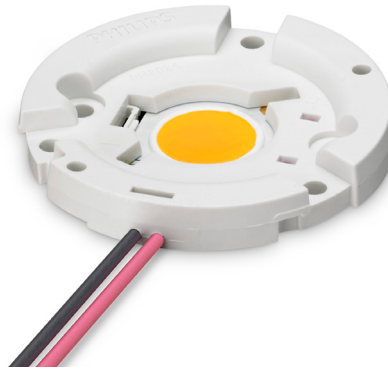


# PHILIPS

## LED Modules

### Fortimo SLM

Fortimo LED SLM Gen 4  
3000lm L15



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 3000lm 827 L15 G4 | 9290 009 49906 |
| Fortimo LED SLM 3000lm 830 L15 G4 | 9290 009 02306 |
| Fortimo LED SLM 3000lm 835 L15 G4 | 9290 009 50006 |
| Fortimo LED SLM 3000lm 840 L15 G4 | 9290 009 02406 |

#### 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    |
|-------------------|---------------------------------------------|------------------------------|
| XI036C100V048DNMX | 0-10V dimming                               | Rset2                        |
| 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 3000lm L15

## 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 3000lm L15 827

| Parameter                    | Min  | Typ            | Max  | Unit |
|------------------------------|------|----------------|------|------|
| Luminous Flux                | 2480 | 2760           | 3040 | lm   |
| Module Efficiency            |      | 106            |      | lm/W |
| Correlated Color Temperature |      | 2700           |      | K    |
| Color Coordinates            |      | (0.458, 0.410) |      | -    |
| Color Consistency            |      | 3              |      | SDCM |
| CRI                          |      | >80            |      | -    |
| Radiation Angle              |      | 115            |      | deg  |
| Thermal Power                |      | 18.3           |      | W    |

Note: Specifications stated at Tc nom = 85°C and I nom = 750 mA

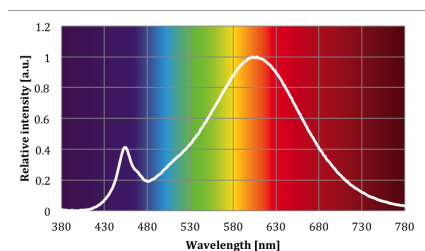
| Parameter         | Min  | Typ  | Max  | Unit |
|-------------------|------|------|------|------|
| Luminous Flux     | 3180 | 3540 | 3900 | lm   |
| Module Efficiency |      | 99   |      | lm/W |
| Thermal Power     |      | 26.2 |      | W    |

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

| Parameter         | Min  | Typ  | Max  | Unit |
|-------------------|------|------|------|------|
| Luminous Flux     | 3690 | 4110 | 4530 | lm   |
| Module Efficiency |      | 93   |      | lm/W |
| Thermal Power     |      | 33.2 |      | W    |

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

| Ri | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| 82 | 80 | 91 | 96 | 77 | 79 | 88 | 83 | 60 | 14 | 79  | 74  | 72  | 82  | 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 3000lm L15

## Optical Characteristics – Table per CCT

### Fortimo LED SLM 3000lm L15 830

| Parameter                    | Min  | Typ            | Max  | Unit |
|------------------------------|------|----------------|------|------|
| Luminous Flux                | 2670 | 2970           | 3270 | lm   |
| Module Efficiency            |      | 114            |      | 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                |      | 17.9           |      | W    |

