



# Bridgelux® E Series E8 CA LED Array

Product Data Sheet DS336

# Introduction

E Series



The Bridgelux E Series LED array products deliver high quality light in a compact and high 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. The E Series E8 CA is designed to support a wide range of luminaires and replacement lamps for both indoor and outdoor general lighting applications with highly competitive cost and good performance.

E Series E8 CA is available in a variety of electrical, CCT and CRI combinations providing substantial design flexibility and energy efficiencies.

Typical applications include, replacement lamps, and task, accent, spot, track, wide area, security, wall pack and down lights.

## Features

- Compact, high flux density light source
- Uniform, high quality illumination
- Streamlined thermal path
- ENERGY STAR® / ANSI compliant color binning structure with 2, 3 and 4 SDCM options
- Higher energy efficiency than incandescent, halogen and CFL lamps
- Industry standard DC voltage operation
- Instant light with unlimited dimming
- RoHS and REACH compliant

## Benefits

- Easy for second optics design
- Clean white light without pixilation
- Significantly reduced thermal resistance
- Easy for LED driver selection
- Easy to use with daylight and motion detectors to enable increased energy savings
- Reduced maintenance costs
- Environmentally friendly



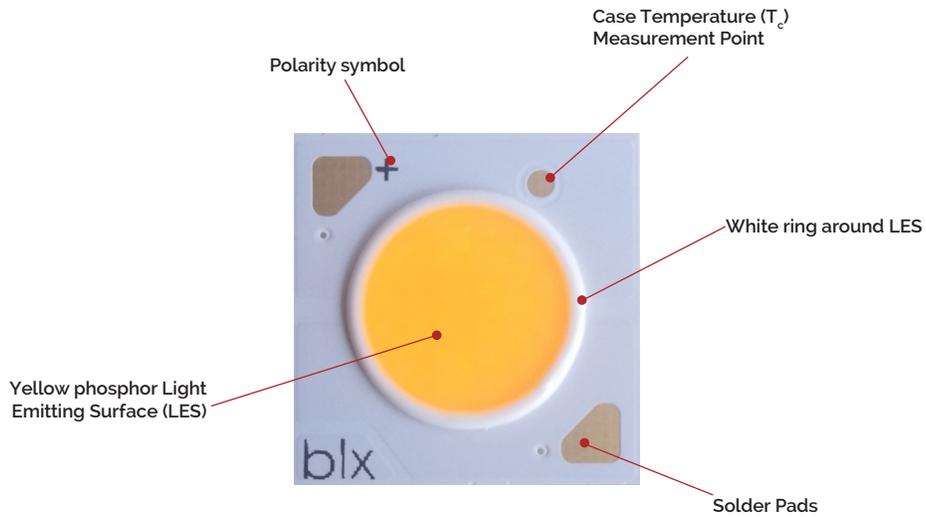
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# Product Feature Map

Bridgelux arrays are fully engineered devices that provide consistent thermal and optical performance on an engineered mechanical platform.

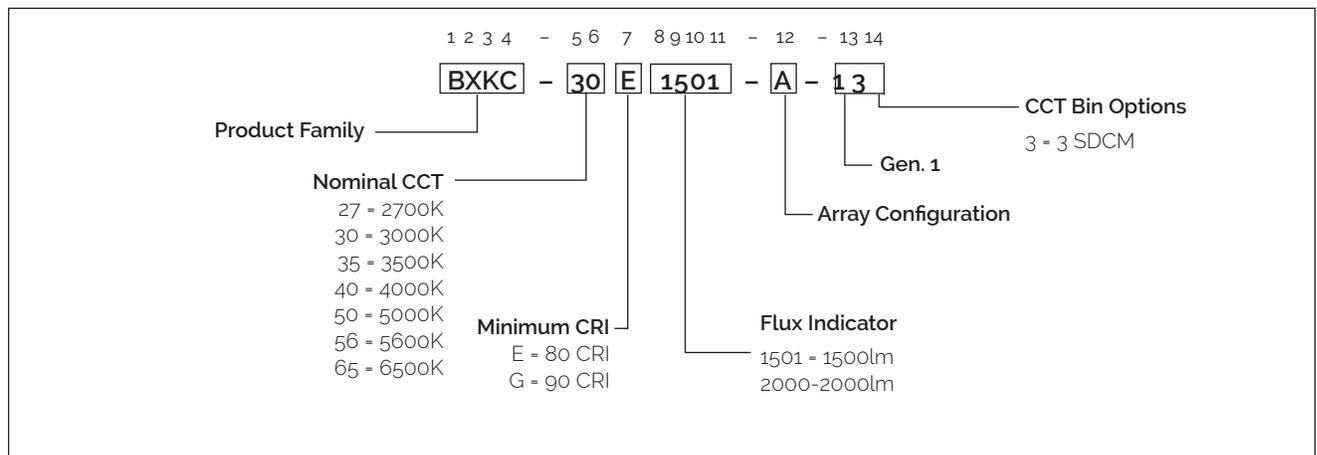
The arrays incorporate several features to simplify design integration and assembly.



Note: Part number and lot codes are scribed on back of array

## Product Nomenclature

The part number designation for Bridgelux E Series LED arrays is explained as follows:



# Product Selection Guide

**Table 1:** Selection Guide, Measurement Data (Tc=25°C)

Part Number	Nominal CCT <sup>1</sup> (K)	Minimum CRI	Typical CRI	Nominal Drive Current (mA)	Typical Pulsed Flux <sup>2,3,4</sup> Tc = 25°C (lm)	Minimum Pulsed Flux <sup>2,4,5</sup> Tc = 25°C (lm)	Typical Vf (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXKC-27E1501-B-13	2700	80	82	200	990	861	36.0	7.2	137
BXKC-27G1501-B-13	2700	90	92	200	808	703	36.0	7.2	112
BXKC-30E1501-B-13	3000	80	82	200	1046	910	36.0	7.2	145
BXKC-30G1501-B-13	3000	90	92	200	847	737	36.0	7.2	118
BXKC-35E1501-B-13	3500	80	82	200	1067	928	36.0	7.2	148
BXKC-35G1501-B-13	3500	90	92	200	869	756	36.0	7.2	121
BXKC-40E1501-B-13	4000	80	82	200	1077	937	36.0	7.2	150
BXKC-40G1501-B-13	4000	90	92	200	899	782	36.0	7.2	125
BXKC-50E1501-B-14	5000	80	81.5	200	1110	965	36.0	7.2	154
BXKC-50G1501-B-14	5000	90	91	200	921	802	36.0	7.2	128
BXKC-56E1501-B-14	5600	80	81.5	200	1129	982	36.0	7.2	157
BXKC-65E1501-B-14	6500	80	81.5	200	1149	1000	36.0	7.2	160
BXKC-27E1501-D-13	2700	80	82	400	990	861	18.0	7.2	137
BXKC-27G1501-D-13	2700	90	92	400	808	703	18.0	7.2	112
BXKC-30E1501-D-13	3000	80	82	400	1046	910	18.0	7.2	145
BXKC-30G1501-D-13	3000	90	92	400	847	737	18.0	7.2	118
BXKC-35E1501-D-13	3500	80	82	400	1067	928	18.0	7.2	148
BXKC-35G1501-D-13	3500	90	92	400	869	756	18.0	7.2	121
BXKC-40E1501-D-13	4000	80	82	400	1077	937	18.0	7.2	150
BXKC-40G1501-D-13	4000	90	92	400	899	782	18.0	7.2	125
BXKC-50E1501-D-14	5000	80	81.5	400	1110	965	18.0	7.2	154
BXKC-50G1501-D-14	5000	90	91	400	921	802	18.0	7.2	128
BXKC-56E1501-D-14	5600	80	81.5	400	1129	982	18.0	7.2	157
BXKC-65E1501-D-14	6500	80	81.5	400	1149	1000	18.0	7.2	160
BXKC-27E2000-C-13	2700	80	82	350	1704	1483	36.0	12.6	135
BXKC-27G2000-C-13	2700	90	92	350	1449	1260	36.0	12.6	115
BXKC-30E2000-C-13	3000	80	82	350	1794	1561	36.0	12.6	142
BXKC-30G2000-C-13	3000	90	92	350	1525	1327	36.0	12.6	121
BXKC-35E2000-C-13	3500	80	82	350	1857	1616	36.0	12.6	147
BXKC-35G2000-C-13	3500	90	92	350	1578	1373	36.0	12.6	125
BXKC-40E2000-C-13	4000	80	82	350	1916	1667	36.0	12.6	152
BXKC-40G2000-C-13	4000	90	92	350	1629	1417	36.0	12.6	129
BXKC-50E2000-C-14	5000	80	81.5	350	1929	1678	36.0	12.6	153
BXKC-50G2000-C-14	5000	90	91	350	1639	1426	36.0	12.6	130
BXKC-56E2000-C-14	5600	80	81.5	350	1929	1678	36.0	12.6	153
BXKC-65E2000-C-14	6500	80	81.5	350	1929	1678	36.0	12.6	153

Notes for Table 1:

- Nominal CCT as defined by ANSI C78.377-2011.
- Products tested under pulsed condition (10ms pulse width) at nominal test current where Tj (junction temperature) = Tc (case temperature) = 25°C.
- Typical performance values are provided as a reference only and are not a guarantee of performance.
- Bridgelux maintains a ±7% tolerance on flux measurements.
- Minimum flux values at the nominal test current are guaranteed by 100% test.

