PHILIPS

LED Modules

Fortimo LED Line High Flux VO

4ft 15,000lm 2R NA

Fortimo LED Line high flux value offer (VO) is designed to enable cost breakthrough in high lumen and high temperature applications such as high-bay linear systems.

Together with the wide range of available Philips Advance Xitanium LED drivers, it offers piece of mind for both OEM and end-user, backed up by a five-year limited system warranty[1].

Commercial Product Name	12NC
Fortimo Line VO 4ft 15000lm 830 2R NA LV1	929001722713
Fortimo Line VO 4ft 15000lm 835 2R NA LV1	929001722813
Fortimo Line VO 4ft 15000lm 840 2R NA LV1	929001722913
Fortimo Line VO 4ft 15000lm 850 2R NA LV1	929001723013

Fortimo LED Line VO 4ft 15,000lm 2R NA

Features

- Tc Life of 90°C
- High energy efficiency of up to 156 lm/W
- Variation of color temperatures : 3000K, 3500K, 4000K and 5000K
- High color rendering of CRI>80
- High quality of light with 3 SDCM color consistency
- Lumen levels up to 3750lm/ft
- Zhaga compatible

Benefits

- Enables LED fixture designs in thermally challenging applications of -40°C - +55°C ambient temperatures
- Flexible system design due to pairing with Philips Advance Xitanium window drivers with SimpleSet technology
- 5-year limited system warranty with Philips Advance Xitanium LED drivers[2]

Applications

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

Optical Characteristics – at Tc of 55°C

Commercial Product Name	CCT (K)	CRI[3] (Ra)	R9	Color Consistency (SDCM)[4]	Radiation Angle
Fortimo Line VO 4ft 15000lm 830 2R NA LV1	3000	>80	>0	3	120°
Fortimo Line VO 4ft 15000lm 835 2R NA LV1	3500				
Fortimo Line VO 4ft 15000lm 840 2R NA LV1	4000				
Fortimo Line VO 4ft 15000lm 850 2R NA LV1	5000				

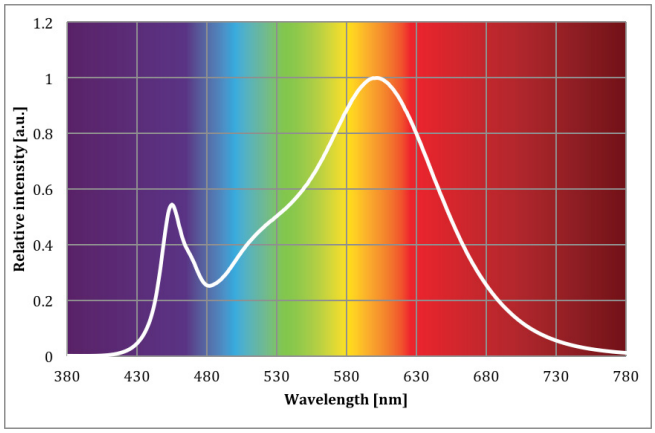
Commercial Product Name	Typical Current (mA)	Flux[5] (lm)			Efficacy[6] (lm/W)		
		Min.	Typ.	Max.	Min.	Typ.	Max.
Fortimo Line VO 4ft 15000lm 830 2R NA LV1	2700	12,900	13,940	14,990	130	145	160
Fortimo Line VO 4ft 15000lm 835 2R NA LV1		13,440	14,520	15,610	136	151	167
Fortimo Line VO 4ft 15000lm 840 2R NA LV1		13,880	15,000	16,130	140	156	172
Fortimo Line VO 4ft 15000lm 850 2R NA LV1		13,880	15,000	16,130	140	156	172
Fortimo Line VO 4ft 15000lm 830 2R NA LV1	2800	13,320	14,400	15,480	129	144	159
Fortimo Line VO 4ft 15000lm 835 2R NA LV1		13,880	15,000	16,130	134	150	165
Fortimo Line VO 4ft 15000lm 840 2R NA LV1		14,330	15,490	16,660	139	155	171
Fortimo Line VO 4ft 15000lm 850 2R NA LV1		14,330	15,490	16,660	139	155	171
Fortimo Line VO 4ft 15000lm 830 2R NA LV1	1350	6800	7350	7910	145	162	179
Fortimo Line VO 4ft 15000lm 835 2R NA LV1		7090	7660	8230	151	169	186
Fortimo Line VO 4ft 15000lm 840 2R NA LV1		7320	7910	8500	156	174	192
Fortimo Line VO 4ft 15000lm 850 2R NA LV1		7320	7910	8500	156	174	192

Footnotes on the last page.

