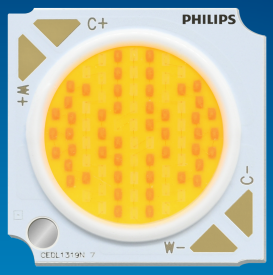
PHILIPS

# Fortimo

## LED

Fortimo SLM C CED L13 1919 G7N




Datasheet

# BioUp CED technology brings all aspects of human centric lighting together

## Fortimo SLM CED G1

By combining FlexTune tunable white technology with high MDER spectra it's now possible to create a dynamic lighting system that enables a biological effect whilst not compromising on the visual and emotional benefits. BioUp CED technology is tunable from 2700K from to 5000K with flux up to 4500lm. One of the unique features is that there is no MDER enhancement at 2700K so an ideal evening setting can be created. Whilst the MDER at 5000K reaches its peak up to 0.97, which boosts the biological activation effect of the light source significantly.

### Key features and benefits

Flux output up to 4500lm
Color temperature tunable from 2700K to 5000K
High MDER at 5000K of up to 0.97
Quality of light: CRI >80 and R9 >50 (CRI >90 and R9 >50 at 2700K)
System approach: Module + Holder (coming soon) + driver
Compatible PCB and LES size with Fortimo SLM G7N to enable easier design-in
Lifetime of L90 >50,000 hours

April 2023



## Ordering data

| Commercial product name | EOC | 12NC | EPREL registration # | Box quantity |
|---|---|---|---|---|
| Fortimo SLM C CED L13 1919 G7N | 8720169 236752 00 | 9290 034 53180 | 1528152 | 20 |

For Philips FlexTune driver configuration (color coordinate-based model), use 0.3105, 0.3125(1460lm) for Cool White, and 0.4590, 0.4065 (1345lm) for Warm White, at a rated current of 360mA for both channels.

## Drive currents

| Parameter | Nominal* | Life** | Max*** | Unit |
|---|---|---|---|---|
| Fortimo SLM C CED L13 1919 G7N | 360 | See performance window | 600 | mA |

## Module temperatures

| Parameter | Nominal* | Life** | Max*** | Unit |
|---|---|---|---|---|
| $T_c$ (case temperature at $T_c$ point) | 85 | See performance window | 95 | °C |

* Nominal value at which typical performance is specified

** Value at which life time is specified

*** Maximum value for safe operation, do not operate above this value

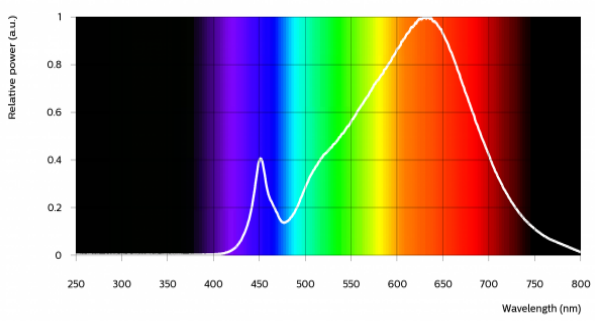
## Optical characteristics - table per color (CCT)

### Fortimo SLM C CED L13 1919 G7N_2700K

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 1278 | 1345 | 1480 | lm |
| Efficacy | | 109 | | lm/W |
| Correlated color temperature (CCT) | | 2700 | | K |
| Color coordinates (CIEx, CIEy) | | (0.459, 0.407) | | - |
| Color consistency | | | 3 | SDCM |
| CRI | 90 | | | |
| R9 | 50 | | | |
| Photometric code | | 927/359 | | |
| Photobiological safety | | | RG1 unlimited | |

Measurement precision ± 5% for the flux data and ± 6% for the efficacy data. Measurement precision for color coordinates ± 0.005. Measurement precision for CRI ± 1.5.

| Operation point | 927 | lm | lm/W |
|---|---|---|---|
| 80% I-nom 288mA | Tc 25 °C | 1187 | 119 |
| | Tc-nom 85 °C | 1099 | 113 |
| | Tc-max 95 °C | 1076 | 111 |
| I-nom 360mA | Tc 25 °C | 1456 | 115 |
| | Tc-nom 85 °C | 1345 | 109 |
| | Tc-max 95 °C | 1316 | 107 |
| I-max 600mA | Tc 25 °C | 2294 | 104 |
| | Tc-nom 85 °C | 2103 | 97 |
| | Tc-max 95 °C | 2053 | 95 |