Note: Specifications stated at Tc nom = 85°C and I nom = 750 mA

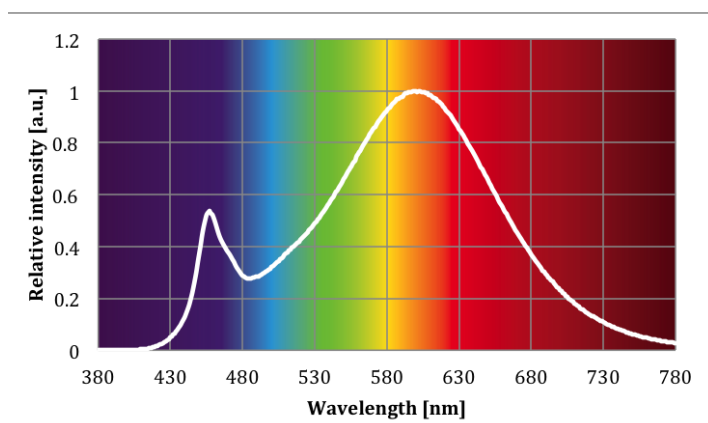
| Parameter         | Min  | Typ  | Max  | Unit |
|-------------------|------|------|------|------|
| Luminous Flux     | 3420 | 3800 | 4180 | lm   |
| Module Efficiency |      | 106  |      | lm/W |
| Thermal Power     |      | 25.7 |      | W    |

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

| Parameter         | Min  | Typ  | Max  | Unit |
|-------------------|------|------|------|------|
| Luminous Flux     | 3970 | 4420 | 4870 | lm   |
| Module Efficiency |      | 100  |      | lm/W |
| Thermal Power     |      | 32.6 |      | W    |

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



# Fortimo LED SLM Gen 4 3000lm L15

## Optical Characteristics – Table per CCT

### Fortimo LED SLM 3000lm L15 835

| Parameter                    | Min  | Typ            | Max  | Unit |
|------------------------------|------|----------------|------|------|
| Luminous Flux                | 2780 | 3090           | 3400 | 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                |      | 17.6           |      | W    |

Note: Specifications stated at Tc nom = 85°C and I nom = 750 mA

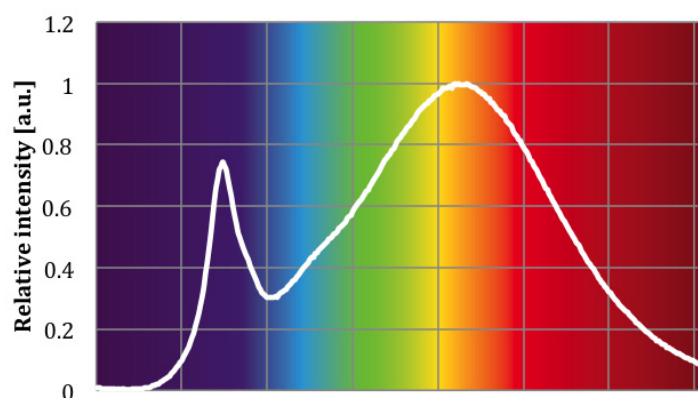
| Parameter         | Min  | Typ  | Max  | Unit |
|-------------------|------|------|------|------|
| Luminous Flux     | 3560 | 3960 | 4360 | lm   |
| Module Efficiency |      | 110  |      | lm/W |
| Thermal Power     |      | 25.3 |      | W    |

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

| Parameter         | Min  | Typ  | Max  | Unit |
|-------------------|------|------|------|------|
| Luminous Flux     | 4140 | 4600 | 5060 | lm   |
| Module Efficiency |      | 104  |      | lm/W |
| Thermal Power     |      | 32.1 |      | W    |

Note: Specifications stated at Tc nom = 85°C and I = 1200 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 3000lm L15

## Optical Characteristics – Table per CCT

### Fortimo LED SLM 3000lm L15 840

| Parameter                    | Min  | Typ            | Max  | Unit |
|------------------------------|------|----------------|------|------|
| Luminous Flux                | 2850 | 3170           | 3490 | 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                |      | 17.3           |      | W    |

