1	1
	6 SDCM	0.3310	0.3490	0.01492	0.0064	59.1	1/A/B/C/D
5700K	3 SDCM	0.3287	0.3417	0.00746	0.00320	59.1	1
	6 SDCM	0.3287	0.3417	0.01492	0.0064	59.1	1/A/B/C/D
6500K	3 SDCM	0.3123	0.3282	0.0067	0.0029	58.6	1
	6 SDCM	0.3123	0.3282	0.0134	0.0057	58.6	1/A/B/C/D

Notes for Table 8:

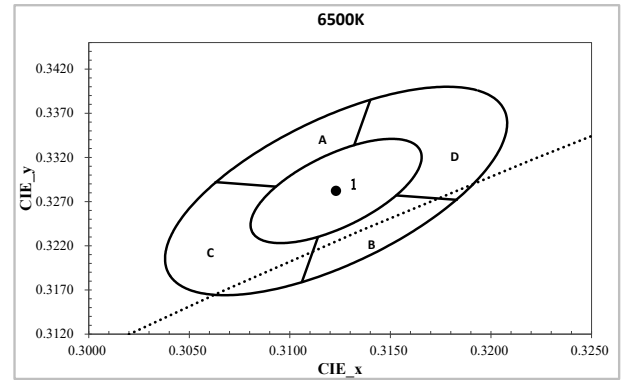
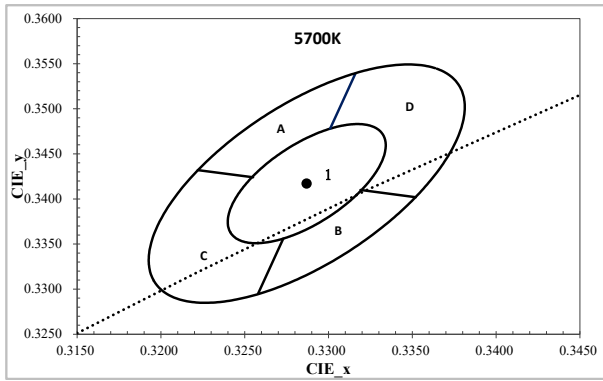
1. Color binning at $T_{sp}=25^{\circ}\text{C}$ unless otherwise specified
2. Bridgelux maintains a tolerance of ± 0.007 on x and y color coordinates in the CIE 1931 color space.

Product Bin Definitions

Figure 1: C.I.E. 1931 Chromaticity Diagram (5 Color Bin Structure, Cold-color Targeted at $T_{sp} = 25^{\circ}\text{C}$)



Product Bin Definitions



Performance Curves

Figure 2: Drive Current vs. Voltage ($T_{sp}=25^{\circ}\text{C}$)

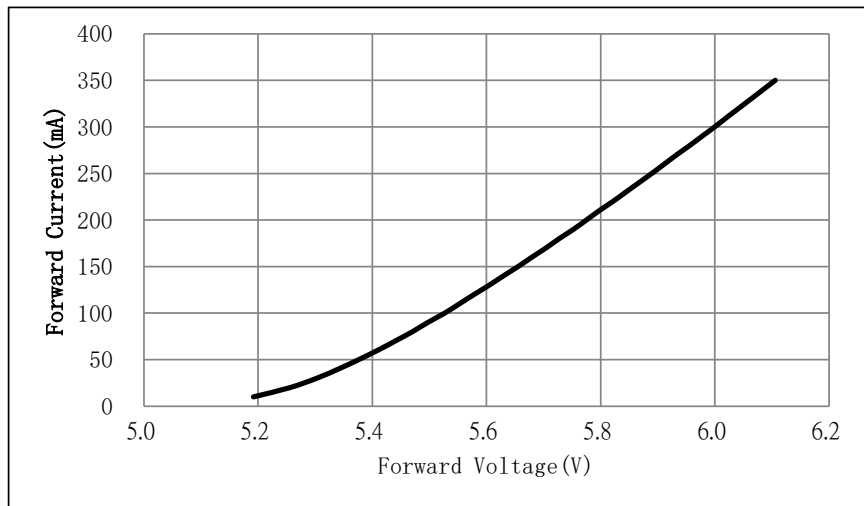
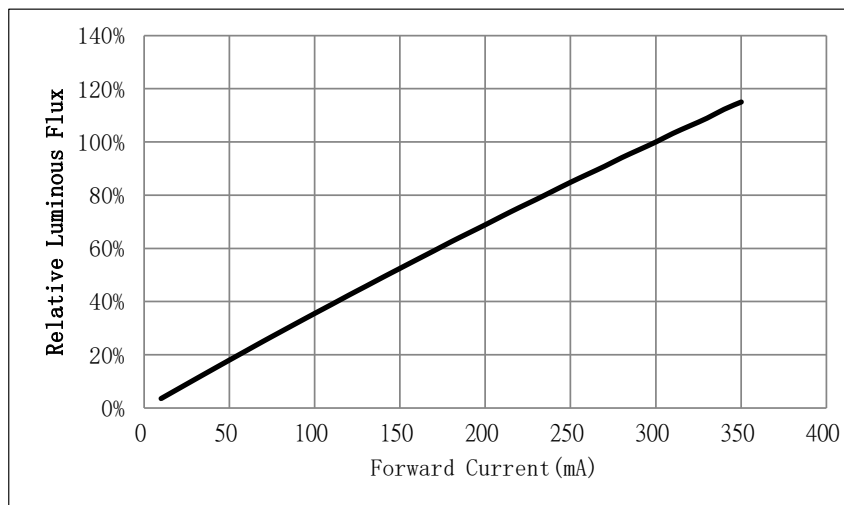


