

# Bridgelux® Gen 7 V22 Array

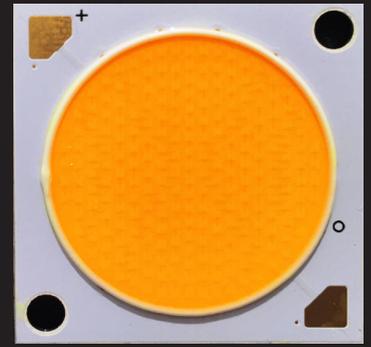
Product Data Sheet DS103



BXRE-27x6500 | 30x6500 | 35x6500 | 40x6500 | 50x6501 | 57x6501 | 65x6501

# 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 V22 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.

## Features

- Efficacy of 155 lm/W typical
- Compact high flux density light source
- Uniform high quality illumination
- Minimum 70, 80 and 90 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

## 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



Pending Standards and Classifications: ENEC

# Contents

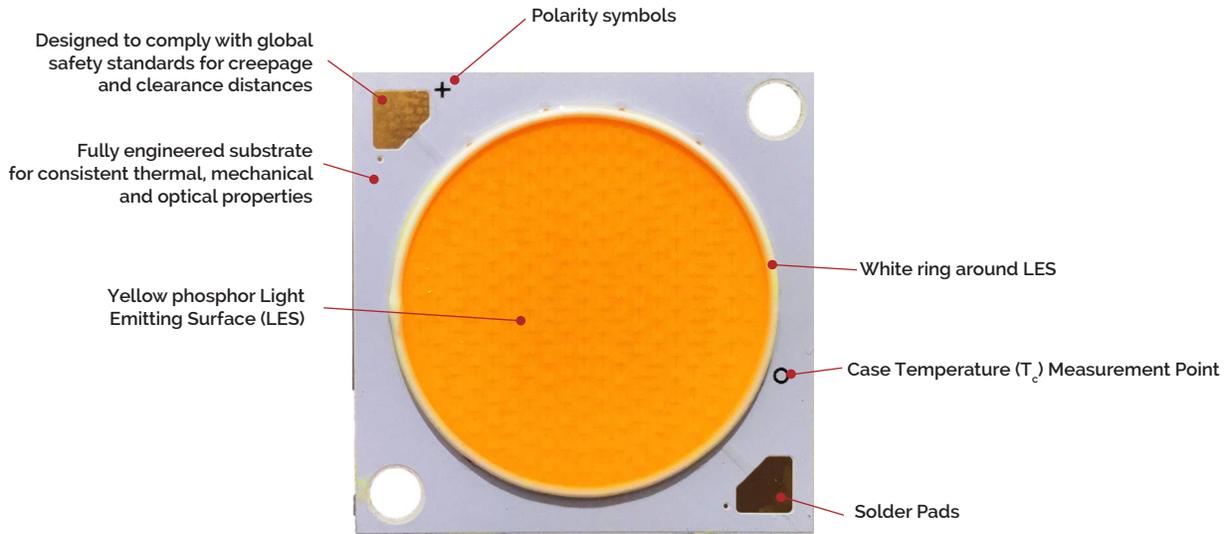
Product Feature Map	2
Product Nomenclature	2
Product Selection Guide	3
Performance at Commonly Used Drive Currents	5
Electrical Characteristics	9
Absolute Maximum Ratings	10
Performance Curves	11
Typical Radiation Pattern	15
Typical Color Spectrum	16
Mechanical Dimensions	17
Color Binning Information	18
Packaging and Labeling	19
Design Resources	21
Precautions	21
Disclaimers	21
About Bridgelux	22

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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 V Series arrays are the most compact chip-on-board devices across all of

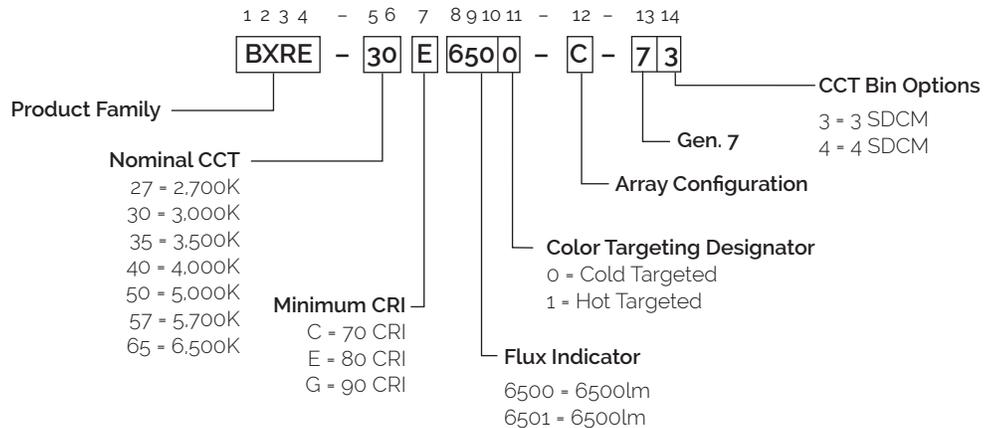
Bridgelux's LED Array products. The arrays incorporate several features to simplify design integration and assembly.



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

## Product Nomenclature

The part number designation for Bridgelux V22 LED array is explained as follows:



# 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 <sup>1</sup> (K)	CRI <sup>2</sup>	Nominal Drive Current <sup>3</sup> (mA)	Typical Pulsed Flux <sup>4,5,6</sup> $T_c = 25^\circ\text{C}$ (lm)	Minimum Pulsed Flux <sup>6,7</sup> $T_c = 25^\circ\text{C}$ (lm)	Typical $V_f$ (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXRE-27E6500-B-7X	2700	80	1170	9056	8477	52.0	60.8	149
BXRE-27E6500-C-7X	2700	80	1440	11147	10255	52.0	74.9	149
BXRE-27G6500-B-7X	2700	90	1170	7547	7064	52.0	60.8	124
BXRE-27G6500-C-7X	2700	90	1440	9289	8546	52.0	74.9	124
BXRE-30E6500-B-7X	3000	80	1170	9433	8830	52.0	60.8	155
BXRE-30E6500-C-7X	3000	80	1440	11611	10682	52.0	74.9	155
BXRE-30G6500-B-7X	3000	90	1170	7830	7329	52.0	60.8	129
BXRE-30G6500-C-7X	3000	90	1440	9637	8866	52.0	74.9	129
BXRE-35E6500-B-7X	3500	80	1170	9716	9095	52.0	60.8	160
BXRE-35E6500-C-7X	3500	80	1440	11959	11003	52.0	74.9	160
BXRE-35G6500-B-7X	3500	90	1170	8113	7594	52.0	60.8	133
BXRE-35G6500-C-7X	3500	90	1440	9986	9187	52.0	74.9	133
BXRE-40E6500-B-7X	4000	80	1170	9811	9183	52.0	60.8	161
BXRE-40E6500-C-7X	4000	80	1440	12075	11109	52.0	74.9	161
BXRE-40G6500-B-7X	4000	90	1170	8396	7859	52.0	60.8	138
BXRE-40G6500-C-7X	4000	90	1440	10334	9507	52.0	74.9	138
BXRE-50C6501-B-74	5000	70	1170	10754	10066	52.0	60.8	177
BXRE-50C6501-C-74	5000	70	1440	13237	12178	52.0	74.9	177
BXRE-50E6501-B-74	5000	80	1170	10109	9462	52.0	60.8	166
BXRE-50E6501-C-74	5000	80	1440	12442	11447	52.0	74.9	166
BXRE-50G6501-B-74	5000	90	1170	8603	8053	52.0	60.8	141
BXRE-50G6501-C-74	5000	90	1440	10589	9742	52.0	74.9	141
BXRE-57C6501-B-74	5700	70	1170	10377	9713	52.0	60.8	171
BXRE-57C6501-C-74	5700	70	1440	12772	11750	52.0	74.9	171
BXRE-57E6501-B-74	5700	80	1170	10282	9625	52.0	60.8	169
BXRE-57E6501-C-74	5700	80	1440	12656	11644	52.0	74.9	169
BXRE-65C6501-B-74	6500	70	1170	10565	9890	52.0	60.8	174
BXRE-65C6501-C-74	6500	70	1440	13004	11964	52.0	74.9	174
BXRE-65E6501-B-74	6500	80	1170	10471	9801	52.0	60.8	172
BXRE-65E6501-C-74	6500	80	1440	12888	11857	52.0	74.9	172

Notes for Table 1:

1. Nominal CCT as defined by ANSI C78.377-2011. Products with CCTs 5000K-6500K are hot targeted to  $85^\circ\text{C}$ .
2. CRI Values are minimums. Minimum Rg value for 80 CRI products is 0, the minimum Rg values for 90 CRI products is 50.
3. Drive current is referred to as nominal drive current.
4. Products tested under pulsed condition (10ms pulse width) at nominal test current where  $T_j$  (junction temperature) =  $T_c$  (case temperature) =  $25^\circ\text{C}$ .
5. Typical performance values are provided as a reference only and are not a guarantee of performance.
6. Bridgelux maintains a  $\pm 7\%$  tolerance on flux measurements.
7. Minimum flux values at the nominal test current are guaranteed by 100% test.

