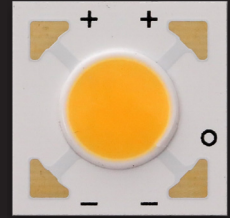


# Bridgelux® E6 LED Array

Product Data Sheet DS440

# Introduction

## E Series



The E Series LED array products deliver high quality of light in a compact and cost-effective solid-state lighting package. These chip-on-board (COB) arrays are available in multiple performance and electrical configuration options, simplifying the design-in process. These high flux density light sources are designed to support a wide range of highly competitive directional luminaires and replacement lamps for commercial and residential applications.

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

### Features

- Wide range of performance from 370 to 1080 lm with CCT options from 2700K – 6500K
- Compact, high flux density light source
- Uniform, high quality illumination
- Streamlined thermal path
- ENERGY STAR® / ANSI compliant color binning structure with 3 and 5 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

- Supports many general lighting applications
- Enables tight beam control when used with secondary optics
- Clean white light without pixilation
- Low thermal resistance
- Uniform, consistent white light
- Lower operating costs
- Aligns with industry standard drivers to reduce system costs
- Easy to use with daylight and motion detectors to enable increased energy savings
- Environmentally friendly

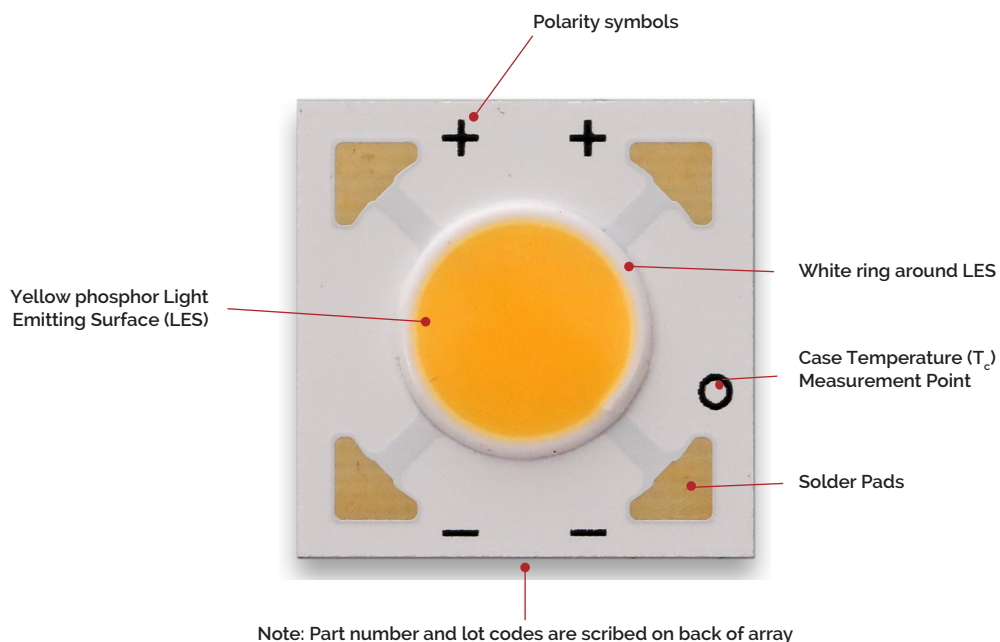


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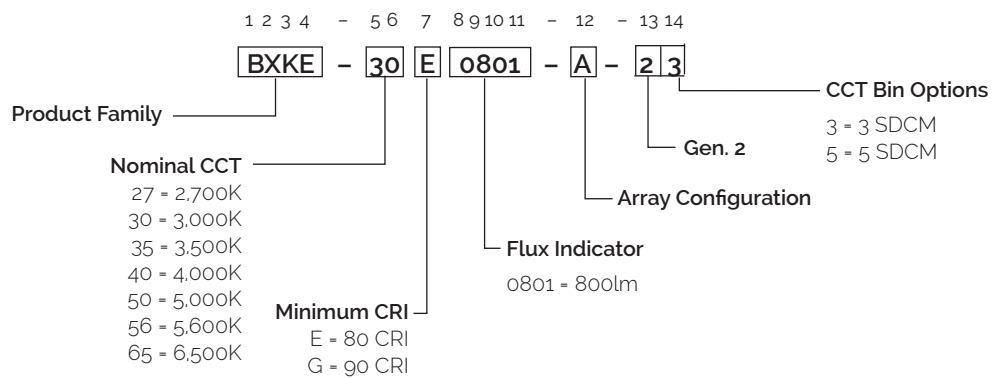
# Product Feature Map

Bridgelux arrays are fully engineered devices that provide consistent thermal and optical performance on an engineered mechanical platform. The E Series arrays incorporate several features to simplify design integration and assembly.



## Product Nomenclature

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



# Product Selection Guide

The following product configurations are available:

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

Part Number	Nominal CCT <sup>1</sup> (K)	CRI <sup>2</sup>	Nominal Drive Current <sup>3</sup> (mA)	Typical Pulsed Flux <sup>4,5,6</sup> $T_j = 25^\circ\text{C}$ (lm)	Minimum Pulsed Flux <sup>6,7</sup> $T_j = 25^\circ\text{C}$ (lm)	Typical $V_f$ (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXKE-27E0801-A-2x	2700	80	100	443	376	36.0	3.6	123
BXKE-27E0801-B-2x	2700	80	200	443	376	18.0	3.6	123
BXKE-27E0801-D-2x	2700	80	400	443	376	9.0	3.6	123
BXKE-27G0801-A-2x	2700	90	100	368	313	36.0	3.6	102
BXKE-27G0801-B-2x	2700	90	200	368	313	18.0	3.6	102
BXKE-27G0801-D-2x	2700	90	400	368	313	9.0	3.6	102
BXKE-30E0801-A-2x	3000	80	100	461	392	36.0	3.6	128
BXKE-30E0801-B-2x	3000	80	200	461	392	18.0	3.6	128
BXKE-30E0801-D-2x	3000	80	400	461	392	9.0	3.6	128
BXKE-30G0801-A-2x	3000	90	100	383	325	36.0	3.6	106
BXKE-30G0801-B-2x	3000	90	200	383	325	18.0	3.6	106
BXKE-30G0801-D-2x	3000	90	400	383	325	9.0	3.6	106
BXKE-35E0801-A-2x	3500	80	100	475	404	36.0	3.6	132
BXKE-35E0801-B-2x	3500	80	200	475	404	18.0	3.6	132
BXKE-35E0801-D-2x	3500	80	400	475	404	9.0	3.6	132
BXKE-35G0801-A-2x	3500	90	100	397	337	36.0	3.6	110
BXKE-35G0801-B-2x	3500	90	200	397	337	18.0	3.6	110
BXKE-35G0801-D-2x	3500	90	400	397	337	9.0	3.6	110
BXKE-40E0801-A-2x	4000	80	100	477	406	36.0	3.6	133
BXKE-40E0801-B-2x	4000	80	200	477	406	18.0	3.6	133
BXKE-40E0801-D-2x	4000	80	400	477	406	9.0	3.6	133
BXKE-40G0801-A-2x	4000	90	100	412	350	36.0	3.6	115
BXKE-40G0801-B-2x	4000	90	200	412	350	18.0	3.6	115
BXKE-40G0801-D-2x	4000	90	400	412	350	9.0	3.6	115
BXKE-50E0801-A-2x	5000	80	100	494	420	36.0	3.6	137
BXKE-50E0801-B-2x	5000	80	200	494	420	18.0	3.6	137
BXKE-50E0801-D-2x	5000	80	400	494	420	9.0	3.6	137
BXKE-50G0801-A-2x	5000	90	100	421	358	36.0	3.6	117
BXKE-50G0801-B-2x	5000	90	200	421	358	18.0	3.6	117
BXKE-50G0801-D-2x	5000	90	400	421	358	9.0	3.6	117
BXKE-56E0801-A-2x	5600	80	100	512	435	36.0	3.6	142
BXKE-56E0801-B-2x	5600	80	200	512	435	18.0	3.6	142
BXKE-56E0801-D-2x	5600	80	400	512	435	9.0	3.6	142
BXKE-65E0801-A-2x	6500	80	100	520	442	36.0	3.6	145
BXKE-65E0801-B-2x	6500	80	200	520	442	18.0	3.6	145
BXKE-65E0801-D-2x	6500	80	400	520	442	9.0	3.6	145