Figure 3: Relative Luminous Flux vs. Drive Current¹ ($T_{sp}=25^{\circ}\text{C}$)



Note for Figure 3:

1. Pulse width modulation (PWM) is recommended for dimming effects.

Performance Curves

Figure 4: Relative Flux vs. Solder Point Temperature

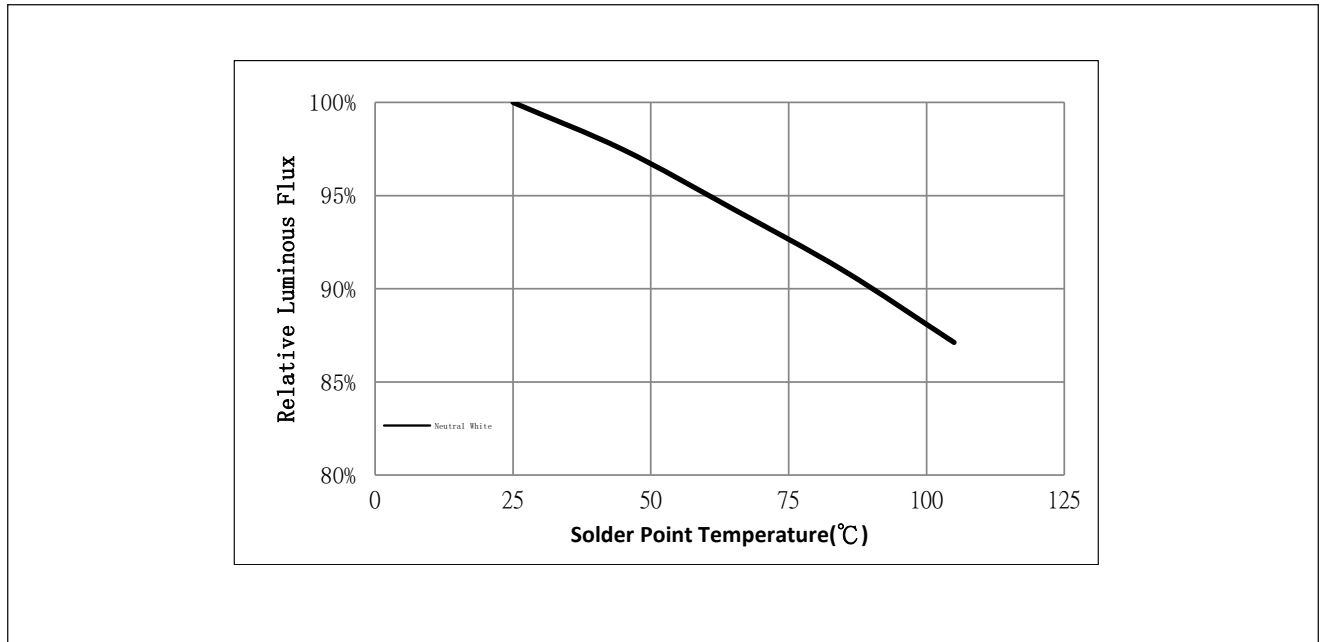
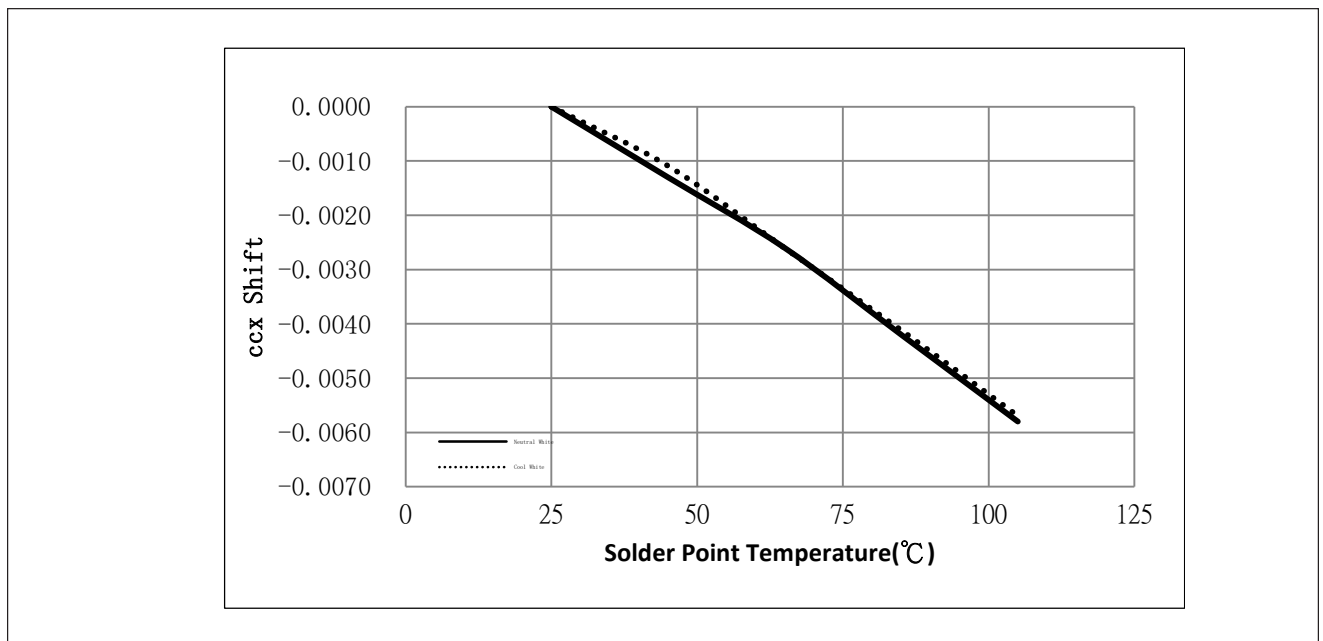


