

PHILIPS

LED Modules

Fortimo LED Strip Value Offer

2ft 2200lm LV1



Philips Fortimo LED strip module value offer (VO) is designed to enable cost breakthrough in recessed ambient LED lighting applications. With its optimized design and high overdrive capability of up to 1500 lm/ft, it offers high design flexibility to lighting fixture manufacturers and makes it an economic choice for designers.

With module efficacies of up to 160 lm/W, CRI80, 3SDCM color consistency, 50,000-hour life¹ and a five-year limited system warranty², the Fortimo LED strip module VO is designed to meet all the basic needs of indoor linear lighting applications for maximum customer satisfaction.

Commercial Product Name	12NC
Fortimo LED Strip VO 2ft 2200lm 830 LV1	929000790713
Fortimo LED Strip VO 2ft 2200lm 835 LV1	929000790813
Fortimo LED Strip VO 2ft 2200lm 840 LV1	929000790913
Fortimo LED Strip VO 2ft 2200lm 850 LV1	929000791013

Footnotes on next page.

Fortimo LED strip value offer 2ft 2200lm LV1

Features

- High overdrive capability with up to 1500 lm/ft
- High energy efficacy with up to 160 lm/W
- High quality of light with 3 SDCM color consistency and CRI 80
- Long lifetime – 50,000 hours¹
- Push-in connectors enabling easy wiring and daisy chaining
- Mechanical footprint compatible with LED strip and Zhaga

Benefits

- Enables easy and economical fixture design for existing LED luminaires utilizing 20mm linear LED modules
- 5-year limited system warranty with Philips Advance Xitanium LED drivers²
- Perfectly married system components offer low system cost and excellent system performance

Applications

- Office
- Healthcare
- Retail
- Industry

Optical Characteristics – Table per CCT

Fortimo LED Strip VO 2ft 2200lm 830 LV1

Parameter at Typical Conditions ³	Min	Typ	Unit
Luminous Flux		2040	Lm
Lumen Efficiency		148	Lm/W
Forward Current		390	mA
Correlated Color Temperature (CCT) Target		3000	K
CRI	80		-
Radiation Angle		120	deg

Parameter at Lifetime Conditions	Typ	Unit
Luminous Flux	2822	Lm
Lumen Efficiency	135	Lm/W
Forward Current	560	mA

Nominal temperature for performance specification: T_c = 45°C.

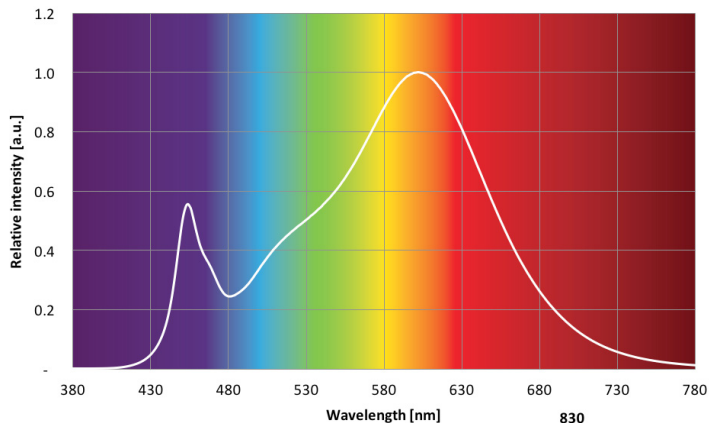
Maximum performance values at Ilife.

Color consistency of 3 SDCM, averaged over the module.

Tolerance for flux data is ±7.5%.

Tolerance for efficacy data is ±10%.

Philips maintains a tester tolerance of +/-5% on flux, +/-0.005 on color, +/- 1.5 on CRI, +/- 3% on Vf, +/- 3.3% on power, and +/-6% on efficiency.



1. Average rated life is based on engineering data testing and probability analysis. The hours are at the B50, L70 point – 50,000 hours life with 70% lumen maintenance at T_c point.
2. View limited warranty at <http://www.usa.lighting.philips.com/support/support/warranty> for details and restrictions.