Notes for Table 1:

- Nominal CCT as defined by ANSI C78.377-2011.
- CRI values are minimums. Minimum Rg value for 80 CRI products is 0, the minimum Rg for 90 CRI products is 50.
- 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) =  $25^\circ\text{C}$ .
- 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.

# Product Selection Guide

**Table 2:** Selection Guide, Pulsed Measurement Data ( $T_j = 85^\circ\text{C}$ )<sup>4,5</sup>

Part Number	Nominal CCT <sup>1</sup> (K)	CRI <sup>2</sup>	Nominal Drive Current <sup>3</sup> (mA)	Typical Pulsed Flux <sup>4,5</sup> $T_j = 85^\circ\text{C}$ (lm)	Minimum Pulsed Flux <sup>6</sup> $T_j = 85^\circ\text{C}$ (lm)	Typical $V_f$ (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXKE-27E0801-A-2x	2700	80	100	390	331	34.7	3.5	111
BXKE-27E0801-B-2x	2700	80	200	390	331	17.4	3.5	111
BXKE-27E0801-D-2x	2700	80	400	390	331	8.7	3.5	111
BXKE-27G0801-A-2x	2700	90	100	324	275	34.7	3.5	93
BXKE-27G0801-B-2x	2700	90	200	324	275	17.4	3.5	93
BXKE-27G0801-D-2x	2700	90	400	324	275	8.7	3.5	93
BXKE-30E0801-A-2x	3000	80	100	406	345	34.7	3.5	116
BXKE-30E0801-B-2x	3000	80	200	406	345	17.4	3.5	116
BXKE-30E0801-D-2x	3000	80	400	406	345	8.7	3.5	116
BXKE-30G0801-A-2x	3000	90	100	337	286	34.7	3.5	96
BXKE-30G0801-B-2x	3000	90	200	337	286	17.4	3.5	96
BXKE-30G0801-D-2x	3000	90	400	337	286	8.7	3.5	96
BXKE-35E0801-A-2x	3500	80	100	418	355	34.7	3.5	119
BXKE-35E0801-B-2x	3500	80	200	418	355	17.4	3.5	119
BXKE-35E0801-D-2x	3500	80	400	418	355	8.7	3.5	119
BXKE-35G0801-A-2x	3500	90	100	349	297	34.7	3.5	100
BXKE-35G0801-B-2x	3500	90	200	349	297	17.4	3.5	100
BXKE-35G0801-D-2x	3500	90	400	349	297	8.7	3.5	100
BXKE-40E0801-A-2x	4000	80	100	420	357	34.7	3.5	120
BXKE-40E0801-B-2x	4000	80	200	420	357	17.4	3.5	120
BXKE-40E0801-D-2x	4000	80	400	420	357	8.7	3.5	120
BXKE-40G0801-A-2x	4000	90	100	363	308	34.7	3.5	104
BXKE-40G0801-B-2x	4000	90	200	363	308	17.4	3.5	104
BXKE-40G0801-D-2x	4000	90	400	363	308	8.7	3.5	104
BXKE-50E0801-A-2x	5000	80	100	435	370	34.7	3.5	124
BXKE-50E0801-B-2x	5000	80	200	435	370	17.4	3.5	124
BXKE-50E0801-D-2x	5000	80	400	435	370	8.7	3.5	124
BXKE-50G0801-A-2x	5000	90	100	370	315	34.7	3.5	106
BXKE-50G0801-B-2x	5000	90	200	370	315	17.4	3.5	106
BXKE-50G0801-D-2x	5000	90	400	370	315	8.7	3.5	106

Notes for Table 2:

- Nominal CCT as defined by ANSI C78.377-2011.
- CRI values are minimums. Minimum Rg value for 80 CRI products is 0, the minimum Rg for 90 CRI products is 50.
- Drive current is referred to as nominal drive current.
- Typical Pulsed performance values are provided as reference only and are not a guarantee of performance.
- Typical performance is estimated based on operation under Pulsed with LED array mounted onto a heat sink with thermal interface material and the  $T_c = T_j$  temperature maintained at  $85^\circ\text{C}$ . 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.

# Product Selection Guide

**Table 2:** Selection Guide, Pulsed Measurement Data ( $T_j = 85^\circ\text{C}$ )<sup>4,5</sup>

Part Number	Nominal CCT <sup>1</sup> (K)	CRI <sup>2</sup>	Nominal Drive Current <sup>3</sup> (mA)	Typical Pulsed Flux <sup>4,5</sup> $T_j = 85^\circ\text{C}$ (lm)	Minimum Pulsed Flux <sup>6</sup> $T_j = 85^\circ\text{C}$ (lm)	Typical $V_f$ (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXKE-56E0801-A-2x	5600	80	100	451	383	34.7	3.5	129
BXKE-56E0801-B-2x	5600	80	200	451	383	17.4	3.5	129
BXKE-56E0801-D-2x	5600	80	400	451	383	8.7	3.5	129
BXKE-65E0801-A-2x	6500	80	100	457	389	34.7	3.5	131
BXKE-65E0801-B-2x	6500	80	200	457	389	17.4	3.5	131
BXKE-65E0801-D-2x	6500	80	400	457	389	8.7	3.5	131

Notes for Table 2:

