

Bridgelux® Gen 7 V10 Array Series

Product Data Sheet DS100



Introduction

V Series



The V Series™ LED Array products deliver high quality light in a compact and cost-effective solid-state lighting package. These Chip-on-Board (CoB) arrays can be efficiently driven at twice the nominal drive current, enabling design flexibility not previously possible. This high flux density light source is designed to support a wide range of high quality, low cost directional luminaires and replacement lamps for commercial and residential applications.

The V10 LED Array is available in a variety of electrical, CCT and CRI combinations providing substantial design flexibility and energy efficiencies.

Lighting system designs incorporating these LED Arrays deliver increased system level efficacy and longer service life. Typical applications include, but are not limited to, replacement lamps, task, accent, spot, track, down light, wide area, security, and wall pack.

Bridgelux Décor Series is our state of the art color line designed specifically for premium applications, producing unmatched LED light quality with brilliant color-rendering options and offer pleasing and inspiring lighting palettes. Bridgelux Décor Series color points are available on Vero® SE Series, Vero® Series, V Series™ and H Series™.

Décor Series Class A is based on human response testing, providing color points with a combined GAI and CRI metric.

Décor Series™ Ultra products provide a high CRI of 97 and a typical R_g value of 98, which emphasizes the reds and color tones to which the human eye is most receptive - perfect for the most luxurious retail shops and world renowned museums. Décor Series Ultra is also a good replacement for halogen.

Décor Series™ Street and Landmark is designed to be a direct replacement for high pressure sodium lamps.

Décor Series™ Showcase is the optimal solution for replacing ceramic metal halide lamps, incorporating the same pure white light with enhanced spectrum coverage and higher efficacy.

Features

- Efficacy of 150 lm/W typical
- Compact high flux density light source
- Uniform high quality illumination
- Minimum 65, 70, 80 and 90 and 95 CRI options
- Streamlined thermal path
- ENERGY STAR® / ANSI compliant color binning structure with 3 SDCM and 4 SDCM options
- More energy efficient than incandescent, halogen and fluorescent lamps
- Low voltage DC operation
- Instant light with unlimited dimming
- V_f bin code backside marking

Benefits

- Enhanced optical control
- Clean white light without pixilation
- High quality true color reproduction
- Significantly reduced thermal resistance and increased operating temperatures
- Uniform consistent white light
- Lower operating costs
- Easy to use with daylight and motion detectors to enable increased energy savings
- Reduced maintenance costs
- Environmentally friendly, no disposal issue



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Product Selection Guide

The following product configurations are available:

Table 1: Selection Guide, Pulsed Measurement Data ($T_j = T_c = 25^\circ\text{C}$)

Part Number	Nominal CCT ¹ (K)	CRI ²	Nominal Drive Current ³ (mA)	Typical Pulsed Flux ^{4,5,6} $T_c = 25^\circ\text{C}$ (lm)	Minimum Pulsed Flux ^{6,7} $T_c = 25^\circ\text{C}$ (lm)	Typical V_f (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXRE-20B1001-B-73	2000	65	270	1337	1177	35.0	9.5	141
BXRE-27E1000-B-7X	2700	80	270	1348	1187	35.0	9.5	143
BXRE-27E1000-C-7X	2700	80	360	1797	1581	35.0	12.6	143
BXRE-27G1000-B-7X	2700	90	270	1124	989	35.0	9.5	119
BXRE-27G1000-C-7X	2700	90	360	1498	1318	35.0	12.6	119
BXRE-27H1000-B-7X	2700	97	270	983	865	35.0	9.5	104
BXRE-30E1000-B-7X	3000	80	270	1418	1247	35.0	9.5	150
BXRE-30E1000-C-7X	3000	80	360	1890	1663	35.0	12.6	150
BXRE-30G1000-B-7X	3000	90	270	1177	1036	35.0	9.5	125
BXRE-30G1000-C-7X	3000	90	360	1569	1381	35.0	12.6	125
BXRE-30G100C-B-73	3000	90	270	1096	964	35.0	9.5	116
BXRE-30H1000-B-7X	3000	97	270	1049	923	35.0	9.5	111
BXRE-35E1000-B-7X	3500	80	270	1447	1273	35.0	9.5	153
BXRE-35E1000-C-7X	3500	80	360	1928	1697	35.0	12.6	153
BXRE-35G1000-B-7X	3500	90	270	1208	1063	35.0	9.5	128
BXRE-35G1000-C-7X	3500	90	360	1610	1417	35.0	12.6	128
BXRE-35A1001-B-73 ^{8,9}	3500	93	270	1162	1023	35.0	9.5	123
BXRE-40E1000-B-7X	4000	80	270	1461	1285	35.0	9.5	155
BXRE-40E1000-C-7X	4000	80	360	1947	1713	35.0	12.6	155
BXRE-40G1000-B-7X	4000	90	270	1250	1100	35.0	9.5	132
BXRE-40G1000-C-7X	4000	90	360	1666	1466	35.0	12.6	132
BXRE-50C1001-B-74	5000	70	270	1601	1409	35.0	9.5	169
BXRE-50C1001-C-74	5000	70	360	2134	1878	35.0	12.6	169
BXRE-50E1001-B-74	5000	80	270	1505	1324	35.0	9.5	159
BXRE-50E1001-C-74	5000	80	360	2006	1765	35.0	12.6	159
BXRE-50G1001-B-74	5000	90	270	1281	1127	35.0	9.5	136
BXRE-50G1001-C-74	5000	90	360	1707	1502	35.0	12.6	135
BXRE-57C1001-B-74	5700	70	270	1545	1360	35.0	9.5	163
BXRE-57C1001-C-74	5700	70	360	2059	1812	35.0	12.6	163
BXRE-57E1001-B-74	5700	80	270	1531	1347	35.0	9.5	162
BXRE-57E1001-C-74	5700	80	360	2040	1796	35.0	12.6	162
BXRE-65C1001-B-74	6500	70	270	1573	1384	35.0	9.5	166
BXRE-65C1001-C-74	6500	70	360	2097	1845	35.0	12.6	166
BXRE-65E1001-B-74	6500	80	270	1559	1372	35.0	9.5	165
BXRE-65E1001-C-74	6500	80	360	2078	1829	35.0	12.6	165

Notes for Table 1:

- Nominal CCT as defined by ANSI C78.377-2011. Products with a CCT of 5000K-6500K are hot targeted to $T_c = 85^\circ\text{C}$.
- CRI values are typical for Decor Series Ultra and Decor Series Class A products. CRI values are minimums for all other products. Minimum Rg value for 80 CRI products is 0, the minimum Rg values for 90 CRI products is 50, the typical Rg values for 97 CRI products is 98.
- Drive current is referred to as nominal drive current.
- Products tested under pulsed condition (10ms pulse width) at nominal test current where T_j (junction temperature) - T_c (case temperature) = 25°C .
- Typical performance values are provided as a reference only and are not a guarantee of performance.
- Bridgelux maintains a $\pm 7\%$ tolerance on flux measurements.
- Minimum flux values at the nominal test current are guaranteed by 100% test.
- Nominal CCT is defined by the Lighting Research Center's Class A definition. The center of the Class A color bin is on the corresponding isothermal line.
- GAI value is 80. To help ensure optimal fixture level performance, GAI is measured at the fixture level, on axis, at a case temperature of 70°C . GAI may vary depending on fixture design and performance.

Product Selection Guide

Table 2: Selection Guide, Stabilized DC Performance ($T_c = 70^\circ\text{C}$) ^{7,8}

Part Number	Nominal CCT ¹ (K)	GAI ²	CRI ³	Nominal Drive Current ⁴ (mA)	Typical DC Flux ^{5,6} $T_c = 70^\circ\text{C}$ (lm)	Minimum DC Flux ^{6,9} $T_c = 70^\circ\text{C}$ (lm)	Typical V_f (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXRE-35A1001-B-73	3500	80	93	270	1093	984	34.3	9.3	118

Notes for Table 2:

- Nominal CCT is defined by the Lighting Research Center's Class A definition. The center of the Class A color bin is on the corresponding isothermal line.
- To help ensure optimal fixture level performance, GAI is measured at the fixture level, on axis, at a case temperature of 70°C . GAI may vary depending on fixture design and performance.
- CRI Values are specified as typical.
- Drive current is referred to as nominal drive current.
- Typical performance values are provided as a reference only and are not a guarantee of performance.
- Bridgelux maintains a $\pm 7\%$ tolerance on flux measurements.
- Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.
- Typical performance is estimated based on operation under DC (direct current) with LED array mounted onto a heat sink with thermal interface material and the case temperature maintained at specified temperature. 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.
- Minimum flux values at elevated temperatures are provided for reference only and are not guaranteed by 100% production testing. 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.

