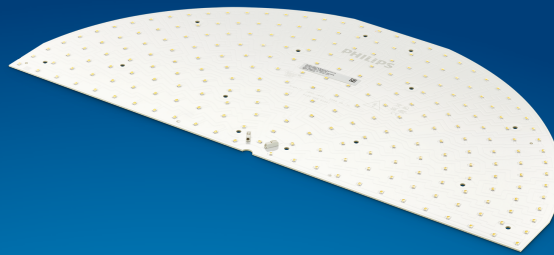


PHILIPS

Fortimo

LED

Fortimo LED CS S540 HF
8xx HV/LV6



Datasheet

Fortimo Circular Shape

The Fortimo LED Circular Shape (CS) is a unique portfolio which offers a combination of energy efficiency, homogenous lighting, long lifetime and design flexibility, making them an important component in many lighting applications. Its form factor makes it easy to design-in and handle in production. Thanks to the availability of three different dimensions, a wide range of needs is covered for our customers.

Key features and benefits

- Typical module efficiency of 200 Lm/W (at 4000K CRI80)
- CRI90 High Efficiency typical performance of 189 Lm/W (at 4000K CRI90)
- Long lifetime: >72,000 hours
- Excellent color consistency of 3 SDCM
- Typical output per dimension available:
 - 220 mm: 2500lm
 - 350 mm: 5500lm
 - 540 mm: 4125lm
- CCTs available: 3000K, 4000K
- CRI >80 & >90 (Based on high efficiency technology)
- Available in Low Voltage (LV)
- Available in front connector (FC)
- PCB thickness of 1.6mm
- Available dimensions: 220mm / 350mm / 540mm / 540Dmm (includes cutout for sensor)
- Wide temperature (Tc) range -40°C to +85°C
- Five-year system warranty (when paired with Xitanium LED drivers)

March 2023



Ordering data

Commercial product name	12NC	EPREL registration #	Box quantity
Fortimo LED CS S540 HF 830 HV/LV6	9290 029 59606	1500761	16
Fortimo LED CS S540 HF 840 HV/LV6	9290 029 59806	1500762	16

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo LED CS S540 HF 8xx HV/LV6	391	2880	2880	mA

At drive currents exceeding the nominal current and T case less than nominal T case the forward voltage may exceed 54V which is the operational limit of our SELV drivers,

Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T _c (case temperature at T _c point)	35	65	85	°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)

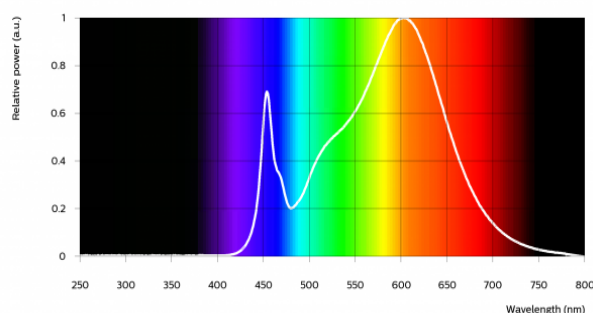
Fortimo LED CS S540 HF 830 HV/LV6

Parameter	Min	Typ	Max	Unit
Luminous flux	3800	3920	4170	lm
Efficacy	180	188	212	lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.433, 0.400)		-
Color consistency			3	SDCM
CRI	80			
R9	0			
Photobiological safety			RG1 unlimited	



Measurement precision $\pm 5\%$ for the flux data and $\pm 6\%$ 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 313mA	Tc 25 °C	3187	191
	Tc-nom 35 °C	3149	190
	Tc-max 85 °C	2922	179
I-nom 391mA	Tc 25 °C	3967	189
	Tc-nom 35 °C	3920	188
	Tc-max 85 °C	3637	177
I-max 2880mA	Tc 25 °C	25771	151
	Tc-nom 35 °C	25454	150
	Tc-max 85 °C	23559	141