1. Nominal CCT as defined by ANSI C78.377-2011.
2. CRI values are minimums. Minimum Rg value for 80 CRI products is 0, the minimum Rg for 90 CRI products is 50.
3. Drive current is referred to as nominal drive current.
4. Typical Pulsed performance values are provided as reference only and are not a guarantee of performance.
5. Typical performance is estimated based on operation under Pulsed with LED array mounted onto a heat sink with thermal interface material and the  $T_j - T_c$  temperature maintained at  $85^\circ\text{C}$ . 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.
6. 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

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

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

Part Number	CRI	Drive Current <sup>1</sup> (mA)	Typical V <sub>f</sub> T <sub>j</sub> = 25°C (V)	Typical Power T <sub>j</sub> = 25°C (W)	Typical Flux <sup>2</sup> T <sub>j</sub> = 25°C (lm)	Typical Pulsed Flux <sup>3</sup> T <sub>j</sub> = 85°C (lm)	Typical Efficacy T <sub>j</sub> = 25°C (lm/W)
BXKE-27E0801-A-x	80	80	34.7	2.8	368	324	132
		90	35.4	3.2	406	357	127
		<b>100</b>	<b>36.0</b>	<b>3.6</b>	<b>443</b>	<b>390</b>	<b>123</b>
		110	36.6	4.0	480	422	119
		240	40.7	9.8	922	811	94
BXKE-27E0801-B-2x	80	160	17.4	2.8	368	324	132
		180	17.7	3.2	406	357	127
		<b>200</b>	<b>18.0</b>	<b>3.6</b>	<b>443</b>	<b>390</b>	<b>123</b>
		220	18.3	4.0	480	422	119
		480	20.4	9.8	922	811	94
BXKE-27E0801-D-2x	80	320	8.7	2.8	368	324	132
		360	8.8	3.2	406	357	127
		<b>400</b>	<b>9.0</b>	<b>3.6</b>	<b>443</b>	<b>390</b>	<b>123</b>
		440	9.2	4.0	480	422	119
		960	10.2	9.8	922	811	94
BXKE-27G0801-A-2x	90	80	34.7	2.8	306	269	109
		90	35.4	3.2	337	297	105
		<b>100</b>	<b>36.0</b>	<b>3.6</b>	<b>368</b>	<b>324</b>	<b>102</b>
		110	36.6	4.0	399	351	100
		240	40.7	9.8	767	675	78
BXKE-27G0801-B-2x	90	160	17.4	2.8	306	269	109
		180	17.7	3.2	337	297	105
		<b>200</b>	<b>18.0</b>	<b>3.6</b>	<b>368</b>	<b>324</b>	<b>102</b>
		220	18.3	4.0	399	351	100
		480	20.4	9.8	767	675	78
BXKE-27G0801-D-2x	90	320	8.7	2.8	306	269	109
		360	8.8	3.2	337	297	105
		<b>400</b>	<b>9.0</b>	<b>3.6</b>	<b>368</b>	<b>324</b>	<b>102</b>
		440	9.2	4.0	399	351	100
		960	10.2	9.8	767	675	78
BXKE-30E0801-A-2x	80	80	34.7	2.8	383	337	138
		90	35.4	3.2	422	372	133
		<b>100</b>	<b>36.0</b>	<b>3.6</b>	<b>461</b>	<b>406</b>	<b>128</b>
		110	36.6	4.0	500	440	124
		240	40.7	9.8	960	845	98

Notes for Table 3:

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

Part Number	CRI	Drive Current <sup>1</sup> (mA)	Typical V <sub>f</sub> T <sub>j</sub> = 25°C (V)	Typical Power T <sub>j</sub> = 25°C (W)	Typical Flux <sup>2</sup> T <sub>j</sub> = 25°C (lm)	Typical Pulsed Flux <sup>3</sup> T <sub>j</sub> = 85°C (lm)	Typical Efficacy T <sub>j</sub> = 25°C (lm/W)
BXKE-30E0801-B-2x	80	160	17.4	2.8	383	337	138
		180	17.7	3.2	422	372	133
		<b>200</b>	<b>18.0</b>	<b>3.6</b>	<b>461</b>	<b>406</b>	<b>128</b>
		220	18.3	4.0	500	440	124
		480	20.4	9.8	960	845	98
BXKE-30E0801-D-2x	80	320	8.7	2.8	383	337	138
		360	8.8	3.2	422	372	133
		<b>400</b>	<b>9.0</b>	<b>3.6</b>	<b>461</b>	<b>406</b>	<b>128</b>
		440	9.2	4.0	500	440	124
		960	10.2	9.8	960	845	98
BXKE-30G0801-A-2x	90	80	34.7	2.8	318	280	114
		90	35.4	3.2	350	308	109
		<b>100</b>	<b>36.0</b>	<b>3.6</b>	<b>383</b>	<b>337</b>	<b>106</b>
		110	36.6	4.0	415	365	104
		240	40.7	9.8	797	701	81
BXKE-30G0801-B-2x	90	160	17.4	2.8	318	280	114
		180	17.7	3.2	350	308	109
		<b>200</b>	<b>18.0</b>	<b>3.6</b>	<b>383</b>	<b>337</b>	<b>106</b>
		220	18.3	4.0	415	365	104
		480	20.4	9.8	797	701	81
BXKE-30G0801-D-2x	90	320	8.7	2.8	318	280	114
		360	8.8	3.2	350	308	109
		<b>400</b>	<b>9.0</b>	<b>3.6</b>	<b>383</b>	<b>337</b>	<b>106</b>
		440	9.2	4.0	415	365	104
		960	10.2	9.8	797	701	81
BXKE-35E0801-A-2x	80	80	34.7	2.8	395	347	142
		90	35.4	3.2	435	383	137
		<b>100</b>	<b>36.0</b>	<b>3.6</b>	<b>475</b>	<b>418</b>	<b>132</b>
		110	36.6	4.0	515	453	128
		240	40.7	9.8	989	870	101
BXKE-35E0801-B-2x	80	160	17.4	2.8	395	347	142
		180	17.7	3.2	435	383	137
		<b>200</b>	<b>18.0</b>	<b>3.6</b>	<b>475</b>	<b>418</b>	<b>132</b>
		220	18.3	4.0	515	453	128
		480	20.4	9.8	989	870	101
BXKE-35E0801-D-2x	80	320	8.7	2.8	395	347	142
		360	8.8	3.2	435	383	137
		<b>400</b>	<b>9.0</b>	<b>3.6</b>	<b>475</b>	<b>418</b>	<b>132</b>
		440	9.2	4.0	515	453	128
		960	10.2	9.8	989	870	101
BXKE-35G0801-A-2x	90	80	34.7	2.8	329	290	119
		90	35.4	3.2	363	319	114
		<b>100</b>	<b>36.0</b>	<b>3.6</b>	<b>397</b>	<b>349</b>	<b>110</b>
		110	36.6	4.0	430	378	107
		240	40.7	9.8	826	727	85

