

# PHILIPS

## LED Modules

### Fortimo SLM

#### Fortimo LED SLM Gen 4 4500lm L19



The Fortimo LED SLM Gen 4 is a next generation solution for spotlight and downlight applications. It is a product in line with the Fortimo brand promise of light quality and a smart system. We provide you with a system proposition ranging from 1100lm to 4500lm in preset outputs, with the flexibility to tune as per your needs.

This module is available in the following options. It is possible to combine these with any of the drivers as described in the design-in guide available at [www.philips.com/ledmodulesna](http://www.philips.com/ledmodulesna). A list of possible Rsets is provided below to set the output current of Philips Xitanium LED driver at different levels. More information about tuning can be found further on in the document.

Commercial Product Name	12NC
Fortimo LED SLM 4500lm 830 L19 G4	9290 009 02806
Fortimo LED SLM 4500lm 835 L19 G4	9290 009 50106
Fortimo LED SLM 4500lm 840 L19 G4	9290 009 02906

#### Associated Rsets

Commercial Product Name	12NC	Value ( $\Omega$ )	Type
Fortimo LED Rset 300mA	929000727713	560	Poke-in
Fortimo LED Rset 500mA	929000727813	1200	Poke-in
Fortimo LED Rset 750mA	929000727913	2050	Poke-in
Fortimo LED Rset 950mA	929000728013	3090	Poke-in
Fortimo LED Rset 1200mA	929000728113	4780	Poke-in

#### Associated Drivers

Driver List	Dimming Mechanism	Current Setting Mechanism
XI050C100V054DNMX	0-10V dimming	Rset2
XI050C100V054XPL1	Trailing Edge and 0-10V dimming @ 120V only	Rset1, Rset2 or programmable
XI095C275V054DNF5	0-10V dimming	Rset3

# Fortimo LED SLM Gen 4 4500lm L19

## Features

- Ability to operate your module at a desired current to get a certain lumen output with a high lm/W or lm/S
- High lumen output out of small Light Emitting Surface (LES) sizes for narrow beam angles and small reflector designs with punch
- High Tc nominal of 85°C
- Zhaga standardized high quality holder concept
- High quality of light

- Dedicated solutions for special needs including the SLM Crisp White

- One-stop shop for your system (detailed list of complementary partners in design-in guide)

## Benefits

- High energy efficiency
- Flexibility to tune the performance as per your need by modifying the operating point
- Luminaire manufacturability and ease of design-in
- Excellent thermal management
- Smart systems with Xitanium drivers
- Covered by Philips limited warranty<sup>1</sup>

## Application

- SLM Gen 4 for accent lighting and down lighting for retail, hospitality and supermarkets
- SLM Crisp White is ideal when bright and clean whites and rich and saturated colors are needed

## Optical Characteristics – Table per CCT

### Fortimo LED SLM 4500lm L19 830

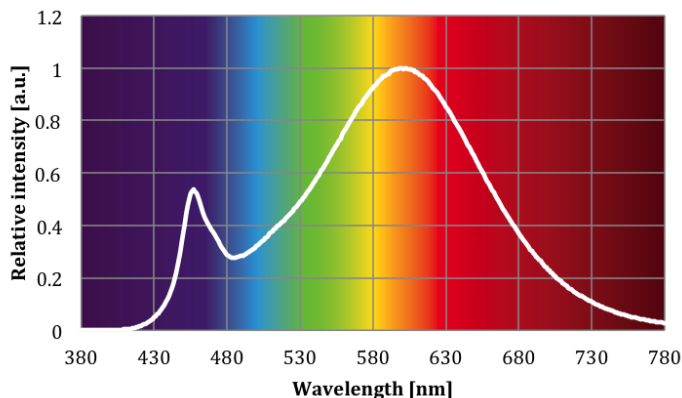
Parameter	Min	Typ	Max	Unit
Luminous Flux	4370	4860	5350	lm
Module Efficiency		115		lm/W
Correlated Color Temperature		3000		K
Color Coordinates		(0.434, 0.403)		-
Color Consistency		3		SDCM
CRI		>80		-
Radiation Angle		115		deg
Thermal Power		29.4		W

Note: Specifications stated at Tc nom = 85°C and I nom = 1200 mA

Parameter	Min	Typ	Max	Unit
Luminous Flux	3730	4150	4570	lm
Module Efficiency		120		lm/W
Thermal Power		23.3		W

Note: Specifications stated at Tc nom = 85°C and I = 1000 mA

Ri	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
82	80	92	95	76	79	89	83	60	12	81	72	68	83	98	74



1. View limited warranty at [http://www.usa.lighting.philips.com/connect/tools\\_literature/warranties.wpd](http://www.usa.lighting.philips.com/connect/tools_literature/warranties.wpd) for details and restrictions.

