ADVANCE by signify

LED Modules

FO Strip X

47.5in 4000lm 8xx LV1



Fortimo Strip X LV1

Fortimo LED Strip X is a high efficiency LED module from Advance. With the ability to be separated every inch, LED Strip X allows OEMs the maximum design flexibility and supply chain simplification.

Key features and benefits

Features

- High flux density of up to 2500 lm per foot
- Narrow width of only 20mm
- Breakable every inch to fit any luminaire size
- High lumen maintenance (TM21) of L90 36,000 hours
- 3 SDCM color consistency
- Designed for daisy chaining

Benefits

- High energy efficacy and long lifetime provide optimized total cost of ownership
- Ability to break into two 2ft boards for SKU reduction and Vf matching
- High quality and warm color temperatures of light enables new application areas like hospitality
- 5-year limited system warranty with Advance Xitanium LED drivers
- Specifications enable DLC Premium category

Applications

- Retail
- Hospitality
- Office

Ordering data

Commercial product name	12NC	Box quantity
FO Strip X 47.5in 4000lm 830 LV1	9290 027 44513	120
FO Strip X 47.5in 4000lm 835 LV1	9290 027 44613	120
FO Strip X 47.5in 4000lm 840 LV1	9290 027 44713	120
FO Strip X 47.5in 4000lm 850 LV1	9290 027 44813	120

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
FO Strip X 47.5in 4000lm 8xx LV1	680	2000	2200	mA

Module temperatures

Parameter	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

Suggested maximum current at elevated ambient

Setting	1	2	3	4	Unit
Luminaire maximum ambient	35	45	55	65	°C
Suggested maximum current*	2000	2000	1700	1200	mA

* Drive current that may be possible at the reference external ambient temperature. The maximum suggested current given is for a typical non-lensed luminaire design with good thermal transfer capability. Use of a lensed luminaire or luminaires with non-optimal thermal characteristics will require a further current reduction to meet the same maximum ambient temperature. The current suggestion is based on the module Tc-life and thermal testing must be used to verify Tc-life is never exceeded for your specific luminaire. It may be necessary to adjust the final current value in order to meet the Tc-life rating of the module.

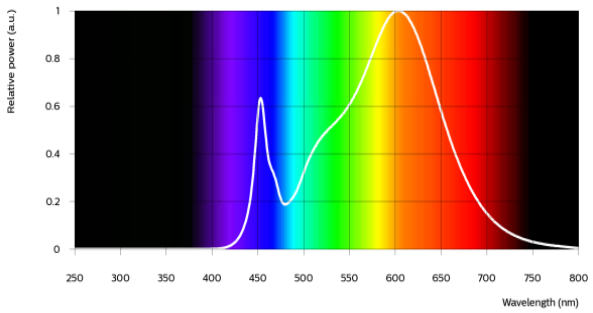
Optical characteristics - table per color (CCT)

FO Strip X 47.5in 4000lm 830 LV1

Parameter	Min	Typ	Max	Unit
Luminous flux	3520	3810	4100	lm
Efficacy	158	176		lm/W
Correlated color temperature (CCT)		3000		K
Color consistency			3	SDCM
CRI	80			
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 and R9 ± 3.

Operation point	830	lm	lm/W
80% I-nom 544mA	Tc 25 °C	3130	180
	Tc-nom 45 °C	3060	178
	Tc-life 85 °C	2890	170
I-nom 680mA	Tc 25 °C	3890	178
	Tc-nom 45 °C	3810	176
	Tc-life 85 °C	3590	168
I-life 2000mA	Tc 25 °C	10830	161
	Tc-nom 45 °C	10590	159
	Tc-life 85 °C	9960	152

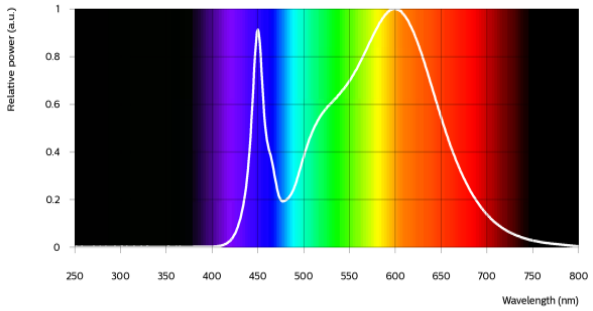


FO Strip X 47.5in 4000lm 835 LV1

Parameter	Min	Typ	Max	Unit
Luminous flux	3650	3940	4240	lm
Efficacy	163	182		lm/W
Correlated color temperature (CCT)		3500		K
Color consistency			3	SDCM
CRI	80			
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 and R9 ± 3.