Figure 5: Typical ccx Shift vs. Solder Point Temperature

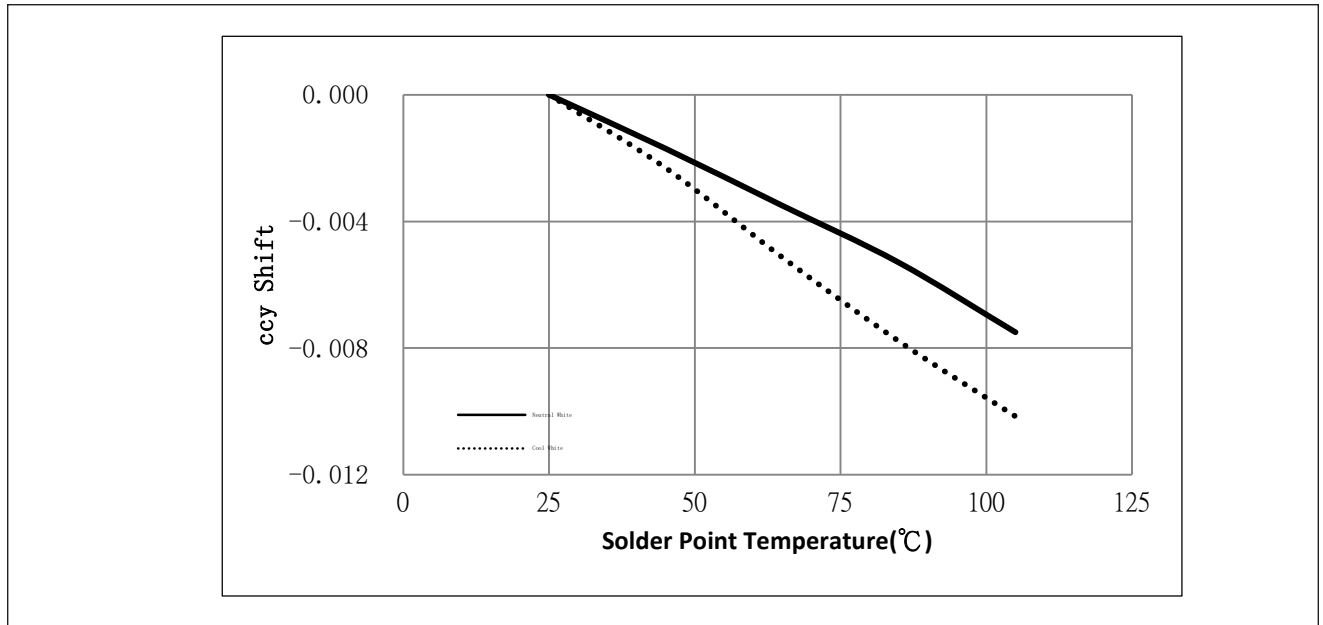


Notes for Figures 4 & 5:

1. Characteristics shown for neutral white based on 4000K and 70 CRI.
2. Characteristics shown for cool white based on 5700K and 70 CRI.
3. For other color SKUs, the shift in color will vary. Please contact your Bridgelux Sales Representative for more information.

