

PHILIPS

Fortimo

LED

Fortimo LED-R BioUP CED
2ft FC HV5



Datasheet

Fortimo LED-R BioUP CED 2ft FC HV5

The Fortimo LED-R LED modules are designed together with the BJB OptiLine Louvres. These modules and optics are perfectly fitted for each other which leads to a high performance on both efficiency and uniformity. Besides that, installation in a fixture is extremely easy due to the one-click-system which allows installation without screwing. The range of modules is very complete and offers a solution for many different applications and includes regular CRI80, CRI90 High Efficiency, FlexTune and BioUp CED.

Key features and benefits

- BioUp Cyan Enhanced Dynamic
- Designed to work together with the Xitanium FlexTune drivers
- Color tunable from 2700K to 5000K
- MDER enhancement from 3000K to 5000K
- MDER of 0,95 at 5000K
- Long life time: >50,000 hours
- Excellent color consistency of 3 SDCM
- 1ft and 2ft lengths
- Good light quality: CRI80, R9 >50
- Extremely easy to install in combination with BJB OptiLine Louvres
- Rotated LED positions to enable better color mixing
- Available in High Voltage (HV) and Low Voltage (LV)
- Five year system warranty when paired with Xitanium drivers

May 2022



Ordering data

Commercial product name	EOC	12NC	EPREL registration #	Box quantity
Fortimo LED-R BioUP CED 2ft FC HV5	8719514 448032 00	9290 034 06706	1227074	110

These LED-modules are designed to be used with BJB LED OptiLine Louvre Optcs.
Contact your Signify sales representative or BJB for more info.

9290 029 36906 Medium beam lens 1ft (35.306.1001.85)
9290 029 37006 Wide beam lens 1ft (35.306.1002.85)
9290 029 37406 black raster 1ft (35.306.2001.80)
9290 029 37306 white raster 1ft (35.306.2001.50)
9290 029 36806 black raster 2ft (35.312.2001.80)
9290 029 36706 white raster 2ft (35.312.2001.50)

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo LED-R BioUP CED 2ft FC HV5	160	240	240	mA

For FlexTune driver configuration use 0.313, 0.310 (1600lm) and 0.459, 0.405 (1430lm) for cool and warm LED, at a rated current of 160mA for both.

Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T _c (case temperature at T _c point)	45	70	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)

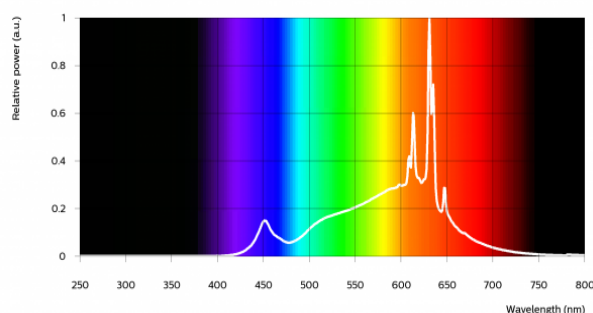
Fortimo LED-R BioUP CED 2ft FC HV5 [2700K]

Parameter	Min	Typ	Max	Unit
Luminous flux	1550	1600	1730	lm
Efficacy	129	135	150	lm/W
Correlated color temperature (CCT)		2700		K
Color coordinates (CIEx, CIEy)		(0.459, 0.405)		-
Color consistency			3	SDCM
CRI	90			
R9	50			
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	927	lm	lm/W
80% I-nom 128mA	Tc 25 °C	1348	145
	Tc-nom 45 °C	1317	143
	Tc-max 85 °C	1231	135
I-nom 160mA	Tc 25 °C	1637	137
	Tc-nom 45 °C	1600	135
	Tc-max 85 °C	1493	127
I-max 240mA	Tc 25 °C	2311	120
	Tc-nom 45 °C	2254	118
	Tc-max 85 °C	2099	111

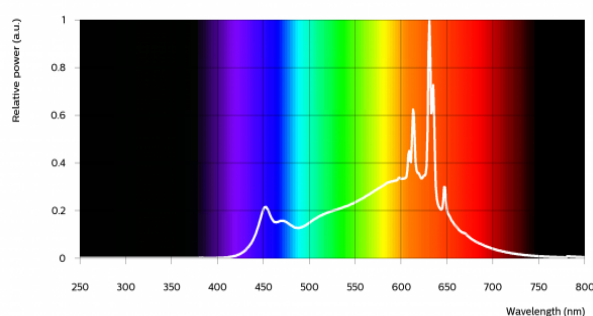


Fortimo LED-R BioUP CED 2ft FC HV5 [3000K]

