xitanium



Datasheet

Fortimo FF DA NightGlow

Reduced blue light to improve animal and human wellbeing

NightGlow delivers <1% blue light and a warm amber spectrum to protect wildlife, reduce light pollution, and support human wellbeing. Efficient and high-performing, it provides clear visibility while creating inviting, nature-friendly outdoor spaces

Key features and benefits

•Ultra-low blue light (1%) to protect nocturnal wildlife
•2000K amber spectrum for nature-friendly illumination
•Lower insect attraction for quiet night environments
•Supports dark-sky goals with reduced light pollution
•Zhaga Book 15 compliancy: For easy design-in and maintenance
•Embedded module surge protection
•Philips system warranty

Application
•Parks, green zones, and recreational areas
•Nature-sensitive and dark-sky environments
•Residential streets and neighborhoods
•Trails, pathways, and pedestrian routes
•Local and rural roads
•Cultural heritage sites



Ordering data

Commercial product name	12NC	Box quantity
Fortimo FF 2x2/620 DA NightGlow	9290 040 25206	25
Fortimo FF 2x4/620 DA NightGlow	9290 040 25306	25
Fortimo FF 2x6/620 DA NightGlow	9290 040 25406	25
Fortimo FF 2x8/620 DA NightGlow	9290 040 25506	25

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo FF DA NightGlow	450	900	1500	mA

Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T_c (case temperature at T_c point)	65	85	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

Fortimo FF 2x2/620 DA NightGlow
Fortimo FF 2x4/620 DA NightGlow
Fortimo FF 2x6/620 DA NightGlow
Fortimo FF 2x8/620 DA NightGlow

	2000K NG 2x2	2000K NG 2x4	2000K NG 2x6	2000K NG 2x8	Unit
Luminous flux (Φuse)*	728	1457	2185	2913	lm
Efficacy*	145	145	145	145	lm/W
Average Luminous flux	792	1585	2377	3170	lm
Average Efficacy	162	160	161	160	lm/W
Max. Efficacy	171	171	171	171	lm/W
Max. Color consistency	5	5	5	5	SDCM
Color coordinates (CIEx, CIEy)	0.541, 0.446	0.541, 0.446	0.541, 0.446	0.541, 0.446	
Min. CRI	60	60	60	60	
Min. R9	-60	-60	-60	-60	
Max. Photobiological safety	RG1 unlimited	RG1 unlimited	RG1 unlimited	RG1 unlimited	
Energy label EPREL	exempt	exempt	exempt	exempt	

Measurement precision for flux +/- 5%. Measurement precision for efficacy +/- 6%. Measurement precision for x, y +/- 0.005. Measurement precision for CRI 1.5.

* Luminous flux(Φuse) and Efficacy refer to Single Lighting Regulation (SLR). Luminous flux(Φuse) means the part of the luminous flux of a light source that is considered when determining its energy efficiency: – for non-directional light sources it is the total flux emitted in a solid angle of 4π sr (corresponding to a 360° sphere)

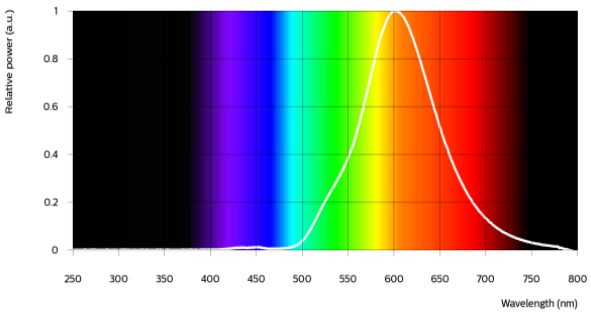
Tuning table

Operation Point		Current	2000K NG 2x2	2000K NG 2x4	2000K NG 2x6	2000K NG 2x8	Unit
Tc = 25°C	Luminous flux	80% I-nom 360mA	676	1351	2027	2702	lm
		I-nom 450mA	834	1669	2503	3337	lm
		I-max 1500mA	2477	4954	7431	9909	lm
	Efficacy	80% I-nom 360mA	169	171	170	171	lm/W
		I-nom 450mA	167	167	167	167	lm/W
		I-max 1500mA	132	132	132	132	lm/W
Tc = 65°C	Luminous flux	80% I-nom 360mA	642	1285	1927	2569	lm
		I-nom 450mA	792	1585	2377	3170	lm
		I-max 1500mA	2347	4693	7040	9387	lm
	Efficacy	80% I-nom 360mA	165	165	165	165	lm/W
		I-nom 450mA	162	160	161	160	lm/W
		I-max 1500mA	126	126	126	126	lm/W
Tc = 95°C	Luminous flux	80% I-nom 360mA	616	1232	1847	2463	lm
		I-nom 450mA	760	1520	2280	3040	lm
		I-max 1500mA	2242	4485	6727	8970	lm
	Efficacy	80% I-nom 360mA	158	160	159	160	lm/W
		I-nom 450mA	155	155	155	155	lm/W
		I-max 1500mA	122	122	122	122	lm/W

