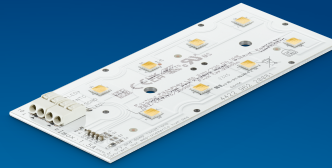


PHILIPS

Fortimo

LED

Fortimo FastFlex LED 2x4
DA UHE



Datasheet

Ultra-High Efficiency with Zhaga standards

Fortimo FastFlex 2x4 DA UHE

Experience increased efficiency levels of $\geq 200\text{lm/W}$ – all within Zhaga standards

Application:

- Road lighting
- Urban and residential street lighting
- Parks and recreation area lighting
- Flood and area lighting
- Tunnel lighting
- High bay lighting

Key features and benefits

- Ultra-High Efficiency on LED module level in Zhaga standards
- Extensive reliability testing for OEM peace of mind
- Mechanically backwards compatible with DA Gen 4+/Gen 5 and DA HE
- Patented module surge protection
- Philips system warranty

December 2023



Ordering data

Commercial product name	EOC	12NC	Box quantity
Fortimo FastFlex LED 2x4/730 DA UHE	8720169 284647 00	9290 039 67706	25
Fortimo FastFlex LED 2x4/740 DA UHE	8720169 284661 00	9290 039 67806	25

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo FastFlex LED 2x4 DA UHE	450	1050	1500	mA

Module temperatures

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

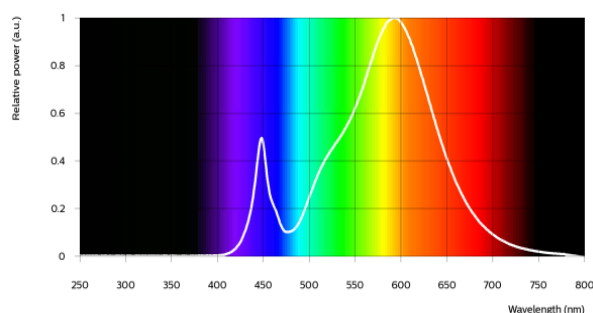
Fortimo FastFlex LED 2x4/730 DA UHE

Parameter	Min	Typ	Max	Unit
Luminous flux	1800	2000	2200	lm
Efficacy	180	200	220	lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.435, 0.419)		-
Color consistency			5	SDCM
CRI	70			
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	730	lm	lm/W
80% I-nom 360mA	Tc 25 °C	1686	210
	Tc-nom 65 °C	1615	204
	Tc-max 85 °C	1570	200
I-nom 450mA	Tc 25 °C	2090	206
	Tc-nom 65 °C	2000	200
	Tc-max 85 °C	1944	196
I-max 1500mA	Tc 25 °C	6437	168
	Tc-nom 65 °C	6120	162
	Tc-max 85 °C	5922	158



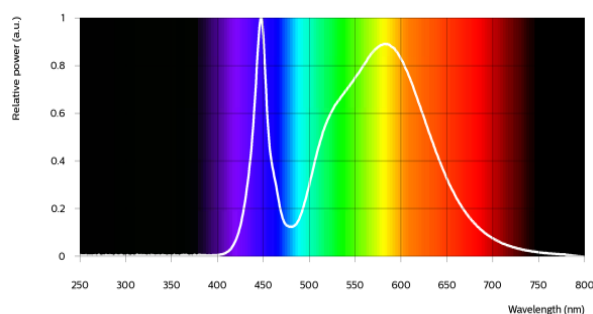
Fortimo FastFlex LED 2x4/740 DA UHE

Parameter	Min	Typ	Max	Unit
Luminous flux	1827	2030	2233	lm
Efficacy	183	203	223	lm/W
Correlated color temperature (CCT)		4000		K
Color coordinates (CIEx, CIEy)		(0.379, 0.391)		-
Color consistency			5	SDCM
CRI	70			
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	740	lm	lm/W
80% I-nom 360mA	Tc 25 °C	1711	213
	Tc-nom 65 °C	1639	207
	Tc-max 85 °C	1594	203
I-nom 450mA	Tc 25 °C	2121	209
	Tc-nom 65 °C	2030	203
	Tc-max 85 °C	1974	199
I-max 1500mA	Tc 25 °C	6534	171
	Tc-nom 65 °C	6213	165
	Tc-max 85 °C	6013	161



Electrical characteristics

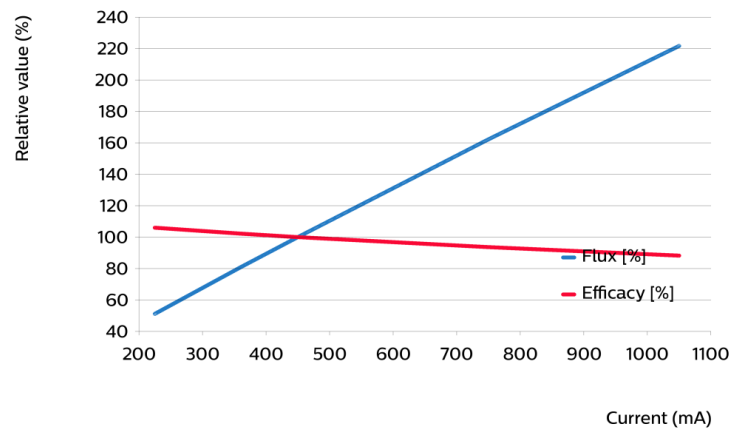
Parameter	Min	Typ	Max	Unit
Forward voltage	21.1	22.2	22.8	V
Power consumption	9.5	10.0	10.3	W = kWh/1000h
Number of modules in series per chain			10	
Number of modules in parallel			1	