Parameter	Min	Typ	Max	Unit
Luminous flux	1520	1570	1700	lm
Efficacy	127	132	148	lm/W
Correlated color temperature (CCT)		3000		K
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 128mA	Tc 25 °C	1326	143
	Tc-nom 45 °C	1296	141
	Tc-max 85 °C	1214	134
I-nom 160mA	Tc 25 °C	1608	135
	Tc-nom 45 °C	1570	132
	Tc-max 85 °C	1471	126
I-max 240mA	Tc 25 °C	2265	118
	Tc-nom 45 °C	2211	116
	Tc-max 85 °C	2063	110

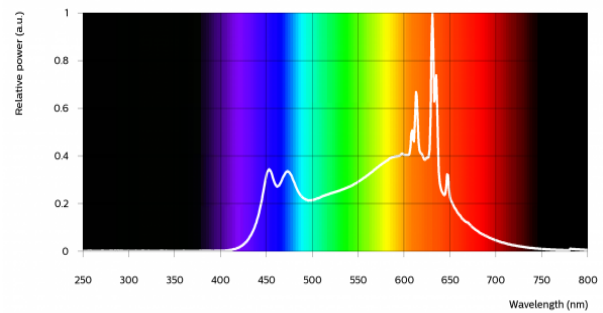


Fortimo LED-R BioUP CED 2ft FC HV5 [3500K]

Parameter	Min	Typ	Max	Unit
Luminous flux	1490	1540	1660	lm
Efficacy	125	130	145	lm/W
Correlated color temperature (CCT)		3500		K
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	835	lm	lm/W
80% I-nom 128mA	Tc 25 °C	1297	140
	Tc-nom 45 °C	1268	138
	Tc-max 85 °C	1191	131
I-nom 160mA	Tc 25 °C	1570	132
	Tc-nom 45 °C	1540	130
	Tc-max 85 °C	1441	124
I-max 240mA	Tc 25 °C	2205	116
	Tc-nom 45 °C	2154	114
	Tc-max 85 °C	2016	108

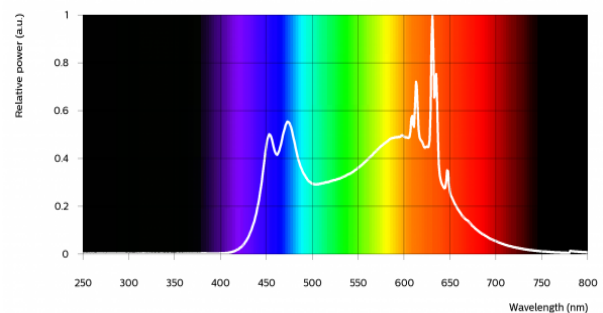


Fortimo LED-R BioUP CED 2ft FC HV5 [4000K]

Parameter	Min	Typ	Max	Unit
Luminous flux	1460	1510	1630	lm
Efficacy	123	128	143	lm/W
Correlated color temperature (CCT)		4000		K
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 128mA	Tc 25 °C	1274	138
	Tc-nom 45 °C	1248	136
	Tc-max 85 °C	1174	130
I-nom 160mA	Tc 25 °C	1541	130
	Tc-nom 45 °C	1510	128
	Tc-max 85 °C	1418	122
I-max 240mA	Tc 25 °C	2159	114
	Tc-nom 45 °C	2112	112
	Tc-max 85 °C	1980	106

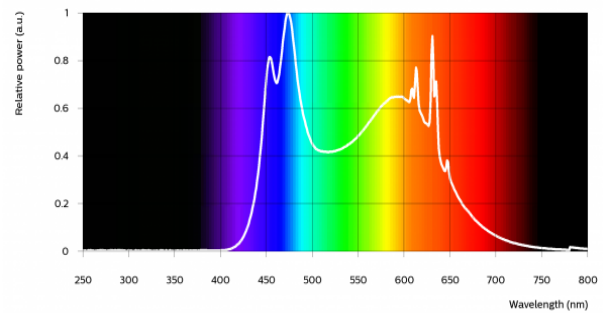


Fortimo LED-R BioUP CED 2ft FC HV5 [5000K]

Parameter	Min	Typ	Max	Unit
Luminous flux	1430	1470	1590	lm
Efficacy	120	125	139	lm/W
Correlated color temperature (CCT)		5000		K
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	850	lm	lm/W
80% I-nom 128mA	Tc 25 °C	1242	135
	Tc-nom 45 °C	1218	133
	Tc-max 85 °C	1149	127
I-nom 160mA	Tc 25 °C	1500	127
	Tc-nom 45 °C	1470	125
	Tc-max 85 °C	1385	120
I-max 240mA	Tc 25 °C	2095	111
	Tc-nom 45 °C	2051	109
	Tc-max 85 °C	1928	104