Performance Curves

Figure 6: Typical ccy Shift vs. Solder Point Temperature

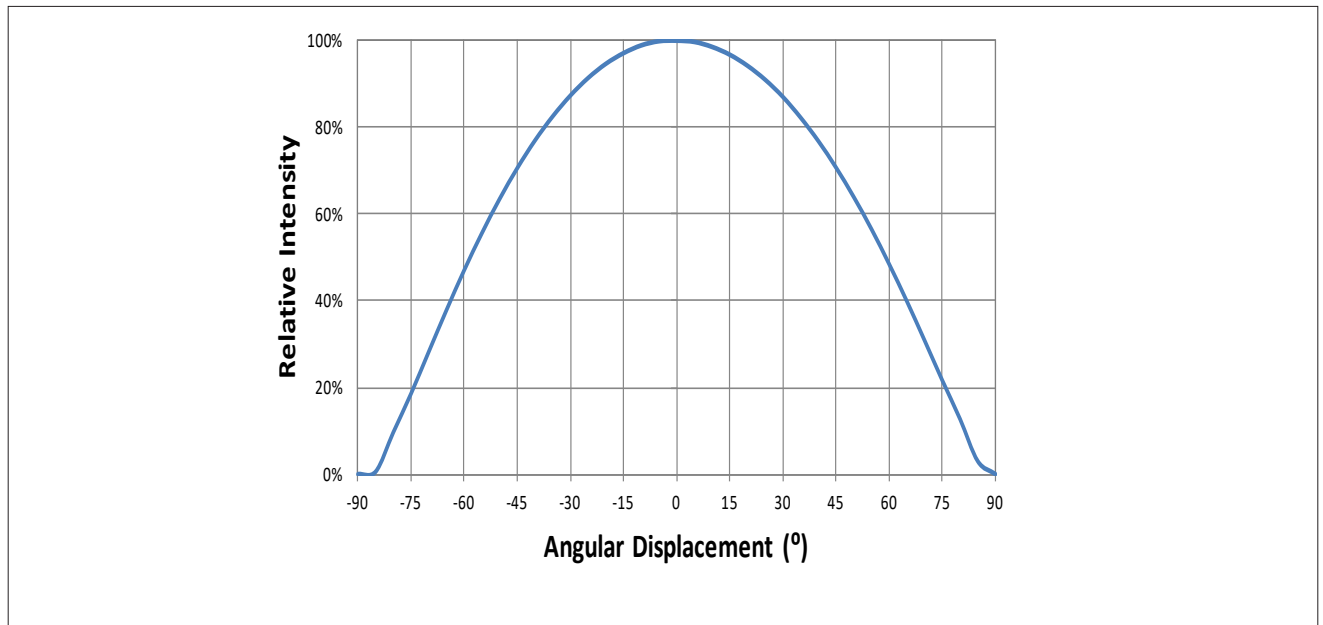


Notes for Figure 6:

1. Characteristics shown for neutral white based on 4000K and 70 CRI.
2. Characteristics shown for cool white based on 5700K and 70 CRI.
3. For other color SKUs, the shift in color will vary. Please contact your Bridgelux Sales Representative for more information.