Note: Specifications stated at Tc nom = 85°C and I nom = 750 mA

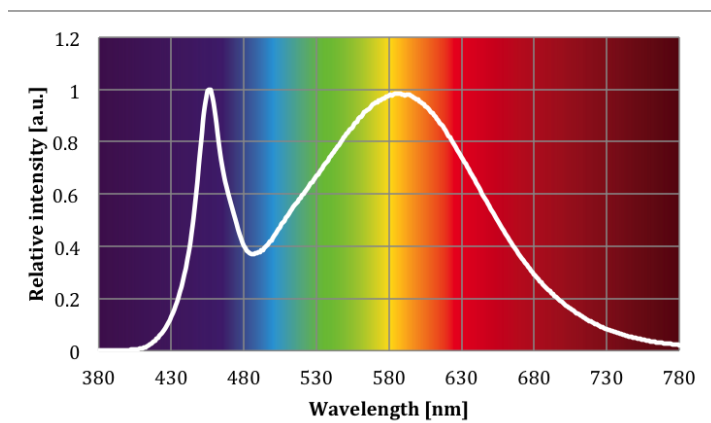
| Parameter         | Min  | Typ  | Max  | Unit |
|-------------------|------|------|------|------|
| Luminous Flux     | 3650 | 4060 | 4470 | lm   |
| Module Efficiency |      | 113  |      | lm/W |
| Thermal Power     |      | 25   |      | W    |

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

| Parameter         | Min  | Typ  | Max  | Unit |
|-------------------|------|------|------|------|
| Luminous Flux     | 4240 | 4720 | 5200 | lm   |
| Module Efficiency |      | 107  |      | lm/W |
| Thermal Power     |      | 31.7 |      | W    |

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

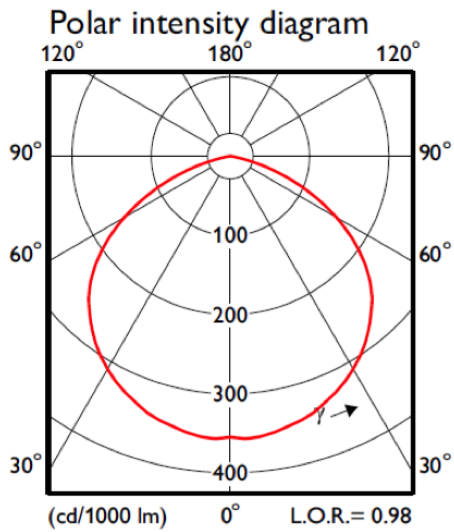
| Ri | R1 | R2 | R3 | R4 | R5 | R6 | R7 | R8 | R9 | R10 | R11 | R12 | R13 | R14 | R15 |
|----|----|----|----|----|----|----|----|----|----|-----|-----|-----|-----|-----|-----|
| 81 | 79 | 90 | 96 | 76 | 78 | 84 | 85 | 63 | 7  | 74  | 72  | 58  | 82  | 98  | 73  |



# Fortimo LED SLM Gen 4 3000lm L15

## 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   | 750  | mA   |
| Forward Voltage   | 34.7 | V    |
| Power Consumption | 26   | W    |

Note: Specifications stated at Tc nom = 85°C and I nom = 750 mA

| Parameter         | Typ  | Unit |
|-------------------|------|------|
| Nominal Current   | 1000 | mA   |
| Forward Voltage   | 35.8 | V    |
| Power Consumption | 35.8 | W    |

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

| Parameter         | Typ  | Unit |
|-------------------|------|------|
| Nominal Current   | 1200 | mA   |
| Forward Voltage   | 36.7 | V    |
| Power Consumption | 44.1 | W    |

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

# Fortimo LED SLM Gen 4 3000lm L15

## Lifetime

| Parameter                   | Min    | Typ | Max    | Unit |
|-----------------------------|--------|-----|--------|------|
| Lumen Maintenance B50L70    | 50,000 |     |        | hrs  |
| $\Delta u/v'$ at 6000 Hours |        |     | 0.0011 | -    |
| Critical Failures (10%)     | 50,000 |     |        | hrs  |

