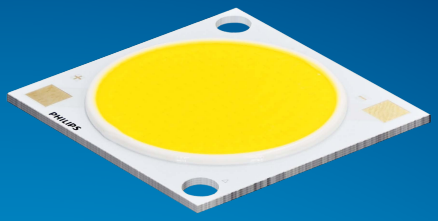
PHILIPS

Fortimo

LED

Fortimo SLM C 8xx 1212
L22 2828 G8N HE



Datasheet

Best combination of quality of light and efficacy with industry standard footprint

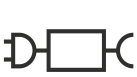
Fortimo LED SLM CRI80 G8N HE

Philips continues to develop its tried and trusted high efficiency COB range of products (since 2020) by introducing the third generation Fortimo SLM G8 HE with an expanded offer featuring CRI 80 products. The Fortimo SLM CRI80 G8 HE range boasts an impressive 7% - 12% increase in efficacy and enhanced color consistency of 2 SDCM compared to its predecessor, the Fortimo SLM CRI80 G7. Drawing on our four years of industry and R&D experience with high efficacy COB platforms, we have further optimized the quality of light and enhanced the product's robustness. With the Color Rendering Index extension, Fortimo SLM G8 HE helps unlock the extraordinary potential of light, facilitating innovation and inspiring the next generation of luminaire design for our OEM customers. Check out the online Easy Design-in Tool for your perfect system combination (www.easydesignintool.com).

Key features and benefits

- Most widely used footprint to enable ease of use
- Best quality of light available for all applications
- 7%~12% efficacy improvement vs. current Fortimo SLM CRI80 G7N range
- Excellent color consistency management (2 SDCM)
- System proposition (Module + Driver + Holder)
- Flexibility to optimize luminaire performance (high efficacy or high lm output)
- 50,000 hours lifetime

October 2024









Ordering data

Commercial product name	EOC	12NC	EPREL registration #	Box quantity
Fortimo SLM C 827 1212 L22 2828 G8N HE	8720169 383623 00	9290 039 08180	2093793	10
Fortimo SLM C 830 1212 L22 2828 G8N HE	8720169 383654 00	9290 039 08280	2093811	10
Fortimo SLM C 835 1212 L22 2828 G8N HE	8720169 383685 00	9290 039 08380	2093794	10
Fortimo SLM C 840 1212 L22 2828 G8N HE	8720169 383715 00	9290 039 08480	2093806	10
Fortimo SLM C 850 1212 L22 2828 G8N HE	8720169 383746 00	9290 039 08580	2093804	10
Fortimo SLM C 830 PW 1212 L22 2828 G8N HE	8720169 383777 00	9290 039 08680	2093658	10

Not all products are globally available by default.
Please contact your local sales representative for local availability and activation conditions.

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo SLM C 8xx 1212 L22 2828 G8N HE	1080	2160	2160	mA

Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T_c (case temperature at T_c point)	65	95	95	°C

* Nominal value at which typical performance is specified

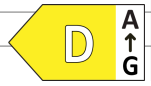
** Value at which life time is specified

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

Optical characteristics - table per color (CCT)

