

PHILIPS

Fortimo

LED

Fortimo LED Strip 1ft
1100lm 8xx FC LV4



Datasheet

Fortimo LED Strip Gen4

Fortimo LED Strip systems are ideal for use in designer or miniaturized, slim linear luminaires for direct lighting in offices, banks, schools, public buildings, supermarkets and anywhere where a small, flexible form factor is appreciated.

Key features and benefits

- State-of-the-art LED module efficiency of up to 182 lm/W
- Long life-time: >50,000 hours
- High color rendering (CRI >80 and >90)
- Excellent color consistency of 3 SDCM
- Choice of color temperatures (3000 K, 4000 K and 5000 K)
- Two lumen packages: 650 lm and 1100 lm per foot
- Small LED module width of only 20mm
- Tunable lumen output, efficacy and lifetime
- Wide temperature (Tc) range from -40 °C to +80 °C
- Push-in connectors enabling automated wiring
- Five year system warranty

November 2017

 **Zhaga**

Ordering data

Commercial product name	EOC	12NC	Box quantity
Fortimo LED Strip 1ft 1100lm 830 FC LV4	8718696 655115 00	9290 015 25406	168
Fortimo LED Strip 1ft 1100lm 840 FC LV4	8718696 655139 00	9290 015 25506	168
Fortimo LED Strip 1ft 1100lm 850 FC LV4	8718696 655153 00	9290 015 25606	168

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo LED Strip 1ft 1100lm 8xx FC LV4	184	260	278	mA

Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T _c (case temperature at T _c point)	45	70	80	°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)

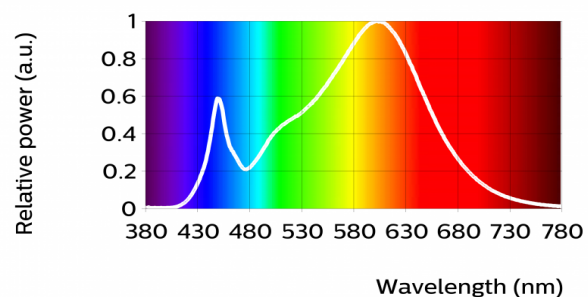
Fortimo LED Strip 1ft 1100lm 830 FC LV4

Parameter	Min	Typ	Max	Unit
Luminous flux	966	1044	1122	lm
Module efficacy	152	169	186	lm/W
Correlated color temperature (CCT)		3000		K
Color coordinates (CIEx, CIEy)		(0.432, 0.401)		-
Color consistency			3	SDCM
CRI	80			
Radiation angle		120		deg
Photobiological safety			RG1 unlimited	
Energy efficiency label		A++		
Δu'v' at 6000 hours			0.007	

R9=10

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 147mA	Tc 25 °C	869	176
	Tc-nom 45 °C	851	175
	Tc-life 70 °C	823	171
I nom 184mA	Tc 25 °C	1065	171
	Tc-nom 45 °C	1044	169
	Tc-life 70 °C	1009	165
I life 260mA	Tc 25 °C	1450	160
	Tc-nom 45 °C	1419	158
	Tc-life 70 °C	1370	155



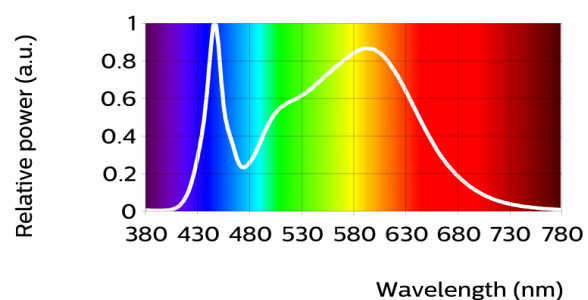
Fortimo LED Strip 1ft 1100lm 840 FC LV4

Parameter	Min	Typ	Max	Unit
Luminous flux	1020	1100	1180	lm
Module efficacy	160	178	196	lm/W
Correlated color temperature (CCT)		4000		K
Color coordinates (CIEx, CIEy)		(0.380, 0.377)		-
Color consistency			3	SDCM
CRI	80			
Radiation angle		120		deg
Photobiological safety			RG1 unlimited	
Energy efficiency label		A++		
Δu'v' at 6000 hours			0.007	