# Product Selection Guide

**Table 2:** Selection Guide, Stabilized DC Performance ( $T_c = 85^\circ\text{C}$ )<sup>4,5</sup>

Part Number	Nominal CCT <sup>1</sup> (K)	CRI <sup>2</sup>	Nominal Drive Current <sup>3</sup> (mA)	Typical DC Flux <sup>4,5</sup> $T_c = 85^\circ\text{C}$ (lm)	Minimum DC Flux <sup>6</sup> $T_c = 85^\circ\text{C}$ (lm)	Typical $V_f$ (V)	Typical Power (W)	Typical Efficacy (lm/W)
BXRE-27E6500-B-7X	2700	80	1170	8163	7641	50.7	59.3	138
BXRE-27E6500-C-7X	2700	80	1440	10048	9244	50.7	73.0	138
BXRE-27G6500-B-7X	2700	90	1170	6803	6368	50.7	59.3	115
BXRE-27G6500-C-7X	2700	90	1440	8373	7703	50.7	73.0	115
BXRE-30E6500-B-7X	3000	80	1170	8503	7960	50.7	59.3	143
BXRE-30E6500-C-7X	3000	80	1440	10467	9629	50.7	73.0	143
BXRE-30G6500-B-7X	3000	90	1170	7058	6606	50.7	59.3	119
BXRE-30G6500-C-7X	3000	90	1440	8687	7992	50.7	73.0	119
BXRE-35E6500-B-7X	3500	80	1170	8759	8198	50.7	59.3	148
BXRE-35E6500-C-7X	3500	80	1440	10780	9918	50.7	73.0	148
BXRE-35G6500-B-7X	3500	90	1170	7313	6845	50.7	59.3	123
BXRE-35G6500-C-7X	3500	90	1440	9001	8281	50.7	73.0	123
BXRE-40E6500-B-7X	4000	80	1170	8844	8278	50.7	59.3	149
BXRE-40E6500-C-7X	4000	80	1440	10885	10014	50.7	73.0	149
BXRE-40G6500-B-7X	4000	90	1170	7568	7084	50.7	59.3	128
BXRE-40G6500-C-7X	4000	90	1440	9315	8570	50.7	73.0	128
BXRE-50C6501-B-74	5000	70	1170	9694	9074	50.7	59.3	164
BXRE-50C6501-C-74	5000	70	1440	11932	10977	50.7	73.0	164
BXRE-50E6501-B-74	5000	80	1170	9112	8529	50.7	59.3	154
BXRE-50E6501-C-74	5000	80	1440	11216	10319	50.7	73.0	154
BXRE-50G6501-B-74	5000	90	1170	7755	7259	50.7	59.3	131
BXRE-50G6501-C-74	5000	90	1440	9545	8782	50.7	73.0	131
BXRE-57C6501-B-74	5700	70	1170	9354	8756	50.7	59.3	158
BXRE-57C6501-C-74	5700	70	1440	11513	10592	50.7	73.0	158
BXRE-57E6501-B-74	5700	80	1170	9269	8676	50.7	59.3	156
BXRE-57E6501-C-74	5700	80	1440	11408	10496	50.7	73.0	156
BXRE-65C6501-B-74	6500	70	1170	9524	8915	50.7	59.3	161
BXRE-65C6501-C-74	6500	70	1440	11722	10785	50.7	73.0	161
BXRE-65E6501-B-74	6500	80	1170	9439	8835	50.7	59.3	159
BXRE-65E6501-C-74	6500	80	1440	11618	10688	50.7	73.0	159

Notes for Table 2:

- Nominal CCT as defined by ANSI C78.377-2011. Products with a CCT of 5000K-6500K are hot targeted to 85°C.
- CRI Values are minimums. Minimum Rg value for 80 CRI products is 0, the minimum Rg values for 90 CRI products is 50.
- 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.

# 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 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 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>c</sub> = 25°C (V)	Typical Power T <sub>c</sub> = 25°C (W)	Typical Flux <sup>2</sup> T <sub>c</sub> = 25°C (lm)	Typical DC Flux <sup>3</sup> T <sub>c</sub> = 85°C (lm)	Typical Efficacy T <sub>c</sub> = 25°C (lm/W)
BXRE-27E6500-B-7X	80	585	49.6	29.0	4846	4483	167
		780	50.5	39.4	6291	5751	160
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>9056</b>	<b>8163</b>	<b>149</b>
		1755	54.3	95.3	12894	11472	135
		2340	56.2	131.5	16360	14408	124
BXRE-27E6500-C-7X	80	720	49.6	35.7	6222	5284	174
		960	50.5	48.5	7915	6923	163
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>11147</b>	<b>10048</b>	<b>149</b>
		2160	54.2	117.0	15609	14350	133
		2880	55.9	161.1	19609	18189	122
BXRE-27G6500-B-7X	90	585	49.6	29.0	4038	3736	139
		780	50.5	39.4	5242	4793	133
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>7547</b>	<b>6803</b>	<b>124</b>
		1755	54.3	95.3	10745	9560	113
		2340	56.2	131.5	13634	12007	104
BXRE-27G6500-C-7X	90	720	49.6	35.7	5185	4403	145
		960	50.5	48.5	6596	5769	136
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>9289</b>	<b>8373</b>	<b>124</b>
		2160	54.2	117.0	13007	11958	111
		2880	55.9	161.1	16341	15157	101
BXRE-30E6500-B-7X	80	585	49.6	29.0	5048	4670	174
		780	50.5	39.4	6553	5991	166
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>9433</b>	<b>8503</b>	<b>155</b>
		1755	54.3	95.3	13431	11950	141
		2340	56.2	131.5	17042	15009	130
BXRE-30E6500-C-7X	80	720	49.6	35.7	6481	5504	181
		960	50.5	48.5	8245	7212	170
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>11611</b>	<b>10467</b>	<b>155</b>
		2160	54.2	117.0	16259	14947	139
		2880	55.9	161.1	20426	18947	127