Notes for Table 3:

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

Part Number	CRI	Drive Current <sup>1</sup> (mA)	Typical V <sub>f</sub> T <sub>j</sub> = 25°C (V)	Typical Power T <sub>j</sub> = 25°C (W)	Typical Flux <sup>2</sup> T <sub>j</sub> = 25°C (lm)	Typical Pulsed Flux <sup>3</sup> T <sub>j</sub> = 85°C (lm)	Typical Efficacy T <sub>j</sub> = 25°C (lm/W)
BXKE-35G0801-B-2x	90	160	17.4	2.8	329	290	119
		180	17.7	3.2	363	319	114
		<b>200</b>	<b>18.0</b>	<b>3.6</b>	<b>397</b>	<b>349</b>	<b>110</b>
		220	18.3	4.0	430	378	107
		480	20.4	9.8	826	727	85
BXKE-35G0801-D-2x	90	320	8.7	2.8	329	290	119
		360	8.8	3.2	363	319	114
		<b>400</b>	<b>9.0</b>	<b>3.6</b>	<b>397</b>	<b>349</b>	<b>110</b>
		440	9.2	4.0	430	378	107
		960	10.2	9.8	826	727	85
BXKE-40E0801-A-2x	80	80	34.7	2.8	397	349	143
		90	35.4	3.2	437	385	137
		<b>100</b>	<b>36.0</b>	<b>3.6</b>	<b>477</b>	<b>420</b>	<b>133</b>
		110	36.6	4.0	517	455	128
		240	40.7	9.8	994	874	102
BXKE-40E0801-B-2x	80	160	17.4	2.8	397	349	143
		180	17.7	3.2	437	385	137
		<b>200</b>	<b>18.0</b>	<b>3.6</b>	<b>477</b>	<b>420</b>	<b>133</b>
		220	18.3	4.0	517	455	128
		480	20.4	9.8	994	874	102
BXKE-40E0801-D-2x	80	320	8.7	2.8	397	349	143
		360	8.8	3.2	437	385	137
		<b>400</b>	<b>9.0</b>	<b>3.6</b>	<b>477</b>	<b>420</b>	<b>133</b>
		440	9.2	4.0	517	455	128
		960	10.2	9.8	994	874	102
BXKE-40G0801-A-2x	90	80	34.7	2.8	343	301	123
		90	35.4	3.2	377	332	119
		<b>100</b>	<b>36.0</b>	<b>3.6</b>	<b>412</b>	<b>363</b>	<b>115</b>
		110	36.6	4.0	446	393	111
		240	40.7	9.8	858	755	88
BXKE-40G0801-B-2x	90	160	17.4	2.8	343	301	123
		180	17.7	3.2	377	332	119
		<b>200</b>	<b>18.0</b>	<b>3.6</b>	<b>412</b>	<b>363</b>	<b>115</b>
		220	18.3	4.0	446	393	111
		480	20.4	9.8	858	755	88
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		360	8.8	3.2	377	332	119
		<b>400</b>	<b>9.0</b>	<b>3.6</b>	<b>412</b>	<b>363</b>	<b>115</b>
		440	9.2	4.0	446	393	111
		960	10.2	9.8	858	755	88
BXKE-50E0801-A-2x	80	80	34.7	2.8	411	361	148
		90	35.4	3.2	452	398	142
		<b>100</b>	<b>36.0</b>	<b>3.6</b>	<b>494</b>	<b>435</b>	<b>137</b>
		110	36.6	4.0	535	471	133
		240	40.7	9.8	1028	905	105

Notes for Table 3:

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

Part Number	CRI	Drive Current <sup>1</sup> (mA)	Typical V <sub>f</sub> T <sub>j</sub> = 25°C (V)	Typical Power T <sub>j</sub> = 25°C (W)	Typical Flux <sup>2</sup> T <sub>j</sub> = 25°C (lm)	Typical Pulsed Flux <sup>3</sup> T <sub>j</sub> = 85°C (lm)	Typical Efficacy T <sub>j</sub> = 25°C (lm/W)
BXKE-50E0801-B-2x	80	160	17.4	2.8	411	361	148
		180	17.7	3.2	452	398	142
		<b>200</b>	<b>18.0</b>	<b>3.6</b>	<b>494</b>	<b>435</b>	<b>137</b>
		220	18.3	4.0	535	471	133
		480	20.4	9.8	1028	905	105
BXKE-50E0801-D-2x	80	320	8.7	2.8	411	361	148
		360	8.8	3.2	452	398	142
		<b>400</b>	<b>9.0</b>	<b>3.6</b>	<b>494</b>	<b>435</b>	<b>137</b>
		440	9.2	4.0	535	471	133
		960	10.2	9.8	1028	905	105
BXKE-50G0801-A-2x	90	80	34.7	2.8	344	303	123
		90	35.4	3.2	383	337	120
		<b>100</b>	<b>36.0</b>	<b>3.6</b>	<b>421</b>	<b>370</b>	<b>117</b>
		110	36.6	4.0	458	403	115
		240	40.7	9.8	877	770	90
BXKE-50G0801-B-2x	90	160	17.4	2.8	344	303	123
		180	17.7	3.2	383	337	120
		<b>200</b>	<b>18.0</b>	<b>3.6</b>	<b>421</b>	<b>370</b>	<b>117</b>
		220	18.3	4.0	458	403	115
		480	20.4	9.8	877	770	90
BXKE-50G0801-D-2x	90	320	8.7	2.8	344	303	123
		360	8.8	3.2	383	337	120
		<b>400</b>	<b>9.0</b>	<b>3.6</b>	<b>421</b>	<b>370</b>	<b>117</b>
		440	9.2	4.0	458	403	115
		960	10.2	9.8	877	770	90
BXKE-56E0801-A-2x	80	80	34.7	2.8	425	375	153
		90	35.4	3.2	468	412	147
		<b>100</b>	<b>36.0</b>	<b>3.6</b>	<b>512</b>	<b>451</b>	<b>142</b>
		110	36.6	4.0	554	488	137
		240	40.7	9.8	1065	938	109
BXKE-56E0801-B-2x	80	160	17.4	2.8	425	375	153
		180	17.7	3.2	468	412	147
		<b>200</b>	<b>18.0</b>	<b>3.6</b>	<b>512</b>	<b>451</b>	<b>142</b>
		220	18.3	4.0	554	488	137
		480	20.4	9.8	1065	938	109
BXKE-56E0801-D-2x	80	320	8.7	2.8	425	375	153
		360	8.8	3.2	468	412	147
		<b>400</b>	<b>9.0</b>	<b>3.6</b>	<b>512</b>	<b>451</b>	<b>142</b>
		440	9.2	4.0	554	488	137
		960	10.2	9.8	1065	938	109
BXKE-65E0801-A-2x	80	80	34.7	2.8	432	381	156
		90	35.4	3.2	476	419	150
		<b>100</b>	<b>36.0</b>	<b>3.6</b>	<b>520</b>	<b>457</b>	<b>145</b>
		110	36.6	4.0	563	496	140
		240	40.7	9.8	1083	953	111