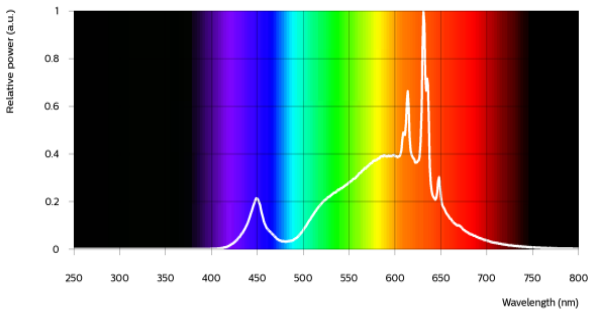
Fortimo SLM C 827 1212 L22 2828 G8N HE

Parameter	Min	Typ	Max	Unit
Luminous flux	6104	6425	7068	lm
Efficacy		171		lm/W
Correlated color temperature (CCT)		2700		K
Color coordinates (CIEx, CIEy)		(0.458, 0.410)		-
Color consistency			2	SDCM
CRI	80			
R9	>0			
Photometric code		827/259		
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	827	lm	lm/W
80% I-nom 864mA	Tc 25 °C	5486	184
	Tc-nom 65 °C	5213	177
	Tc-max 95 °C	4949	170
I-nom 1080mA	Tc 25 °C	6764	178
	Tc-nom 65 °C	6425	171
	Tc-max 95 °C	6096	165
I-max 2160mA	Tc 25 °C	12743	154
	Tc-nom 65 °C	12065	148
	Tc-max 95 °C	11405	141



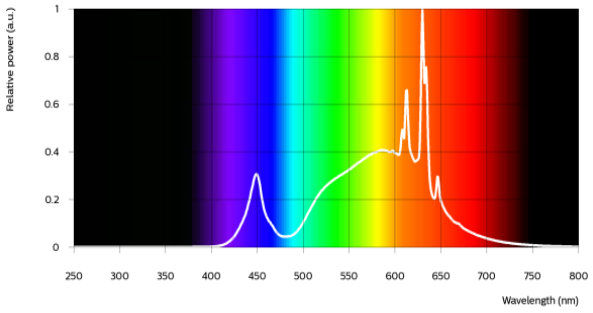
Fortimo SLM C 830 1212 L22 2828 G8N HE

Parameter	Min	Typ	Max	Unit
Luminous flux	6265	6595	7254	lm
Efficacy		176		lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.434, 0.403)		-
Color consistency			2	SDCM
CRI	80			
R9	>0			
Photometric code		830/259		
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 864mA	Tc 25 °C	5630	189
	Tc-nom 65 °C	5351	182
	Tc-max 95 °C	5080	175
I-nom 1080mA	Tc 25 °C	6943	183
	Tc-nom 65 °C	6595	176
	Tc-max 95 °C	6257	169
I-max 2160mA	Tc 25 °C	13081	158
	Tc-nom 65 °C	12386	152
	Tc-max 95 °C	11709	145

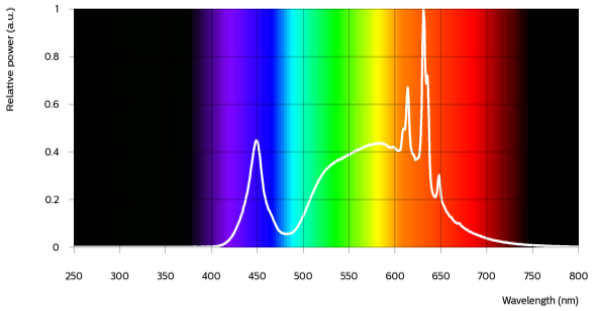


Fortimo SLM C 835 1212 L22 2828 G8N HE

Parameter	Min	Typ	Max	Unit
Luminous flux	6412	6750	7425	lm
Efficacy		180		lm/W
Correlated color temperature (CCT)		3500		K
Color coordinates (CIEx, CIEy)		(0.408, 0.393)		-
Color consistency			2	SDCM
CRI	80			
R9	>0			
Photometric code		835/259		
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 864mA	Tc 25 °C	5762	193
	Tc-nom 65 °C	5477	186
	Tc-max 95 °C	5199	179
I-nom 1080mA	Tc 25 °C	7106	187
	Tc-nom 65 °C	6750	180
	Tc-max 95 °C	6405	173
I-max 2160mA	Tc 25 °C	13390	162
	Tc-nom 65 °C	12679	155
	Tc-max 95 °C	11988	148