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 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	CRI	Drive Current <sup>1</sup> (mA)	Typical $V_f$ $T_c = 25^\circ\text{C}$ (V)	Typical Power $T_c = 25^\circ\text{C}$ (W)	Typical Flux <sup>2</sup> $T_c = 25^\circ\text{C}$ (lm)	Typical DC Flux <sup>3</sup> $T_c = 85^\circ\text{C}$ (lm)	Typical Efficacy $T_c = 25^\circ\text{C}$ (lm/W)
BXRE-30G6500-B-7X	90	585	49.6	29.0	4190	3876	144
		780	50.5	39.4	5439	4972	138
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>7830</b>	<b>7058</b>	<b>129</b>
		1755	54.3	95.3	11148	9918	117
		2340	56.2	131.5	14145	12457	108
BXRE-30G6500-C-7X	90	720	49.6	35.7	5380	4568	151
		960	50.5	48.5	6843	5986	141
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>9637</b>	<b>8687</b>	<b>129</b>
		2160	54.2	117.0	13495	12406	115
		2880	55.9	161.1	16953	15726	105
BXRE-35E6500-B-7X	80	585	49.6	29.0	5199	4810	179
		780	50.5	39.4	6749	6170	171
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>9716</b>	<b>8759</b>	<b>160</b>
		1755	54.3	95.3	13834	12308	145
		2340	56.2	131.5	17553	15459	134
BXRE-35E6500-C-7X	80	720	49.6	35.7	6676	5669	187
		960	50.5	48.5	8492	7428	175
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>11959</b>	<b>10780</b>	<b>160</b>
		2160	54.2	117.0	16747	15396	143
		2880	55.9	161.1	21039	19515	131
BXRE-35G6500-B-7X	90	585	49.6	29.0	4341	4016	149
		780	50.5	39.4	5635	5152	143
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>8113</b>	<b>7313</b>	<b>133</b>
		1755	54.3	95.3	11551	10277	121
		2340	56.2	131.5	14656	12907	111
BXRE-35G6500-C-7X	90	720	49.6	35.7	5574	4733	156
		960	50.5	48.5	7090	6202	146
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>9986</b>	<b>9001</b>	<b>133</b>
		2160	54.2	117.0	13983	12855	120
		2880	55.9	161.1	17566	16294	109
BXRE-40E6500-B-7X	80	585	49.6	29.0	5250	4857	181
		780	50.5	39.4	6815	6230	173
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>9811</b>	<b>8844</b>	<b>161</b>
		1755	54.3	95.3	13969	12428	147
		2340	56.2	131.5	17724	15609	135
BXRE-40E6500-C-7X	80	720	49.6	35.7	6741	5724	189
		960	50.5	48.5	8575	7500	177
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>12075</b>	<b>10885</b>	<b>161</b>
		2160	54.2	117.0	16910	15545	145
		2880	55.9	161.1	21243	19705	132
BXRE-40G6500-B-7X	90	585	49.6	29.0	4492	4156	155
		780	50.5	39.4	5832	5332	148
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>8396</b>	<b>7568</b>	<b>138</b>
		1755	54.3	95.3	11954	10635	125
		2340	56.2	131.5	15168	13358	115

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 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	CRI	Drive Current <sup>1</sup> (mA)	Typical V <sub>f</sub> T <sub>c</sub> = 25°C (V)	Typical Power T <sub>c</sub> = 25°C (W)	Typical Flux <sup>2</sup> T <sub>c</sub> = 25°C (lm)	Typical DC Flux <sup>3</sup> T <sub>c</sub> = 85°C (lm)	Typical Efficacy T <sub>c</sub> = 25°C (lm/W)
BXRE-40G6500-C-7X	90	720	49.6	35.7	5768	4899	161
		960	50.5	48.5	7338	6418	151
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>10334</b>	<b>9315</b>	<b>138</b>
		2160	54.2	117.0	14471	13303	124
		2880	55.9	161.1	18179	16863	113
BXRE-50C6501-B-74	70	585	49.6	29.0	5754	5323	198
		780	50.5	39.4	7470	6829	190
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>10754</b>	<b>9694</b>	<b>177</b>
		1755	54.3	95.3	15312	13623	161
		2340	56.2	131.5	19428	17110	148
BXRE-50C6501-C-74	70	720	49.6	35.7	7389	6275	207
		960	50.5	48.5	9399	8221	194
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>13237</b>	<b>11932</b>	<b>177</b>
		2160	54.2	117.0	18535	17040	158
		2880	55.9	161.1	23285	21599	145
BXRE-50E6501-B-74	80	585	49.6	29.0	5409	5004	186
		780	50.5	39.4	7022	6420	178
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>10109</b>	<b>9112</b>	<b>166</b>
		1755	54.3	95.3	14393	12805	151
		2340	56.2	131.5	18262	16083	139
BXRE-50E6501-C-74	80	720	49.6	35.7	6945	5898	194
		960	50.5	48.5	8835	7728	182
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>12442</b>	<b>11216</b>	<b>166</b>
		2160	54.2	117.0	17423	16018	149
		2880	55.9	161.1	21888	20303	136
BXRE-50G6501-B-74	90	585	49.6	29.0	4604	4259	159
		780	50.5	39.4	5976	5463	152
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>8603</b>	<b>7755</b>	<b>141</b>
		1755	54.3	95.3	12249	10898	129
		2340	56.2	131.5	15542	13688	118
BXRE-50G6501-C-74	90	720	49.6	35.7	5911	5020	165
		960	50.5	48.5	7519	6577	155
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>10589</b>	<b>9545</b>	<b>141</b>
		2160	54.2	117.0	14828	13632	127
		2880	55.9	161.1	18628	17280	116
BXRE-57C6501-B-74	70	585	49.6	29.0	5552	5137	191
		780	50.5	39.4	7208	6590	183
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>10377</b>	<b>9354</b>	<b>171</b>
		1755	54.3	95.3	14775	13145	155
		2340	56.2	131.5	18746	16509	143
BXRE-57C6501-C-74	70	720	49.6	35.7	7129	6054	199
		960	50.5	48.5	9069	7933	187
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>12772</b>	<b>11513</b>	<b>171</b>
		2160	54.2	117.0	17885	16442	153
		2880	55.9	161.1	22468	20842	139

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 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	CRI	Drive Current <sup>1</sup> (mA)	Typical $V_f$ $T_c = 25^\circ\text{C}$ (V)	Typical Power $T_c = 25^\circ\text{C}$ (W)	Typical Flux <sup>2</sup> $T_c = 25^\circ\text{C}$ (lm)	Typical DC Flux <sup>3</sup> $T_c = 85^\circ\text{C}$ (lm)	Typical Efficacy $T_c = 25^\circ\text{C}$ (lm/W)
BXRE-57E6501-B-74	80	585	49.6	29.0	5502	5090	189
		780	50.5	39.4	7142	6530	181
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>10282</b>	<b>9269</b>	<b>169</b>
		1755	54.3	95.3	14640	13025	154
		2340	56.2	131.5	18576	16359	141
BXRE-57E6501-C-74	80	720	49.6	35.7	7065	5999	198
		960	50.5	48.5	8987	7861	185
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>12656</b>	<b>11408</b>	<b>169</b>
		2160	54.2	117.0	17722	16293	152
		2880	55.9	161.1	22264	20652	138
BXRE-65C6501-B-74	70	585	49.6	29.0	5653	5230	195
		780	50.5	39.4	7339	6710	186
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>10565</b>	<b>9524</b>	<b>174</b>
		1755	54.3	95.3	15043	13384	158
		2340	56.2	131.5	19087	16810	145
BXRE-65C6501-C-74	70	720	49.6	35.7	7259	6165	203
		960	50.5	48.5	9234	8077	191
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>13004</b>	<b>11722</b>	<b>174</b>
		2160	54.2	117.0	18210	16741	156
		2880	55.9	161.1	22877	21220	142
BXRE-65E6501-B-74	80	585	49.6	29.0	5603	5183	193
		780	50.5	39.4	7273	6650	185
		<b>1170</b>	<b>52.0</b>	<b>60.8</b>	<b>10471</b>	<b>9439</b>	<b>172</b>
		1755	54.3	95.3	14909	13264	157
		2340	56.2	131.5	18917	16660	144
BXRE-65E6501-C-74	80	720	49.6	35.7	7194	6109	201
		960	50.5	48.5	9152	8005	189
		<b>1440</b>	<b>52.0</b>	<b>74.9</b>	<b>12888</b>	<b>11618</b>	<b>172</b>
		2160	54.2	117.0	18048	16592	154
		2880	55.9	161.1	22673	21031	141

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 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, $T_c = 25^\circ\text{C}$ (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> $R_{j-c}$ ( $^\circ\text{C}/\text{W}$ )	Driver Selection Voltages <sup>7</sup> (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-xxx650x-B-7x	1170	48.1	52.0	55.9	-22.1	0.07	46.3	57.3
	2340	52.0	56.2	60.4	-22.1	0.09	50.2	61.8
BXRE-xxx650x-C-7x	1440	48.1	52.0	55.9	-22.1	0.06	46.3	57.3
	2880	51.7	55.9	60.1	-22.1	0.08	50.0	61.6

Notes for Table 4:

1. Parts are tested in pulsed conditions,  $T_c = 25^\circ\text{C}$ . 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.
7.  $V_f$  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.