# Product Selection Guide

**Table 2:** Selection Guide, Measurement Data (Tc=85°C)

Part Number	Nominal CCT <sup>1</sup> (K)	Minimum CRI	Typical CRI	Nominal Drive Current (mA)	Typical DC Flux <sup>2,3</sup> Tc = 85°C (lm)	Minimum DC Flux <sup>4</sup> Tc = 85°C (lm)	Typical Vf (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXKC-27E1501-B-13	2700	80	82	200	891	776	34.8	7.0	128
BXKC-27G1501-B-13	2700	90	92	200	728	634	34.8	7.0	105
BXKC-30E1501-B-13	3000	80	82	200	942	819	34.8	7.0	135
BXKC-30G1501-B-13	3000	90	92	200	763	663	34.8	7.0	110
BXKC-35E1501-B-13	3500	80	82	200	961	836	34.8	7.0	138
BXKC-35G1501-B-13	3500	90	92	200	783	681	34.8	7.0	112
BXKC-40E1501-B-13	4000	80	82	200	970	844	34.8	7.0	139
BXKC-40G1501-B-13	4000	90	92	200	810	705	34.8	7.0	116
BXKC-50E1501-B-14	5000	80	81.5	200	1000	870	34.8	7.0	144
BXKC-50G1501-B-14	5000	90	91	200	830	722	34.8	7.0	119
BXKC-56E1501-B-14	5600	80	81.5	200	1017	885	34.8	7.0	146
BXKC-65E1501-B-14	6500	80	81.5	200	1035	901	34.8	7.0	149
BXKC-27E1501-D-13	2700	80	82	400	891	776	17.4	7.0	128
BXKC-27G1501-D-13	2700	90	92	400	728	634	17.4	7.0	105
BXKC-30E1501-D-13	3000	80	82	400	942	819	17.4	7.0	135
BXKC-30G1501-D-13	3000	90	92	400	763	663	17.4	7.0	110
BXKC-35E1501-D-13	3500	80	82	400	961	836	17.4	7.0	138
BXKC-35G1501-D-13	3500	90	92	400	783	681	17.4	7.0	112
BXKC-40E1501-D-13	4000	80	82	400	970	844	17.4	7.0	139
BXKC-40G1501-D-13	4000	90	92	400	810	705	17.4	7.0	116
BXKC-50E1501-D-14	5000	80	81.5	400	1000	870	17.4	7.0	144
BXKC-50G1501-D-14	5000	90	91	400	830	722	17.4	7.0	119
BXKC-56E1501-D-14	5600	80	81.5	400	1017	885	17.4	7.0	146
BXKC-65E1501-D-14	6500	80	81.5	400	1035	901	17.4	7.0	149
BXKC-27E2000-C-13	2700	80	82	350	1534	1335	35.5	12.4	123
BXKC-27G2000-C-13	2700	90	92	350	1304	1134	35.5	12.4	105
BXKC-30E2000-C-13	3000	80	82	350	1615	1405	35.5	12.4	130
BXKC-30G2000-C-13	3000	90	92	350	1373	1194	35.5	12.4	110
BXKC-35E2000-C-13	3500	80	82	350	1671	1454	35.5	12.4	135
BXKC-35G2000-C-13	3500	90	92	350	1421	1236	35.5	12.4	114
BXKC-40E2000-C-13	4000	80	82	350	1725	1500	35.5	12.4	139
BXKC-40G2000-C-13	4000	90	92	350	1466	1275	35.5	12.4	118
BXKC-50E2000-C-14	5000	80	81.5	350	1736	1510	35.5	12.4	140
BXKC-50G2000-C-14	5000	90	91	350	1475	1284	35.5	12.4	119
BXKC-56E2000-C-14	5600	80	81.5	350	1736	1510	35.5	12.4	140
BXKC-65E2000-C-14	6500	80	81.5	350	1736	1510	35.5	12.4	140

Notes for Table 2:

- Nominal CCT as defined by ANSI C78.377-2011.
- 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.

# Performance at Commonly Used Drive Currents

E Series LED arrays are tested to the specifications shown using the nominal drive currents in Table 1. E Series 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 3 and the flux vs. current characteristics shown in Figures 4,5 and 6. The performance at commonly used drive currents is summarized in Table 3.

**Table 3:** Product Performance at Commonly Used Drive Currents (Continued)

Part Number	Minimum CRI	Drive Current <sup>1</sup> (mA)	Typical Vf Tc = 25°C (V)	Typical Power <sup>2</sup> Tc = 25°C (W)	Typical Pulsed Flux <sup>2</sup> Tc = 25°C (lm)	Typical DC Flux <sup>2</sup> Tc = 85°C (lm)	Typical Efficacy <sup>2</sup> Tc = 25°C (lm/W)
BXKC-27E1501-B-13	80	50	32.4	1.6	275	253	170
		100	33.6	3.4	531	486	158
		<b>200</b>	<b>36.0</b>	<b>7.2</b>	<b>990</b>	<b>891</b>	<b>137</b>
		300	37.8	11.3	1401	1240	124
		400	39.5	15.8	1767	1537	112
		480	40.9	19.6	2020	1735	103
BXKC-27G1501-B-13	90.5	50	32.4	1.6	224	207	139
		100	33.6	3.4	434	397	129
		<b>200</b>	<b>36.0</b>	<b>7.2</b>	<b>808</b>	<b>728</b>	<b>112</b>
		300	37.8	11.3	1145	1013	101
		400	39.5	15.8	1443	1256	91
		480	40.9	19.6	1650	1418	84
BXKC-30E1501-B-13	80	50	32.4	1.6	290	268	179
		100	33.6	3.4	561	514	167
		<b>200</b>	<b>36.0</b>	<b>7.2</b>	<b>1046</b>	<b>942</b>	<b>145</b>
		300	37.8	11.3	1481	1310	131
		400	39.5	15.8	1867	1624	118
		480	40.9	19.6	2134	1834	109
BXKC-30G1501-B-13	90	50	32.4	1.6	235	217	145
		100	33.6	3.4	455	416	135
		<b>200</b>	<b>36.0</b>	<b>7.2</b>	<b>847</b>	<b>763</b>	<b>118</b>
		300	37.8	11.3	1199	1061	106
		400	39.5	15.8	1512	1315	96
		480	40.9	19.6	1728	1485	88
BXKC-35E1501-B-13	80	50	32.4	1.6	296	273	183
		100	33.6	3.4	573	524	171
		<b>200</b>	<b>36.0</b>	<b>7.2</b>	<b>1067</b>	<b>961</b>	<b>148</b>
		300	37.8	11.3	1511	1337	133
		400	39.5	15.8	1905	1657	121
		480	40.9	19.6	2178	1871	111

Notes for Table 3:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.

# Performance at Commonly Used Drive Currents

**Table 3:** Product Performance at Commonly Used Drive Currents (Continued)

Part Number	Minimum CRI	Drive Current <sup>1</sup> (mA)	Typical Vf Tc = 25°C (V)	Typical Power <sup>2</sup> Tc = 25°C (W)	Typical Pulsed Flux <sup>2</sup> Tc = 25°C (lm)	Typical DC Flux <sup>2</sup> Tc = 85°C (lm)	Typical Efficacy <sup>2</sup> Tc = 25°C (lm/W)
BXKC-35G1501-B-13	90	50	32.4	1.6	241	223	149
		100	33.6	3.4	467	427	139
		<b>200</b>	<b>36.0</b>	<b>7.2</b>	<b>869</b>	<b>783</b>	<b>121</b>
		300	37.8	11.3	1231	1089	109
		400	39.5	15.8	1551	1349	98
		480	40.9	19.6	1774	1524	90
BXKC-40E1501-B-13	80	50	32.4	1.6	299	276	185
		100	33.6	3.4	578	529	172
		<b>200</b>	<b>36.0</b>	<b>7.2</b>	<b>1077</b>	<b>970</b>	<b>150</b>
		300	37.8	11.3	1526	1350	135
		400	39.5	15.8	1923	1673	122
		480	40.9	19.6	2199	1889	112
BXKC-40G1501-B-13	90	50	32.4	1.6	250	230	154
		100	33.6	3.4	483	442	144
		<b>200</b>	<b>36.0</b>	<b>7.2</b>	<b>899</b>	<b>810</b>	<b>125</b>
		300	37.8	11.3	1273	1127	112
		400	39.5	15.8	1605	1396	102
		480	40.9	19.6	1835	1577	93
BXKC-50E1501-B-14	80	50	32.4	1.6	308	284	190
		100	33.6	3.4	596	545	177
		<b>200</b>	<b>36.0</b>	<b>7.2</b>	<b>1110</b>	<b>1000</b>	<b>154</b>
		300	37.8	11.3	1572	1391	139
		400	39.5	15.8	1981	1723	125
		480	40.9	19.6	2265	1946	115
BXKC-50G1501-B-14	88	50	32.4	1.6	256	236	158
		100	33.6	3.4	495	453	147
		<b>200</b>	<b>36.0</b>	<b>7.2</b>	<b>921</b>	<b>830</b>	<b>128</b>
		300	37.8	11.3	1305	1155	115
		400	39.5	15.8	1645	1431	104
		480	40.9	19.6	1881	1616	96
BXKC-56E1501-B-14	80	50	32.4	1.6	313	289	194
		100	33.6	3.4	606	555	180
		<b>200</b>	<b>36.0</b>	<b>7.2</b>	<b>1129</b>	<b>1017</b>	<b>157</b>
		300	37.8	11.3	1599	1415	141
		400	39.5	15.8	2015	1753	128
		480	40.9	19.6	2304	1980	117

Notes for Table 3:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.