Note: Specifications stated at  $T_c \text{ nom} = 85^\circ\text{C}$  and  $I \text{ nom} = 750 \text{ mA}$

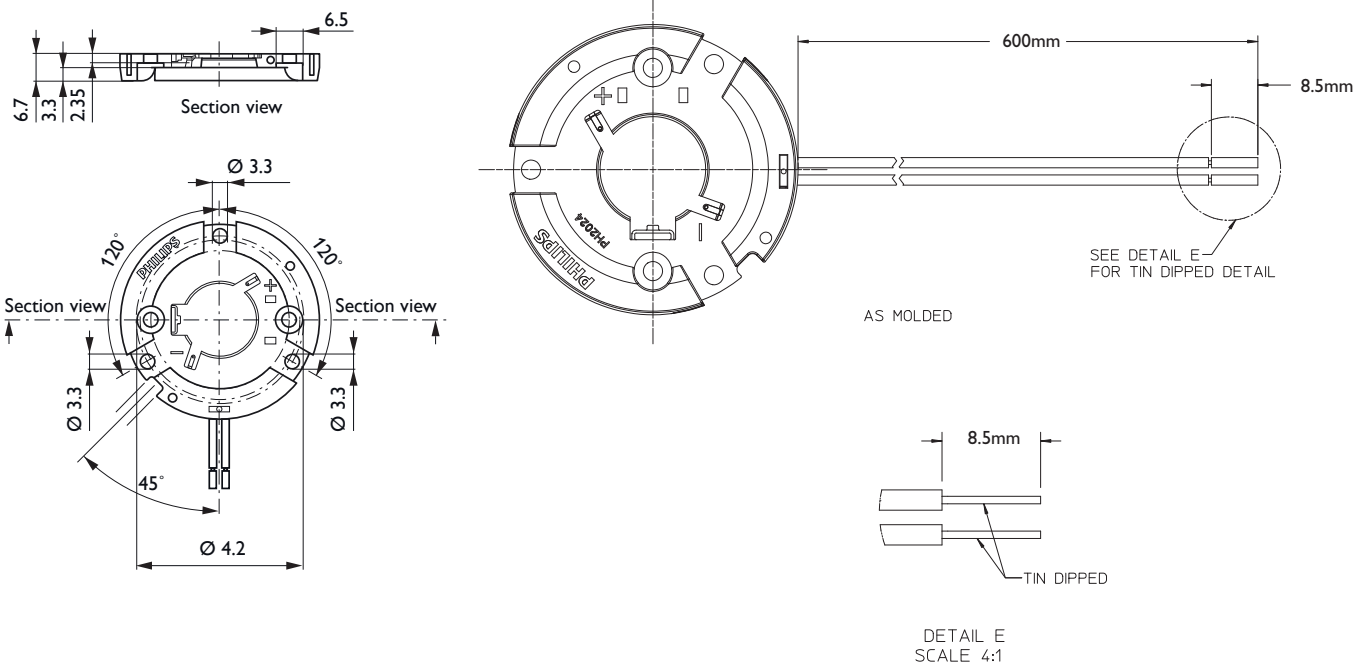
| Parameter                  | Nominal <sup>2</sup> | Max <sup>3</sup> |
|----------------------------|----------------------|------------------|
| $T_c$ ( $^\circ\text{C}$ ) | 85                   | 95               |
| Current (mA)               | 750                  | 1580             |

Note:  $T_c \text{ life} \leq 85^\circ\text{C}$  (measured at  $25^\circ\text{C}$  ambient temperature)

## Abs Max Ratings

| Parameter                                         | Min | Typ | Max  | Unit             |
|---------------------------------------------------|-----|-----|------|------------------|
| Current $I_{\text{max}}$                          |     |     | 1580 | mA               |
| Case Temperature $T_c \text{ Max}$                |     |     | 95   | $^\circ\text{C}$ |
| 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   | $^\circ\text{C}$ |
| Storage Temperature                               | -40 |     | 80   | $^\circ\text{C}$ |