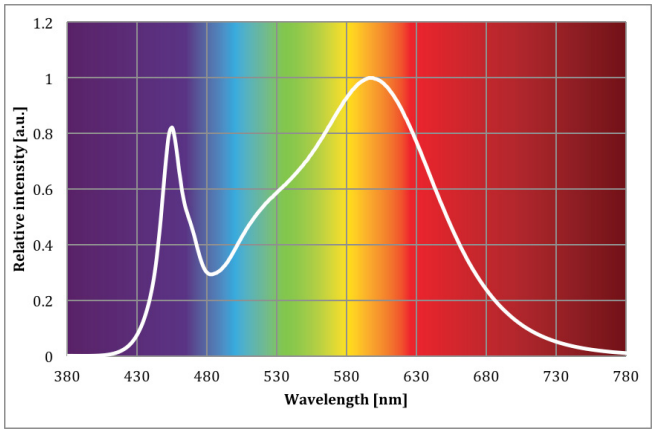
Fortimo LED Line VO 4ft 15,000lm 2R NA

Optical Characteristics – at Tc of 55°C

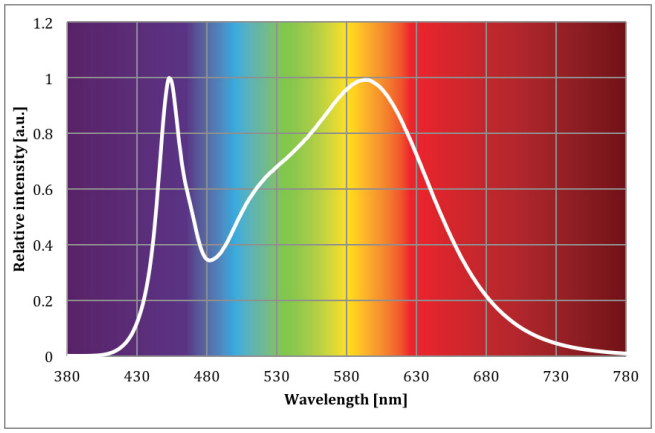
830



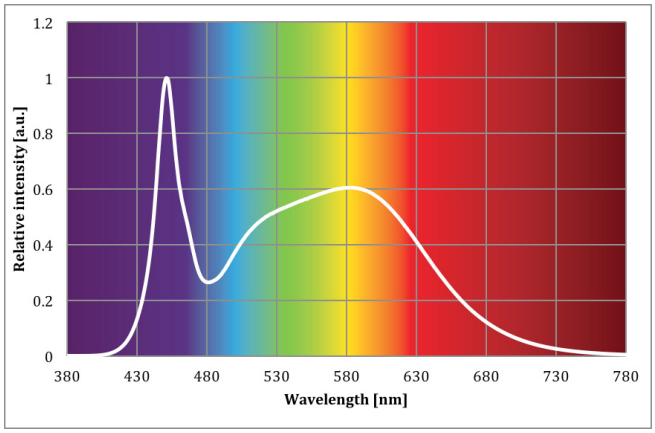
835



840



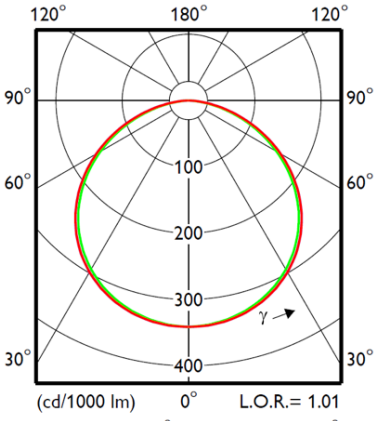
850



Fortimo LED Line VO 4ft 15,000lm 2R NA

Beam Shape

The Philips Fortimo LED Line generates a Lambertian beam shape, which is a pragmatic starting point for OEMs wishing to design secondary optics.



