# LUXEON CoB Core Range (Gen 2)

## Uniform, high-efficacy and easy-to-design array

The second generation of LUXEON CoB represents a new breakthrough in efficacy for arrays. It has 10% higher efficiency and 10% higher lumen output at the same drive currents as existing LUXEON CoB. Due to its small Light Emitting Surface (LES) and industry-leading thermal resistance, LUXEON CoB is easy to work with, enabling simplified and less expensive luminaire designs. LUXEON CoBs are hot-tested at 85°C—real world operating conditions—which means additional testing can be minimized. LUXEON CoB LEDs are available in 3-step MacAdam ellipse, ensuring uniform optical performance in a wide range of applications.

### FEATURES AND BENEFITS

- Highest flux densities with industry's smallest LES
- 3-step MacAdam ellipse color definition: *Freedom from Binning* for color consistency from luminaire to luminaire
- Up to 4x lower thermal resistance than competition, enabling smaller heat sinks and higher lumens
- Supported by a comprehensive optical, mechanical and electrical ecosystem

### PRIMARY APPLICATIONS

- Architectural
- Downlights
- High Bay & Low Bay
- Lamps
- Outdoor
- Specialty Lighting
- Spotlights

No. E352519

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# Revision History

Each instance in the revision history table reflects a change to this document from its previous version. For more details, refer to the corresponding sections or links in the table below. For older revisions not listed on the page, please contact your local Lumileds representative.

| DATE | DESCRIPTION |
|---|---|
| February 18, 2016 | Added the following parts to LUXEON CoB 1202s: 90CRI (2200K, 2700K, 3000K, 3500K, 4000K) |

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# General Product Information

## Product Test Conditions

LUXEON CoB Core Range (Gen 2) LEDs are tested and binned with a DC drive current specified below at a junction temperature, $T_j$, of 85°C:

| | | |
|---|---|---|
| 200mA | – | LUXEON CoB 1202s |
| 200mA | – | LUXEON CoB 1202 |
| 300mA | – | LUXEON CoB 1203 |
| 450mA | – | LUXEON CoB 1204 |
| 600mA | – | LUXEON CoB 1205 |
| 900mA | – | LUXEON CoB 1208 |
| 1200mA | – | LUXEON CoB 1211 |
| 1600mA | – | LUXEON CoB 1216 |

## Part Number Nomenclature

Part numbers for LUXEON CoB Core Range (Gen 2) follow the convention below:

L 2 C 2 – **A A B B C C C C** E **D D F F**

Where:

| | | |
|---|---|---|
| **A A** | – | designates nominal CCT (22=2200K, 27=2700K, 30=3000K, 35=3500K, 40=4000K, 50=5000K, 57=5700K) |
| **B B** | – | designates minimum CRI (70=70CRI, 80=80CRI, 90=90CRI) |
| **C C C C** | – | designates product configuration (example: 1202, 1203, 1204, 1205, 1208, 1211, 1216) |
| **D D** | – | designates light emitting surface (LES) size (06=6mm, 09=9mm, 13=13mm, 15=15mm, 19=19mm, 23=23mm) |
| **F F** | – | designates options for product specification |

Therefore, the following part number is used for a LUXEON CoB Core Range (Gen 2) 1203, 3000K 80CRI, 9mm LES:

L 2 C 2 – **3 0 8 0 1 2 0 3** E **0 9** 0 0

## Lumen Maintenance

Please contact your local Sales Representative or Lumileds Technical Solutions Manager for more information about the long-term performance of this product.

## Environmental Compliance

Lumileds LLC is committed to providing environmentally friendly products to the solid-state lighting market. LUXEON CoB Core Range (Gen 2) is compliant to the European Union directives on the restriction of hazardous substances in electronic equipment, namely the RoHS Directive 2011/65/EU and REACH Regulation (EC) 1907/2006. Lumileds LLC will not intentionally add the following restricted materials to its products: lead, mercury, cadmium, hexavalent chromium, polybrominated biphenyls (PBB) or polybrominated diphenyl ethers (PBDE).

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# Performance Characteristics

## Product Selection Guide

**Table 1. Product performance of LUXEON CoB Core Range (Gen 2) at specified test current, $T_j$=85°C.**

| PRODUCT | NOMINAL CCT | MINIMUM CRI [1, 2, 3] | LUMINOUS FLUX [1] (lm) | | TYPICAL LUMINOUS EFFICACY (lm/W) | TEST CURRENT (mA) | LES (mm) | PART NUMBER |
|---|---|---|---|---|---|---|---|---|
| | | | MINIMUM | TYPICAL | | | | |
| LUXEON CoB 1202s | 2200K | 80 | 660 | 733 | 105 | 200 | 6.5 | L2C2-22801202E0600 |
| | 2700K | 80 | 756 | 840 | 120 | 200 | 6.5 | L2C2-27801202E0600 |
| | 3000K | 80 | 788 | 875 | 125 | 200 | 6.5 | L2C2-30801202E0600 |
| | 3500K | 80 | 828 | 920 | 131 | 200 | 6.5 | L2C2-35801202E0600 |
| | 4000K | 80 | 844 | 938 | 134 | 200 | 6.5 | L2C2-40801202E0600 |
| | 5000K | 80 | 860 | 956 | 137 | 200 | 6.5 | L2C2-50801202E0600 |
| | 5700K | 80 | 828 | 920 | 131 | 200 | 6.5 | L2C2-57801202E0600 |
| | 2200K | 90 | 573 | 636 | 91 | 200 | 6.5 | L2C2-22901202E0600 |
| | 2200K | 90 [4] | 539 | 599 | 86 | 200 | 6.5 | L2C2-22951202E0600 |
| | 2700K | 90 | 661 | 734 | 105 | 200 | 6.5 | L2C2-27901202E0600 |
| | 2700K | 90 [4] | 609 | 677 | 97 | 200 | 6.5 | L2C2-27951202E0600 |
| | 3000K | 90 | 675 | 750 | 107 | 200 | 6.5 | L2C2-30901202E0600 |
| | 3000K | 90 [4] | 637 | 708 | 101 | 200 | 6.5 | L2C2-30951202E0600 |
| | 3500K | 90 | 708 | 786 | 112 | 200 | 6.5 | L2C2-35901202E0600 |
| | 3500K | 90 [4] | 662 | 735 | 105 | 200 | 6.5 | L2C2-35951202E0600 |
| | 4000K | 90 | 720 | 800 | 114 | 200 | 6.5 | L2C2-40901202E0600 |
| | 4000K | 90 [4] | 700 | 778 | 111 | 200 | 6.5 | L2C2-40951202E0600 |
| LUXEON CoB 1202 | 3000K | 70 | 924 | 1027 | 147 | 200 | 9 | L2C2-30701202E0900 |
| | 3500K | 70 | 924 | 1027 | 147 | 200 | 9 | L2C2-35701202E0900 |
| | 4000K | 70 | 982 | 1092 | 152 | 200 | 9 | L2C2-40701202E0900 |
| | 5000K | 70 | 982 | 1092 | 152 | 200 | 9 | L2C2-50701202E0900 |
| | 5700K | 70 | 941 | 1045 | 149 | 200 | 9 | L2C2-57701202E0900 |
| | 2200K | 80 | 658 | 731 | 104 | 200 | 9 | L2C2-22801202E0900 |
| | 2700K | 80 | 791 | 879 | 126 | 200 | 9 | L2C2-27801202E0900 |
| | 3000K | 80 | 833 | 925 | 132 | 200 | 9 | L2C2-30801202E0900 |
| | 3500K | 80 | 866 | 962 | 137 | 200 | 9 | L2C2-35801202E0900 |
| | 4000K | 80 | 895 | 994 | 142 | 200 | 9 | L2C2-40801202E0900 |
| | 5000K | 80 | 899 | 999 | 143 | 200 | 9 | L2C2-50801202E0900 |
| | 5700K | 80 | 859 | 955 | 134 | 200 | 9 | L2C2-57801202E0900 |
| | 2200K | 90 | 599 | 666 | 95 | 200 | 9 | L2C2-22901202E0900 |
| | 2700K | 90 | 691 | 768 | 110 | 200 | 9 | L2C2-27901202E0900 |
| | 3000K | 90 | 716 | 796 | 114 | 200 | 9 | L2C2-30901202E0900 |
| | 3500K | 90 | 740 | 822 | 118 | 200 | 9 | L2C2-35901202E0900 |
| | 4000K | 90 | 774 | 860 | 123 | 200 | 9 | L2C2-40901202E0900 |

Table 1 continued on next page.

1. Lumileds maintains a tolerance of ±2 on CRI and ±6.5% on luminous flux measurements.
2. Typical CRI is approximately 2 points higher than the minimum CRI specified, but this is not guaranteed.
3. R9 value of 90CRI products is >50.
4. Typical CRI is 97.

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Table 1. Product performance of LUXEON CoB Core Range (Gen 2) at specified test current, $T_j$=85ºC (continued).

| PRODUCT | NOMINAL CCT | MINIMUM CRI [1, 2, 3] | LUMINOUS FLUX [1] (lm) | | TYPICAL LUMINOUS EFFICACY (lm/W) | TEST CURRENT (mA) | LES (mm) | PART NUMBER |
|---|---|---|---|---|---|---|---|---|
| | | | MINIMUM | TYPICAL | | | | |
| LUXEON CoB 1203 | 3000K | 70 | 1332 | 1499 | 143 | 300 | 9 | L2C2-30701203E0900 |
| | 3500K | 70 | 1332 | 1499 | 143 | 300 | 9 | L2C2-35701203E0900 |
| | 4000K | 70 | 1416 | 1593 | 148 | 300 | 9 | L2C2-40701203E0900 |
| | 5000K | 70 | 1416 | 1593 | 148 | 300 | 9 | L2C2-50701203E0900 |
| | 5700K | 70 | 1356 | 1526 | 145 | 300 | 9 | L2C2-57701203E0900 |
| | 2200K | 80 | 948 | 1067 | 102 | 300 | 9 | L2C2-22801203E0900 |
| | 2700K | 80 | 1140 | 1283 | 122 | 300 | 9 | L2C2-27801203E0900 |
| | 3000K | 80 | 1200 | 1350 | 129 | 300 | 9 | L2C2-30801203E0900 |
| | 3500K | 80 | 1248 | 1404 | 134 | 300 | 9 | L2C2-35801203E0900 |
| | 4000K | 80 | 1290 | 1451 | 138 | 300 | 9 | L2C2-40801203E0900 |
| | 5000K | 80 | 1296 | 1458 | 139 | 300 | 9 | L2C2-50801203E0900 |
| | 5700K | 80 | 1264 | 1404 | 134 | 300 | 9 | L2C2-57801203E0900 |
| | 2200K | 90 | 864 | 972 | 93 | 300 | 9 | L2C2-22901203E0900 |
| | 2700K | 90 | 996 | 1121 | 107 | 300 | 9 | L2C2-27901203E0900 |
| | 3000K | 90 | 1032 | 1161 | 111 | 300 | 9 | L2C2-30901203E0900 |
| | 3500K | 90 | 1067 | 1200 | 114 | 300 | 9 | L2C2-35901203E0900 |
| | 4000K | 90 | 1116 | 1256 | 120 | 300 | 9 | L2C2-40901203E0900 |
| LUXEON CoB 1204 | 3000K | 70 | 1998 | 2248 | 143 | 450 | 13 | L2C2-30701204E1300 |
| | 3500K | 70 | 1998 | 2248 | 143 | 450 | 13 | L2C2-35701204E1300 |
| | 4000K | 70 | 2124 | 2390 | 148 | 450 | 13 | L2C2-40701204E1300 |
| | 5000K | 70 | 2124 | 2390 | 148 | 450 | 13 | L2C2-50701204E1300 |
| | 5700K | 70 | 2034 | 2288 | 145 | 450 | 13 | L2C2-57701204E1300 |
| | 2200K | 80 | 1422 | 1600 | 102 | 450 | 13 | L2C2-22801204E1300 |
| | 2700K | 80 | 1710 | 1924 | 122 | 450 | 13 | L2C2-27801204E1300 |
| | 3000K | 80 | 1800 | 2025 | 129 | 450 | 13 | L2C2-30801204E1300 |
| | 3500K | 80 | 1872 | 2106 | 134 | 450 | 13 | L2C2-35801204E1300 |
| | 4000K | 80 | 1935 | 2177 | 138 | 450 | 13 | L2C2-40801204E1300 |
| | 5000K | 80 | 1944 | 2187 | 139 | 450 | 13 | L2C2-50801204E1300 |
| | 5700K | 80 | 1971 | 2190 | 134 | 450 | 13 | L2C2-57801204E1300 |
| | 2200K | 90 | 1296 | 1458 | 93 | 450 | 13 | L2C2-22901204E1300 |
| | 2700K | 90 | 1494 | 1681 | 107 | 450 | 13 | L2C2-27901204E1300 |
| | 3000K | 90 | 1548 | 1742 | 111 | 450 | 13 | L2C2-30901204E1300 |
| | 3500K | 90 | 1600 | 1800 | 114 | 450 | 13 | L2C2-35901204E1300 |
| | 4000K | 90 | 1674 | 1883 | 120 | 450 | 13 | L2C2-40901204E1300 |

Table 1 continued on next page.

