

# PHILIPS

## LED Modules

### Fortimo LED Line High Flux

#### 2ft 6000lm 2R LV1



Fortimo LED line 2ft 6000lm 2R LV1 are designed to replace conventional lighting in high lumen and high ceiling applications like high-bay linear 80W TL 5 lamp fluorescent systems.

High energy efficacy and optimal thermal design enables the Fortimo LED line 2ft 6000lm 2R LV1 to withstand rough application conditions while enabling excellent total cost of ownership for the end user.

Together with the wide range of available Philips Advance Xitanium LED drivers, it offers piece of mind for both OEM and end user, backed by a five-year limited system warranty.<sup>3</sup>

Commercial Product Name	12NC
Fortimo LED Line 2ft 6000lm 830 2R LV1	929000743813
Fortimo LED Line 2ft 6000lm 835 2R LV1	929000743913
Fortimo LED Line 2ft 6000lm 840 2R LV1	929000744013
Fortimo LED Line 2ft 6000lm 850 2R LV1	929000744113

# Fortimo LED Line High Flux 2ft 6000lm 2R LV1

## Features

- High energy efficiency of up to 160 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 of 6,000 lm/2ft (up to 6,800lm/2ft at llife)
- Long lifetime – 50,000 hrs<sup>1</sup>
- Push-in connectors enabling easy wiring and daisy chaining
- Mechanical footprint according to Zhaga<sup>2</sup>

## Benefits

- Enables LED fixture designs in thermally challenging applications of -40 °C - +55 °C ambient temperatures
- High energy efficacy and optimal total cost of ownership vs. conventional lighting systems
- 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<sup>3</sup>

## Applications

- High-bay industrial lighting
- High-bay big box retail lighting
- Vapor tight, high temperature applications
- High lumen 2' x 2' and 2' x 4' troffers

## Optical Characteristics – Table per CCT

Fortimo LED Line 2ft 6000lm 830 2R LV1

Parameter	Min	Typ	Max	Unit
Luminous Flux		5770	6394	Lm
Lumen Efficiency		150	148	Lm/W
Forward Current		1250	1400	mA
Forward Voltage		30.8		V
Correlated Color Temperature (CCT) Target		3000		K
Color Consistency		3		SDCM
CRI	80			-
Radiation Angle		120		deg

Nominal temperature for performance specification: Tc = 75°C.

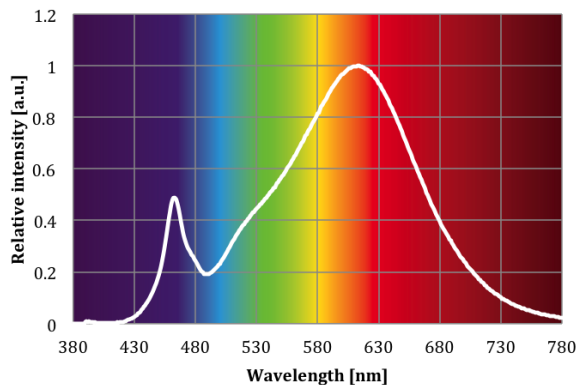
Max performance values at llife.

Color consistency of 3 SDCM, averaged over the module.

Tolerance for flux data is ±7.5%.

Tolerance for efficacy data is ±10%.

Measurements tolerance +/- 5% on flux and efficiency, 0.005 on x,y, +/-1.5 on CRI.



Footnotes on page 10.

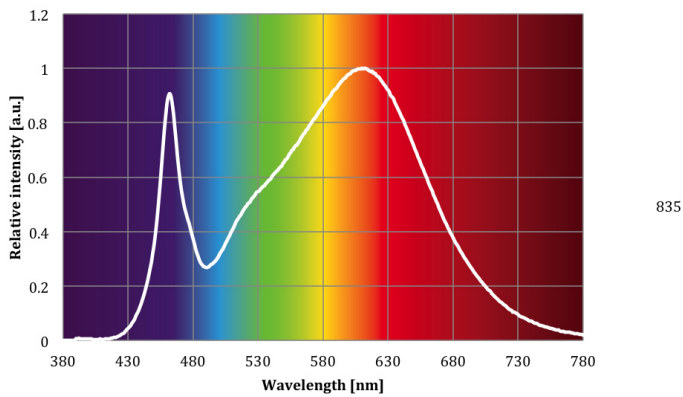
# Fortimo LED Line High Flux 2ft 6000lm 2R LV1