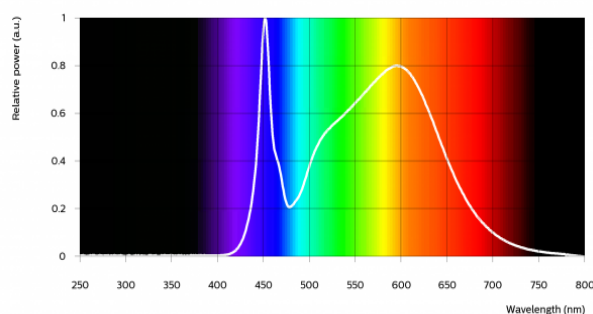
Fortimo LED CS S540 HF 840 HV/LV6

Parameter	Min	Typ	Max	Unit
Luminous flux	4090	4230	4650	lm
Efficacy	194	203	237	lm/W
Correlated color temperature (CCT)		4000		K
Color coordinates (CIEx, CIEy)		(0.381, 0.377)		-
Color consistency			3	SDCM
CRI	80			
R9	0			
Photobiological safety			RG1 unlimited	



Measurement precision $\pm 5\%$ for the flux data and $\pm 6\%$ 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 313mA	Tc 25 °C	3440	206
	Tc-nom 35 °C	3396	205
	Tc-max 85 °C	3146	193
I-nom 391mA	Tc 25 °C	4284	205
	Tc-nom 35 °C	4230	203
	Tc-max 85 °C	3918	191
I-max 2880mA	Tc 25 °C	28046	164
	Tc-nom 35 °C	27684	162
	Tc-max 85 °C	25592	153



Electrical characteristics

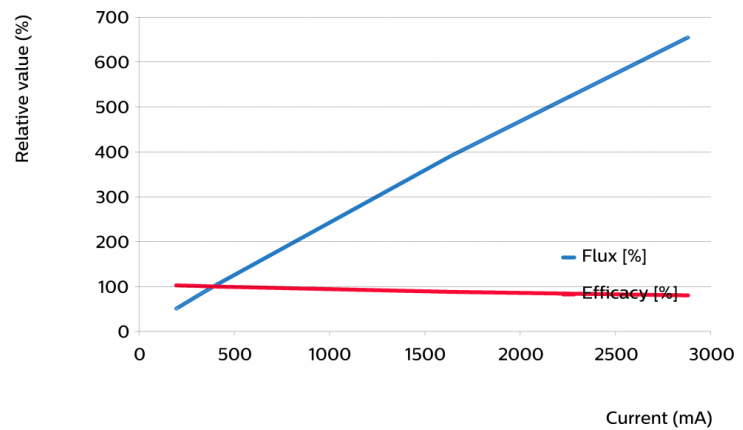
Parameter	Min	Typ	Max	Unit
Forward voltage	50.3	53.2	54.0	V
Power consumption	19.7	20.8	21.1	W = kWh/1000h
Number of modules in series per chain			2	
Number of modules in parallel			2	

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

Tuning information

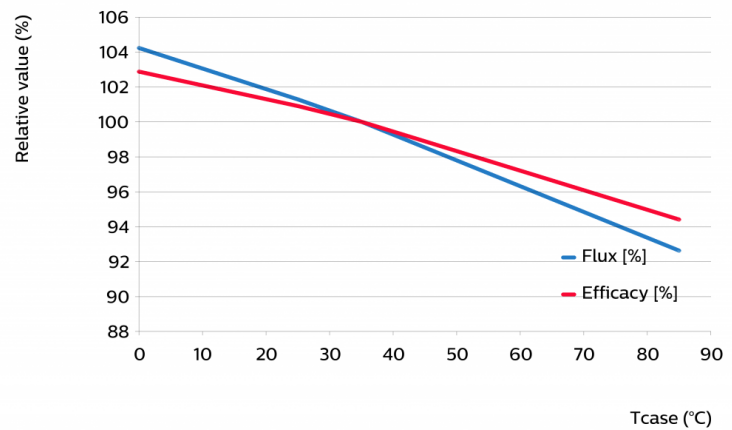
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
2880	654	80
1636	391	88
391	100	100
313	80	101
196	50	102