Product Selection Guide

Table 3: Selection Guide, Stabilized DC Performance ($T_c = 85^\circ\text{C}$)^{4,5}

Part Number	Nominal CCT ¹ (K)	CRI ²	Nominal Drive Current ³ (mA)	Typical DC Flux ^{4,5} $T_c = 85^\circ\text{C}$ (lm)	Minimum DC Flux ⁶ $T_c = 85^\circ\text{C}$ (lm)	Typical V_f (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXRE-20B1001-B-73	2000	65	270	1203	1059	34.0	9.2	131
BXRE-27E1000-B-7X	2700	80	270	1214	1068	34.0	9.2	132
BXRE-27E1000-C-7X	2700	80	360	1617	1423	34.0	12.3	132
BXRE-27G1000-B-7X	2700	90	270	1011	890	34.0	9.2	110
BXRE-27G1000-C-7X	2700	90	360	1348	1186	34.0	12.3	110
BXRE-27H1000-B-7X	2700	97	270	885	778	34.0	9.2	96
BXRE-30E1000-B-7X	3000	80	270	1276	1123	34.0	9.2	139
BXRE-30E1000-C-7X	3000	80	360	1701	1497	34.0	12.3	139
BXRE-30G1000-B-7X	3000	90	270	1059	932	34.0	9.2	115
BXRE-30G1000-C-7X	3000	90	360	1412	1243	34.0	12.3	115
BXRE-30G100C-B-73	3000	90	270	986	868	34.0	9.2	107
BXRE-30H1000-B-7X	3000	97	270	944	831	34.0	9.2	103
BXRE-35E1000-B-7X	3500	80	270	1302	1146	34.0	9.2	142
BXRE-35E1000-C-7X	3500	80	360	1735	1527	34.0	12.3	142
BXRE-35G1000-B-7X	3500	90	270	1087	957	34.0	9.2	118
BXRE-35G1000-C-7X	3500	90	360	1449	1275	34.0	12.3	118
BXRE-35A1001-B-73 ^{7,8}	3500	93	270	1046	921	34.0	9.2	114
BXRE-40E1000-B-7X	4000	80	270	1315	1157	34.0	9.2	143
BXRE-40E1000-C-7X	4000	80	360	1752	1542	34.0	12.3	143
BXRE-40G1000-B-7X	4000	90	270	1125	990	34.0	9.2	122
BXRE-40G1000-C-7X	4000	90	360	1499	1320	34.0	12.3	122
BXRE-50C1001-B-74	5000	70	270	1441	1268	34.0	9.2	157
BXRE-50C1001-C-74	5000	70	360	1921	1690	34.0	12.3	157
BXRE-50E1001-B-74	5000	80	270	1355	1192	34.0	9.2	147
BXRE-50E1001-C-74	5000	80	360	1805	1589	34.0	12.3	147
BXRE-50G1001-B-74	5000	90	270	1153	1015	34.0	9.2	125
BXRE-50G1001-C-74	5000	90	360	1537	1352	34.0	12.3	125
BXRE-57C1001-B-74	5700	70	270	1390	1224	34.0	9.2	151
BXRE-57C1001-C-74	5700	70	360	1853	1631	34.0	12.3	151
BXRE-57E1001-B-74	5700	80	270	1378	1213	34.0	9.2	150
BXRE-57E1001-C-74	5700	80	360	1836	1616	34.0	12.3	150
BXRE-65C1001-B-74	6500	70	270	1416	1246	34.0	9.2	154
BXRE-65C1001-C-74	6500	70	360	1887	1661	34.0	12.3	154
BXRE-65E1001-B-74	6500	80	270	1403	1235	34.0	9.2	153
BXRE-65E1001-C-74	6500	80	360	1870	1646	34.0	12.3	153

Notes for Table 3:

- Nominal CCT as defined by ANSI C78.377-2011. Products with a CCT of 5000K-6500K are hot targeted to $T_c = 85^\circ\text{C}$.
- CRI values are typical for Decor Series Ultra and Decor Series Class A products. CRI values are minimums for all other products. Minimum R_g value for 80 CRI products is 0, the minimum R_g values for 90 CRI products is 50, the typical R_g values for 97 CRI products is 98.
- Drive current is referred to as nominal drive current.
- Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.
- Typical performance is estimated based on operation under DC (direct current) with LED array mounted onto a heat sink with thermal interface material and the case 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.
- Minimum flux values at elevated temperatures are provided for reference only and are not guaranteed by 100% production testing. 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.
- Nominal CCT is defined by the Lighting Research Center's Class A definition. The center of the Class A color bin is on the corresponding isothermal line.
- GAI value is 80. To help ensure optimal fixture level performance, GAI is measured at the fixture level, on axis, at a case temperature of 70°C. GAI may vary depending on fixture design and performance.

Performance at Commonly Used Drive Currents

V Series LED arrays are tested to the specifications shown using the nominal drive currents in Table 1. V Series LED Arrays 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 Figures 1 & 2 and the flux vs. current characteristics shown in Figures 3 & 4. The performance at commonly used drive currents is summarized in Table 4.

Table 4: Product Performance at Commonly Used Drive Currents

Part Number	CRI	Drive Current ¹ (mA)	Typical V_f $T_c = 25^\circ\text{C}$ (V)	Typical Power $T_c = 25^\circ\text{C}$ (W)	Typical Flux ² $T_c = 25^\circ\text{C}$ (lm)	Typical DC Flux ³ $T_c = 85^\circ\text{C}$ (lm)	Typical Efficacy $T_c = 25^\circ\text{C}$ (lm/W)
BXRE-20B1001-B-73	65	135	33.3	4.5	712	640	159
		180	33.8	6.1	934	838	153
		270	35.0	9.5	1337	1203	141
		405	36.4	14.8	1961	1745	133
		540	37.8	20.4	2513	2224	123
BXRE-27E1000-B-7X	80	135	33.3	4.5	719	646	160
		180	33.8	6.1	942	845	155
		270	35.0	9.5	1348	1214	143
		405	36.4	14.8	1978	1760	134
		540	37.8	20.4	2534	2243	124
BXRE-27E1000-C-7X	80	180	33.3	6.0	955	853	160
		240	33.8	8.1	1252	1112	154
		360	35.0	12.6	1797	1617	143
		540	36.4	19.7	2617	2273	133
		720	37.7	27.1	3343	2861	123
BXRE-27G1000-B-7X	90	135	33.3	4.5	599	538	133
		180	33.8	6.1	785	704	129
		270	35.0	9.5	1124	1011	119
		405	36.4	14.8	1648	1466	112
		540	37.8	20.4	2112	1869	104
BXRE-27G1000-C-7X	90	180	33.3	6.0	796	710	133
		240	33.8	8.1	1043	927	128
		360	35.0	12.6	1498	1348	119
		540	36.4	19.7	2181	1894	111
		720	37.7	27.1	2786	2385	103
BXRE-27H1000-B-7X	97	135	33.3	4.5	524	471	117
		180	33.8	6.1	687	616	113
		270	35.0	9.5	983	885	104
		405	36.4	14.8	1442	1283	98
		540	37.8	20.4	1847	1635	91
BXRE-30E1000-B-7X	80	135	33.3	4.5	755	679	168
		180	33.8	6.1	990	888	163
		270	35.0	9.5	1418	1276	150
		405	36.4	14.8	2080	1850	141
		540	37.8	20.4	2664	2358	131
BXRE-30E1000-C-7X	80	180	33.3	6.0	1005	897	168
		240	33.8	8.1	1316	1169	162
		360	35.0	12.6	1890	1701	150
		540	36.4	19.7	2752	2391	140
		720	37.7	27.1	3516	3009	130

Notes for Table 4:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a $\pm 7\%$ tolerance on flux measurements.
3. Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.

