

PHILIPS

Fortimo

LED

Fortimo LED Strip 1ft
1100lm 865 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

June 2016

Ordering data

Commercial product name	EOC	12NC	Box quantity
Fortimo LED Strip 1ft 1100lm 865 FC LV4	8718696 655177 00	9290 015 25706	168

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo LED Strip 1ft 1100lm 865 FC LV4	184	260	380	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)

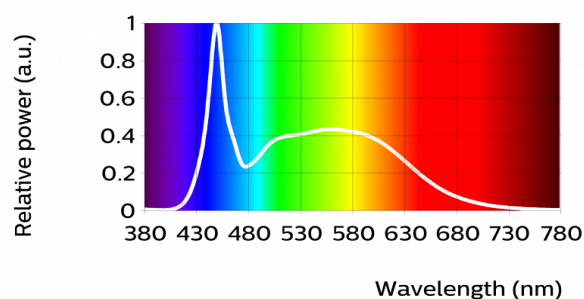
Fortimo LED Strip 1ft 1100lm 865 FC LV4

Parameter	Min	Typ	Max	Unit
Luminous flux	1020	1100	1180	lm
Module efficacy	160	178	196	lm/W
Correlated color temperature (CCT)		6500		K
Color coordinates (CIEx, CIEy)		(0.309, 0.324)		-
Color consistency			3	SDCM
CRI	80			
Radiation angle		120		deg
Photobiological safety			RG1	
Energy efficiency label		A++		
$\Delta u'v'$ at 6000 hours			0.007	

R9=14

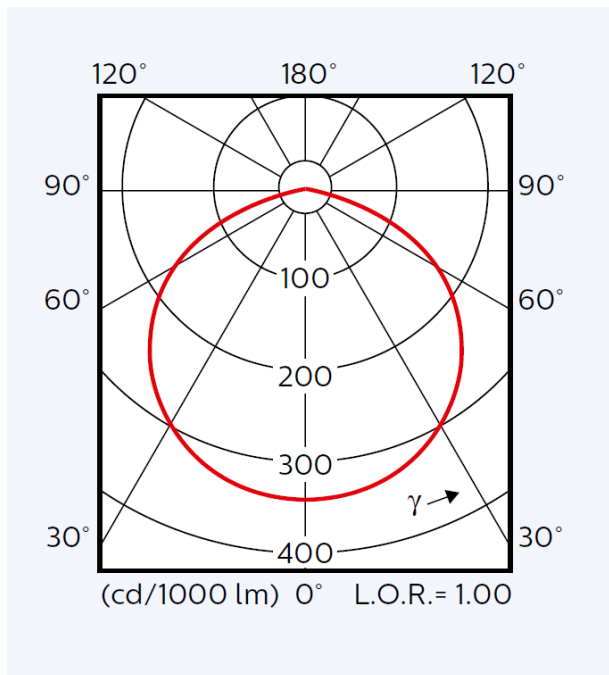
Measurement precision $\pm 5\%$ for the flux data and $\pm 6\%$ for the efficacy data. Measurement precision for color coordinates ± 0.005 . Measurement precision for CRI ± 1.5

Operation point	865	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



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 865 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			6	

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

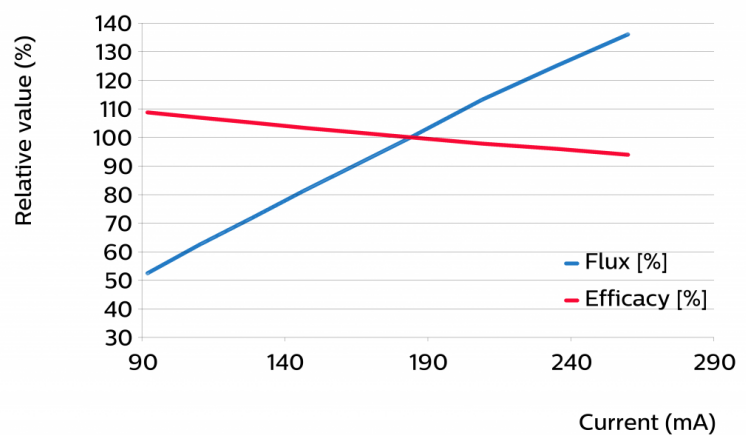
Specifications stated at Tc-nom and I-nom

Bins E and F

Tuning information

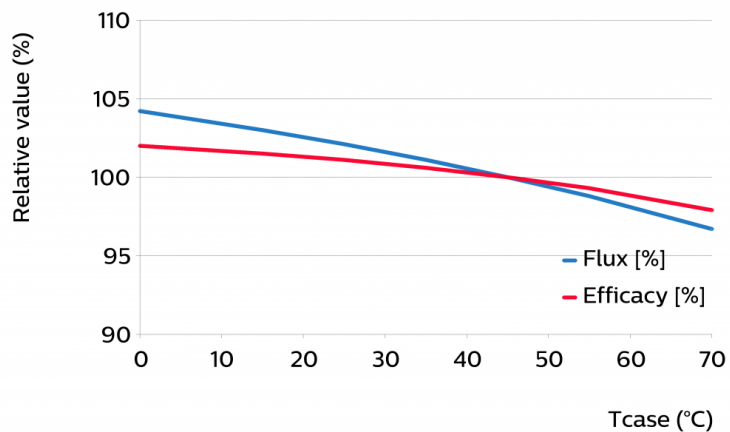
Flux and efficacy versus current (at Tc nominal)