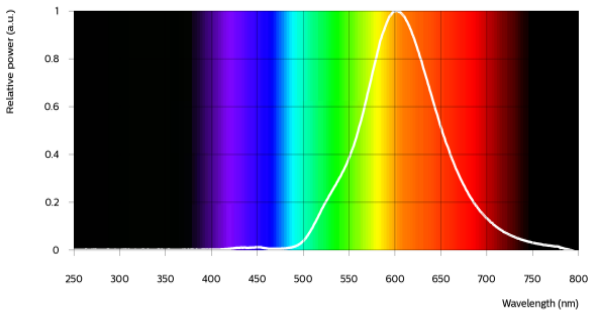
*Based on average value

Spectral characteristics

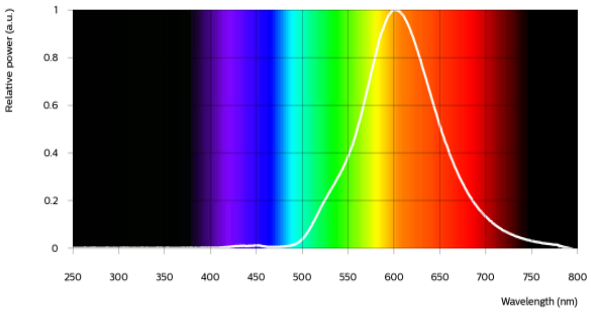
CRI60 2000K NG 2x2



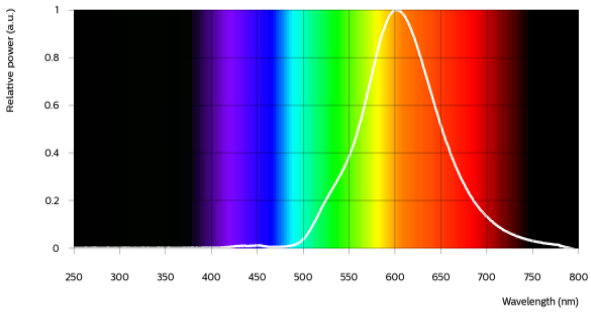
CRI60 2000K NG 2x4



CRI60 2000K NG 2x6



CRI60 2000K NG 2x8



Electrical characteristics

Fortimo FF 2x2/620 DA NightGlow

Parameter	Min	Typ	Max	Unit
Forward voltage	10.6	11.2	11.4	V
Power consumption	4.8	5.0	5.1	W = kWh/1000h
Number of modules in series per chain			10	
Number of modules in parallel			1	

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

Fortimo FF 2x4/620 DA NightGlow

Parameter	Min	Typ	Max	Unit
Forward voltage	21.1	22.3	22.7	V
Power consumption	9.5	10.1	10.2	W = kWh/1000h
Number of modules in series per chain			10	
Number of modules in parallel			1	

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

Fortimo FF 2x6/620 DA NightGlow

Parameter	Min	Typ	Max	Unit
Forward voltage	31.7	33.5	34.1	V
Power consumption	14.3	15.1	15.4	W = kWh/1000h
Number of modules in series per chain			10	
Number of modules in parallel			1	

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

Fortimo FF 2x8/620 DA NightGlow

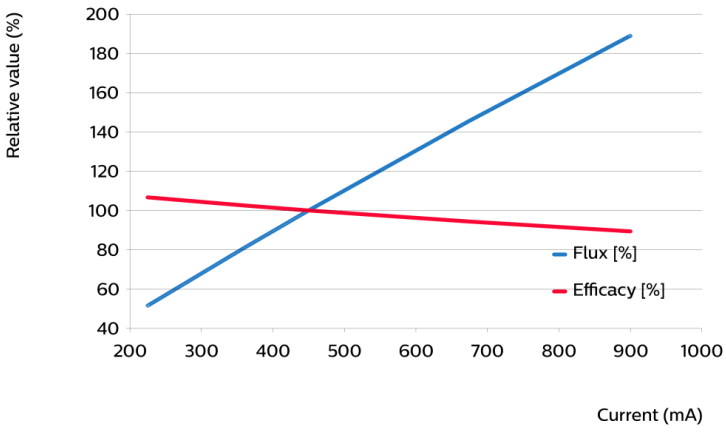
Parameter	Min	Typ	Max	Unit
Forward voltage	42.2	44.7	45.5	V
Power consumption	19.0	20.1	20.5	W = kWh/1000h
Number of modules in series per chain			10	
Number of modules in parallel			1	