Performance at Commonly Used Drive Currents

Table 4: Product Performance at Commonly Used Drive Currents (Continued)

Part Number	CRI	Drive Current ¹ (mA)	Typical V_f $T_c = 25^\circ\text{C}$ (V)	Typical Power $T_c = 25^\circ\text{C}$ (W)	Typical Flux ² $T_c = 25^\circ\text{C}$ (lm)	Typical DC Flux ³ $T_c = 85^\circ\text{C}$ (lm)	Typical Efficacy $T_c = 25^\circ\text{C}$ (lm/W)
BXRE-30G1000-B-7X	90	135	33.3	4.5	627	564	140
		180	33.8	6.1	822	738	135
		270	35.0	9.5	1177	1059	125
		405	36.4	14.8	1727	1536	117
		540	37.8	20.4	2212	1958	108
BXRE-30G1000-C-7X	90	180	33.3	6.0	834	744	139
		240	33.8	8.1	1093	971	135
		360	35.0	12.6	1569	1412	125
		540	36.4	19.7	2285	1985	116
		720	37.7	27.1	2918	2498	108
BXRE-30G100C-B-73	90	135	33.3	4.5	584	525	130
		180	33.8	6.1	766	687	126
		270	35.0	9.5	1096	986	116
		405	36.4	14.8	1608	1430	109
		540	37.8	20.4	2060	1823	101
BXRE-30H1000-B-7X	97	135	33.3	4.5	559	502	125
		180	33.8	6.1	733	657	120
		270	35.0	9.5	1049	944	111
		405	36.4	14.8	1539	1369	104
		540	37.8	20.4	1972	1745	97
BXRE-35E1000-B-7X	80	135	33.3	4.5	771	693	172
		180	33.8	6.1	1011	907	166
		270	35.0	9.5	1447	1302	153
		405	36.4	14.8	2122	1888	144
		540	37.8	20.4	2719	2407	133
BXRE-35E1000-C-7X	80	180	33.3	6.0	1025	915	171
		240	33.8	8.1	1343	1193	165
		360	35.0	12.6	1928	1735	153
		540	36.4	19.7	2808	2439	143
		720	37.7	27.1	3586	3070	132
BXRE-35G1000-B-7X	90	135	33.3	4.5	644	578	143
		180	33.8	6.1	844	757	139
		270	35.0	9.5	1208	1087	128
		405	36.4	14.8	1772	1576	120
		540	37.8	20.4	2270	2009	111
BXRE-35G1000-C-7X	90	180	33.3	6.0	856	764	143
		240	33.8	8.1	1121	996	138
		360	35.0	12.6	1610	1449	128
		540	36.4	19.7	2344	2037	119
		720	37.7	27.1	2995	2563	110
BXRE-35A1001-B-73	93	135	33.3	4.5	619	557	138
		180	33.8	6.1	812	728	133
		270	35.0	9.5	1162	1046	123
		405	36.4	14.8	1705	1517	116
		540	37.8	20.4	2185	1934	107

Notes for Table 4:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a $\pm 7\%$ tolerance on flux measurements.
3. Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.

Performance at Commonly Used Drive Currents

Table 4: Product Performance at Commonly Used Drive Currents (Continued)

Part Number	CRI	Drive Current ¹ (mA)	Typical V _f T _c = 25°C (V)	Typical Power T _c = 25°C (W)	Typical Flux ² T _c = 25°C (lm)	Typical DC Flux ³ T _c = 85°C (lm)	Typical Efficacy T _c = 25°C (lm/W)
BXRE-40E1000-B-7X	80	135	33.3	4.5	778	700	173
		180	33.8	6.1	1021	915	168
		270	35.0	9.5	1461	1315	155
		405	36.4	14.8	2143	1906	145
		540	37.8	20.4	2745	2430	135
BXRE-40E1000-C-7X	80	180	33.3	6.0	1035	924	173
		240	33.8	8.1	1356	1205	167
		360	35.0	12.6	1947	1752	155
		540	36.4	19.7	2835	2463	144
		720	37.7	27.1	3621	3100	133
BXRE-40G1000-B-7X	90	135	33.3	4.5	666	599	148
		180	33.8	6.1	873	783	143
		270	35.0	9.5	1250	1125	132
		405	36.4	14.8	1834	1631	124
		540	37.8	20.4	2349	2079	115
BXRE-40G1000-C-7X	90	180	33.3	6.0	886	790	148
		240	33.8	8.1	1160	1031	143
		360	35.0	12.6	1666	1499	132
		540	36.4	19.7	2426	2108	123
		720	37.7	27.1	3099	2653	114
BXRE-50C1001-B-74	70	135	33.3	4.5	853	767	190
		180	33.8	6.1	1119	1003	184
		270	35.0	9.5	1601	1441	169
		405	36.4	14.8	2349	2090	159
		540	37.8	20.4	3009	2664	148
BXRE-50C1001-C-74	70	180	33.3	6.0	1135	1012	190
		240	33.8	8.1	1486	1321	183
		360	35.0	12.6	2134	1921	169
		540	36.4	19.7	3108	2700	158
		720	37.7	27.1	3970	3398	146
BXRE-50E1001-B-74	80	135	33.3	4.5	802	721	179
		180	33.8	6.1	1052	943	173
		270	35.0	9.5	1505	1355	159
		405	36.4	14.8	2208	1964	150
		540	37.8	20.4	2829	2504	139
BXRE-50E1001-C-74	80	180	33.3	6.0	1067	952	178
		240	33.8	8.1	1397	1241	172
		360	35.0	12.6	2006	1805	159
		540	36.4	19.7	2921	2538	149
		720	37.7	27.1	3731	3194	138
BXRE-50G1001-B-74	90	135	33.3	4.5	683	613	152
		180	33.8	6.1	895	803	147
		270	35.0	9.5	1281	1153	136
		405	36.4	14.8	1879	1672	127
		540	37.8	20.4	2408	2131	118

Notes for Table 4:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a ± 7% tolerance on flux measurements.
3. Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.

Performance at Commonly Used Drive Currents

Table 4: Product Performance at Commonly Used Drive Currents (Continued)

Part Number	CRI	Drive Current ¹ (mA)	Typical V _f T _c = 25°C (V)	Typical Power T _c = 25°C (W)	Typical Flux ² T _c = 25°C (lm)	Typical DC Flux ³ T _c = 85°C (lm)	Typical Efficacy T _c = 25°C (lm/W)
BXRE-50G1001-C-74	90	180	33.3	6.0	908	810	152
		240	33.8	8.1	1189	1056	146
		360	35.0	12.6	1707	1537	135
		540	36.4	19.7	2486	2160	126
		720	37.7	27.1	3176	2718	117
BXRE-57C1001-B-74	70	135	33.3	4.5	823	740	183
		180	33.8	6.1	1079	968	177
		270	35.0	9.5	1545	1390	163
		405	36.4	14.8	2267	2016	154
		540	37.8	20.4	2904	2570	142
BXRE-57C1001-C-74	70	180	33.3	6.0	1095	977	183
		240	33.8	8.1	1434	1274	177
		360	35.0	12.6	2059	1853	163
		540	36.4	19.7	2998	2605	153
		720	37.7	27.1	3830	3279	141
BXRE-57E1001-B-74	80	135	33.3	4.5	816	733	182
		180	33.8	6.1	1070	959	176
		270	35.0	9.5	1531	1378	162
		405	36.4	14.8	2246	1998	152
		540	37.8	20.4	2877	2547	141
BXRE-57E1001-C-74	80	180	33.3	6.0	1085	968	181
		240	33.8	8.1	1421	1263	175
		360	35.0	12.6	2040	1836	162
		540	36.4	19.7	2971	2581	151
		720	37.7	27.1	3795	3249	140
BXRE-65C1001-B-74	70	135	33.3	4.5	838	753	187
		180	33.8	6.1	1099	986	180
		270	35.0	9.5	1573	1416	166
		405	36.4	14.8	2308	2053	156
		540	37.8	20.4	2957	2617	145
BXRE-65C1001-C-74	70	180	33.3	6.0	1115	995	186
		240	33.8	8.1	1460	1297	180
		360	35.0	12.6	2097	1887	166
		540	36.4	19.7	3053	2652	155
		720	37.7	27.1	3900	3338	144
BXRE-65E1001-B-74	80	135	33.3	4.5	831	747	185
		180	33.8	6.1	1089	977	179
		270	35.0	9.5	1559	1403	165
		405	36.4	14.8	2287	2035	155
		540	37.8	20.4	2930	2593	144
BXRE-65E1001-C-74	80	180	33.3	6.0	1105	986	185
		240	33.8	8.1	1447	1286	178
		360	35.0	12.6	2078	1870	165
		540	36.4	19.7	3026	2629	154
		720	37.7	27.1	3865	3309	142

Notes for Table 4:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a ± 7% 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 5: Electrical Characteristics