Notes for Table 3:

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

Part Number	CRI	Drive Current <sup>1</sup> (mA)	Typical $V_f$ $T_j = 25^\circ\text{C}$ (V)	Typical Power $T_j = 25^\circ\text{C}$ (W)	Typical Flux <sup>2</sup> $T_j = 25^\circ\text{C}$ (lm)	Typical Pulsed Flux <sup>3</sup> $T_j = 85^\circ\text{C}$ (lm)	Typical Efficacy $T_j = 25^\circ\text{C}$ (lm/W)
BXKE-65E0801-B-2x	80	160	17.4	2.8	432	381	156
		180	17.7	3.2	476	419	150
		<b>200</b>	<b>18.0</b>	<b>3.6</b>	<b>520</b>	<b>457</b>	<b>145</b>
		220	18.3	4.0	563	496	140
		480	20.4	9.8	1083	953	111
BXKE-65E0801-D-2x	80	320	8.7	2.8	432	381	156
		360	8.8	3.2	476	419	150
		<b>400</b>	<b>9.0</b>	<b>3.6</b>	<b>520</b>	<b>457</b>	<b>145</b>
		440	9.2	4.0	563	496	140
		960	10.2	9.8	1083	953	111

Notes for Table 3:

1. Alternate drive currents in Table 3 are provided for reference only and are not a guarantee of performance.
2. Bridgelux maintains a  $\pm 7\%$  tolerance on flux measurements.
3. Typical Pulsed 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, $T_j = 25^\circ\text{C}$ (V) <sup>1,2,3</sup>			Typical Coefficient of Forward Voltage <sup>4</sup> $\Delta V_f / \Delta T_c$ (mV/ $^\circ\text{C}$ )	Typical Thermal Resistance Junction to Case <sup>5,6</sup> $R_{j-c}$ ( $^\circ\text{C}/\text{W}$ )
		Minimum	Typical	Maximum		
BXKE-xxx0801-A-2x	100	33.3	36.0	38.7	-14.46	2.4
BXKE-xxx0801-B-2x	200	16.7	18.0	19.4	-7.23	2.4
BXKE-xxx0801-D-2x	400	8.3	9.0	9.7	-3.61	2.4

Notes for Table 4:

1. Parts are tested in pulsed conditions.  $T_j = 25^\circ\text{C}$ . 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  $\pm 0.10\text{V}$  on forward voltage measurements.
4. Typical coefficient of forward voltage tolerance is  $\pm 0.1\text{mV}$  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.

# Absolute Maximum Ratings

**Table 5:** Maximum Ratings

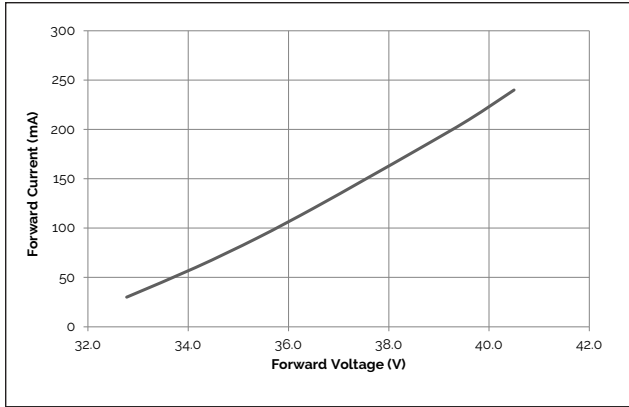
Parameter	Maximum Rating		
LED Junction Temperature ( $T_j$ )	140°C		
Storage Temperature	-40°C to +100°C		
Operating Case Temperature <sup>1,2</sup> ( $T_c$ )	105°C		
Soldering Temperature	350°C ≤3.5sec		
	BXKE-xxx0801-A-2x	BXKE-xxx0801-B-2x	BXKE-xxx0801-D-2x
Maximum Drive Current <sup>3</sup>	240mA	480mA	960mA
Maximum Reverse Voltage <sup>4</sup>	-60 V	-30 V	-15 V

Notes for Table 5:

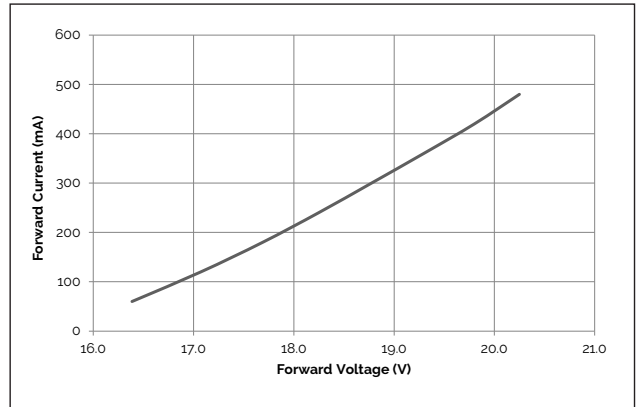
1. For the IEC 62717 requirement, please consult your Bridgelux sales representative.
2. Operating Case Temperature 105°C is with drive currents ≤160mA. When drive current is Maximum drive current, Operating Case Temperature should be limited with ≤90°C.
3. Arrays may be driven at higher currents however lumen maintenance may be reduced.
4. 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

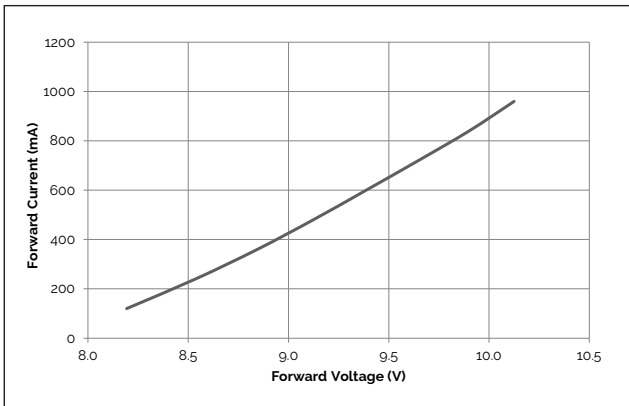
**Figure 1: E6A Drive Current vs. Voltage  $T_c = 25^\circ\text{C}$**



