

Fortimo LED strip performance LV5 modules 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 (LV4).

With these advancements, the Fortimo LED strip module is the ideal choice for high-performance high-quality luminaires for direct and indirect lighting in offices, banks, schools, public buildings, supermarkets and other applications to replace high energy efficiency T5 fluorescent lighting.

Commercial Product Name	12NC
FO Strip PR 23.7in 2200lm 830 LV5	929001762013
FO Strip PR 23.7in 2200lm 835 LV5	929001762113
FO Strip PR 23.7in 2200lm 840 LV5	929001762213
FO Strip PR 23.7in 2200lm 850 LV5	929001762313

Features

- High flux density of up to 2000 lm per foot
- Narrow width of only 20mm
- High energy efficacy of up to 180lm/W at nominal conditions
- High lumen maintenance (TM21) of L90 36,000 hours
- 3 SDCM color consistency
- Tight Vf binning enables longer daisy chaining

Benefits

- High energy efficacy and long lifetime¹ provide optimized total cost of ownership
- Slim width and 4ft length 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 drivers²
- Specifications enable DLC Premium category³

Applications

- Retail
- Hospitality
- Office

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 Tc point.
 2. View limited warranty at www.signify.com/warranties for details and restrictions.
 3. Fortimo LED strip LV5 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 Performance LV5 23.7in 2200lm

Drive Currents

Parameter at I _{life}	Nominal*	Life**	Max***	Unit
FO Strip PR 23.7in 2200lm 8xx LV5	308	650	700	mA

Module Temperatures

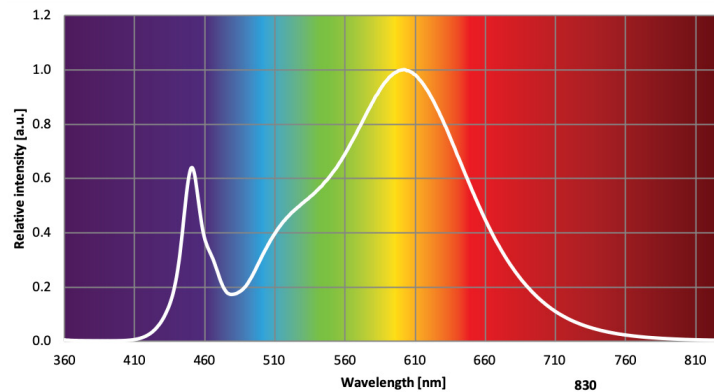
Parameter at I _{life}	Nominal*	Life**	Max***	Unit
T _c (case temperature at T _c point)	45	85	95	°C

- * 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 CCT

FO Strip PR 23.7in 2200lm 830 LV5				
Parameter	Min. (@ Inom)	Typ. (@ Inom)	Max. (@ Inom)	Unit
Luminous Flux	1950	2110	2270	Lm
Module Efficiency	154	171	188	Lm/W
Correlated Color Temperature (CCT) Target		3000		K
Color coordinates (CIEx, CIEy)		(0.433, 0.401)		-
Color consistency			3	SDCM
CRI	80			-

Operation point	Tc	lm	lm/W
160 mA	45 °C	1090	183
	70 °C	1040	177
	95 °C	990	170
650 mA	45 °C	4050	150
	70 °C	3870	145
	95 °C	3670	138
700 mA	45 °C	4330	147
	70 °C	4140	142
	95 °C	3920	136



R9>0, 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.

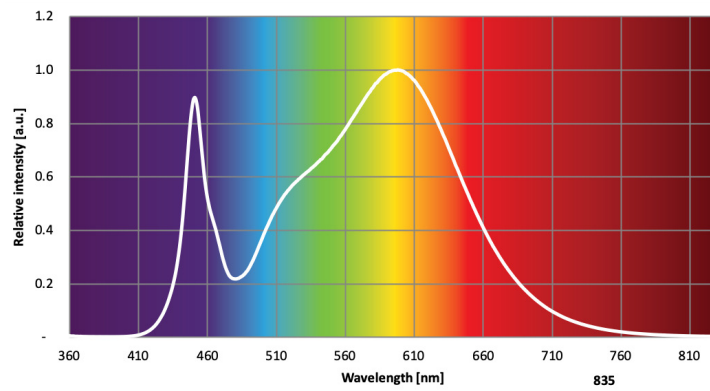
Fortimo LED Strip Performance LV5 23.7in 2200lm