# Performance at Commonly Used Drive Currents

**Table 3:** Product Performance at Commonly Used Drive Currents (Continued)

Part Number	Minimum CRI	Drive Current <sup>1</sup> (mA)	Typical Vf Tc = 25°C (V)	Typical Power <sup>2</sup> Tc = 25°C (W)	Typical Pulsed Flux <sup>2</sup> Tc = 25°C (lm)	Typical DC Flux <sup>2</sup> Tc = 85°C (lm)	Typical Efficacy <sup>2</sup> Tc = 25°C (lm/W)
BXKC-65E1501-B-14	80	50	32.4	1.6	319	294	197
		100	33.6	3.4	617	565	184
		<b>200</b>	<b>36.0</b>	<b>7.2</b>	<b>1149</b>	<b>1035</b>	<b>160</b>
		300	37.8	11.3	1628	1441	144
		400	39.5	15.8	2052	1785	130
		480	40.9	19.6	2346	2016	119
BXKC-27E1501-D-13	80	100	16.2	1.6	275	253	170
		200	16.8	3.4	531	486	158
		<b>400</b>	<b>18.0</b>	<b>7.2</b>	<b>990</b>	<b>891</b>	<b>137</b>
		600	18.9	11.3	1401	1240	124
		800	19.7	15.8	1767	1537	112
		960	20.5	19.6	2020	1735	103
BXKC-27G1501-D-13	90.5	100	16.2	1.6	224	207	139
		200	16.8	3.4	434	397	129
		<b>400</b>	<b>18.0</b>	<b>7.2</b>	<b>808</b>	<b>728</b>	<b>112</b>
		600	18.9	11.3	1145	1013	101
		800	19.7	15.8	1443	1256	91
		960	20.5	19.6	1650	1418	84
BXKC-30E1501-D-13	80	100	16.2	1.6	290	268	179
		200	16.8	3.4	561	514	167
		<b>400</b>	<b>18.0</b>	<b>7.2</b>	<b>1046</b>	<b>942</b>	<b>145</b>
		600	18.9	11.3	1481	1310	131
		800	19.7	15.8	1867	1624	118
		960	20.5	19.6	2134	1834	109
BXKC-30G1501-D-13	90	100	16.2	1.6	235	217	145
		200	16.8	3.4	455	416	135
		<b>400</b>	<b>18.0</b>	<b>7.2</b>	<b>847</b>	<b>763</b>	<b>118</b>
		600	18.9	11.3	1199	1061	106
		800	19.7	15.8	1512	1315	96
		960	20.5	19.6	1728	1485	88
BXKC-35E1501-D-13	80	100	16.2	1.6	296	273	183
		200	16.8	3.4	573	524	171
		<b>400</b>	<b>18.0</b>	<b>7.2</b>	<b>1067</b>	<b>961</b>	<b>148</b>
		600	18.9	11.3	1511	1337	133
		800	19.7	15.8	1905	1657	121
		960	20.5	19.6	2178	1871	111

Notes for Table 3:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.

# Performance at Commonly Used Drive Currents

**Table 3:** Product Performance at Commonly Used Drive Currents (Continued)

Part Number	Minimum CRI	Drive Current <sup>1</sup> (mA)	Typical Vf Tc = 25°C (V)	Typical Power <sup>2</sup> Tc = 25°C (W)	Typical Pulsed Flux <sup>2</sup> Tc = 25°C (lm)	Typical DC Flux <sup>2</sup> Tc = 85°C (lm)	Typical Efficacy <sup>2</sup> Tc = 25°C (lm/W)
BXKC-35G1501-D-13	90	100	16.2	1.6	241	223	149
		200	16.8	3.4	467	427	139
		<b>400</b>	<b>18.0</b>	<b>7.2</b>	<b>869</b>	<b>783</b>	<b>121</b>
		600	18.9	11.3	1231	1089	109
		800	19.7	15.8	1551	1349	98
		960	20.5	19.6	1774	1524	90
BXKC-40E1501-D-13	80	100	16.2	1.6	299	276	185
		200	16.8	3.4	578	529	172
		<b>400</b>	<b>18.0</b>	<b>7.2</b>	<b>1077</b>	<b>970</b>	<b>150</b>
		600	18.9	11.3	1526	1350	135
		800	19.7	15.8	1923	1673	122
		960	20.5	19.6	2199	1889	112
BXKC-40G1501-D-13	90	100	16.2	1.6	250	230	154
		200	16.8	3.4	483	442	144
		<b>400</b>	<b>18.0</b>	<b>7.2</b>	<b>899</b>	<b>810</b>	<b>125</b>
		600	18.9	11.3	1273	1127	112
		800	19.7	15.8	1605	1396	102
		960	20.5	19.6	1835	1577	93
BXKC-50E1501-D-14	80	100	16.2	1.6	308	284	190
		200	16.8	3.4	596	545	177
		<b>400</b>	<b>18.0</b>	<b>7.2</b>	<b>1110</b>	<b>1000</b>	<b>154</b>
		600	18.9	11.3	1572	1391	139
		800	19.7	15.8	1981	1723	125
		960	20.5	19.6	2265	1946	115
BXKC-50G1501-D-14	88	100	16.2	1.6	256	236	158
		200	16.8	3.4	495	453	147
		<b>400</b>	<b>18.0</b>	<b>7.2</b>	<b>921</b>	<b>830</b>	<b>128</b>
		600	18.9	11.3	1305	1155	115
		800	19.7	15.8	1645	1431	104
		960	20.5	19.6	1881	1616	96
BXKC-56E1501-D-14	80	100	16.2	1.6	313	289	194
		200	16.8	3.4	606	555	180
		<b>400</b>	<b>18.0</b>	<b>7.2</b>	<b>1129</b>	<b>1017</b>	<b>157</b>
		600	18.9	11.3	1599	1415	141
		800	19.7	15.8	2015	1753	128
		960	20.5	19.6	2304	1980	117

Notes for Table 3:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.

# Performance at Commonly Used Drive Currents

**Table 3:** Product Performance at Commonly Used Drive Currents (Continued)

Part Number	Minimum CRI	Drive Current <sup>1</sup> (mA)	Typical Vf Tc = 25°C (V)	Typical Power <sup>2</sup> Tc = 25°C (W)	Typical Pulsed Flux <sup>2</sup> Tc = 25°C (lm)	Typical DC Flux <sup>2</sup> Tc = 85°C (lm)	Typical Efficacy <sup>2</sup> Tc = 25°C (lm/W)
BXKC-65E1501-D-14	80	100	16.2	1.6	319	294	197
		200	16.8	3.4	617	565	184
		<b>400</b>	<b>18.0</b>	<b>7.2</b>	<b>1149</b>	<b>1035</b>	<b>160</b>
		600	18.9	11.3	1628	1441	144
		800	19.7	15.8	2052	1785	130
		960	20.5	19.6	2346	2016	119
BXKC-27E2000-C-13	80	90	32.8	3.0	486	443	165
		180	34.0	6.1	942	853	154
		<b>350</b>	<b>36.0</b>	<b>12.6</b>	<b>1704</b>	<b>1534</b>	<b>135</b>
		360	36.1	13.0	1749	1572	135
		540	38.1	20.6	2473	2179	120
		720	40.0	28.8	3110	2681	108
BXKC-27G2000-C-13	91	90	32.8	3.0	413	377	140
		180	34.0	6.1	801	725	131
		<b>350</b>	<b>36.0</b>	<b>12.6</b>	<b>1449</b>	<b>1304</b>	<b>115</b>
		360	36.1	13.0	1486	1336	114
		540	38.1	20.6	2102	1852	102
		720	40.0	28.8	2643	2278	92
BXKC-30E2000-C-13	80	90	32.8	3.0	512	466	173
		180	34.0	6.1	992	898	162
		<b>350</b>	<b>36.0</b>	<b>12.6</b>	<b>1794</b>	<b>1615</b>	<b>142</b>
		360	36.1	13.0	1841	1655	142
		540	38.1	20.6	2603	2294	127
		720	40.0	28.8	3273	2822	114
BXKC-30G2000-C-13	91	90	32.8	3.0	435	396	147
		180	34.0	6.1	843	763	138
		<b>350</b>	<b>36.0</b>	<b>12.6</b>	<b>1525</b>	<b>1373</b>	<b>121</b>
		360	36.1	13.0	1565	1406	120
		540	38.1	20.6	2212	1950	108
		720	40.0	28.8	2782	2398	97
BXKC-35E2000-C-13	80	90	32.8	3.0	530	483	179
		180	34.0	6.1	1027	929	168
		<b>350</b>	<b>36.0</b>	<b>12.6</b>	<b>1857</b>	<b>1671</b>	<b>147</b>
		360	36.1	13.0	1905	1713	147
		540	38.1	20.6	2694	2374	131
		720	40.0	28.8	3388	2920	118

Notes for Table 3:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.

