

FO Strip VOcs

Fortimo LED Strip VOcs is an efficient and flexible dual channel LED module from Advance. When paired with CertaDrive Xcs drivers it creates a ready made system to reduce luminaire SKU count by up to 9x (3x CCT and 3x Flux outputs).

Key features and benefits

Features

• Low system cost and optimized performance with five-year limited system warranty if paired with Advance CertaDrive Xcs
• High efficiency LEDs
• CRI80 color rendering
• 50,000 hours lifetime
• Mechanical footprint compatibility with LED Strip product family
• 3 SDCM color consistency at endpoints

Benefits

•Maximize SKU and component flexibility with fewer luminaire SKUs to produce or warehouse

Applications

• Education
• Office
• Healthcare
• Retail
• Hospitality

Ordering data

Commercial product name	12NC	Box quantity
FO Strip VOcs 22in 2700lm 835-850 LV1	9290 027 46713	200

Drive currents

Parameter	Nominal*	Life**	Max***	Unit
FO Strip VOcs 22in 2700lm 835-850 LV1	450	800	900	mA

Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T_c (case temperature at T_c point)	45	85	90	°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*	800	800	700	500	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.

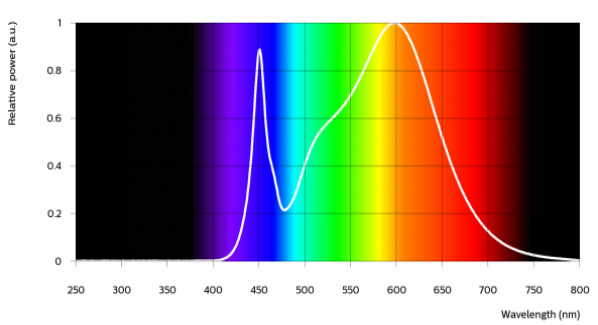
Optical characteristics – table per color (CCT)

FO Strip VOcs 22in 2700lm 835-850 LV1 [3500K]

Parameter	Min	Typ	Max	Unit
Luminous flux	2470	2670	2870	lm
Efficacy	160	179		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 360mA	Tc 25 °C	2230	187
	Tc-nom 45 °C	2170	183
	Tc-life 85 °C	2030	175
I-nom 450mA	Tc 25 °C	2740	182
	Tc-nom 45 °C	2670	179
	Tc-life 85 °C	2500	170
I-life 800mA	Tc 25 °C	4640	167
	Tc-nom 45 °C	4520	164
	Tc-life 85 °C	4230	155

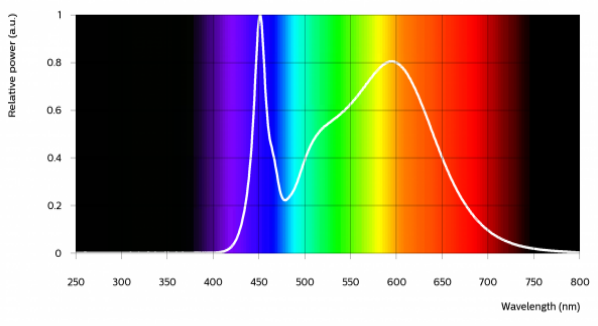


FO Strip VOcs 22in 2700lm 835-850 LV1 [4000K]

Parameter	Min	Typ	Max	Unit
Luminous flux	2610	2820	3030	lm
Efficacy	175	195		lm/W
Correlated color temperature (CCT)		4000		K
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 360mA	Tc 25 °C	2350	204
	Tc-nom 45 °C	2290	200
	Tc-life 85 °C	2150	190
I-nom 450mA	Tc 25 °C	2900	198
	Tc-nom 45 °C	2820	195
	Tc-life 85 °C	2640	185
I-life 800mA	Tc 25 °C	4910	182
	Tc-nom 45 °C	4770	178
	Tc-life 85 °C	4470	169

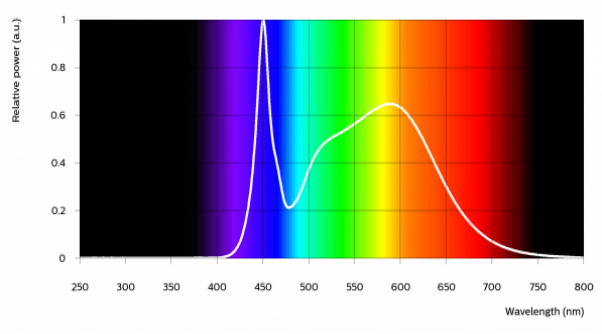


FO Strip VOcs 22in 2700lm 835-850 LV1 [5000K]

Parameter	Min	Typ	Max	Unit
Luminous flux	2550	2760	2970	lm
Efficacy	166	185		lm/W
Correlated color temperature (CCT)		5000		K
Color consistency			3	SDCM
CRI	80			
R9	0			