R9=5

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 147mA	Tc 25 °C	915	186
	Tc-nom 45 °C	897	184
	Tc-life 70 °C	868	180
I nom 184mA	Tc 25 °C	1123	180
	Tc-nom 45 °C	1100	178
	Tc-life 70 °C	1064	174
I life 260mA	Tc 25 °C	1529	169
	Tc-nom 45 °C	1496	167
	Tc-life 70 °C	1445	163



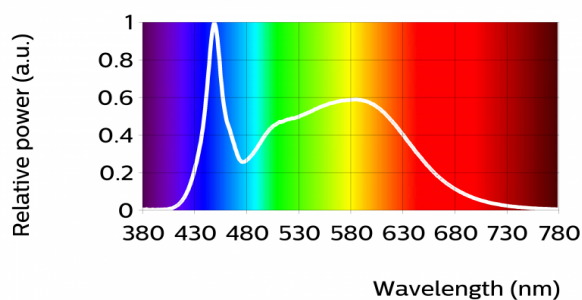
Fortimo LED Strip 1ft 1100lm 850 FC LV4

Parameter	Min	Typ	Max	Unit
Luminous flux	1030	1110	1190	lm
Module efficacy	162	180	198	lm/W
Correlated color temperature (CCT)		5000		K
Color coordinates (CIEx, CIEy)		(0.341, 0.350)		-
Color consistency			3	SDCM
CRI	80			
Radiation angle		120		deg
Photobiological safety			RG1 unlimited	
Energy efficiency label		A++		
$\Delta u'v'$ at 6000 hours			0.007	

R9=5

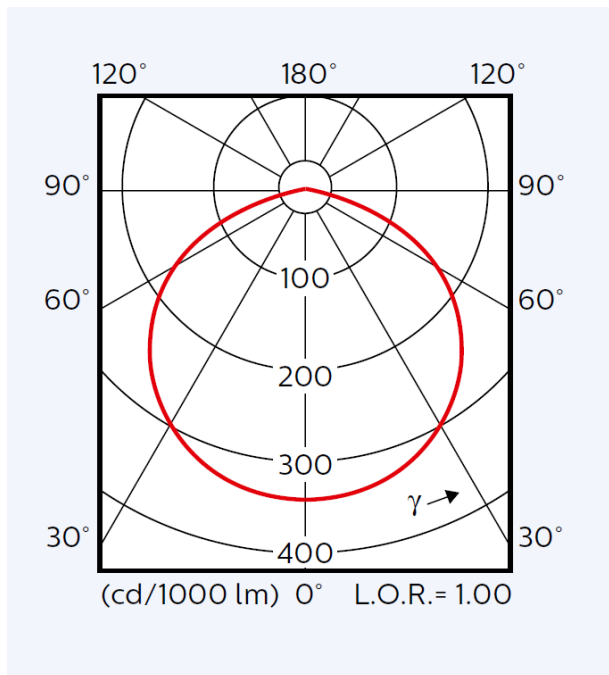
Measurement precision $\pm 5\%$ for the flux data and $\pm 6\%$ for the efficacy data. Measurement precision for color coordinates ± 0.005 . Measurement precision for CRI ± 1.5

Operation point	850	lm	lm/W
80% I nom 147mA	Tc 25 °C	925	188
	Tc-nom 45 °C	906	186
	Tc-life 70 °C	877	182
I nom 184mA	Tc 25 °C	1135	182
	Tc-nom 45 °C	1110	180
	Tc-life 70 °C	1076	176
I life 260mA	Tc 25 °C	1546	171
	Tc-nom 45 °C	1513	169
	Tc-life 70 °C	1462	165



Beam shape

The Philips LED module generates a Lambertian beam shape, which is a pragmatic starting point for OEMs wishing to design secondary optics.