# Absolute Maximum Ratings

**Table 5:** Maximum Ratings

Parameter	Maximum Rating	
LED Junction Temperature (T <sub>j</sub> )	125°C	
Storage Temperature	-40°C to +105°C	
Operating Case Temperature <sup>1</sup> (T <sub>c</sub> )	105°C	
Soldering Temperature <sup>2</sup>	350°C or lower for a maximum of 10 seconds	
	BXRE-xxx650x-B-7x	BXRE-xxx650x-C-7x
Maximum Drive Current <sup>3</sup>	2340mA	2880mA
Maximum Peak Pulsed Drive Current <sup>4</sup>	3343mA	4114mA
<b>Maximum Reverse Voltage<sup>5</sup></b>	-90V	-90V

Notes for Table 5:

1. For IEC 62717 requirement, please consult your Bridgelux sales representative.
2. Refer to Bridgelux Application Note AN41: 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: V22B Drive Current vs. Voltage ( $T_j = T_c = 25^\circ\text{C}$ )

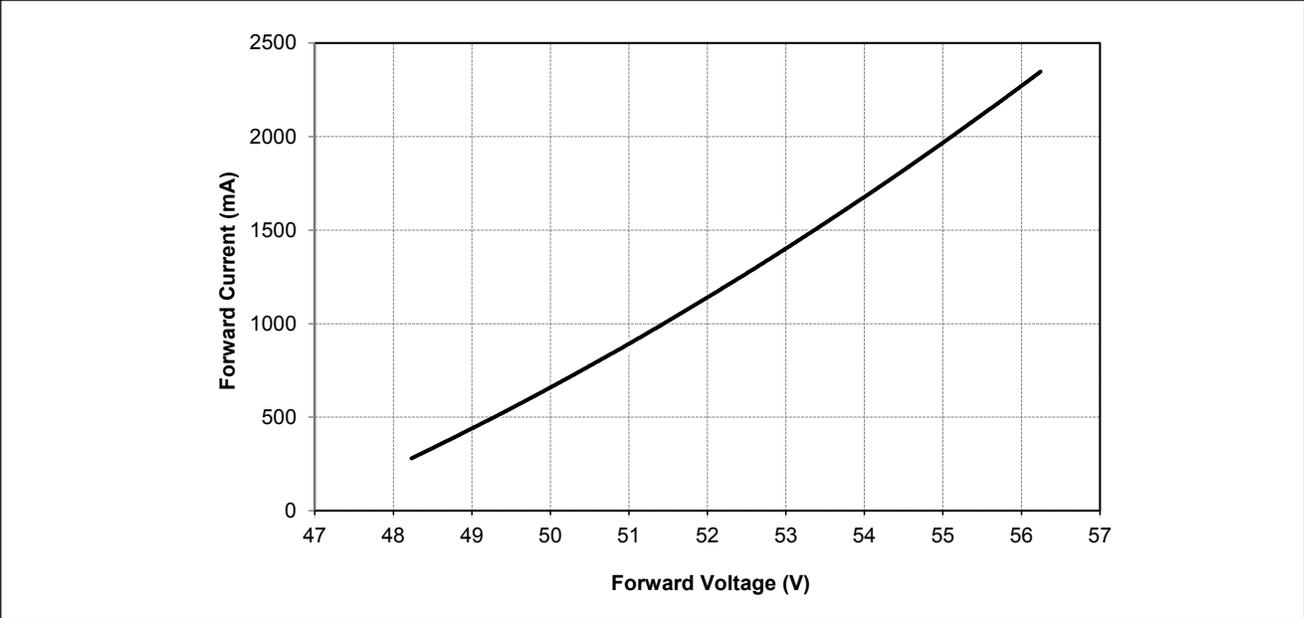
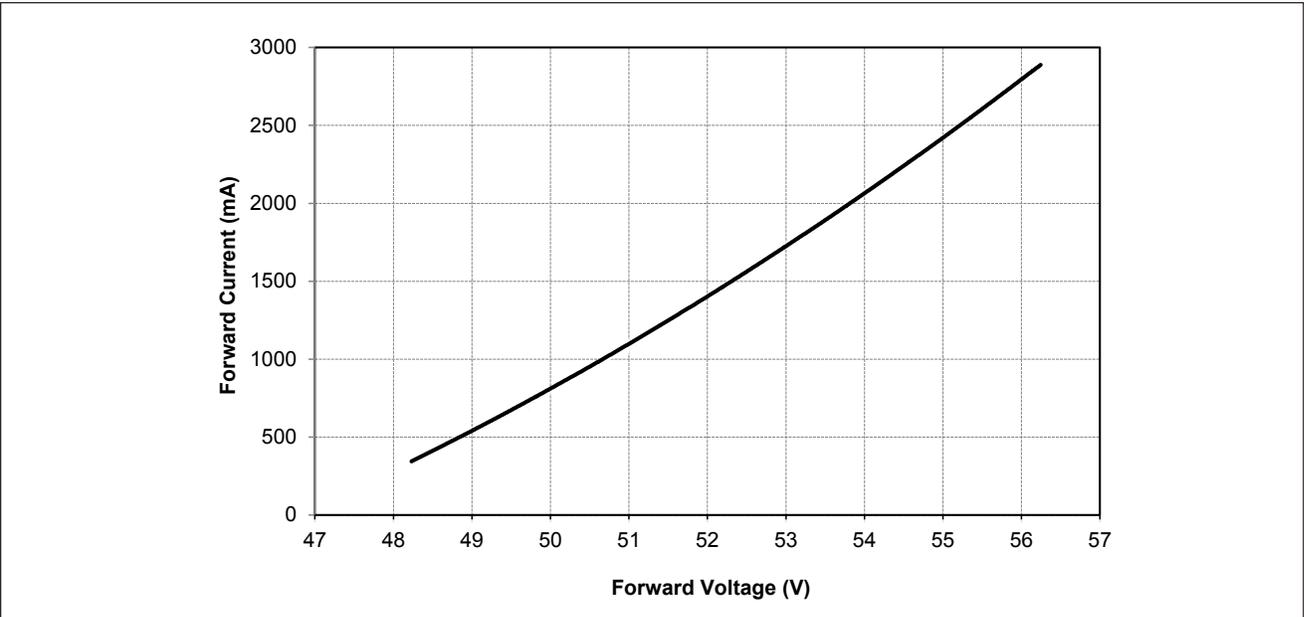


Figure 2: V22C Drive Current vs. Voltage ( $T_j = T_c = 25^\circ\text{C}$ )



# Performance Curves

Figure 3: V22B Typical Relative Flux vs. Current ( $T_j = T_c = 25^\circ\text{C}$ )

