ADVANCE
by signify

LED Modules

Fortimo LED Strip NA LV4

23in 2600lm EL



Fortimo LED strip module NA LV4 comes with a multitude of performance and product advancements that include higher efficacy, higher lumen output, increased lumen maintenance, additional mechanical designs and additional CCT and CRI options when compared to the previous generation (LV3).

The Fortimo LED strip EdgeLit (EL) version of this product was designed to enable slim and uniform architectural lighting applications like suspended panel LED luminaires.

Commercial Product Name	12NC
Fortimo LED Strip 23in 2600lm 830 EL LV4	929000789413
Fortimo LED Strip 23in 2600lm 835 EL LV4	929000789513
Fortimo LED Strip 23in 2600lm 840 EL LV4	929000789613
Fortimo LED Strip 23in 2600lm 850 EL LV4	929000789713
Fortimo LED Strip 23in 2600lm 927 EL LV4	929000789813
Fortimo LED Strip 23in 2600lm 930 EL LV4	929000789913
Fortimo LED Strip 23in 2600lm 935 EL LV4	929000790013
Fortimo LED Strip 23in 2600lm 940 EL LV4	929000790113

Fortimo LED Strip NA LV4 23in 2600lm EL

Features

- Narrow and slim design optimized for edge-lit applications
- High energy efficacy of up to 187 lm/W
- High lumen maintenance (TM21) of L90 36,000 hours
- CRI 80 and CRI90 color options and 3 SDCM color consistency

Benefits

- High energy efficacy and long lifetime[1] provide optimized total cost of ownership
- Slim width and low profile provide excellent design-in options and assembly
- High quality and warm color temperatures of light enables new application areas like hospitality
- 5-year limited system warranty with Advance Xitanium LED drivers[2]
- Specifications enable DLC Premium category[3]

Applications

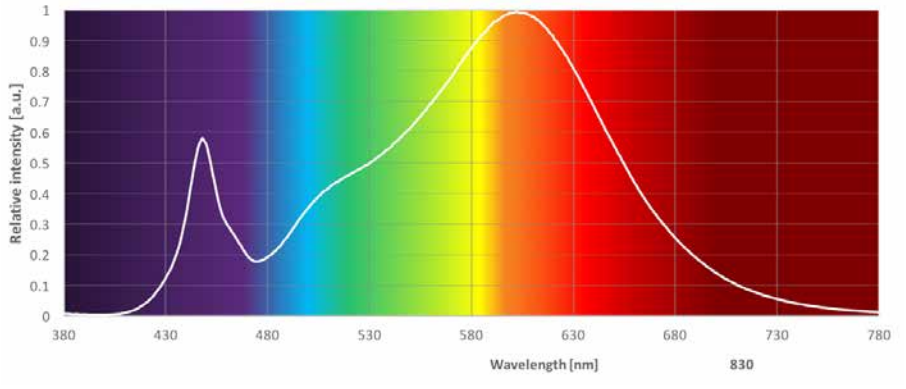
- Retail
- Hospitality
- Office

Optical Characteristics – Table per CCT

Fortimo LED Strip 23in 2600lm 830 EL LV4			
Parameter	**Min**	**Typ**	**Unit**
Luminous Flux		2362	Lm
Lumen Efficiency		171	Lm/W
Forward Current		420	mA
Correlated Color Temperature (CCT) Target		3000	K
CRI	80		-
Radiation Angle		120	deg

Paramter at I_{life}	**Typ**	**Unit**
Luminous Flux	1860	Lm
Lumen Efficiency	162	Lm/W
Forward Current	520	mA

Nominal temperature for performance specification: Tc = 45°C.
Max 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%.
Advance maintains a tester tolerance of +/-5% on flux, +/-0.005 on color, +/- 1.5 on CRI, +/- 3% on Vf, +/- 3.3% on power, +/-6% on efficiency.



1. Average rated life is based one engineering data testing and probability analysis. The hours are at the B50, L70 point – 50,000 hours life with 70% lumen maintenance at Tc point.
2. View limited warranty at http://www.usa.lighting.philips.com/support/support/warranty for details and restrictions.
3. Fortimo LED strip NA LV4 is not a DesignLights Consortium™ (DLC) qualified product. It is an OEM component that meets certain performance specifications that are geared toward meeting DLC Standard Tier (v4.0) in a fully assembled fixture. The customer is liable for proper design, manufacturing, testing and qualification according to DLC requirements.