Electrical Characteristics

Commercial Product Name	Typical Current (mA)	Forward Voltage (V)			Power (W)		
		Min.	Typ.	Max.	Min.	Typ.	Max.
Fortimo Line VO 4ft 15000lm 830 2R NA LV1	2700	34.7	35.6	36.5	93.7	96.1	98.5
Fortimo Line VO 4ft 15000lm 835 2R NA LV1							
Fortimo Line VO 4ft 15000lm 840 2R NA LV1							
Fortimo Line VO 4ft 15000lm 850 2R NA LV1							
Fortimo Line VO 4ft 15000lm 830 2R NA LV1	2800	34.8	35.7	36.6	97.4	99.9	102.5
Fortimo Line VO 4ft 15000lm 835 2R NA LV1							
Fortimo Line VO 4ft 15000lm 840 2R NA LV1							
Fortimo Line VO 4ft 15000lm 850 2R NA LV1							

System configuration : 11s4p

Lifetime

Parameter	Nominal[7]	Life[8]	Max.[9]
Tc (°C)	55	90	90
Current (mA)	2700	2800	2800
Δu'v' at 6000 Hours[10]			0.007

Fortimo LED Line VO 4ft 15,000lm 2R NA

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

Warranted number of full thermal product cycles at which the survival rate of the population ≥90%, at 25°C ambient temperature.

Case Temperature Tc [°C]	Amount of Cycles
25	>100,000
35	>100,000
45	>100,000
55	48,000
65	19,000
75	9,000
85	5,000
90	3,000

Abs Max Ratings

Parameter	Min.	Max.	Unit
Current through the LED Module (I-max)		2800	mA
Case Temperature (Tc Max)		90	°C
ESD (Direct Contact)		2	kV
ESD (Air)		2	kV
Isolation Breakdown Voltage	700		Vdc
Ambient Temperature	-40	55	°C
PCB Reflectivity	70%		
Number of Modules per Chain		2	

Application Information

Compliance and Approval

UL8750 (UL recognized)