# Performance at Commonly Used Drive Currents

**Table 3:** Product Performance at Commonly Used Drive Currents (Continued)

Part Number	Minimum CRI	Drive Current <sup>1</sup> (mA)	Typical Vf Tc = 25°C (V)	Typical Power <sup>2</sup> Tc = 25°C (W)	Typical Pulsed Flux <sup>2</sup> Tc = 25°C (lm)	Typical DC Flux <sup>2</sup> Tc = 85°C (lm)	Typical Efficacy <sup>2</sup> Tc = 25°C (lm/W)
BXKC-35G2000-C-13	90	90	32.8	3.0	450	410	152
		180	34.0	6.1	873	790	142
		<b>350</b>	<b>36.0</b>	<b>12.6</b>	<b>1578</b>	<b>1421</b>	<b>125</b>
		360	36.1	13.0	1619	1456	125
		540	38.1	20.6	2290	2018	111
		720	40.0	28.8	2880	2482	100
BXKC-40E2000-C-13	80	90	32.8	3.0	547	498	185
		180	34.0	6.1	1059	959	173
		<b>350</b>	<b>36.0</b>	<b>12.6</b>	<b>1916</b>	<b>1725</b>	<b>152</b>
		360	36.1	13.0	1966	1767	151
		540	38.1	20.6	2780	2450	135
		720	40.0	28.8	3496	3013	121
BXKC-40G2000-C-13	90	90	32.8	3.0	465	423	157
		180	34.0	6.1	901	815	147
		<b>350</b>	<b>36.0</b>	<b>12.6</b>	<b>1629</b>	<b>1466</b>	<b>129</b>
		360	36.1	13.0	1671	1502	129
		540	38.1	20.6	2363	2082	115
		720	40.0	28.8	2972	2561	103
BXKC-50E2000-C-14	80	90	32.8	3.0	550	501	186
		180	34.0	6.1	1066	965	174
		<b>350</b>	<b>36.0</b>	<b>12.6</b>	<b>1929</b>	<b>1736</b>	<b>153</b>
		360	36.1	13.0	1979	1779	152
		540	38.1	20.6	2798	2466	136
		720	40.0	28.8	3519	3033	122
BXKC-50G2000-C-14	90	90	32.8	3.0	468	426	158
		180	34.0	6.1	906	820	148
		<b>350</b>	<b>36.0</b>	<b>12.6</b>	<b>1639</b>	<b>1475</b>	<b>130</b>
		360	36.1	13.0	1682	1512	129
		540	38.1	20.6	2378	2096	116
		720	40.0	28.8	2991	2578	104
BXKC-56E2000-C-14	80	90	32.8	3.0	550	501	186
		180	34.0	6.1	1066	965	174
		<b>350</b>	<b>36.0</b>	<b>12.6</b>	<b>1929</b>	<b>1736</b>	<b>153</b>
		360	36.1	13.0	1979	1779	152
		540	38.1	20.6	2798	2466	136
		720	40.0	28.8	3519	3033	122

Notes for Table 3:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. Typical stabilized DC performance values are provided as reference only and are not a guarantee of performance.

# Performance at Commonly Used Drive Currents

**Table 3:** Product Performance at Commonly Used Drive Currents (Continued)

Part Number	Minimum CRI	Drive Current <sup>1</sup> (mA)	Typical Vf Tc = 25°C (V)	Typical Power <sup>2</sup> Tc = 25°C (W)	Typical Pulsed Flux <sup>2</sup> Tc = 25°C (lm)	Typical DC Flux <sup>2</sup> Tc = 85°C (lm)	Typical Efficacy <sup>2</sup> Tc = 25°C (lm/W)
BXKC-65E2000-C-14	80	90	32.8	3.0	550	501	186
		180	34.0	6.1	1066	965	174
		<b>350</b>	<b>36.0</b>	<b>12.6</b>	<b>1929</b>	<b>1736</b>	<b>153</b>
		360	36.1	13.0	1979	1779	152
		540	38.1	20.6	2798	2466	136
		720	40.0	28.8	3519	3033	122

Notes for Table 3:

1. Alternate drive currents are provided for reference only and are not a guarantee of performance.
2. 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	Drive Current (mA)	Forward Voltage Pulsed, T <sub>c</sub> = 25°C (V) <sup>1,2,3</sup>			Typical Coefficient of Forward Voltage <sup>4</sup> Vf/Tc (mV/°C)	Typical Thermal Resistance Junction to Case <sup>5,6</sup> Rj-c (°C/W)	Driver Selection Voltages <sup>6</sup> (V)	
		Minimum	Typical	Maximum			Vf Min. Hot <sup>7</sup> Tc = 105°C (V)	Vf Max. Cold <sup>7</sup> Tc = -40°C (V)
BXKC-xxx150x-B-1x	200	32.4	36.0	39.2	10.5	1.0	31.6	40.2
BXKC-xxx150x-D-1x	400	16.2	18.0	19.6	10.5	1.0	15.8	20.1
BXKC-xxx2000-C-1x	450	32.4	36.0	39.2	13.7	0.57	31.8	40.2

Notes for Table 4:

1. Parts are tested in pulsed conditions, T<sub>c</sub> = 25°C. Pulse width is 10ms.
2. Voltage minimum and maximum are provided for reference only and are not a guarantee of performance.
3. Bridgelux maintains a tester tolerance of ± 0.10V on forward voltage measurements.
4. Typical coefficient of forward voltage tolerance is ± 0.1mV for nominal current.
5. Thermal resistance values are based from test data of a 3000K 80 CRI product.
6. 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.
7. Vf 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.

# 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 Case Temperature <sup>1</sup> ( $T_c$ )	105°C			
Soldering Temperature <sup>3</sup>	300°C or lower for a maximum of 6 seconds			
	BXKC-xxx150x-B-1x	BXKC-xxx150x-D-1x	BXKC-xxx2000-C-1x	
Maximum Drive Current <sup>2,4</sup>	480 mA	960 mA	720 mA	
Maximum Reverse Voltage <sup>5</sup>	-60 V	-30 V	-60 V	

Notes for Table 5:

1. For IEC 62717 requirement, please consult your Bridgelux sales representative.
2. Arrays may be driven at higher currents however lumen maintenance may be reduced.
3. See Bridgelux Application Notes for more information.
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: Forward Voltage vs. Forward Current

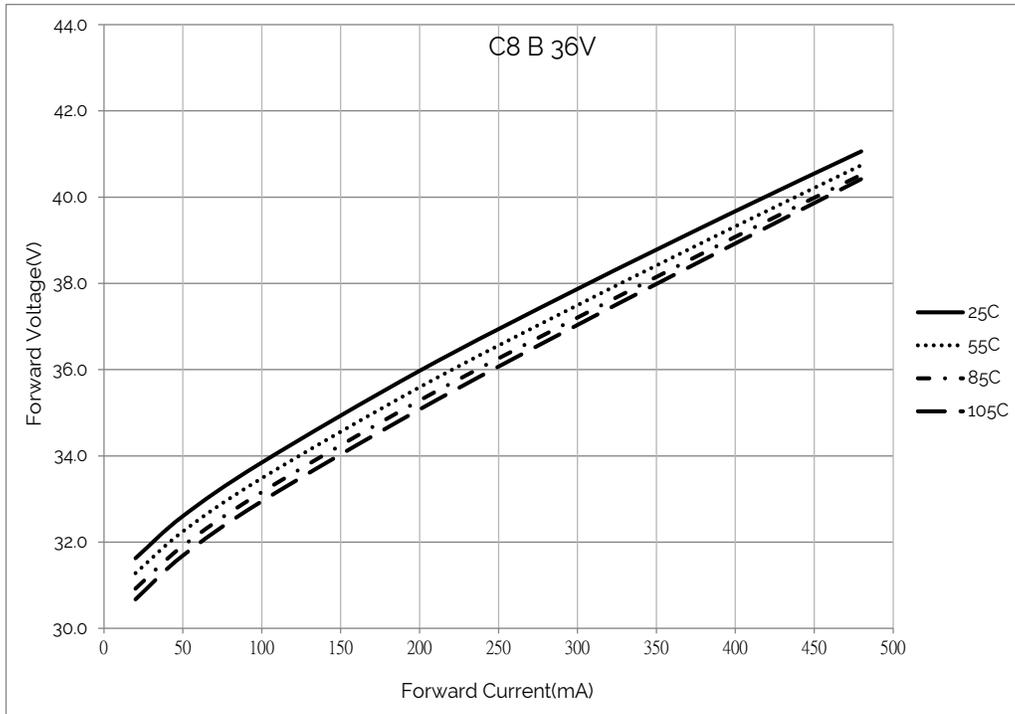
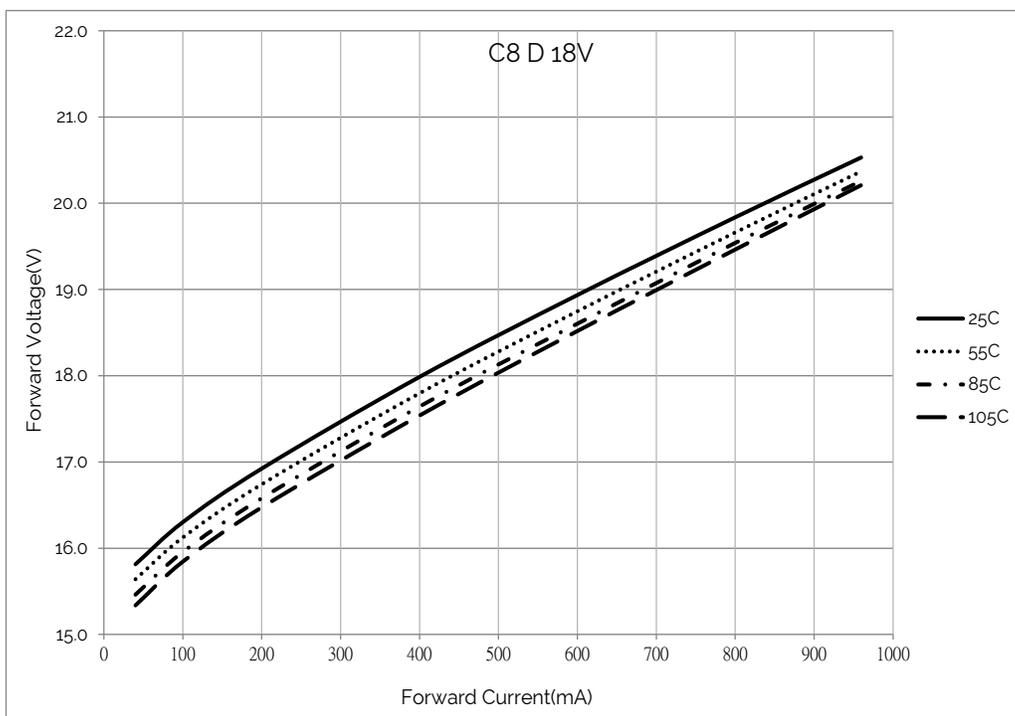