# Fortimo LED SLM Gen 4 4500lm L19

## Optical Characteristics – Table per CCT

### Fortimo LED SLM 4500lm L19 835

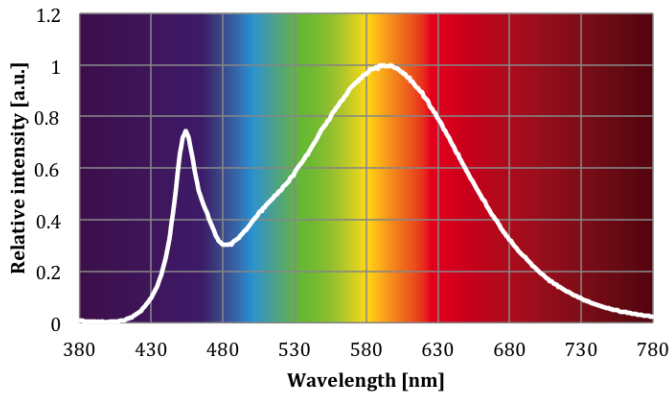
Parameter	Min	Typ	Max	Unit
Luminous Flux	4550	5060	5570	lm
Module Efficiency		119		lm/W
Correlated Color Temperature		3500		K
Color Coordinates		(0.407, 0.392)		-
Color Consistency		3		SDCM
CRI		>80		-
Radiation Angle		115		deg
Thermal Power		29		W

Note: Specifications stated at Tc nom = 85°C and I nom = 1200 mA

Parameter	Min	Typ	Max	Unit
Luminous Flux	3880	4320	4760	lm
Module Efficiency		125		lm/W
Thermal Power		22.9		W

Note: Specifications stated at Tc nom = 85°C and I = 1000 mA

Ri	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
81	78	89	96	76	78	85	84	61	7	75	73	62	81	98	73



# Fortimo LED SLM Gen 4 4500lm L19

## Optical Characteristics – Table per CCT

### Fortimo LED SLM 4500lm L19 840

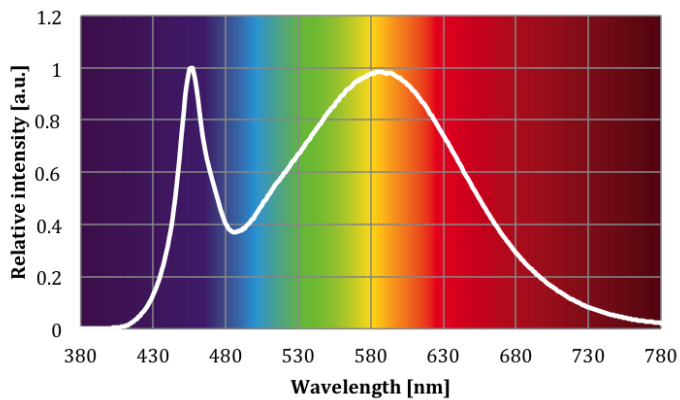
Parameter	Min	Typ	Max	Unit
Luminous Flux	4640	5160	5680	lm
Module Efficiency		122		lm/W
Correlated Color Temperature		4000		K
Color Coordinates		(0.382, 0.380)		-
Color Consistency		3		SDCM
CRI		>80		-
Radiation Angle		115		deg
Thermal Power		28.7		W

Note: Specifications stated at Tc nom = 85°C and I nom = 1200 mA

Parameter	Min	Typ	Max	Unit
Luminous Flux	3960	4400	4840	lm
Module Efficiency		127		lm/W
Thermal Power		22.7		W

