

# ADVANCE

by  Signify

## LED Modules

### Fortimo edge VO LV2

21.5in 6400lm



## Fortimo edge VO 21.5in 6400lm LV2

- High-bay industrial lighting
- High-bay big box retail lighting
- Vapor tight high temperature applications

### Key features and benefits

- High energy efficiency
- High lumen maintenance
- Robust 2835 LED platform
- Compact design enables innovative luminaire design
- High thermal limit: I-Life 90°C Tc
- Perfect match with Xitanium industrial driver portfolio
- Low total cost of ownership/Fast return on investment
- High lifetime and reliability data ensure low maintenance luminaires
- 8kV ESD rating
- Thermal Cycles designed for industrial applications
- Mounting pattern aligns with Fortimo edge LV1 for seamless upgrade

### Ordering data

Commercial product name	12NC	Box quantity
Fortimo edge VO 21.5in 6400lm 835 LV2	9290 027 25013	156
Fortimo edge VO 21.5in 6400lm 840 LV2	9290 027 25113	156
Fortimo edge VO 21.5in 6400lm 850 LV2	9290 027 25213	156

September 2020

## Drive currents

Parameter	Nominal*	Life**	Max***	Unit
Fortimo edge VO 21.5in 6400lm LV2	800	1280	1350	mA

## Module temperatures

Parameter	Nominal*	Life**	Max***	Unit
T <sub>c</sub> (case temperature at T <sub>c</sub> point)	65	90	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

Luminaire maximum ambient	45°C	55°C	65°C
Suggested maximum current*	1280mA	1000mA	700mA

\* 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 T<sub>c</sub>-life and thermal testing must be used to verify T<sub>c</sub>-life is never exceeded for your specific luminaire. It may be necessary to adjust the final current value in order to meet the T<sub>c</sub>-life rating of the module.

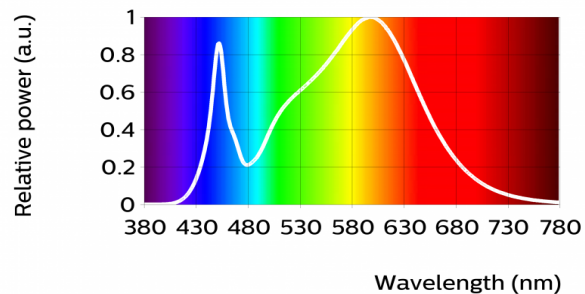
## Optical characteristics - table per color (CCT)

### Fortimo edge VO 21.5in 6400lm 835 LV2

Parameter	Min	Typ	Max	Unit
Luminous flux	5750	6210	6680	lm
Module efficacy	156	174	191	lm/W
Correlated color temperature (CCT)		3500		K
Color consistency			3	SDCM
CRI	80			
R9	0			

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

Operation point	835	lm	lm/W
80% I-nom 640mA	Tc 25 °C	5240	184
	Tc-nom 65 °C	5030	178
	Tc-life 90 °C	4860	173
I-nom 800mA	Tc 25 °C	6480	179
	Tc-nom 65 °C	6210	174
	Tc-life 90 °C	6010	169
I-life 1280mA	Tc 25 °C	10050	168
	Tc-nom 65 °C	9630	162
	Tc-life 90 °C	9300	158

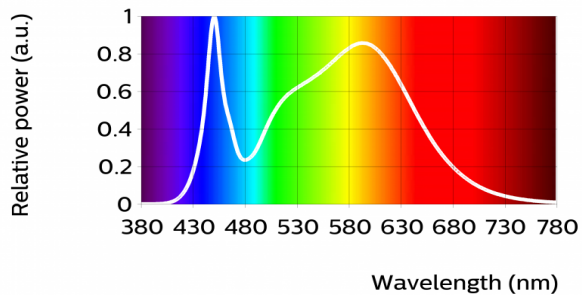


Fortimo edge VO 21.5in 6400lm 840 LV2

Parameter	Min	Typ	Max	Unit
Luminous flux	5920	6400	6880	lm
Module efficacy	160	179	197	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 640mA	Tc 25 °C	5400	189
	Tc-nom 65 °C	5180	184
	Tc-life 90 °C	5010	179
I-nom 800mA	Tc 25 °C	6680	185
	Tc-nom 65 °C	6400	179
	Tc-life 90 °C	6190	174
I-life 1280mA	Tc 25 °C	10360	173
	Tc-nom 65 °C	9920	167
	Tc-life 90 °C	9590	162