Figure 2: Forward Voltage vs. Forward Current



# Performance Curves

Figure 3: Forward Voltage vs. Forward Current

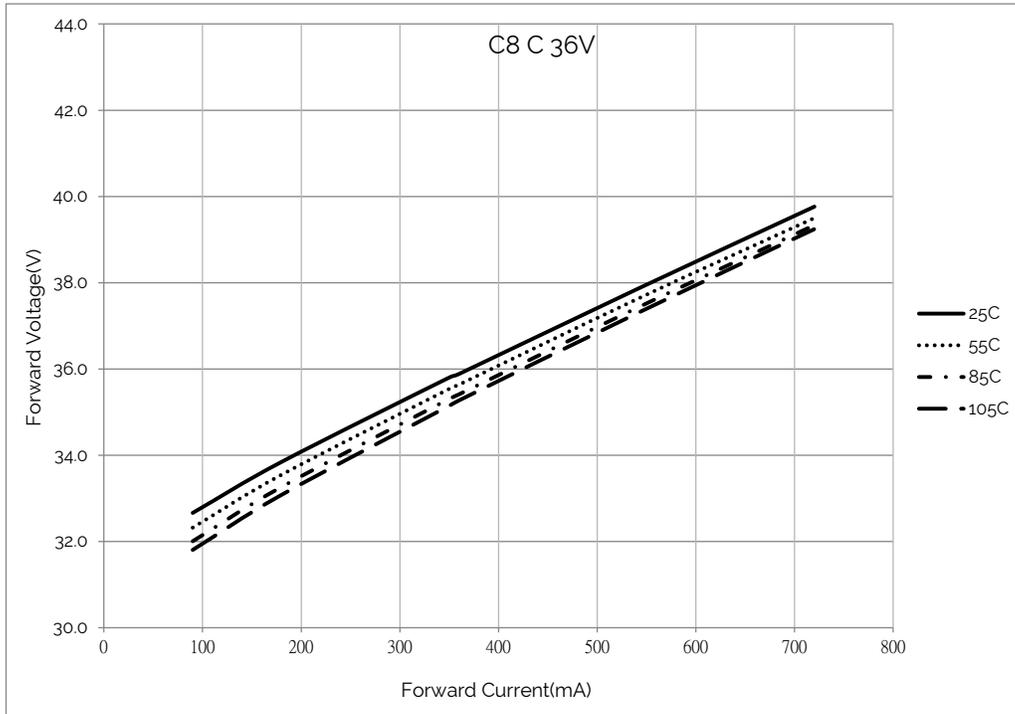
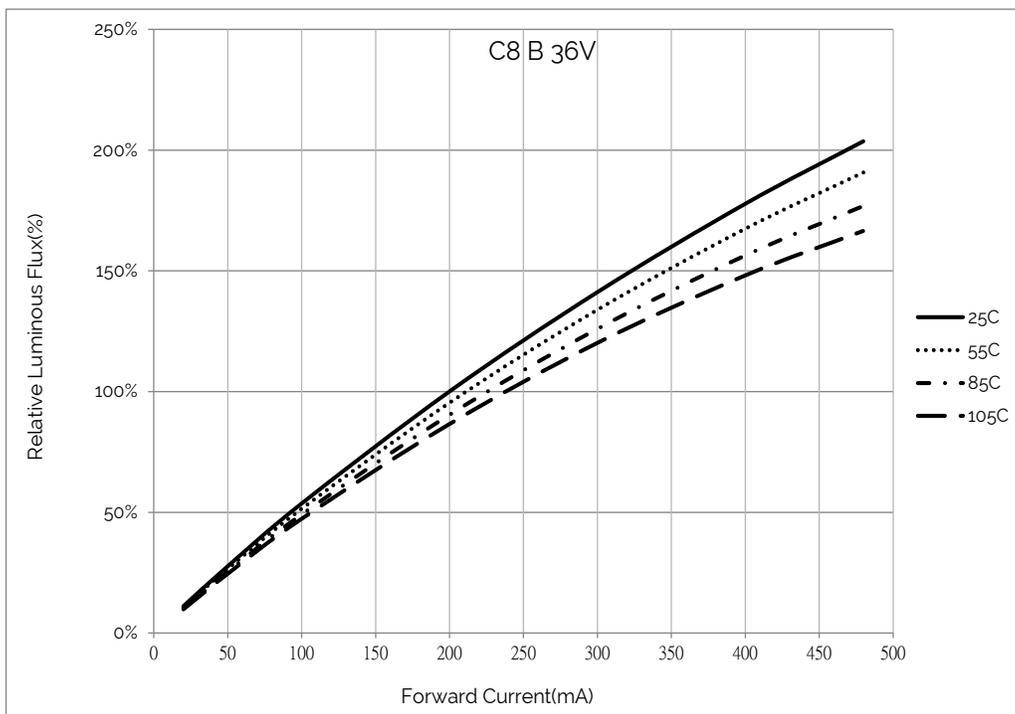
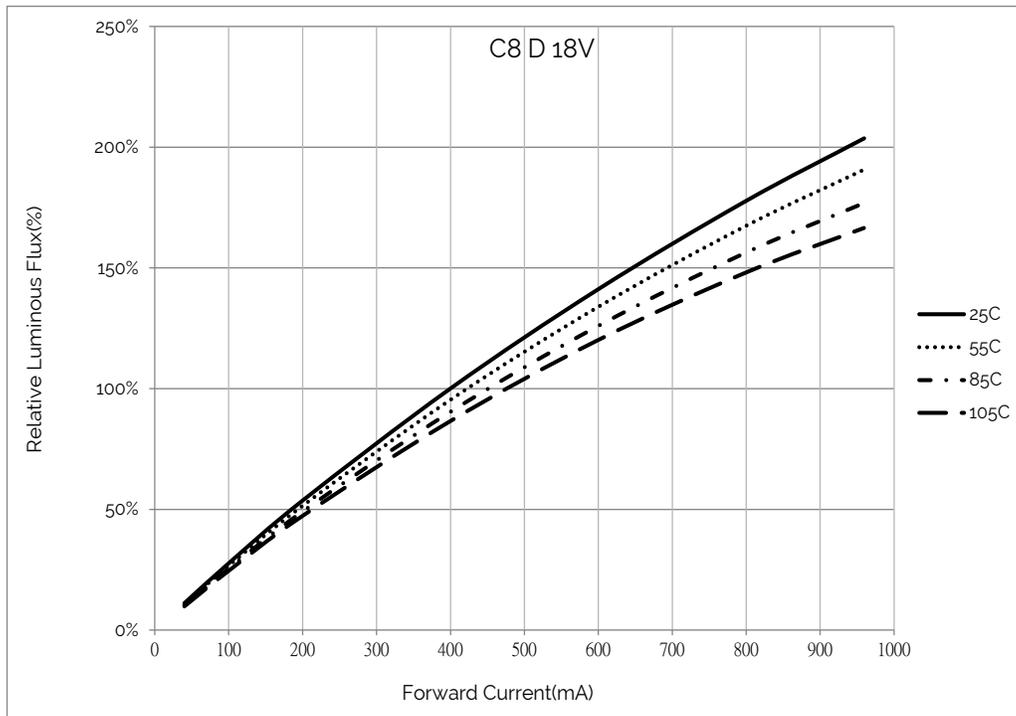