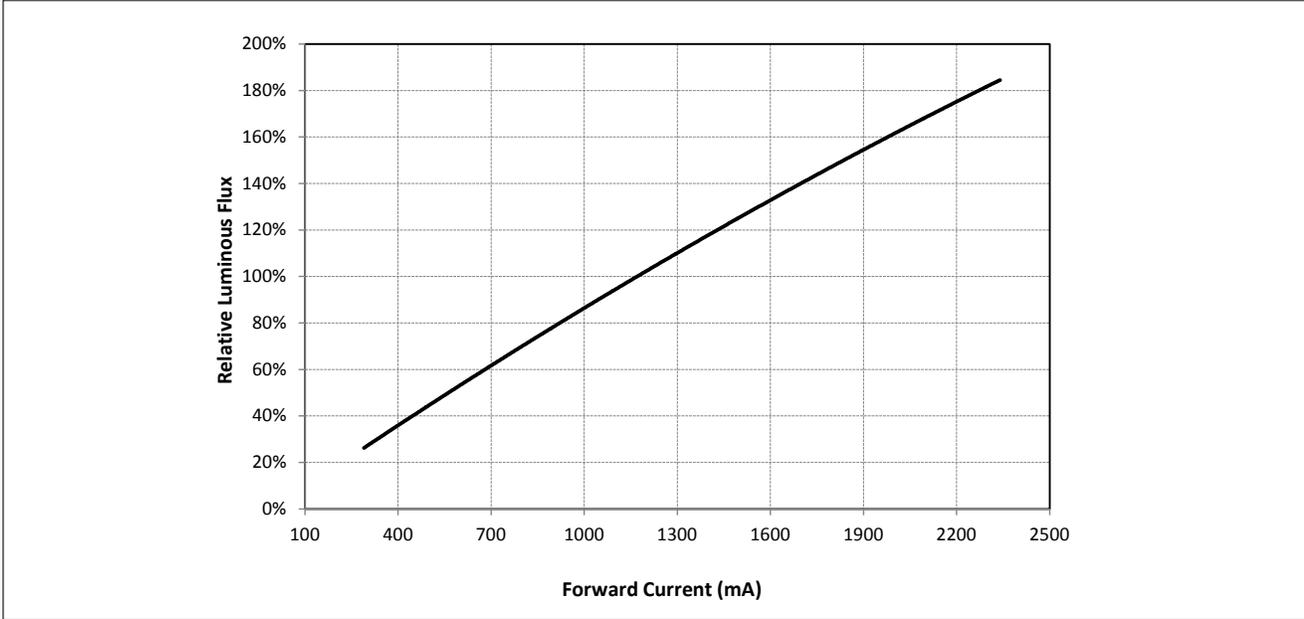
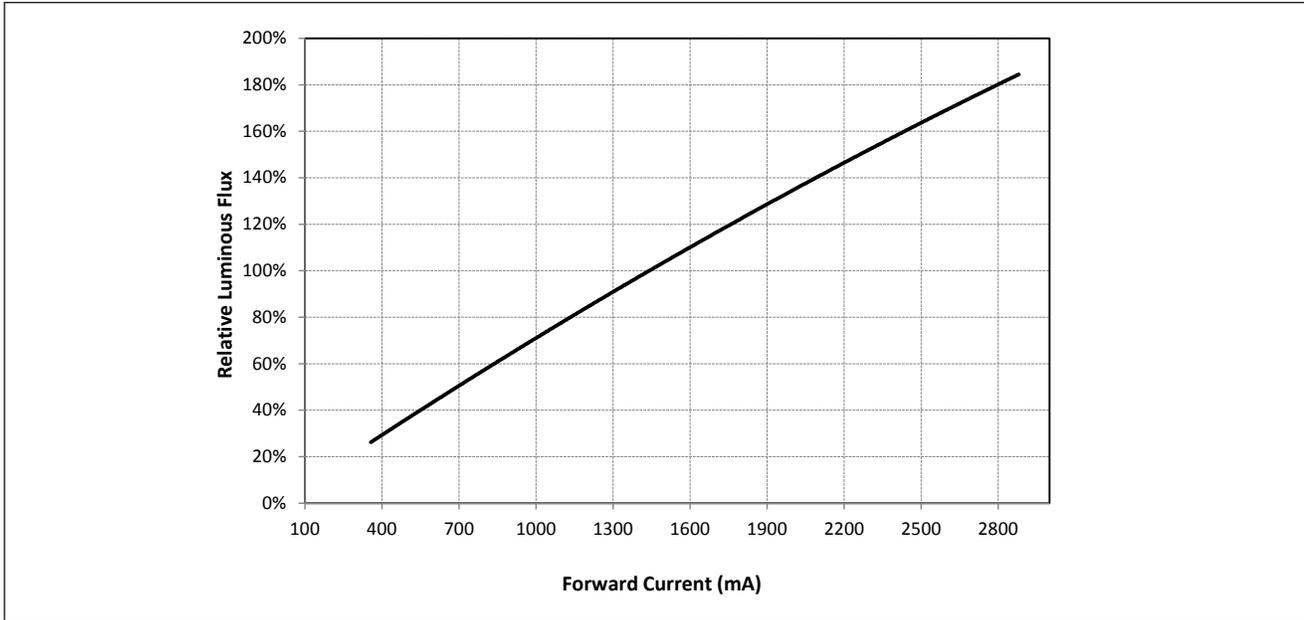


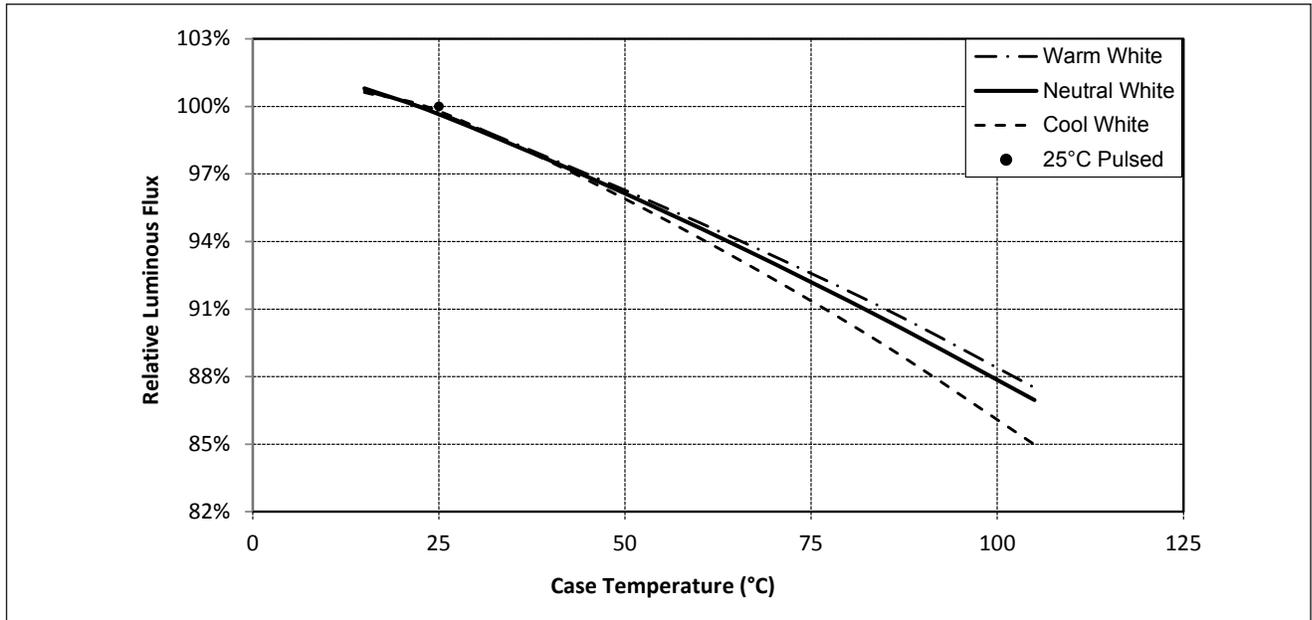
Figure 4: V22C Typical Relative Flux vs. Current ( $T_j = T_c = 25^\circ\text{C}$ )