Environmental

RoHS / REACH

Application Information

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

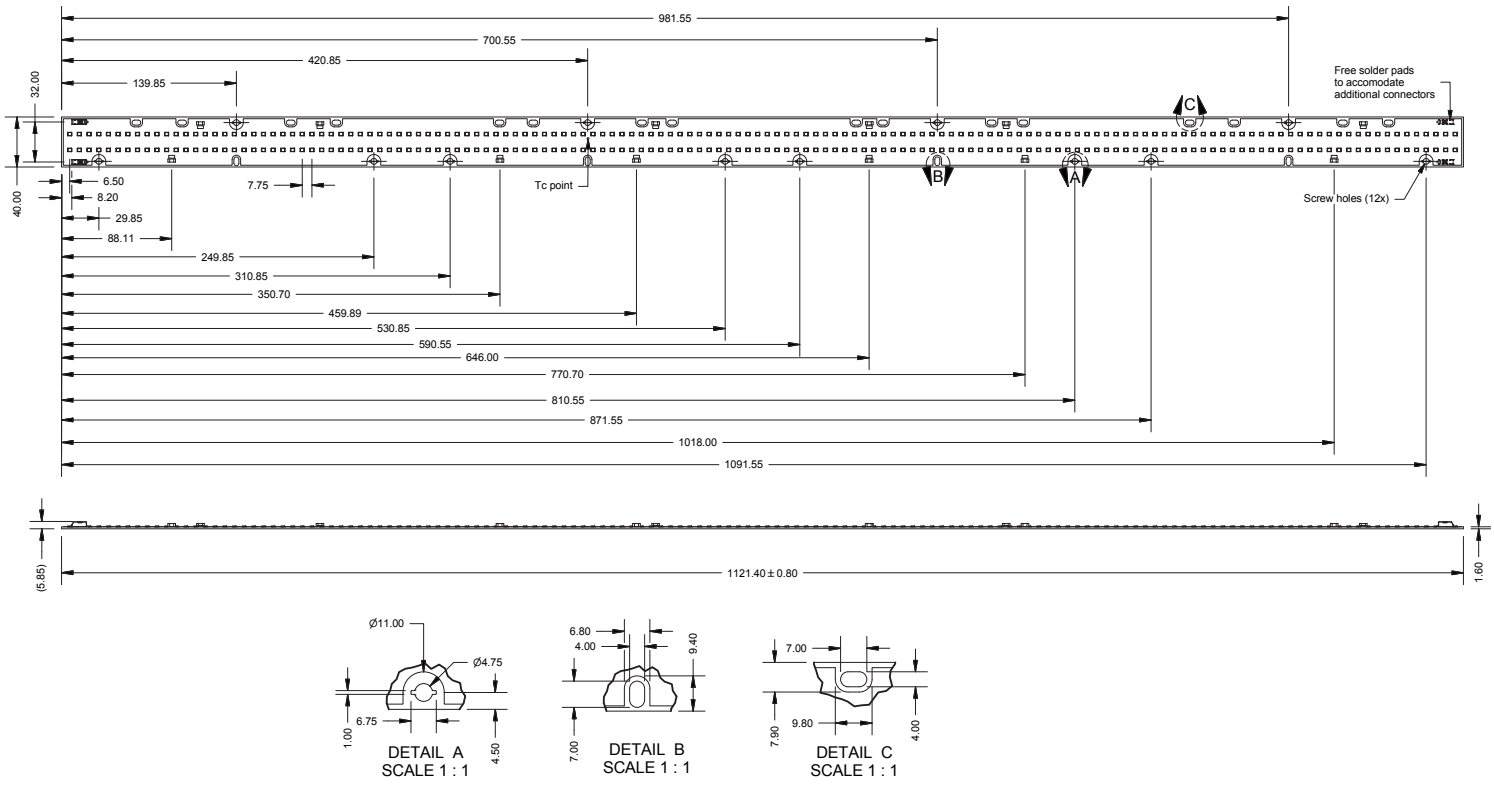
Fortimo LED Line VO 4ft 15,000lm 2R NA

Wiring

Specification Item	Value	Unit	Condition
Input Wire Cross-Section	0.2…0.75	mm^2	solid
	18…24	AWG	
	0.45…0.7	mm^2	stranded
	20..22	AWG	
Input Wire Strip Length	7.5…8.5	mm	

Mechanical Characteristics

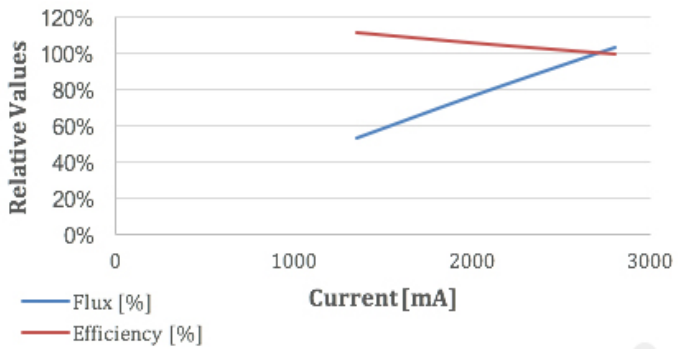
Parameter	Min.	Typ.	Max.	Unit
Length	1120.6	1121.4	1122.2	mm
Width	39.8	40.0	40.2	mm
Height Excl. Connector	1.45	1.60	1.75	mm
Height Incl. Connector	5.55	5.85	6.20	mm
Warpage (IPC-TM-650)			0.75	mm