Part Number	Drive Current (mA)	Forward Voltage Pulsed, $T_c = 25^\circ\text{C}$ (V) ^{1, 2, 3, 8}			Typical Coefficient of Forward Voltage ⁴ $\Delta V_f / \Delta T_c$ (mV/ $^\circ\text{C}$)	Typical Thermal Resistance Junction to Case ^{5,6} R_{j-c} ($^\circ\text{C}/\text{W}$)	Driver Selection Voltages ⁷ (V)	
		Minimum	Typical	Maximum			V_f Min. Hot $T_c = 105^\circ\text{C}$ (V)	V_f Max. Cold $T_c = -40^\circ\text{C}$ (V)
BXRE-xxx100x-B-7x	270	32.4	35.0	37.6	-16.1	0.49	31.1	38.7
	540	34.9	37.8	40.6	-16.1	0.56	33.6	41.6
BXRE-xxx100x-C-7x	360	32.4	35.0	37.6	-16.1	0.37	31.1	38.7
	720	34.9	37.7	40.5	-16.1	0.45	33.6	41.6

Notes for Table 5:

- Parts are tested in pulsed conditions. $T_c = 25^\circ\text{C}$. Pulse width is 10ms.
- Voltage minimum and maximum are provided for reference only and are not a guarantee of performance.
- Bridgelux maintains a tester tolerance of $\pm 0.10\text{V}$ on forward voltage measurements.
- Typical coefficient of forward voltage tolerance is $\pm 0.1\text{mV}$ for nominal current.
- Thermal resistance values are based from test data of a 3000K 80 CRI product.
- Thermal resistance value was calculated using total electrical input power; optical power was not subtracted from input power. The thermal interface material used during testing is not included in the thermal resistance value.
- V_f min hot and max cold values are provided as reference only and are not guaranteed by test. These values are provided to aid in driver design and selection over the operating range of the product.
- This product has been designed and manufactured per IEC 62031:2014. This product has passed dielectric withstand voltage testing at 1160 V. The working voltage designated for the insulation is 80V d.c. The maximum allowable voltage across the array must be determined in the end product application.

Eye Safety

Table 6: Eye Safety Risk Group (RG) Classifications

Part Number	Drive Current ⁵ (mA)	CCT ¹⁻⁵			
		2700K/3000K	4000K ²	5000K ³	6500K ⁴
BXRE-xxx100x-B-7x	270	RG1	RG1	RG1	RG1
	405	RG1	RG1	RG1	RG2
	540	RG1	RG1	RG2	RG2
BXRE-xxx100x-C-7x	360	RG1	RG1	RG1	RG2
	540	RG1	RG1	RG2	RG2
	720	RG1	RG2	RG2	RG2

Notes for Table 6:

1. Eye safety classification for the use of Bridgelux V Series LED arrays is in accordance with specification IEC/TR 62778: Application of IEC 62471 for the assessment of blue light hazard to light sources and luminaires.
2. For products classified as RG2 at 4000K, $E_{thr} = 1847.5$ lx.
3. For products classified as RG2 at 5000K, $E_{thr} = 1315.8$ lx.
4. For products classified as RG2 at 6500K, $E_{thr} = 1124.5$ lx.
5. Please contact your Bridgelux sales representative for E_{thr} values at specific drive currents and CCTs not listed.

Absolute Maximum Ratings

Table 7: Maximum Ratings

Parameter	Maximum Rating	
LED Junction Temperature (T _j)	125°C	
Storage Temperature	-40°C to +105°C	
Operating Case Temperature ¹ (T _c)	105°C	
Soldering Temperature ²	300°C or lower for a maximum of 6 seconds	
	BXRE-xxx100x-B-7x	BXRE-xxx100x-C-7x
Maximum Drive Current ³	540mA	720mA
Maximum Peak Pulsed Drive Current ⁴	770mA	1030mA
Maximum Reverse Voltage ⁵	-60V	-60V

Notes for Table 7:

1. For IEC 62717 requirement, please consult your Bridgelux sales representative.
2. Refer to Bridgelux Application Note AN101: Handling and Assembly of Bridgelux V Series LED Arrays.
3. Arrays may be driven at higher currents however lumen maintenance may be reduced.
4. Bridgelux recommends a maximum duty cycle of 10% and pulse width of 20 ms when operating LED Arrays at maximum peak pulsed current specified. Maximum peak pulsed currents indicate values where LED Arrays can be driven without catastrophic failures.
5. 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.

Performance Curves

Figure 1: V10B Drive Current vs. Voltage

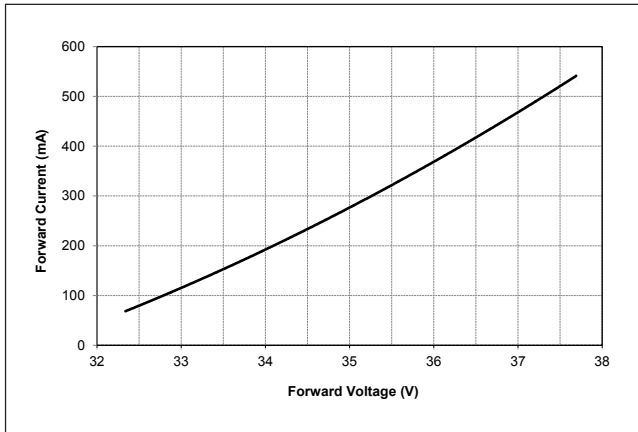


Figure 2: V10C Drive Current vs. Voltage

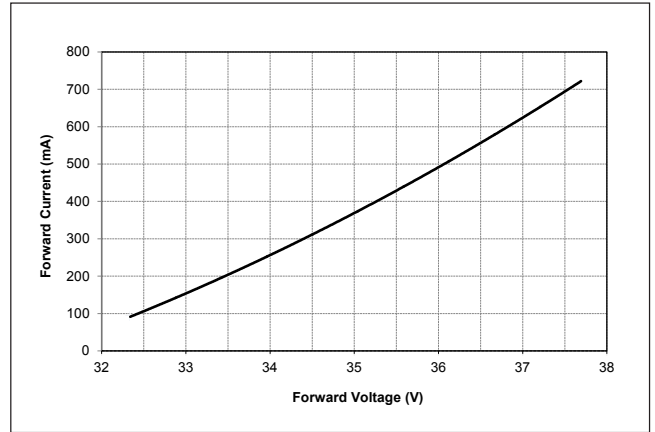


Figure 3: V10B Typical Relative Flux vs. Current

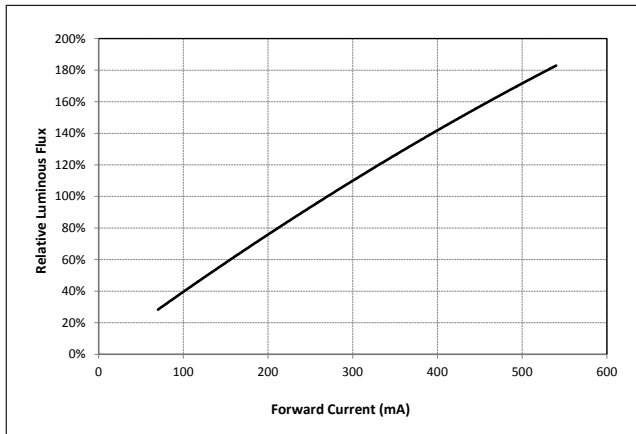
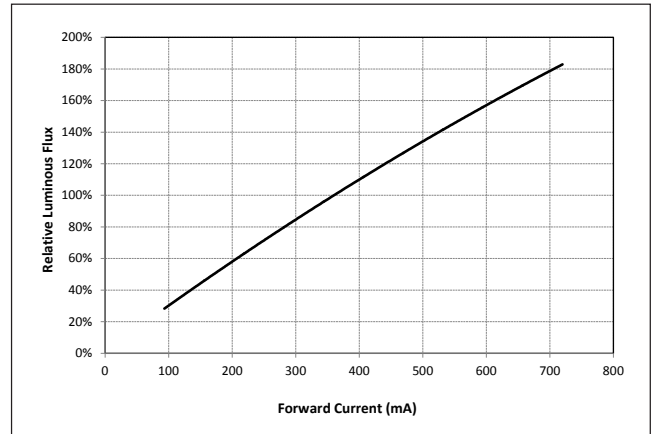


Figure 4: V10C Typical Relative Flux vs. Current



Notes for Figures 3-4:

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.
2. Products tested under pulsed condition (10ms pulse width) at nominal test current where T_j (junction temperature) = T_c (case temperature) = 25°C.