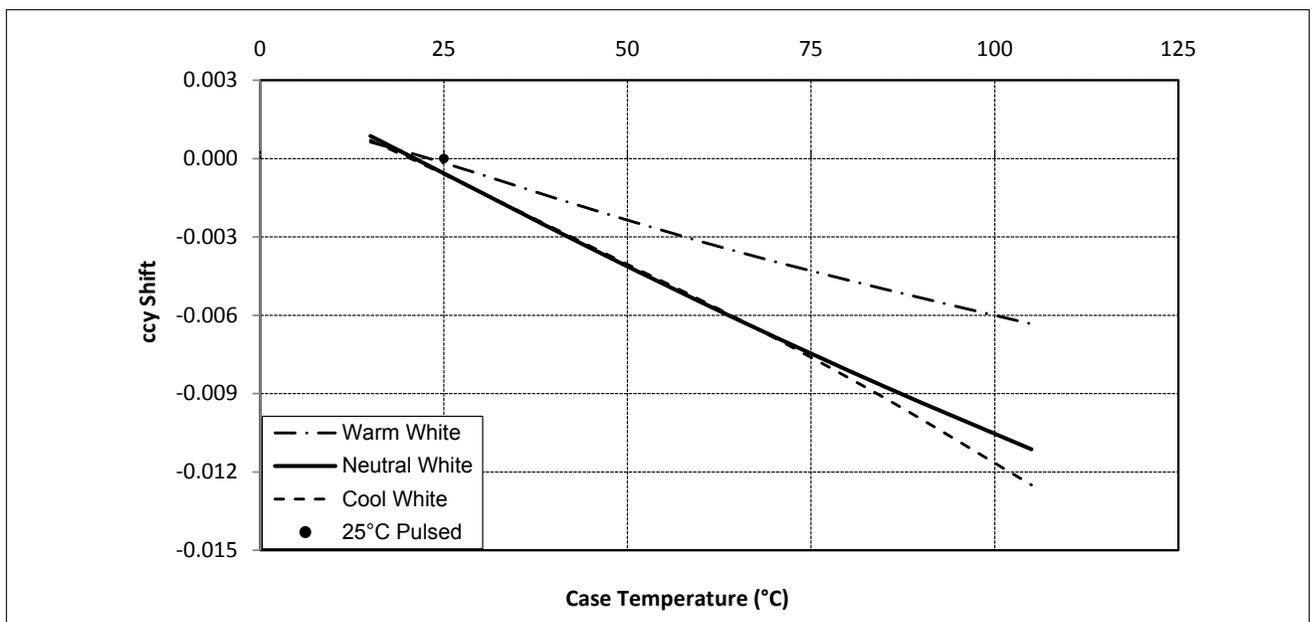
Note for Figures 3 & 4:  
1. Bridgelux does not recommend driving high power LEDs at low currents. Doing so may produce unpredictable results. Pulse width modulation (PWM) is recommended for dimming effects.

# Performance Curves

**Figure 5: Typical DC Flux vs. Case Temperature**



**Figure 6: Typical DC ccy Shift vs. Case Temperature**

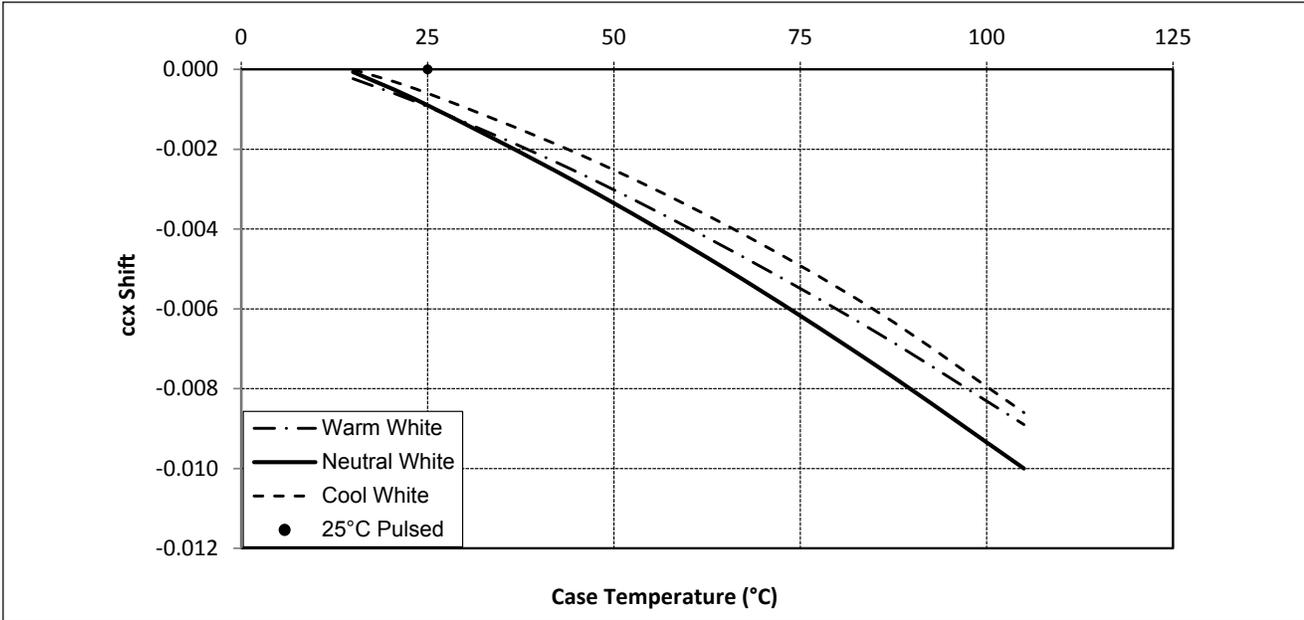


Notes for Figures 5 & 6:

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. For other color SKUs, the shift in color will vary. Please contact your Bridgelux Sales Representative for more information.

# Performance Curves

**Figure 7: Typical DC ccx Shift vs. Case Temperature**

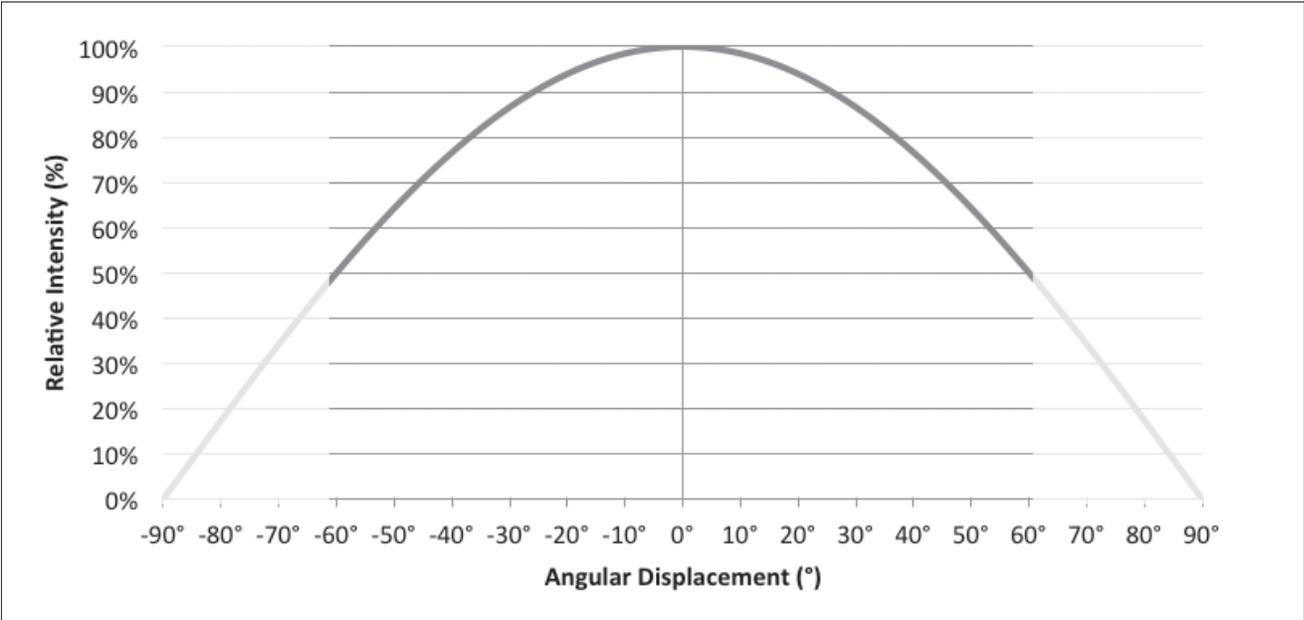


Notes for Figure 7:

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. For other color SKUs, the shift in color will vary. Please contact your Bridgelux Sales Representative for more information.

