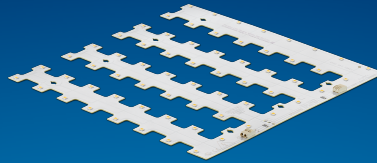


# PHILIPS

## Fortimo

### LED

Fortimo LED Square  
1250lm 8xx HV/LV3



## Datasheet

### Fortimo LED Square 1250lm 8xx HV/LV3

Fortimo LED Square systems consist of white light LED modules with square outer dimensions delivering high energy efficiency and high quality of light. Fortimo LED Square systems are ideal for office applications where the luminaires require a very homogeneous exit surface window. Typical applications are recessed, surface mounted and suspended office luminaires.

#### Key features and benefits

- LED module efficiency of 190 lm/W (nominal at 4000K, CRI80) or 180 lm/W in CRI90 (nominal at 4000K, CRI90)
- Long life-time: >50,000 hours
- High color rendering: choice between CRI >80 or CRI >90
- CRI90 products are based on our CRI90 High Efficiency technology
- Excellent color consistency of 3 SDCM
- Choice of color temperatures (3000 K, 4000 K and 6500 K)
- Two lumen packages: 1250lm and 2500lm
- FlexTune tunable white modules available in both lumen packages
- FlexTune tunable white modules can be tuned from 2700K to 6500K in CRI90
- FlexTune tunable white modules work perfectly together with the Xitanium FlexTune non-isolated drivers
- Tunable lumen output, efficacy and lifetime
- Wide temperature (Tc) range from -40 °C to +80 °C
- Push-in connectors enabling automated wiring
- Five year system warranty when paired with Xitanium drivers

December 2021



## Ordering data

| Commercial product name              | EOC               | 12NC           | Box quantity |
|--------------------------------------|-------------------|----------------|--------------|
| Fortimo LED Square 1250lm 830 HV/LV3 | 8719514 268395 00 | 9290 028 19906 | 20           |
| Fortimo LED Square 1250lm 840 HV/LV3 | 8719514 268418 00 | 9290 028 20006 | 20           |
| Fortimo LED Square 1250lm 865 HV/LV3 | 8719514 268456 00 | 9290 028 20106 | 20           |

## Drive currents

| Parameter                            | Nominal* | Life** | Max*** | Unit |
|--------------------------------------|----------|--------|--------|------|
| Fortimo LED Square 1250lm 8xx HV/LV3 | 151      | 400    | 400    | mA   |

## Module temperatures

| Parameter                                                 | Nominal* | Life** | Max*** | Unit |
|-----------------------------------------------------------|----------|--------|--------|------|
| T <sub>c</sub> (case temperature at T <sub>c</sub> point) | 45       | 65     | 80     | °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)

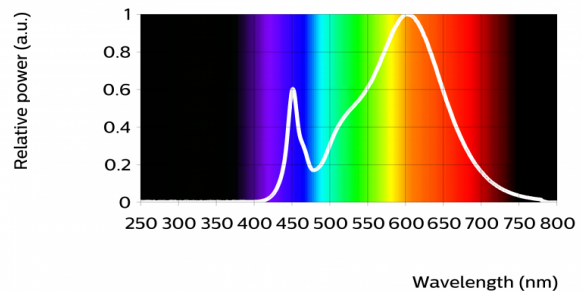
### Fortimo LED Square 1250lm 830 HV/LV3

| Parameter                          | Min  | Typ            | Max           | Unit |
|------------------------------------|------|----------------|---------------|------|
| Luminous flux                      | 1110 | 1200           | 1290          | lm   |
| Efficacy                           | 165  | 179            | 202           | lm/W |
| Correlated color temperature (CCT) |      | 3000           |               | K    |
| Color coordinates (CIEx, CIEy)     |      | (0.433, 0.401) |               | -    |
| Color consistency                  |      |                | 3             | SDCM |
| CRI                                | 80   |                |               |      |
| R9                                 |      | 5              |               |      |
| Photometric code                   |      | 830/339        |               |      |
| Photobiological safety             |      |                | RG1 unlimited |      |



Measurement precision for flux +/- 5%. Measurement precision for x, y +/- 0.005. Measurement precision for CRI 1.5

| Operation point | 830          | lm   | lm/W |
|-----------------|--------------|------|------|
| 80% I-nom 121mA | Tc 25 °C     | 988  | 185  |
|                 | Tc-nom 45 °C | 966  | 182  |
|                 | Tc-max 80 °C | 918  | 175  |
| I-nom 151mA     | Tc 25 °C     | 1227 | 182  |
|                 | Tc-nom 45 °C | 1200 | 179  |
|                 | Tc-max 80 °C | 1140 | 172  |
| I-max 400mA     | Tc 25 °C     | 3072 | 161  |
|                 | Tc-nom 45 °C | 3003 | 159  |
|                 | Tc-max 80 °C | 2849 | 153  |