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

Tuning information

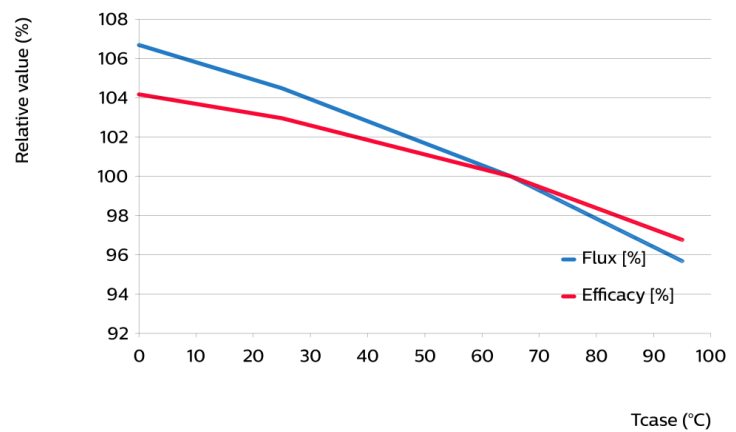
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
1050	222	88
750	162	94
450	100	100
360	81	102
225	51	106



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

Tc [°C]	Flux [%]	Efficacy [%]
95	96	97
65	100	100
25	104	103
0	107	104



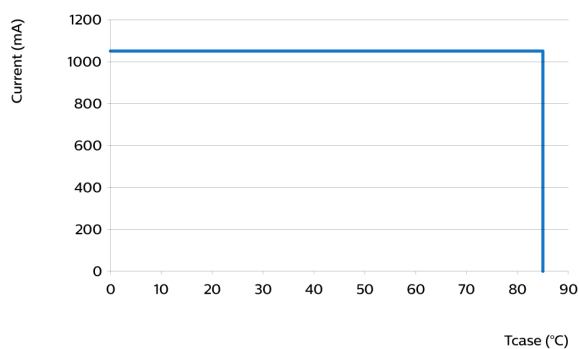
Lumen maintenance

Operation point	Lumen maintenance x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% Inom=360mA	Tc=25°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
	Tc_nom=65°C	>100	>100	>100	>100	>100	>100	89	84	81
	Tc_life=85°C	>100	>100	>100	>100	>100	>100	68	64	62
Inom=450mA	Tc=25°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
	Tc_nom=65°C	>100	>100	>100	>100	>100	>100	85	80	78
	Tc_life=85°C	>100	>100	>100	>100	>100	>100	65	61	59
Ilife=700mA	Tc=25°C	>100	>100	>100	>100	>100	>100	>100	>100	>100
	Tc_nom=65°C	>100	>100	>100	>100	>100	>100	78	73	71
	Tc_life=85°C	>100	>100	>100	>100	>100	>100	60	56	54

Lifetime

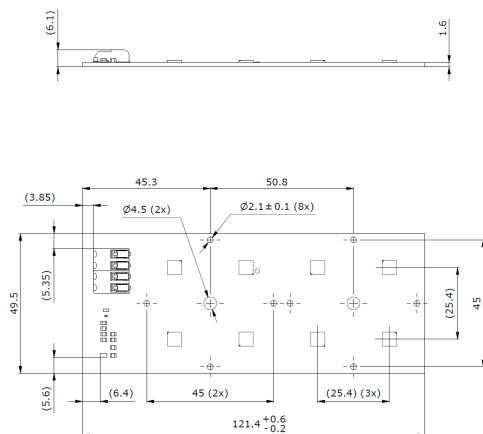
Parameter	Value	Unit
M70F50 nominal	>100000	hours
M70F50 life	>100000	hours

Performance Window



Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	121.2	121.4	122	mm
Width	49.3	49.5	49.7	mm
Height including connector		6.1		mm
Height PCB		1.6		mm
Product mass		27.7		gram



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		1500	mA
Case temperature (Tc-max)		85	°C
Power at rated Vf-max and I-max		37.6	W
ESD (direct contact)	8		kV
ESD (air)	15		kV
Working voltage		575	V _{dc}
Ambient temperature	-30	40	°C
Storage temperature	-20	80	°C

Application information

Certificates and Standards

CE
ENEC
cULus

Environmental

RoHS/REACH

Application

Overheating protection	NTC 15K Ohm B=3987K + 390 Ohm in series
Dimming	Yes



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