Fortimo LED strip value offer 2ft 2200lm LV1

Optical Characteristics – Table per CCT

Fortimo LED Strip VO 2ft 2200lm 835 LV1

Parameter at Typical Conditions ³	Min	Typ	Unit
Luminous Flux		2160	Lm
Lumen Efficiency		157	Lm/W
Forward Current		390	mA
Correlated Color Temperature (CCT) Target		3500	K
CRI	80		-
Radiation Angle		120	deg

Parameter at Lifetime Conditions	Typ	Unit
Luminous Flux	2986	Lm
Lumen Efficiency	143	Lm/W
Forward Current	560	mA

Nominal temperature for performance specification: $T_c = 45^\circ\text{C}$.

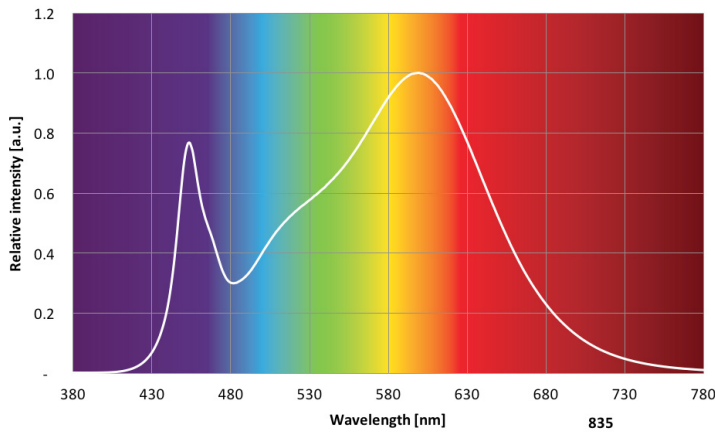
Maximum performance values at llife.

Color consistency of 3 SDCM, averaged over the module.

Tolerance for flux data is $\pm 7.5\%$.

Tolerance for efficacy data is $\pm 10\%$.

Philips maintains a tester tolerance of $\pm 5\%$ on flux, ± 0.005 on color, ± 1.5 on CRI, $\pm 3\%$ on Vf, $\pm 3.3\%$ on power, and $\pm 6\%$ on efficiency.



3. Tolerance for flux data is $\pm 7.5\%$. Tolerance for efficacy data is $\pm 10\%$. Measurements tolerance $\pm 5\%$ for flux and efficacy, 0.005 on x,y, ± 1.5 on CRI.

Fortimo LED strip value offer 2ft 2200lm LV1

Optical Characteristics – Table per CCT

Fortimo LED Strip VO 2ft 2200lm 840 LV1

Parameter at Typical Conditions ³	Min	Typ	Unit
Luminous Flux		2200	Lm
Lumen Efficiency		160	Lm/W
Forward Current		390	mA
Correlated Color Temperature (CCT) Target		4000	K
CRI	80		-
Radiation Angle		120	deg

Parameter at Lifetime Conditions	Typ	Unit
Luminous Flux	3038	Lm
Lumen Efficiency	146	Lm/W
Forward Current	560	mA

Nominal temperature for performance specification: T_c = 45°C.

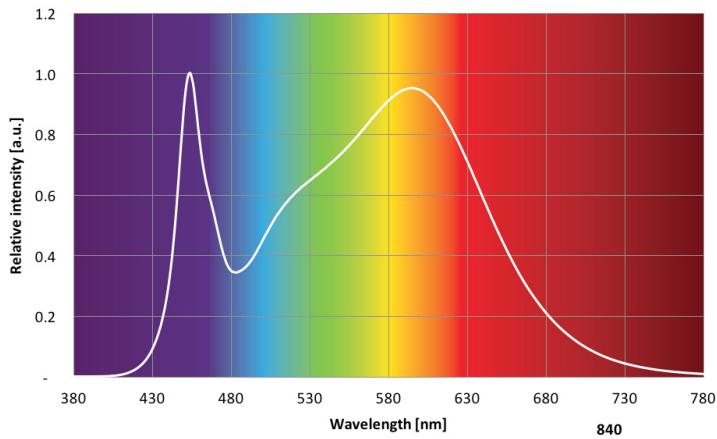
Maximum performance values at Ilife.

Color consistency of 3 SDCM, averaged over the module.

Tolerance for flux data is ±7.5%.

Tolerance for efficacy data is ±10%.

Philips maintains a tester tolerance of +/-5% on flux, +/-0.005 on color, +/- 1.5 on CRI, +/- 3% on Vf, +/- 3.3% on power, and +/-6% on efficiency.