Figure 4: Relative Luminous Flux vs. Drive Current

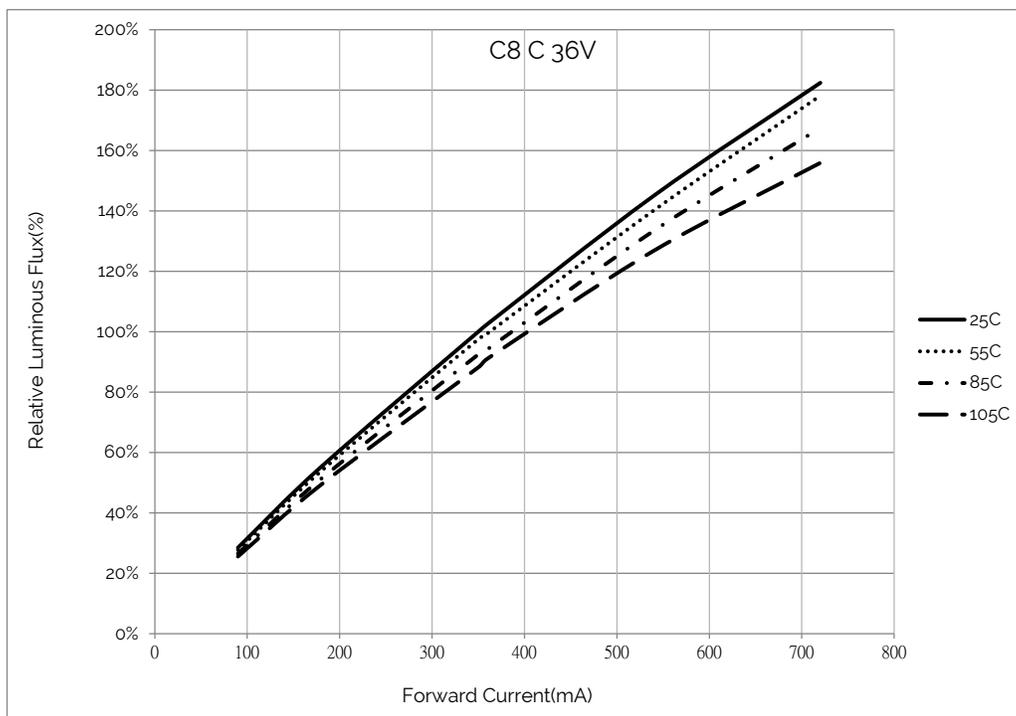


# Performance Curves

**Figure 5: Relative Luminous Flux vs. Drive Current**



**Figure 6: Relative Luminous Flux vs. Drive Current**

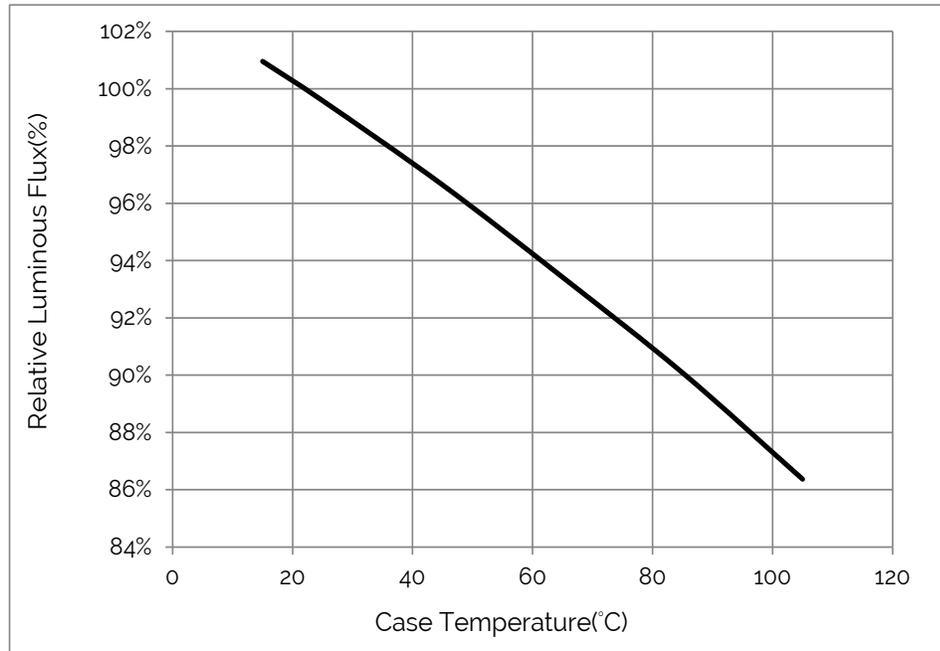


Notes for Figure 4 to Figure 6:

1. Characteristics shown based on 3000K and 80 CRI.
2. For other color SKUs, the relative luminous will vary. Please contact your Bridgelux sales representative for more information.

# Performance Curves

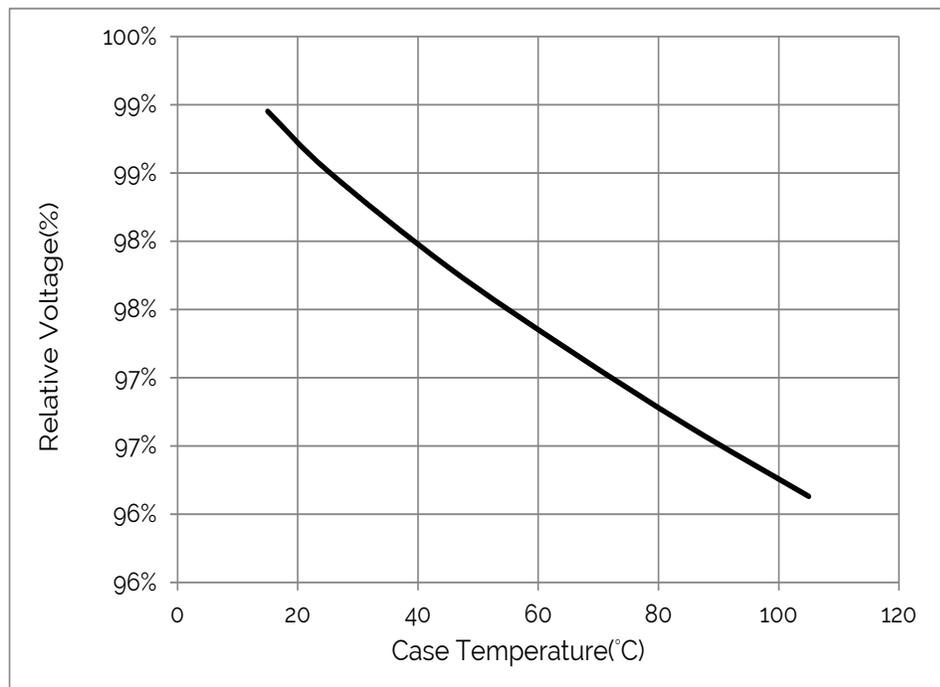
**Figure 7: Relative Luminous Flux vs. Case Temperature**



Notes for Figure 7:

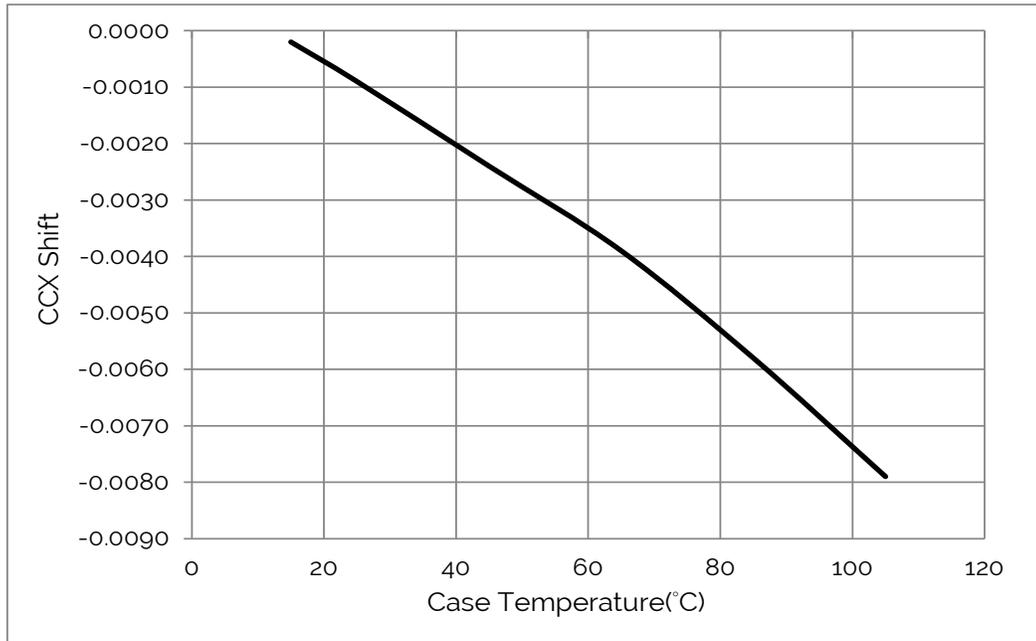
1. Characteristics based on 3000K and 80 CRI.
2. For other color SKUs, the relative luminous will vary. Please contact your Bridgelux sales representative for more information.