Operation point	835	lm	lm/W
80% I-nom 544mA	Tc 25 °C	3240	186
	Tc-nom 45 °C	3170	184
	Tc-life 85 °C	2990	176
I-nom 680mA	Tc 25 °C	4030	184
	Tc-nom 45 °C	3940	182
	Tc-life 85 °C	3710	174
I-life 2000mA	Tc 25 °C	11200	167
	Tc-nom 45 °C	10960	165
	Tc-life 85 °C	10300	157

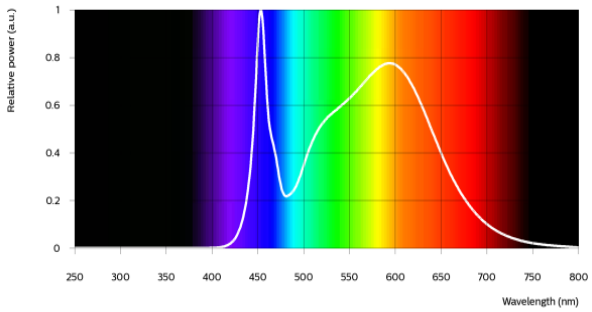


FO Strip X 47.5in 4000lm 840 LV1

Parameter	Min	Typ	Max	Unit
Luminous flux	3710	4010	4320	lm
Efficacy	167	185		lm/W
Correlated color temperature (CCT)		4000		K
Color consistency			3	SDCM
CRI	80			
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 and R9 ± 3.

Operation point	840	lm	lm/W
80% I-nom 544mA	Tc 25 °C	3300	190
	Tc-nom 45 °C	3230	188
	Tc-life 85 °C	3040	180
I-nom 680mA	Tc 25 °C	4100	188
	Tc-nom 45 °C	4010	186
	Tc-life 85 °C	3790	178
I-life 2000mA	Tc 25 °C	11450	171
	Tc-nom 45 °C	11190	168
	Tc-life 85 °C	10530	161

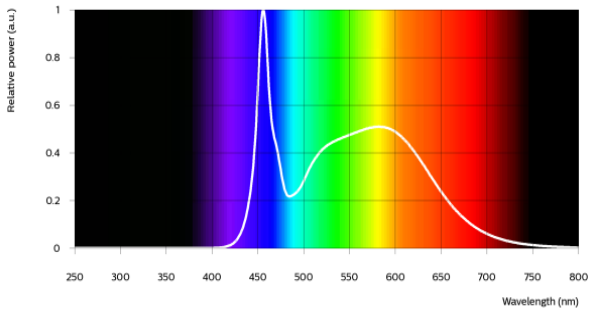


FO Strip X 47.5in 4000lm 850 LV1

Parameter	Min	Typ	Max	Unit
Luminous flux	3700	4000	4300	lm
Efficacy	166	184		lm/W
Correlated color temperature (CCT)		5000		K
Color consistency			3	SDCM
CRI	80			
R9	0			

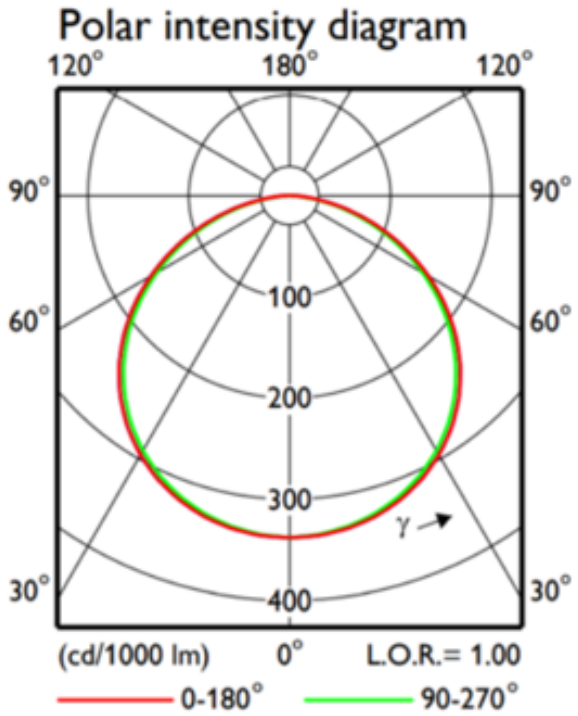
Measurement precision ± 5% for the flux data and ± 6% for the efficacy data. Measurement precision for color coordinates ± 0.005. Measurement precision for CRI ± 1.5 and R9 ± 3.

