



### Module LLE G4 24mm 650lm ADV

Modules LLE ADVANCED

#### Product description

- Ideal for linear and panel lights
- SELV module – the single module has a forward voltage < 60 V
- Terminals – 2 variants:
  - 2 terminals for serial wiring
  - 4 terminals for parallel, serial or robot wiring
- Typ. luminous flux 160, 325, 650 and 1,300 lm
- LED system solution with outstanding system efficacy up to 166 lm/W, consisting of linear LED modules and dimmable LED Driver LCA 50W 100–400mA Ip PRE
- Efficacy of the module up to 187 lm/W
- High colour rendering index CRI > 80
- Small colour tolerance MacAdam 3<sup>o</sup>
- Small luminous flux tolerances
- Colour temperatures 2,700 K, 3,000 K, 3,500 K, 4,000 K, 5,000 K and 6,500 K
- Module dimension 24 x 70 mm, 24 x 140 mm, 24 x 280 mm and 24 x 560 mm (ZHAGA compliant)
- Perfectly uniform light, even if several LED modules are used together in a line
- Push terminals for quick and simple wiring of LED module to LED module
- Simple installation (e.g. screws)
- Long life-time: 50,000 hours (L80F10)
- 5-year guarantee



**Standards**, page 10

**Colour temperatures and tolerances**, page 15



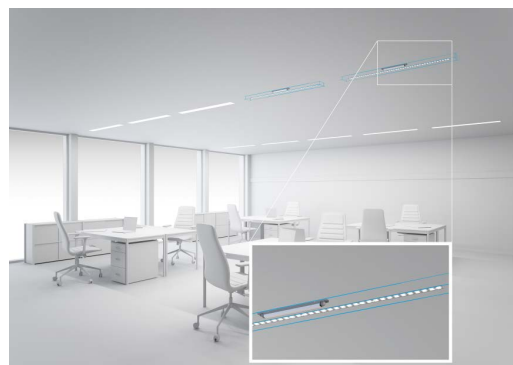
LLE G4 24x70mm 160lm ADV QTY4



LLE G4 24x280mm 650lm ADV



LLE G4 24x560mm 1300lm ADV



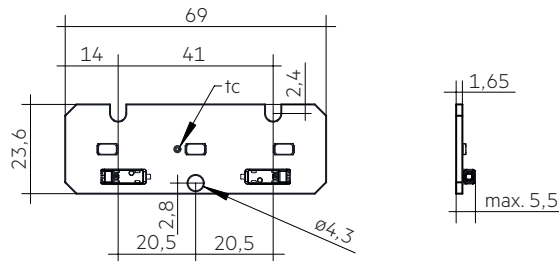


### Module LLE G4 24mm 650lm ADV

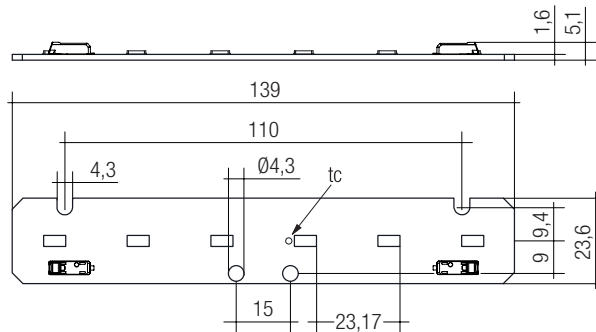
Modules LLE ADVANCED

#### Technical data

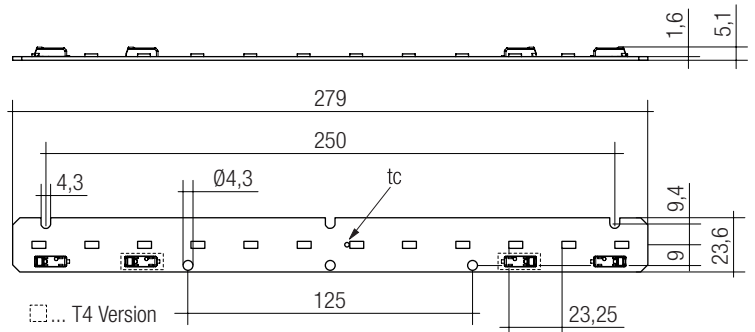
|   |                     |
|---|---------------------|
| Beam characteristic                               | 120°                |
| Ambient temperature range                         | -40 ... +65 °C      |
| tp rated  | 65 °C               |
| tc  | 85 °C               |
| Irated  | 325 mA              |
| I <sub>max</sub> for 24x70mm                      | 540 mA              |
| I <sub>max</sub> for 24x140mm, 24x280mm, 24x560mm | 500 mA              |
| Max. DC forward current                           | 600 mA              |
| Max. permissible LF current ripple                | 660 mA              |
| Max. permissible peak current                     | 780 mA / max. 10 ms |
| Max. working voltage for insulation®              | 320 V               |
| Insulation test voltage                           | 1.64 kV             |
| CTI of the printed circuit board                  | ≥ 600               |
| ESD classification                                | severity level 4    |
| Risk group (IEC 62471:2008)®                      | RG1                 |
| Classification acc. to IEC 62031                  | Built-in            |
| Type of protection                                | IP00                |



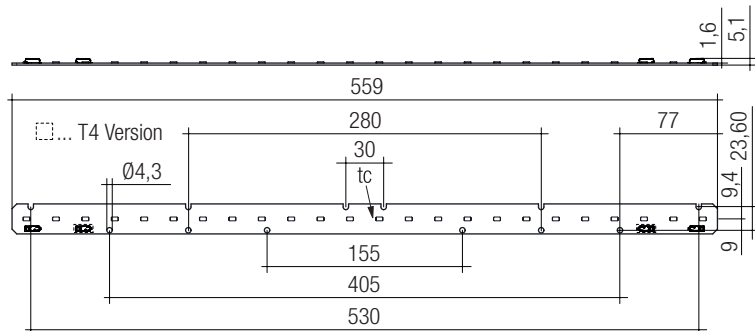
LLE G4 24x70mm 160lm ADV



LLE G4 24x140mm 325lm ADV



LLE G4 24x280mm 650lm ADV



LLE G4 24x560mm 1300lm ADV

## Module LLE G4 24mm 650lm ADV

Modules LLE ADVANCED

## Ordering data

| Type  | Article number | Colour temperature | Packaging carton® | Weight per pc. |
|---|----------------|--------------------|-------------------|----------------|
| <b>LLE 24mm ADVANCED 2 terminals (2T) for serial wiring</b> |                |                    |                   |                |
| LLE G4 24x70mm 160lm 830 ADV QTY4                           | 89602980       | 3,000 K            | 120 pc(s).        | 0.022 kg       |
| LLE G4 24x70mm 160lm 840 ADV QTY4                           | 89602981       | 4,000 K            | 120 pc(s).        | 0.022 kg       |
| LLE G4 24x140mm 325lm 830 2T ADV                            | 28001466       | 3,000 K            | 480 pc(s).        | 0.012 kg       |
| LLE G4 24x140mm 325lm 840 2T ADV                            | 28001467       | 4,000 K            | 480 pc(s).        | 0.012 kg       |
| LLE G4 24x140mm 325lm 850 2T ADV                            | 28001468       | 5,000 K            | 480 pc(s).        | 0.012 kg       |
| LLE G4 24x280mm 650lm 830 2T ADV                            | 28001471       | 3,000 K            | 300 pc(s).        | 0.023 kg       |
| LLE G4 24x280mm 650lm 840 2T ADV                            | 28001472       | 4,000 K            | 300 pc(s).        | 0.023 kg       |
| LLE G4 24x280mm 650lm 850 2T ADV                            | 28001473       | 5,000 K            | 300 pc(s).        | 0.023 kg       |
| LLE G4 24x560mm 1300lm 830 2T ADV                           | 28001476       | 3,000 K            | 240 pc(s).        | 0.046 kg       |
| LLE G4 24x560mm 1300lm 840 2T ADV                           | 28001477       | 4,000 K            | 240 pc(s).        | 0.046 kg       |
| LLE G4 24x560mm 1300lm 850 2T ADV                           | 28001478       | 5,000 K            | 240 pc(s).        | 0.046 kg       |
| <b>LLE 24mm ADVANCED 4 terminals (4T) for SELV</b>          |                |                    |                   |                |
| LLE G4 24x280mm 650lm 827 4T ADV                            | 28001506       | 2,700 K            | 300 pc(s).        | 0.023 kg       |
| LLE G4 24x280mm 650lm 830 4T ADV                            | 28001507       | 3,000 K            | 300 pc(s).        | 0.023 kg       |
| LLE G4 24x280mm 650lm 835 4T ADV                            | 28001966       | 3,500 K            | 300 pc(s).        | 0.023 kg       |
| LLE G4 24x280mm 650lm 840 4T ADV                            | 28001508       | 4,000 K            | 300 pc(s).        | 0.023 kg       |
| LLE G4 24x280mm 650lm 850 4T ADV                            | 28001509       | 5,000 K            | 300 pc(s).        | 0.023 kg       |
| LLE G4 24x280mm 650lm 865 4T ADV                            | 28001710       | 6,500 K            | 300 pc(s).        | 0.023 kg       |
| LLE G4 24x560mm 1300lm 827 4T ADV                           | 28001510       | 2,700 K            | 240 pc(s).        | 0.046 kg       |
| LLE G4 24x560mm 1300lm 830 4T ADV                           | 28001511       | 3,000 K            | 240 pc(s).        | 0.046 kg       |
| LLE G4 24x560mm 1300lm 835 4T ADV                           | 28001967       | 3,500 K            | 240 pc(s).        | 0.046 kg       |
| LLE G4 24x560mm 1300lm 840 4T ADV                           | 28001512       | 4,000 K            | 240 pc(s).        | 0.046 kg       |
| LLE G4 24x560mm 1300lm 850 4T ADV                           | 28001513       | 5,000 K            | 240 pc(s).        | 0.046 kg       |
| LLE G4 24x560mm 1300lm 865 4T ADV                           | 28001711       | 6,500 K            | 240 pc(s).        | 0.046 kg       |

® Min. order quantity LLE G4 24x70mm QTY4: 30 pcs.