Fortimo LED strip value offer 2ft 2200lm LV1

Optical Characteristics – Table per CCT

Fortimo LED Strip VO 2ft 2200lm 850 LV1

Parameter at Typical Conditions ³	Min	Typ	Unit
Luminous Flux		2200	Lm
Lumen Efficiency		160	Lm/W
Forward Current		390	mA
Correlated Color Temperature (CCT) Target		5000	K
CRI	80		-
Radiation Angle		120	deg

Parameter at Lifetime Conditions	Typ	Unit
Luminous Flux	3038	Lm
Lumen Efficiency	146	Lm/W
Forward Current	560	mA

Nominal temperature for performance specification: Tc = 45°C.

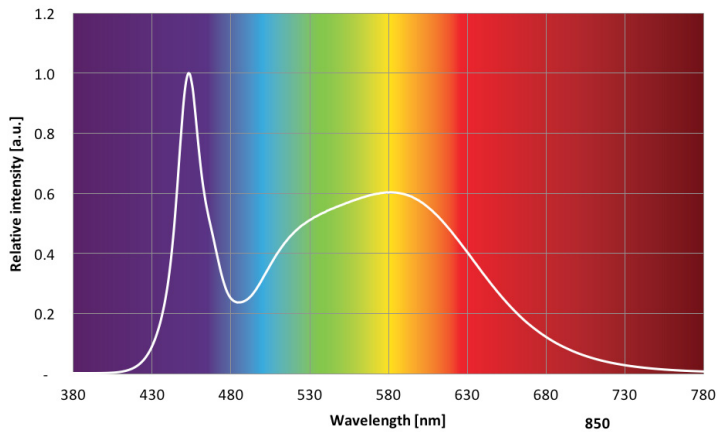
Maximum performance values at llife.

Color consistency of 3 SDCM, averaged over the module.

Tolerance for flux data is ±7.5%.

Tolerance for efficacy data is ±10%.

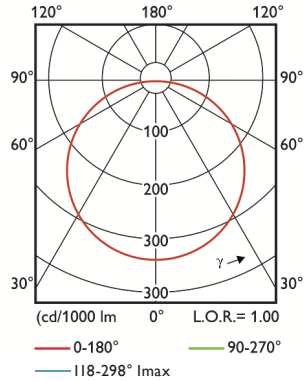
Philips maintains a tester tolerance of +/-5% on flux, +/-0.005 on color, +/- 1.5 on CRI, +/- 3% on Vf, +/- 3.3% on power, and +/-6% on efficiency.



Fortimo LED strip value offer 2ft 2200lm LV1

Beam Shape

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



Electrical Characteristics

Parameter	Min	Typ	Max	Unit
Nominal Current		390	640	mA
Forward Voltage	32.9	35.3	37.8	V
Power Consumption		13.8		W

Lifetime

Parameter	Nominal *	Life**	Max***
T _c [°C]	45	80	85
Current [mA]	390	560	640

* Nominal value at which performance is specified

** Value at which lifetime is specified (max current for warranty)

*** Maximum value for safety

Parameter	Min	Typ	Max
Δu'v' at 6000 Hours			0.007

Note: Specifications stated while T_c < 80°C and I < 560mA.

Abs Max Ratings

Parameter	Min	Typ	Max	Unit
Current I _{max}			640	mA
Case Temperature T _c Max			85	°C
ESD (Direct Contact)			8	kV
ESD (Air)			15	kV
Isolation Breakdown Voltage	500			Vdc
Ambient Temperature	-20 ⁴			°C
Number of Modules per Chain			2	