Note: Specifications stated at Tc nom = 85°C and I = 1000 mA

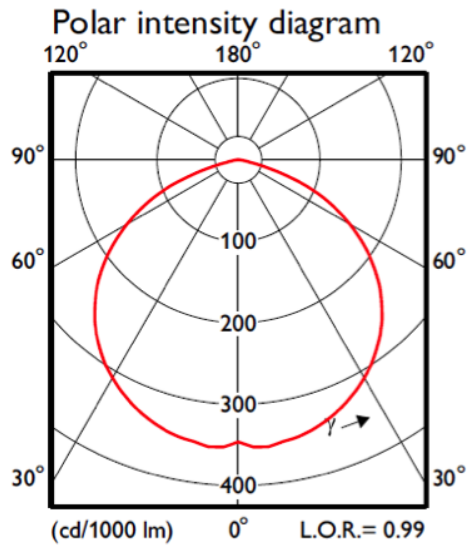
Ri	R1	R2	R3	R4	R5	R6	R7	R8	R9	R10	R11	R12	R13	R14	R15
81	79	90	96	76	78	84	85	63	7	74	72	58	82	98	73



# Fortimo LED SLM Gen 4 4500lm L19

## Beam Shape

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



## Electrical Characteristics

Parameter	Typ	Unit
Nominal Current	1200	mA
Forward Voltage	35.3	V
Power Consumption	42.4	W

Note: Specifications stated at Tc nom = 85°C and I nom = 1200 mA

Parameter	Typ	Unit
Nominal Current	1000	mA
Forward Voltage	34.6	V
Power Consumption	34.6	W

Note: Specifications stated at Tc nom = 85°C and I = 1000 mA

## Lifetime

Parameter	Min	Typ	Max	Unit
Lumen mMaintenance B50L70	50,000			hrs
$\Delta u'v'$ at 6000 Hours			0.0013	-
Critical Failures (10%)	50,000			hrs

Note: Specifications stated at Tc nom = 85°C and I nom = 1200 mA

Parameter	Nominal <sup>2</sup>	Max <sup>3</sup>
Tc (°C)	85	95
Current (mA)	1200	2000

Note: Tc life  $\leq$  85 °C (measured at 25 °C ambient temperature)

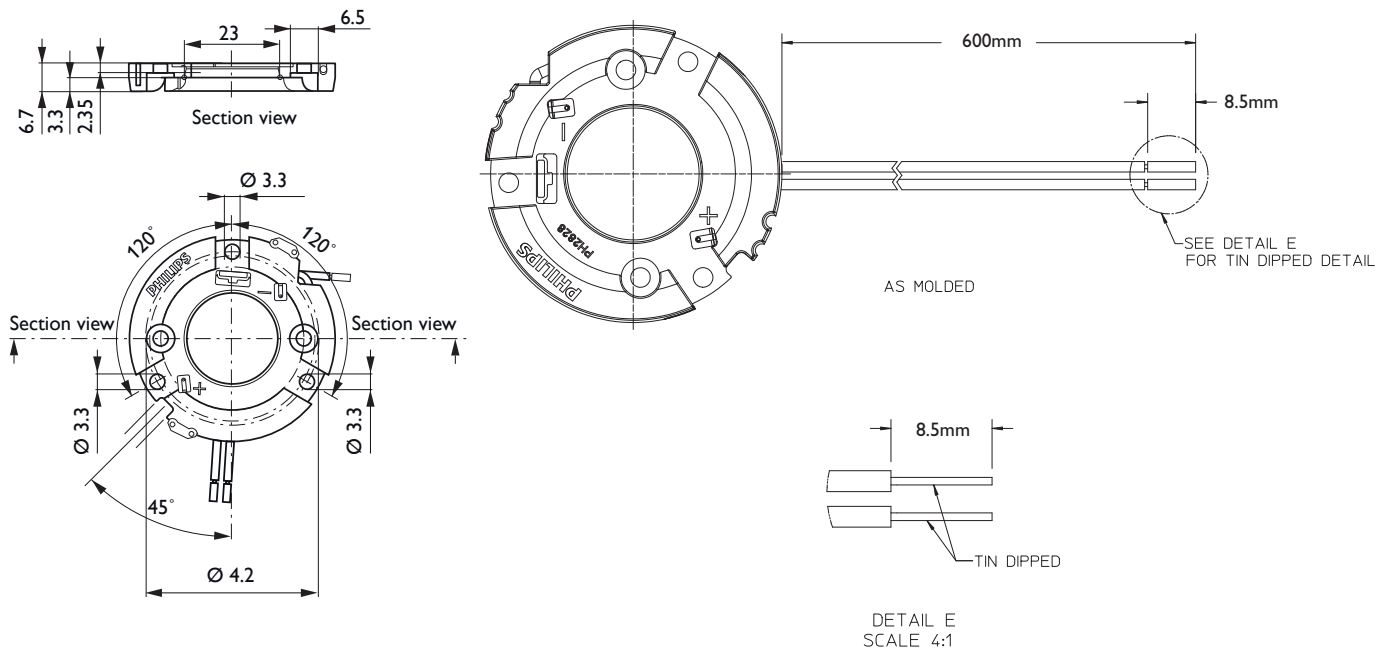
- Nominal value at which performance is specified.
- Maximum value for safety (at this temperature, warranty need not apply).