Optical Characteristics – Table per CCT

FO Strip PR 23.7in 2200lm 835 LV5

Parameter	Min. (@ Inom)	Typ. (@ Inom)	Max. (@ Inom)	Unit
Luminous Flux	2010	2180	2340	Lm
Module Efficiency	158	176	194	Lm/W
Correlated Color Temperature (CCT) Target		3500		K
Color coordinates (CIEx, CIEy)		(0.407, 0.391)		-
Color consistency			3	SDCM
CRI	80			-

Operation point	Tc	lm	lm/W
160 mA	45 °C	1120	189
	70 °C	1080	183
	95 °C	1020	175
650 mA	45 °C	4180	156
	70 °C	4000	150
	95 °C	3790	143
700 mA	45 °C	4470	153
	70 °C	4280	147
	95 °C	4050	140



R9>0, 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 .

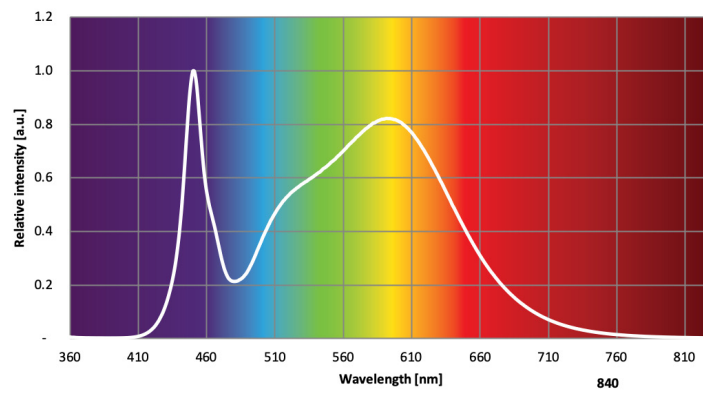
Fortimo LED Strip Performance LV5 23.7in 2200lm

Optical Characteristics – Table per CCT

FO Strip PR 23.7in 2200lm 840 LV5

Parameter	Min. (@ Inom)	Typ. (@ Inom)	Max. (@ Inom)	Unit
Luminous Flux	2040	2200	2370	Lm
Module Efficiency	162	180	198	Lm/W
Correlated Color Temperature (CCT) Target		4000		K
Color coordinates (CIEx, CIEy)		(0.381, 0.378)		-
Color consistency			3	SDCM
CRI	80			-

Operation point	Tc	lm	lm/W
160 mA	45 °C	1150	193
	70 °C	1100	186
	95 °C	1040	179
650 mA	45 °C	4250	159
	70 °C	4080	154
	95 °C	3860	146
700 mA	45 °C	4560	156
	70 °C	4360	149
	95 °C	4130	143



R9>0, 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 .

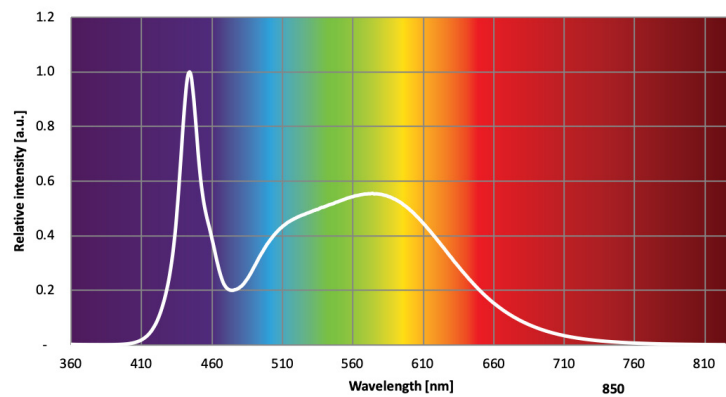
Fortimo LED Strip Performance LV5 23.7in 2200lm