The LLE G4 24x70mm QTY4 module contains 4 single 24x70mm modules which have to be separated.

## Specific technical data

| Type <sup>®</sup>                  | Photo-metric code | Typ. luminous flux at tp = 25 °C <sup>®</sup> | Typ. luminous flux at tp = 65 °C <sup>®</sup> | Typ. forward current | Min. forward voltage at tp = 65 °C | Max. forward voltage at tp = 25 °C | Typ. power consumption at tp = 65 °C <sup>®</sup> | Efficacy of the module at tp = 25 °C | Efficacy of the module at tp = 65 °C | Efficacy of the system at tp = 65 °C | Colour rendering index CRI |
|------------------------------------|-------------------|---|---|----------------------|------------------------------------|------------------------------------|---|--------------------------------------|--------------------------------------|--------------------------------------|----------------------------|
| <b>Operating mode HE at 225 mA</b> |                   |   |   |                      |                                    |                                    |   |                                      |                                      |                                      |                            |
| LLE G4 24x70mm 160lm 830 ADV       | 830/359           | 110 lm  | 105 lm  | 225 mA               | 2.7 V                              | 3.0 V                              | 0.6 W   | 173 lm/W                             | 169 lm/W                             | 155 lm/W                             | > 80                       |
| LLE G4 24x70mm 160lm 840 ADV       | 840/359           | 115 lm  | 110 lm  | 225 mA               | 2.7 V                              | 3.0 V                              | 0.6 W   | 181 lm/W                             | 177 lm/W                             | 163 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 830 ADV      | 830/359           | 220 lm  | 210 lm  | 225 mA               | 5.2 V                              | 6.3 V                              | 1.2 W   | 175 lm/W                             | 169 lm/W                             | 155 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 840 ADV      | 840/359           | 230 lm  | 220 lm  | 225 mA               | 5.2 V                              | 6.3 V                              | 1.2 W   | 183 lm/W                             | 176 lm/W                             | 162 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 850 ADV      | 850/359           | 240 lm  | 220 lm  | 225 mA               | 5.2 V                              | 6.3 V                              | 1.2 W   | 187 lm/W                             | 180 lm/W                             | 166 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 827 ADV      | 827/359           | 420 lm  | 400 lm  | 225 mA               | 10.3 V                             | 12.0 V                             | 2.5 W   | 165 lm/W                             | 159 lm/W                             | 146 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 830 ADV      | 830/359           | 440 lm  | 420 lm  | 225 mA               | 10.3 V                             | 12.0 V                             | 2.5 W   | 175 lm/W                             | 169 lm/W                             | 155 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 835 ADV      | 835/359           | 450 lm  | 430 lm  | 225 mA               | 10.3 V                             | 12.0 V                             | 2.5 W   | 177 lm/W                             | 170 lm/W                             | 156 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 840 ADV      | 840/359           | 460 lm  | 440 lm  | 225 mA               | 10.3 V                             | 12.0 V                             | 2.5 W   | 183 lm/W                             | 176 lm/W                             | 162 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 850 ADV      | 850/359           | 470 lm  | 450 lm  | 225 mA               | 10.3 V                             | 12.0 V                             | 2.5 W   | 187 lm/W                             | 180 lm/W                             | 166 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 865 ADV      | 865/359           | 470 lm  | 440 lm  | 225 mA               | 10.3 V                             | 12.0 V                             | 2.5 W   | 184 lm/W                             | 176 lm/W                             | 162 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 827 ADV     | 827/359           | 840 lm  | 800 lm  | 225 mA               | 20.6 V                             | 23.9 V                             | 5.0 W   | 165 lm/W                             | 159 lm/W                             | 146 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 830 ADV     | 830/359           | 890 lm  | 840 lm  | 225 mA               | 20.6 V                             | 23.9 V                             | 5.0 W   | 175 lm/W                             | 169 lm/W                             | 155 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 835 ADV     | 835/359           | 900 lm  | 850 lm  | 225 mA               | 20.6 V                             | 23.9 V                             | 5.0 W   | 177 lm/W                             | 170 lm/W                             | 156 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 840 ADV     | 840/359           | 930 lm  | 880 lm  | 225 mA               | 20.6 V                             | 23.9 V                             | 5.0 W   | 183 lm/W                             | 176 lm/W                             | 162 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 850 ADV     | 850/359           | 950 lm  | 900 lm  | 225 mA               | 20.6 V                             | 23.9 V                             | 5.0 W   | 187 lm/W                             | 180 lm/W                             | 166 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 865 ADV     | 865/359           | 930 lm  | 880 lm  | 225 mA               | 20.6 V                             | 23.9 V                             | 5.0 W   | 184 lm/W                             | 176 lm/W                             | 162 lm/W                             | > 80                       |
| <b>Operating mode HE at 275 mA</b> |                   |   |   |                      |                                    |                                    |   |                                      |                                      |                                      |                            |
| LLE G4 24x70mm 160lm 830 ADV       | 830/359           | 135 lm  | 130 lm  | 275 mA               | 2.7 V                              | 3.1 V                              | 0.8 W   | 170 lm/W                             | 166 lm/W                             | 153 lm/W                             | > 80                       |
| LLE G4 24x70mm 160lm 840 ADV       | 840/359           | 140 lm  | 135 lm  | 275 mA               | 2.7 V                              | 3.1 V                              | 0.8 W   | 178 lm/W                             | 174 lm/W                             | 160 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 830 ADV      | 830/359           | 270 lm  | 260 lm  | 275 mA               | 5.2 V                              | 6.3 V                              | 1.5 W   | 171 lm/W                             | 166 lm/W                             | 153 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 840 ADV      | 840/359           | 280 lm  | 270 lm  | 275 mA               | 5.2 V                              | 6.3 V                              | 1.5 W   | 180 lm/W                             | 173 lm/W                             | 159 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 850 ADV      | 850/359           | 290 lm  | 270 lm  | 275 mA               | 5.2 V                              | 6.3 V                              | 1.5 W   | 183 lm/W                             | 176 lm/W                             | 162 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 827 ADV      | 827/359           | 510 lm  | 480 lm  | 275 mA               | 10.5 V                             | 12.3 V                             | 3.1 W   | 161 lm/W                             | 156 lm/W                             | 144 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 830 ADV      | 830/359           | 540 lm  | 510 lm  | 275 mA               | 10.5 V                             | 12.3 V                             | 3.1 W   | 171 lm/W                             | 166 lm/W                             | 153 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 835 ADV      | 835/359           | 540 lm  | 520 lm  | 275 mA               | 10.5 V                             | 12.3 V                             | 3.1 W   | 173 lm/W                             | 167 lm/W                             | 154 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 840 ADV      | 840/359           | 560 lm  | 530 lm  | 275 mA               | 10.5 V                             | 12.3 V                             | 3.1 W   | 180 lm/W                             | 173 lm/W                             | 159 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 850 ADV      | 850/359           | 570 lm  | 540 lm  | 275 mA               | 10.5 V                             | 12.3 V                             | 3.1 W   | 183 lm/W                             | 176 lm/W                             | 162 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 865 ADV      | 865/359           | 570 lm  | 530 lm  | 275 mA               | 10.5 V                             | 12.3 V                             | 3.1 W   | 180 lm/W                             | 173 lm/W                             | 159 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 827 ADV     | 827/359           | 1,010 lm                                      | 970 lm  | 275 mA               | 20.9 V                             | 24.2 V                             | 6.2 W   | 161 lm/W                             | 156 lm/W                             | 144 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 830 ADV     | 830/359           | 1,070 lm                                      | 1,020 lm                                      | 275 mA               | 20.9 V                             | 24.2 V                             | 6.2 W   | 171 lm/W                             | 166 lm/W                             | 153 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 835 ADV     | 835/359           | 1,080 lm                                      | 1,030 lm                                      | 275 mA               | 20.9 V                             | 24.2 V                             | 6.2 W   | 173 lm/W                             | 167 lm/W                             | 154 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 840 ADV     | 840/359           | 1,120 lm                                      | 1,070 lm                                      | 275 mA               | 20.9 V                             | 24.2 V                             | 6.2 W   | 180 lm/W                             | 173 lm/W                             | 159 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 850 ADV     | 850/359           | 1,150 lm                                      | 1,090 lm                                      | 275 mA               | 20.9 V                             | 24.2 V                             | 6.2 W   | 183 lm/W                             | 176 lm/W                             | 162 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 865 ADV     | 865/359           | 1,130 lm                                      | 1,070 lm                                      | 275 mA               | 20.9 V                             | 24.2 V                             | 6.2 W   | 180 lm/W                             | 173 lm/W                             | 159 lm/W                             | > 80                       |
| <b>Operating mode NM at 300 mA</b> |                   |   |   |                      |                                    |                                    |   |                                      |                                      |                                      |                            |
| LLE G4 24x70mm 160lm 830 ADV       | 830/359           | 145 lm  | 140 lm  | 300 mA               | 2.7 V                              | 3.1 V                              | 0.8 W   | 168 lm/W                             | 164 lm/W                             | 151 lm/W                             | > 80                       |
| LLE G4 24x70mm 160lm 840 ADV       | 840/359           | 150 lm  | 145 lm  | 300 mA               | 2.7 V                              | 3.1 V                              | 0.8 W   | 176 lm/W                             | 172 lm/W                             | 158 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 830 ADV      | 830/359           | 290 lm  | 280 lm  | 300 mA               | 5.3 V                              | 6.4 V                              | 1.7 W   | 170 lm/W                             | 164 lm/W                             | 151 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 840 ADV      | 840/359           | 310 lm  | 290 lm  | 300 mA               | 5.3 V                              | 6.4 V                              | 1.7 W   | 178 lm/W                             | 171 lm/W                             | 157 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 850 ADV      | 850/359           | 310 lm  | 290 lm  | 300 mA               | 5.3 V                              | 6.4 V                              | 1.7 W   | 181 lm/W                             | 174 lm/W                             | 160 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 827 ADV      | 827/359           | 550 lm  | 530 lm  | 300 mA               | 10.5 V                             | 12.4 V                             | 3.4 W   | 160 lm/W                             | 155 lm/W                             | 143 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 830 ADV      | 830/359           | 580 lm  | 550 lm  | 300 mA               | 10.5 V                             | 12.4 V                             | 3.4 W   | 170 lm/W                             | 164 lm/W                             | 151 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 835 ADV      | 835/359           | 580 lm  | 560 lm  | 300 mA               | 10.5 V                             | 12.4 V                             | 3.4 W   | 171 lm/W                             | 165 lm/W                             | 152 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 840 ADV      | 840/359           | 610 lm  | 580 lm  | 300 mA               | 10.5 V                             | 12.4 V                             | 3.4 W   | 178 lm/W                             | 171 lm/W                             | 157 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 850 ADV      | 850/359           | 620 lm  | 590 lm  | 300 mA               | 10.5 V                             | 12.4 V                             | 3.4 W   | 181 lm/W                             | 174 lm/W                             | 160 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 865 ADV      | 865/359           | 610 lm  | 580 lm  | 300 mA               | 10.5 V                             | 12.4 V                             | 3.4 W   | 179 lm/W                             | 171 lm/W                             | 157 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 827 ADV     | 827/359           | 1,100 lm                                      | 1,050 lm                                      | 300 mA               | 21.1 V                             | 24.4 V                             | 6.8 W   | 160 lm/W                             | 155 lm/W                             | 143 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 830 ADV     | 830/359           | 1,160 lm                                      | 1,110 lm                                      | 300 mA               | 21.1 V                             | 24.4 V                             | 6.8 W   | 170 lm/W                             | 164 lm/W                             | 151 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 835 ADV     | 835/359           | 1,170 lm                                      | 1,110 lm                                      | 300 mA               | 21.1 V                             | 24.4 V                             | 6.8 W   | 171 lm/W                             | 165 lm/W                             | 152 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 840 ADV     | 840/359           | 1,220 lm                                      | 1,160 lm                                      | 300 mA               | 21.1 V                             | 24.4 V                             | 6.8 W   | 178 lm/W                             | 171 lm/W                             | 157 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 850 ADV     | 850/359           | 1,240 lm                                      | 1,180 lm                                      | 300 mA               | 21.1 V                             | 24.4 V                             | 6.8 W   | 181 lm/W                             | 174 lm/W                             | 160 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 865 ADV     | 865/359           | 1,230 lm                                      | 1,160 lm                                      | 300 mA               | 21.1 V                             | 24.4 V                             | 6.8 W   | 179 lm/W                             | 171 lm/W                             | 157 lm/W                             | > 80                       |