1. Lumileds maintains a tolerance of ±2 on CRI and ±6.5% on luminous flux measurements.
2. Typical CRI is approximately 2 points higher than the minimum CRI specified, but this is not guaranteed.
3. R9 value of 90CRI products is >50.

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Table 1. Product performance of LUXEON CoB Core Range (Gen 2) at specified test current, $T_j$=85ºC (continued).

| PRODUCT | NOMINAL CCT | MINIMUM CRI [1, 2, 3] | LUMINOUS FLUX [1] (lm) | | TYPICAL LUMINOUS EFFICACY (lm/W) | TEST CURRENT (mA) | LES (mm) | PART NUMBER |
|---|---|---|---|---|---|---|---|---|
| | | | MINIMUM | TYPICAL | | | | |
| LUXEON CoB 1205 | 3000K | 70 | 2720 | 2997 | 143 | 600 | 13 | L2C2-30701205E1300 |
| | 3500K | 70 | 2720 | 2997 | 143 | 600 | 13 | L2C2-35701205E1300 |
| | 4000K | 70 | 2891 | 3186 | 148 | 600 | 13 | L2C2-40701205E1300 |
| | 5000K | 70 | 2891 | 3186 | 148 | 600 | 13 | L2C2-50701205E1300 |
| | 5700K | 70 | 2769 | 3051 | 145 | 600 | 13 | L2C2-57701205E1300 |
| | 2200K | 80 | 1936 | 2133 | 102 | 600 | 13 | L2C2-22801205E1300 |
| | 2700K | 80 | 2328 | 2565 | 122 | 600 | 13 | L2C2-27801205E1300 |
| | 3000K | 80 | 2450 | 2700 | 129 | 600 | 13 | L2C2-30801205E1300 |
| | 3500K | 80 | 2548 | 2808 | 134 | 600 | 13 | L2C2-35801205E1300 |
| | 4000K | 80 | 2634 | 2903 | 138 | 600 | 13 | L2C2-40801205E1300 |
| | 5000K | 80 | 2646 | 2916 | 139 | 600 | 13 | L2C2-50801205E1300 |
| | 5700K | 80 | 2527 | 2808 | 134 | 600 | 13 | L2C2-57801205E1300 |
| | 2200K | 90 | 1764 | 1944 | 93 | 600 | 13 | L2C2-22901205E1300 |
| | 2700K | 90 | 2034 | 2241 | 107 | 600 | 13 | L2C2-27901205E1300 |
| | 3000K | 90 | 2107 | 2322 | 111 | 600 | 13 | L2C2-30901205E1300 |
| | 3500K | 90 | 2178 | 2400 | 114 | 600 | 13 | L2C2-35901205E1300 |
| | 4000K | 90 | 2279 | 2511 | 120 | 600 | 13 | L2C2-40901205E1300 |
| LUXEON CoB 1208 | 3000K | 70 | 4024 | 4496 | 143 | 900 | 15 | L2C2-30701208E1500 |
| | 3500K | 70 | 4024 | 4496 | 143 | 900 | 15 | L2C2-35701208E1500 |
| | 4000K | 70 | 4278 | 4779 | 148 | 900 | 15 | L2C2-40701208E1500 |
| | 5000K | 70 | 4278 | 4779 | 148 | 900 | 15 | L2C2-50701208E1500 |
| | 5700K | 70 | 4096 | 4577 | 145 | 900 | 15 | L2C2-57701208E1500 |
| | 2200K | 80 | 2864 | 3200 | 102 | 900 | 15 | L2C2-22801208E1500 |
| | 2700K | 80 | 3444 | 3848 | 122 | 900 | 15 | L2C2-27801208E1500 |
| | 3000K | 80 | 3625 | 4050 | 129 | 900 | 15 | L2C2-30801208E1500 |
| | 3500K | 80 | 3770 | 4212 | 134 | 900 | 15 | L2C2-35801208E1500 |
| | 4000K | 80 | 3897 | 4354 | 138 | 900 | 15 | L2C2-40801208E1500 |
| | 5000K | 80 | 3915 | 4374 | 139 | 900 | 15 | L2C2-50801208E1500 |
| | 5700K | 80 | 3791 | 4212 | 134 | 900 | 15 | L2C2-57801208E1500 |
| | 2200K | 90 | 2610 | 2916 | 93 | 900 | 15 | L2C2-22901208E1500 |
| | 2700K | 90 | 3009 | 3362 | 107 | 900 | 15 | L2C2-27901208E1500 |
| | 3000K | 90 | 3118 | 3483 | 111 | 900 | 15 | L2C2-30901208E1500 |
| | 3500K | 90 | 3223 | 3600 | 114 | 900 | 15 | L2C2-35901208E1500 |
| | 4000K | 90 | 3371 | 3767 | 120 | 900 | 15 | L2C2-40901208E1500 |

Table 1 continued on next page.

1. Lumileds maintains a tolerance of ±2 on CRI and ±6.5% on luminous flux measurements.
2. Typical CRI is approximately 2 points higher than the minimum CRI specified, but this is not guaranteed.
3. R9 value of 90CRI products is >50.

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Table 1. Product performance of LUXEON CoB Core Range (Gen 2) at specified test current, $T_j$=85ºC (continued).

| PRODUCT | NOMINAL CCT | MINIMUM CRI [1, 2, 3] | LUMINOUS FLUX [1] (lm) | | TYPICAL LUMINOUS EFFICACY (lm/W) | TEST CURRENT (mA) | LES (mm) | PART NUMBER |
|---|---|---|---|---|---|---|---|---|
| | | | MINIMUM | TYPICAL | | | | |
| LUXEON CoB 1211 | 3000K | 70 | 5550 | 5994 | 143 | 1200 | 19 | L2C2-30701211E1900 |
| | 3500K | 70 | 5550 | 5994 | 143 | 1200 | 19 | L2C2-35701211E1900 |
| | 4000K | 70 | 5900 | 6372 | 148 | 1200 | 19 | L2C2-40701211E1900 |
| | 5000K | 70 | 5900 | 6372 | 148 | 1200 | 19 | L2C2-50701211E1900 |
| | 5700K | 70 | 5650 | 6102 | 145 | 1200 | 19 | L2C2-57701211E1900 |
| | 2200K | 80 | 3950 | 4266 | 102 | 1200 | 19 | L2C2-22801211E1900 |
| | 2700K | 80 | 4750 | 5130 | 122 | 1200 | 19 | L2C2-27801211E1900 |
| | 3000K | 80 | 5000 | 5400 | 129 | 1200 | 19 | L2C2-30801211E1900 |
| | 3500K | 80 | 5200 | 5616 | 134 | 1200 | 19 | L2C2-35801211E1900 |
| | 4000K | 80 | 5375 | 5805 | 138 | 1200 | 19 | L2C2-40801211E1900 |
| | 5000K | 80 | 5400 | 5832 | 139 | 1200 | 19 | L2C2-50801211E1900 |
| | 5700K | 80 | 5054 | 5616 | 134 | 1200 | 19 | L2C2-57801211E1900 |
| | 2200K | 90 | 3600 | 3888 | 93 | 1200 | 19 | L2C2-22901211E1900 |
| | 2700K | 90 | 4150 | 4482 | 107 | 1200 | 19 | L2C2-27901211E1900 |
| | 3000K | 90 | 4300 | 4644 | 111 | 1200 | 19 | L2C2-30901211E1900 |
| | 3500K | 90 | 4445 | 4801 | 114 | 1200 | 19 | L2C2-35901211E1900 |
| | 4000K | 90 | 4650 | 5022 | 120 | 1200 | 19 | L2C2-40901211E1900 |
| LUXEON CoB 1216 | 3000K | 70 | 7229 | 8032 | 143 | 1600 | 23 | L2C2-30701216E2300 |
| | 3500K | 70 | 7229 | 8032 | 143 | 1600 | 23 | L2C2-35701216E2300 |
| | 4000K | 70 | 7684 | 8538 | 152 | 1600 | 23 | L2C2-40701216E2300 |
| | 5000K | 70 | 7684 | 8538 | 152 | 1600 | 23 | L2C2-50701216E2300 |
| | 5700K | 70 | 7359 | 8177 | 146 | 1600 | 23 | L2C2-57701216E2300 |
| | 2200K | 80 | 5144 | 5716 | 102 | 1600 | 23 | L2C2-22801216E2300 |
| | 2700K | 80 | 6187 | 6874 | 123 | 1600 | 23 | L2C2-27801216E2300 |
| | 3000K | 80 | 6512 | 7236 | 129 | 1600 | 23 | L2C2-30801216E2300 |
| | 3500K | 80 | 6773 | 7525 | 134 | 1600 | 23 | L2C2-35801216E2300 |
| | 4000K | 80 | 7002 | 7780 | 139 | 1600 | 23 | L2C2-40801216E2300 |
| | 5000K | 80 | 7034 | 7815 | 140 | 1600 | 23 | L2C2-50801216E2300 |
| | 5700K | 80 | 6773 | 7525 | 134 | 1600 | 23 | L2C2-57801216E2300 |
| | 2200K | 90 | 4689 | 5210 | 93 | 1600 | 23 | L2C2-22901216E2300 |
| | 2700K | 90 | 5405 | 6006 | 107 | 1600 | 23 | L2C2-27901216E2300 |
| | 3000K | 90 | 5601 | 6223 | 111 | 1600 | 23 | L2C2-30901216E2300 |
| | 3500K | 90 | 5790 | 6433 | 115 | 1600 | 23 | L2C2-35901216E2300 |
| | 4000K | 90 | 6056 | 6729 | 120 | 1600 | 23 | L2C2-40901216E2300 |

Notes for Table 1:
1. Lumileds maintains a tolerance of ±2 on CRI and ±6.5% on luminous flux measurements.
2. Typical CRI is approximately 2 points higher than the minimum CRI specified, but this is not guaranteed.
3. R9 value of 90CRI products is >50.

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# Optical Characteristics

**Table 2. Optical characteristics for LUXEON CoB Core Range (Gen 2) at specified test current, $T_j$=85°C.**

| PART NUMBER | TYPICAL TOTAL INCLUDED ANGLE [1] | TYPICAL VIEWING ANGLE [2] |
|---|---|---|
| L2C2-xxxx12xxExx00 | 135° | 115° |

Notes for Table 2:
1. Total angle at which 90% of total luminous flux is captured.
2. Viewing angle is the off axis angle from the LED centerline where the luminous intensity is ½ of the peak value.

# Electrical and Thermal Characteristics

**Table 3. Electrical and thermal characteristics for LUXEON CoB Core Range (Gen 2) at specified test current, $T_j$=85°C.**

| PART NUMBER | FORWARD VOLTAGE [1] (V) | | | TYPICAL TEMPERATURE COEFFICIENT OF FORWARD VOLTAGE [2] (mV/°C) | TYPICAL THERMAL RESISTANCE JUNCTION TO SOLDER PAD [3] (°C/W) |
|---|---|---|---|---|---|
| | MINIMUM | TYPICAL | MAXIMUM | | |
| L2C2-XXXX1202E0600 | 32.5 | 34.5 | 37.5 | -16 | 0.98 |
| L2C2-xxxx1202E0900 | 32.5 | 34.5 | 37.5 | -16 | 0.98 |
| L2C2-xxxx1203E0900 | 32.5 | 34.5 | 37.5 | -16 | 0.70 |
| L2C2-xxxx1204E1300 | 32.5 | 35.0 | 37.5 | -16 | 0.55 |
| L2C2-xxxx1205E1300 | 32.5 | 35.0 | 37.5 | -16 | 0.51 |
| L2C2-xxxx1208E1500 | 32.5 | 35.0 | 37.5 | -16 | 0.29 |
| L2C2-xxxx1211E1900 | 32.5 | 35.0 | 37.5 | -16 | 0.23 |
| L2C2-xxxx1216E2300 | 32.5 | 35.0 | 37.5 | -16 | 0.14 |

Notes for Table 3:
1. Lumileds maintains a tolerance of ±2% on forward voltage measurements.
2. Measured between 25°C and 85°C.
3. Thermal resistance is measured between junction and the bottom of the LUXEON CoB substrate.