## Optical Characteristics – Table per CCT

**Fortimo LED Line 2ft 6000lm 835 2R LV1**

Parameter	Min	Typ	Max	Unit
Luminous Flux		5950	6597	Lm
Lumen Efficiency		155	152	Lm/W
Forward Current		1250	1400	mA
Forward Voltage		30.8		V
Correlated Color Temperature (CCT) Target		3500		K
Color Consistency		3		SDCM
CRI	80			-
Radiation Angle		120		deg

Nominal temperature for performance specification: Tc = 75°C.  
 Max performance values at llife.  
 Color consistency of 3 SDCM, averaged over the module.  
 Tolerance for flux data is ±7.5%.  
 Tolerance for efficacy data is ±10%.  
 Measurements tolerance +/- 5% on flux and efficiency, 0.005 on x,y, +/-1.5 on CRI.



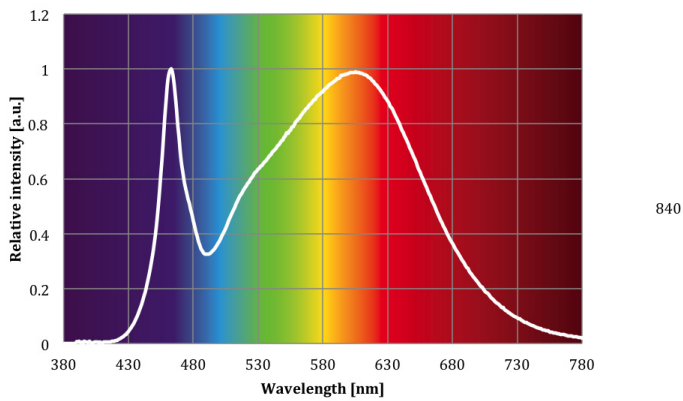
# Fortimo LED Line High Flux 2ft 6000lm 2R LV1

## Optical Characteristics – Table per CCT

**Fortimo LED Line 2ft 6000lm 840 2R LV1**

Parameter	Min	Typ	Max	Unit
Luminous Flux		6070	6732	Lm
Lumen Efficiency		158	155	Lm/W
Forward Current		1250	1400	mA
Forward Voltage		30.8		V
Correlated Color Temperature (CCT) Target		4000		K
Color Consistency		3		SDCM
CRI	80			-
Radiation Angle		120		deg

Nominal temperature for performance specification: Tc = 75°C.  
 Max performance values at llife.  
 Color consistency of 3 SDCM, averaged over the module.  
 Tolerance for flux data is ±7.5%.  
 Tolerance for efficacy data is ±10%.  
 Measurements tolerance +/- 5% on flux and efficiency, 0.005 on x,y, +/-1.5 on CRI.



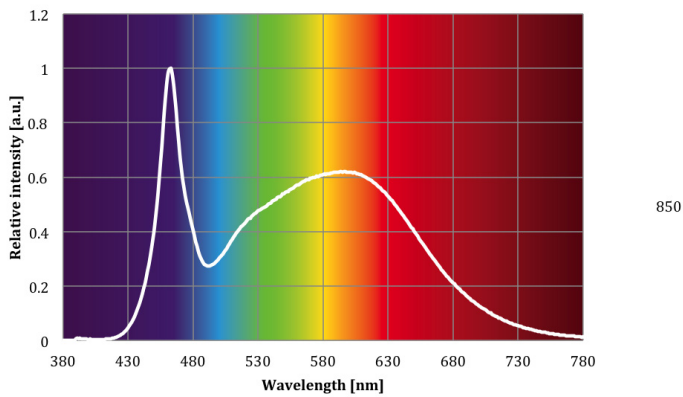
# Fortimo LED Line High Flux 2ft 6000lm 2R LV1

## Optical Characteristics – Table per CCT

**Fortimo LED Line 2ft 6000lm 850 2R LV1**

Parameter	Min	Typ	Max	Unit
Luminous Flux		6130	6799	Lm
Lumen Efficiency		160	157	Lm/W
Forward Current		1250	1400	mA
Forward Voltage		30.8		V
Correlated Color Temperature (CCT) Target		5000		K
Color Consistency		3		SDCM
CRI	80			-
Radiation Angle		120		deg

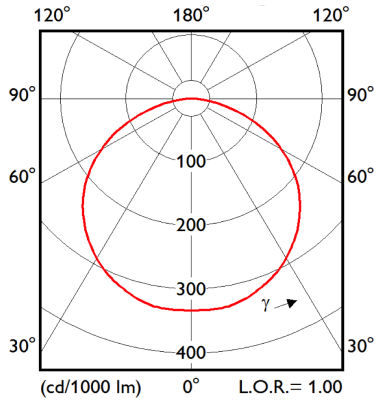
Nominal temperature for performance specification: Tc = 75°C.  
 Max performance values at llife.  
 Color consistency of 3 SDCM, averaged over the module.  
 Tolerance for flux data is ±7.5%.  
 Tolerance for efficacy data is ±10%.  
 Measurements tolerance +/- 5% on flux and efficiency, 0.005 on x,y, +/-1.5 on CRI.