4. There cannot be any ice/fog/mist on any part of the L2 surface during the application at -20°C.

Fortimo LED strip value offer 2ft 2200lm LV1

Wiring

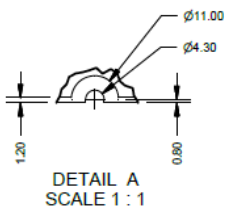
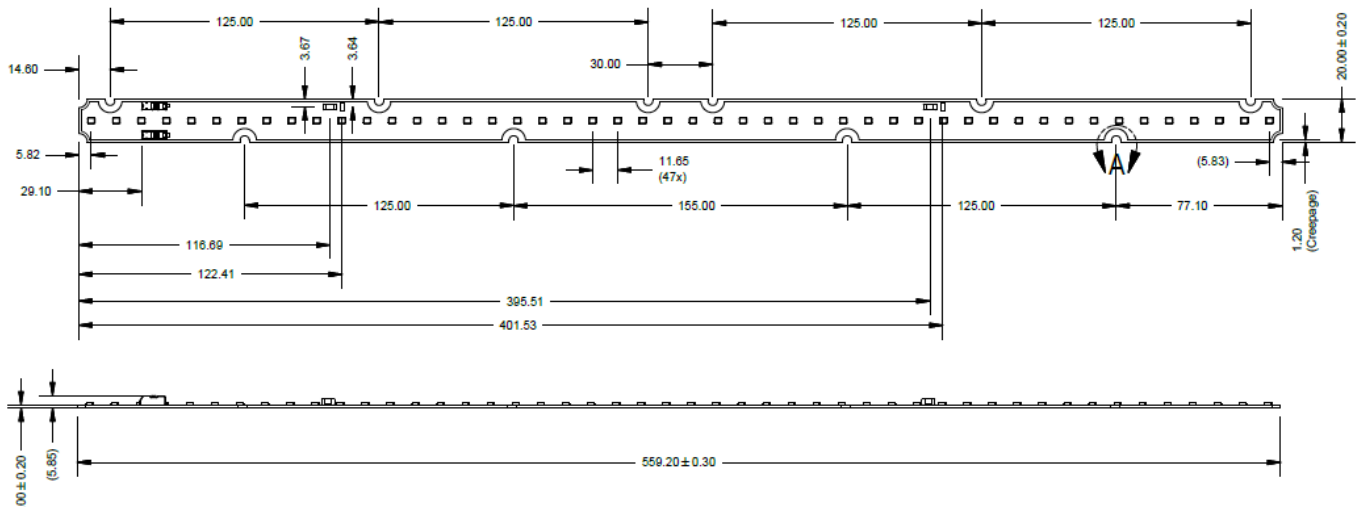
Specification Item	Value	Unit	Condition
Input Wire Cross-Section	0.2...0.8	mm ²	Solid
	18...24	AWG	
	0.45...0.7	mm ²	Stranded
	20...22	AWG	
Input Wire Strip Length	7.5...8.5	mm	

Note: Connector suited for robot wiring.

Mechanical Characteristics

Parameter	Min	Typ	Max	Unit
Length	558.9	559.2	559.5	mm
Width	19.7	20.0	20.3	mm
Height Excl. Connector		1.0		mm
Height Incl. Connector				mm
Warpage (IPC-TM-650)			4.2	mm

Note: Bow & twist of the PCB after production tested and released according IPC-TM-650 2.4.22.



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Application Information

Compliance and Approval

UL & cUL according to UL8750 (UL Recognized)

Environmental

RoHS / REACH

Application Information

IP Rating	No IP rating
Overheating Protection	No protection
Luminaire Class	UL Class 2

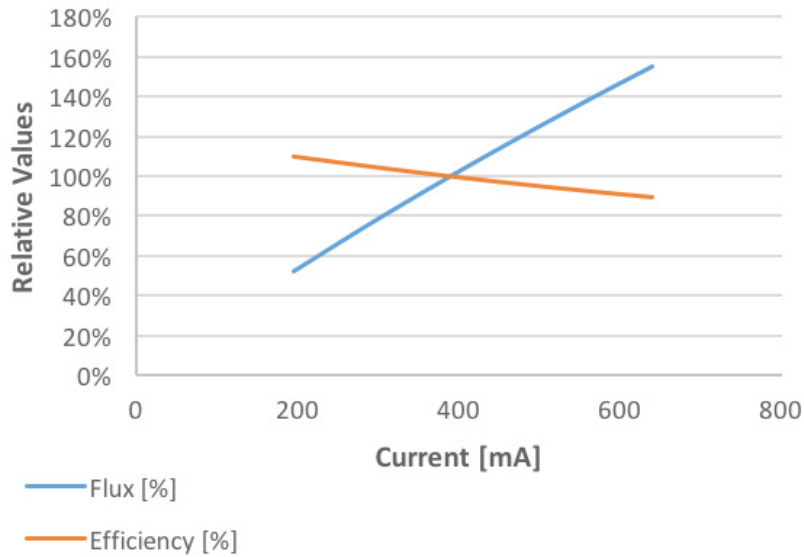
Warranted Number of Full Thermal Product Cycles @ 25°C Ambient Temperature