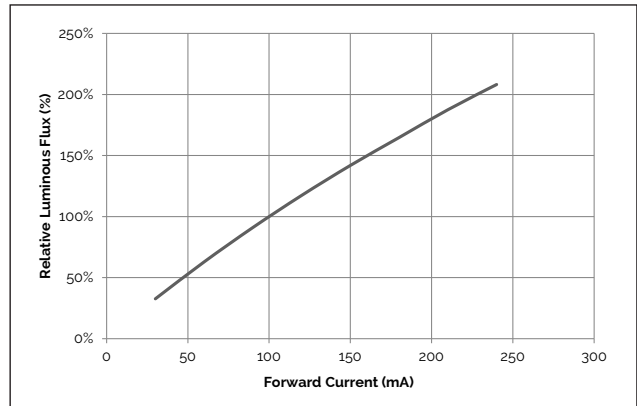
**Figure 2: E6B Drive Current vs. Voltage  $T_c = 25^\circ\text{C}$**



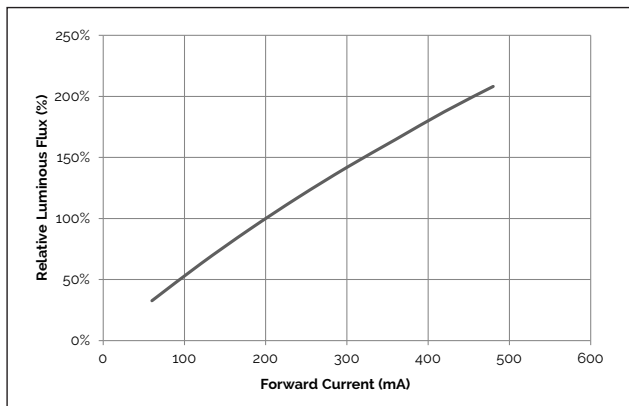
**Figure 3: E6D Drive Current vs. Voltage  $T_c = 25^\circ\text{C}$**



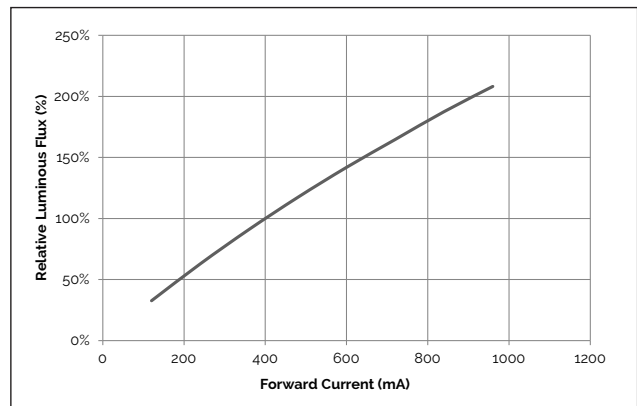
**Figure 4: E6A Relative Flux vs. Current  $T_c = 25^\circ\text{C}$**



**Figure 5: E6B Relative Flux vs. Current  $T_c = 25^\circ\text{C}$**



**Figure 6: E6D Relative Flux vs. Current  $T_c = 25^\circ\text{C}$**

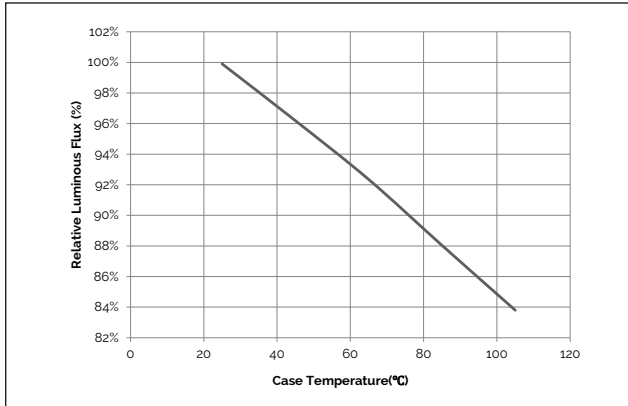


Note for Figures 1 - 6:

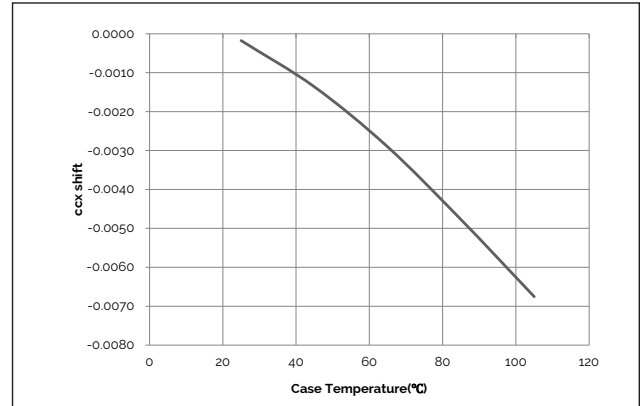
1. Bridgelux does not recommend driving high power LEDs at low currents. Doing so may produce unpredictable results. Pulse width modulation (PWM) is recommended for dimming effects.

# Performance Curves

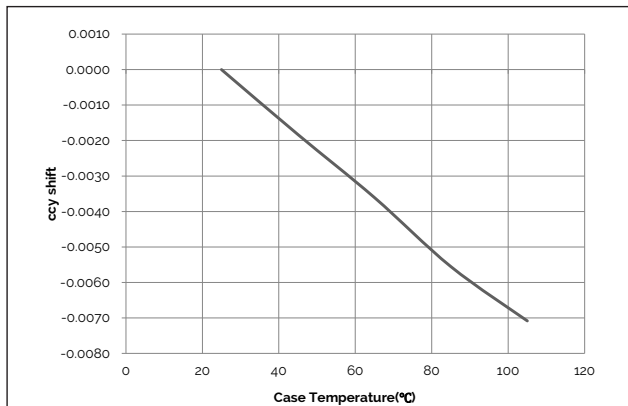
**Figure 7: Typical Pulsed Flux vs.  $T_j$  Temperature**



