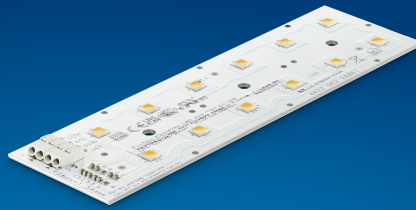


# PHILIPS

## Fortimo

### LED

Fortimo FastFlex LED 2x6  
DA UHE



Datasheet

# Ultra-High Efficiency with Zhaga standards

## Fortimo FastFlex 2x6 DA UHE

Experience increased efficiency levels of  $\geq 200\text{lm/W}$  – all within Zhaga standards

Application:

- Road lighting
- Urban and residential street lighting
- Parks and recreation area lighting
- Flood and area lighting
- Tunnel lighting
- High bay lighting

### Key features and benefits

- Ultra-High Efficiency on LED module level in Zhaga standards
- Extensive reliability testing for OEM peace of mind
- Mechanically backwards compatible with DA Gen 4+/Gen 5 and DA HE
- Patented module surge protection
- Philips system warranty

December 2023



## Ordering data

| Commercial product name             | EOC               | 12NC           | Box quantity |
|-------------------------------------|-------------------|----------------|--------------|
| Fortimo FastFlex LED 2x6/730 DA UHE | 8720169 284708 00 | 9290 039 68006 | 25           |
| Fortimo FastFlex LED 2x6/740 DA UHE | 8720169 284722 00 | 9290 039 68106 | 25           |

## Drive currents

| Parameter                       | Nominal* | Life** | Max*** | Unit |
|---------------------------------|----------|--------|--------|------|
| Fortimo FastFlex LED 2x6 DA UHE | 450      | 1050   | 1500   | mA   |

## Module temperatures

| Parameter                                                 | Nominal* | Life** | Max*** | Unit |
|-----------------------------------------------------------|----------|--------|--------|------|
| T <sub>c</sub> (case temperature at T <sub>c</sub> point) | 65       | 85     | 85     | °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

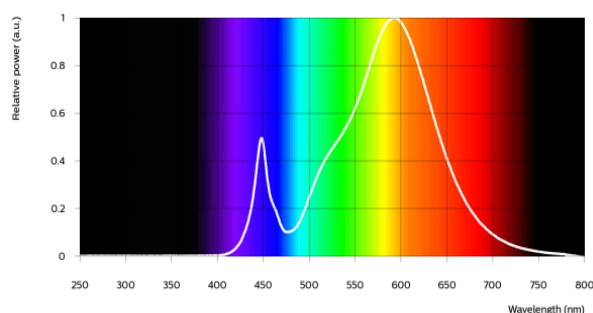
## Optical characteristics - table per color (CCT)

### Fortimo FastFlex LED 2x6/730 DA UHE

| Parameter                          | Min  | Typ            | Max           | Unit |
|------------------------------------|------|----------------|---------------|------|
| Luminous flux                      | 2700 | 3000           | 3300          | lm   |
| Efficacy                           | 180  | 200            | 220           | lm/W |
| Correlated color temperature (CCT) |      | 3000           |               | K    |
| Color coordinates (CIEx, CIEy)     |      | (0.435, 0.419) |               | -    |
| Color consistency                  |      |                | 5             | SDCM |
| CRI                                | 70   |                |               |      |
| R9                                 | -50  |                |               |      |
| Photobiological safety             |      |                | RG1 unlimited |      |

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  $\pm 1.5$ .

| Operation point | 730          | lm   | lm/W |
|-----------------|--------------|------|------|
| 80% I-nom 360mA | Tc 25 °C     | 2529 | 211  |
|                 | Tc-nom 65 °C | 2422 | 205  |
|                 | Tc-max 85 °C | 2355 | 201  |
| I-nom 450mA     | Tc 25 °C     | 3134 | 206  |
|                 | Tc-nom 65 °C | 3000 | 200  |
|                 | Tc-max 85 °C | 2917 | 196  |
| I-max 1500mA    | Tc 25 °C     | 9655 | 169  |
|                 | Tc-nom 65 °C | 9180 | 163  |
|                 | Tc-max 85 °C | 8884 | 158  |