<sup>®</sup> Integral measurement over the complete module.

<sup>®</sup> If mounted with M4 screws and plastic washers.

<sup>®</sup> Measured at operating mode HO.

<sup>®</sup> HE ... high efficiency, NM ... nominal mode, HO ... high output.

<sup>®</sup> Tolerance range for optical and electrical data: ±10 %.

## Specific technical data

| Type <sup>®</sup>                  | Photo-metric code | Typ. luminous flux at tp = 25 °C <sup>®</sup> | Typ. luminous flux at tp = 65 °C <sup>®</sup> | Typ. forward current | Min. forward voltage at tp = 65 °C | Max. forward voltage at tp = 25 °C | Typ. power consumption at tp = 65 °C <sup>®</sup> | Efficacy of the module at tp = 25 °C | Efficacy of the module at tp = 65 °C | Efficacy of the system at tp = 65 °C | Colour rendering index CRI |
|------------------------------------|-------------------|---|---|----------------------|------------------------------------|------------------------------------|---|--------------------------------------|--------------------------------------|--------------------------------------|----------------------------|
| <b>Operating mode NM at 325 mA</b> |                   |   |   |                      |                                    |                                    |   |                                      |                                      |                                      |                            |
| LLE G4 24x70mm 160lm 830 ADV       | 830/359           | 155 lm  | 150 lm  | 325 mA               | 2.7 V                              | 31 V                               | 0.9 W   | 165 lm/W                             | 161 lm/W                             | 148 lm/W                             | > 80                       |
| LLE G4 24x70mm 160lm 840 ADV       | 840/359           | 165 lm  | 155 lm  | 325 mA               | 2.7 V                              | 31 V                               | 0.9 W   | 173 lm/W                             | 169 lm/W                             | 155 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 830 ADV      | 830/359           | 310 lm  | 300 lm  | 325 mA               | 5.3 V                              | 6.4 V                              | 1.9 W   | 167 lm/W                             | 162 lm/W                             | 149 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 840 ADV      | 840/359           | 330 lm  | 310 lm  | 325 mA               | 5.3 V                              | 6.4 V                              | 1.9 W   | 176 lm/W                             | 170 lm/W                             | 156 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 850 ADV      | 850/359           | 330 lm  | 320 lm  | 325 mA               | 5.3 V                              | 6.4 V                              | 1.9 W   | 178 lm/W                             | 172 lm/W                             | 158 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 827 ADV      | 827/359           | 590 lm  | 560 lm  | 325 mA               | 10.6 V                             | 12.5 V                             | 3.7 W   | 158 lm/W                             | 153 lm/W                             | 141 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 830 ADV      | 830/359           | 630 lm  | 600 lm  | 325 mA               | 10.6 V                             | 12.5 V                             | 3.7 W   | 167 lm/W                             | 162 lm/W                             | 149 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 835 ADV      | 835/359           | 630 lm  | 600 lm  | 325 mA               | 10.6 V                             | 12.5 V                             | 3.7 W   | 170 lm/W                             | 163 lm/W                             | 150 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 840 ADV      | 840/359           | 660 lm  | 630 lm  | 325 mA               | 10.6 V                             | 12.5 V                             | 3.7 W   | 176 lm/W                             | 170 lm/W                             | 156 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 850 ADV      | 850/359           | 670 lm  | 630 lm  | 325 mA               | 10.6 V                             | 12.5 V                             | 3.7 W   | 178 lm/W                             | 172 lm/W                             | 158 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 865 ADV      | 865/359           | 660 lm  | 630 lm  | 325 mA               | 10.6 V                             | 12.5 V                             | 3.7 W   | 177 lm/W                             | 170 lm/W                             | 156 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 827 ADV     | 827/359           | 1180 lm                                       | 1130 lm                                       | 325 mA               | 21.2 V                             | 24.5 V                             | 7.4 W   | 158 lm/W                             | 153 lm/W                             | 141 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 830 ADV     | 830/359           | 1,250 lm                                      | 1,190 lm                                      | 325 mA               | 21.2 V                             | 24.5 V                             | 7.4 W   | 167 lm/W                             | 162 lm/W                             | 149 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 835 ADV     | 835/359           | 1,270 lm                                      | 1,200 lm                                      | 325 mA               | 21.2 V                             | 24.5 V                             | 7.4 W   | 170 lm/W                             | 163 lm/W                             | 150 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 840 ADV     | 840/359           | 1,320 lm                                      | 1,250 lm                                      | 325 mA               | 21.2 V                             | 24.5 V                             | 7.4 W   | 176 lm/W                             | 170 lm/W                             | 156 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 850 ADV     | 850/359           | 1,340 lm                                      | 1,260 lm                                      | 325 mA               | 21.2 V                             | 24.5 V                             | 7.4 W   | 178 lm/W                             | 172 lm/W                             | 158 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 865 ADV     | 865/359           | 1,330 lm                                      | 1,250 lm                                      | 325 mA               | 21.2 V                             | 24.5 V                             | 7.4 W   | 177 lm/W                             | 170 lm/W                             | 156 lm/W                             | > 80                       |
| <b>Operating mode NM at 350 mA</b> |                   |   |   |                      |                                    |                                    |   |                                      |                                      |                                      |                            |
| LLE G4 24x70mm 160lm 830 ADV       | 830/359           | 165 lm  | 160 lm  | 350 mA               | 2.7 V                              | 31 V                               | 1.0 W   | 163 lm/W                             | 160 lm/W                             | 147 lm/W                             | > 80                       |
| LLE G4 24x70mm 160lm 840 ADV       | 840/359           | 175 lm  | 170 lm  | 350 mA               | 2.7 V                              | 31 V                               | 1.0 W   | 171 lm/W                             | 167 lm/W                             | 154 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 830 ADV      | 830/359           | 340 lm  | 320 lm  | 350 mA               | 5.4 V                              | 6.4 V                              | 2.0 W   | 166 lm/W                             | 160 lm/W                             | 147 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 840 ADV      | 840/359           | 350 lm  | 330 lm  | 350 mA               | 5.4 V                              | 6.4 V                              | 2.0 W   | 174 lm/W                             | 167 lm/W                             | 154 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 850 ADV      | 850/359           | 360 lm  | 340 lm  | 350 mA               | 5.4 V                              | 6.4 V                              | 2.0 W   | 176 lm/W                             | 170 lm/W                             | 156 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 827 ADV      | 827/359           | 630 lm  | 610 lm  | 350 mA               | 10.7 V                             | 12.6 V                             | 4.0 W   | 157 lm/W                             | 152 lm/W                             | 140 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 830 ADV      | 830/359           | 670 lm  | 640 lm  | 350 mA               | 10.7 V                             | 12.6 V                             | 4.0 W   | 166 lm/W                             | 160 lm/W                             | 147 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 835 ADV      | 835/359           | 670 lm  | 640 lm  | 350 mA               | 10.7 