**Figure 8: Relative Voltage vs. Case Temperature**

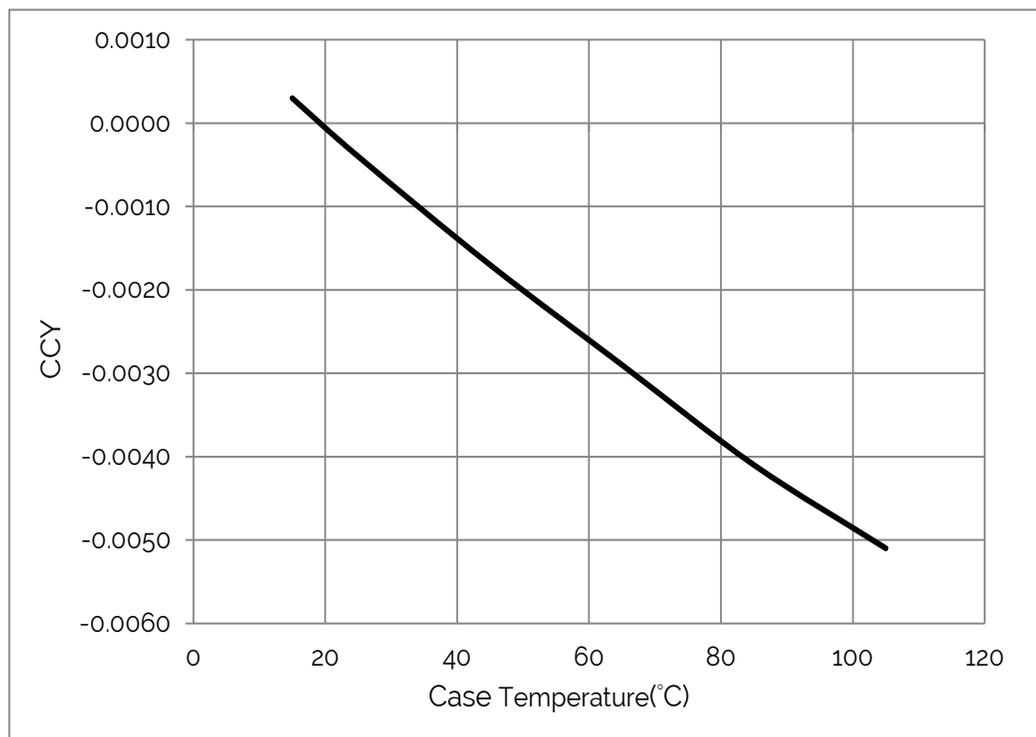


# Performance Curves

**Figure 9: Typical DC ccx Shift vs. Case Temperature**



**Figure 10: Typical DC ccy Shift vs. Case Temperature**

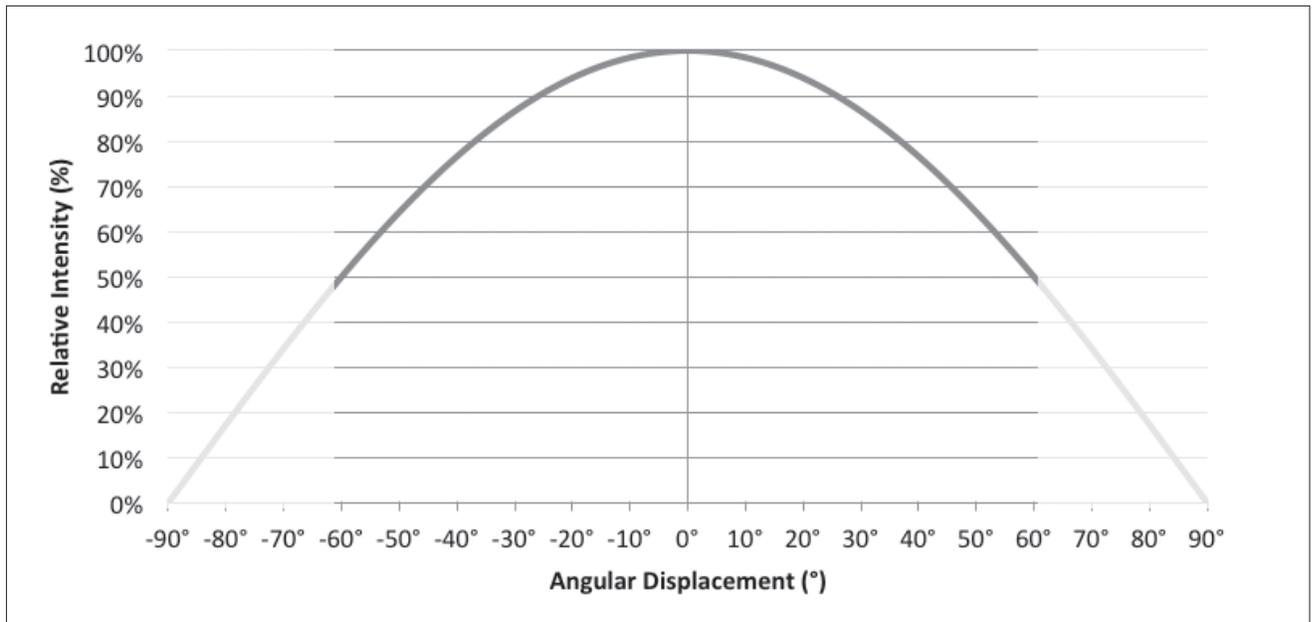


Notes for Figure 9 and Figure 10:

1. Characteristics shown based on 3000K and 80 CRI.
2. For other color SKUs, the shift in color will vary. Please contact your Bridgelux sales representative for more information.

# Typical Radiation Pattern

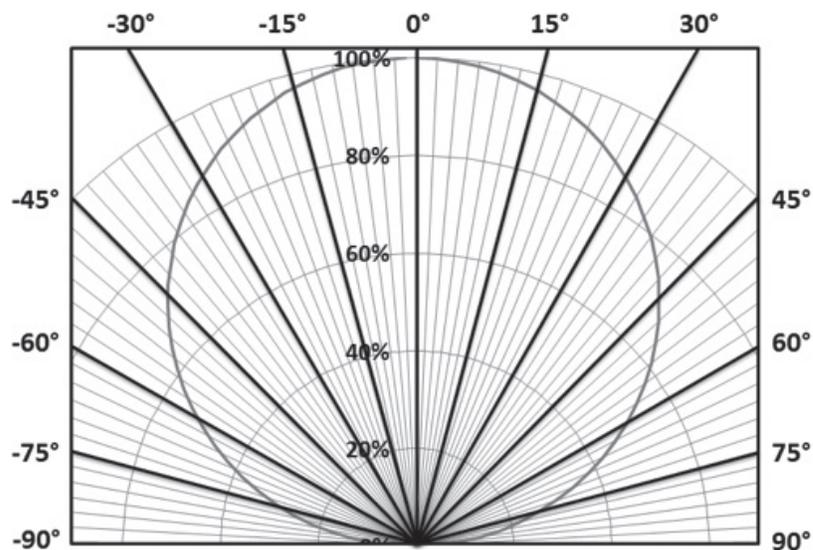
**Figure 11: Typical Spatial Radiation Pattern**



Notes for Figure 11:

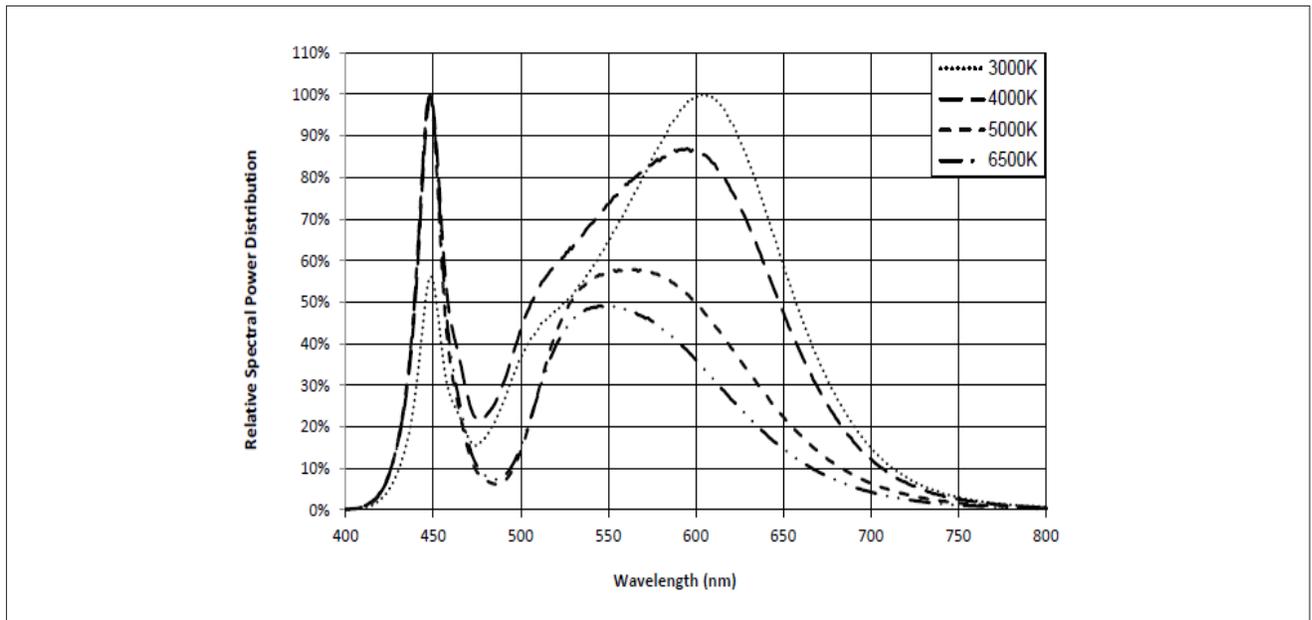
1. Typical viewing angle is 120°.
2. The viewing angle is defined as the off axis angle from the centerline where intensity is ½ of the peak value.

**Figure 12: Typical Polar Radiation Pattern**



# Typical Color Spectrum

Figure 13: Typical Color Spectrum



Notes for Figure 13:

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.