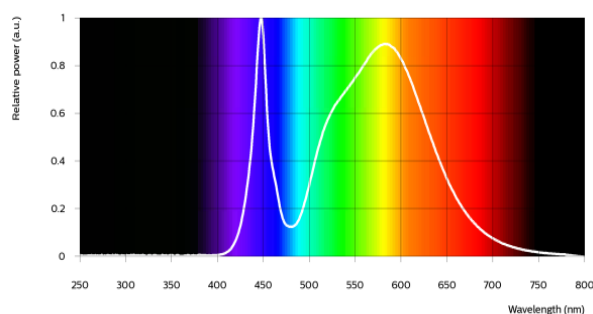


### Fortimo FastFlex LED 2x6/740 DA UHE

| Parameter                          | Min  | Typ            | Max           | Unit |
|------------------------------------|------|----------------|---------------|------|
| Luminous flux                      | 2741 | 3045           | 3350          | lm   |
| Efficacy                           | 183  | 203            | 224           | lm/W |
| Correlated color temperature (CCT) |      | 4000           |               | K    |
| Color coordinates (CIEx, CIEy)     |      | (0.379, 0.391) |               | -    |
| Color consistency                  |      |                | 5             | SDCM |
| CRI                                | 70   |                |               |      |
| R9                                 | -50  |                |               |      |
| Photobiological safety             |      |                | RG1 unlimited |      |

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  $\pm 1.5$ .

| Operation point | 740          | lm   | lm/W |
|-----------------|--------------|------|------|
| 80% I-nom 360mA | Tc 25 °C     | 2567 | 214  |
|                 | Tc-nom 65 °C | 2458 | 208  |
|                 | Tc-max 85 °C | 2391 | 204  |
| I-nom 450mA     | Tc 25 °C     | 3181 | 209  |
|                 | Tc-nom 65 °C | 3045 | 203  |
|                 | Tc-max 85 °C | 2961 | 199  |
| I-max 1500mA    | Tc 25 °C     | 9802 | 171  |
|                 | Tc-nom 65 °C | 9321 | 165  |
|                 | Tc-max 85 °C | 9021 | 161  |



## Electrical characteristics

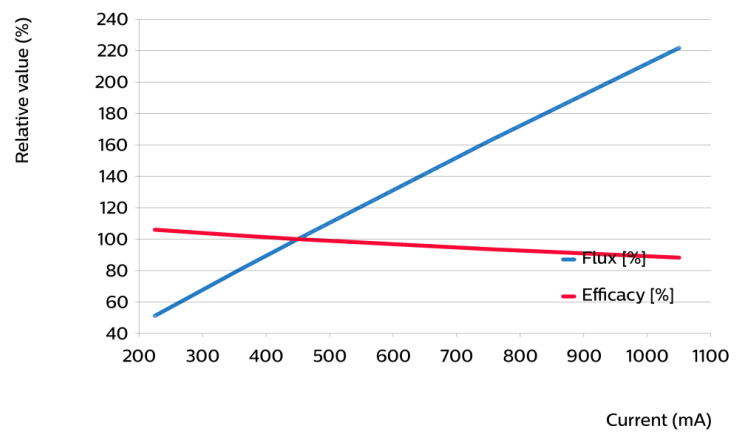
| Parameter                             | Min  | Typ  | Max  | Unit          |
|---------------------------------------|------|------|------|---------------|
| Forward voltage                       | 31.6 | 33.3 | 34.1 | V             |
| Power consumption                     | 14.2 | 15.0 | 15.4 | W = kWh/1000h |
| Number of modules in series per chain |      |      | 10   |               |
| Number of modules in parallel         |      |      | 1    |               |

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

## Tuning information

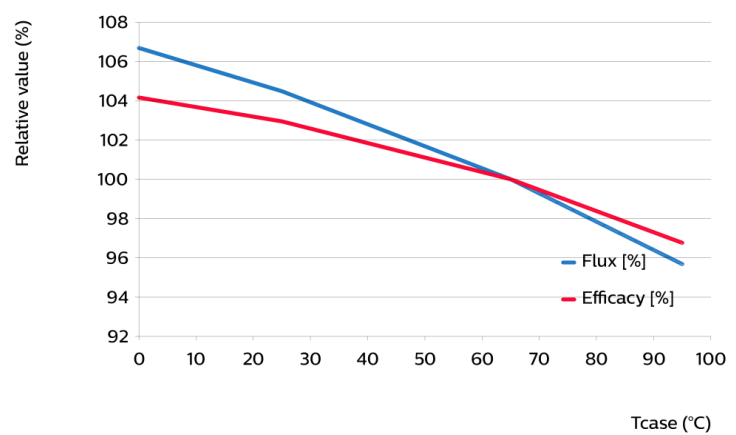
Flux and efficacy versus current (at Tc nominal)

| I [mA] | Flux [%] | Efficacy [%] |
|--------|----------|--------------|
| 1050   | 222      | 88           |
| 750    | 162      | 94           |
| 450    | 100      | 100          |
| 360    | 81       | 102          |
| 225    | 51       | 106          |



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

| Tc [°C] | Flux [%] | Efficacy [%] |
|---------|----------|--------------|
| 95      | 96       | 97           |
| 65      | 100      | 100          |
| 25      | 104      | 103          |
| 0       | 107      | 104          |