Performance Curves

Figure 5: Typical DC Flux vs. Case Temperature⁵

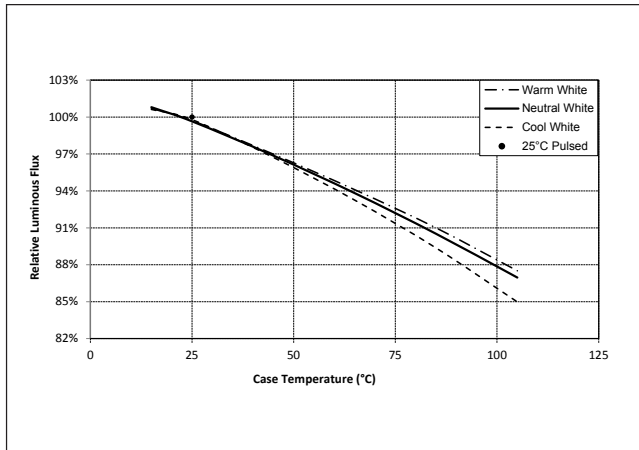


Figure 6: Typical DC ccy Shift vs. Case Temperature

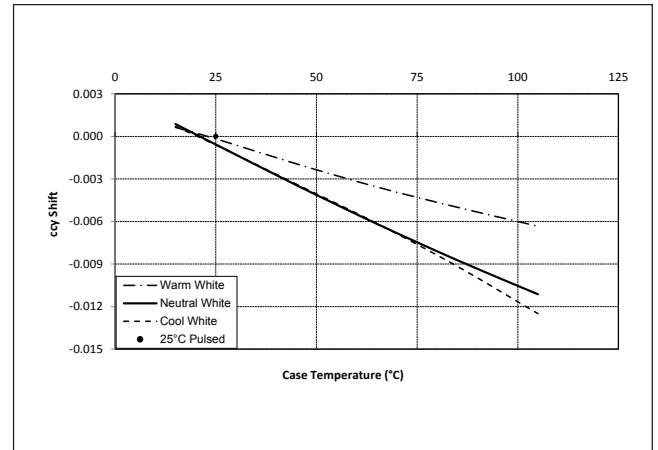
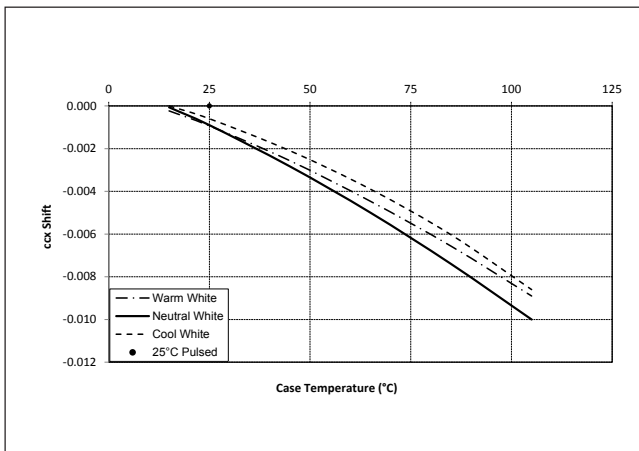


Figure 7: Typical DC ccx Shift vs. Case Temperature



Notes for Figures 5-7:

1. Characteristics shown for warm white based on 3000K and 80 CRI.
2. Characteristics shown for neutral white based on 4000K and 80 CRI.
3. Characteristics shown for cool white based on 5000K and 70 CRI.
4. Characteristics shown for warm white includes Decor Series Class A, 3500K.
6. For other color SKUs, the shift in color will vary. Please contact your Bridgelux Sales Representative for more information.

Performance Curves

Figure 8: 2000K, 65 CRI Color Shift vs. Case Temperature

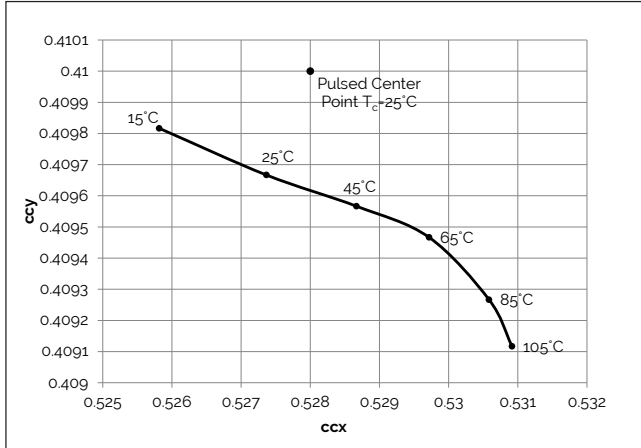


Figure 9: 3000K, 90 CRI Color Shift vs. Case Temperature³

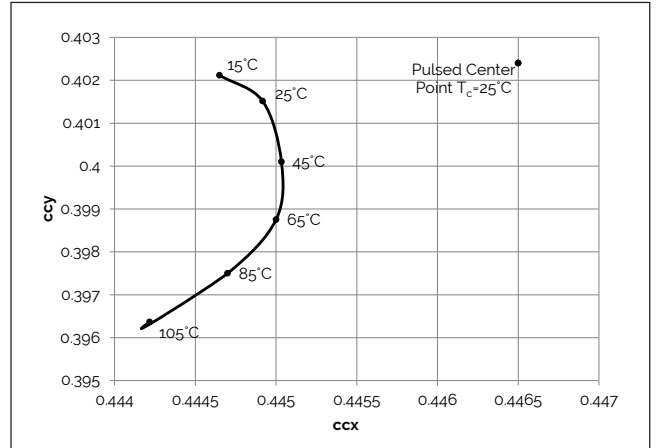


Figure 10: 2700K, 97 CRI Color Shift vs. Case Temperature³

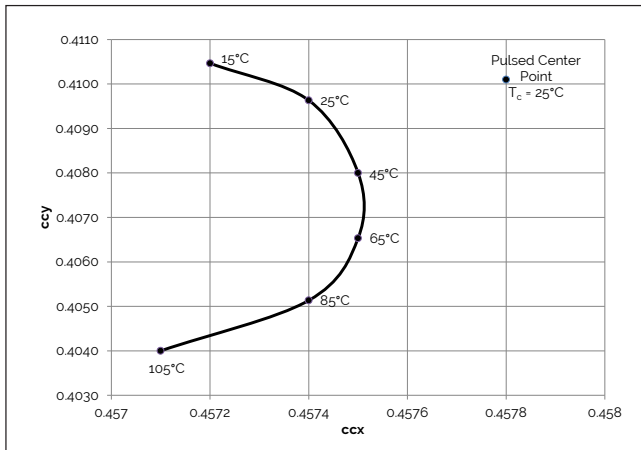


Figure 11: 3000K, 97 CRI Color Shift vs. Case Temperature³

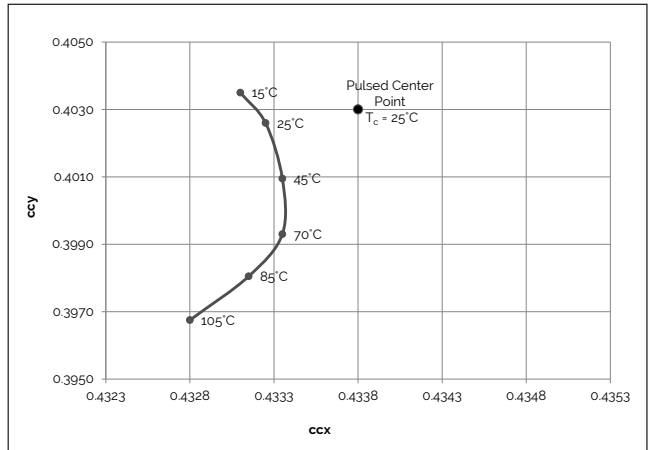
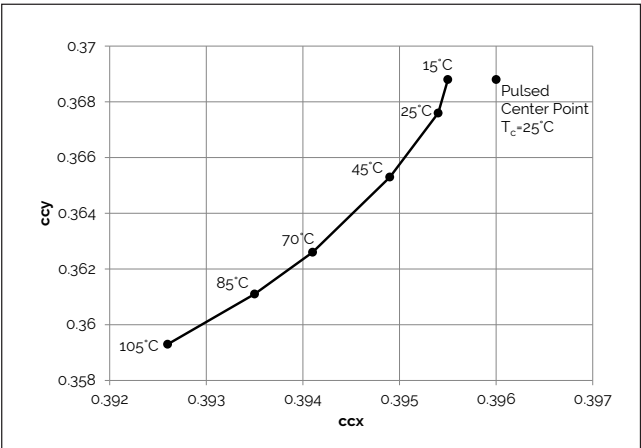