Operation point	850	lm	lm/W
80% I-nom 544mA	Tc 25 °C	3290	190
	Tc-nom 45 °C	3220	187
	Tc-life 85 °C	3020	179
I-nom 680mA	Tc 25 °C	4100	188
	Tc-nom 45 °C	4000	186
	Tc-life 85 °C	3760	177
I-life 2000mA	Tc 25 °C	11440	171
	Tc-nom 45 °C	11170	168
	Tc-life 85 °C	10470	160



Beam shape

The LED module has a Lambertian light distribution.



Electrical characteristics

Parameter	Min	Typ	Max	Unit
Forward voltage	30.9	31.9	32.7	V
Power consumption	21.0	21.7	22.2	W
Number of modules in series per chain			1	

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

System chain limits for Same Length modules

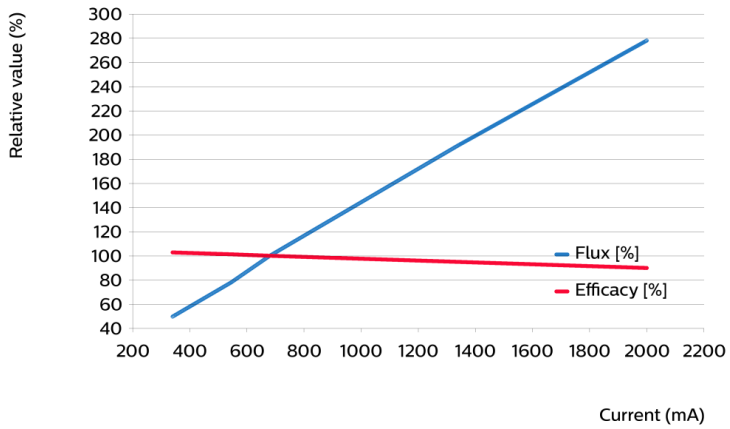
Total length (in)	Total current limit (mA)
48	2000
72	1600
96	1400

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

Tuning information

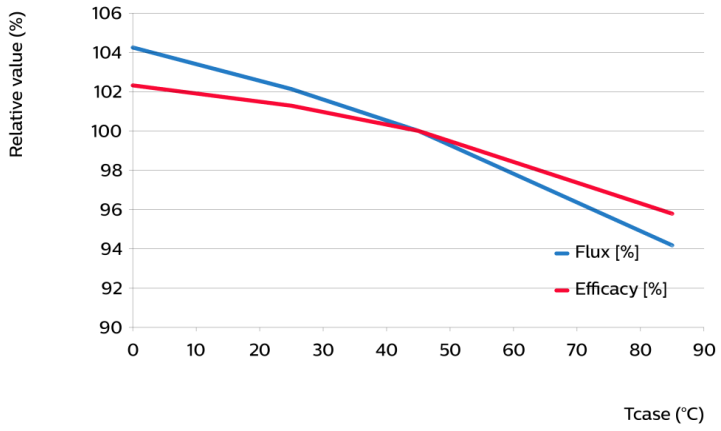
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
2000	278	90
1340	191	95
680	100	100
544	78	101
340	50	103



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

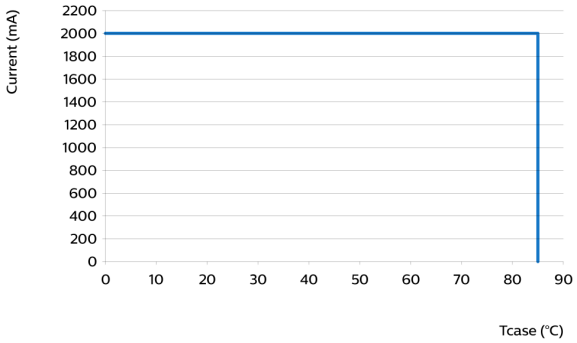
Tc [°C]	Flux [%]	Efficacy [%]
85	94	96
45	100	100
25	102	101
0	104	102



Lumen maintenance

Operation point	Lumen maintenance x 1000 hours	L70 B50	L80 B50	L90 B50
80% I-nom 544mA	Ts-nom 45°C	>54	>54	>36
	Ts 75°C	>54	>54	>36
	Ts-life 85°C	>54	>54	>36
I-nom 680mA	Ts-nom 45°C	>54	>54	>36
	Ts 75°C	>54	>54	>36
	Ts-life 85°C	>54	>54	>36
I-life 2000mA	Ts-nom 45°C	>54	>54	>36
	Ts 75°C	>54	>54	>36
	Ts-life 85°C	>54	>54	>36