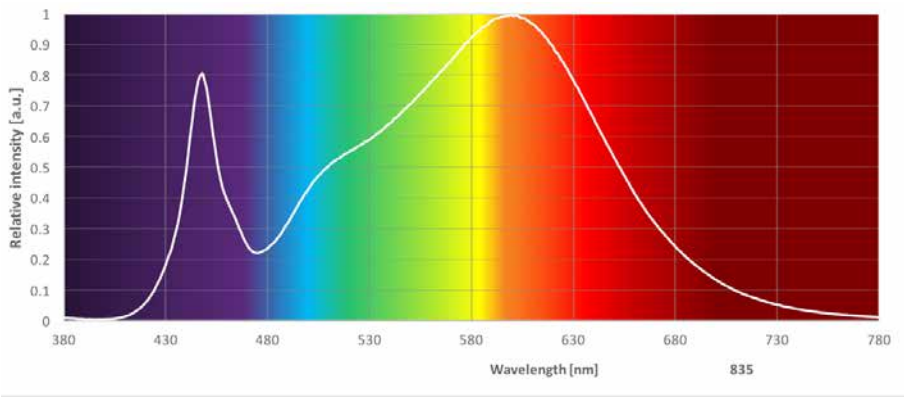
Fortimo LED Strip NA LV4 23in 2600lm EL

Optical Characteristics – Table per CCT

Fortimo LED Strip 23in 2600lm 835 EL LV4			
Parameter	**Min**	**Typ**	**Unit**
Luminous Flux		2530	Lm
Lumen Efficiency		181	Lm/W
Forward Current		420	mA
Correlated Color Temperature (CCT) Target		3500	K
CRI	80		-
Radiation Angle		120	deg

Paramter at I_{life}	**Typ**	**Unit**
Luminous Flux	2951	Lm
Lumen Efficiency	168	Lm/W
Forward Current	520	mA

Nominal temperature for performance specification: Tc = 45°C.
Max 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%.
Advance maintains a tester tolerance of +/-5% on flux, +/-0.005 on color, +/- 1.5 on CRI, +/- 3% on Vf, +/- 3.3% on power, +/-6% on efficiency.



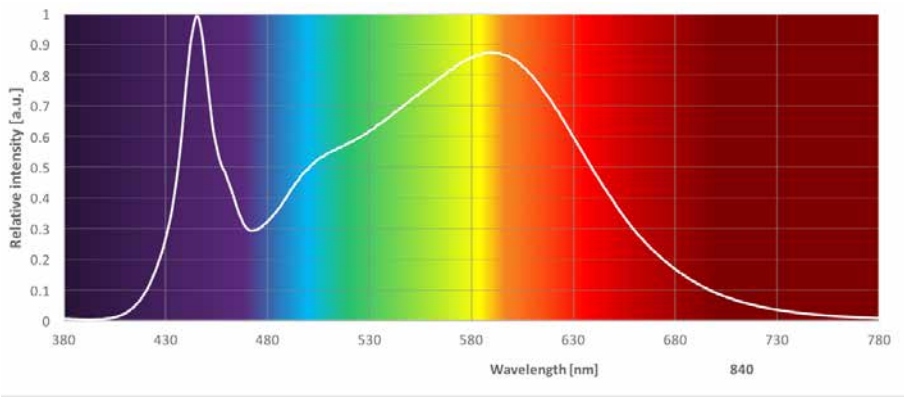
Fortimo LED Strip NA LV4 23in 2600lm EL

Optical Characteristics – Table per CCT

Fortimo LED Strip 23in 2600lm 840 EL LV4			
Parameter	**Min**	**Typ**	**Unit**
Luminous Flux		2580	Lm
Lumen Efficiency		185	Lm/W
Forward Current		420	mA
Correlated Color Temperature (CCT) Target		4000	K
CRI	80		-
Radiation Angle		120	deg

Paramter at I_{life}	**Typ**	**Unit**
Luminous Flux	3010	Lm
Lumen Efficiency	171	Lm/W
Forward Current	520	mA

Nominal temperature for performance specification: Tc = 45°C.
Max 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%.
Advance maintains a tester tolerance of +/-5% on flux, +/-0.005 on color, +/- 1.5 on CRI, +/- 3% on Vf, +/- 3.3% on power, +/-6% on efficiency.