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

Tuning information

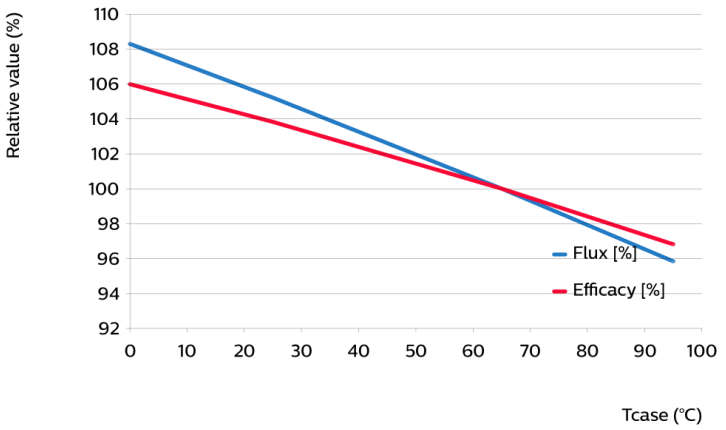
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
900	189	89
675	146	94
450	100	100
360	81	103
225	52	107



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

Tc [°C]	Flux [%]	Efficacy [%]
95	96	97
65	100	100
25	105	104
0	108	106



Lumen maintenance

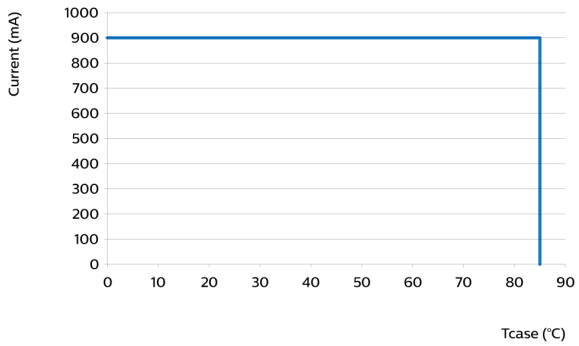
Operation point	Lumen maintenance x 1000 hours	L70 B50	L70 B20	L70 B10	L80 B50	L80 B20	L80 B10	L90 B50	L90 B20	L90 B10
80% Inom = 360mA	Tc=25°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
	Tc=45°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
	Tc_nom=65°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
Inom = 450mA	Tc=25°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
	Tc=45°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
	Tc_nom=65°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
I = 600mA	Tc=25°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
	Tc=45°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
	Tc_nom=65°C	>100	>100	>100	>100	>100	>100	>100	>100	>100

We use a Philips designed lifetime model, which uses LM80 data as only one of its inputs and assumes a continues operation of the module.
*B20 and B10 values are calculated by means of statistical techniques.

Lifetime

Parameter	Value	Unit
M70F50 nominal	>100000	hours
M70F50 life	>100000	hours

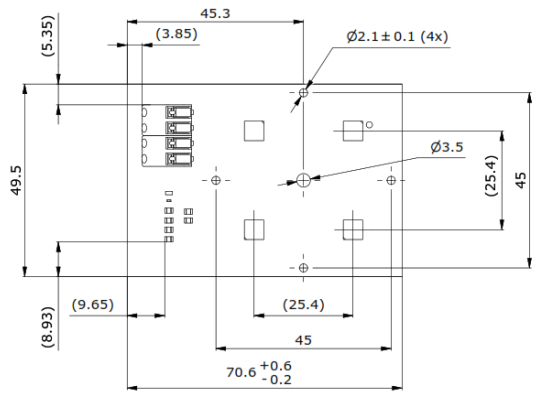
Performance Window



Mechanical characteristics

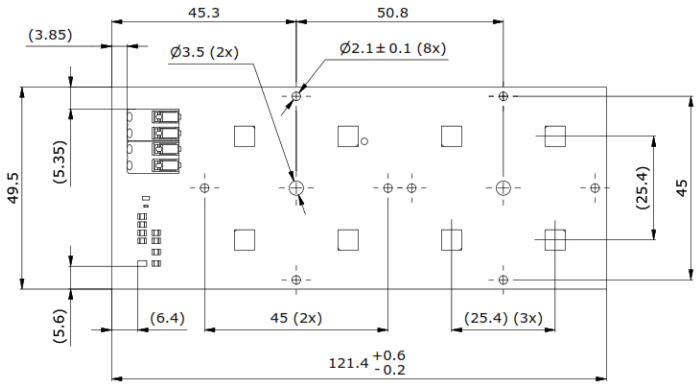
Fortimo FF 2x2/620 DA NightGlow

Parameter	Min	Typ	Max	Unit
Length	70.4	70.6	71.2	mm
Width	49.3	49.5	49.7	mm
Height PCB	1.4	1.6	1.8	mm
Height total	5.9	6.1	6.3	mm
Product mass		17.5		gram