Figure 12: 3500K Class A Color Shift vs. Case Temperature³

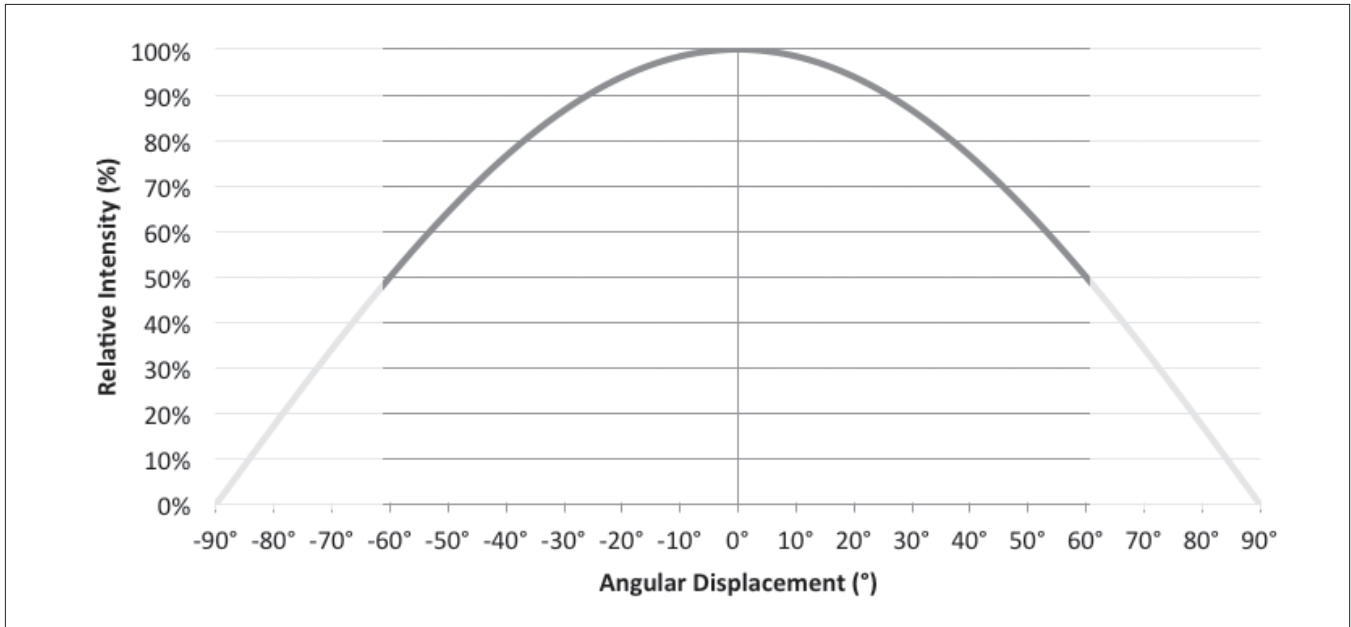


Note for Figures 8-12:

1. Measurements made under DC test conditions at the nominal drive current.
2. Typical color shift is shown with a tolerance of ± 0.002 .
3. Characteristics shown for Decor Series Showcase products, BXRE-30G100C-x-73

Typical Radiation Pattern

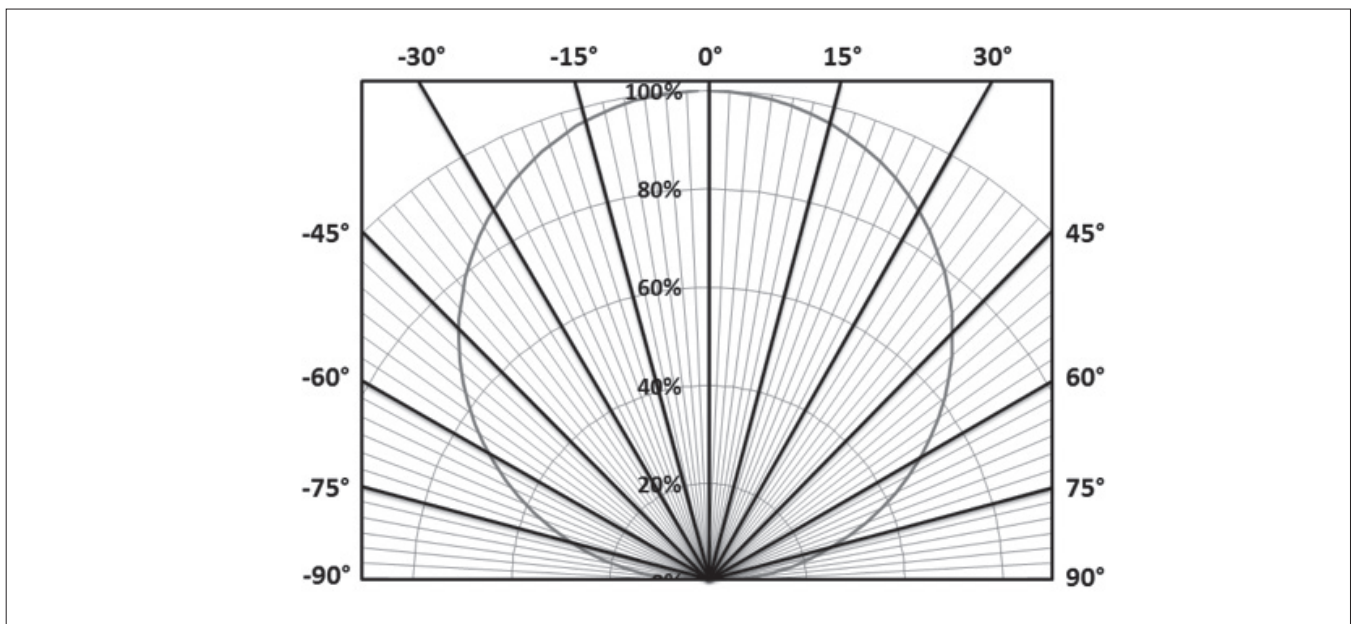
Figure 13: Typical Spatial Radiation Pattern



Note for Figure 13:

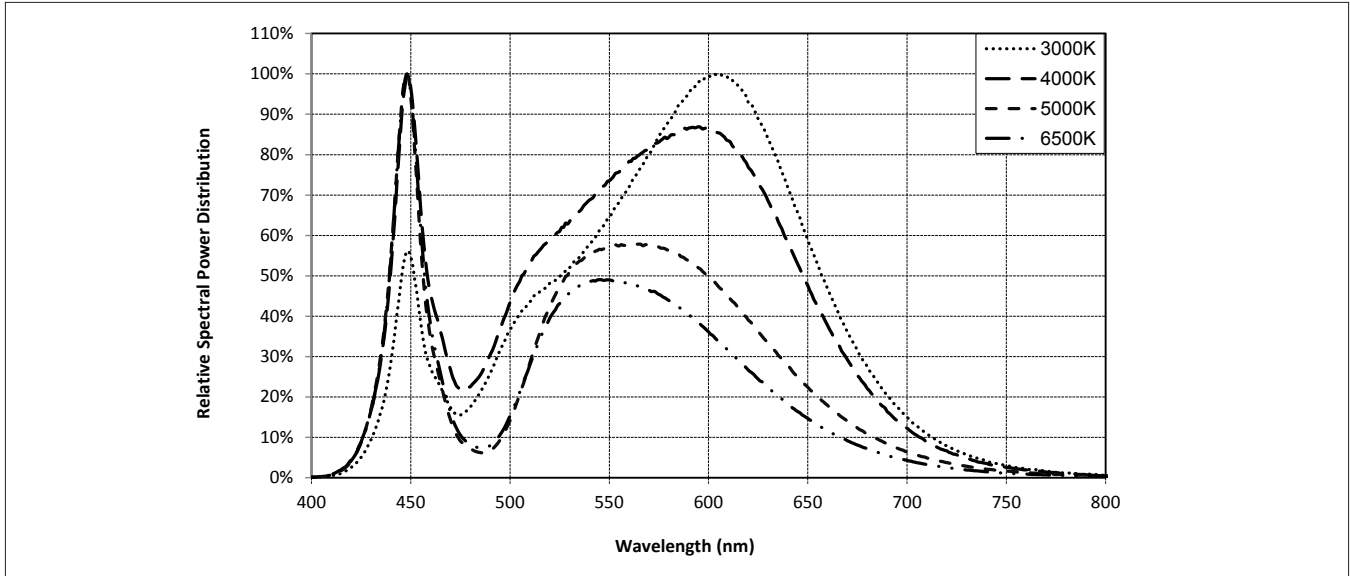
1. Typical viewing angle is 120°.
2. The viewing angle is defined as the off axis angle from the centerline where intensity is ½ of the peak value.