# Fortimo LED Line High Flux 2ft 6000lm 2R LV1

## 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

Parameter	Min	Typ	Max	Unit
Nominal Current		1250	1400	mA
Forward Voltage	29.6	30.8	31.9	V
Power Consumption		38.5	39.9	W
Forward Voltage Bins	A/B			

Note: Specifications stated at Tc nom = 75 °C and I nom = 1250 mA.

## Lifetime

Parameter	Nominal *	Life**	Max***
Tc [°C]	75	90	95
Current [mA]	1250	1400	1400

\* Nominal value at which typical performance is specified

\*\* Value at which lifetime L70B50 ≥ 50,000h is specified and max value to attain limited warranty: <http://www.usa.lighting.philips.com/support/support/warranty>

\*\*\* Maximum value for safe operation; do not operate above this value

Parameter	Min	Typ	Max	Units
Δu'v' at 6000 Hours			0.007	–

Note: Specifications stated while Tc < 90 °C and I < 1400 mA.

## Abs Max Ratings

Parameter	Min	Typ	Max	Unit
Current Imax			1400	mA
Case Temperature Tc Max			95	°C
ESD (Direct Contact)			8	kV
ESD (Air)			15	kV
Ambient Temperature	-40			°C
Isolation Breakdown Voltage	500			Vdc

Continuous operation or dimmed only. If switched: -20°C.

# Fortimo LED Line High Flux 2ft 6000lm 2R LV1

## Wiring

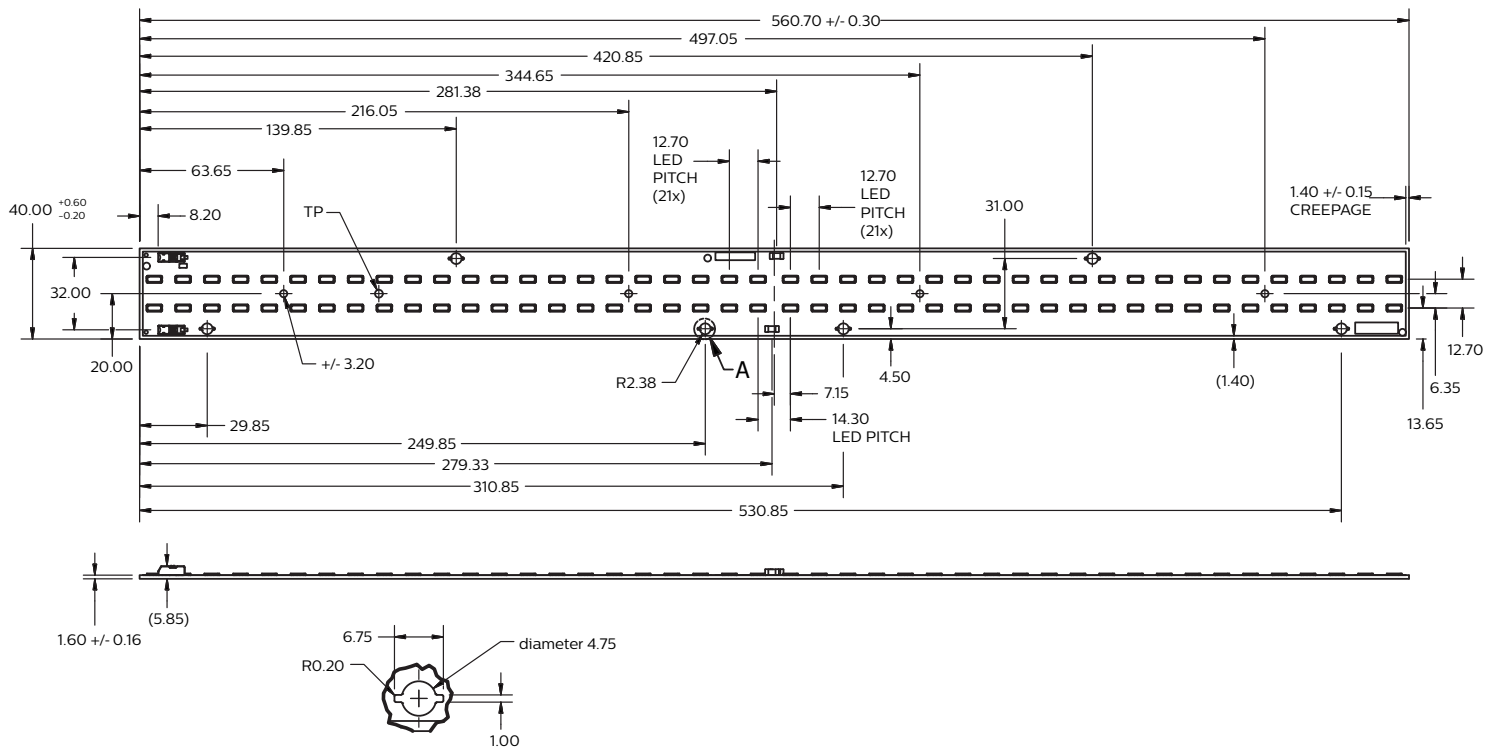
Specification Item	Value	Unit	Condition
Input Wire Cross-Section	0.2...0.8	mm <sup>2</sup>	solid
	18...24	AWG	
	0.45...0.7	mm <sup>2</sup>	fine stranded
	20...22	AWG	
Input Wire Strip Length	7.5...8.5	mm	