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



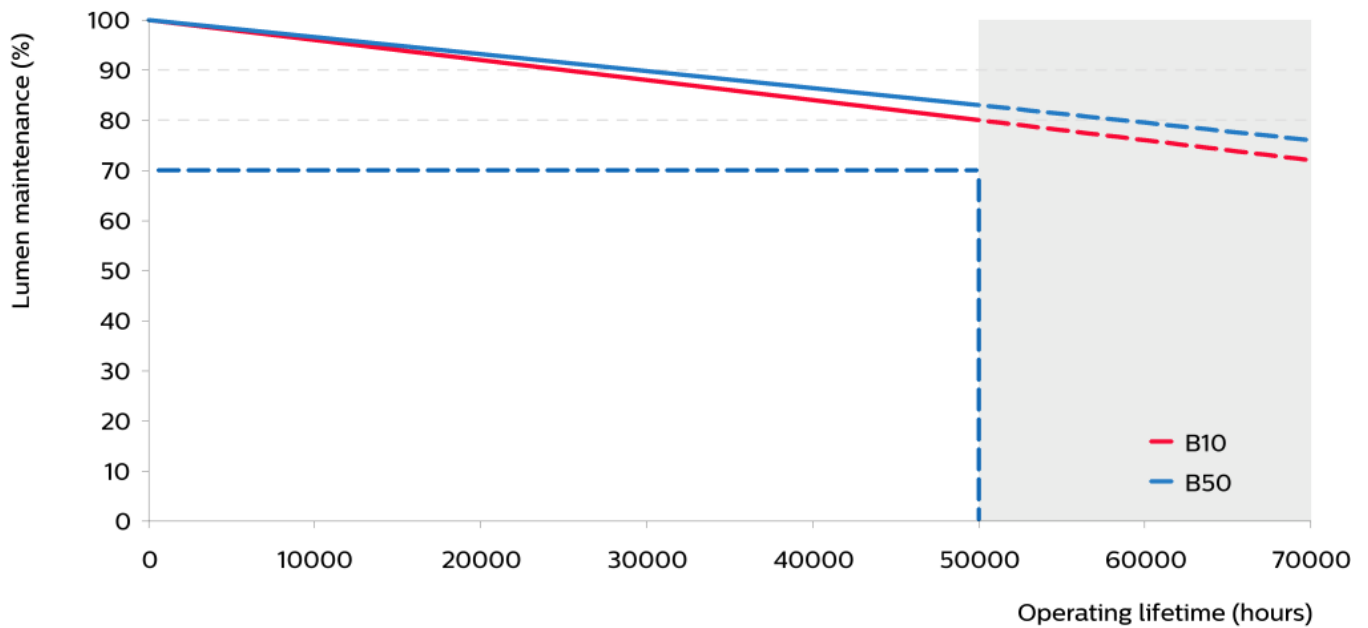
Lifetime

Operation point	Lifetime x 1000 hours	L70			L80			L90		
		B50	B20	B10	B50	B20	B10	B50	B20	B10
80% I nom	Tc 25°C	>72	>72	>72	>72	66	62	38	34	32
	Tc nom 45°C	>72	>72	>72	>72	66	62	38	34	32
	Tc life 70°C	>72	>72	>72	58	52	50	31	28	26
I nom	Tc 25°C	>72	>72	>72	>72	66	62	38	34	32
	Tc nom 45°C	>72	>72	>72	>72	66	62	38	34	32
	Tc life 70°C	>72	>72	>72	58	52	50	31	28	26
I life	Tc 25°C	>72	>72	>72	>72	66	62	38	34	32
	Tc nom 45°C	>72	>72	>72	>72	66	62	38	34	32
	Tc life 70°C	>72	>72	>72	58	52	50	31	28	26