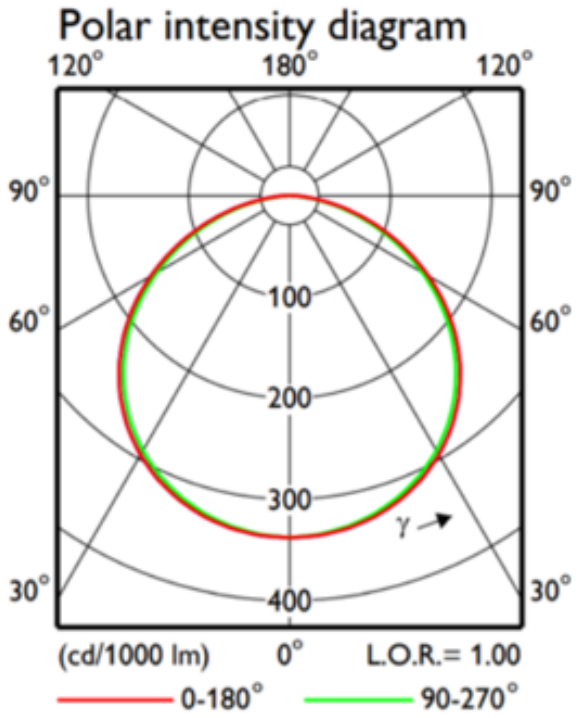
Measurement precision ± 5% for the flux data and ± 6% for the efficacy data. Measurement precision for color coordinates ± 0.005. Measurement precision for CRI ± 1.5 and R9 ± 3.

Operation point	850	lm	lm/W
80% I-nom 360mA	Tc 25 °C	2290	193
	Tc-nom 45 °C	2240	189
	Tc-life 85 °C	2100	180
I-nom 450mA	Tc 25 °C	2830	188
	Tc-nom 45 °C	2760	185
	Tc-life 85 °C	2590	176
I-life 800mA	Tc 25 °C	4810	173
	Tc-nom 45 °C	4690	170
	Tc-life 85 °C	4380	161



Beam shape

The LED-module has a Lambertian light distribution.



Electrical characteristics

FO Strip VOcs 22in 2700lm 835-850 LV1 [3500K]
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Parameter	Min	Typ	Max	Unit
Forward voltage	31.7	33.2	34.8	V
Power consumption	14.3	14.9	15.7	W
Number of modules in series per chain			1	

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

FO Strip VOcs 22in 2700lm 835-850 LV1 [4000K]

Parameter	Min	Typ	Max	Unit
Forward voltage	30.7	32.2	33.8	V
Power consumption	13.8	14.5	15.2	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

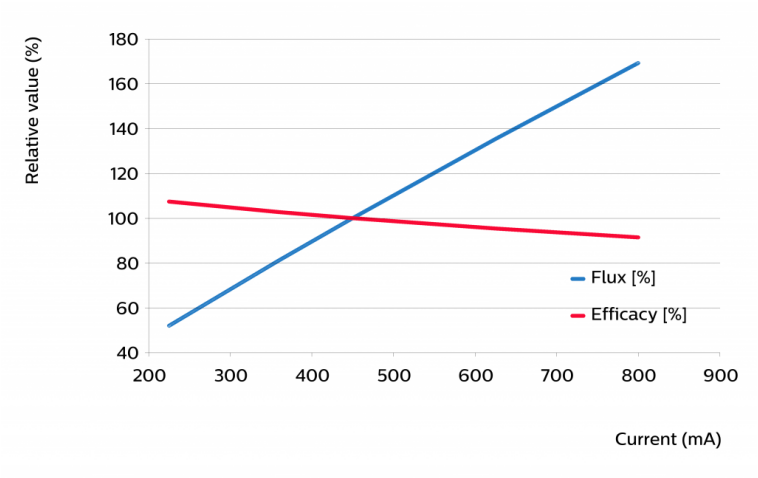
Total length (in)	Total current limit (mA)
44	1060
66	690
88	520

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

Tuning information

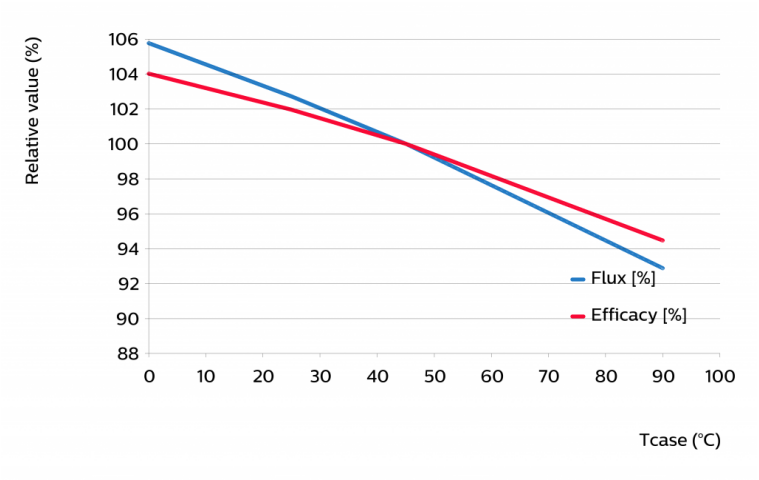
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
800	169	91
625	135	95
450	100	100
360	81	103
225	52	107