Optical Characteristics – Table per CCT

FO Strip PR 23.7in 2200lm 850 LV5

Parameter	Min. (@ Inom)	Typ. (@ Inom)	Max. (@ Inom)	Unit
Luminous Flux	2040	2200	2370	Lm
Module Efficiency	162	180	198	Lm/W
Correlated Color Temperature (CCT) Target		5000		K
Color coordinates (CIEx, CIEy)		(0.344, 0.354)		-
Color consistency			3	SDCM
CRI	80			-

Operation point	Tc	lm	lm/W
160 mA	45 °C	1150	193
	70 °C	1100	186
	95 °C	1040	179
650 mA	45 °C	4250	159
	70 °C	4080	154
	95 °C	3860	146
700 mA	45 °C	4560	156
	70 °C	4360	149
	95 °C	4130	143



R9>0, 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 .

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Absolute Ratings

Parameter	Min.	Typ.	Max.	Unit
Current through the LED module (I-max)			700	mA
Working voltage			44	V _{dc}
Isolation breakdown voltage	700			V _{dc}
Ambient Temperature	-20 ⁴			°C

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

System Chain Limits for Same Length Modules

Total length (in)	Total current limit (A)
48	1.2
72	1.2
96	0.88

Please review the design-in guide or contact the Design-in team for further information.

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

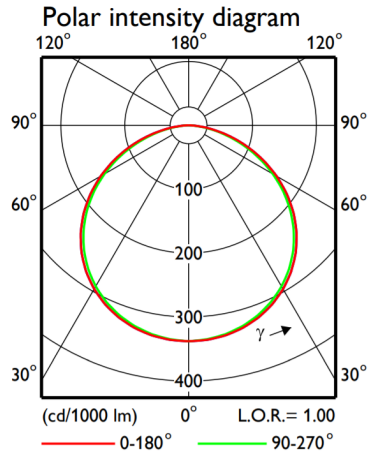
Estimated Number of Full Thermal Product Cycles @ 25°C Ambient Temperature

Case Temperature Tc [°C]	Amount of Cycles
45	100,000
55	100,000
65	100,000
75	65,000
85	25,000

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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
Forward voltage; If = 77mA, Tc = 45°C	39.4	39.9	40.4	V
Thermal power; If = 77mA, Tc = 45°C		5.9		W