# Typical Radiation Pattern

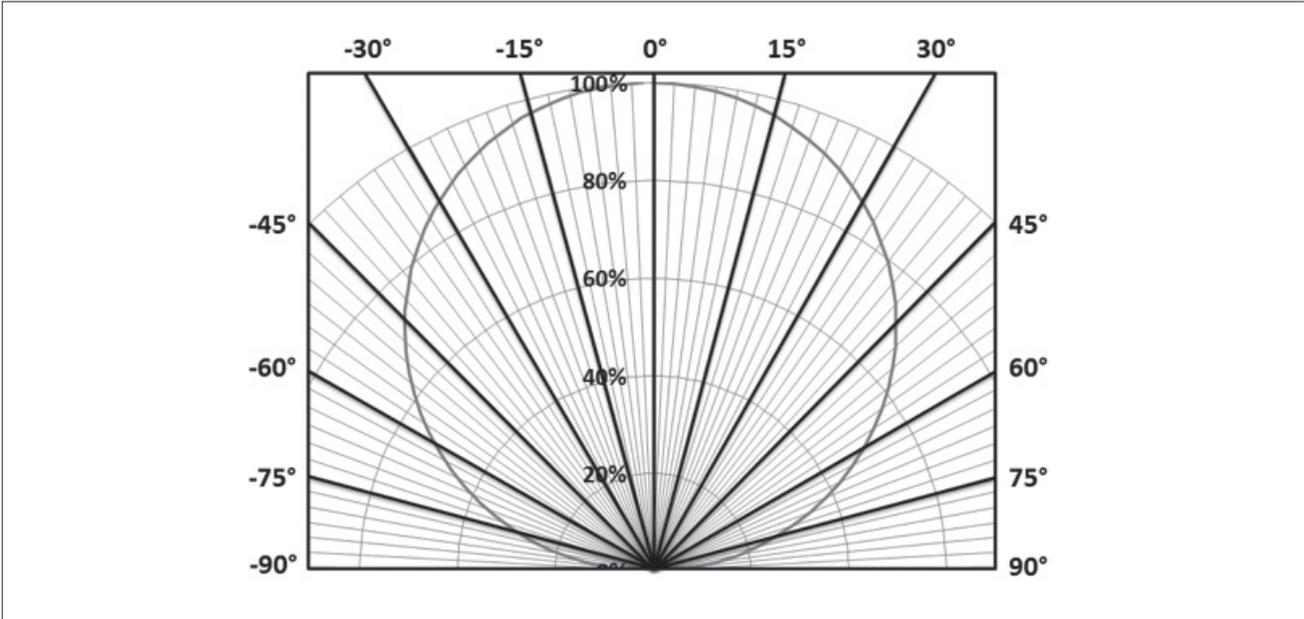
Figure 8: Typical Spatial Radiation Pattern



Note for Figure 8:

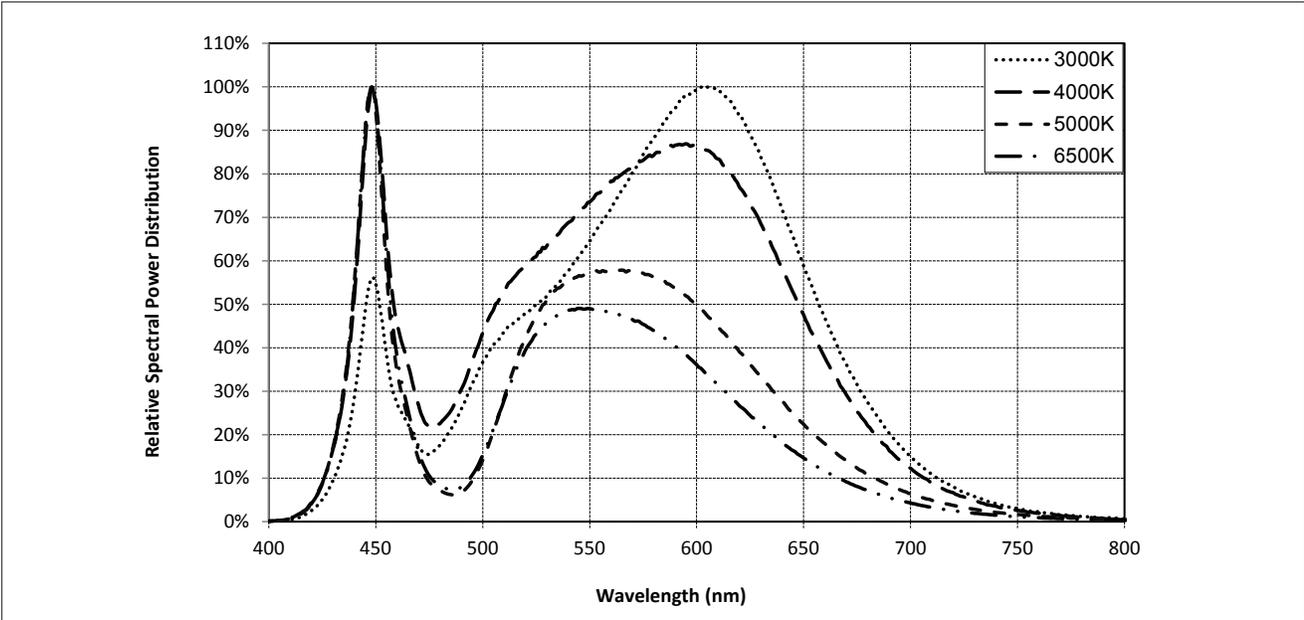
- 1. Typical viewing angle is 120°.
- 2. The viewing angle is defined as the off axis angle from the centerline where intensity is 1/2 of the peak value.

Figure 9: Typical Polar Radiation Pattern



# Typical Color Spectrum

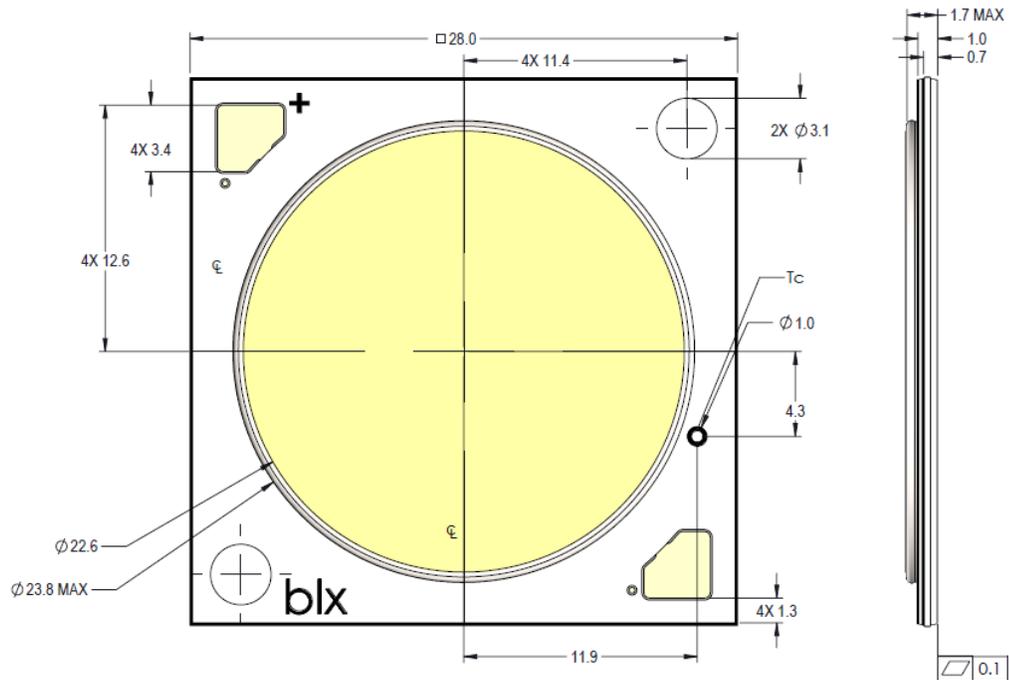
Figure 10: Typical Color Spectrum



- Note for Figure 10:
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.