Note: Connector suited for robot wiring.

## Mechanical Characteristics

Parameter	Min	Typ	Max	Unit
Length	560.40	560.70	561.00	mm
Width	39.80	40.00	40.60	mm
Height Excl. Connector	1.45	1.60	1.75	mm
Height Incl. Connector	4.50	5.85	6.00	mm
Warpage (IPC-TM-650)			2.1	%

Note: Bow & Twist of the PCB after production tested and released according IPC-TM-650 2.4.22.



# Fortimo LED Line High Flux 2ft 6000lm 2R LV1

## Application Information

### Compliance and Approval

IEC / EN 62031, IEC / EN 62471, IEC / TR 62778, UL8750 (UL recognized)

### Environmental

RoHS / REACH

### Application Information

IP Rating	No IP rating
Overheating Protection	No protection
Luminaire Class	UL Class 2 / Class II or Class III

### 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  $\geq 90\%$ , at 25°C ambient temperature.

Case Temperature Tc [°C]	Amount of Cycles
35	40,000
40	40,000
45	40,000
50	26,000
55	26,000
60	25,000
65	25,000
70	24,000
75	21,000
80	13,000
85	8,000
90	4,000

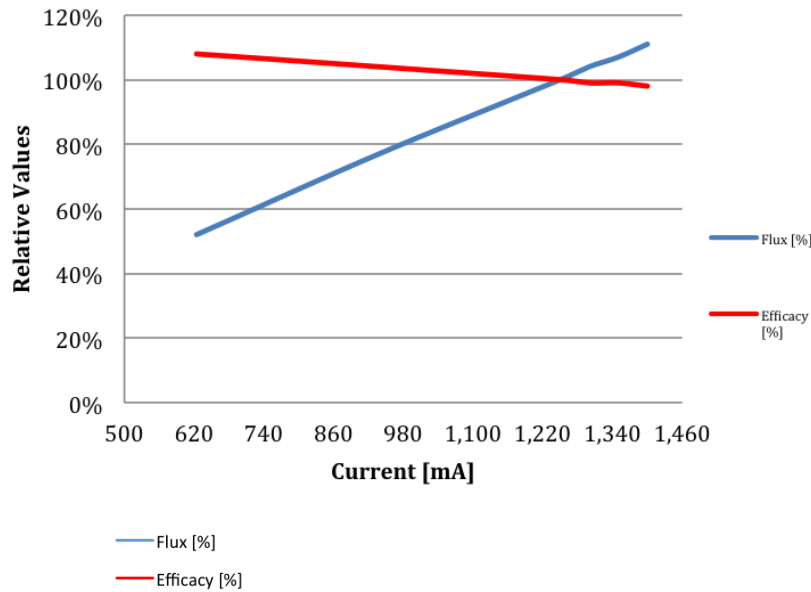
Footnotes on page 10.