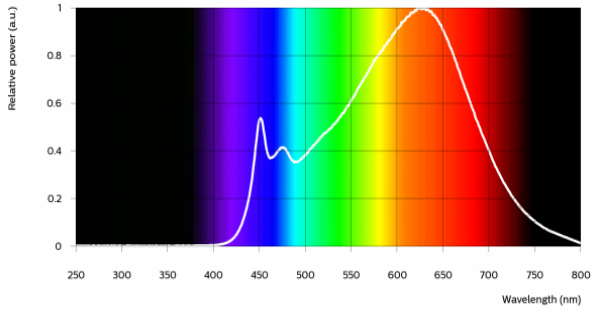



### Fortimo SLM C CED L13 1919 G7N_3000K

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 1292 | 1360 | 1496 | lm |
| Efficacy | | 110 | | lm/W |
| Correlated color temperature (CCT) | | 3000 | | K |
| Color coordinates (CIEx, CIEy) | | (0.429, 0.388) | | - |
| CRI | 80 | | | |
| R9 | 50 | | | |
| Photobiological safety | | | RG1 unlimited | |

Measurement precision ± 5% for the flux data and ± 6% for the efficacy data. Measurement precision for color coordinates ± 0.005. Measurement precision for CRI ± 1.5.

| Operation point | 830 | lm | lm/W |
|---|---|---|---|
| 80% I-nom 288mA | Tc 25 °C | 1206 | 122 |
| | Tc-nom 85 °C | 1117 | 115 |
| | Tc-max 95 °C | 1092 | 113 |
| I-nom 360mA | Tc 25 °C | 1472 | 117 |
| | Tc-nom 85 °C | 1360 | 110 |
| | Tc-max 95 °C | 1330 | 108 |
| I-max 600mA | Tc 25 °C | 2290 | 103 |
| | Tc-nom 85 °C | 2095 | 96 |
| | Tc-max 95 °C | 2042 | 94 |

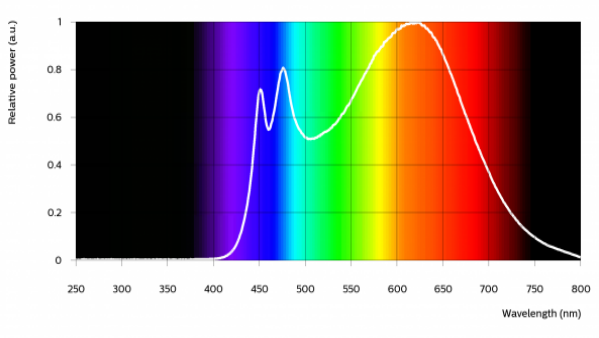


## Fortimo SLM C CED L13 1919 G7N_3500K

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 1311 | 1380 | 1518 | lm |
| Efficacy | | 111 | | lm/W |
| Correlated color temperature (CCT) | | 3500 | | K |
| Color coordinates (CIEx, CIEy) | | (0.397, 0.368) | | - |
| CRI | 80 | | | |
| R9 | 50 | | | |
| Photobiological safety | | | RG1 unlimited | |

Measurement precision ± 5% for the flux data and ± 6% for the efficacy data. Measurement precision for color coordinates ± 0.005. Measurement precision for CRI ± 1.5.

| Operation point | 835 | lm | lm/W |
|---|---|---|---|
| 80% I-nom 288mA | Tc 25 °C | 1224 | 123 |
| | Tc-nom 85 °C | 1133 | 117 |
| | Tc-max 95 °C | 1109 | 115 |
| I-nom 360mA | Tc 25 °C | 1494 | 118 |
| | Tc-nom 85 °C | 1380 | 111 |
| | Tc-max 95 °C | 1349 | 110 |
| I-max 600mA | Tc 25 °C | 2324 | 104 |
| | Tc-nom 85 °C | 2126 | 97 |
| | Tc-max 95 °C | 2072 | 95 |