# Mechanical Dimensions

**Figure 11: V22 LED Array**

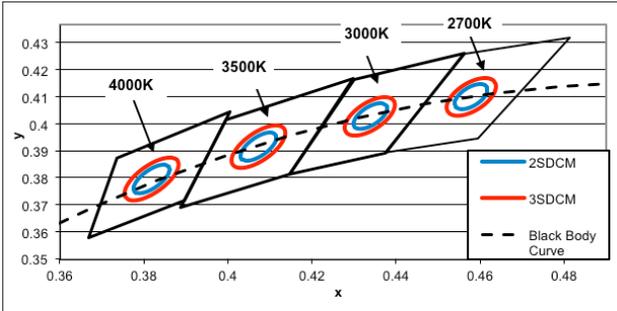


Notes for Figure 11:

1. Drawings are not to scale.
2. Drawing dimensions are in millimeters.
3. Unless otherwise specified, tolerances are  $\pm 0.1\text{mm}$ .
4. Mounting holes (2X) are for M2.5 screws.
5. Bridgelux recommends two tapped holes for mounting screws with  $31.4 \pm 0.10\text{mm}$  center-to-center spacing.
6. Screws with flat shoulders (pan, dome, button, round, truss, mushroom) provide optimal torque control. Do NOT use flat, countersink, or raised head screws.
7. Solder pads and connector port are labeled "+" and "-" to denote positive and negative, respectively.
8. It is not necessary to provide electrical connections to both the solder pads and the connector port. Either set may be used depending on application specific design requirements.
9. Refer to Application Notes AN30 and AN31 for product handling, mounting and heat sink recommendations.
10. The optical center of the LED Array is nominally defined by the mechanical center of the array to a tolerance of  $\pm 0.2\text{mm}$ .
11. Bridgelux maintains a flatness of 0.10mm across the mounting surface of the array.

# Color Binning Information

**Figure 12: Graph of Warm and Neutral White Test Bins in xy Color Space**

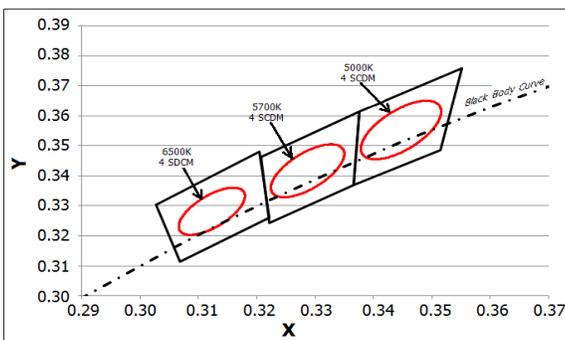


Note: Pulsed Test Conditions,  $T_c = 25^\circ\text{C}$

**Table 6: Warm and Neutral White xy Bin Coordinates and Associated Typical CCT**

Bin Code	2700K	3000K	3500K	4000K
ANSI Bin (for reference only)	(2580K - 2870K)	(2870K - 3220K)	(3220K - 3710K)	(3710K - 4260K)
23 (3 SDCM)	(2651K - 2794K)	(2968K - 3136K)	(3369K - 3586K)	(3851K - 4130K)
22 (2 SDCM)	(2674K - 2769K)	(2995K - 3107K)	(3404K - 3548K)	(3895K - 4081K)
Center Point (x,y)	(0.4578, 0.4101)	(0.4338, 0.403)	(0.4073, 0.3917)	(0.3818, 0.3797)

**Figure 13: Graph of Cool White Test Bins in xy Color Space**



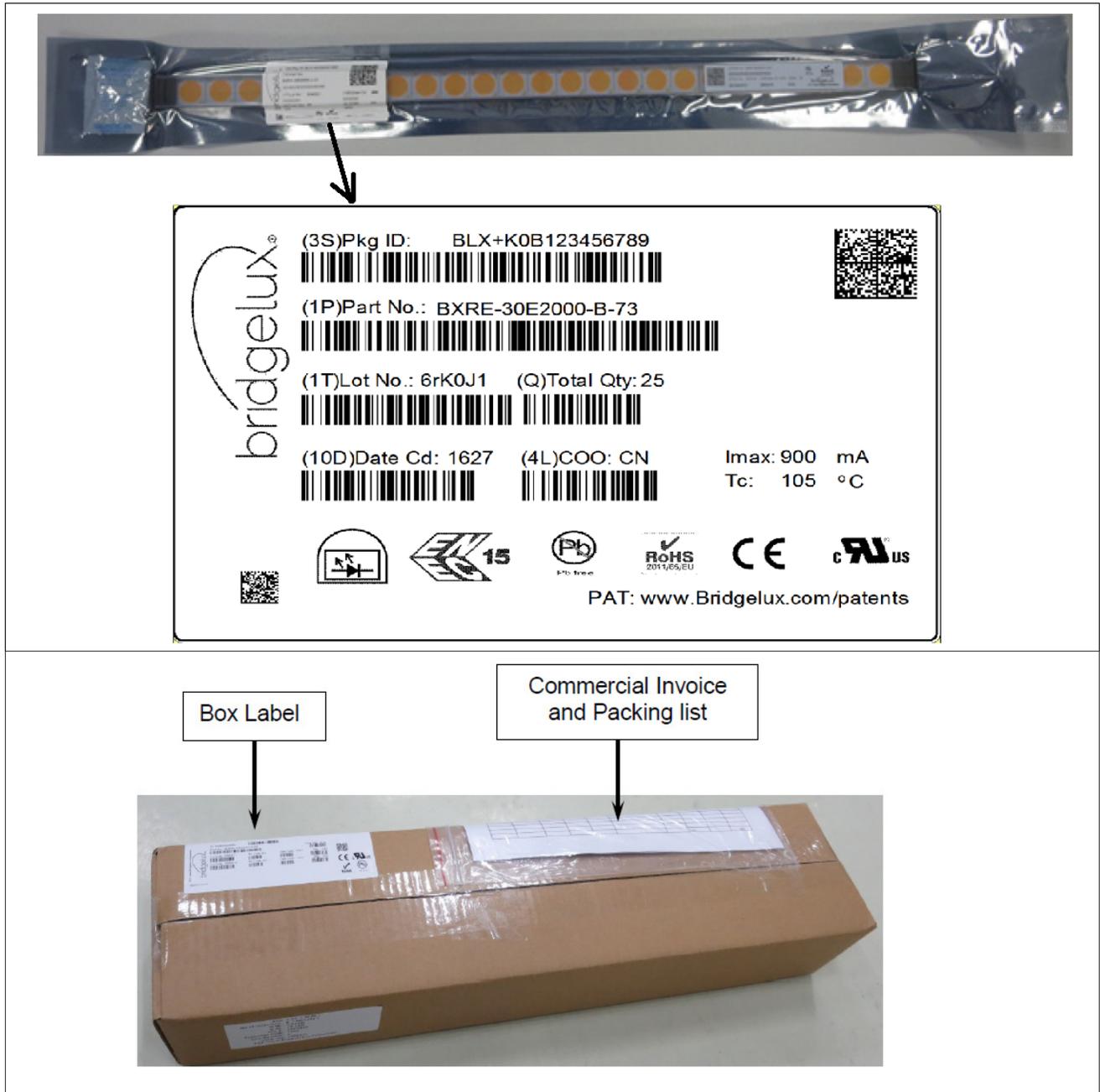
Note: Pulsed Test Conditions,  $T_c = 25^\circ\text{C}$

**Table 7: 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)
4 (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 14: Drawing for V22 Packaging Tube



Notes for Figure 14:

1. Each tube holds 15 V22 COB arrays.
2. One tube is sealed in an anti-static bag. Four bags are placed in a shipping box and shipped. Depending on quantities ordered, a bigger shipping box, containing four boxes may be used to ship products.
3. Each bag and box is to be labeled as shown above.
4. Dimensions for each tube are 30.7 (W) x 9.65(H) x 460(L). Dimensions for the anti-static bag are 75 (W) x 615 (L) x 3.1 (T) mm. Dimensions for the shipping box are 58.7 x 13.3 x 7.9 cm.

# Packaging and Labeling

**Figure 16: 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 Vero product family of LED array products. For all available application notes visit [www.bridgelux.com](http://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](http://www.bridgelux.com).

## 3D CAD Models

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

## LM80

LM80 testing is ongoing. 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

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. V Series LED arrays are classified as Risk Group 2 (Moderate Risk) when operated at or below 2.5 times the nominal drive current. The Ethr value is 889.79 lux per IEC/TR 62778. Please use appropriate precautions. Under many operating conditions the V Series LED arrays are classified as Risk Group 1, for more information please contact your Bridgelux sales representative. It is important that employees working with LEDs are trained to use them safely.

## 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). 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: 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**  
**bridgelux.com**  
**twitter.com/Bridgelux**  
**facebook.com/Bridgelux**  
**WeChat ID: BridgeluxInChina**



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Bridgelux Gen 7 V22 Array Series Product Data Sheet DS103 Rev. A (06/2016)