Performance Window



Thermal switching table

Warranted number of full thermal product cycles at 25°C ambient temperature

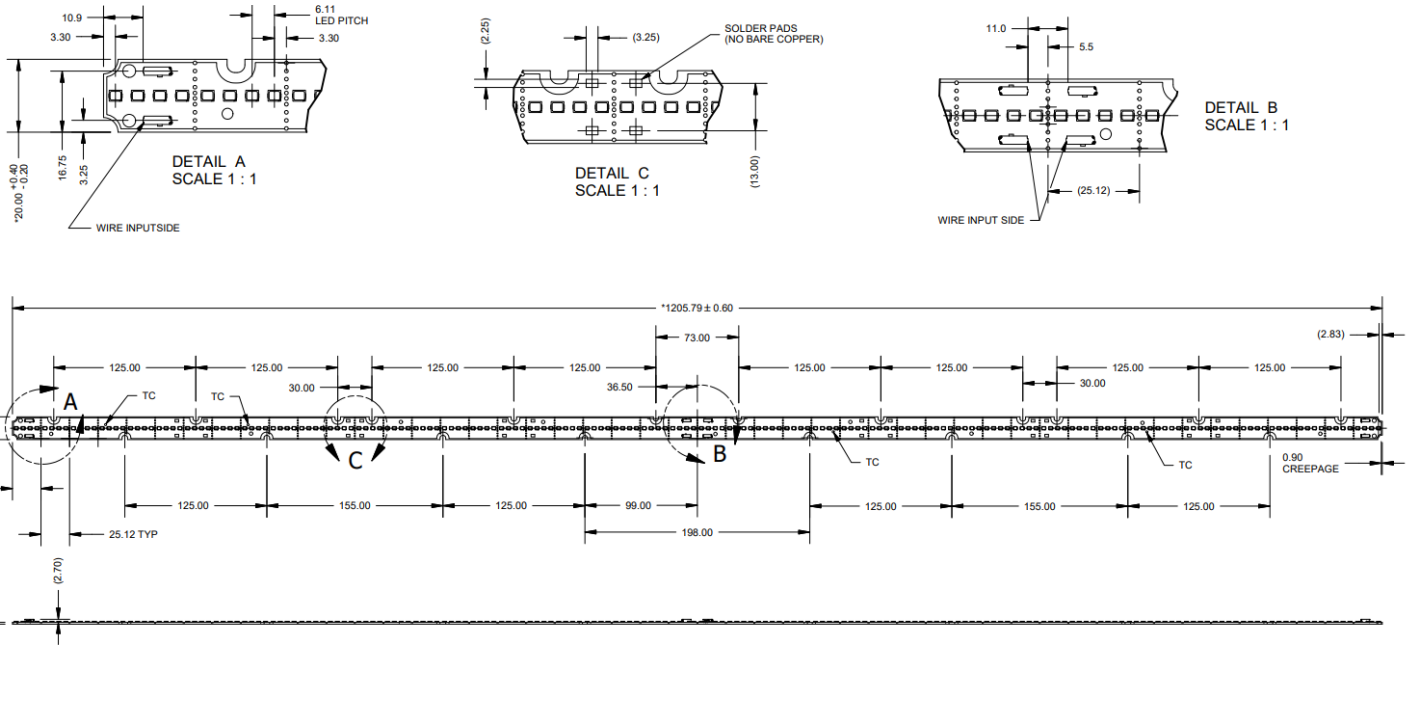
Case Temperature - Tc [°C]	Amount of Cycles
45 (or less)	>100,000
55	>100,000
65	>100,000
75	47,000
85	22,000
90	16,000

Wiring

Specification item	Value	Unit	Condition
Input wire cross-section	0.25...0.75	mm^2	solid, stranded
	18...24	AWG	solid, stranded
Input wire strip length	7.5...9.5	mm	

Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	1205.19	1205.79	1206.39	mm
Width	19.85	20	20.15	mm
Height PCB	1.4	1.6	1.8	mm
Height total		4.3		mm
Warpage (IPC-TM-650)			0.75	%



Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		2200	mA
Case temperature (Tc-max)		95	°C
ESD (direct contact)	8		kV
Working voltage		60	V_{dc}
Ambient temperature	-40		°C

Surge protection of the module must be provided by the driver or other components. Advance Xitanium and Certadrive drivers have built in protection circuitry and will protect the module up to the specified driver surge rating. When using third party drivers testing or confirmation from manufacturer is suggested to ensure adequate module protection.

Application information

Certificates and Standards
UL 8750

Environmental
RoHS/REACH

Application	
IP rating	No IP rating
Overheating protection	No protection
Luminaire class ANSI	UL Class 2
Dimming	Yes

There cannot be any ice/fog/mist on any part of the module surface during the application at -40°C.

Notes

View limited warranty at www.signify.com/warranties for details and restrictions.

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