# Absolute Maximum Ratings

**Table 4. Absolute maximum ratings for LUXEON CoB Core Range (Gen 2).**

| PARAMETER | MAXIMUM PERFORMANCE |
|---|---|
| DC Forward Current [1, 2] | 2x test current |
| LED Junction Temperature [1] (DC & Pulse) | 125°C |
| ESD Sensitivity (ANSI/ESDA/JEDEC JS-001-2012) | Class 3B |
| Operating Case Temperature [1] | -40°C to 105°C |
| LED Storage Temperature | -40°C to 120°C |
| Allowable Reflow Cycles | 3 |
| Reverse Voltage ($V_{reverse}$) | LUXEON LEDs are not designed to be driven in reverse bias |

Notes for Table 4:
1. Proper current derating must be observed to maintain the junction temperature below the maximum allowable junction temperature.
2. Residual periodic variations due to power conversion from alternating current (AC) to direct current (DC), also called "ripple," are acceptable if the following conditions are met:
   – The frequency of the ripple current is 100Hz or higher
   – The average current for each cycle does not exceed the maximum allowable DC forward current
   – The maximum amplitude of the ripple does not exceed 20% of the maximum allowable DC forward current

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# Characteristic Curves

## Spectral Power Distribution Characteristics

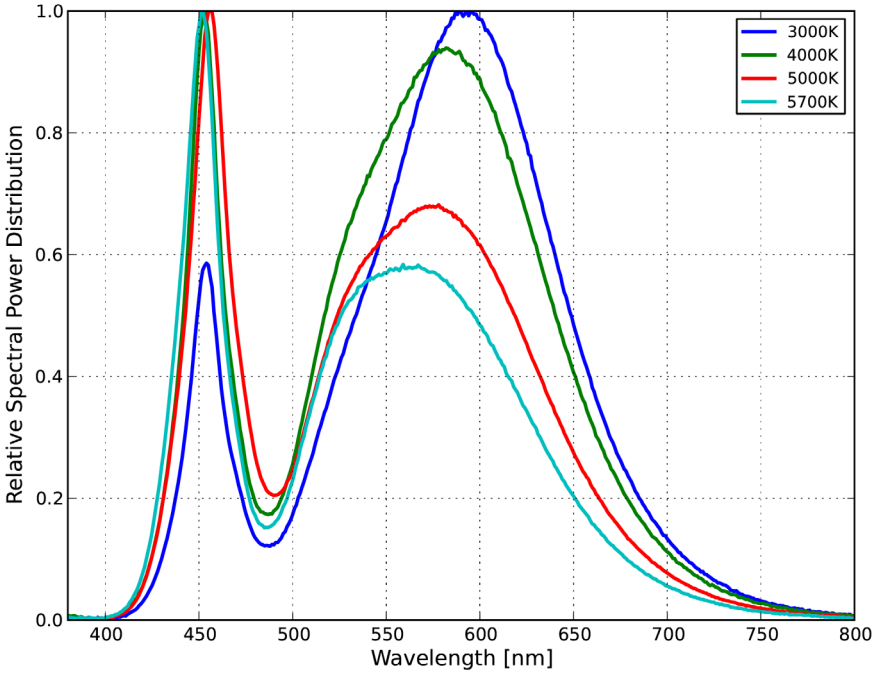


Figure 1a: Typical normalized power vs. wavelength for L2C2-xx70xxxxExx00 at specified test current, $T_j$=85°C.

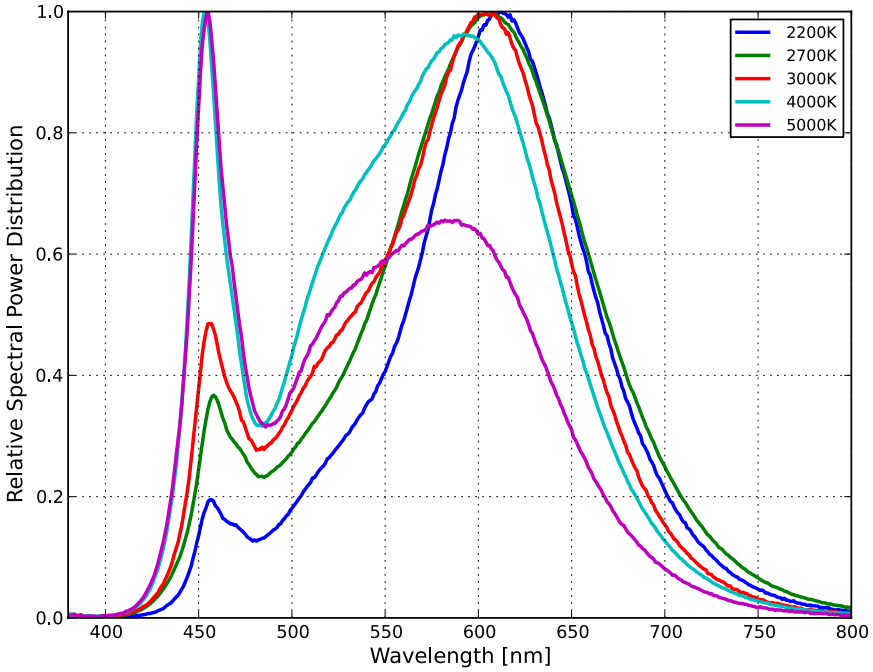


Figure 1b: Typical normalized power vs. wavelength for L2C2-xx80xxxxExx00 at specified test current, $T_j$=85°C.

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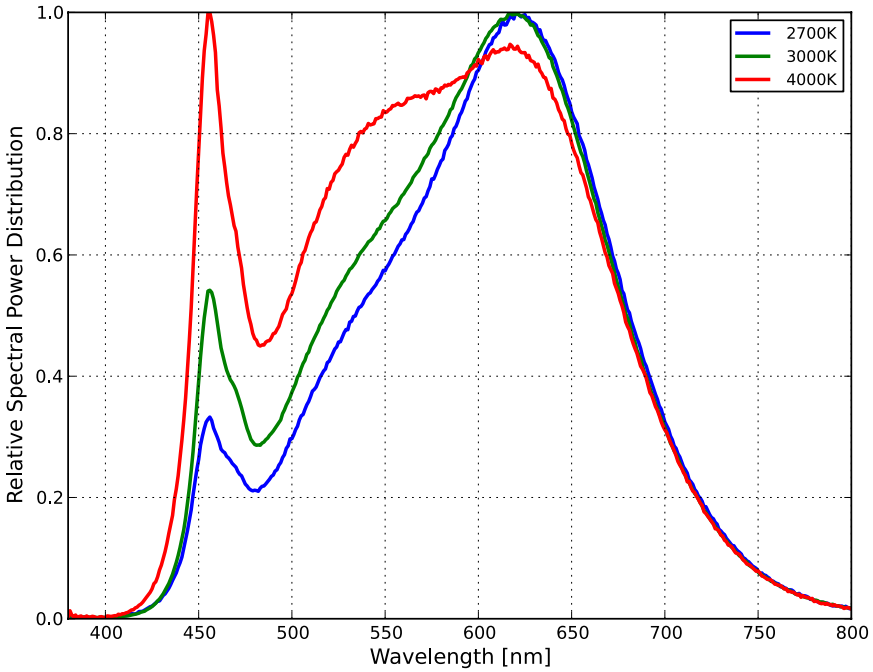


Figure 1c: Typical normalized power vs. wavelength for L2C2-xx90xxxxExx00 at specified test current, $T_j$=85°C.

## Light Output Characteristics

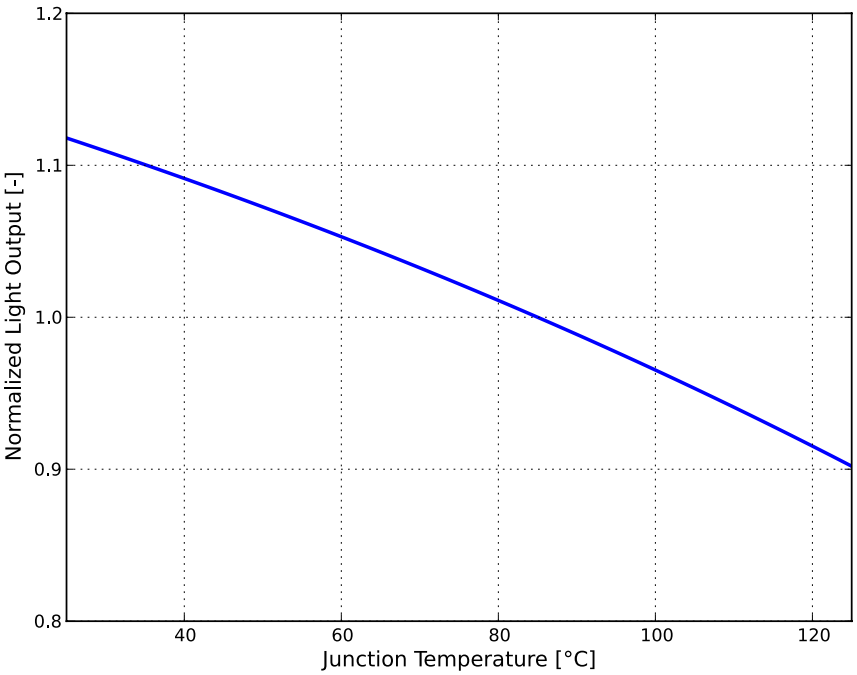


Figure 2: Typical normalized light output vs. junction temperature for L2C2-xxxxxxxxExx00 at specified test current.

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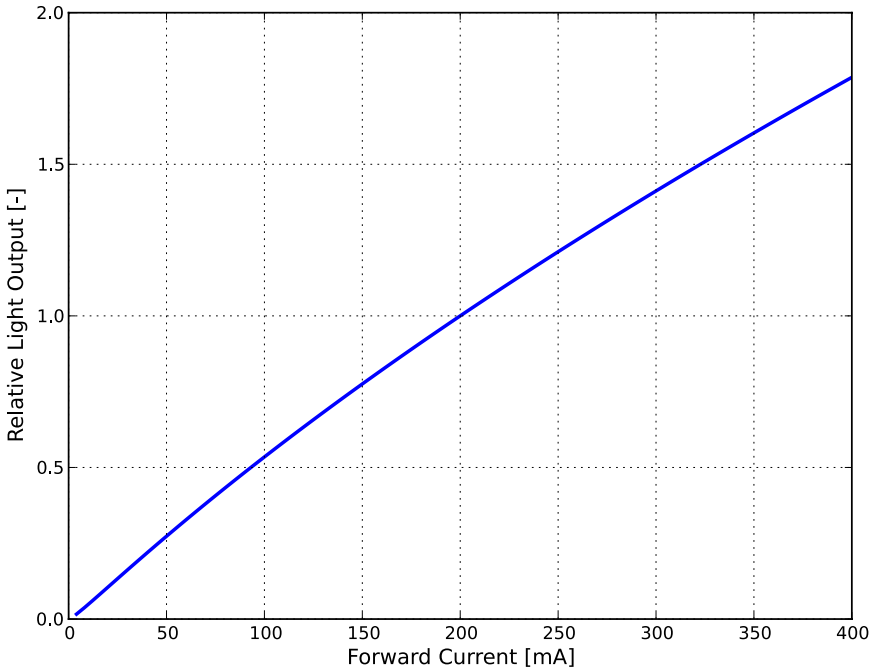


**Figure 3a: Typical normalized light output vs. forward current for L2C2-XXXX1202E0600 and L2C2-xxxx1202E0900 at $T_j$=85°C.**