# Fortimo LED SLM Gen 4 4500lm L19

## Abs Max Ratings

Parameter	Min	Typ	Max	Unit
Current I <sub>max</sub>			2000	mA
Case Temperature T <sub>c</sub> Max			95	°C
ESD Human Body Model (HBM) Class 3A JESD22-A114-E			8	kV
ESD Machine Model (MM) Class B JESD22-A115-B			400	kV
Operating Ambient Temperature	-20		40	°C
Storage Temperature	-40		80	°C

## Mechanical Characteristics



# Fortimo LED SLM Gen 4 4500lm L19

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## Application Information

### Compliance and Approval

CSA/UL

### Environmental

RoHS

### Application Information

Zhaga*	4500lm L19 830	4500lm L19 835	4500lm L19 840
LES Diameter [mm]	19	19	19
Rotational Symmetry S	0.9	0.9	0.9
Uniformity Parameter U	100%	100%	100%
Correlated Color Temperature [K]	3000	3500	4000
Color Rendering Index	>80	>80	>80

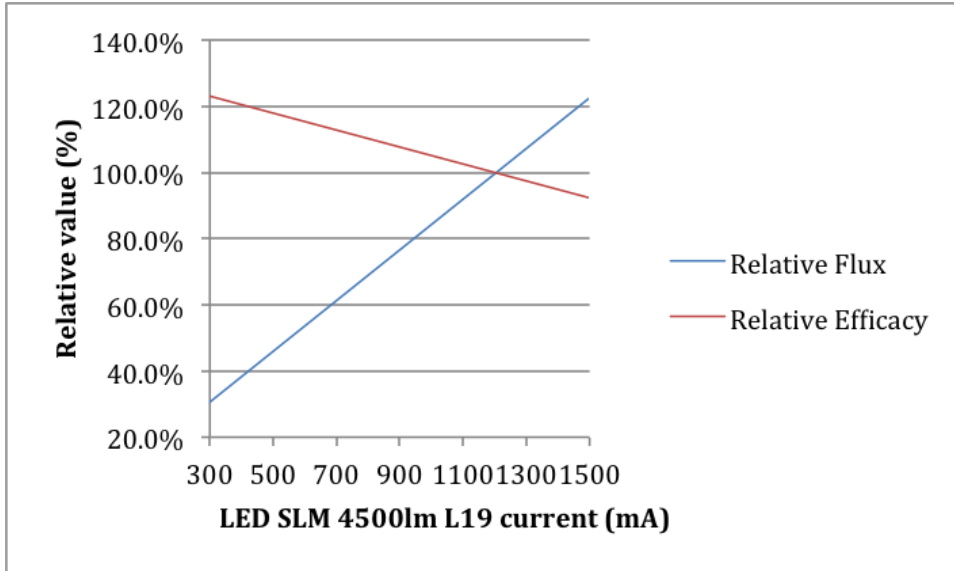
\* Measurements showing compliancy to Zhaga book 3 version 1.2 have been done on the 3000lm L15 module.