V                             | 12.6 V                             | 4.0 W   | 165 lm/W                             | 159 lm/W                             | 146 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 840 ADV      | 840/359           | 700 lm  | 670 lm  | 350 mA               | 10.7 V                             | 12.6 V                             | 4.0 W   | 174 lm/W                             | 167 lm/W                             | 154 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 850 ADV      | 850/359           | 720 lm  | 680 lm  | 350 mA               | 10.7 V                             | 12.6 V                             | 4.0 W   | 176 lm/W                             | 170 lm/W                             | 156 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 865 ADV      | 865/359           | 710 lm  | 670 lm  | 350 mA               | 10.7 V                             | 12.6 V                             | 4.0 W   | 175 lm/W                             | 167 lm/W                             | 154 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 827 ADV     | 827/359           | 1,270 lm                                      | 1,210 lm                                      | 350 mA               | 21.4 V                             | 24.6 V                             | 8.0 W   | 157 lm/W                             | 152 lm/W                             | 140 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 830 ADV     | 830/359           | 1,340 lm                                      | 1,280 lm                                      | 350 mA               | 21.4 V                             | 24.6 V                             | 8.0 W   | 166 lm/W                             | 160 lm/W                             | 147 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 835 ADV     | 835/359           | 1,350 lm                                      | 1,290 lm                                      | 350 mA               | 21.4 V                             | 24.6 V                             | 8.0 W   | 165 lm/W                             | 159 lm/W                             | 146 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 840 ADV     | 840/359           | 1,410 lm                                      | 1,340 lm                                      | 350 mA               | 21.4 V                             | 24.6 V                             | 8.0 W   | 174 lm/W                             | 167 lm/W                             | 154 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 850 ADV     | 850/359           | 1,440 lm                                      | 1,360 lm                                      | 350 mA               | 21.4 V                             | 24.6 V                             | 8.0 W   | 176 lm/W                             | 170 lm/W                             | 156 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 865 ADV     | 865/359           | 1,420 lm                                      | 1,340 lm                                      | 350 mA               | 21.4 V                             | 24.6 V                             | 8.0 W   | 175 lm/W                             | 167 lm/W                             | 154 lm/W                             | > 80                       |
| <b>Operating mode HO at 400 mA</b> |                   |   |   |                      |                                    |                                    |   |                                      |                                      |                                      |                            |
| LLE G4 24x70mm 160lm 830 ADV       | 830/359           | 190 lm  | 180 lm  | 400 mA               | 2.8 V                              | 31 V                               | 1.2 W   | 159 lm/W                             | 156 lm/W                             | 144 lm/W                             | > 80                       |
| LLE G4 24x70mm 160lm 840 ADV       | 840/359           | 200 lm  | 190 lm  | 400 mA               | 2.8 V                              | 31 V                               | 1.2 W   | 167 lm/W                             | 163 lm/W                             | 150 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 830 ADV      | 830/359           | 380 lm  | 360 lm  | 400 mA               | 5.4 V                              | 6.5 V                              | 2.3 W   | 160 lm/W                             | 154 lm/W                             | 142 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 840 ADV      | 840/359           | 390 lm  | 370 lm  | 400 mA               | 5.4 V                              | 6.5 V                              | 2.3 W   | 168 lm/W                             | 162 lm/W                             | 149 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 850 ADV      | 850/359           | 400 lm  | 380 lm  | 400 mA               | 5.4 V                              | 6.5 V                              | 2.3 W   | 171 lm/W                             | 164 lm/W                             | 151 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 827 ADV      | 827/359           | 710 lm  | 670 lm  | 400 mA               | 10.8 V                             | 12.7 V                             | 4.6 W   | 151 lm/W                             | 146 lm/W                             | 134 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 830 ADV      | 830/359           | 750 lm  | 710 lm  | 400 mA               | 10.8 V                             | 12.7 V                             | 4.6 W   | 160 lm/W                             | 154 lm/W                             | 142 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 835 ADV      | 830/359           | 760 lm  | 720 lm  | 400 mA               | 10.8 V                             | 12.7 V                             | 4.6 W   | 162 lm/W                             | 157 lm/W                             | 144 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 840 ADV      | 840/359           | 790 lm  | 750 lm  | 400 mA               | 10.8 V                             | 12.7 V                             | 4.6 W   | 168 lm/W                             | 162 lm/W                             | 149 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 850 ADV      | 850/359           | 800 lm  | 760 lm  | 400 mA               | 10.8 V                             | 12.7 V                             | 4.6 W   | 171 lm/W                             | 164 lm/W                             | 151 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 865 ADV      | 865/359           | 790 lm  | 750 lm  | 400 mA               | 10.8 V                             | 12.7 V                             | 4.6 W   | 170 lm/W                             | 162 lm/W                             | 149 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 827 ADV     | 827/359           | 1,420 lm                                      | 1,350 lm                                      | 400 mA               | 21.6 V                             | 24.9 V                             | 9.2 W   | 151 lm/W                             | 146 lm/W                             | 134 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 830 ADV     | 830/359           | 1,500 lm                                      | 1,430 lm                                      | 400 mA               | 21.6 V                             | 24.9 V                             | 9.2 W   | 160 lm/W                             | 154 lm/W                             | 142 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 835 ADV     | 835/359           | 1,520 lm                                      | 1,440 lm                                      | 400 mA               | 21.6 V                             | 24.9 V                             | 9.2 W   | 162 lm/W                             | 157 lm/W                             | 144 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 840 ADV     | 840/359           | 1,580 lm                                      | 1,500 lm                                      | 400 mA               | 21.6 V                             | 24.9 V                             | 9.2 W   | 168 lm/W                             | 162 lm/W                             | 149 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 850 ADV     | 850/359           | 1,600 lm                                      | 1,510 lm                                      | 400 mA               | 21.6 V                             | 24.9 V                             | 9.2 W   | 171 lm/W                             | 164 lm/W                             | 151 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 865 ADV     | 865/359           | 1,590 lm                                      | 1,500 lm                                      | 400 mA               | 21.6 V                             | 24.9 V                             | 9.2 W   | 170 lm/W                             | 162 lm/W                             | 149 lm/W                             | > 80                       |

<sup>®</sup> Integral measurement over the complete module.

<sup>®</sup> If mounted with M4 screws and plastic washers.

<sup>®</sup> Measured at operating mode HO.

<sup>®</sup> HE ... high efficiency, NM ... nominal mode, HO ... high output.

<sup>®</sup> Tolerance range for optical and electrical data: ±10 %.