Typical Radiation Pattern

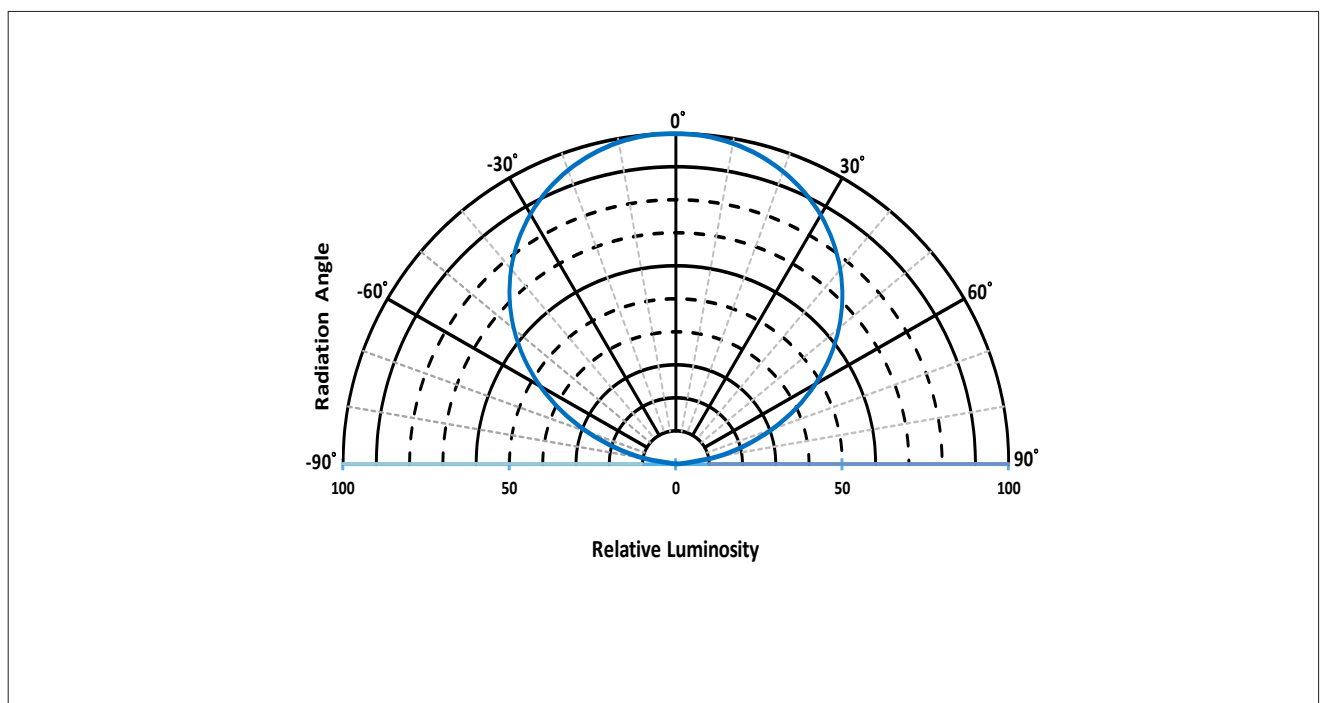
Figure 7: Typical Spatial Radiation Pattern at 300mA, $T_{sp}=25^{\circ}\text{C}$



Notes for Figure 7:

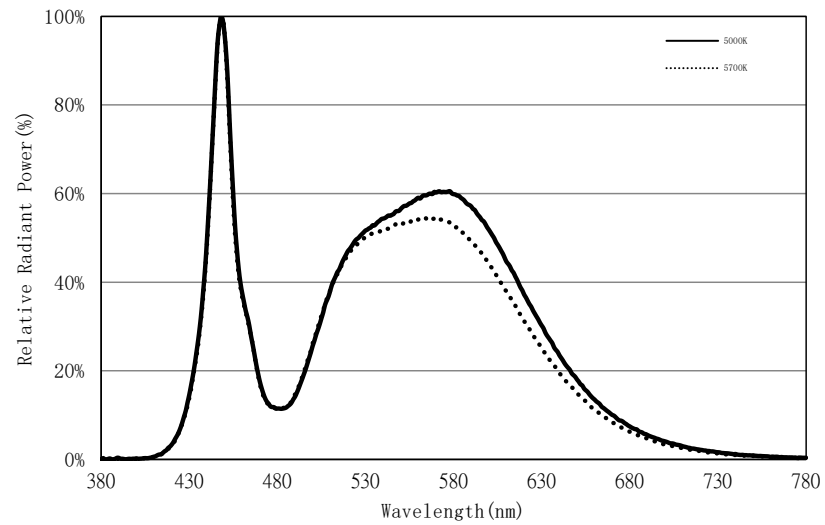
1. Typical viewing angle is 120° .
2. The viewing angle is defined as the off axis angle from the centerline where luminous intensity (Iv) is $\frac{1}{2}$ of the peak value.

Figure 8: Typical Polar Radiation Pattern at 300mA, $T_{sp}=25^{\circ}\text{C}$



Typical Color Spectrum

Figure 9: Typical Color Spectrum

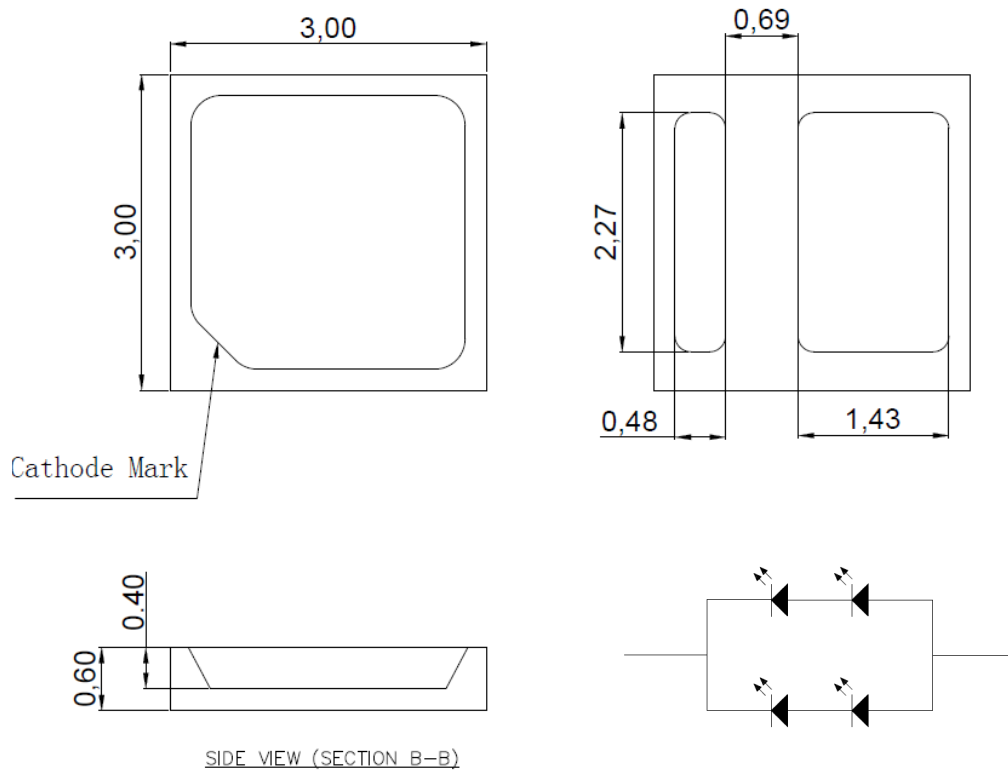


Notes for Figure 9:

1. Color spectra measured at nominal current for $T_{sp} = 25^{\circ}\text{C}$
2. Color spectra shown for 70 CRI products.