Electrical characteristics

Fortimo LED-R BioUP CED 2ft FC HV5 [2700K]

Parameter	Min	Typ	Max	Unit
Forward voltage	72.0	74.2	74.9	V
Power consumption	11.5	11.9	12.0	W = kWh/1000h
Number of modules in series per chain			4	
Number of modules in parallel			1	

Fortimo LED-R BioUP CED 2ft FC HV5 [3000K]

Parameter	Min	Typ	Max	Unit
Forward voltage	71.9	74.1	74.8	V
Power consumption	11.5	11.9	12.0	W = kWh/1000h
Number of modules in series per chain			4	
Number of modules in parallel			1	

Fortimo LED-R BioUP CED 2ft FC HV5 [3500K]

Parameter	Min	Typ	Max	Unit
Forward voltage	71.7	73.9	74.6	V
Power consumption	11.5	11.8	11.9	W = kWh/1000h
Number of modules in series per chain			4	
Number of modules in parallel			1	

Fortimo LED-R BioUP CED 2ft FC HV5 [4000K]

Parameter	Min	Typ	Max	Unit
Forward voltage	71.5	73.7	74.4	V
Power consumption	11.4	11.8	11.9	W = kWh/1000h
Number of modules in series per chain			4	
Number of modules in parallel			1	

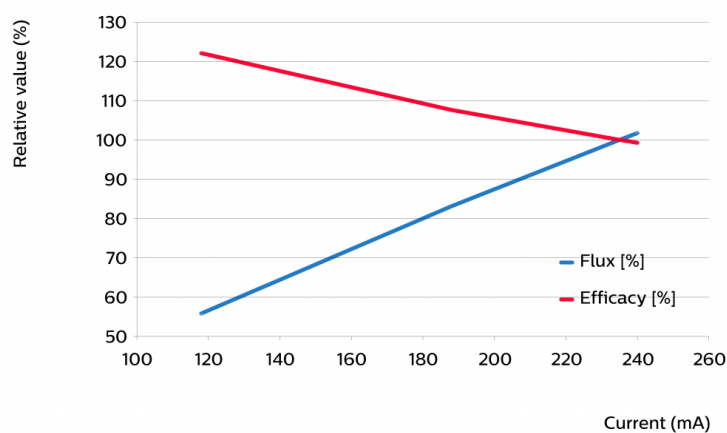
Fortimo LED-R BioUP CED 2ft FC HV5 [5000K]

Parameter	Min	Typ	Max	Unit
Forward voltage	71.3	73.5	74.2	V
Power consumption	11.4	11.8	11.9	W = kWh/1000h
Number of modules in series per chain			4	
Number of modules in parallel			1	

Tuning information

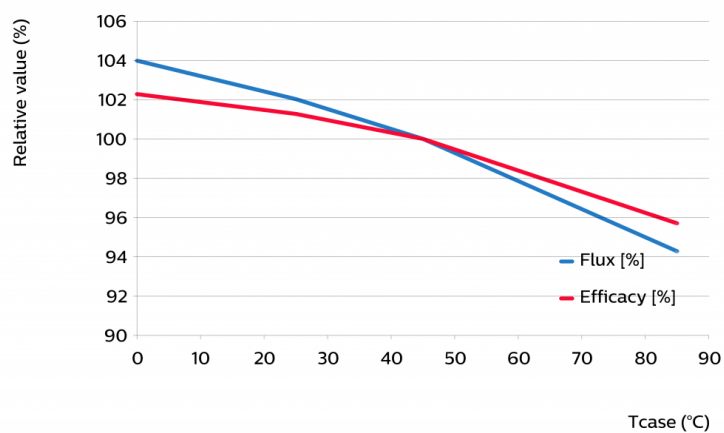
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
240	102	99
238	101	100
235	100	100
188	83	108
118	56	122