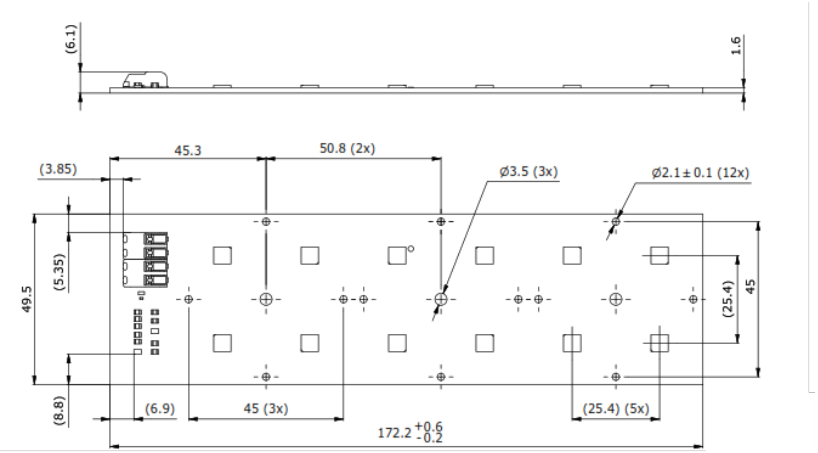
Fortimo FF 2x4/620 DA NightGlow

Parameter	Min	Typ	Max	Unit
Length	121.2	121.4	122	mm
Width	49.3	49.5	49.7	mm
Height PCB	1.4	1.6	1.8	mm
Height total	5.9	6.1	6.3	mm
Product mass		26.7		gram



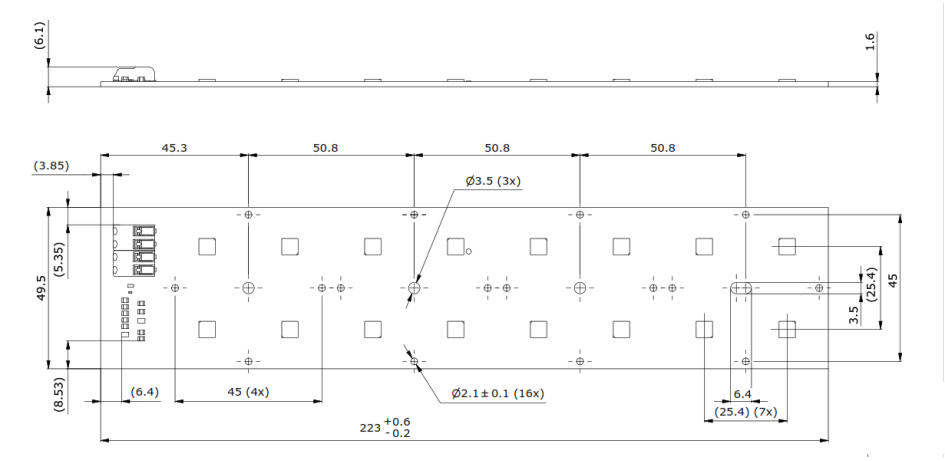
Fortimo FF 2x6/620 DA NightGlow

Parameter	Min	Typ	Max	Unit
Length	172	172.2	172.8	mm
Width	49.3	49.5	49.7	mm
Height PCB	1.4	1.6	1.8	mm
Height total	5.9	6.1	6.3	mm
Product mass		40		gram



Fortimo FF 2x8/620 DA NightGlow

Parameter	Min	Typ	Max	Unit
Length	222.8	223	223.6	mm
Width	49.3	49.5	49.7	mm
Height PCB	1.4	1.6	1.8	mm
Height total	5.9	6.1	6.3	mm
Product mass		50		gram



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		1500	mA
Case temperature (Tc-max)		95	°C
Thermal power at I-max and Tc-max (Pth)		56.3	W
ESD (direct contact)	8		kV
ESD (air)	15		kV
Working voltage		575	V_{dc}
Ambient temperature	-40	50	°C
Storage temperature	-20	80	°C

Application information

Certificates and Standards
CE
UKCA
ENEC
cULus
ENEC+

Application	
Overheating protection	No
Dimming	Yes

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