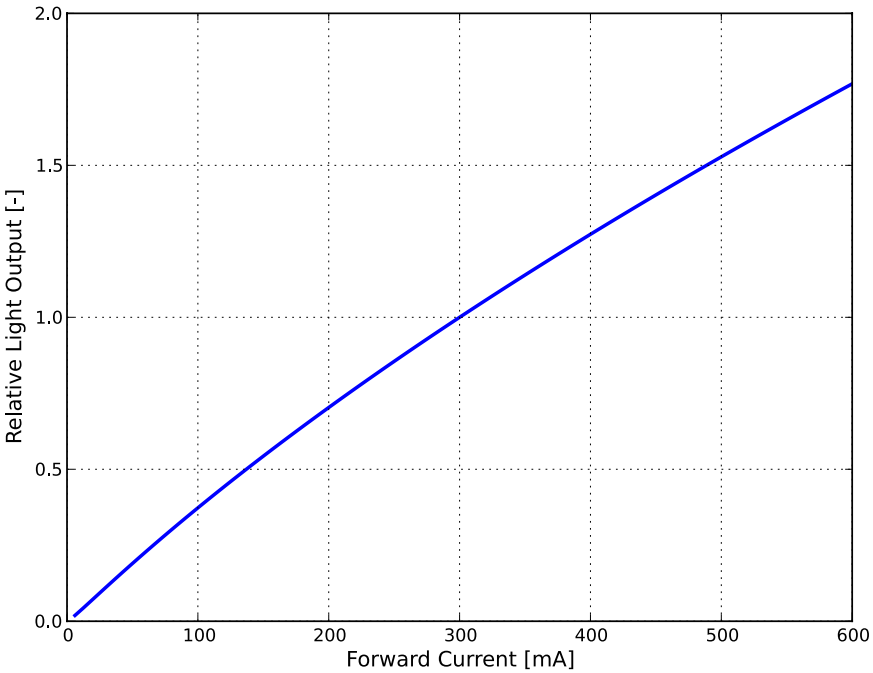


**Figure 3b: Typical normalized light output vs. forward current forL2C2-xxxx1203E0900 at $T_j$=85°C.**

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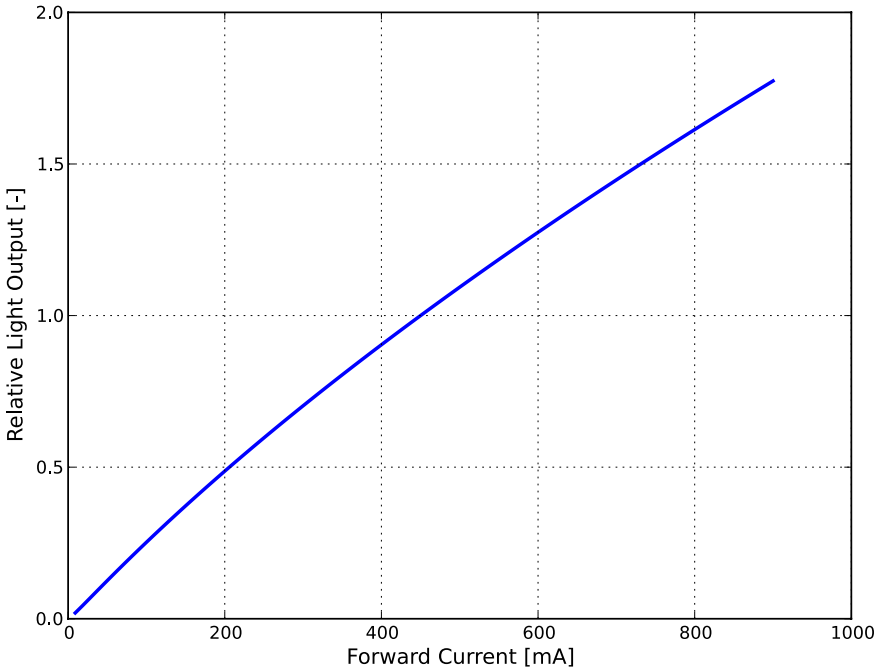


Figure 3c: Typical normalized light output vs. forward current for L2C2-xxxx1204E1300 at $T_j$=85°C.

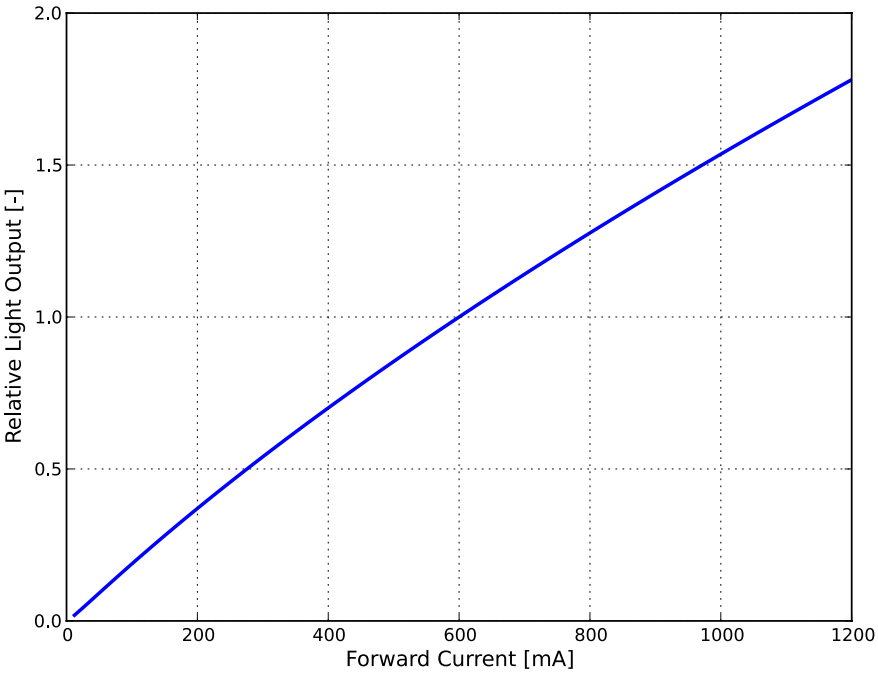


Figure 3d: Typical normalized light output vs. forward current for L2C2-xxxx1205E1300 at $T_j$=85°C.

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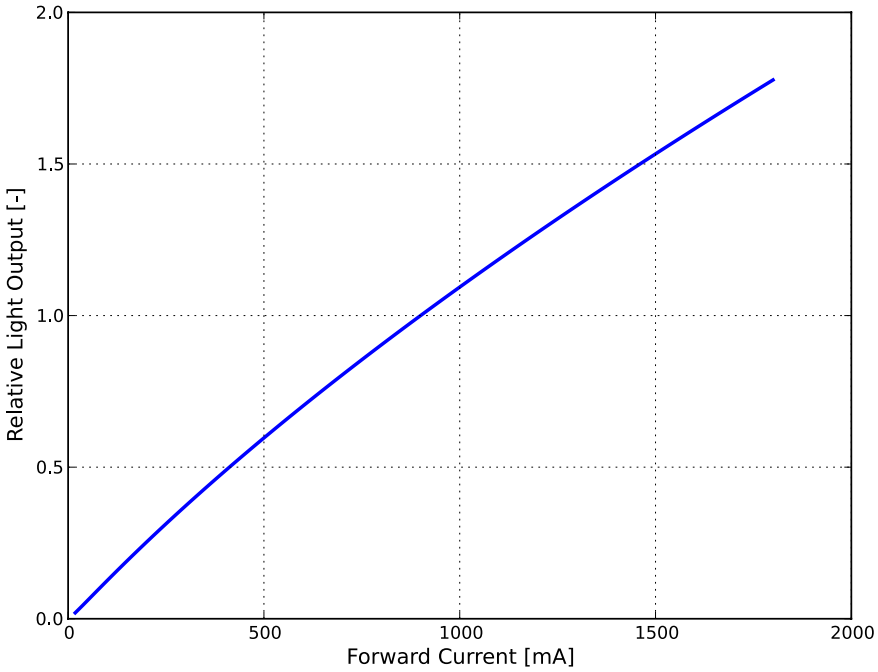


Figure 3e: Typical normalized light output vs. forward current for L2C2-xxxx1208E1500 at $T_j$=85°C.

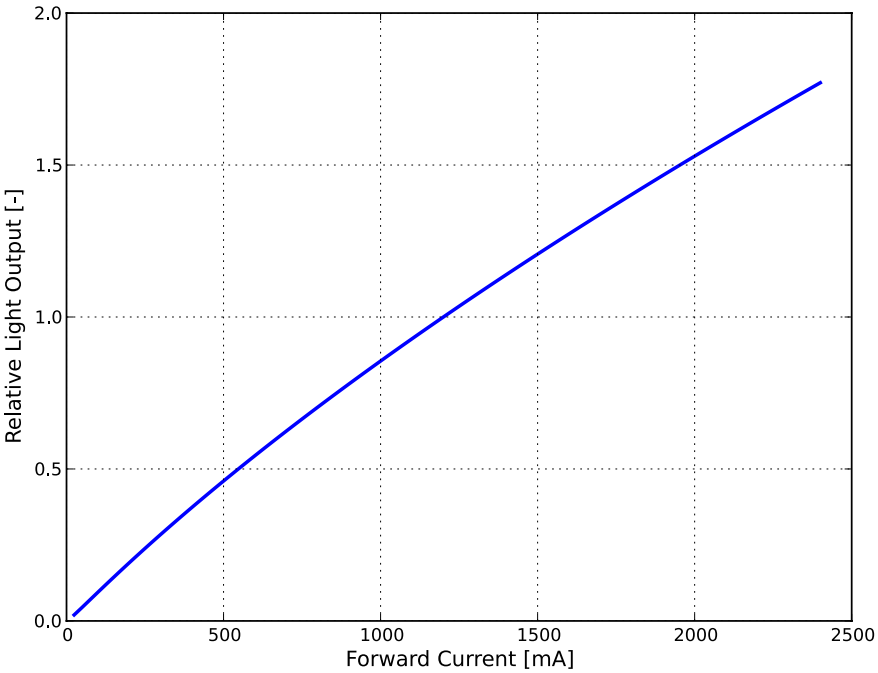


Figure 3f: Typical normalized light output vs. forward current for L2C2-xxxx1211E1900 at $T_j$=85°C.

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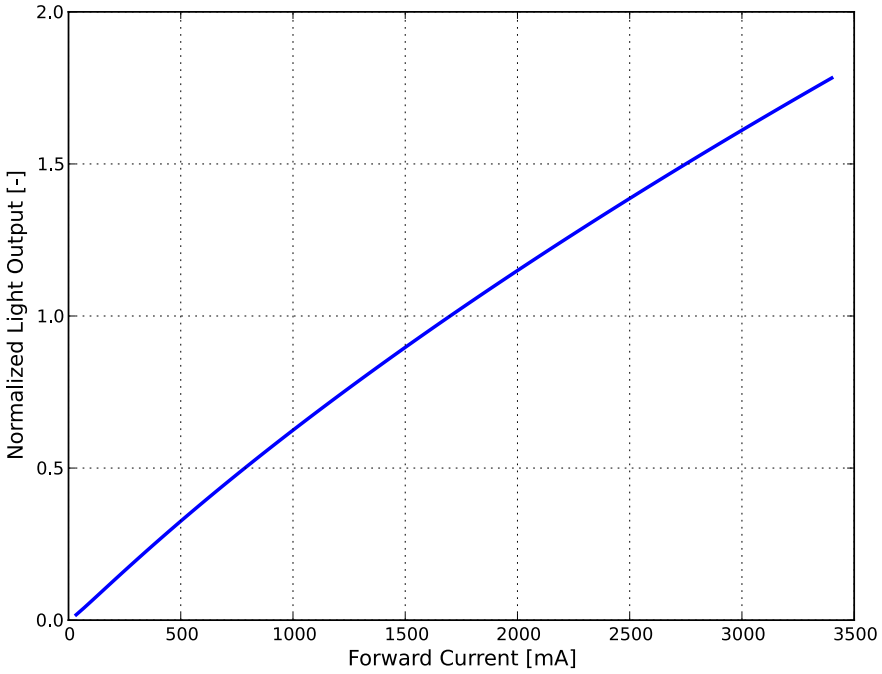


Figure 3g: Typical normalized light output vs. forward current for L2C2-xxxx1216E2300 at $T_j$=85°C.