Mechanical Dimensions

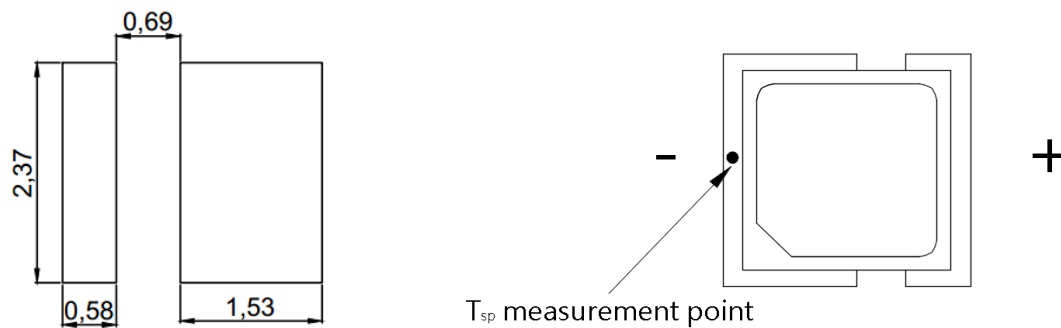
Figure 10: Drawing for SMD 3030



Notes for Figure 10:

1. Drawings are not to scale.
2. Drawing dimensions are in millimeters.
3. Unless otherwise specified, tolerances are $\pm 0.10\text{mm}$.

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	$T_{\text{slid}} = 260^{\circ}\text{C}$, 10sec, Precondition: 30°C , 60%RH, 168hr	-	3 reflows	0/20
2	Low Temperature Storage	JESD22-A119	$T_{\text{a}} = -40^{\circ}\text{C}$	-	1000 hours	0/20
3	High Temperature Storage	JESD22-A103D	$T_{\text{a}} = 100^{\circ}\text{C}$	-	1000 hours	0/20
4	Low Temperature Operating Life	JESD22-A108D	$T_{\text{a}} = -40^{\circ}\text{C}$	300mA	1000 hours	0/20
5	Temperature Humidity Operating Life	JESD22-A101C	$T_{\text{sp}} = 85^{\circ}\text{C}$, RH=85%	300mA	1000 hours	0/20
6	High Temperature Operating Life	JESD22-A108D	$T_{\text{sp}} = 105^{\circ}\text{C}$	350mA	1000 hours	0/20
7	Thermal Shock	JESD22-A106B	$T_{\text{a}} = -40^{\circ}\text{C} \sim 100^{\circ}\text{C}$; Dwell : 15min; Transfer: 10sec	-	200 cycles	0/20
8	Temperature Cycle	JESD22-A104E	$T_{\text{a}} = -40^{\circ}\text{C} \sim 100^{\circ}\text{C}$; Dwell at extreme temperature: 15min; Ramp rate $< 105^{\circ}\text{C}/\text{min}$	-	200 cycles	0/20
9	Electrostatic Discharge	JS-001-2012	HBM, 2kV, 15k Ω , 100pF, Alternately positive or negative	-	-	0/20

Passing Criteria

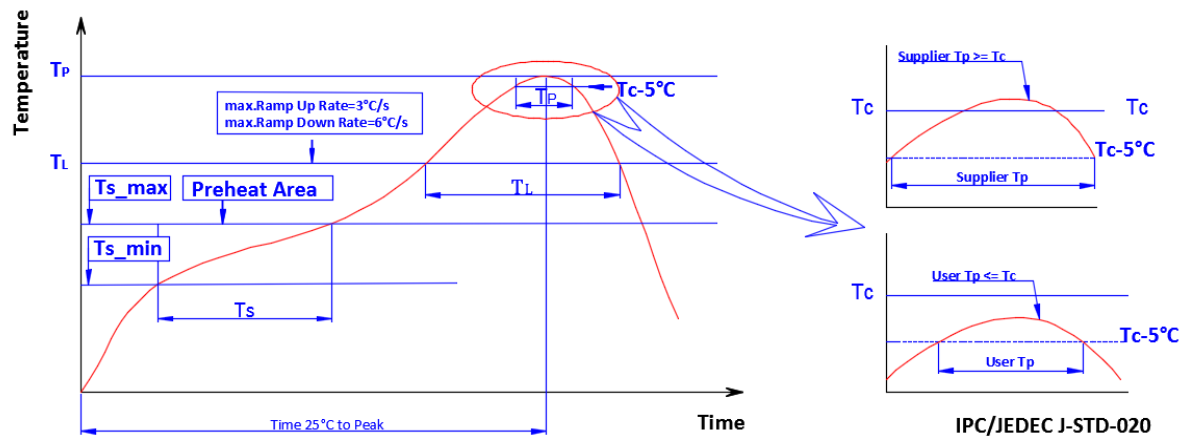
Item	Symbol	Test Condition	Passing Criteria
Forward Voltage	Vf	300mA	$\Delta V_f < 10\%$
Luminous Flux	Fv	300mA	$\Delta F_v < 30\%$
Chromaticity Coordinates	(x, y)	300mA	$\Delta u'v' < 0.007$