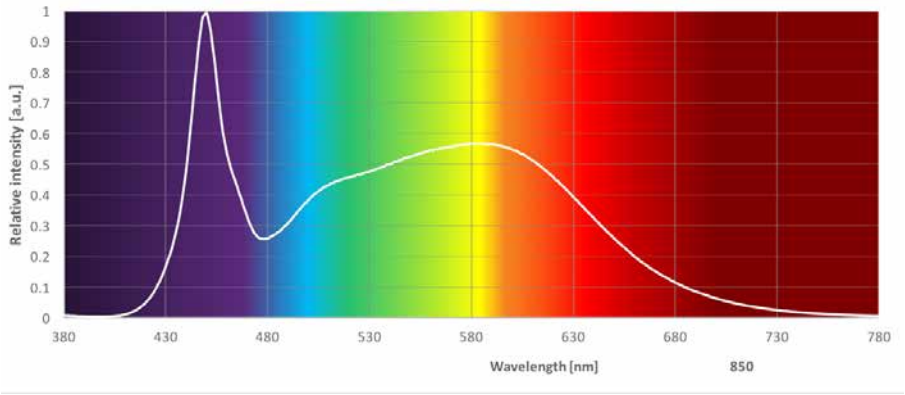
Fortimo LED Strip NA LV4 23in 2600lm EL

Optical Characteristics – Table per CCT

Fortimo LED Strip 23in 2600lm 850 EL LV4			
Parameter	**Min**	**Typ**	**Unit**
Luminous Flux		2610	Lm
Lumen Efficiency		187	Lm/W
Forward Current		420	mA
Correlated Color Temperature (CCT) Target		5000	K
CRI	80		-
Radiation Angle		120	deg

Paramter at I_{life}	**Typ**	**Unit**
Luminous Flux	3041	Lm
Lumen Efficiency	173	Lm/W
Forward Current	520	mA

Nominal temperature for performance specification: Tc = 45°C.
Max 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%.
Advance maintains a tester tolerance of +/-5% on flux, +/-0.005 on color, +/- 1.5 on CRI, +/- 3% on Vf, +/- 3.3% on power, +/-6% on efficiency.



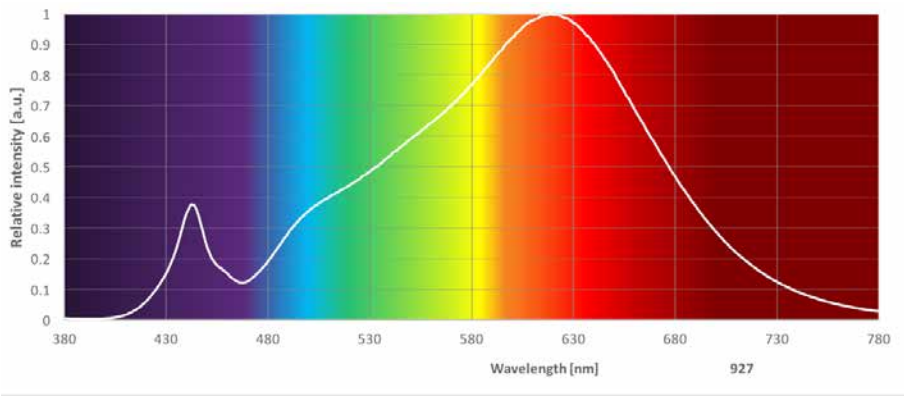
Fortimo LED Strip NA LV4 23in 2600lm EL

Optical Characteristics – Table per CCT

Fortimo LED Strip 23in 2600lm 927 EL LV4			
Parameter	**Min**	**Typ**	**Unit**
Luminous Flux		1930	Lm
Lumen Efficiency		138	Lm/W
Forward Current		420	mA
Correlated Color Temperature (CCT) Target		2700	K
CRI	90		-
Radiation Angle		120	deg

Paramter at I_{life}	**Typ**	**Unit**
Luminous Flux	2248	Lm
Lumen Efficiency	128	Lm/W
Forward Current	520	mA

Nominal temperature for performance specification: Tc = 45°C.
Max 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%.
Advance maintains a tester tolerance of +/-5% on flux, +/-0.005 on color, +/- 1.5 on CRI, +/- 3% on Vf, +/- 3.3% on power, +/-6% on efficiency.