## Mechanical Characteristics



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

# Fortimo LED SLM Gen 4 3000lm L15

## Application Information

### Compliance and Approval

CSA/UL

### Environmental

RoHS

### Application Information

| Zhaga*                           | 3000lm L15 827 | 3000lm L15 830 | 3000lm L15 835 | 3000lm L15 840 |
|----------------------------------|----------------|----------------|----------------|----------------|
| LES Diameter [mm]                | 15             | 15             | 15             | 15             |
| Rotational Symmetry S            | 0.9            | 0.9            | 0.9            | 0.9            |
| Uniformity Parameter U           | 100%           | 100%           | 100%           | 100%           |
| Correlated Color temperature [K] | 2700           | 3000           | 3500           | 4000           |
| Color Rendering Index            | >80            | >80            | >80            | >80            |

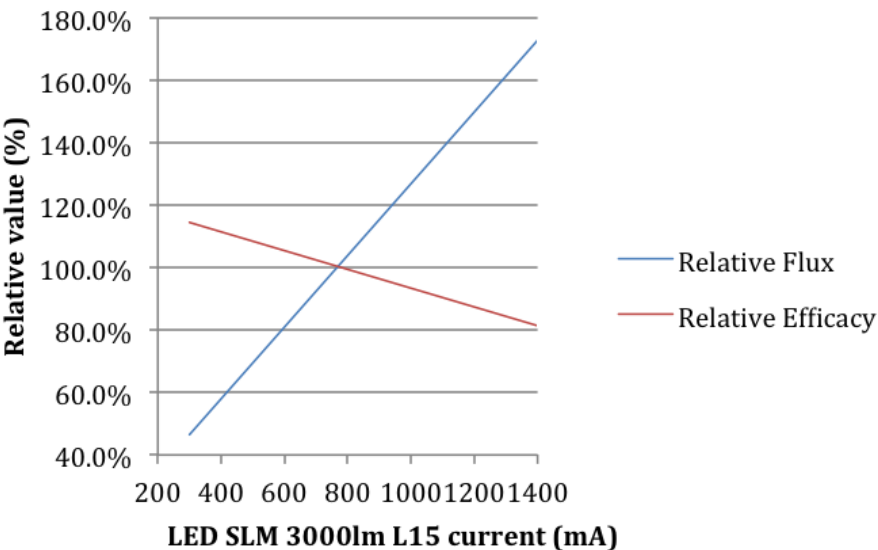
\* Measurements showing compliancy to Zhaga book 3 version 1.2 have been done on the 3000lm L15 module.

|                        |               |
|------------------------|---------------|
| IP Rating              | No IP rating  |
| Overheating Protection | No protection |

# Fortimo LED SLM Gen 4 3000lm L15

## Tuning Information

### Flux and Efficacy Versus Current (at Nominal Temperature) 3000lm L15



| I [A] | Rel flux | Rel effic |
|-------|----------|-----------|
| 300   | 43.1%    | 115.8%    |
| 387   | 55.1%    | 112.3%    |
| 436   | 61.3%    | 111.4%    |
| 485   | 67.8%    | 108.8%    |
| 500   | 70.0%    | 108.8%    |
| 536   | 74.3%    | 107.0%    |
| 669   | 90.3%    | 102.6%    |
| 750   | 100.0%   | 100.0%    |
| 853   | 111.9%   | 97.4%     |
| 916   | 118.6%   | 95.6%     |
| 950   | 122.5%   | 93.9%     |
| 968   | 123.5%   | 93.9%     |
| 1009  | 129.1%   | 93.0%     |
| 1200  | 148.6%   | 87.7%     |
| 1400  | 169.3%   | 83.3%     |