## Forward Current Characteristics

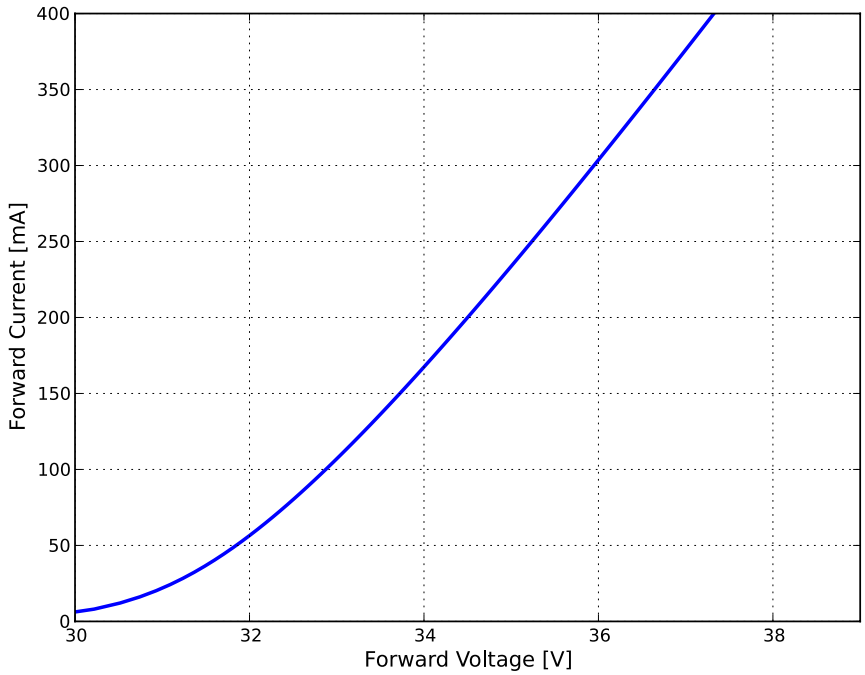


Figure 4a: Typical forward current vs. forward voltage for L2C2-XXXX1202E0600 and L2C2-xxxx1202E0900 at $T_j$=85°C.

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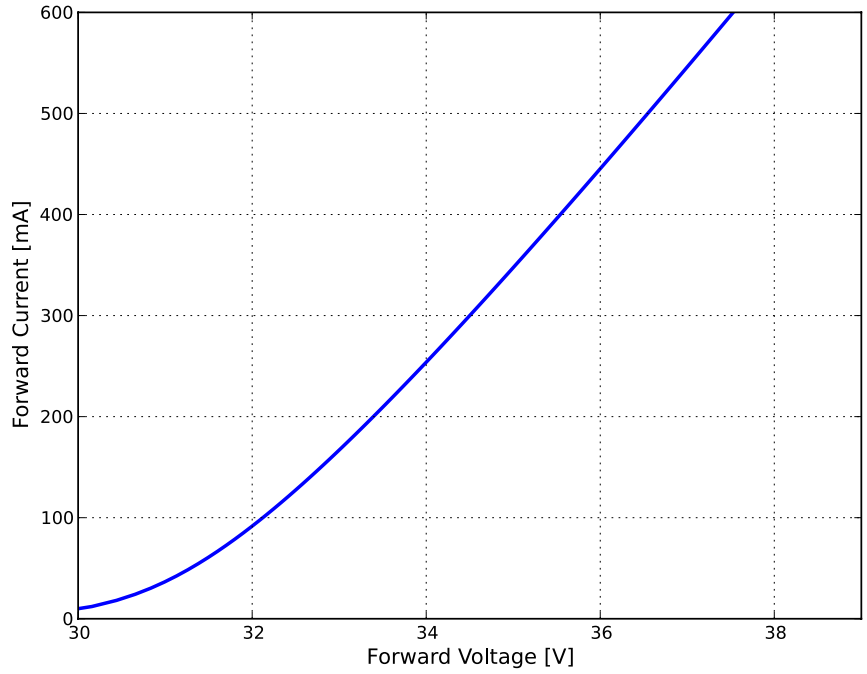


Figure 4b: Typical forward current vs. forward voltage for L2C2-xxxx1203E0900 at $T_j$=85°C.

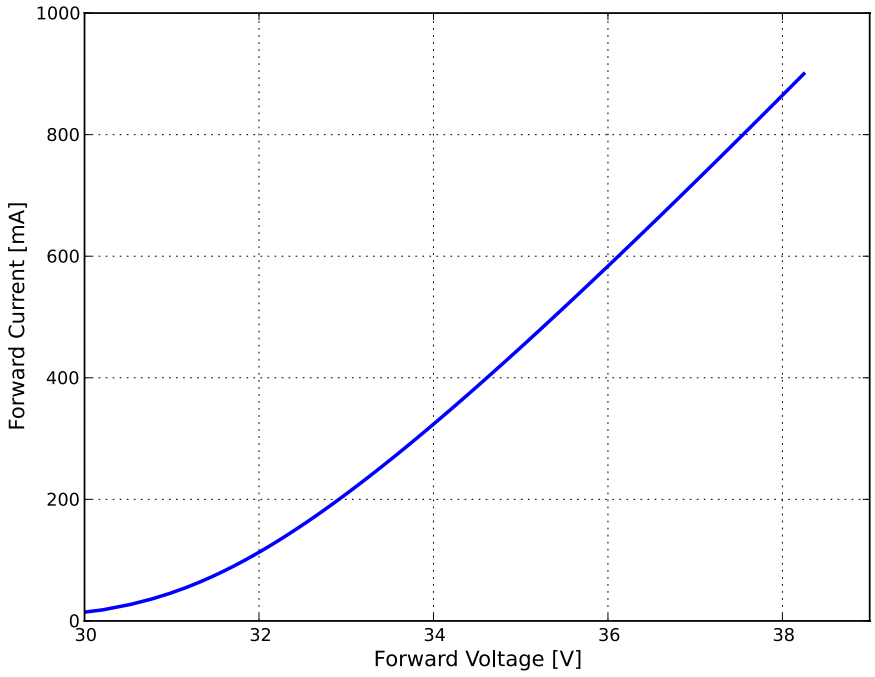


Figure 4c: Typical forward current vs. forward voltage for L2C2-xxxx1204E1300 at $T_j$=85°C.

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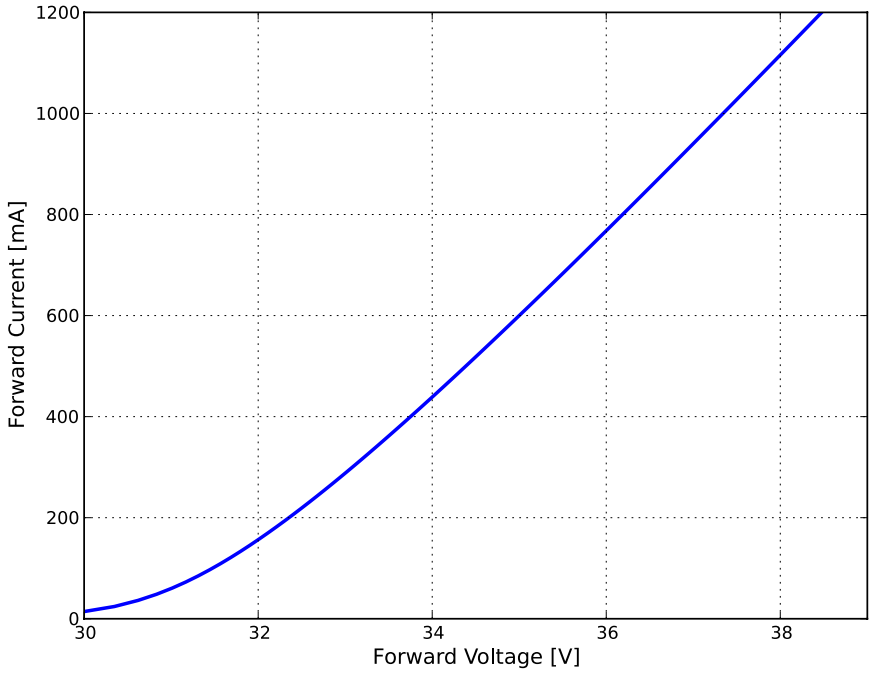


Figure 4d: Typical forward current vs. forward voltage for L2C2-xxxx1205E1300 at $T_j$=85°C.

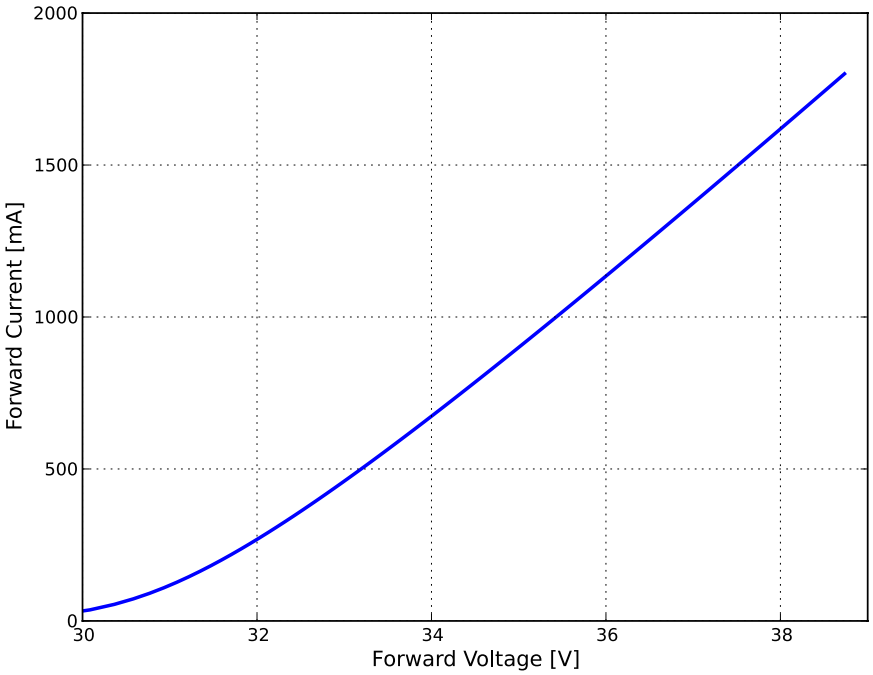


Figure 4e: Typical forward current vs. forward voltage for L2C2-xxxx1208E1500 at $T_j$=85°C.

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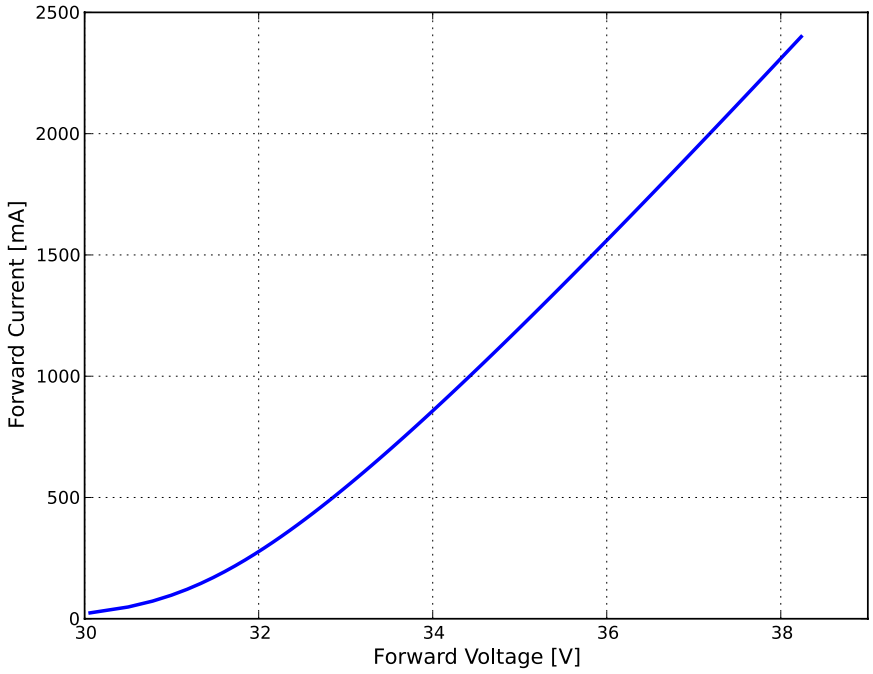


Figure 4f: Typical forward current vs. forward voltage for L2C2-xxxx1211E1900 at $T_j$=85°C.