## Specific technical data

| Type <sup>①</sup>                  | Photo-metric code | Typ. luminous flux at tp = 25 °C <sup>②</sup> | Typ. luminous flux at tp = 65 °C <sup>③</sup> | Typ. forward current | Min. forward voltage at tp = 65 °C | Max. forward voltage at tp = 25 °C | Typ. power consumption at tp = 65 °C <sup>④</sup> | Efficacy of the module at tp = 25 °C | Efficacy of the module at tp = 65 °C | Efficacy of the system at tp = 65 °C | Colour rendering index CRI |
|------------------------------------|-------------------|---|---|----------------------|------------------------------------|------------------------------------|---|--------------------------------------|--------------------------------------|--------------------------------------|----------------------------|
| <b>Operating mode HO at 450 mA</b> |                   |   |   |                      |                                    |                                    |   |                                      |                                      |                                      |                            |
| LLE G4 24x70mm 160lm 830 ADV       | 830/359           | 210 lm  | 200 lm  | 450 mA               | 2.8 V                              | 3.2 V                              | 1.3 W   | 156 lm/W                             | 153 lm/W                             | 141 lm/W                             | > 80                       |
| LLE G4 24x70mm 160lm 840 ADV       | 840/359           | 220 lm  | 210 lm  | 450 mA               | 2.8 V                              | 3.2 V                              | 1.3 W   | 164 lm/W                             | 160 lm/W                             | 147 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 830 ADV      | 830/359           | 420 lm  | 400 lm  | 450 mA               | 5.5 V                              | 6.6 V                              | 2.6 W   | 157 lm/W                             | 152 lm/W                             | 140 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 840 ADV      | 840/359           | 440 lm  | 420 lm  | 450 mA               | 5.5 V                              | 6.6 V                              | 2.6 W   | 165 lm/W                             | 158 lm/W                             | 145 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 850 ADV      | 850/359           | 450 lm  | 420 lm  | 450 mA               | 5.5 V                              | 6.6 V                              | 2.6 W   | 168 lm/W                             | 161 lm/W                             | 148 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 827 ADV      | 827/359           | 790 lm  | 750 lm  | 450 mA               | 10.9 V                             | 12.8 V                             | 5.2 W   | 148 lm/W                             | 144 lm/W                             | 132 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 830 ADV      | 830/359           | 840 lm  | 800 lm  | 450 mA               | 10.9 V                             | 12.8 V                             | 5.2 W   | 157 lm/W                             | 152 lm/W                             | 140 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 835 ADV      | 835/359           | 850 lm  | 810 lm  | 450 mA               | 10.9 V                             | 12.8 V                             | 5.2 W   | 159 lm/W                             | 154 lm/W                             | 142 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 840 ADV      | 840/359           | 870 lm  | 830 lm  | 450 mA               | 10.9 V                             | 12.8 V                             | 5.2 W   | 166 lm/W                             | 158 lm/W                             | 145 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 850 ADV      | 850/359           | 890 lm  | 840 lm  | 450 mA               | 10.9 V                             | 12.8 V                             | 5.2 W   | 168 lm/W                             | 161 lm/W                             | 148 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 865 ADV      | 865/359           | 880 lm  | 830 lm  | 450 mA               | 10.9 V                             | 12.8 V                             | 5.2 W   | 165 lm/W                             | 158 lm/W                             | 145 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 827 ADV     | 827/359           | 1,580 lm                                      | 1,510 lm                                      | 450 mA               | 21.9 V                             | 25.2 V                             | 10.5 W  | 148 lm/W                             | 144 lm/W                             | 132 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 830 ADV     | 830/359           | 1,670 lm                                      | 1,590 lm                                      | 450 mA               | 21.9 V                             | 25.2 V                             | 10.5 W  | 157 lm/W                             | 152 lm/W                             | 140 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 835 ADV     | 835/359           | 1,690 lm                                      | 1,620 lm                                      | 450 mA               | 21.9 V                             | 25.2 V                             | 10.5 W  | 159 lm/W                             | 154 lm/W                             | 142 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 840 ADV     | 840/359           | 1,750 lm                                      | 1,660 lm                                      | 450 mA               | 21.9 V                             | 25.2 V                             | 10.5 W  | 165 lm/W                             | 158 lm/W                             | 145 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 850 ADV     | 850/359           | 1,780 lm                                      | 1,690 lm                                      | 450 mA               | 21.9 V                             | 25.2 V                             | 10.5 W  | 168 lm/W                             | 161 lm/W                             | 148 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 865 ADV     | 865/359           | 1,760 lm                                      | 1,660 lm                                      | 450 mA               | 21.9 V                             | 25.2 V                             | 10.5 W  | 165 lm/W                             | 158 lm/W                             | 145 lm/W                             | > 80                       |
| <b>Operating mode HO at 500 mA</b> |                   |   |   |                      |                                    |                                    |   |                                      |                                      |                                      |                            |
| LLE G4 24x70mm 160lm 830 ADV       | 830/359           | 230 lm  | 220 lm  | 500 mA               | 2.8 V                              | 3.2 V                              | 1.5 W   | 152 lm/W                             | 149 lm/W                             | 137 lm/W                             | > 80                       |
| LLE G4 24x70mm 160lm 840 ADV       | 840/359           | 240 lm  | 230 lm  | 500 mA               | 2.8 V                              | 3.2 V                              | 1.5 W   | 160 lm/W                             | 156 lm/W                             | 144 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 830 ADV      | 830/359           | 460 lm  | 430 lm  | 500 mA               | 5.5 V                              | 6.6 V                              | 3.0 W   | 153 lm/W                             | 147 lm/W                             | 135 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 840 ADV      | 840/359           | 480 lm  | 450 lm  | 500 mA               | 5.5 V                              | 6.6 V                              | 3.0 W   | 160 lm/W                             | 154 lm/W                             | 142 lm/W                             | > 80                       |
| LLE G4 24x140mm 325lm 850 ADV      | 850/359           | 490 lm  | 460 lm  | 500 mA               | 5.5 V                              | 6.6 V                              | 3.0 W   | 163 lm/W                             | 156 lm/W                             | 144 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 827 ADV      | 827/359           | 860 lm  | 820 lm  | 500 mA               | 11.1 V                             | 12.9 V                             | 5.9 W   | 144 lm/W                             | 139 lm/W                             | 128 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 830 ADV      | 830/359           | 910 lm  | 870 lm  | 500 mA               | 11.1 V                             | 12.9 V                             | 5.9 W   | 153 lm/W                             | 147 lm/W                             | 135 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 835 ADV      | 835/359           | 930 lm  | 890 lm  | 500 mA               | 11.1 V                             | 12.9 V                             | 5.9 W   | 156 lm/W                             | 151 lm/W                             | 139 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 840 ADV      | 840/359           | 950 lm  | 910 lm  | 500 mA               | 11.1 V                             | 12.9 V                             | 5.9 W   | 160 lm/W                             | 154 lm/W                             | 142 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 850 ADV      | 850/359           | 970 lm  | 920 lm  | 500 mA               | 11.1 V                             | 12.9 V                             | 5.9 W   | 163 lm/W                             | 156 lm/W                             | 144 lm/W                             | > 80                       |
| LLE G4 24x280mm 650lm 865 ADV      | 865/359           | 960 lm  | 910 lm  | 500 mA               | 11.1 V                             | 12.9 V                             | 5.9 W   | 161 lm/W                             | 154 lm/W                             | 142 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 827 ADV     | 827/359           | 1,720 lm                                      | 1,640 lm                                      | 500 mA               | 22.1 V                             | 25.4 V                             | 11.8 W  | 144 lm/W                             | 139 lm/W                             | 128 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 830 ADV     | 830/359           | 1,820 lm                                      | 1,730 lm                                      | 500 mA               | 22.1 V                             | 25.4 V                             | 11.8 W  | 153 lm/W                             | 147 lm/W                             | 135 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 835 ADV     | 835/359           | 1,860 lm                                      | 1,780 lm                                      | 500 mA               | 22.1 V                             | 25.4 V                             | 11.8 W  | 156 lm/W                             | 151 lm/W                             | 139 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 840 ADV     | 840/359           | 1,910 lm                                      | 1,810 lm                                      | 500 mA               | 22.1 V                             | 25.4 V                             | 11.8 W  | 160 lm/W                             | 154 lm/W                             | 142 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 850 ADV     | 850/359           | 1,940 lm                                      | 1,840 lm                                      | 500 mA               | 22.1 V                             | 25.4 V                             | 11.8 W  | 163 lm/W                             | 156 lm/W                             | 144 lm/W                             | > 80                       |
| LLE G4 24x560mm 1300lm 865 ADV     | 865/359           | 1,920 lm                                      | 1,810 lm                                      | 500 mA               | 22.1 V                             | 25.4 V                             | 11.8 W  | 161 lm/W                             | 154 lm/W                             | 142 lm/W                             | > 80                       |

<sup>①</sup> Integral measurement over the complete module.

<sup>②</sup> If mounted with M4 screws and plastic washers.

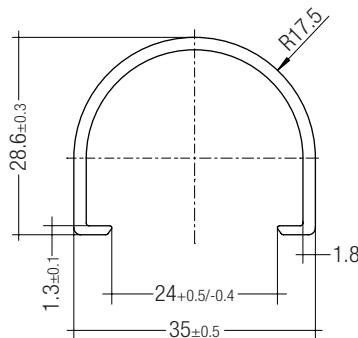
<sup>③</sup> Measured at operating mode HO.

<sup>④</sup> HE ... high efficiency, NM ... nominal mode, HO ... high output.

<sup>⑤</sup> Tolerance range for optical and electrical data: ±10 %.

**Product description**

- LINEAR COVER for LLE 24
- Protection against direct touch for non-SELV applications
- Fast snap on mounting on to LLE 24 with clips or plastic washers
- High transmission: transparent 94 %, semi-transparent 87 %, diffuse 76 %
- Made of PMMA
- Tolerances:  $\pm 1$  mm for 597 mm length (ends finished),  
+ 20 mm for 1,200 / 1,500 / 1,600 / 1,800 mm length (ends raw)

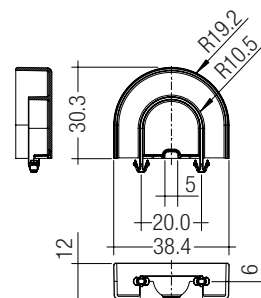
**Ordering data**

| Type                               | Article number | Colour           | Length   | Packaging carton | Weight per pc. |
|------------------------------------|----------------|------------------|----------|------------------|----------------|
| LINEAR COVER SY Transparent 1600mm | 28000338       | Transparent      | 1,600 mm | 12 pc(s).        | 0.272 kg       |
| LINEAR COVER SY Frosted 1800mm     | 28000437       | Semi-transparent | 1,800 mm | 12 pc(s).        | 0.308 kg       |
| LINEAR COVER SY Frosted 1600mm     | 28000339       | Semi-transparent | 1,600 mm | 12 pc(s).        | 0.272 kg       |
| LINEAR COVER SY Frosted 1500mm     | 28000435       | Semi-transparent | 1,500 mm | 12 pc(s).        | 0.244 kg       |
| LINEAR COVER SY Frosted 1200mm     | 28000422       | Semi-transparent | 1,200 mm | 12 pc(s).        | 0.205 kg       |
| LINEAR COVER SY Frosted 597mm      | 28000340       | Semi-transparent | 597 mm   | 12 pc(s).        | 0.102 kg       |
| LINEAR COVER SY Diffuse 1800mm     | 28000438       | Diffuse          | 1,800 mm | 12 pc(s).        | 0.308 kg       |
| LINEAR COVER SY Diffuse 1600mm     | 28000341       | Diffuse          | 1,600 mm | 12 pc(s).        | 0.272 kg       |
| LINEAR COVER SY Diffuse 1500mm     | 28000436       | Diffuse          | 1,500 mm | 12 pc(s).        | 0.257 kg       |
| LINEAR COVER SY Diffuse 1200mm     | 28000434       | Diffuse          | 1,200 mm | 12 pc(s).        | 0.205 kg       |
| LINEAR COVER SY Diffuse 597mm      | 28000342       | Diffuse          | 597 mm   | 12 pc(s).        | 0.102 kg       |