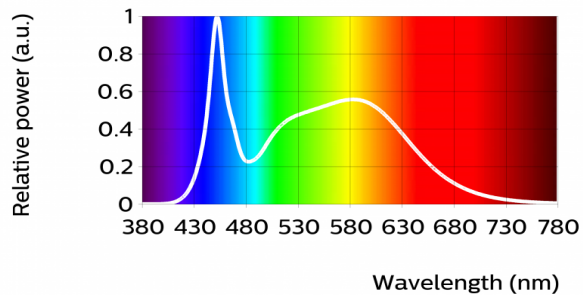


Fortimo edge VO 21.5in 6400lm 850 LV2

Parameter	Min	Typ	Max	Unit
Luminous flux	5920	6400	6880	lm
Module efficacy	160	179	197	lm/W
Correlated color temperature (CCT)		5000		K
Color consistency			3	SDCM
CRI	80			
R9	0			

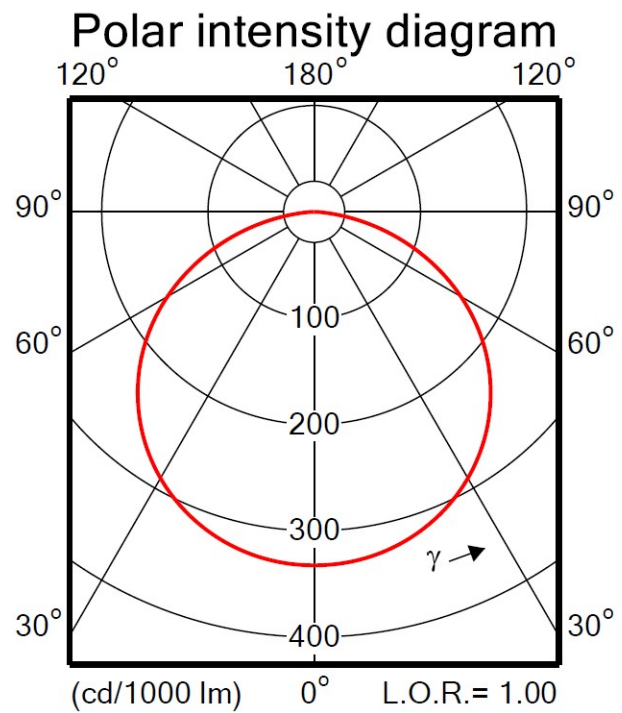
Measurement precision  $\pm 5\%$  for the flux data and  $\pm 6\%$  for the efficacy data. Measurement precision for color coordinates  $\pm 0.005$ . Measurement precision for CRI  $\pm 1.5$  and R9  $\pm 3$

Operation point	850	lm	lm/W
80% I-nom 640mA	Tc 25 °C	5400	189
	Tc-nom 65 °C	5180	184
	Tc-life 90 °C	5010	179
I-nom 800mA	Tc 25 °C	6680	185
	Tc-nom 65 °C	6400	179
	Tc-life 90 °C	6190	174
I-life 1280mA	Tc 25 °C	10360	173
	Tc-nom 65 °C	9920	167
	Tc-life 90 °C	9590	162



## Beam shape

The LED-module has a Lambertian light distribution.



## Electrical characteristics

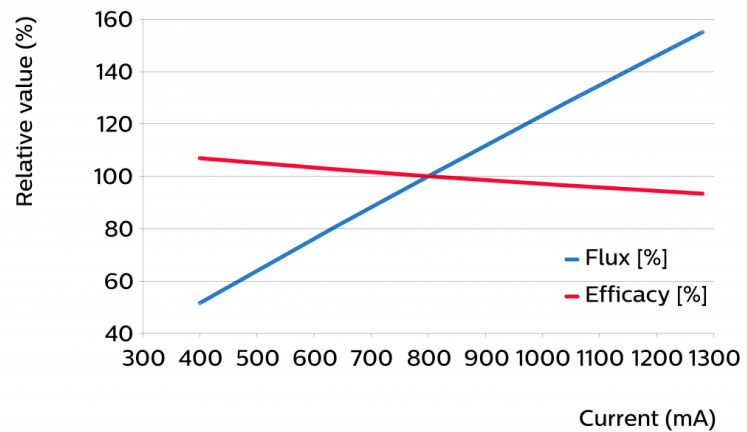
Parameter	Min	Typ	Max	Unit
Forward voltage	43.7	44.7	45.6	V
Power consumption	35.0	35.8	36.5	W = kWh/1000h
Number of modules in series per chain			1	
Number of modules in parallel per chain				

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

## Tuning information

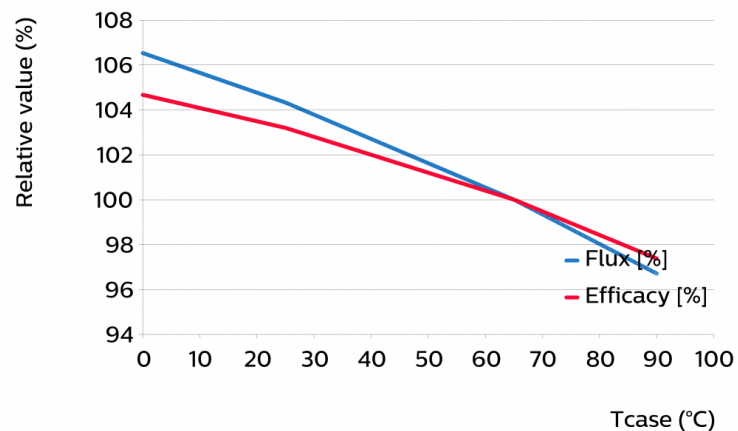
Flux and efficacy versus current (at Tc nominal)