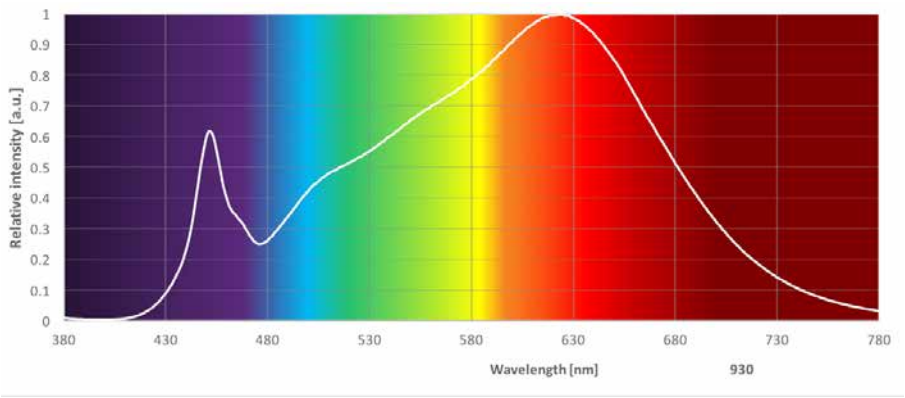
Fortimo LED Strip NA LV4 23in 2600lm EL

Optical Characteristics – Table per CCT

Fortimo LED Strip 23in 2600lm 930 EL LV4			
Parameter	**Min**	**Typ**	**Unit**
Luminous Flux		2040	Lm
Lumen Efficiency		146	Lm/W
Forward Current		420	mA
Correlated Color Temperature (CCT) Target		3000	K
CRI	90		-
Radiation Angle		120	deg

Paramter at I_{life}	**Typ**	**Unit**
Luminous Flux	2375	Lm
Lumen Efficiency	135	Lm/W
Forward Current	520	mA

Nominal temperature for performance specification: Tc = 45°C.
Max 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%.
Advance maintains a tester tolerance of +/-5% on flux, +/-0.005 on color, +/- 1.5 on CRI, +/- 3% on Vf, +/- 3.3% on power, +/-6% on efficiency.



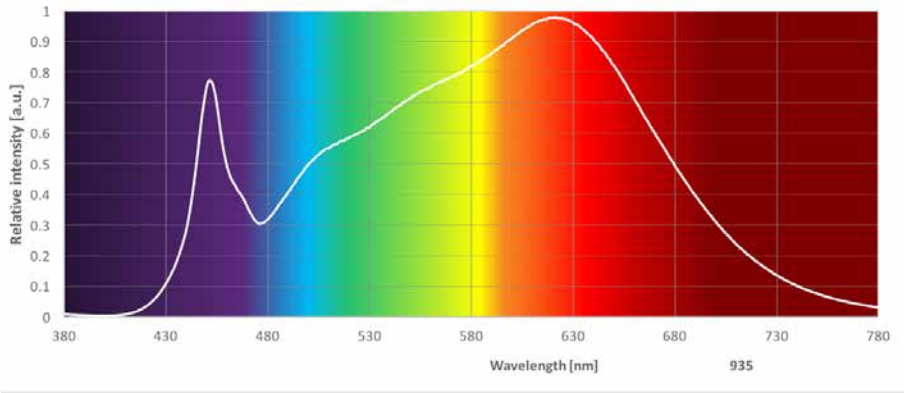
Fortimo LED Strip NA LV4 23in 2600lm EL

Optical Characteristics – Table per CCT

Fortimo LED Strip 23in 2600lm 935 EL LV4			
Parameter	**Min**	**Typ**	**Unit**
Luminous Flux		2100	Lm
Lumen Efficiency		150	Lm/W
Forward Current		420	mA
Correlated Color Temperature (CCT) Target		3500	K
CRI	90		-
Radiation Angle		120	deg

Paramter at I_{life}	**Typ**	**Unit**
Luminous Flux	2448	Lm
Lumen Efficiency	139	Lm/W
Forward Current	520	mA

Nominal temperature for performance specification: Tc = 45°C.
Max 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%.
Advance maintains a tester tolerance of +/-5% on flux, +/-0.005 on color, +/- 1.5 on CRI, +/- 3% on Vf, +/- 3.3% on power, +/-6% on efficiency.