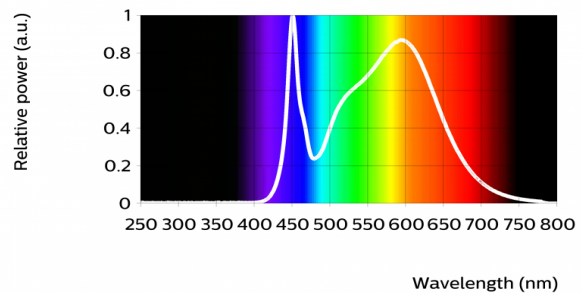
### Fortimo LED Square 1250lm 840 HV/LV3

| Parameter                          | Min  | Typ            | Max           | Unit |
|------------------------------------|------|----------------|---------------|------|
| Luminous flux                      | 1160 | 1250           | 1340          | lm   |
| Efficacy                           | 172  | 186            | 210           | lm/W |
| Correlated color temperature (CCT) |      | 4000           |               | K    |
| Color coordinates (CIEx, CIEy)     |      | (0.381, 0.379) |               | -    |
| Color consistency                  |      |                | 3             | SDCM |
| CRI                                | 80   |                |               |      |
| R9                                 |      | 5              |               |      |
| Photometric code                   |      | 840/339        |               |      |
| Photobiological safety             |      |                | RG1 unlimited |      |



Measurement precision for flux +/- 5%. Measurement precision for x, y +/- 0.005. Measurement precision for CRI 1.5

| Operation point | 840          | lm   | lm/W |
|-----------------|--------------|------|------|
| 80% I-nom 121mA | Tc 25 °C     | 1028 | 192  |
|                 | Tc-nom 45 °C | 1007 | 190  |
|                 | Tc-max 80 °C | 958  | 183  |
| I-nom 151mA     | Tc 25 °C     | 1276 | 189  |
|                 | Tc-nom 45 °C | 1250 | 186  |
|                 | Tc-max 80 °C | 1189 | 180  |
| I-max 400mA     | Tc 25 °C     | 3185 | 167  |
|                 | Tc-nom 45 °C | 3119 | 165  |
|                 | Tc-max 80 °C | 2964 | 159  |

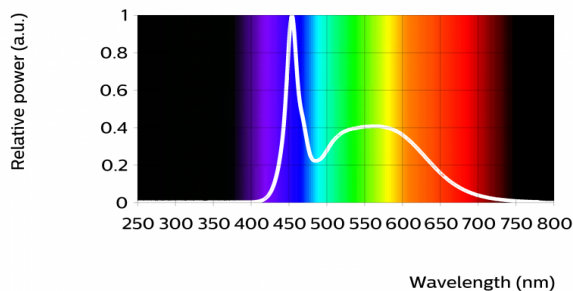


## Fortimo LED Square 1250lm 865 HV/LV3

| Parameter                          | Min                                                                               | Typ            | Max           | Unit |
|------------------------------------|-----------------------------------------------------------------------------------|----------------|---------------|------|
| Luminous flux                      | 1152                                                                              | 1245           | 1338          | lm   |
| Efficacy                           | 172                                                                               | 186            | 210           | lm/W |
| Correlated color temperature (CCT) |                                                                                   | 6500           |               | K    |
| Color coordinates (CIEx, CIEy)     |                                                                                   | (0.309, 0.322) |               | -    |
| Color consistency                  |                                                                                   |                | 3             | SDCM |
| CRI                                | 80                                                                                |                |               |      |
| R9                                 |                                                                                   | 5              |               |      |
| Photometric code                   |  | 865/339        |               |      |
| Photobiological safety             |                                                                                   |                | RG1 unlimited |      |

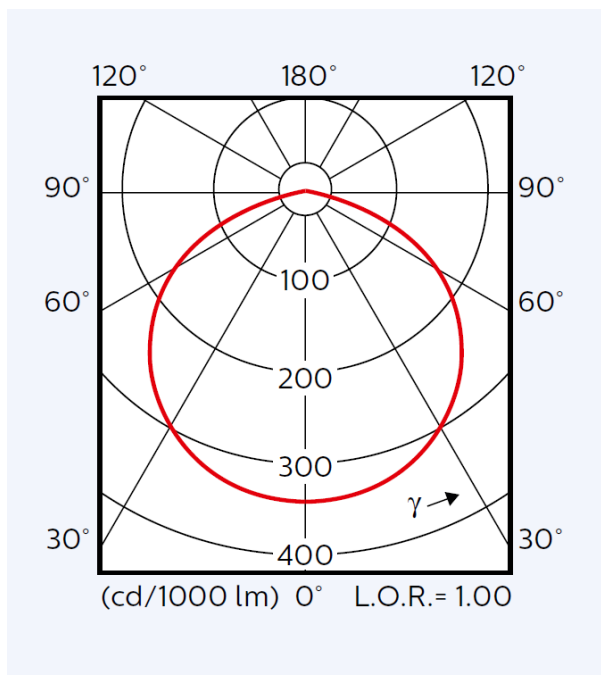
Measurement precision for flux +/- 5%. Measurement precision for x, y +/- 0.005. Measurement precision for CRI 1.5