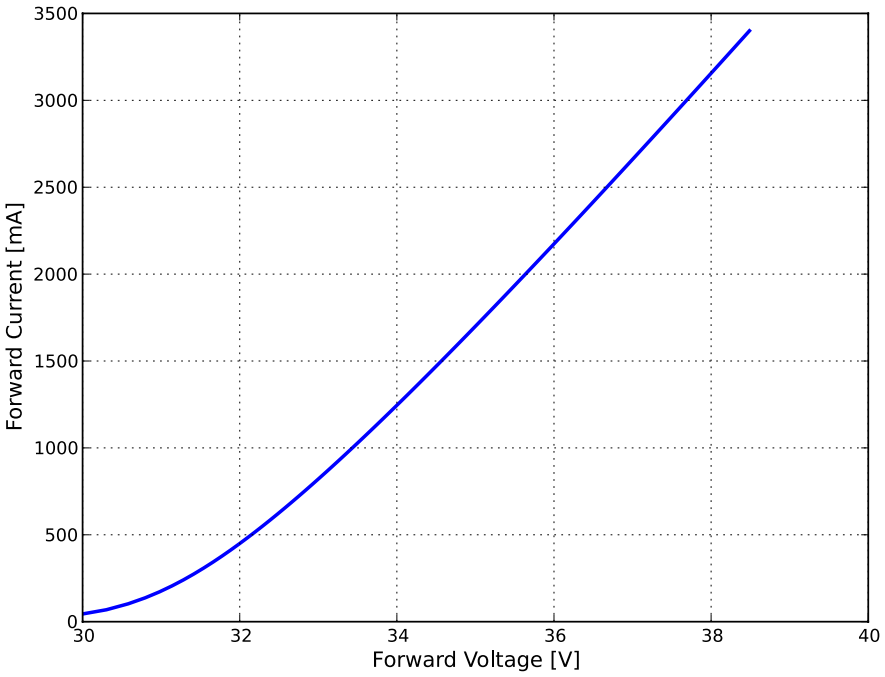


Figure 4g: Typical forward current vs. forward voltage for L2C2-xxxx1216E2300 at $T_j$=85°C.

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# Radiation Pattern Characteristics

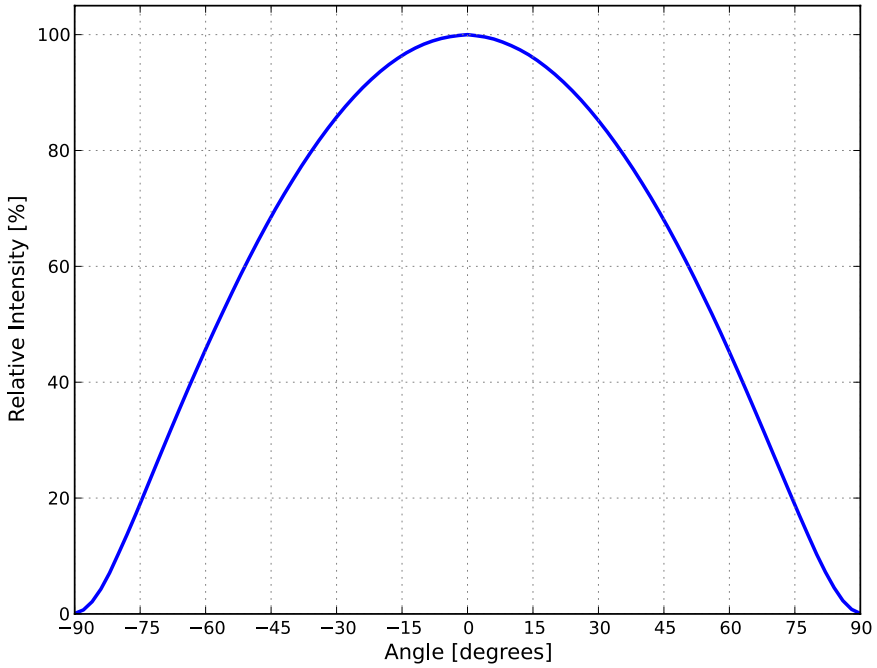


Figure 5: Typical radiation pattern for L2C2-xxxxxxxxExx00 at specified test current, $T_j$=85ºC.

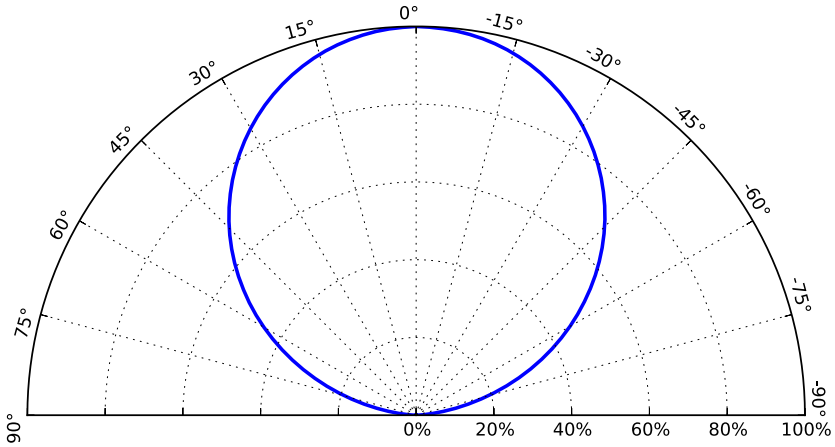


Figure 6: Typical polar radiation pattern for L2C2-xxxxxxxxExx00 at specified test current, $T_j$=85ºC.

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# Color Bin Definition

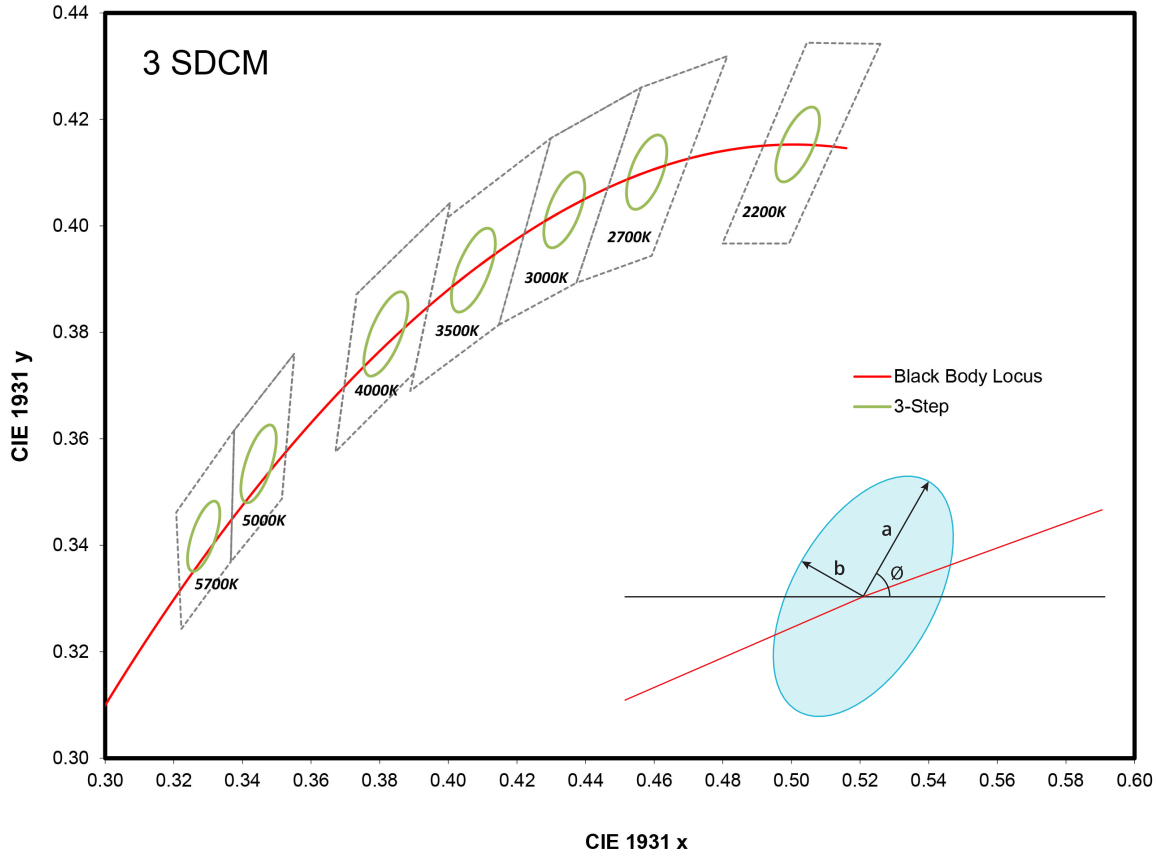


Figure 7: 3-step MacAdam ellipse illustration for Table 5.

Table 5. 3-step MacAdam ellipse color bin definitions for LUXEON CoB Core Range (Gen 2).

| NOMINAL CCT | COLOR SPACE | CENTER POINT (cx, cy) | MAJOR AXIS, a | MINOR AXIS, b | ELLIPSE ROTATION ANGLE, θ |
|---|---|---|---|---|---|
| 2200K | Single 3-step MacAdam ellipse | (0.5020, 0.4155) | 0.00862 | 0.00397 | 49.30° |
| 2700K | Single 3-step MacAdam ellipse | (0.4578, 0.4101) | 0.00810 | 0.00420 | 53.70° |
| 3000K | Single 3-step MacAdam ellipse | (0.4338, 0.4030) | 0.00834 | 0.00408 | 53.20° |
| 3500K | Single 3-step MacAdam ellipse | (0.4073, 0.3917) | 0.00927 | 0.00414 | 54.00° |
| 4000K | Single 3-step MacAdam ellipse | (0.3818, 0.3797) | 0.00939 | 0.00402 | 53.70° |
| 5000K | Single 3-step MacAdam ellipse | (0.3447, 0.3553) | 0.00822 | 0.00354 | 59.60° |
| 5700K | Single 3-step MacAdam ellipse | (0.3287, 0.3417) | 0.00745 | 0.00320 | 59.09° |

Notes for Table 5:
1. Lumileds maintains a tolerance of ±0.005 on x and y coordinates in the CIE 1931 color space.

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# Mechanical Dimensions

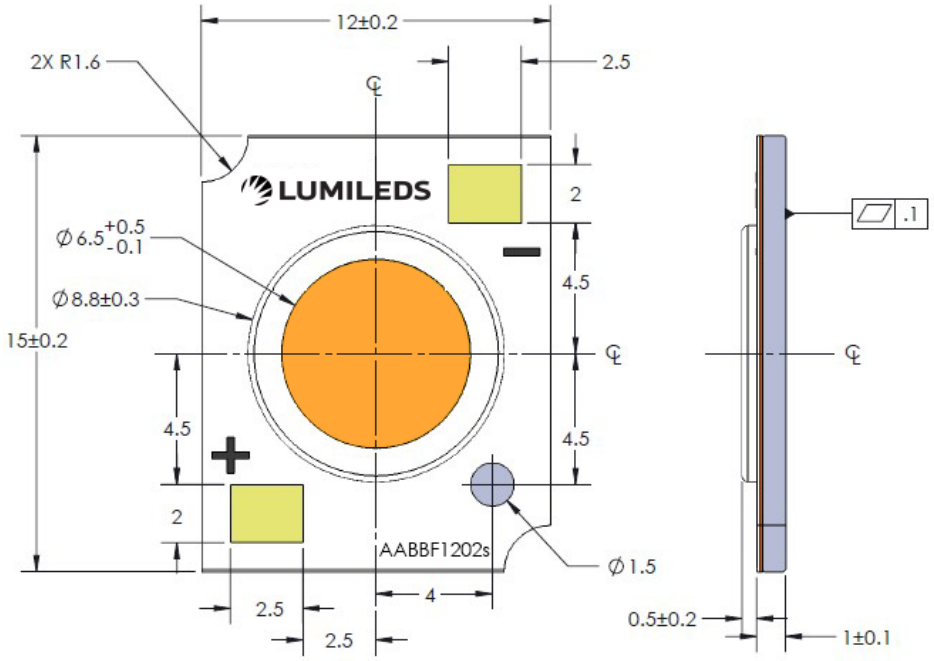


Figure 8a. Mechanical dimensions for L2C2-XXXX1202E0600.

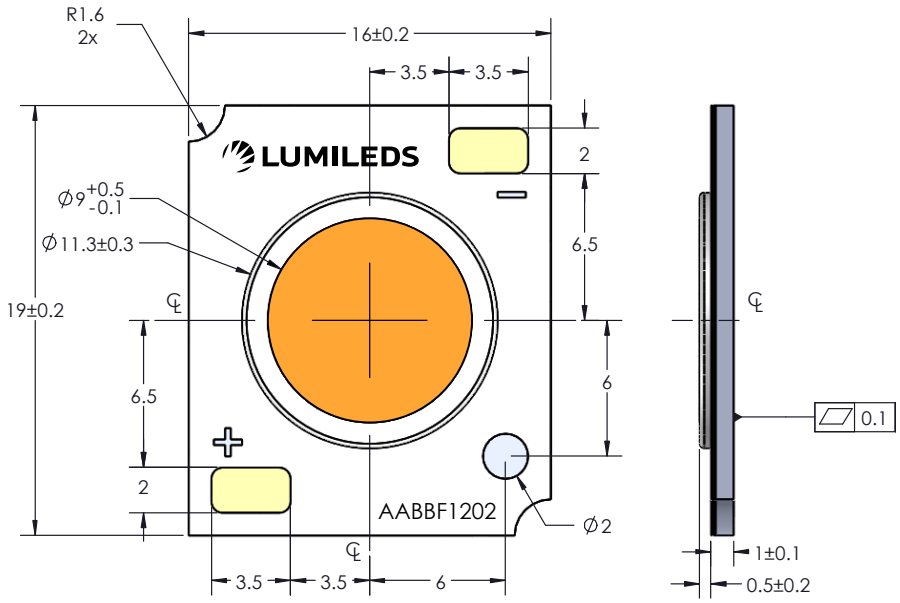


Figure 8b. Mechanical dimensions for L2C2-xxxx1202E0900.