**Figure 8: Typical Pulsed ccx Shift vs.  $T_j$  Temperature**



**Figure 9: Typical Pulsed ccy Shift vs.  $T_j$  Temperature**



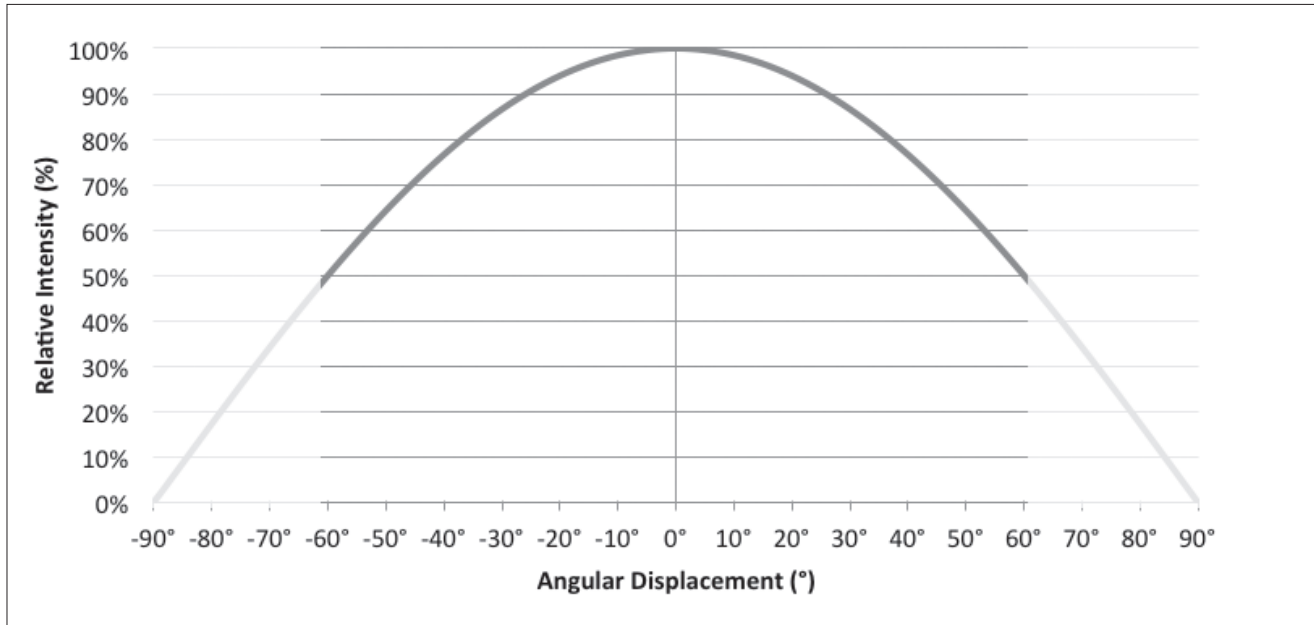
Notes for Figure 7 - 9:

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



# Typical Radiation Pattern

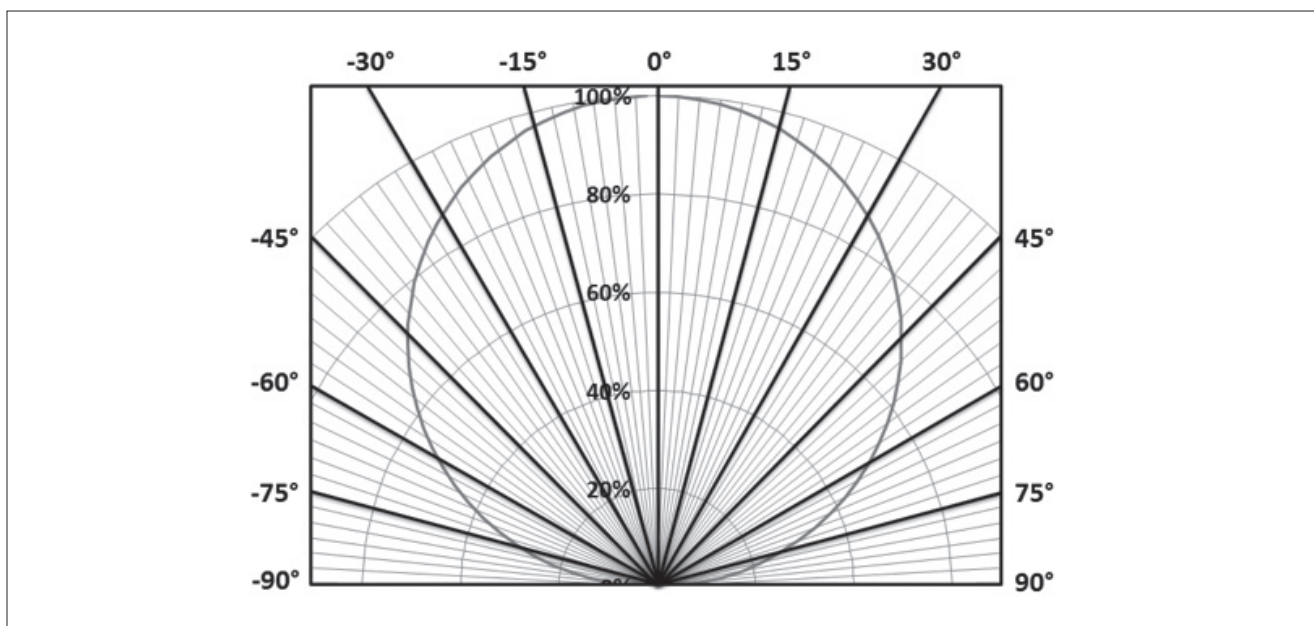
Figure 10: Typical Spatial Radiation Pattern



Notes for Figure 10:

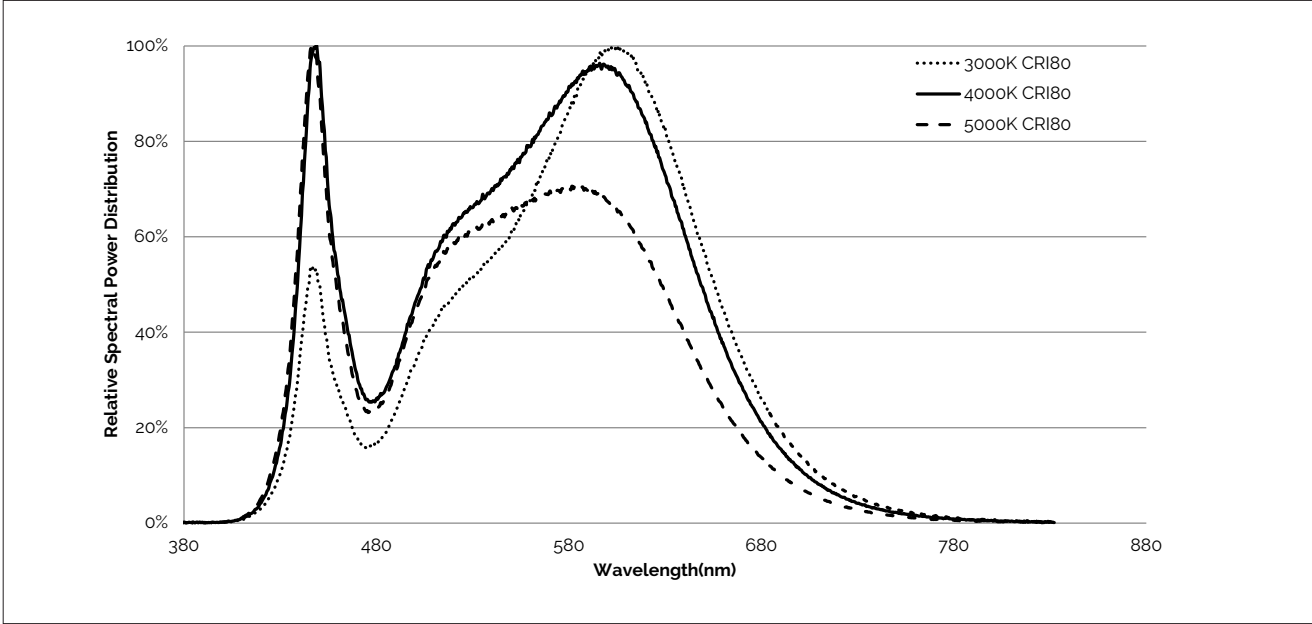
1. Typical viewing angle is 120°.
2. The viewing angle is defined as the off axis angle from the centerline where intensity is ½ of the peak value.