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

Tc [°C]	Flux [%]	Efficacy [%]
85	93	94
35	100	100
25	101	101
0	104	103



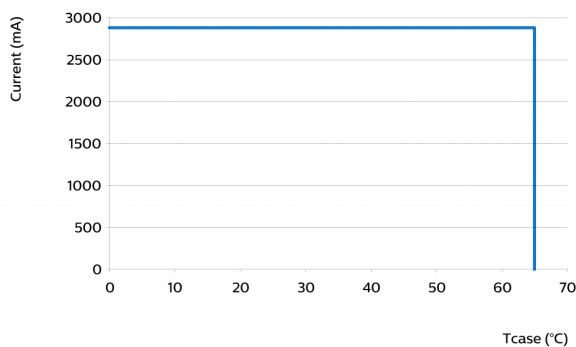
Lumen maintenance

Operation point	Lumen maintenance x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% I-nom 313mA	Tc 25°C	>72	>72	>72	>72	>72	>72	>72	>72	>72
	Tc-nom 35°C	>72	>72	>72	>72	>72	>72	>72	>72	>72
	Tc-life 65°C	>72	>72	>72	>72	>72	>72	68	65	66
I-nom 391 mA	Tc 25°C	>72	>72	>72	>72	>72	>72	>72	>72	>72
	Tc-nom 35°C	>72	>72	>72	>72	>72	>72	>72	>72	>72
	Tc-life 65°C	>72	>72	>72	>72	>72	>72	65	64	63
I-life 2880 mA	Tc=25°C	>72	>72	>72	>72	>72	>72	>72	>72	>72
	Tc-nom 35°C	>72	>72	>72	>72	>72	>72	69	68	67
	Tc-life 65°C	>72	>72	>72	>72	>72	>72	46	45	44

Lifetime

Parameter	Value	Unit
M70F50 nominal	>72000	hours
M70F50 life	>72000	hours

Performance Window



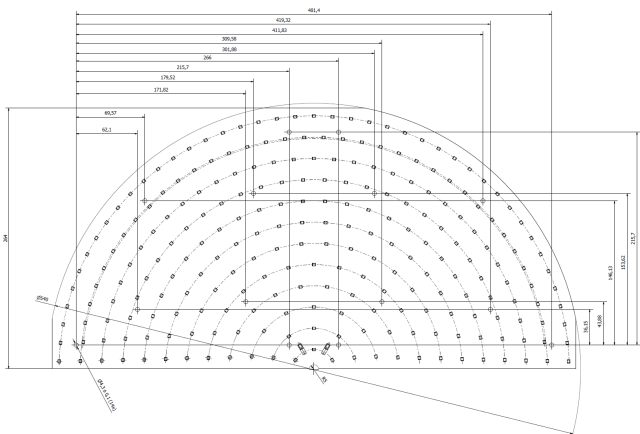
Wiring

Specification item	Value	Unit	Condition
Input wire cross-section	0.25...0.75	mm ²	solid wire
	18...24	AWG	solid wire
Input wire strip length	7.5...8.5	mm	
Input wire cross-section	0.33...0.5	mm ²	stranded wire
	20...22	AWG	stranded wire
Input wire strip length	7.5...8.5	mm	



Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	529.7	530	530.3	mm
Width	263.75	264	264.25	mm
Height PCB		1.6		mm
Height	5.9	6.1	6.3	mm
Product mass		378		gram



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		2880	mA
Case temperature (Tc-max)		85	°C
ESD (direct contact)	8		kV
Working voltage		350	V _{dc}

Application information

Certificates and Standards

CE
ENEC
ENEC+
UL

Environmental

RoHS/REACH

Application

Dimming	Yes
Suitable for Damp Locations	



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21/03/2023