## ACL ENDCAP LLE24 PUSH-FIX

## Product description

- ENDCAP for LLE 24
- Fast snap on mounting (sheet thickness 0.5 – 1.0 mm), for drilling hole 4 mm
- Made of Polycarbonat



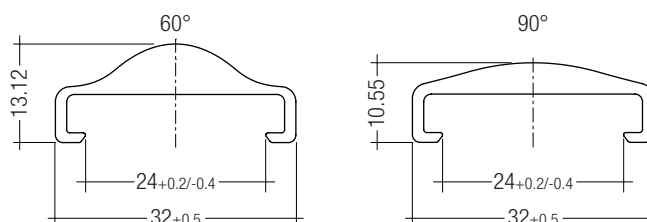
## Ordering data

| Type                      | Article number | Colour | Packaging carton | Weight per pc. |
|---------------------------|----------------|--------|------------------|----------------|
| ACL ENDCAP LLE24 PUSH-FIX | 28001037       | White  | 480 pc(s).       | 0.003 kg       |

## LINEAR LENS

## Product description

- Linear lens for LLE 24
- Available in 60° and 90° light distribution
- Protection against direct touch for non-SELV applications
- Fast snap on mounting on to LLE 24 with clips or plastic washers
- High transmission: semi-transparent 97 %
- Linear lense made of PMMA
- Tolerances:  $\pm 20$  mm for 1,600 mm length (ends raw)



## Ordering data

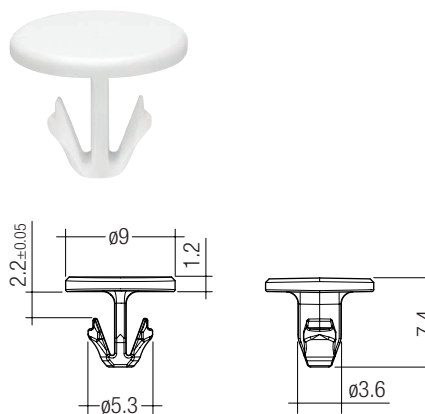
| Type                          | Article number | Colour           | Length   | Packaging carton | Weight per pc. |
|-------------------------------|----------------|------------------|----------|------------------|----------------|
| ACL LINEAR LENS 24x1200mm 60° | 28001428       | Semi-transparent | 1,200 mm | 21 pc(s).        | 0.196 kg       |
| ACL LINEAR LENS 24x1200mm 90° | 28001429       | Semi-transparent | 1,200 mm | 21 pc(s).        | 0.165 kg       |
| ACL LINEAR LENS 24x1600mm 60° | 28000953       | Semi-transparent | 1,600 mm | 21 pc(s).        | 0.261 kg       |
| ACL LINEAR LENS 24x1600mm 90° | 28000955       | Semi-transparent | 1,600 mm | 21 pc(s).        | 0.221 kg       |



## CLIP 4.3mm

## Product description

- Clip for fixation of LED modules with 4.3 mm holes
- Fast snap on mounting (sheet thickness 0.5 – 1.0 mm)
- For drilling hole 4 mm
- Clip made of Polycarbonat



## Ordering data

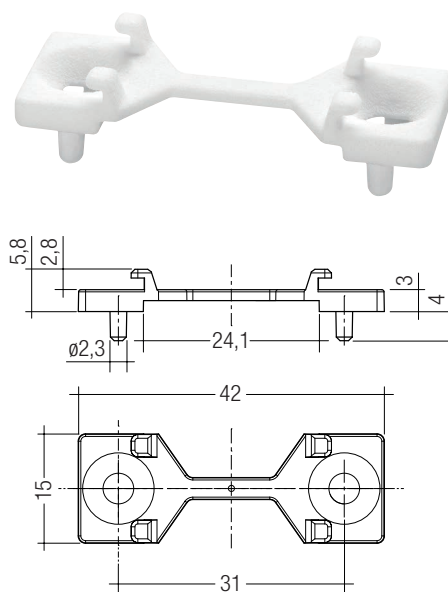
| Type                    | Article number | Colour | Packaging bag <sup>®</sup> | Weight per pc. |
|-------------------------|----------------|--------|----------------------------|----------------|
| ACL CLIP 4.3mm PUSH-FIX | 28001036       | White  | 500 pc(s).                 | 0.001 kg       |

<sup>®</sup> Minimum sales quantity 500 pcs.

## BRIDGE LLE24/40

## Product description

- Enables the fixation of 24 mm wide Tridonic LED modules to fixtures made for 40 mm wide modules
- Ideal for extruded aluminium gear trays made for 40 mm modules with pre-alignment knobs
- Clip-on for LINEAR COVER and LINEAR LENS<sup>®</sup>
- For LLE 24 with 280 mm module minimum 2 bridges required
- For LLE 24 with 560 mm module minimum 3 bridges required
- Fixation via M3 or M4 countersunk screw, max. tightening torque 0.5 Nm
- BRIDGE made of white polycarbonate



## Ordering data

| Type                          | Article number | Colour | Packaging carton <sup>®</sup> | Weight per pc. |
|-------------------------------|----------------|--------|-------------------------------|----------------|
| ACL BRIDGE LLE24/40 SCREW-FIX | 28001205       | White  | 600 Stk.                      | 0.001 kg       |

<sup>®</sup> Minimum sales quantity 600 pcs.

<sup>®</sup> Beam characteristics will change due to the elevated fixation (see photometric files for details).

## 1. Standards

IEC 62031  
IEC 62471  
IEC 61000-4-2

UL certification for LLE G4 24x140mm, 24x280mm, 24x560mm.

### 1.1 Photometric code

Key for photometric code, e. g. 830 / 349

| 1 <sup>st</sup> digit | 2 <sup>nd</sup> + 3 <sup>rd</sup> digit | 4 <sup>th</sup> digit | 5 <sup>th</sup> digit                         | 6 <sup>th</sup> digit                                |               |        |
|-----------------------|---|-----------------------|---|--|---------------|--------|
| Code                  | Colour temperature in Kelvin x 100      | McAdam initial        | McAdam after 25% of the life-time (max.6000h) | Luminous flux after 25% of the life-time (max.6000h) |               |        |
| CRI                   |   |                       |   | Code   | Luminous flux |        |
| 7                     |   |                       |   | 70 – 79  | 7             | ≥ 70 % |
| 8                     |   |                       |   | 80 – 89  | 8             | ≥ 80 % |
| 9                     | ≥90                                     |                       | 9   | ≥ 90 %   |               |        |

### 1.2 Energy classification

| Typ             | Energieklassifizierung |
|-----------------|------------------------|
| LLE G4 24mm ADV | A++                    |

## 2. Thermal details

### 2.1 tc point, ambient temperature and life-time

The temperature at tp reference point is crucial for the light output and life-time of a LED product.

For LLE a tp temperature of 65°C has to be complied in order to achieve an optimum between heat sink requirements, light output and life-time.

Compliance with the maximum permissible reference temperature at the tc point must be checked under operating conditions in a thermally stable state. The maximum value must be determined under worst-case conditions for the relevant application.

The tc and tp temperature of LED modules from Tridonic are measured at the same reference point.

### 2.2 Storage and humidity

|                     |                 |
|---------------------|-----------------|
| Storage temperature | -40 ... +100 °C |
|---------------------|-----------------|

Operation only in non condensing environment.

Humidity during processing of the module should be between 0 to 60 %.

### 2.3 Thermal design and heat sink

The rated life of LED products depends to a large extent on the temperature. If the permissible temperature limits are exceeded, the life of the LLE will be greatly reduced or the LLE may be destroyed.