Case Temperature Tc [°C]	Amount of Cycles
35	40,000
40	
45	
50	
55	
60	
65	40,000
70	25,000
75	16,667
80	15,000

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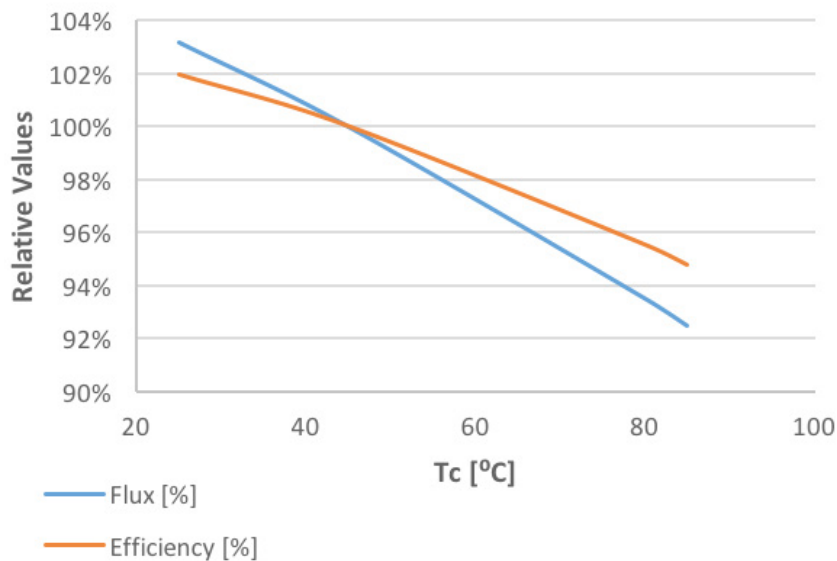
Tuning Information

Flux and Efficacy Vs. Current (at Nominal Temperature)



I [mA]	Flux [%]	Efficacy [%]
195	52%	110%
293	77%	105%
390	100%	100%
473	119%	96%
557	137%	93%
640	155%	90%

Flux and Efficacy Vs. Tc



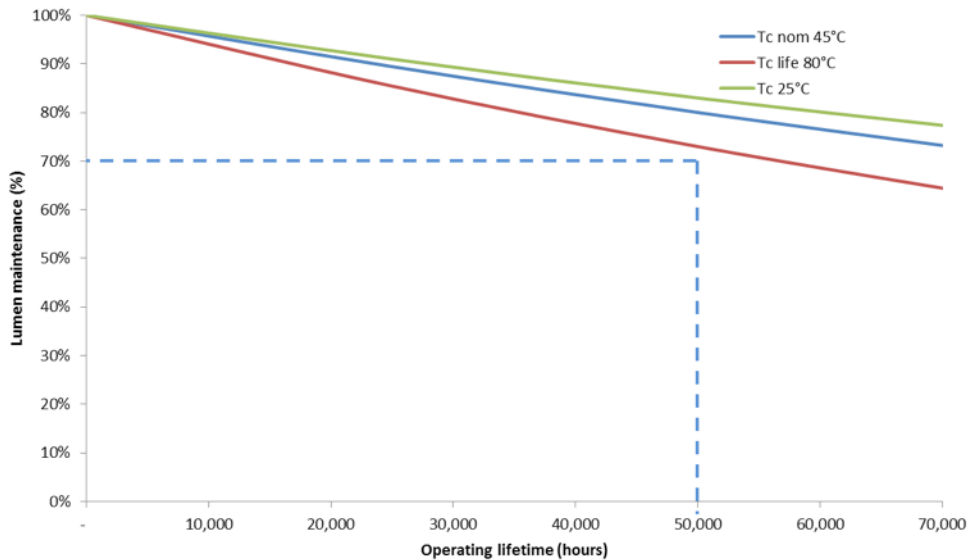
Tc [°C]	Flux [%]	Efficacy [%]
80	93%	95%
45	100%	100%
25	103%	102%

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Lumen Maintenance

Lumen Maintenance: at I Life and Tc Life Conditions

Fortimo LED Strip VO 2ft 2200lm LV1



Lumen depreciation as a function of operating hours for I-life and Tc.
50,000 hours proven by certified laboratory.

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