Notes for Figures 8a and 8b:
1. Drawings not to scale.
2. All dimensions are in millimeters.

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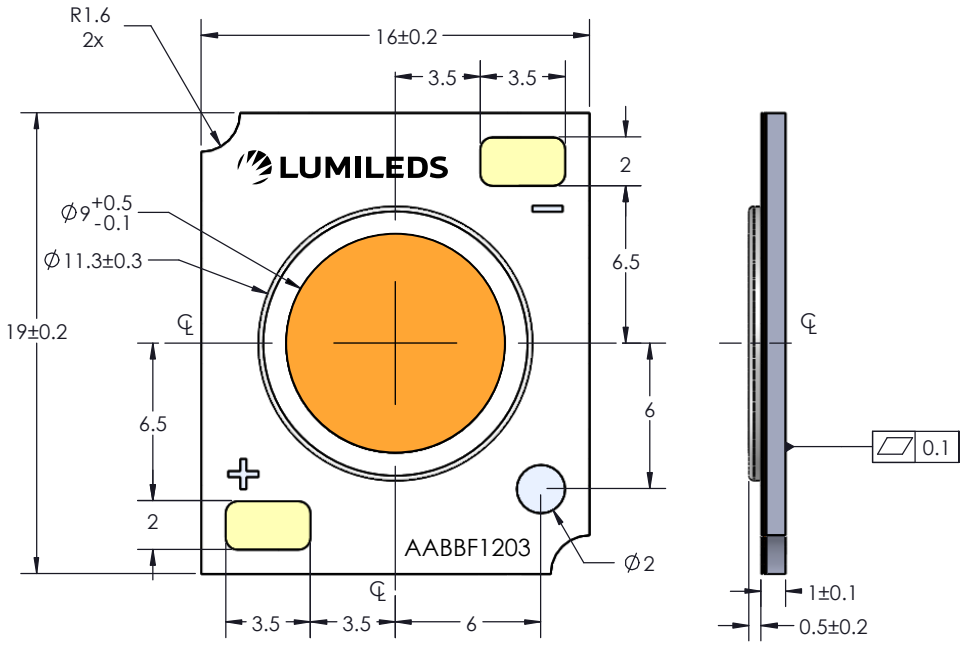


Figure 8c. Mechanical dimensions for L2C2-xxxx1203E0900.

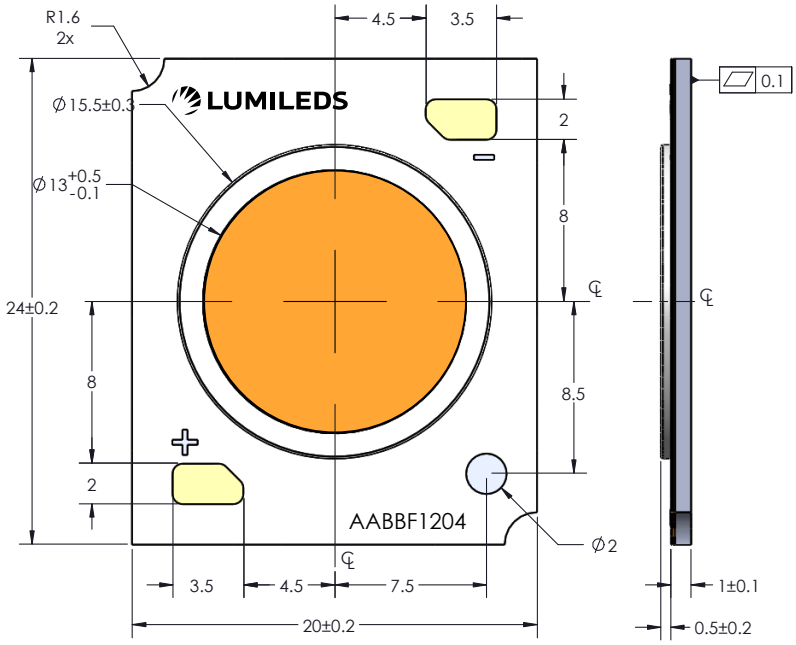


Figure 8d. Mechanical dimensions for L2C2-xxxx1204E1300.

Notes for Figures 8c and 8d:
1. Drawings not to scale.
2. All dimensions are in millimeters.

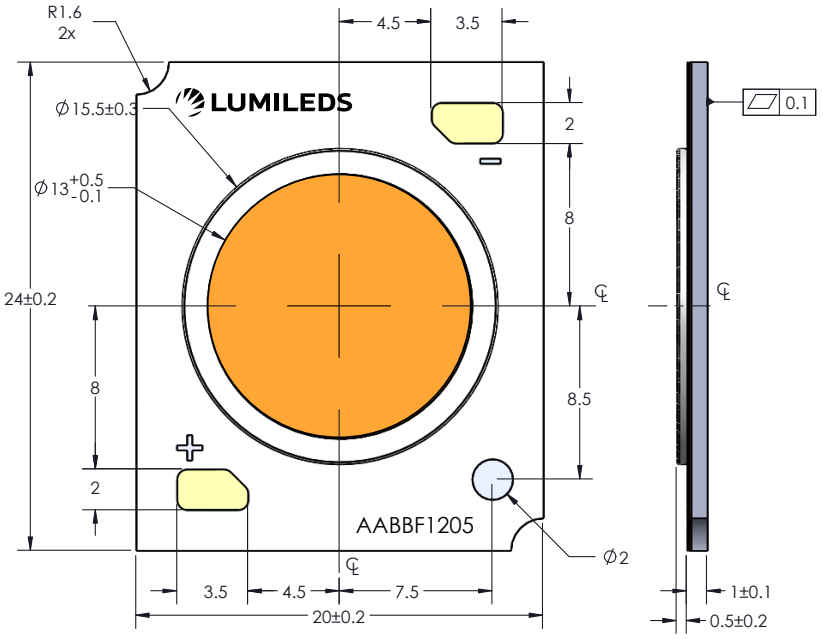


Figure 8e. Mechanical dimensions for L2C2-xxxx1205E1300.

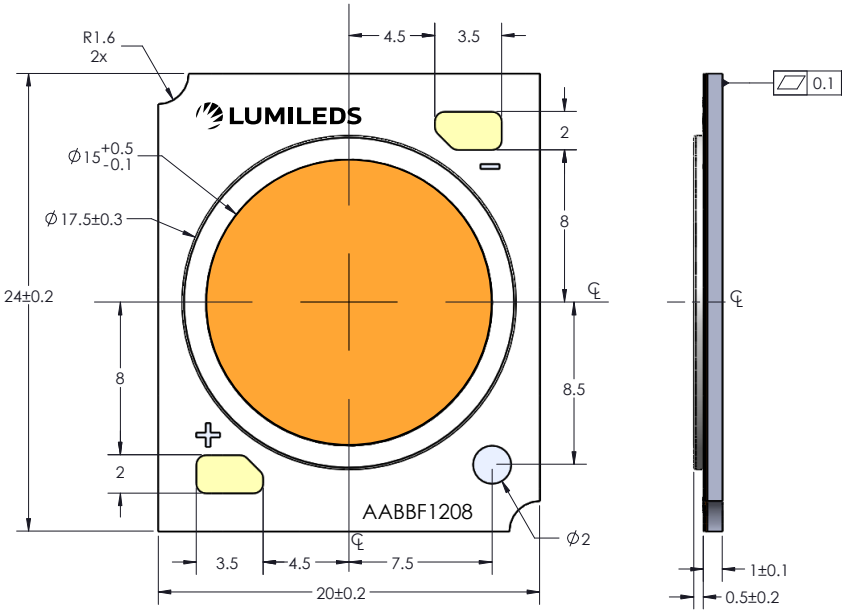


Figure 8f. Mechanical dimensions for L2C2-xxxx1208E1500.

Notes for Figures 8e and 8f:
1. Drawings not to scale.
2. All dimensions are in millimeters.

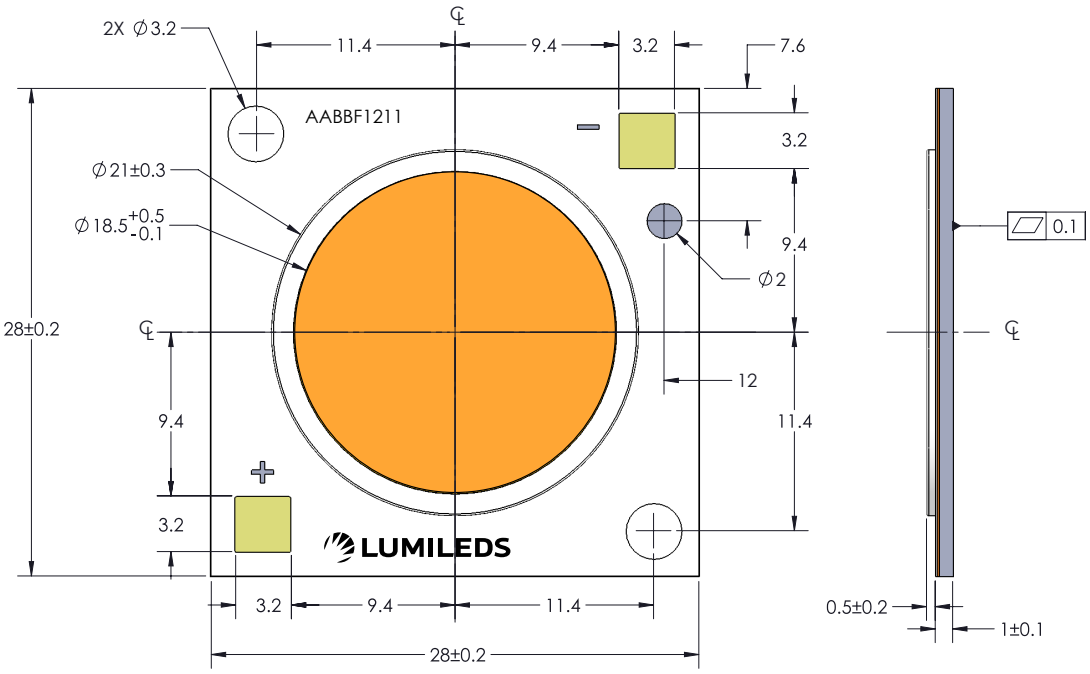


Figure 8g. Mechanical dimensions for L2C2-xxxx1211E1900.

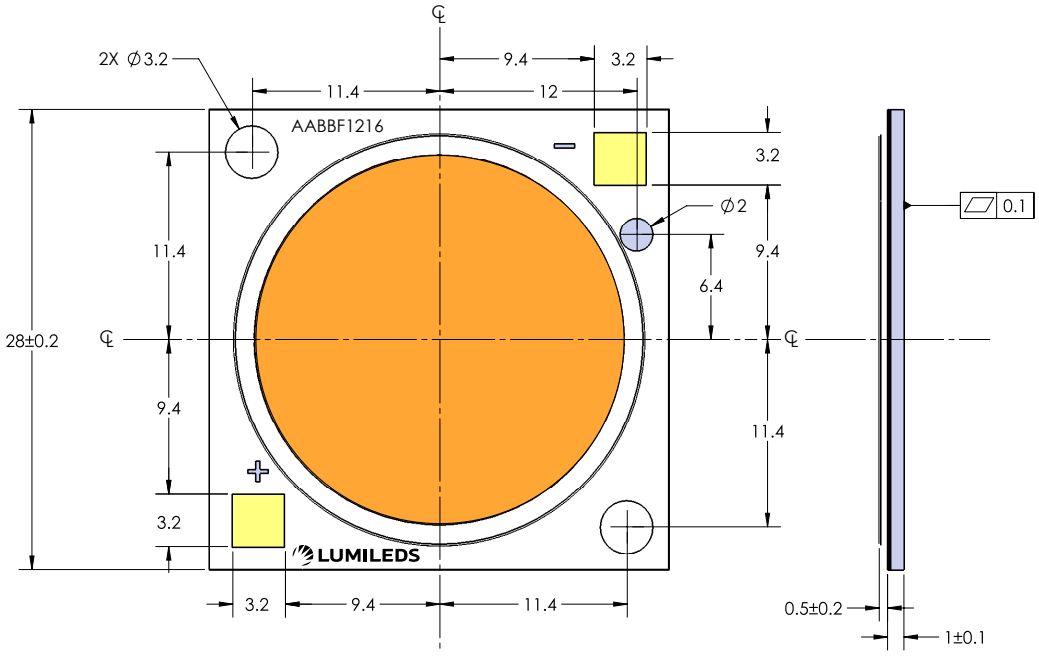


Figure 8h. Mechanical dimensions for L2C2-xxxx1216E2300.