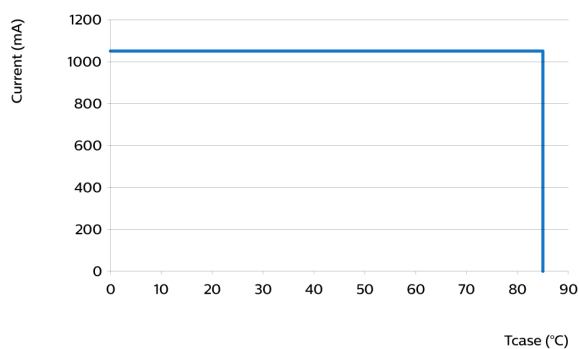
## Lumen maintenance

| Operation point | Lumen maintenance<br>x 1000 hours | L70  |      |      | L80  |      |      | L90  |      |      |
|-----------------|-----------------------------------|------|------|------|------|------|------|------|------|------|
|                 |                                   | B50  | B20  | B10  | B50  | B20  | B10  | B50  | B20  | B10  |
| 80% Inom=360mA  | Tc=25°C                           | >100 | >100 | >100 | >100 | >100 | >100 | >100 | >100 | >100 |
|                 | Tc_nom=65°C                       | >100 | >100 | >100 | >100 | >100 | >100 | 89   | 85   | 82   |
|                 | Tc_life=85°C                      | >100 | >100 | >100 | >100 | >100 | >100 | 68   | 65   | 63   |
| Inom=450mA      | Tc=25°C                           | >100 | >100 | >100 | >100 | >100 | >100 | >100 | >100 | >100 |
|                 | Tc_nom=65°C                       | >100 | >100 | >100 | >100 | >100 | >100 | 85   | 81   | 79   |
|                 | Tc_life=85°C                      | >100 | >100 | >100 | >100 | >100 | >100 | 65   | 62   | 60   |
| Ilife=700mA     | Tc=25°C                           | >100 | >100 | >100 | >100 | >100 | >100 | >100 | >100 | >100 |
|                 | Tc_nom=65°C                       | >100 | >100 | >100 | >100 | >100 | >100 | 78   | 74   | 72   |
|                 | Tc_life=85°C                      | >100 | >100 | >100 | >100 | >100 | >100 | 60   | 57   | 55   |

## Lifetime

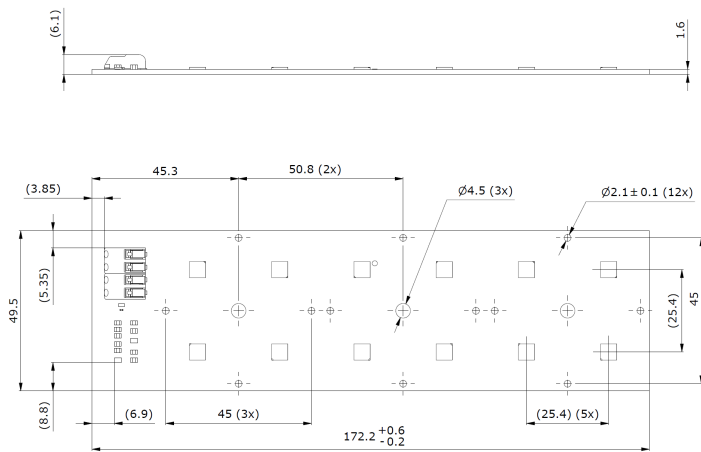
| Parameter      | Value   | Unit  |
|----------------|---------|-------|
| M70F50 nominal | >100000 | hours |
| M70F50 life    | >100000 | hours |

## Performance Window



## Mechanical characteristics

| Parameter                  | Min  | Typ   | Max   | Unit |
|----------------------------|------|-------|-------|------|
| Length                     | 172  | 172.2 | 172.8 | mm   |
| Width                      | 49.3 | 49.5  | 49.7  | mm   |
| Height including connector |      | 6.1   |       | mm   |
| Height PCB                 |      | 1.6   |       | mm   |
| Product mass               |      | 39.2  |       | gram |



## Absolute ratings

| Parameter                              | Min | Max  | Unit            |
|----------------------------------------|-----|------|-----------------|
| Current through the LED module (I-max) |     | 1500 | mA              |
| Case temperature (Tc-max)              |     | 85   | °C              |
| Power at rated Vf-max and I-max        |     | 56.3 | W               |
| ESD (direct contact)                   | 8   |      | kV              |
| ESD (air)                              | 15  |      | kV              |
| Working voltage                        |     | 575  | V <sub>dc</sub> |
| Ambient temperature                    | -30 | 40   | °C              |
| Storage temperature                    | -20 | 80   | °C              |

## Application information

### Certificates and Standards

CE  
ENEC  
cULus

### Environmental

RoHS/REACH

### Application

|                        |                                         |
|------------------------|-----------------------------------------|
| Overheating protection | NTC 15K Ohm B=3987K + 390 Ohm in series |
| Dimming                | Yes                                     |



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