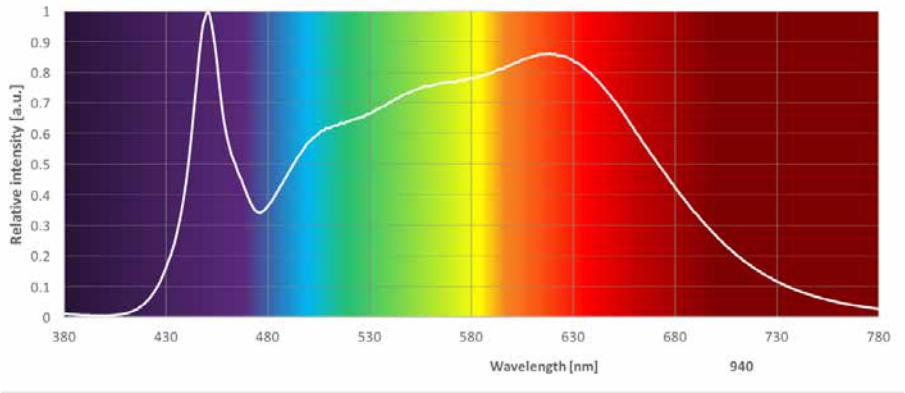
Fortimo LED Strip NA LV4 23in 2600lm EL

Optical Characteristics – Table per CCT

Fortimo LED Strip 23in 2600lm 940 EL LV4			
Parameter	**Min**	**Typ**	**Unit**
Luminous Flux		2150	Lm
Lumen Efficiency		153	Lm/W
Forward Current		420	mA
Correlated Color Temperature (CCT) Target		4000	K
CRI	90		-
Radiation Angle		120	deg

Paramter at I_{life}	**Typ**	**Unit**
Luminous Flux	2497	Lm
Lumen Efficiency	142	Lm/W
Forward Current	520	mA

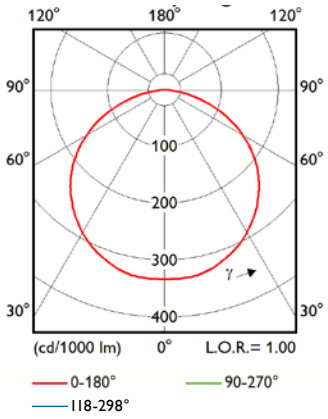
Nominal temperature for performance specification: Tc = 45°C.
Max performance values at Ilife.
Color consistency of 3 SDCM, averaged over the module.
Tolerance for flux data is ±7.5%.
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Advance maintains a tester tolerance of +/-5% on flux, +/-0.005 on color, +/- 1.5 on CRI, +/- 3% on Vf, +/- 3.3% on power, +/-6% on efficiency.



Fortimo LED Strip NA LV4 23in 2600lm EL

Beam Shape

The Fortimo LED strip 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		420	560	mA
Forward Voltage	31.7	33.3	34.2	V
Power Consumption		14.0		W

Forward Voltage Range

@ I_{nom} and 45°C	Min.	Max.
Bin A [V]	31.7	33.0
Bin B [V]	32.9	34.2

Lifetime

Parameter	Nominal *	Life**	Max***
Tc [°C]	45	80	95
Current [mA]	420	520	560

* 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 Tc< 80°C and I<560 mA.