### 2.4 Heat sink values

#### LLE G4 24x140mm 325lm 8xx ADV

| ta   | tp   | Forward current | R <sub>th, hs-a</sub> | Cooling area |
|------|------|-----------------|-----------------------|--------------|
| 25°C | 65°C | 225 mA          |                       | self cooling |
| 25°C | 65°C | 275 mA          |                       | self cooling |
| 25°C | 65°C | 325 mA          |                       | self cooling |
| 25°C | 65°C | 400 mA          |                       | self cooling |
| 35°C | 65°C | 225 mA          |                       | self cooling |
| 35°C | 65°C | 275 mA          |                       | self cooling |
| 35°C | 65°C | 325 mA          |                       | self cooling |
| 35°C | 65°C | 400 mA          |                       | self cooling |
| 45°C | 65°C | 225 mA          |                       | self cooling |
| 45°C | 65°C | 275 mA          |                       | self cooling |
| 45°C | 65°C | 325 mA          |                       | self cooling |
| 45°C | 65°C | 400 mA          |                       | self cooling |

#### LLE G4 24x280mm 650lm 8xx ADV

| ta   | tp   | Forward current | R <sub>th, hs-a</sub> | Cooling area |
|------|------|-----------------|-----------------------|--------------|
| 25°C | 65°C | 225 mA          |                       | self cooling |
| 25°C | 65°C | 275 mA          |                       | self cooling |
| 25°C | 65°C | 325 mA          |                       | self cooling |
| 25°C | 65°C | 400 mA          |                       | self cooling |
| 35°C | 65°C | 225 mA          |                       | self cooling |
| 35°C | 65°C | 275 mA          |                       | self cooling |
| 35°C | 65°C | 325 mA          |                       | self cooling |
| 35°C | 65°C | 400 mA          |                       | self cooling |
| 45°C | 65°C | 225 mA          |                       | self cooling |
| 45°C | 65°C | 275 mA          |                       | self cooling |
| 45°C | 65°C | 325 mA          |                       | self cooling |
| 45°C | 65°C | 400 mA          |                       | self cooling |

#### LLE G4 24x560mm 1300lm 8xx ADV

| ta   | tp   | Forward current | R <sub>th, hs-a</sub> | Cooling area |
|------|------|-----------------|-----------------------|--------------|
| 25°C | 65°C | 225 mA          |                       | self cooling |
| 25°C | 65°C | 275 mA          |                       | self cooling |
| 25°C | 65°C | 325 mA          |                       | self cooling |
| 25°C | 65°C | 400 mA          |                       | self cooling |
| 35°C | 65°C | 225 mA          |                       | self cooling |
| 35°C | 65°C | 275 mA          |                       | self cooling |
| 35°C | 65°C | 325 mA          |                       | self cooling |
| 35°C | 65°C | 400 mA          |                       | self cooling |
| 45°C | 65°C | 225 mA          |                       | self cooling |
| 45°C | 65°C | 275 mA          |                       | self cooling |
| 45°C | 65°C | 325 mA          |                       | self cooling |
| 45°C | 65°C | 400 mA          |                       | self cooling |

### Notes

The actual cooling surface can differ because of the material, the structural shape, outside influences and the installation situation. Depending on the heat sink a heat conducting paste or heat conducting film might be necessary to keep the specified tp temperature.

### 3. Installation / wiring

#### 3.1 Electrical supply/choice of LED Driver

LLE modules from Tridonic are not protected against overvoltages, overcurrents, overloads or short-circuit currents. Safe and reliable operation can only be guaranteed in conjunction with a LED Driver which complies with the relevant standards. The use of LED Driver from Tridonic in combination with LLE modules guarantees the necessary protection for safe and reliable operation.

If a LED Driver other than Tridonic is used, it must provide the following protection:

- Short-circuit protection
- Overload protection
- Overtemperature protection



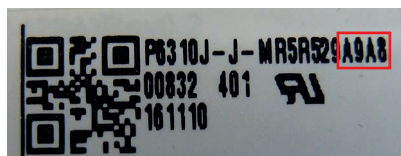
LLE modules must be supplied by a constant current LED Driver. Operation with a constant voltage LED Driver will lead to an irreversible damage of the module.

Wrong polarity can damage the LLE.

With parallel wiring tolerance-related differences in output are possible (thermal stress of the module) and can cause differences in brightness. Not more than three LLE G4 24x560mm ADV or six LLE G4 24x280mm ADV are allowed to be connected in parallel. It is also recommended to use the functionality of the double terminal (internal loop through for parallel wiring) only for two LLE G4 24x560mm ADV or four LLE G4 24x280mm ADV (see wiring examples).

For parallel wiring only modules of the same forward voltage bin may be used.

The forward voltage bin indicated on the label of the module.



If a wire breaks or a complete module fails then the current passing through the other module increases. This may reduce its life considerably.

TALEXmodule LLE can be operated either from SELV LED Drivers or from LED Drivers with LV output voltage.



TALEXmodule LLE are basic isolated up to 320 V (if mounted with M4 screws with head diameter 7 mm in combination with plastic washers) against ground and can be mounted directly on earthed metal parts of the luminaire. If the max. output voltage of the LED Driver (also against earth) is above 320 V, an additional isolation between LED module and heat sink is required (for example by isolated thermal pads) or by a suitable luminaire construction.

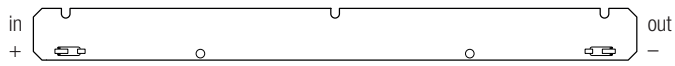
At voltages > 60 V an additional protection against direct touch (test finger) to the light emitting side of the module has to be guaranteed. This is typically achieved by means of a non removable light distributor over the module.

#### LED Driver for parallel wiring

| LED module                    | Forward current        | LCA 45W 500-1400mA one4all SR PRE        | LCA 50W 350-1050mA one4all Ip PRE | LCA 75W 900-1800mA one4all Ip PRE |
|-------------------------------|------------------------|--|-----------------------------------|-----------------------------------|
| LLE G4 24x280mm 650lm 4T ADV  | 225 mA                 | 3 modules in series x 3 – 5              | 2 – 3 modules in series x 2 – 4   | 2 – 3 modules in series x 4 – 8   |
|                               | 275 mA                 | 3 modules in series x 2 – 4              | 2 – 3 modules in series x 2 – 3   | 2 – 3 modules in series x 4 – 6   |
|                               | 300 mA                 | 3 modules in series x 2 – 3              | 2 – 3 modules in series x 2 – 3   | 2 – 3 modules in series x 3 – 6   |
|                               | 325 mA                 | 3 modules in series x 2 – 3              | 2 – 3 modules in series x 2 – 3   | 2 – 3 modules in series x 3 – 5   |
|                               | 350 mA                 | 3 modules in series x 2 – 3              | 2 – 3 modules in series x 2 – 3   | 2 – 3 modules in series x 3 – 5   |
|                               | 400 mA                 | 3 modules in series x 2                  | 2 – 3 modules in series x 2       | 2 – 3 modules in series x 3 – 4   |
|                               | 450 mA                 | 3 modules in series x 2                  | 2 – 3 modules in series x 2       | 2 – 3 modules in series x 2 – 4   |
|                               | 500 mA                 | 3 modules in series x 2                  | 2 – 3 modules in series x 2       | 2 – 3 modules in series x 2 – 3   |
| LLE G4 24x560mm 1300lm 4T ADV | 225 mA                 | 2 modules in series x 3 – 4 <sup>①</sup> | 1 module in series x 2 – 4        | 1 module in series x 4 – 8        |
|                               | 275 mA                 | 2 modules in series x 2 – 3 <sup>①</sup> | 1 module in series x 2 – 3        | 1 module in series x 4 – 6        |
|                               | 300 mA                 | 2 modules in series x 2 – 3 <sup>①</sup> | 1 module in series x 2 – 3        | 1 module in series x 3 – 6        |
|                               | 325 mA                 | 2 modules in series x 2 <sup>①</sup>     | 1 module in series x 2 – 3        | 1 module in series x 3 – 5        |
|                               | 350 mA                 | 2 modules in series x 2 <sup>①</sup>     | 1 module in series x 2 – 3        | 1 module in series x 3 – 5        |
|                               | 400 mA                 | –  | 1 module in series x 2            | 1 module in series x 3 – 4        |
|                               | 450 mA                 | –  | 1 module in series x 2            | 1 module in series x 2 – 4        |
| 500 mA                        | 1 module in series x 2 | 1 module in series x 2                   | 1 module in series x 2 – 3        |                                   |

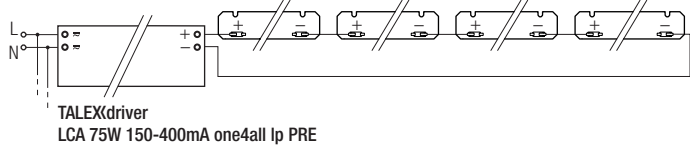
<sup>①</sup> Upgrade of LED Driver is necessary to work reliable at low temperatures for this combination. This will be realised in July 2016.

3.2 Wiring

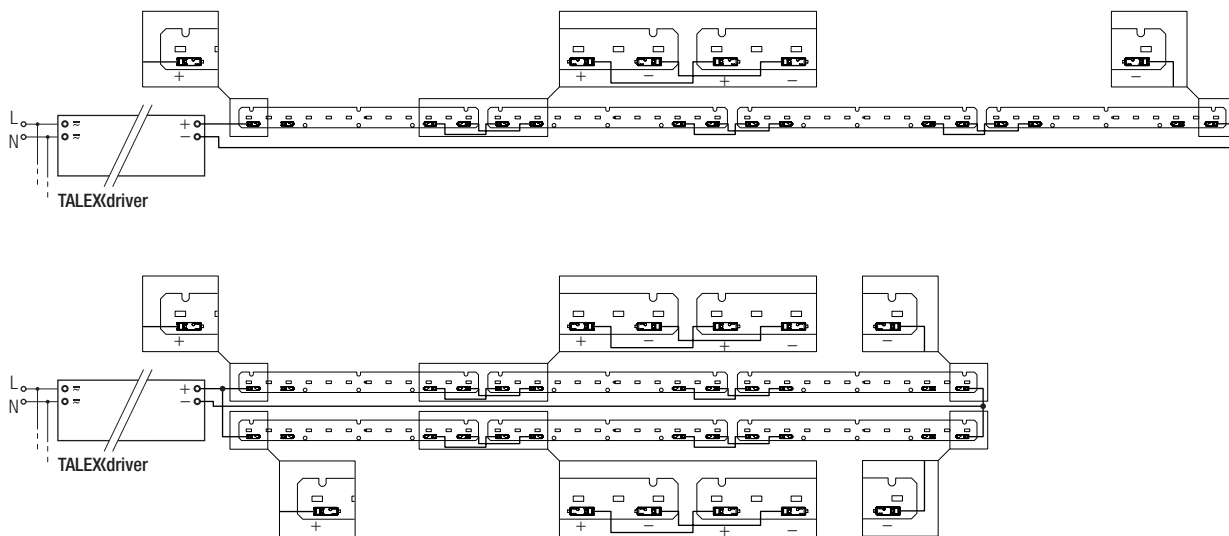


Wiring examples

Serial wiring:



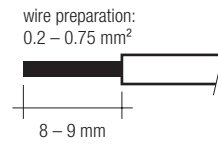
Parallel wiring:



3.3 Wiring type and cross section

The wiring can be in stranded wires or solid with a cross section of 0.2 to 0.75 mm<sup>2</sup>.