Fortimo LED Line VO 4ft 15,000lm 2R NA

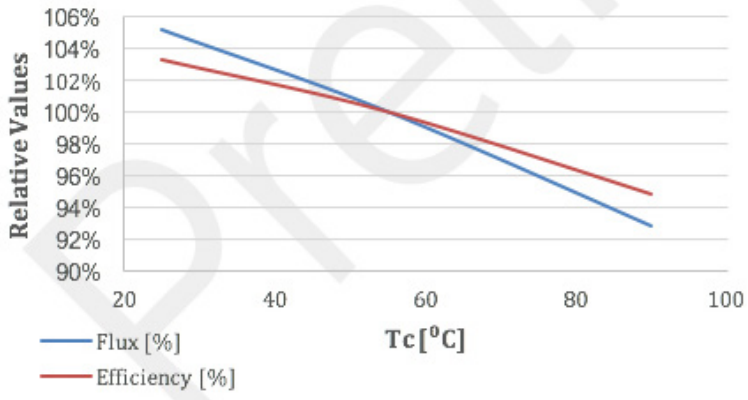
Tuning Information

Flux and Efficacy Vs. Current



I [A]	Flux [%]	Efficacy [%]
300	XX	XX
1350	53	112
2025	77	105
2700	100	100
2733	101	100
2767	102	99
2800	103	99

Flux and Efficacy Vs. Temperature at Tc



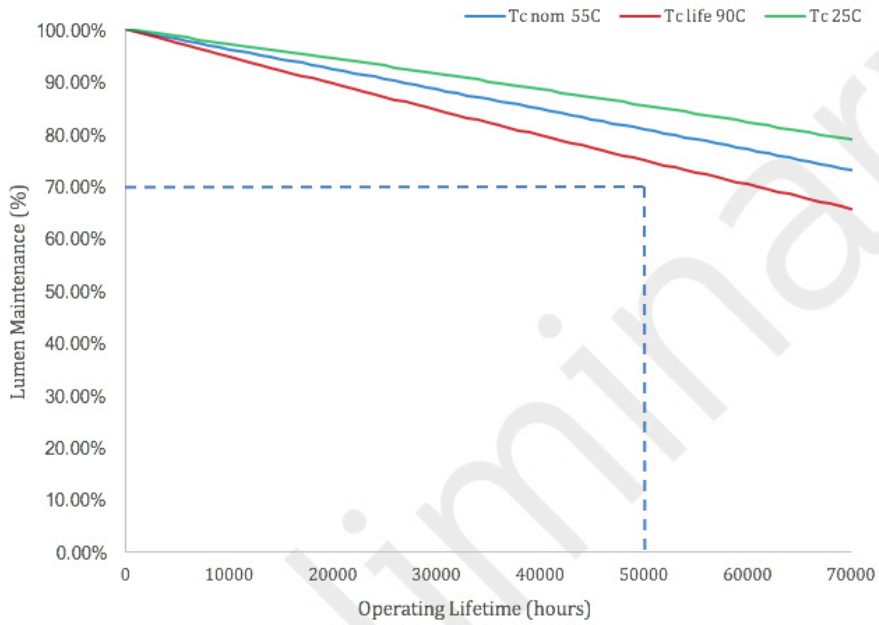
Tc [°C]	Flux [%]	Efficacy [%]
100	XX	XX
90	93	95
55	100	100
25	105	103

Fortimo LED Line VO 4ft 15,000lm 2R NA

Lumen Maintenance

Lumen Maintenance: at I Life and Tc Life Conditions

Fortimo LED Line VO 4ft 15,000lm 8xx 2R NA LV1



Precautions in Handling and Use

See Philips design-in guide on the My Technology Portal. https://www.na.mytechnologyportal.lighting.philips.com.

Fortimo LED Line VO 4ft 15,000lm 2R NA

1. Average rated life is based on engineering data 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/connect/tools_literature/warranties.wpd for details and restrictions.
3. Measurement tolerance is ±1.5 for CRI
4. Measurement tolerance is ±0.003 for the color coordinates data
5. Measurement tolerance is ± 5% for the flux
6. Measurement tolerance is ± 5% for efficacy
7. Nominal value at which performance is specified
8. Value at which lifetime is specified (maximum conditions for warranty)
9. Maximum value for safety
10. Specifications stated while Tc<90°C and I<1120mA

Zhaga

Philips Lighting North America Corporation
10275 W. Higgins Road, Rosemont IL 60018
Tel: 800-322-2086 Fax: 888-423-1882
Customer/Technical Service: 800-372-3331
OEM Support: 866-915-5886

Philips Lighting Canada Ltd.
281 Hillmount Rd, Markham, ON, Canada L6C 2S3
Tel. 800-668-9008