# Fortimo LED Line High Flux 2ft 6000lm 2R L1

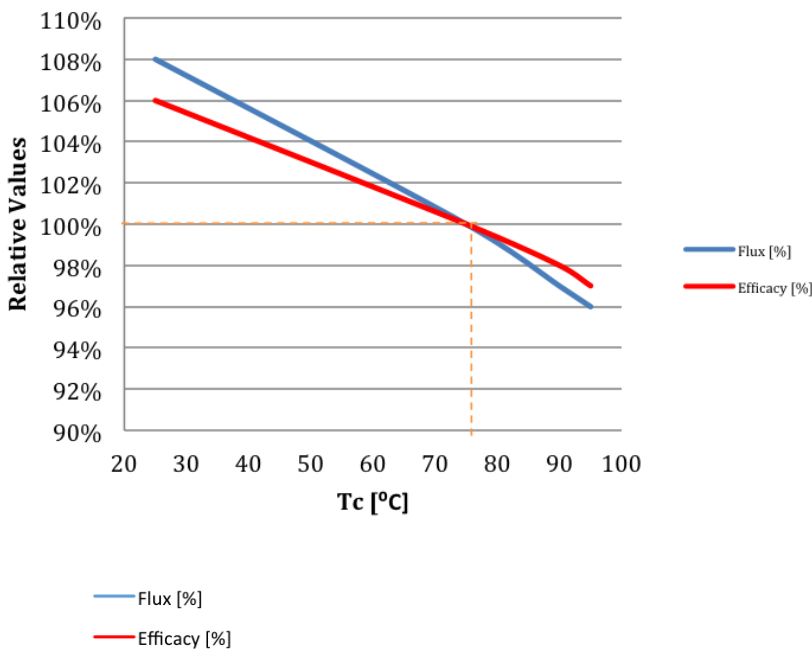
## Tuning Information

### Flux and Efficacy Vs. Current



I [A]	Flux [%]	Efficacy [%]
625	52%	108%
938	77%	104%
<b>1,250</b>	<b>100%</b>	<b>100%</b>
1,300	104%	99%
1,350	107%	99%
<b>1,400</b>	<b>111%</b>	<b>98%</b>

### Flux and Efficacy Vs. Temperature at Tc



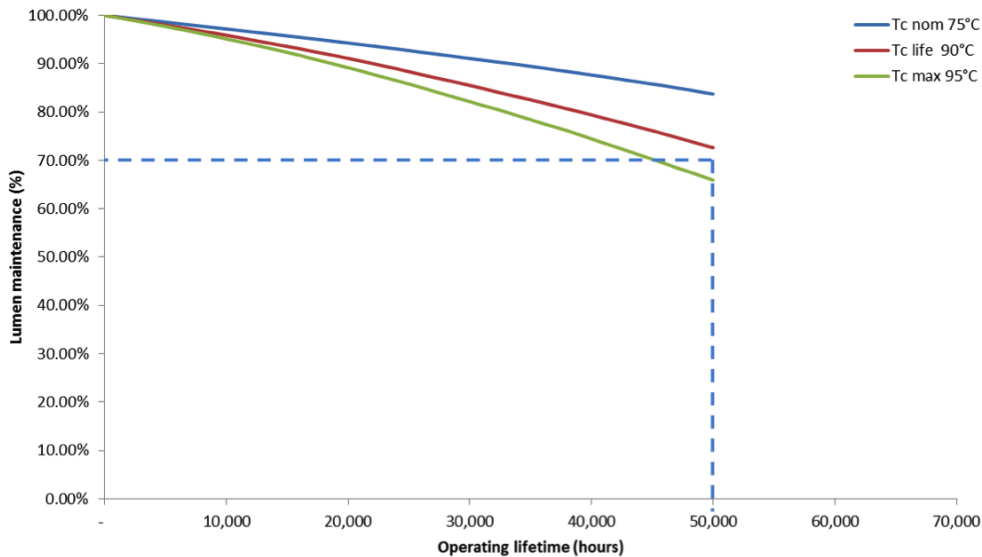
Tc [°C]	Flux [%]	Efficacy [%]
90	97%	98%
<b>75</b>	<b>100%</b>	<b>100%</b>
25	108%	106%

# Fortimo LED Line High Flux 2ft 6000lm 2R LV1

## Lumen Maintenance

### Lumen Maintenance: at I Life and Tc Life Conditions

Fortimo LED Line 2ft 6000lm 2R LV1



Lumen depreciation as a function of operating hours for I-life and Tc-life.  
54,000 hours proven by certified laboratory.

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. Meets Zhaga dimensions and screw hole pattern - not certified.
3. View limited warranty at <http://www.usa.lighting.philips.com/support/support/warranty> for details and restrictions.

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