| Operation point | 865          | lm   | lm/W |
|-----------------|--------------|------|------|
| 80% I-nom 121mA | Tc 25 °C     | 1025 | 192  |
|                 | Tc-nom 45 °C | 1001 | 189  |
|                 | Tc-max 80 °C | 953  | 182  |
| I-nom 151mA     | Tc 25 °C     | 1274 | 189  |
|                 | Tc-nom 45 °C | 1245 | 186  |
|                 | Tc-max 80 °C | 1185 | 179  |
| I-max 400mA     | Tc 25 °C     | 3217 | 168  |
|                 | Tc-nom 45 °C | 3142 | 165  |
|                 | Tc-max 80 °C | 2990 | 159  |



## Beam shape

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



## Electrical characteristics

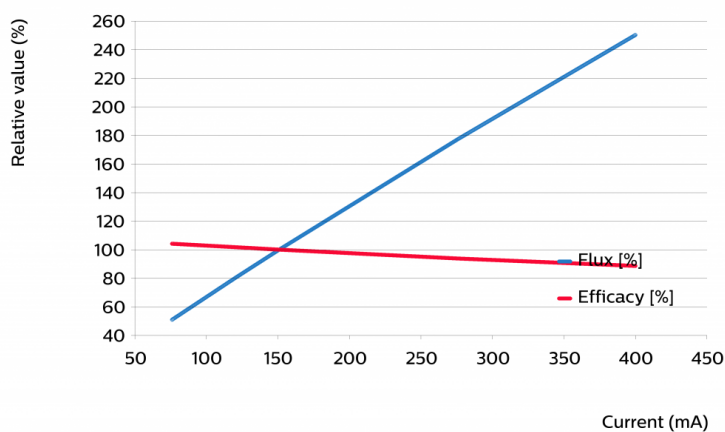
| Parameter                             | Min  | Typ  | Max  | Unit          |
|---------------------------------------|------|------|------|---------------|
| Forward voltage                       | 42.4 | 44.4 | 44.2 | V             |
| Power consumption                     | 6.41 | 6.70 | 6.67 | W = kWh/1000h |
| Number of modules in series per chain |      |      | 7    |               |
| Number of modules in parallel         |      |      | 4    |               |

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

## Tuning information

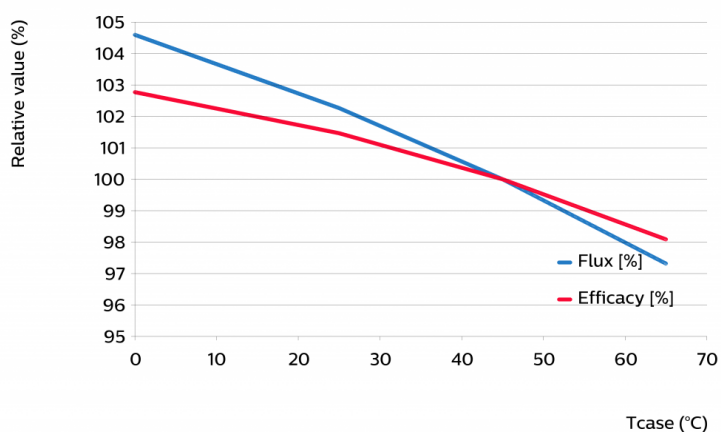
Flux and efficacy versus current (at Tc nominal)

| I [mA] | Flux [%] | Efficacy [%] |
|--------|----------|--------------|
| 400    | 250      | 89           |
| 276    | 177      | 94           |
| 151    | 100      | 100          |
| 121    | 81       | 102          |
| 76     | 51       | 104          |



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

| Tc [°C] | Flux [%] | Efficacy [%] |
|---------|----------|--------------|
| 65      | 97       | 98           |
| 45      | 100      | 100          |
| 25      | 102      | 101          |
| 0       | 105      | 103          |