Figure 14: Typical Polar Radiation Pattern



Typical Color Spectrum

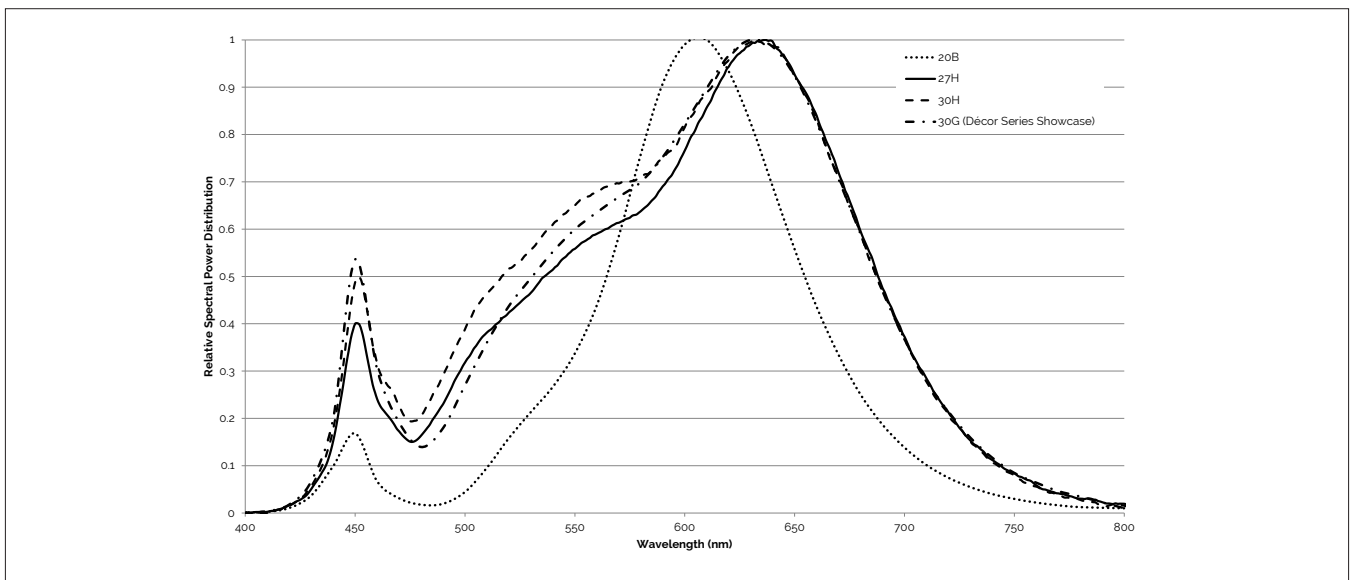
Figure 15: Typical Color Spectrum



Note for Figure 15:

1. Color spectra measured at nominal current for $T_j = T_c = 25^\circ\text{C}$.
2. Color spectra shown is 3000K and 80 CRI.
3. Color spectra shown is 4000K and 80 CRI.
4. Color spectra shown is 5000K and 70 CRI.
4. Color spectra shown is 6500K and 70 CRI.

Figure 16: Typical Color Spectrum for Décor Series

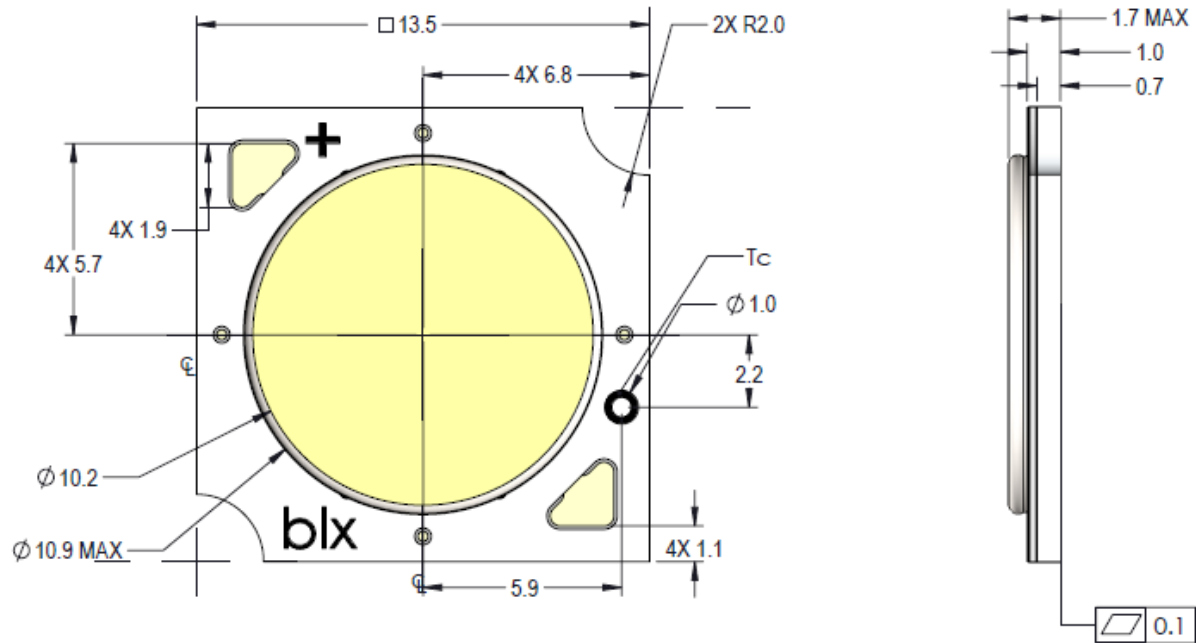


Note for Figure 16:

1. Color spectra measured at nominal current for $T_j = T_c = 25^\circ\text{C}$.

Mechanical Dimensions

Figure 17: Drawing for V10 LED Array

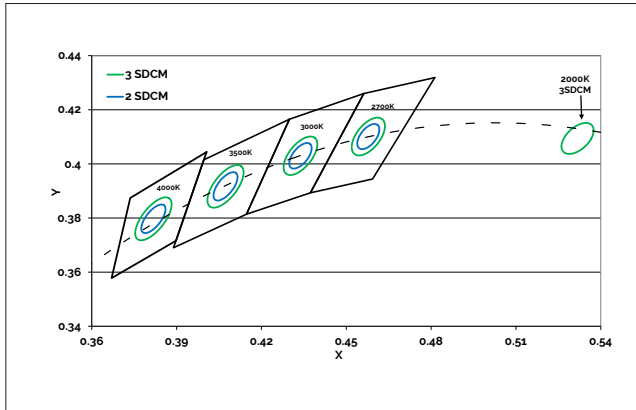


Notes for Figure 17:

1. Drawings are not to scale.
2. Drawing dimensions are in millimeters.
3. Unless otherwise specified, tolerances are $\pm 0.1\text{mm}$.
4. Solder pad labeled "+" denotes positive contact.
5. Refer to Application Notes AN101 for product handling, mounting and heat sink recommendations.
6. The optical center of the LED Array is nominally defined by the mechanical center of the array to a tolerance of $\pm 0.2\text{mm}$.
7. Bridgelux maintains a flatness of 0.10mm across the mounting surface of the array.

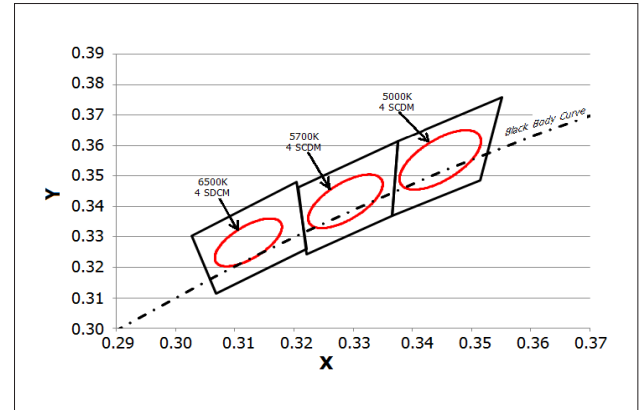
Color Binning Information

Figure 18: Warm and Neutral White Test Bins in xy Color Space



Note: Pulsed Test Conditions, $T_c = 25^\circ\text{C}$

Figure 19: Cool White Test Bins in xy Color Space



Note: Pulsed Test Conditions, $T_c = 25^\circ\text{C}$

Table 8: Warm and Neutral White xy Bin Coordinates and Associated Typical CCT

Bin Code	2000K	2700K	3000K ¹	3500K ¹	4000K ¹
ANSI Bin (for reference only)	-	(2580K - 2870K)	(2870K - 3220K)	(3220K - 3710K)	(3710K - 4260K)
73 (3 SDCM)	-	(2651K - 2794K)	(2968K - 3136K)	(3369K - 3586K)	(3851K - 4130K)
72 (2 SDCM)	-	(2674K - 2769K)	(2995K - 3107K)	(3404K - 3548K)	(3895K - 4081K)
Center Point (x,y)	(0.5280, 0.4100)	(0.4578, 0.4101)	(0.4338, 0.403) (0.4465, 0.4024) ²	(0.4073, 0.3917)	(0.3818, 0.3797)