IP Rating	No IP rating
Overheating Protection	No protection

# Fortimo LED SLM Gen 4 4500lm L19

## Tuning Information

### Flux and Efficacy Versus Current (at Nominal Temperature) 4500lm L19



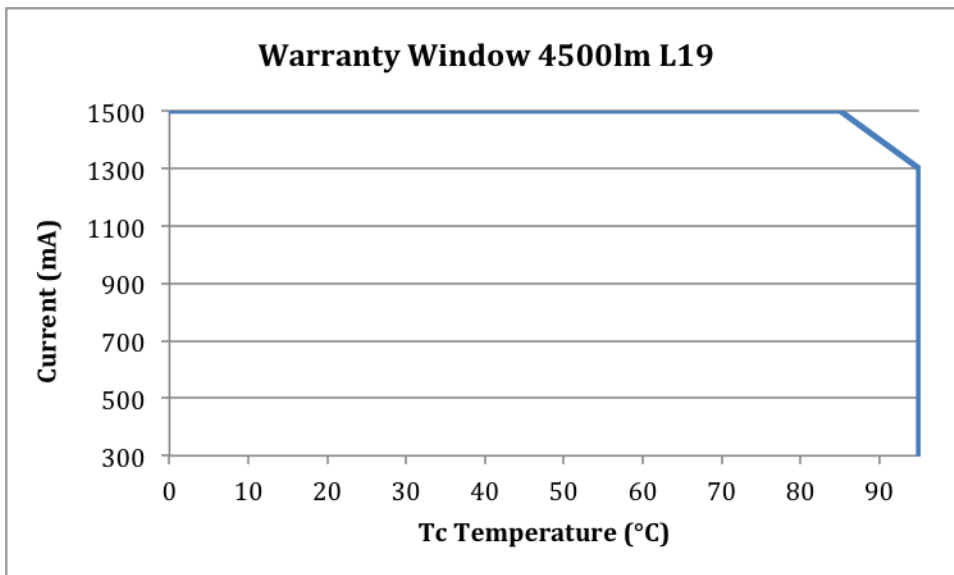
I [A]	Rel flux	Rel effic
<b>300</b>	<b>27.8%</b>	<b>124.3%</b>
<b>500</b>	<b>45.9%</b>	<b>118.3%</b>
669	59.7%	113.0%
<b>750</b>	<b>66.1%</b>	<b>111.3%</b>
853	74.2%	108.7%
916	79.2%	107.0%
<b>950</b>	<b>79.5%</b>	<b>106.1%</b>
968	82.4%	105.2%
1009	86.0%	104.3%
<b>1200</b>	<b>100.0%</b>	<b>100.0%</b>
1231	102.1%	99.1%
1335	109.5%	96.5%
1403	114.3%	95.7%
1500	120.8%	93.0%

The highlighted current values are available as Rsets as a part of the system.

### Flux and Efficacy Versus Temperature at Tc (at Nominal Current) 4500lm L19

Tc (°C)	Flux (lm)	Efficacy (lm/W)
65	104.1%	102.5%
75	102.1%	101.6%
85	100.0%	100.0%

Please ensure that while tuning the product's operating point, it stays within limits of temperature (Tc) and current (I) that are covered within the warranty window.

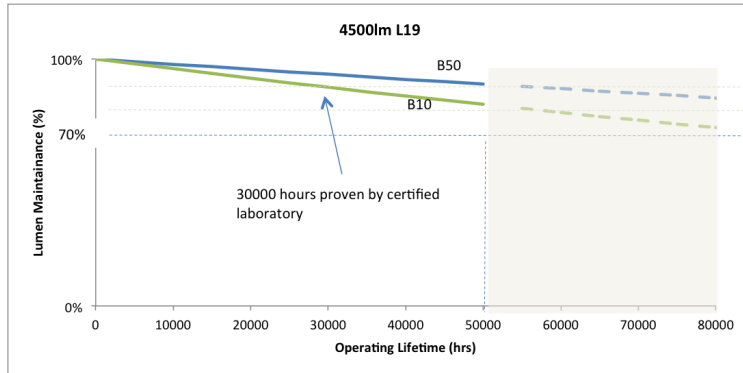




# Fortimo LED SLM Gen 4 4500lm L19

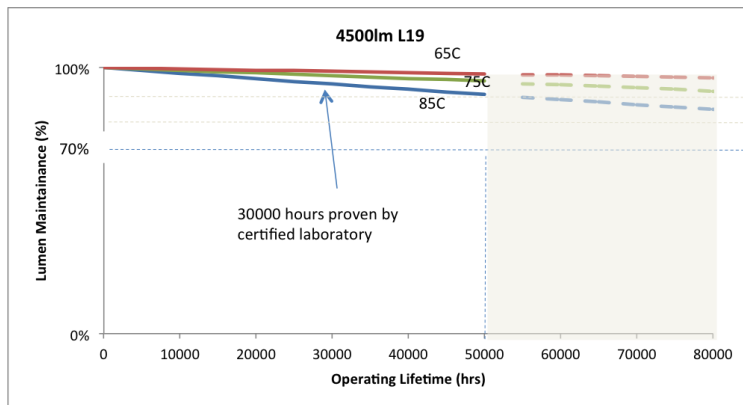
## Lumen Maintenance

### Fortimo LED SLM 4500lm L19



## Lumen Maintenance (B50)

### Fortimo LED SLM 4500lm L19



Measurements showing compliancy to Zhaga book 3 version 1.2 have been done on the 4500lm L19 module.

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