Abs Max Ratings

Parameter	Min	Typ	Max	Unit
Current Imax			560	mA
Case Temperature Tc Max			95	°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 NA LV4 23in 2600lm EL

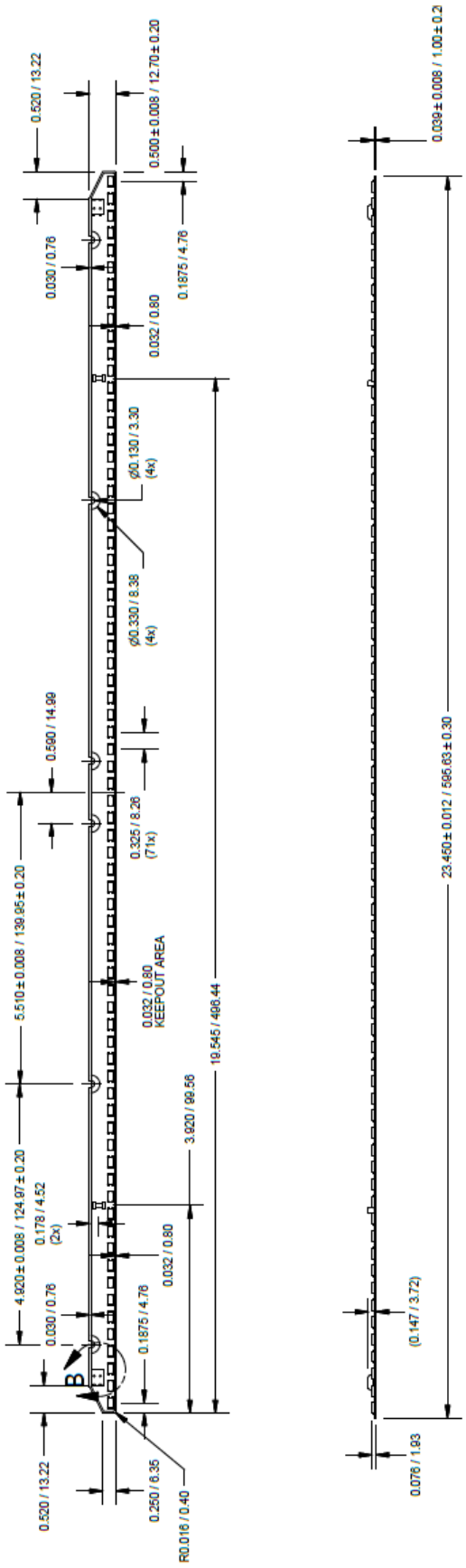
Wiring

Specification Item	Value	Unit	Condition
Input Wire Cross-Section	0.14 - 0.34	mm^2	Solid
	26 - 22	AWG	
Input Wire Strip Length	4 - 5.5	mm	

Mechanical Characteristics

Specification Item	Min	Typ	Max	Unit
Length	595.43	595.63	595.83	mm
Width	12.5	12.7	12.9	mm
Height Excl. Connector		1.00		mm
Height Incl. Connector		TBD		mm
Warpage			≤ TBD	%

Mechanical Characteristics



Fortimo LED Strip NA LV4 23in 2600lm EL

Application Information

Compliance and Approval

UL & cUL - UL8750

Environmental

RoHS / REACH

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

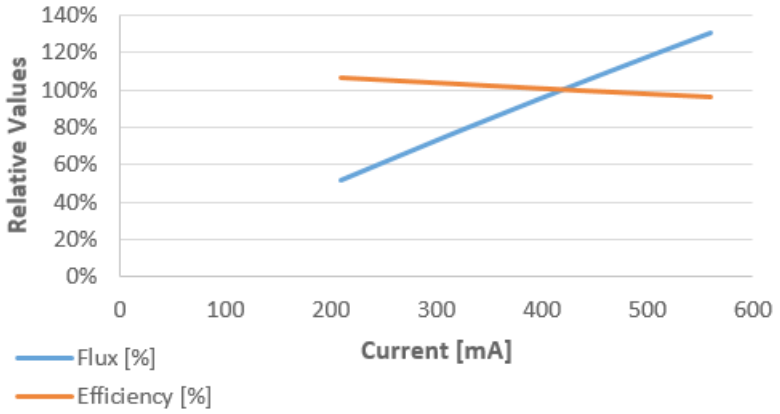
Warranted Number of Full Thermal Product Cycles @ 25°C Ambient Temperature

Case Temperature Tc [°C]	Amount of Cycles
35	
40	
45	100,000
50	
55	100,000
60	
65	58,100
70	
75	27,600
80	14,200
85	
90	
95	