Note for Table 8:

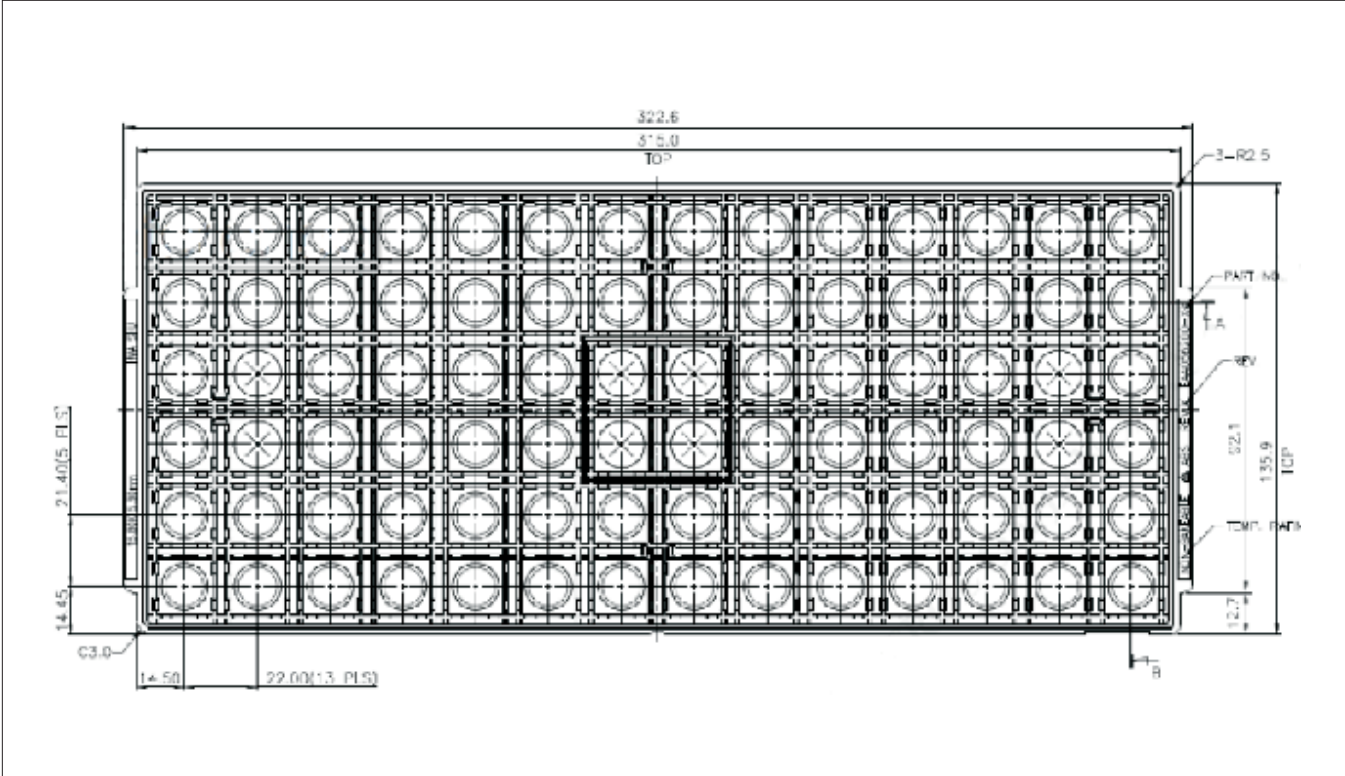
- Color Binning information excludes Décor Series Class A products. Please contact your Bridgelux Sales Representative for more information.
- Center Point for Décor Series Showcase.

Table 9: Cool White xy Bin Coordinates and Associated Typical CCT (product is hot targeted to $T_c = 85^\circ\text{C}$)

Bin Code	5000K	5700K	6500K
ANSI Bin (for reference only)	(4745K - 5311K)	(5312K - 6022K)	(6022K - 7042K)
74 (4 SDCM)	(4801K - 5282K)	(5829K - 5481K)	(6270K - 6765K)
Center Point (x,y)	(0.3447, 0.3553)	(0.3287, 0.3417)	(0.3123, 0.3282)

Packaging and Labeling

Figure 20: Drawing for V10 Packaging Tray

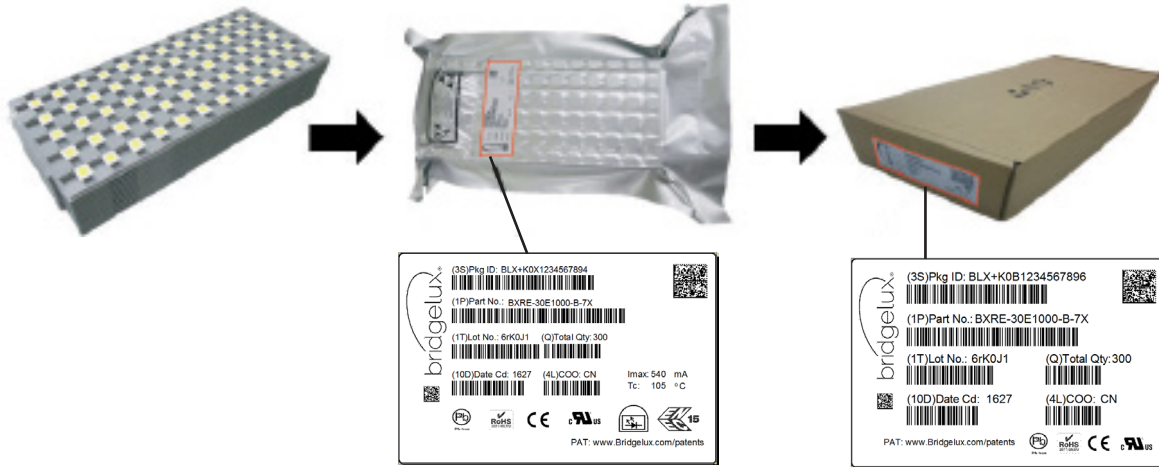


Notes for Figure 20:

1. Dimensions are in millimeters
2. Tolerances: XX = ± 0.25, XXX = ± 0.13, X"0' = ±0'30'
3. Trays are stackable without interference and will not stick together during unstacking operation

Packaging and Labeling

Figure 21: V Series Packaging and Labeling



Notes for Figure 21:

1. Each tray holds 60 COB Arrays, 10 trays are stacked and one empty tray placed on top to cover the top tray.
2. Stacked trays are to contain only 1 part number and be vacuum sealed in an anti-static bag and placed in its own individual box.
3. Each bag and box is to be labeled as shown above.

Figure 22: Gen. 7 Product Labeling

Bridgelux COB arrays have laser markings on the back side of the substrate to help with product identification. In addition to the product identification markings, Bridgelux COB arrays also contain markings for internal Bridgelux manufacturing use only. The image below shows which markings are for customer use and which ones are for Bridgelux internal use only. The Bridgelux internal manufacturing markings are subject to change without notice, however these will not impact the form, function or performance of the COB array.



Design Resources

Application Notes

Bridgelux has developed a comprehensive set of application notes and design resources to assist customers in successfully designing with the V Series product family of LED array products. For all available application notes visit www.bridgelux.com.

Optical Source Models

Optical source models and ray set files are available for all Bridgelux products. For a list of available formats, visit www.bridgelux.com.

3D CAD Models

Three dimensional CAD models depicting the product outline of all Bridgelux V Series LED arrays are available in both IGS and STEP formats. Please contact your Bridgelux sales representative for assistance.

LM80

LM80 testing has been completed and the LM80 report is now available. Please contact your Bridgelux sales representative for LM-80 report.

Precautions

CAUTION: CHEMICAL EXPOSURE HAZARD

Exposure to some chemicals commonly used in luminaire manufacturing and assembly can cause damage to the LED array. Please consult Bridgelux Application Note AN101 for additional information.

CAUTION: RISK OF BURN

Do not touch the V Series LED array during operation. Allow the array to cool for a sufficient period of time before handling. The V Series LED array 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 LED array or apply stress to the LES (yellow phosphor resin area). Contact may cause damage to the LED array.

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, array testing is performed at the nominal drive current.

About Bridgelux: We Build Light That Transforms

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.

For more information about the company, please visit
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Bridgelux Gen 7 V10 Array Series Product Data Sheet DS100 Rev. G (3/2017)