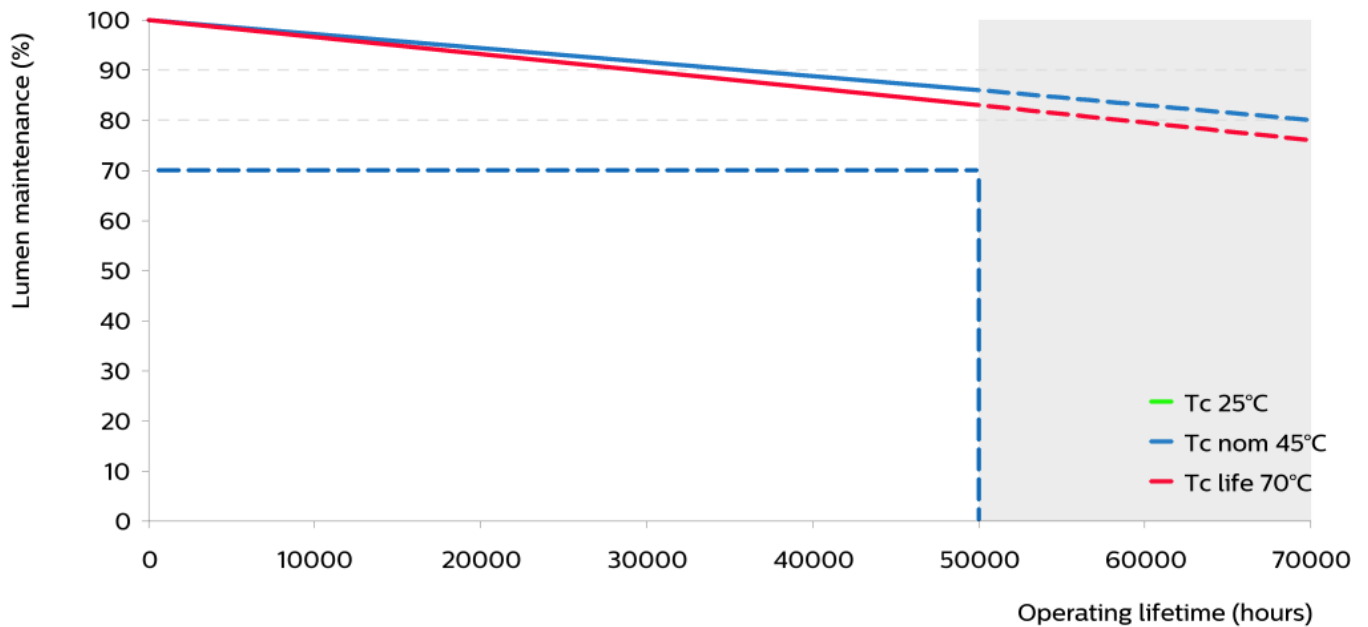
Parameter	Value	Unit
C10 at Tc life	50000	hours

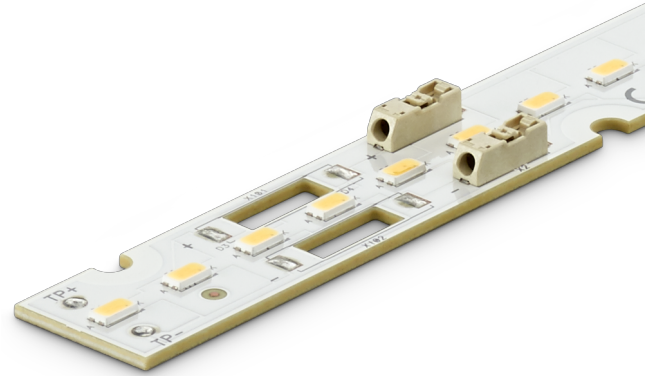
Values in the table are based on available LM80 LED data (12,000h). Lumen maintenance will be updated once additional measurement data becomes available.

Lumen maintenance at I-life and Tc-life conditions



Lumen maintenance for B50 at current I-life conditions



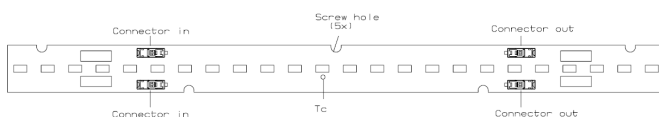
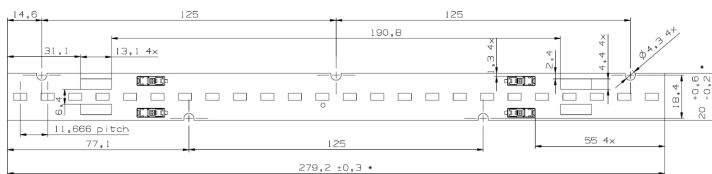


More information in the design-in guide of LED Linear modules.

Mechanical characteristics

Fortimo LED Strip 1ft 1100lm 865 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
Warpage (IPC-TM-650)			0.75	%



Absolute ratings

Parameter	Min	Typ	Max	Unit
Current through the LED module (I-max)			380	mA
Case temperature (Tc-max)			80	°C
Power at rated Vf-max and I-max			14.8	W
ESD Human Body Model (HBM) Class 3A JESD22-A114-E 8 kV			8	kV
ESD Machine Model (MM) Class B JESD22-A115-B			15	kV
Working voltage			120	V _{dc}
Voltage strength	1240			V _{dc}
Ambient temperature	-40			°C

Application information

Zhaga	Compliant*
*Book 7	
Application	
IP rating	None
Overheating protection	No
Luminaire class	Class II
Dimming	Yes

Certificates and standards

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

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

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

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

ENEC, CE, ENEC+, UL 8750

Thermal switching table

Calculated number of switches at which the survival rate of the population $\geq 90\%$, at a given ambient temperature and delta T with respect to Tc (where $T_c = T_{\text{ambient}} + \Delta T$)

		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