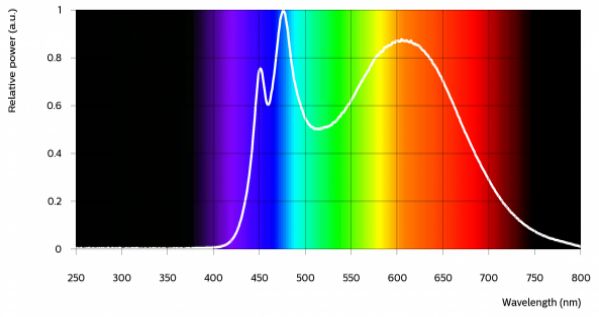



## Fortimo SLM C CED L13 1919 G7N_4000K

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 1330 | 1400 | 1540 | lm |
| Efficacy | | 113 | | lm/W |
| Correlated color temperature (CCT) | | 4000 | | K |
| Color coordinates (CIEx, CIEy) | | (0.375, 0.353) | | - |
| CRI | 80 | | | |
| R9 | 50 | | | |
| Photobiological safety | | | RG1 unlimited | |

Measurement precision ± 5% for the flux data and ± 6% for the efficacy data. Measurement precision for color coordinates ± 0.005. Measurement precision for CRI ± 1.5.

| Operation point | 840 | lm | lm/W |
|---|---|---|---|
| 80% I-nom 288mA | Tc 25 °C | 1241 | 125 |
| | Tc-nom 85 °C | 1149 | 119 |
| | Tc-max 95 °C | 1124 | 117 |
| I-nom 360mA | Tc 25 °C | 1515 | 120 |
| | Tc-nom 85 °C | 1400 | 113 |
| | Tc-max 95 °C | 1369 | 111 |
| I-max 600mA | Tc 25 °C | 2357 | 106 |
| | Tc-nom 85 °C | 2157 | 99 |
| | Tc-max 95 °C | 2102 | 97 |

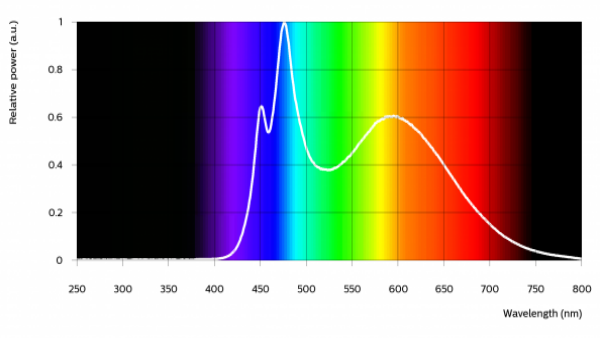


## Fortimo SLM C CED L13 1919 G7N_5000K

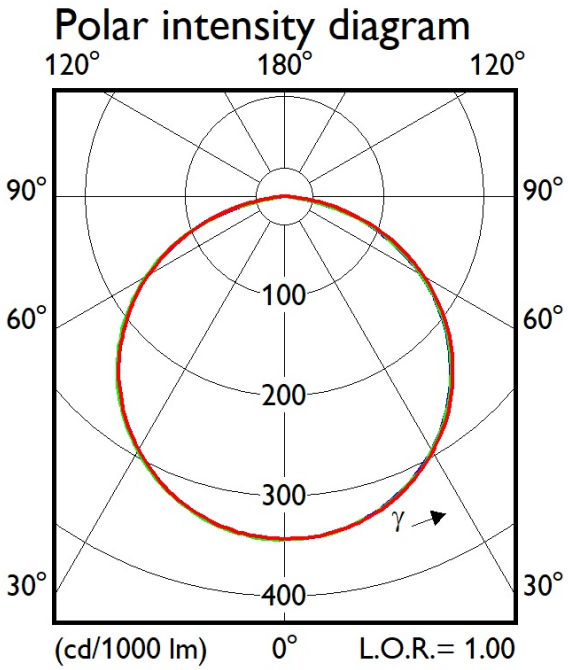
| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Luminous flux | 1354 | 1425 | 1568 | lm |
| Efficacy | | 115 | | lm/W |
| Correlated color temperature (CCT) | | 5000 | | K |
| Color coordinates (CIEx, CIEy) | | (0.344, 0.334) | | - |
| CRI | 80 | | | |
| R9 | 50 | | | |
| Photobiological safety | | | RG1 unlimited | |

Measurement precision ± 5% for the flux data and ± 6% for the efficacy data. Measurement precision for color coordinates ± 0.005. Measurement precision for CRI ± 1.5.