Notes for Figures 8g and 8h:
1. Drawings not to scale.
2. All dimensions are in millimeters.

# Package and Labeling Information

LUXEON CoB LEDs are packaged in tubes then in a carton box. Each tube contains a specified number of LEDs. The LEDs in each tube come from a single category code, ensuring they are all well-matched for light output, color, and forward voltage. Each tube contains a rubber stopper at one end. The tube label has both alphanumeric and bar code information. The carton boxes have printed information providing part numbers with CAT codes that indicate luminous flux, color and forward voltage bins.

## Total Units per Tube

**Table 6. Number of LEDs per tube for LUXEON CoB Core Range (Gen2).**

| PART NUMBER | TOTAL UNITS PER TUBE | TOTAL TUBES PER INNERBOX | TOTAL UNITS PER INNERBOX |
|---|---|---|---|
| L2C2-XXXX1202E0600 | 20 | 5 | 100 |
| L2C2-xxxx1202E0900 | 20 | 5 | 100 |
| L2C2-xxxx1203E0900 | 20 | 5 | 100 |
| L2C2-xxxx1204E1300 | 20 | 5 | 100 |
| L2C2-xxxx1205E1300 | 20 | 5 | 100 |
| L2C2-xxxx1208E1500 | 20 | 5 | 100 |
| L2C2-xxxx1211E1900 | 10 | 5 | 50 |
| L2C2-xxxx1216E2300 | 10 | 5 | 50 |

## Tube Dimensions

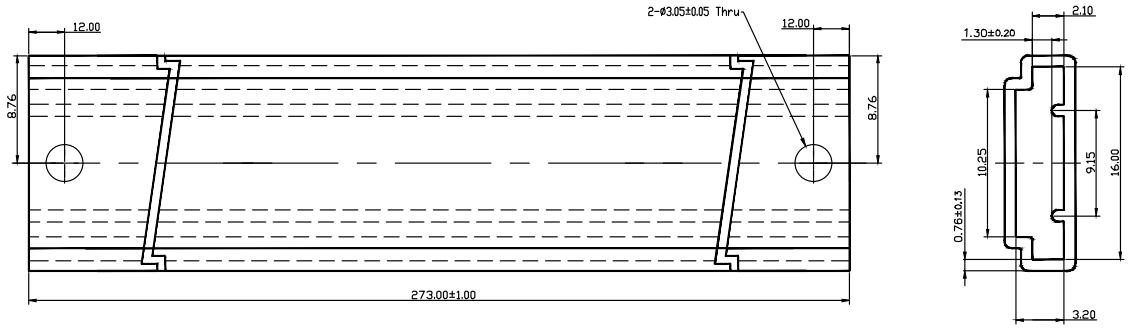


**Figure 9a: Tube dimensions for L2C2-XXXX1202E0600.**

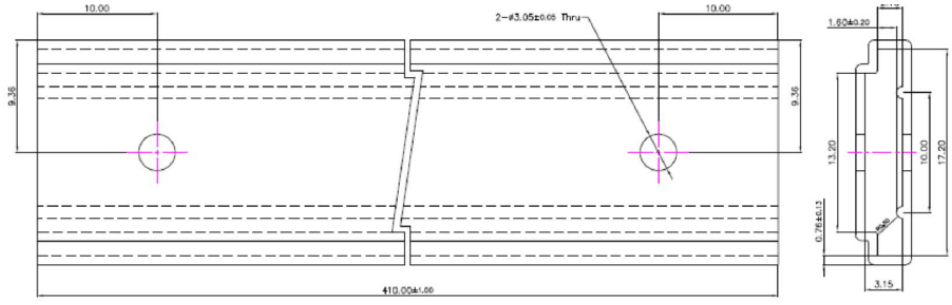


**Figure 9b: Tube dimensions for L2C2-xxxxxxxxE0900.**

Notes for Figure 9:
1. Drawings are not to scale.
2. All dimensions are in millimeters.

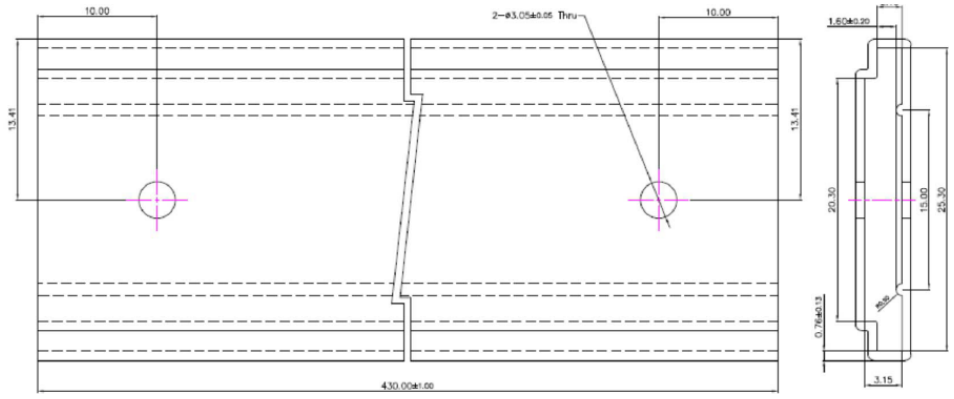

Figure 9c: Tube dimensions for L2C2-xxxx1204E1300, L2C2-xxxx1205E1300 and L2C2-xxxx1208E1500.

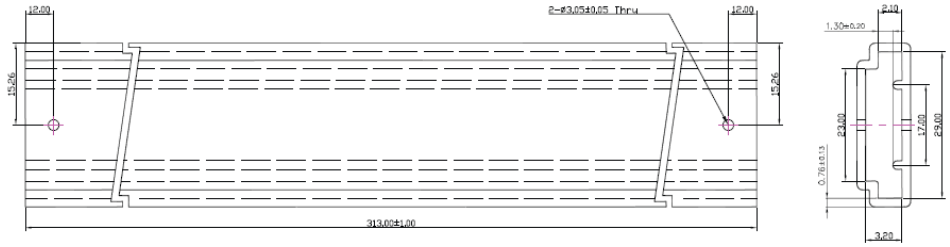

Figure 9d: Tube dimensions for L2C2-xxxx1211E1900.

Notes for Figure 9:
1. Drawings are not to scale.
2. All dimensions are in millimeters.

## Tube Label

Figure 10: Example of a tube label.

Table 7. Label information for LUXEON CoB Core Range (Gen2).

| ITEM | INFORMATION |
|---|---|
| | (1P) Part Number |
| | Lot Number |
| | CAT Code |
| | Tube Quantity |
| | Manufacturing date code |
| | Serial Number |

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# Inner Box

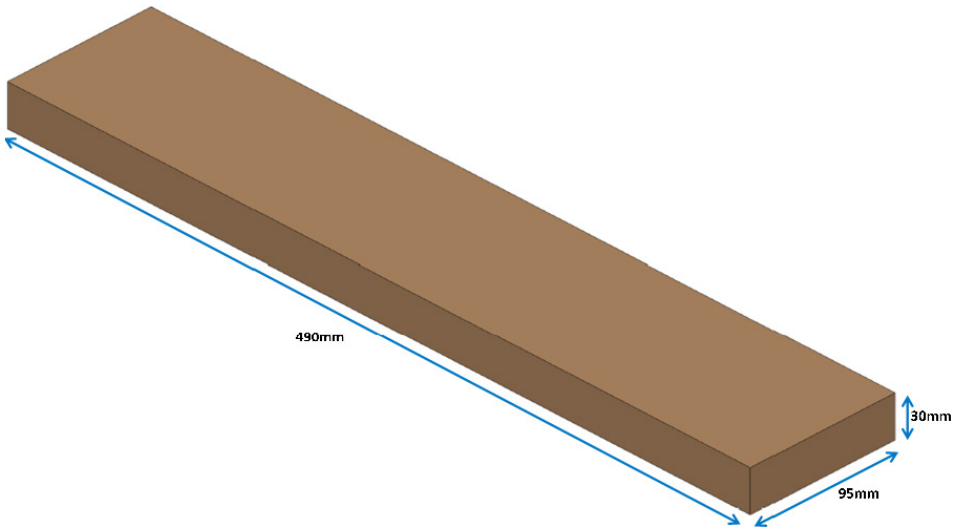


Figure 11: Dimensions for inner box packaging.

Table 8. Inner box information for LUXEON CoB Core Range (Gen2).

| BOX TYPE | DIMENSIONS (mm) | | | AVERAGE WEIGHT (100pcs/box) | AVERAGE WEIGHT (100pcs/box) |
|---|---|---|---|---|---|
| | H | L | W | | |
| Inner Box | 30 | 490 | 95 | 0.340Kg | 0.305Kg |

Figure 12: Example of inner box label for LUXEON CoB Core Range (Gen2).

# Outer Box

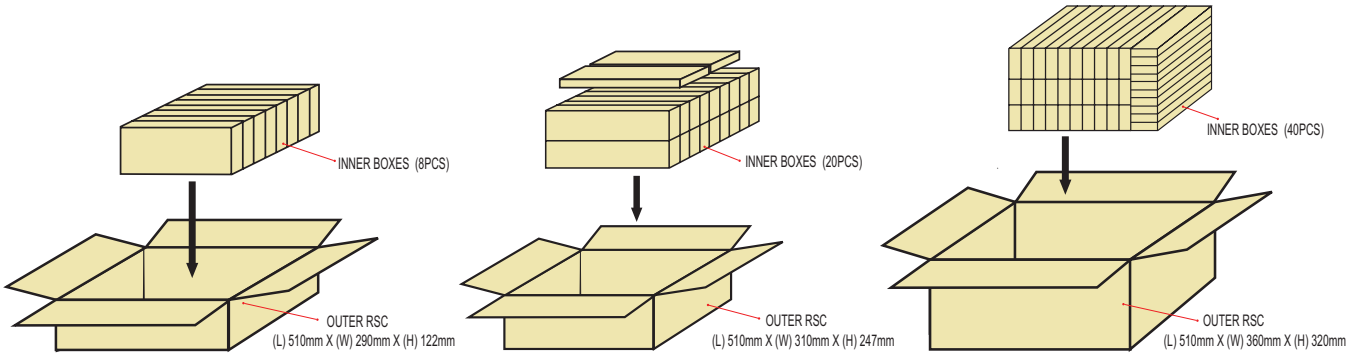


Figure 13. Dimensions for outer box packaging for LUXEON CoB (Gen2).

Table 9. Outer box information for LUXEON CoB Core Range (Gen2).

| BOX TYPE | DIMENSIONS (mm) | | | MAXIMUM INNER BOX PER OUTER BOX | MAXIMUM QUANTITY PER OUTER BOX | AVERAGE WEIGHT (100pcs/box) | AVERAGE WEIGHT (50pcs/box) |
|---|---|---|---|---|---|---|---|
| | H | L | W | | | | |
| Outer Box 8 | 122 | 510 | 290 | 8 | 800 | 3.05kg | 2.77kg |
| Outer Box 20 | 247 | 510 | 310 | 20 | 2000 | 7.55kg | 6.85kg |
| Outer Box 40 | 320 | 510 | 360 | 40 | 4000 | 15.10kg | 13.70kg |

Figure 14. Example of outer box label for LUXEON CoB Core Range (Gen2).

# About Lumileds

Lumileds is the global leader in light engine technology. The company develops, manufactures and distributes groundbreaking LEDs and automotive lighting products that shatter the status quo and help customers gain and maintain a competitive edge. With a rich history of industry "firsts," Lumileds is uniquely positioned to deliver lighting advancements well into the future by maintaining an unwavering focus on quality, innovation and reliability.

To learn more about our portfolio of light engines, visit lumileds.com.

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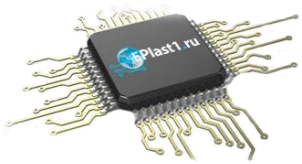
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits,General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.




**Как с нами связаться**

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