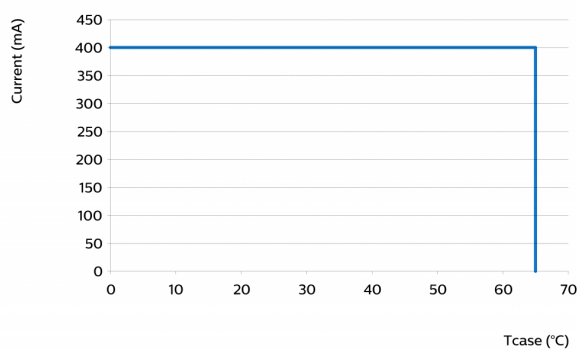
## Lumen maintenance

| Operation point  | Lumen maintenance<br>x 1000 hours | L70 |     |     | L80 |     |     | L90 |     |     |
|------------------|-----------------------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|
|                  |                                   | B50 | B20 | B10 | B50 | B20 | B10 | B50 | B20 | B10 |
| 80% I-nom 121 mA | Tc 25°C                           | >72 | >72 | >72 | >72 | >72 | >72 | 66  | 64  | 63  |
|                  | Tc-nom 45°C                       | >72 | >72 | >72 | >72 | >72 | >72 | 52  | 50  | 50  |
|                  | Tc life 65°C                      | >72 | >72 | >72 | >72 | >72 | >72 | 42  | 40  | 40  |
| I-nom 151 mA     | Tc 25°C                           | >72 | >72 | >72 | >72 | >72 | >72 | 66  | 64  | 63  |
|                  | Tc-nom 45°C                       | >72 | >72 | >72 | >72 | >72 | >72 | 52  | 50  | 50  |
|                  | Tc life 65°C                      | >72 | >72 | >72 | >72 | >72 | >72 | 42  | 40  | 40  |
| L-life 400 mA    | Tc 25°C                           | >72 | >72 | >72 | >72 | >72 | >72 | 59  | 57  | 56  |
|                  | Tc-nom 45°C                       | >72 | >72 | >72 | >72 | >72 | >72 | 47  | 45  | 45  |
|                  | Tc life 65°C                      | >72 | >72 | >72 | >72 | >72 | >72 | 38  | 37  | 36  |

## Lifetime

| Parameter      | Value  | Unit  |
|----------------|--------|-------|
| M70F50 nominal | >72000 | hours |
| M70F50 life    | >72000 | hours |

## Performance Window

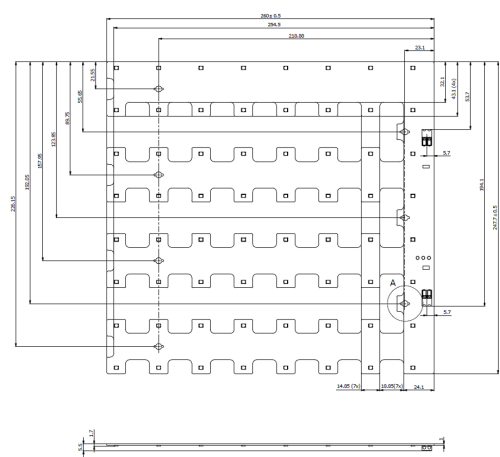


## Wiring

| Specification item       | Value       | Unit            | Condition     |
|--------------------------|-------------|-----------------|---------------|
| Input wire cross-section | 0.25...0.75 | mm <sup>2</sup> | solid wire    |
|                          | 18...24     | AWG             | solid wire    |
| Input wire strip length  | 7.5...8.5   | mm              |               |
| Input wire cross-section | 0.33...0.5  | mm <sup>2</sup> | stranded wire |
|                          | 20...22     | AWG             | stranded wire |
| Input wire strip length  | 7.5...8.5   | mm              |               |

Mechanical characteristics

| Parameter    | Min   | Typ   | Max   | Unit |
|--------------|-------|-------|-------|------|
| Length       | 259.5 | 260   | 260.5 | mm   |
| Width        | 247.5 | 247.7 | 248.2 | mm   |
| Height PCB   |       | 1     |       | mm   |
| Height total | 5.1   | 5.5   | 5.9   | mm   |
| Product mass |       | 106   |       | gram |



Absolute ratings

| Parameter                              | Min | Max | Unit            |
|----------------------------------------|-----|-----|-----------------|
| Current through the LED module (I-max) |     | 400 | mA              |
| Case temperature (Tc-max)              |     | 80  | °C              |
| ESD (direct contact)                   | 8   |     | kV              |
| ESD (air)                              | 8   |     | kV              |
| Working voltage                        |     | 350 | V <sub>dc</sub> |
| Storage temperature                    | -40 | 80  | °C              |

## Application information

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### Certificates and Standards

CE  
ENEC  
ENEC+

### Application

Dimming

Yes



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