I [mA]	Flux [%]	Efficacy [%]
1280	155	93
1040	128	97
800	100	100
640	81	103
400	52	107



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

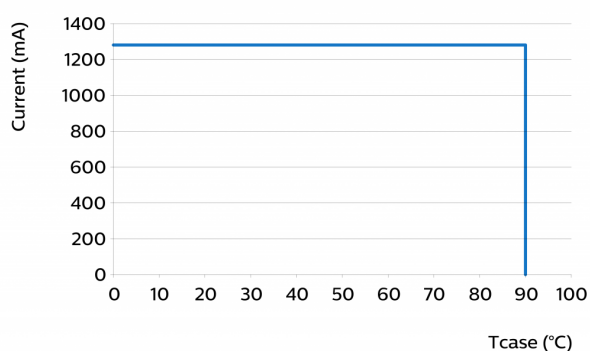
Tc [°C]	Flux [%]	Efficacy [%]
90	97	97
65	100	100
25	104	103
0	107	105



## Lumen maintenance

Operation point	Lumen maintenance x 1000 hours	L70	L80	L90
		B50	B50	B50
80% I-nom 640 mA	Ts nom 65°C	>50	>50	>50
	Ts 75°C	>50	>50	>50
	Ts-life 90°C	>50	>50	>50
I-nom 800 mA	Tsnom 65°C	>50	>50	>50
	Ts 75°C	>50	>50	>50
	Ts-life 90°C	>50	>50	>50
I-life 1280 mA	Ts nom 65°C	>50	>50	>50
	Ts 75°C	>50	>50	>50
	Ts-life 90°C	>50	>50	>50

## Performance Window



## Thermal switching table

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

Case Temperature - T <sub>c</sub> [°C]	Amount of Cycles
45 (or less)	>100,000
55	>100,000
65	>100,000
75	50,000
85	24,000
90	18,000

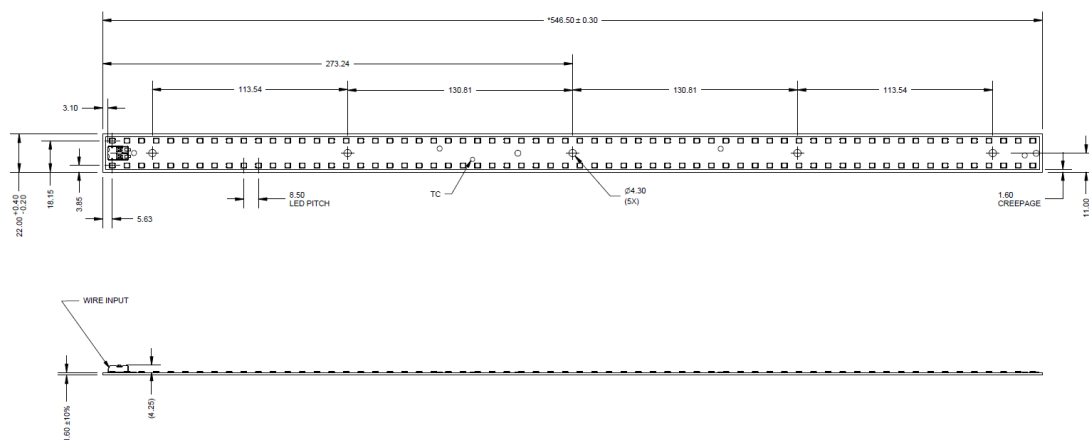
## Wiring

Specification item	Value	Unit	Condition
Input wire cross-section	0.45...0.7	mm <sup>2</sup>	stranded wire
	20...22	AWG	stranded wire
Input wire strip length	4.5...5.5	mm	
Input wire cross-section	0.25...0.75	mm <sup>2</sup>	solid wire
	18...24	AWG	solid wire
Input wire strip length	4.5...5.5	mm	



## Mechanical characteristics

Parameter	Min	Typ	Max	Unit
Length	546.2	546.5	546.8	mm
Width	21.8	22	22.4	mm
Height PCB	1.44	1.6	1.76	mm
Height total		5.85		mm
Warpage (IPC-TM-650)			5	%



## Absolute ratings

Parameter	Min	Max	Unit
Current through the LED module (I-max)		1350	mA
Case temperature (Tc-max)		95	°C
ESD (direct contact)	8		kV
Working voltage		60	V <sub>dc</sub>

## Application information

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### 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

### Notes

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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.