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

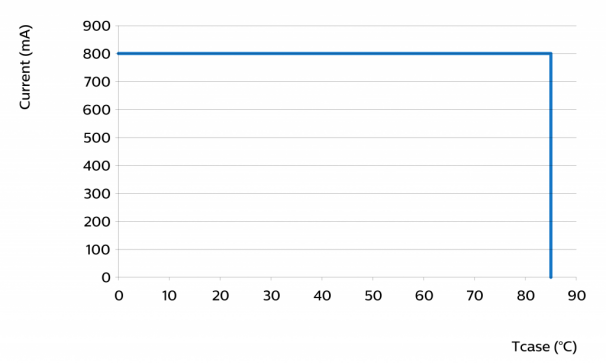
Tc [°C]	Flux [%]	Efficacy [%]
90	93	94
45	100	100
25	103	102
0	106	104



Lumen maintenance

Operation point	Lumen maintenance x 1000 hours	L70 B50	L80 B50	L90 B50
80% I-nom 360 mA	Ts nom 45°C	>60	>60	50
	Ts 75°C	>60	>60	50
	Ts-life 85°C	>60	>60	50
I-nom 450 mA	Ts nom 45°C	>60	>60	50
	Ts 75°C	>60	>60	50
	Ts-life 85°C	>60	>60	50
I-life 800 mA	Ts nom 45°C	>60	>60	50
	Ts 75°C	>60	>60	50
	Ts-life 85°C	>60	>60	50

Performance Window



Thermal switching table

Warranted Number of Full Thermal Product Cycles at 25°C ambient temperature

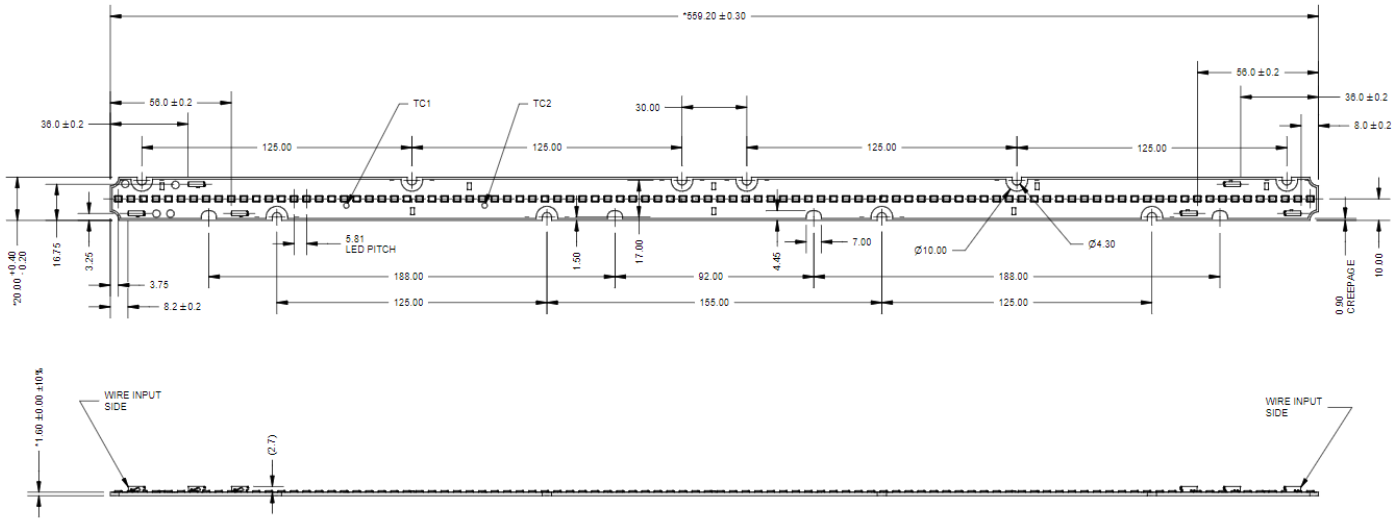
Case Temperature – Tc [°C]	Amount of Cycles
45 (or less)	>100,000
55	>100,000
65	>100,000
75	66,000
85	32,000
90	22,000

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	558.9	559.2	559.5	mm
Width	19.8	20	20.4	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)		900	mA
Case temperature (Tc-max)		90	°C
ESD (direct contact)	2		kV
Working voltage		60	V_{dc}
Ambient temperature	-40		°C

This LED module is an ESD sensitive device with ESD protection up to 2kV, tested according CAN/CSA-IEC 61000-4-2. Proper precautions to protect the product must be in place to maintain product reliability and warranty. These precautions are described in the design-in guide for the product and ANSI/ESD S20.20-2014. Precautions include, but are not limited to: ESD protection areas, equipment grounding, personal ESD protective measures and anti-static clothing, conductive flooring, ionizers, ESD packaging, etc. This product is not field replaceable.

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	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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