Electrical characteristics

[Fortimo LED Strip 1ft 1100lm 830 FC LV4](#)

[Fortimo LED Strip 1ft 1100lm 840 FC LV4](#)

[Fortimo LED Strip 1ft 1100lm 850 FC LV4](#)

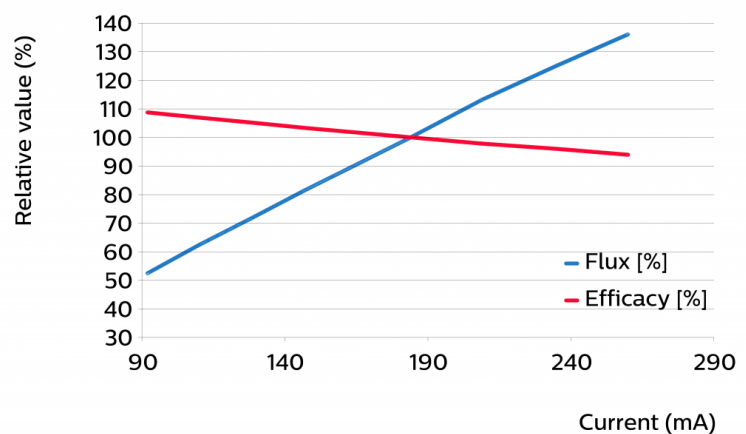
Parameter	Min	Typ	Max	Unit
Forward voltage	32.1	33.6	35.1	V
Power consumption	5.9	6.2	6.5	W
Number of modules in parallel per chain			6	

Measurement precision for V_f +/- 3%. Measurement precision for power +/- 3.3%
Specifications stated at T_c -nom and I -nom

Tuning information

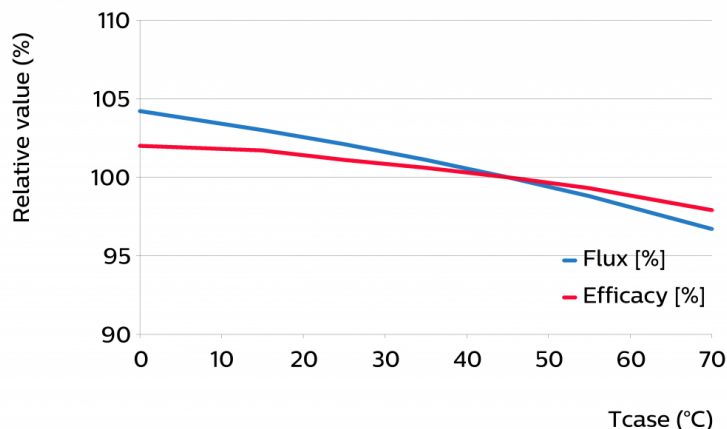
Flux and efficacy versus current (at T_c nominal)

I [mA]	Flux [%]	Efficacy [%]
260	136	94
235	125	96
209	113	98
184	100	100
166	91	102
147	82	103
129	72	105
110	62	107
92	52	109



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

Tcase [°C]	Flux [%]	Efficacy [%]
70	97	98
55	99	99
45	100	100
35	101	101
25	102	101
15	103	102
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% I nom 147 mA	Tc 25°C	>70	>70	>70	>70	65	60	35	35	30
	Tc nom 45°C	>70	>70	>70	>70	65	60	35	35	30
	Tc life 70°C	>70	>70	>70	55	50	50	30	25	25
I nom 184 mA	Tc 25°C	>70	>70	>70	>70	65	60	35	35	30
	Tc nom 45°C	>70	>70	>70	>70	65	60	35	35	30
	Tc life 70°C	>70	>70	>70	55	50	50	30	25	25
I life 260 mA	Tc 25°C	>70	>70	>70	>70	65	60	35	35	30
	Tc nom 45°C	>70	>70	>70	>70	65	60	35	35	30
	Tc life 70°C	>70	>70	>70	55	50	50	30	25	25

Lifetime

Lifetime L70B50 > 70 000 hours at I-life and Tc-life. >70 000 hours claim is based on extrapolating raw LM80-data to lower temperatures and currents by using statistical techniques.

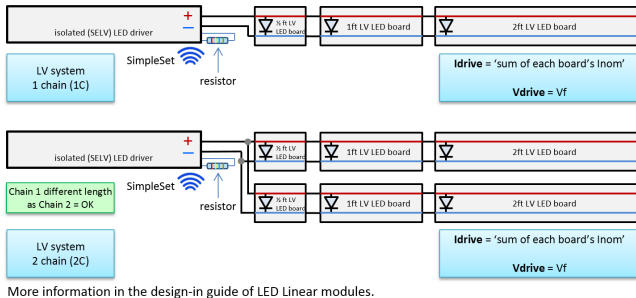
Thermal switching table

Calculated number of switches at which the survival rate of the population >90%, at a given ambient temperature and delta T with respect to Tc (where Tc = Tambient + delta T)