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

Tc [°C]	Flux [%]	Efficacy [%]
85	94	96
45	100	100
25	102	101
0	104	102



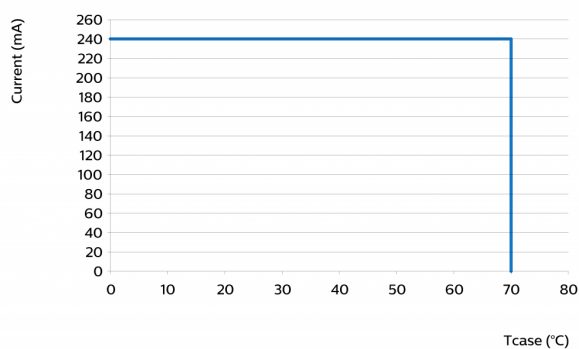
Lumen maintenance

Operation point	Lumen maintenance x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% Inom=128mA	Tc=25°C	>70	>70	>70	>70	>70	>70	>70	>70	>70
	Tc_nom=45°C	>70	>70	>70	>70	>70	>70	65	63	62
	llife=450mA	>70	>70	>70	>70	>70	>70	50	48	48
Inom=160mA	Tc=25°C	>70	>70	>70	>70	>70	>70	>70	>70	>70
	Tc_nom=45°C	>70	>70	>70	>70	>70	>70	62	60	60
	llife=450mA	>70	>70	>70	>70	>70	>70	47	46	46
llife=240mA	Tc=25°C	>70	>70	>70	>70	>70	>70	>70	70	69
	Tc_nom=45°C	>70	>70	>70	>70	>70	>70	57	56	55
	llife=450mA	>70	>70	>70	>70	>70	>70	44	42	42

Lifetime

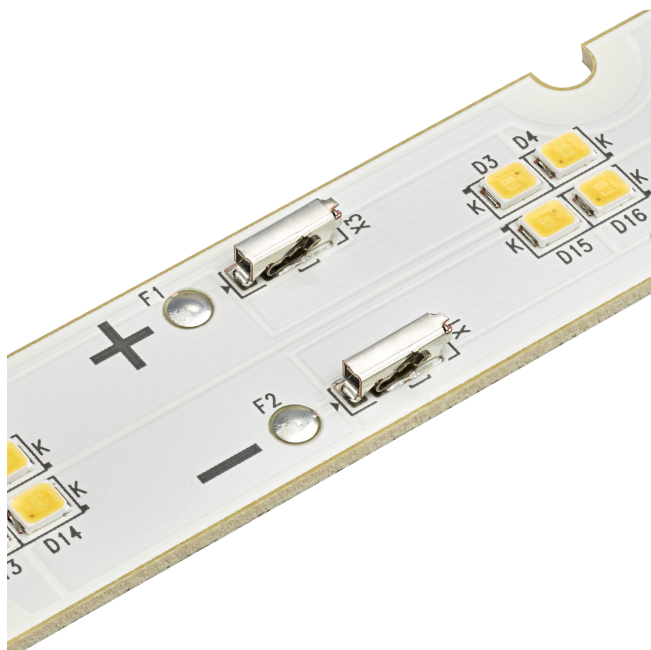
Parameter	Value	Unit
M70F50 nominal	>70000	hours
M70F50 life	>70000	hours

Performance Window



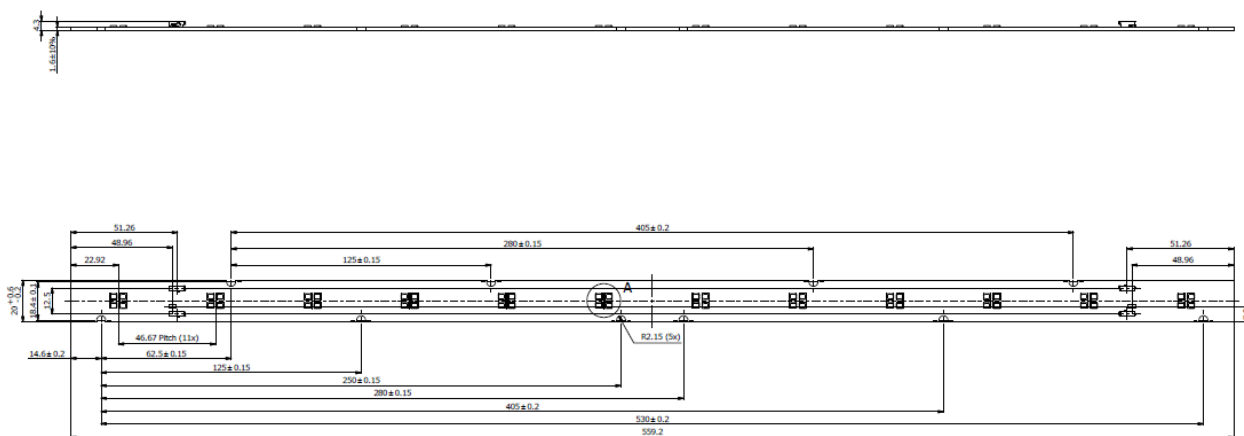
Wiring

Specification item	Value	Unit	Condition
Input wire cross-section	0.2...0.75	mm ²	solid wire, stranded wire
	18...24	AWG	solid wire, stranded wire
Input wire strip length	7.5...9.5	mm	



Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	558.9	559.2	559.5	mm
Width	19.8	20	20.6	mm
Height PCB		1.6		mm
Height Total		4.3		mm
Product mass		50		gram



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		240	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+
cULus

Application

Overheating protection	no
Dimming	Yes



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