| Operation point | 850 | lm | lm/W |
|---|---|---|---|
| 80% I-nom 288mA | Tc 25 °C | 1263 | 127 |
| | Tc-nom 85 °C | 1170 | 121 |
| | Tc-max 95 °C | 1145 | 119 |
| I-nom 360mA | Tc 25 °C | 1542 | 122 |
| | Tc-nom 85 °C | 1425 | 115 |
| | Tc-max 95 °C | 1393 | 113 |
| I-max 600mA | Tc 25 °C | 2399 | 108 |
| | Tc-nom 85 °C | 2196 | 101 |
| | Tc-max 95 °C | 2140 | 98 |



## Beam shape


Polar intensity diagram
120°
180°
120°
90°
90°
60°
60°
100
200
300
γ
30°
30°
400
(cd/1000 lm)
0°
L.O.R.= 1.00

## Electrical characteristics

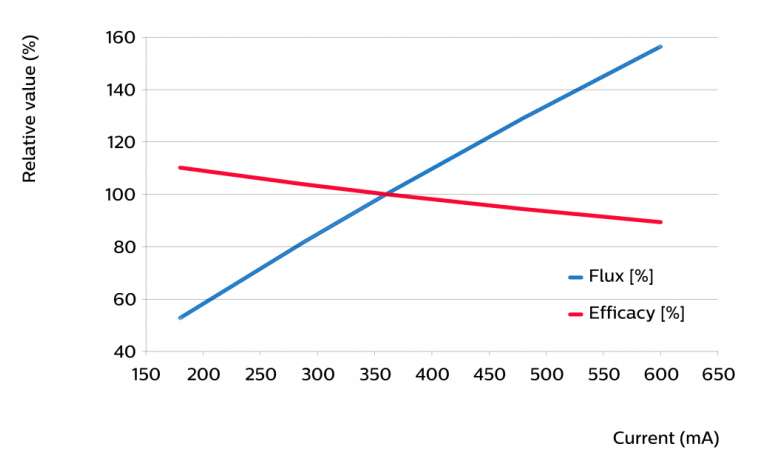
| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Forward voltage | 34.0 | 34.4 | 37.0 | V |
| Power consumption | | 12.4 | | W = kWh/1000h |
| Number of modules in series per chain | | | 1 | |
| Number of modules per chain | | | 1 | |
| Number of modules in parallel | | | 1 | |

Measurement precision for Vf +/- 3%. Measurement precision for power +/- 3.3%

## Tuning information

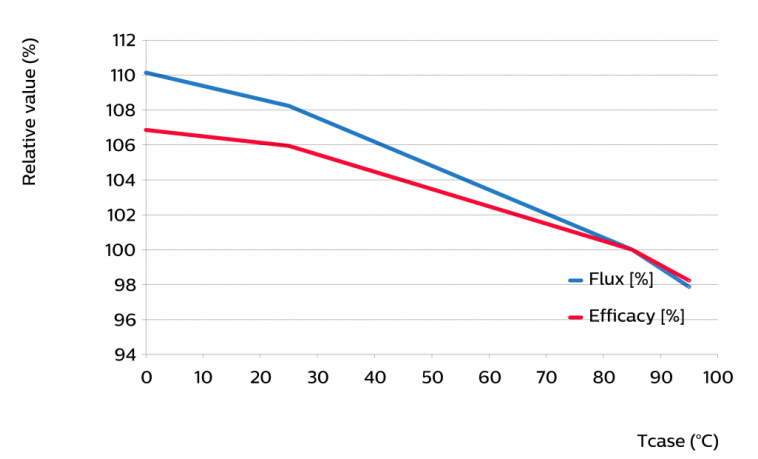
Flux and efficacy versus current (at Tc nominal)

| I [mA] | Flux [%] | Efficacy [%] |
|---|---|---|
| 600 | 156 | 89 |
| 480 | 129 | 94 |
| 360 | 100 | 100 |
| 288 | 82 | 104 |
| 180 | 53 | 110 |




Flux and efficacy versus temperature at Tc (at I nominal)

| Tc [°C] | Flux [%] | Efficacy [%] |
|---|---|---|
| 95 | 98 | 98 |
| 85 | 100 | 100 |
| 25 | 108 | 106 |
| 0 | 110 | 107 |