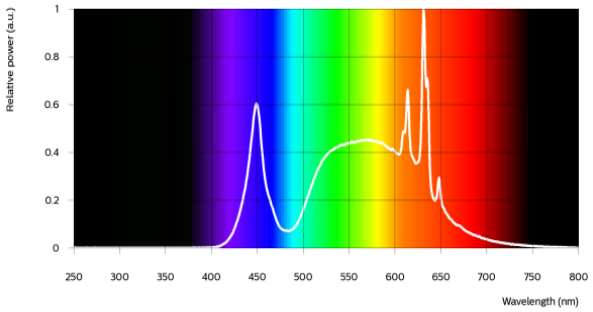


Fortimo SLM C 840 1212 L22 2828 G8N HE

Parameter	Min	Typ	Max	Unit
Luminous flux	6446	6785	7464	lm
Efficacy		181		lm/W
Correlated color temperature (CCT)		4000		K
Color coordinates (CIEx, CIEy)		(0.382, 0.380)		-
Color consistency			2	SDCM
CRI	80			
R9	>0			
Photometric code		840/259		
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 864mA	Tc 25 °C	5792	194
	Tc-nom 65 °C	5505	187
	Tc-max 95 °C	5226	180
I-nom 1080mA	Tc 25 °C	7142	188
	Tc-nom 65 °C	6785	181
	Tc-max 95 °C	6438	174
I-max 2160mA	Tc 25 °C	13460	163
	Tc-nom 65 °C	12747	156
	Tc-max 95 °C	12052	149

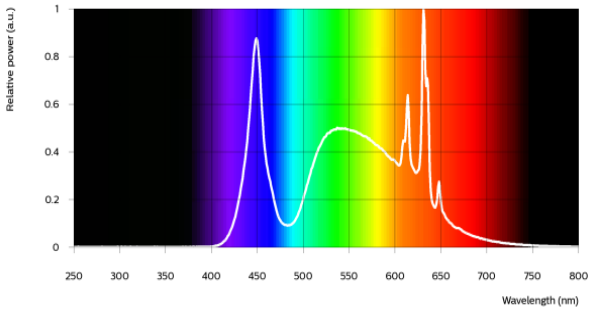


Fortimo SLM C 850 1212 L22 2828 G8N HE

Parameter	Min	Typ	Max	Unit
Luminous flux	6450	6790	7469	lm
Efficacy		181		lm/W
Correlated color temperature (CCT)		5000		K
Color coordinates (CIEx, CIEy)		(0.345, 0.355)		-
Color consistency			2	SDCM
CRI	80			
R9	>0			
Photometric code		850/259		
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 864mA	Tc 25 °C	5795	194
	Tc-nom 65 °C	5509	187
	Tc-max 95 °C	5230	180
I-nom 1080mA	Tc 25 °C	7147	189
	Tc-nom 65 °C	6790	181
	Tc-max 95 °C	6443	174
I-max 2160mA	Tc 25 °C	13472	163
	Tc-nom 65 °C	12760	156
	Tc-max 95 °C	12066	149