# Operating Limits

Figure 14: Operating Limits

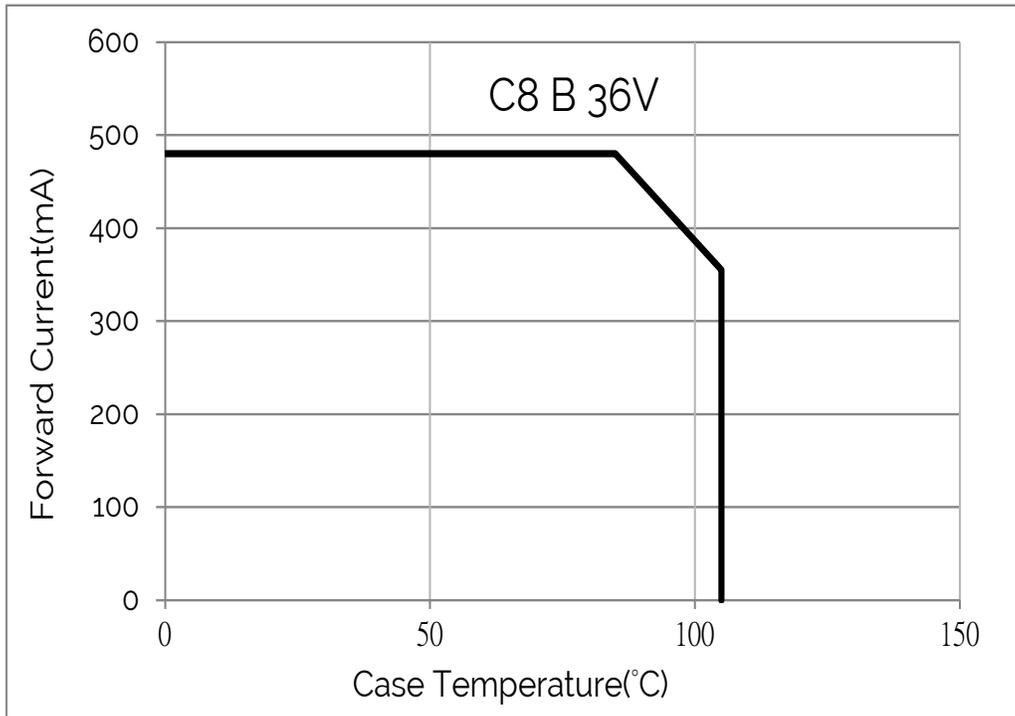
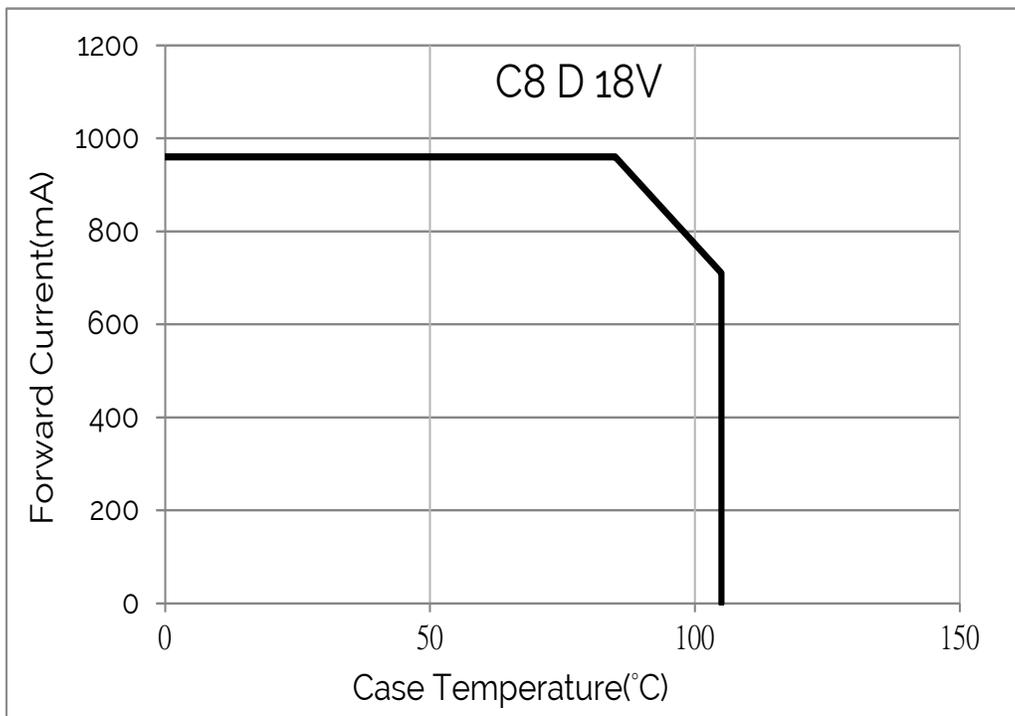
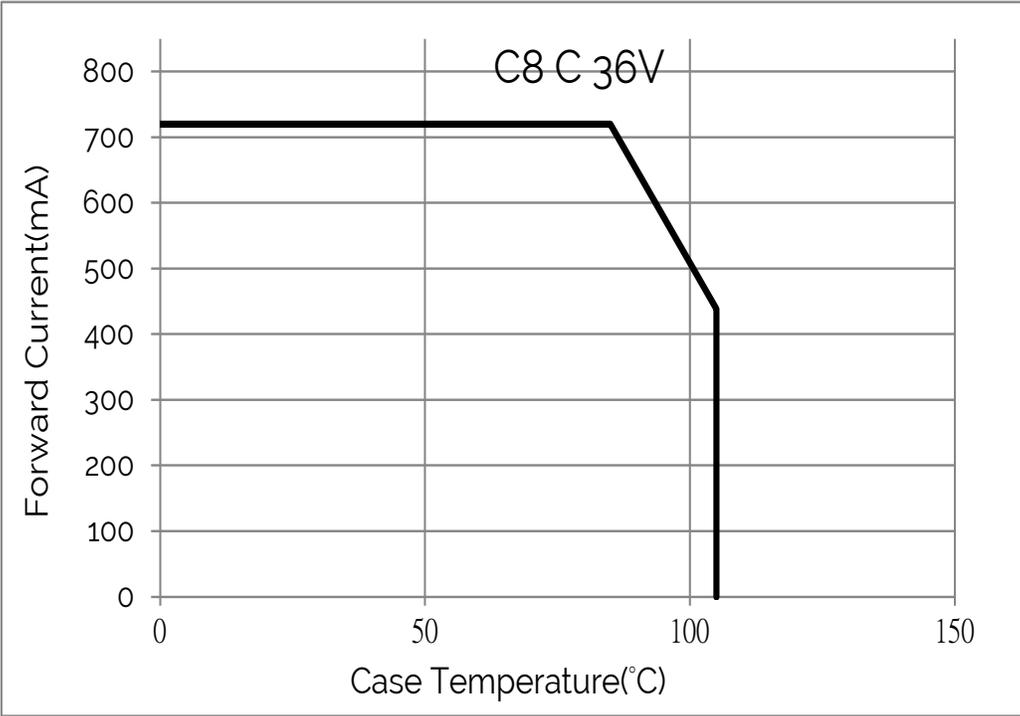


Figure 15: Operating Limits



# Operating Limits

Figure 16: Operating Limits



# Color Binning Information

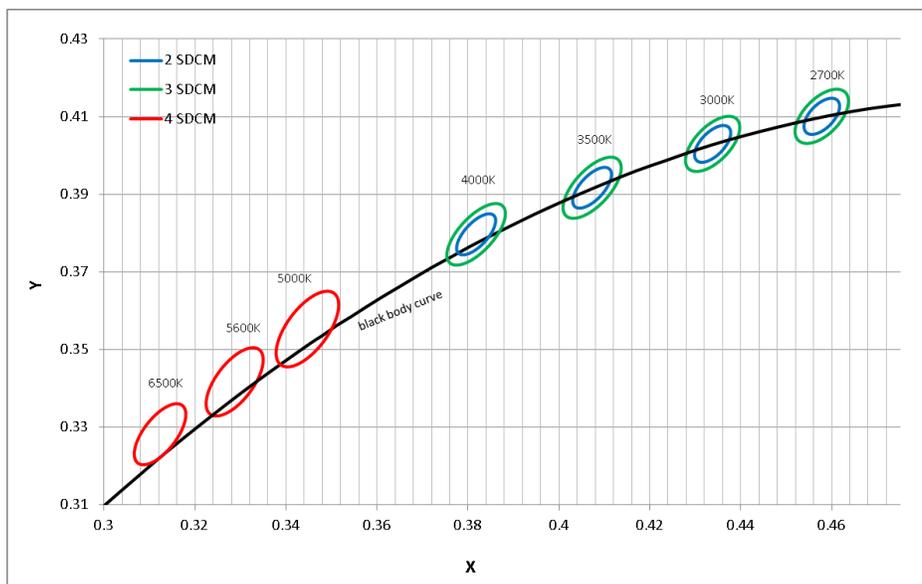
**Table 6:** xy Bin Coordinates and Associated Typical CCT

CCT	Center Point		Degree	3 step		4 step	
	x	y	(°)	a	b	a	b
2700K	0.4578	0.4101	53.700	0.0081	0.0042	N/A	N/A
3000K	0.4338	0.403	53.217	0.0083	0.0041	N/A	N/A
3500K	0.4073	0.3917	54.000	0.0093	0.0041	N/A	N/A
4000K	0.3818	0.3797	53.717	0.0094	0.0040	N/A	N/A
5000K	0.3447	0.3553	59.617	N/A	N/A	0.0110	0.0047
5600K	0.3287	0.3417	59.060	N/A	N/A	0.0099	0.0042
6500K	0.3123	0.3282	58.567	N/A	N/A	0.0089	0.0038

Notes for Table 6:

- 2700K \3000K\3500K\4000K product is cold targeted to  $T_c = 25^\circ\text{C}$
- 5000K \5600K\6500K product is hot targeted to  $T_c = 85^\circ\text{C}$

**Figure 17: Graph of Test Bins in xy Color Space**



Notes for Figure 17:

- DC Test Conditions at  $T_c = 85^\circ\text{C}$ .
- Bridgelux maintains a tolerance of  $\pm 0.007$  on x and y color coordinates in the CIE 1931 color space.



# Packaging and Labeling

Figure 19: Packaging and Labeling



# Packaging and Labeling

**Figure 20: Laser Marking**

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.



Customer Use- 2D Barcode Scannable barcode provides product part number and other Bridgelux internal production information.

30E1501B 13

Customer Use- Product part number

# Design Resources

## LM80

LM80 testing has been completed and the LM80 report is now available. Please contact your Bridgelux sales representative for more information.

## 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 AN31 for additional information.

### CAUTION: EYE SAFETY

The Bridgelux Dual Color LED Array emits visible light, that, under certain circumstances, could be harmful to the eye. Proper safeguards must be used.

### CAUTION: RISK OF BURN

Do not touch the Bridgelux Dual Color LED array during operation. Allow the array to cool for a sufficient period of time before handling. The Bridgelux Dual Color 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). Use the mechanical features of the LED array housing, edges and/or mounting holes to locate and secure optical devices as needed.

## 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: 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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