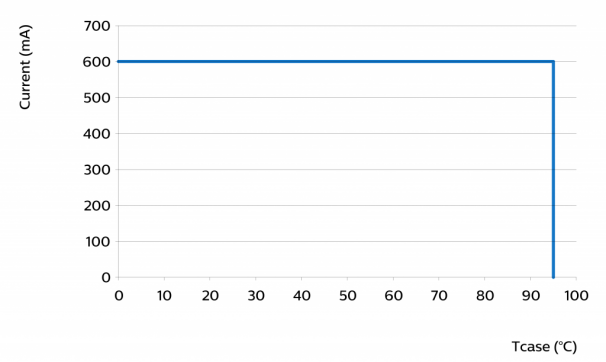
## Lumen maintenance

| Operation point | Lumen maintenance | L70 | | | L80 | | | L90 | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | x 1000 hours | B50 | B20 | B10 | B50 | B20 | B10 | B50 | B20 | B10 |
| 80% I-nom 288mA | Tc 75°C | >50 | >50 | >50 | >50 | >50 | >50 | >50 | >50 | >50 |
| | Tc 85°C | >50 | >50 | >50 | >50 | >50 | >50 | >50 | >50 | >50 |
| | Tc 95°C | >50 | >50 | >50 | >50 | >50 | >50 | >50 | >50 | >50 |
| I-nom 360mA | Tc 75°C | >50 | >50 | >50 | >50 | >50 | >50 | >50 | >50 | >50 |
| | Tc 85°C | >50 | >50 | >50 | >50 | >50 | >50 | >50 | 47 | 43 |
| | Tc 95°C | >50 | >50 | >50 | >50 | >50 | >50 | 48 | 40 | 37 |
| I-max 600mA | Tc 75°C | >50 | >50 | >50 | >50 | 47 | 43 | 26 | 22 | 20 |
| | Tc 85°C | >50 | >50 | >50 | 47 | 40 | 36 | 22 | 18 | 17 |
| | Tc 95°C | >50 | >50 | >50 | 40 | 34 | 31 | 19 | 16 | 14 |

## Lifetime

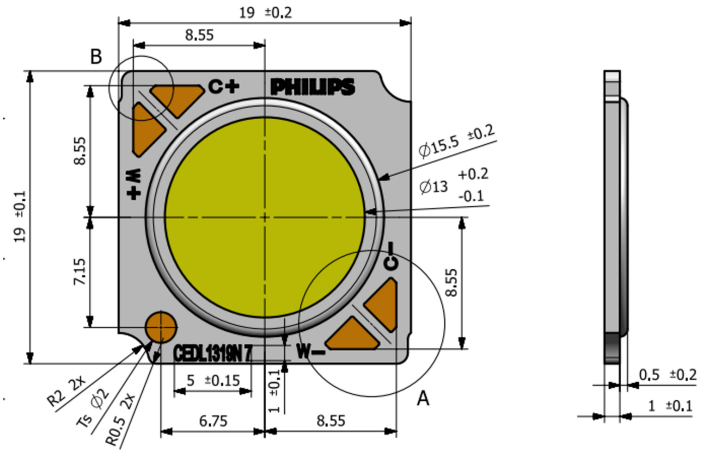
| Parameter | Value | Unit |
|---|---|---|
| C10 at Tc life | 50000 | hours |
| M70F50 nominal | >50000 | hours |

## Performance Window




## Mechanical characteristics

| Parameter | Min | Typ | Max | Unit |
|---|---|---|---|---|
| Length | 18.8 | 19 | 19.2 | mm |
| Width | 18.9 | 19 | 19.1 | mm |
| Height PCB | 0.9 | 1 | 1.1 | mm |
| Height Total | 1.2 | 1.5 | 1.8 | mm |
| Product mass | | 1 | | gram |




## Absolute ratings

| Parameter | Min | Max | Unit |
|---|---|---|---|
| Current through the LED module (I-max) | | 600 | mA |
| Case temperature (Tc-max) | | 95 | °C |
| ESD (direct contact) | 8 | | kV |
| Working voltage | | 60 | $V_{dc}$ |
| Ambient temperature | -20 | 40 | °C |
| Storage temperature | -40 | 80 | °C |

At currents higher than 529 mA the module might be classified as RG2.

## Application information

**Certificates and Standards**
CB
CE
ENEC
ENEC+
EPRS 001
IEC/EN 62031
UKCA
UL
UL 8750

**Environmental**
RoHS/REACH

| Application | |
|---|---|
| Dimming | Yes |



UK importer address: Signify Commercial UK Limited, 3 Guildford Business Park, GU2 8XG

06/04/2023

www.philips.com/oem