Notes for Table 9:

- Measurements are performed after allowing the LEDs to return to room temperature
- T_{slid} : reflow soldering temperature; T_{a} : ambient temperature

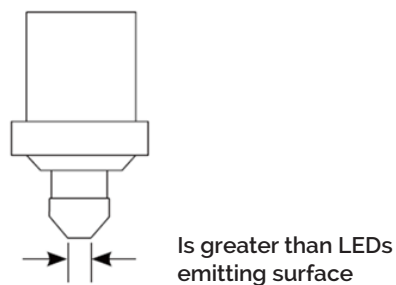
Reflow Characteristics

Figure 11 : 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 12 : Pick and Place

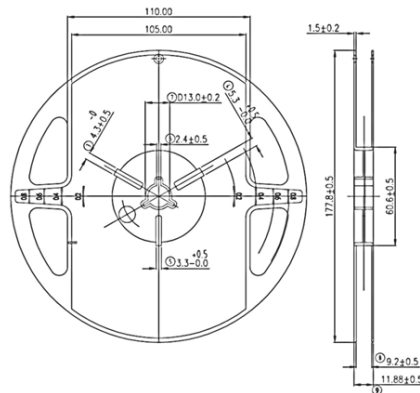


Note for Figure 12:

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

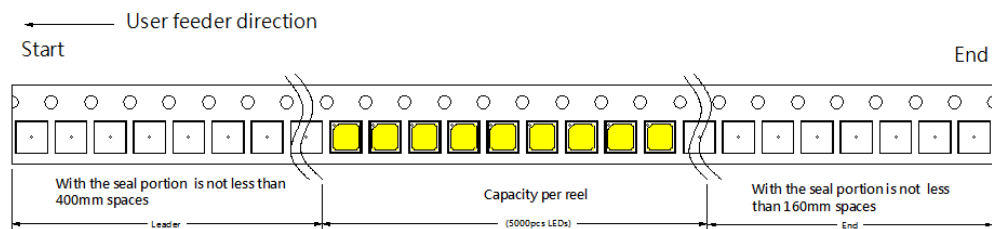
Figure 13: Emitter Reel Drawings



Note for Figure 13:

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

Figure 14: Emitter Tape Drawings

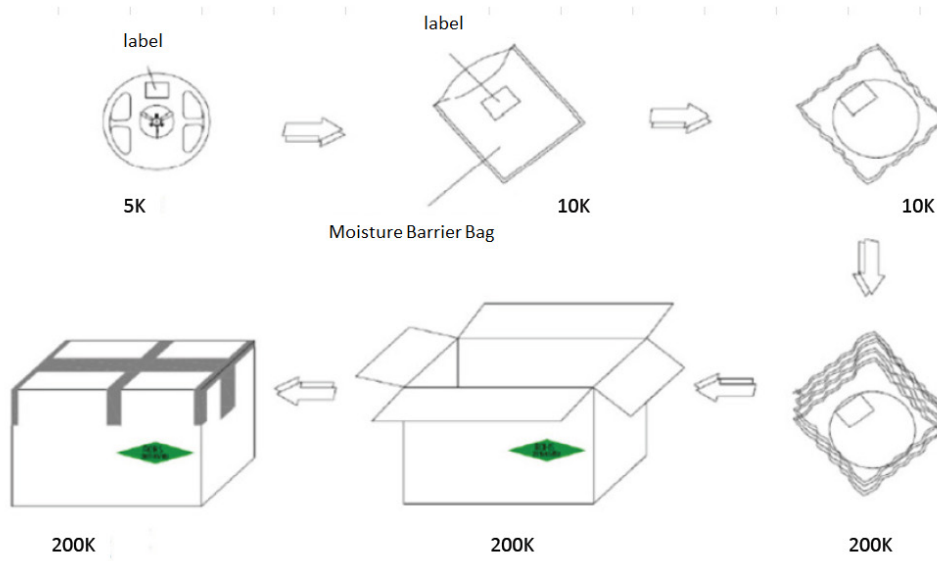


Note for Figure 14:

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

Packaging

Figure 15: Emitter Reel Packaging Drawings



Note for Figure 15:

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 RG,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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