Figure 11: Typical Polar Radiation Pattern



# Typical Color Spectrum

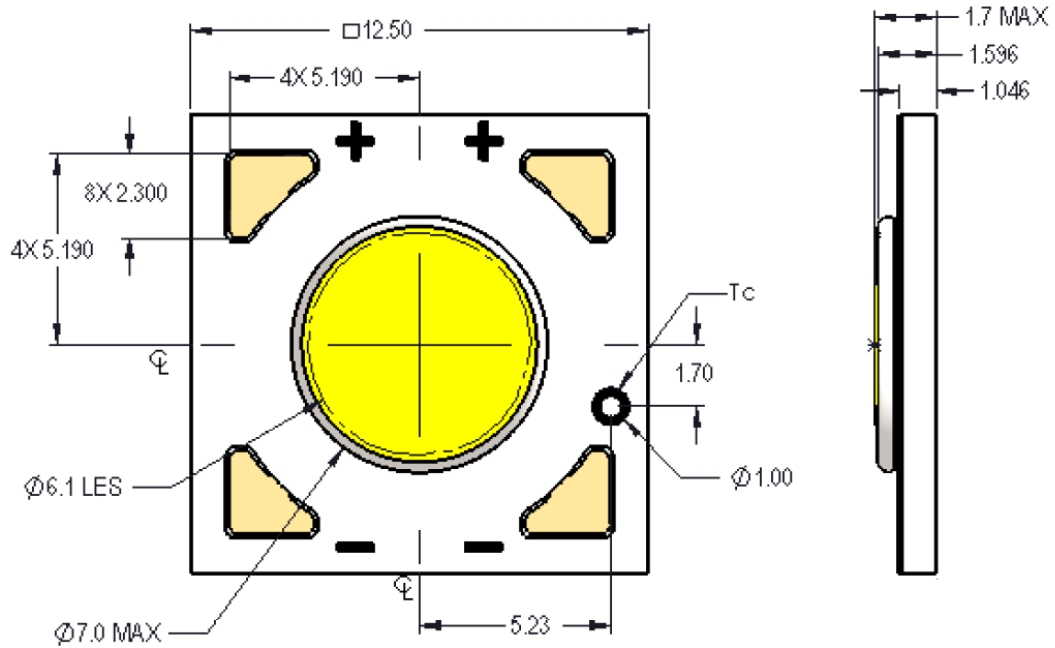
Figure 12: Typical Color Spectrum



- Notes for Figure 12:
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 80 CRI.

# Mechanical Dimensions

**Figure 13: Bridgelux E6 LED Array**



Notes for Figure 13:

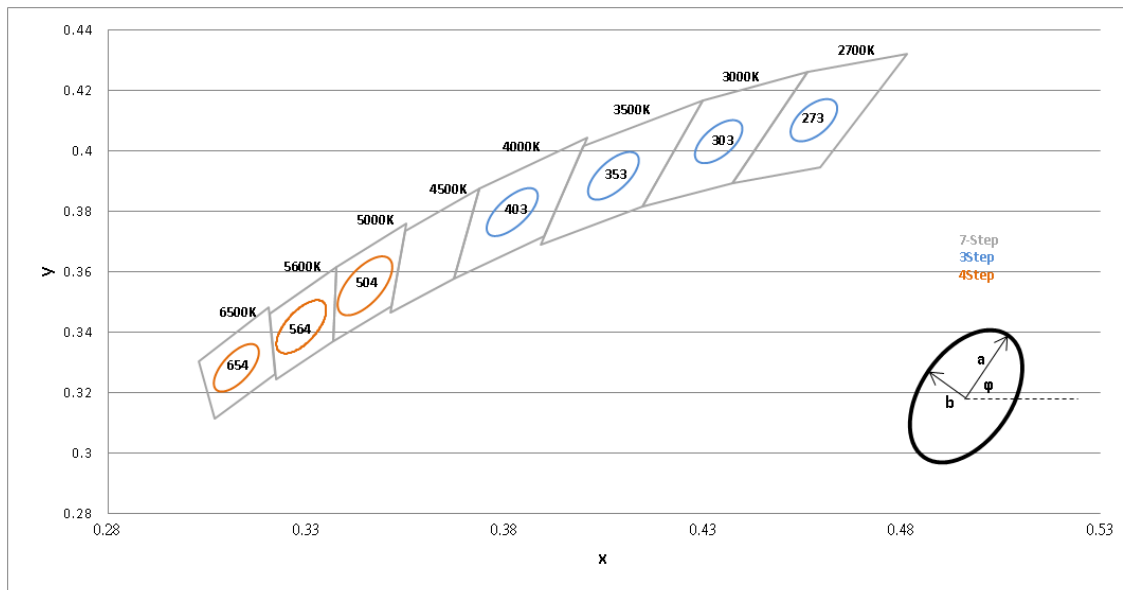
1. Drawings are not to scale.
2. Drawing dimensions are in millimeters.
3. Unless otherwise specified, tolerances are  $\pm 0.1\text{mm}$ .
4. The optical center of the LED Array is nominally defined by the mechanical center of the array to a tolerance of  $\pm 0.2\text{mm}$ .
5. Bridgelux maintains a flatness of 0.10mm across the mounting surface of the array.

# Color Binning Information

**Table 6:** xy Bin Coordinates and Associated Typical CCT ( $T_j=85^\circ\text{C}$ )

CCT	Center Point		Degree	3 step		5 step	
	x	y	( $^\circ$ )	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	0.0088	0.00376
5600K	0.3287	0.3417	59.060	N/A	N/A	0.00792	0.00336
6500K	0.3123	0.3282	58.567	N/A	N/A	0.0072	0.00304

**Figure 14:** Typical Color Spectrum



Notes for Figure 14:

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

# Design Resources

## LM80

LM80 testing has been completed and the LM80 report is now available. Please contact your Bridgelux sales representative for the LM80 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 AN31 for additional information.

### CAUTION: EYE SAFETY

The Bridgelux E series 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 E series LED array during operation. Allow the array to cool for a sufficient period of time before handling. The Bridgelux E 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). 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.

**For more information about the company, please visit**  
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**Bridgelux E Series LED Array Product Data Sheet DS440 Rev. A (02/2019)**

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