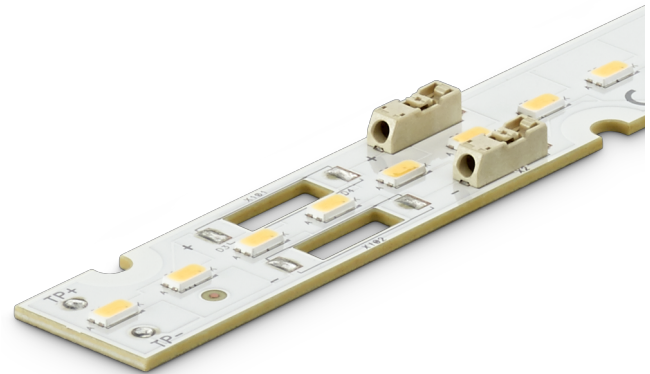
		Tambient [°C]											
		-40	-30	-20	-10	0	10	20	30	40	50	60	70
delta T [°C] (delta T = Tc - Tambient)	10	Continuous operation or dimming only	>100 k	>100 k	>100 k	>100 k	>100 k	>100 k	>100 k	>100 k	>100 k	>100 k	>30 k
	20		>100 k	>100 k	>100 k	>100 k	>100 k	>100 k	>100 k	>100 k	>30 k	>30 k	X
	30		>100 k	>100 k	>100 k	>100 k	>100 k	>100 k	>30 k	>30 k	26 k	X	X
	40		>30 k	>30 k	>30 k	>30 k	>30 k	>30 k	>30 k	18 k	X	X	X
	50		21 k	21 k	20 k	20 k	20 k	18 k	13 k	X	X	X	X
	60		11 k	11 k	11 k	11 k	10 k	9 k	X	X	X	X	X
	70		6 k	6 k	6 k	6 k	6 k	X	X	X	X	X	X
	80		4 k	4 k	4 k	4 k	X	X	X	X	X	X	X
	90		2 k	2 k	2 k	X	X	X	X	X	X	X	X

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	



More information in the design-in guide of LED Linear modules.



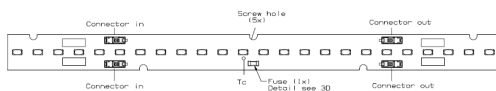
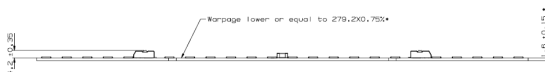
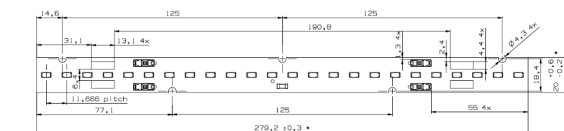
Mechanical characteristics

Fortimo LED Strip 1ft 1100lm 830 FC LV4

Fortimo LED Strip 1ft 1100lm 840 FC LV4

Fortimo LED Strip 1ft 1100lm 850 FC LV4

Parameter	Min	Typ	Max	Unit
Length	278.9	279.2	279.5	mm
Width	19.8	20	20.6	mm
Height excl. connector	1.45	1.6	1.75	mm
Height incl. connector	3.85	4.2	4.55	mm



Connector out:to connect module to driver or module to module
Connector in:to connect module to driver or module to module

Absolute ratings

Parameter	Min	Typ	Max	Unit
Current through the LED module (I-max)			278	mA
Case temperature (Tc-max)			80	°C
Power at rated Vf-max and I-max			14.8	W
ESD (direct contact)			8	kV
ESD (air)			15	kV
Working voltage			120	V _{dc}
Voltage strength	1240			V _{ac}
Ambient temperature	-40			°C

Application information

Certificates and Standards

IEC 62031:2008 (First Edition) + A1:2012 + A2:2014

EN 62031:2008 (First Edition) + A1:2013 + A2:2015

Relevant clauses of IEC 62471:2006 (Incl. IEC/TR 62471-2: 2009 and IEC/TR 62778: 2014)

Relevant clauses of EN 62471:2008 (With IEC/TR 62471-2: 2009 and IEC/TR 62778: 2014)

UL 8750

ENEC+

CE

ENEC

Environmental

RoHS/REACH

Zhaga

Compliant*

*Book 7

Application

IP rating	None
Overheating protection	No
Luminaire class	Class I and Class II
Dimming	Yes



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