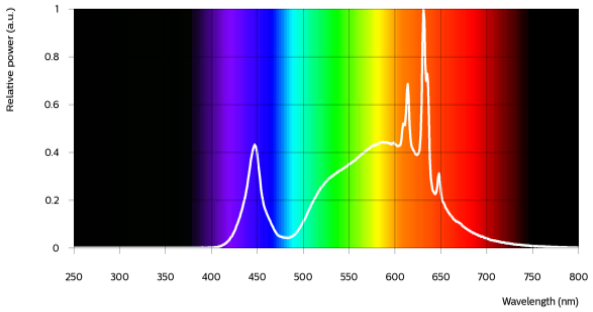


Fortimo SLM C 830 PW 1212 L22 2828 G8N HE

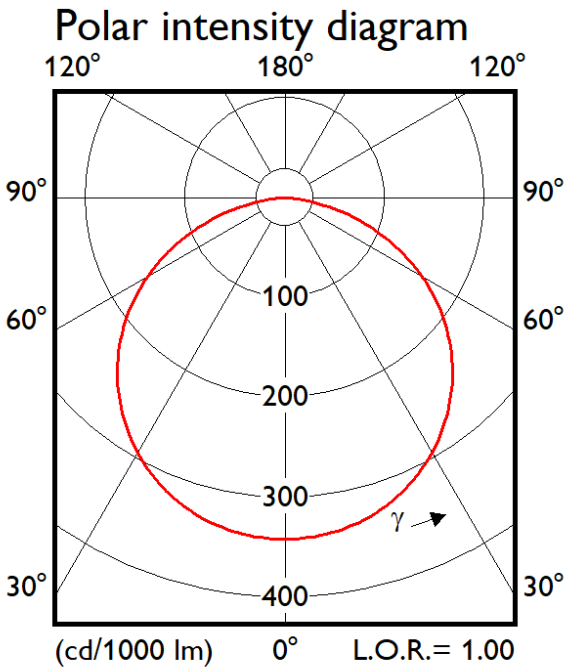
Parameter	Min	Typ	Max	Unit
Luminous flux	6170	6495	7144	lm
Efficacy		173		lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.422, 0.386)		-
Color consistency			2	SDCM
CRI	80			
R9	>0			
Photometric code		830/259		
Photobiological safety		RG1 unlimited		

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 864mA	Tc 25 °C	5545	186
	Tc-nom 65 °C	5270	179
	Tc-max 95 °C	5003	172
I-nom 1080mA	Tc 25 °C	6837	180
	Tc-nom 65 °C	6495	173
	Tc-max 95 °C	6162	167
I-max 2160mA	Tc 25 °C	12883	156
	Tc-nom 65 °C	12199	149
	Tc-max 95 °C	11533	143



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

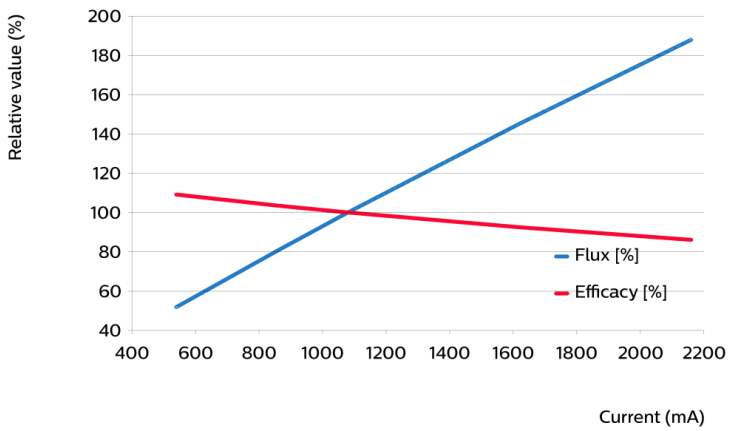
Parameter	Min	Typ	Max	Unit
Forward voltage	32.5	34.7	37.0	V
Power consumption	35.1	37.5	40.0	W = kWh/1000h
Number of modules in series per chain			1	
Number of modules per chain			1	
Number of modules in parallel			1	

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

Tuning information

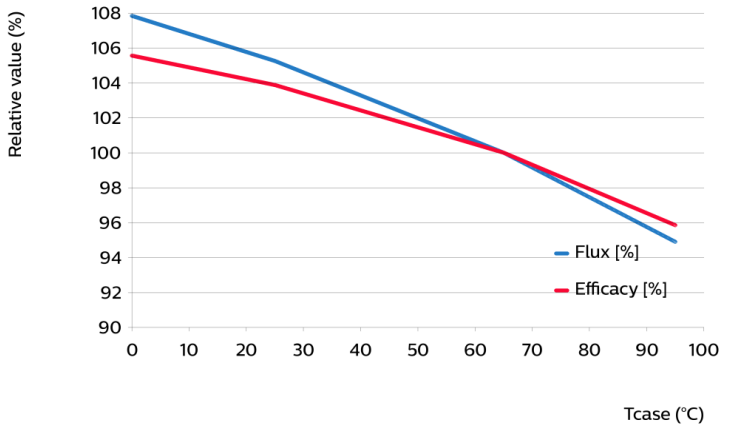
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
2160	188	86
1620	145	92
1080	100	100
864	81	103
540	52	109