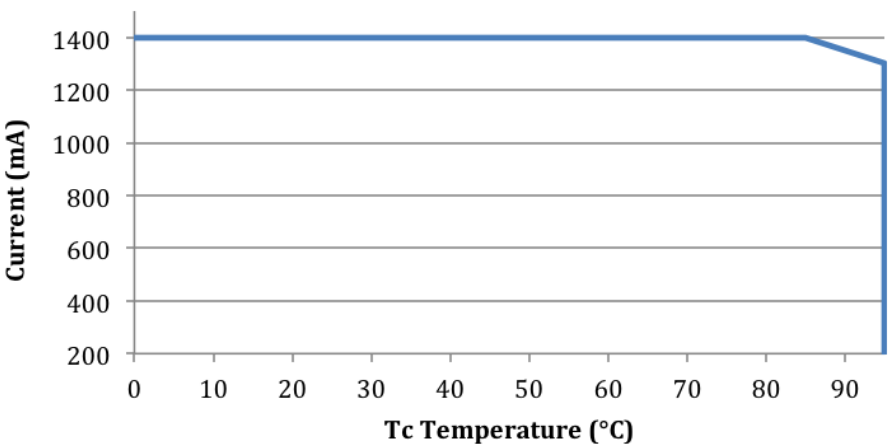
The highlighted current values are available as Rsets as a part of the system.

### Flux and Efficacy Versus Temperature at Tc (at Nominal Current) 3000lm L15

| Tc (°C) | Flux (lm) | Efficacy (lm/W) |
|---------|-----------|-----------------|
| 65      | 104.1%    | 103.5%          |
| 75      | 102.1%    | 101.7%          |
| 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.

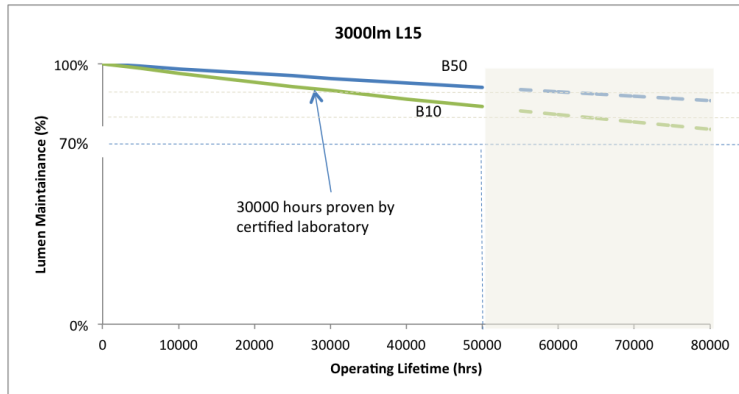
### Warranty Window 3000lm L15



# Fortimo LED SLM Gen 4 3000lm L15

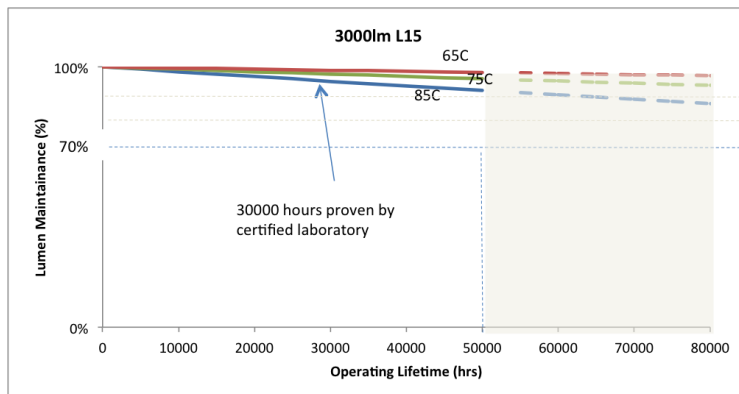
## Lumen Maintenance

### Fortimo LED SLM 3000lm L15



## Lumen Maintenance (B50)

### Fortimo LED SLM 3000lm L15



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

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