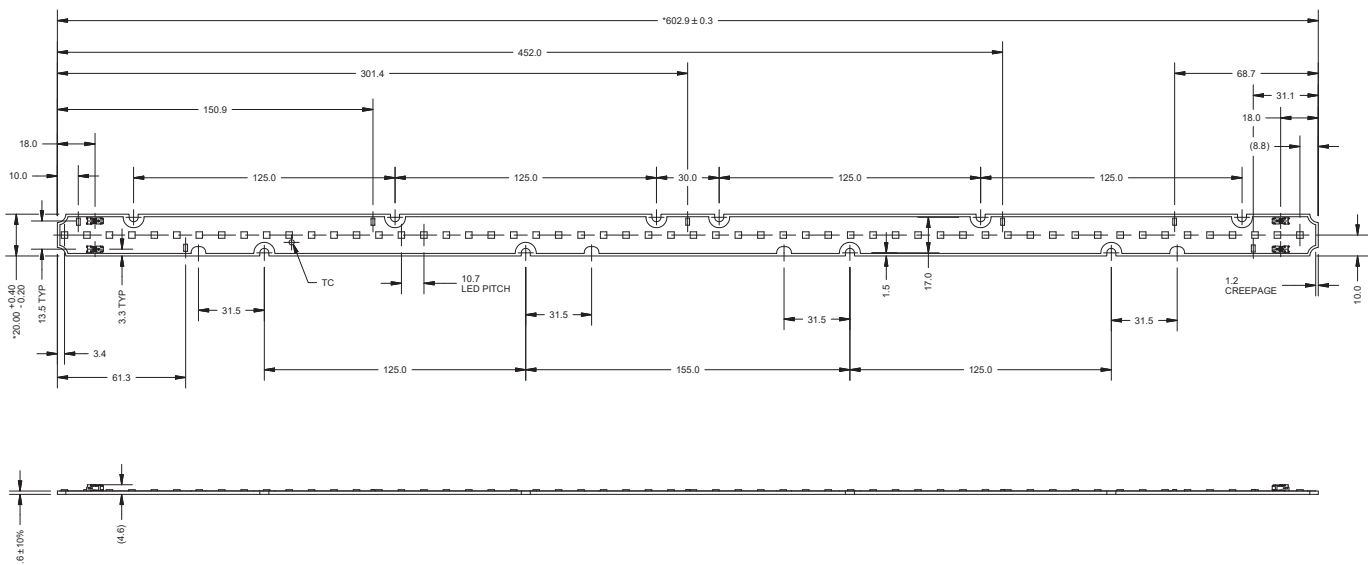
Wiring

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	4.5...5.5	mm	

Mechanical Characteristics

Specification Item	Min	Typ	Max	Unit
Length	602.6	602.9	603.2	mm
Width	19.8	20.0	20.4	mm
Height Excl. Connector		2.3		mm
Height Incl. Connector		6.3		mm
Warpage			0.75	%

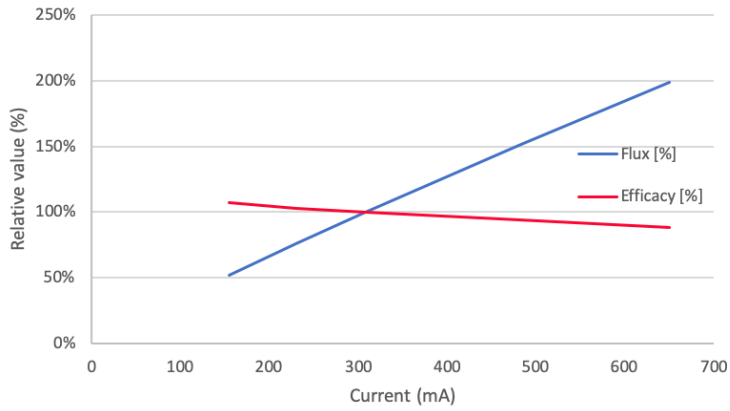
FO Strip PR 5.5in 550lm xxx LV5



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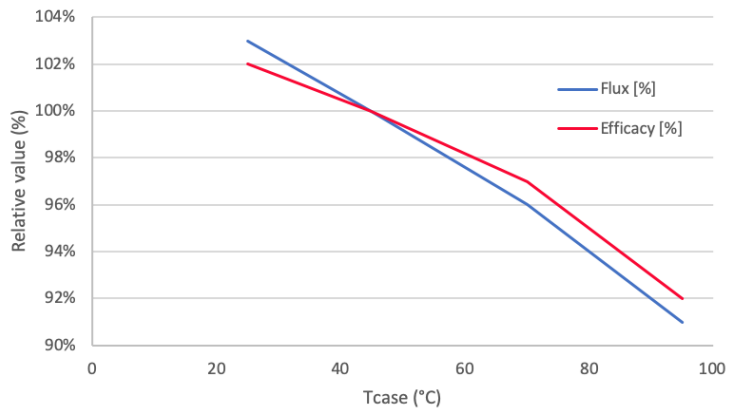
Tuning Information

Flux and Efficacy Vs. Current (at Nominal Temperature)



I [mA]	Flux [%]	Efficacy [%]
154	52%	107%
230	76%	103%
308	100%	100%
480	151%	94%
650	199%	88%

Flux and Efficacy Vs. Tc



Tc [°C]	Flux [%]	Efficacy [%]
95	91%	92%
70	96%	97%
45	100%	100%
25	103%	102%

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Lumen Maintenance Based on Theoretical TM21 Calculations

Operation point	Tc	L70	L80	L90
80% I-nom 62 mA	Tc-nom 45 °C	>50	>50	50
	Tc 70 °C	>50	>50	47
	Tc-life 95 °C	>50	>50	41
I-nom 77 mA	Tc-nom 45 °C	>50	>50	50
	Tc 70 °C	>50	>50	47
	Tc-life 95 °C	>50	>50	41
I-life 163 mA	Tc-nom 45 °C	>50	>50	50
	Tc 70 °C	>50	>50	47
	Tc-life 95 °C	>50	>50	41

Application limited to indoor applications (office/hospitality/educational), indoor warehouse and light industry.

The information presented in this document is not intended as any commercial offer and does not form part of any quotation or contract.