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

Tc [°C]	Flux [%]	Efficacy [%]
95	95	96
65	100	100
25	105	104
0	108	106



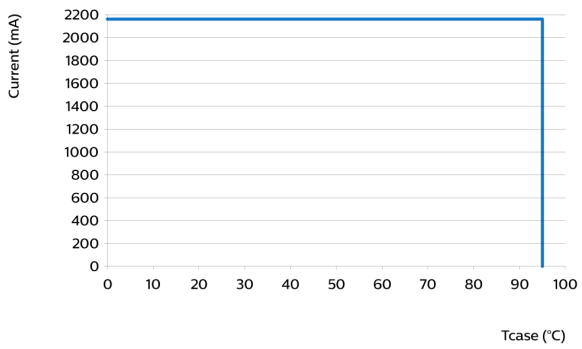
Lumen maintenance

Operation point	Lumen maintenance x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% I-nom 864mA	Tc 50°C	>66	>66	>66	>66	>66	>66	>66	>66	>66
	Tc 65°C	>66	>66	>66	>66	>66	>66	>66	>66	>66
	Tc 95°C	>66	>66	>66	>66	>66	>66	>66	>66	>66
I-nom 1080mA	Tc 50°C	>66	>66	>66	>66	>66	>66	>66	>66	>66
	Tc 65°C	>66	>66	>66	>66	>66	>66	>66	>66	>66
	Tc 95°C	>66	>66	>66	>66	>66	>66	>66	>66	62
I-max 2160mA	Tc 50°C	>66	>66	>66	>66	>66	>66	50	42	39
	Tc 65°C	>66	>66	>66	>66	>66	62	38	32	29
	Tc 95°C	>66	>66	60	49	41	38	23	19	17

Lifetime

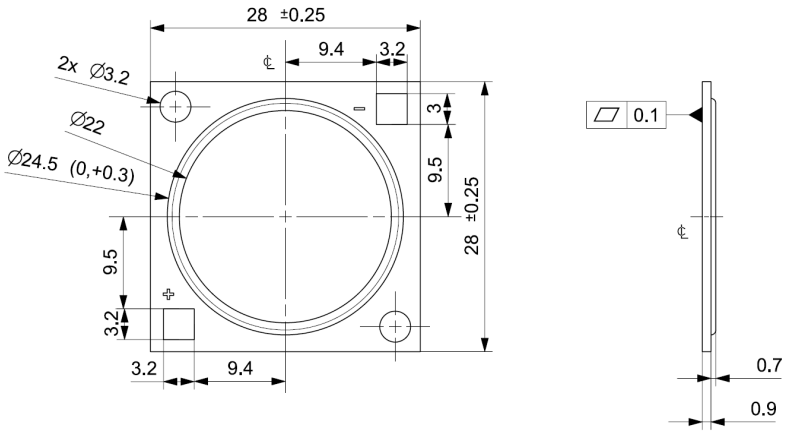
Parameter	Value	Unit
M70F50 nominal	>66000	hours

Performance Window



Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	27.75	28	28.25	mm
Width	27.75	28	28.25	mm
Height	0.8	0.9	1	mm
Height	1.3	1.6	1.9	mm
Product mass		2.2		gram



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		2160	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 illumination levels exceeding 1342 lux risk group classification may be RG2.

Application information

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

Environmental
RoHS/REACH

Application	
Dimming	Yes



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11/10/2024

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