Fortimo LED Strip NA LV4 23in 2600lm EL

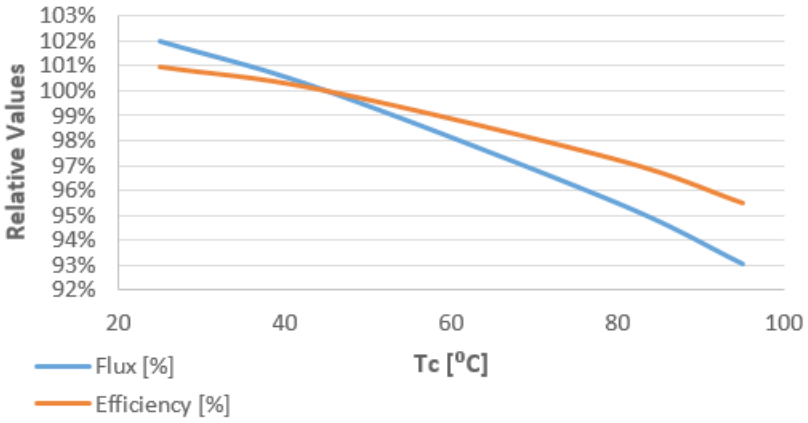
Tuning Information

Flux and Efficacy Vs. Current (at Nominal Temperature)



I [mA]	Flux [%]	Efficacy [%]
210	51%	106%
315	76%	103%
420	**100%**	**100%**
467	110%	99%
520	**120%**	**97%**

Flux and Efficacy Vs. Tc



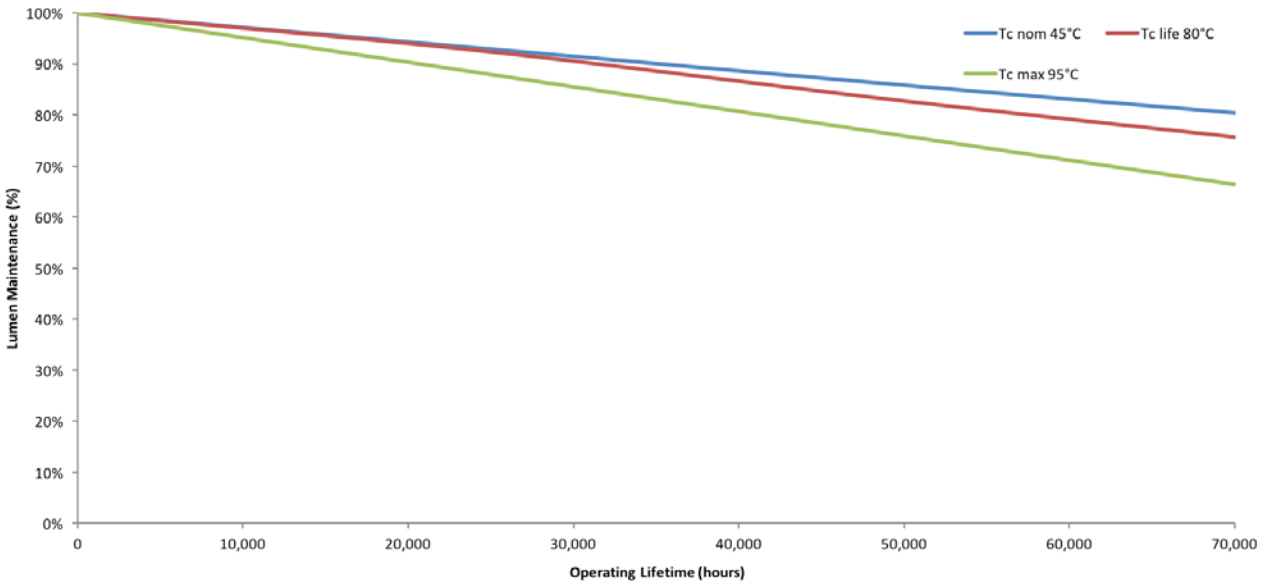
Tc [°C]	Flux [%]	Efficacy [%]
95	93%	95%
80	96%	97%
45	**100%**	**100%**
25	102%	101%

Fortimo LED Strip NA LV4 23in 2600lm EL

Lumen Maintenance

Lumen Maintenance: at I Life and Tc Life Conditions

Fortimo LED Strip 23in 2600lm EL LV4



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

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