For the push-wire connection you have to strip the insulation (8-9 mm).



To remove the wires use a suitable tool (e.g. Microcon release pin) or through twist and pull.

**3.4 Mounting instruction**



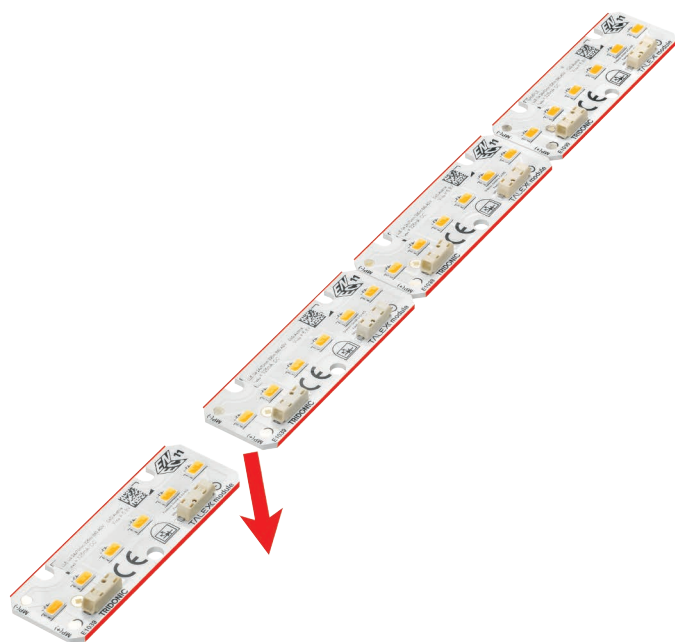
None of the components of the LLE (substrate, LED, electronic components etc.) may be exposed to tensile or compressive stresses.

Max. torque for fixing: 0.5 Nm.

The LED modules are mounted onto a heat sink with min. 3 screws per module or ACL CLIP 4.3mm.

It is not allowed to touch or put force on the LED's and connectors while breaking the modules apart.

Only touch the module at the edge to separate the modules (see marking below).



Chemical substance may harm the LED module. Chemical reactions could lead to colour shift, reduced luminous flux or a total failure of the module caused by corrosion of electrical connections.

Materials which are used in LED applications (e.g. sealings, adhesives) must not produce dissolver gas. They must not be condensation curing based, acetate curing based or contain sulfur, chlorine or phthalate.

Avoid corrosive atmosphere during usage and storage.

**3.5 EOS/ESD safety guidelines**



The device / module contains components that are sensitive to electrostatic discharge and may only be installed in the factory and on site if appropriate EOS/ESD protection measures have been taken. No special measures need to be taken for devices/modules with enclosed casings (contact with the pc board not possible), just normal installation practice. Please note the requirements set out in the document EOS / ESD guidelines (Guideline\_EOS\_ESD.pdf) at: <http://www.tridonic.com/esd-protection>

**4. Life-time**

**4.1 Life-time, lumen maintenance and failure rate**

The light output of an LED Module decreases over the life-time, this is characterized with the L value.

L70 means that the LED module will give 70 % of its initial luminous flux. This value is always related to the number of operation hours and therefore defines the life-time of an LED module.

As the L value is a statistical value and the lumen maintenance may vary over the delivered LED modules.

The B value defines the amount of modules which are below the specific L value, e.g. L70B10 means 10 % of the LED modules are below 70 % of the initial luminous flux, respectively 90 % will be above 70 % of the initial value. In addition the percentage of failed modules (fatal failure) is characterized by the C value.

The F value is the combination of the B and C value. That means for F degradation and complete failures are considered, e.g. L70F10 means 10 % of the LED modules may fail or be below 70 % of the initial luminous flux.

**4.2 Lumen maintenance for LLE G4 24mm ADV**

| Forward current | tp temperature | L90 / F10 L90 / F50 L80 / F10 L80 / F50 L70 / F10 L70 / F50 |          |           |           |           |           |
|-----------------|----------------|---|----------|-----------|-----------|-----------|-----------|
|                 |                | 45 °C   | 38,000 h | 43,000 h  | >60,000 h | >60,000 h | >60,000 h |
| 100 mA          | 55 °C          | 35,000 h  | 40,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
|                 | 65 °C          | 30,000 h  | 34,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
|                 | 75 °C          | 26,000 h  | 29,000 h | 54,000 h  | >60,000 h | >60,000 h | >60,000 h |
| 150 mA          | 45 °C          | 37,000 h  | 43,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
|                 | 55 °C          | 34,000 h  | 38,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
|                 | 65 °C          | 29,000 h  | 32,000 h | 58,000 h  | >60,000 h | >60,000 h | >60,000 h |
| 200 mA          | 75 °C          | 25,000 h  | 28,000 h | 51,000 h  | 57,000 h  | >60,000 h | >60,000 h |
|                 | 45 °C          | 37,000 h  | 42,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
|                 | 55 °C          | 33,000 h  | 37,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
| 225 mA          | 65 °C          | 28,000 h  | 31,000 h | 55,000 h  | >60,000 h | >60,000 h | >60,000 h |
|                 | 75 °C          | 23,000 h  | 26,000 h | 48,000 h  | 54,000 h  | >60,000 h | >60,000 h |
|                 | 45 °C          | 37,000 h  | 42,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
| 275 mA          | 55 °C          | 32,000 h  | 37,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
|                 | 65 °C          | 27,000 h  | 30,000 h | 54,000 h  | >60,000 h | >60,000 h | >60,000 h |
|                 | 75 °C          | 23,000 h  | 25,000 h | 46,000 h  | 52,000 h  | >60,000 h | >60,000 h |
| 325 mA          | 45 °C          | 36,000 h  | 41,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
|                 | 55 °C          | 31,000 h  | 36,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
|                 | 65 °C          | 26,000 h  | 29,000 h | 51,000 h  | 59,000 h  | >60,000 h | >60,000 h |
| 400 mA          | 75 °C          | 21,000 h  | 24,000 h | 43,000 h  | 48,000 h  | >60,000 h | >60,000 h |
|                 | 45 °C          | 36,000 h  | 41,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
|                 | 55 °C          | 30,000 h  | 34,000 h | 58,000 h  | >60,000 h | >60,000 h | >60,000 h |
| 450 mA          | 65 °C          | 25,000 h  | 27,000 h | 48,000 h  | 56,000 h  | >60,000 h | >60,000 h |
|                 | 75 °C          | 20,000 h  | 22,000 h | 40,000 h  | 45,000 h  | >60,000 h | >60,000 h |
|                 | 45 °C          | 36,000 h  | 40,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
| 500 mA          | 55 °C          | 29,000 h  | 33,000 h | 55,000 h  | >60,000 h | >60,000 h | >60,000 h |
|                 | 65 °C          | 23,000 h  | 25,000 h | 44,000 h  | 51,000 h  | >60,000 h | >60,000 h |
|                 | 75 °C          | 18,000 h  | 19,000 h | 35,000 h  | 40,000 h  | 59,000 h  | >60,000 h |
| 500 mA          | 45 °C          | 35,000 h  | 40,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
|                 | 55 °C          | 28,000 h  | 32,000 h | 53,000 h  | 60,000 h  | >60,000 h | >60,000 h |
|                 | 65 °C          | 21,000 h  | 23,000 h | 41,000 h  | 48,000 h  | >60,000 h | >60,000 h |
| 500 mA          | 75 °C          | 16,000 h  | 18,000 h | 32,000 h  | 36,000 h  | 54,000 h  | >60,000 h |
|                 | 45 °C          | 35,000 h  | 39,000 h | >60,000 h | >60,000 h | >60,000 h | >60,000 h |
|                 | 55 °C          | 27,000 h  | 30,000 h | 51,000 h  | >60,000 h | >60,000 h | >60,000 h |
| 500 mA          | 65 °C          | 20,000 h  | 22,000 h | 38,000 h  | 44,000 h  | >60,000 h | >60,000 h |
|                 | 75 °C          | 15,000 h  | 16,000 h | 29,000 h  | 32,000 h  | 49,000 h  | 56,000 h  |

## 5. Electrical values

### 5.1 Declaration of electrical parameters

Irated ... Nominal operating current the module is designed for.

I<sub>max</sub> ... Max. permissible continuous operating current.

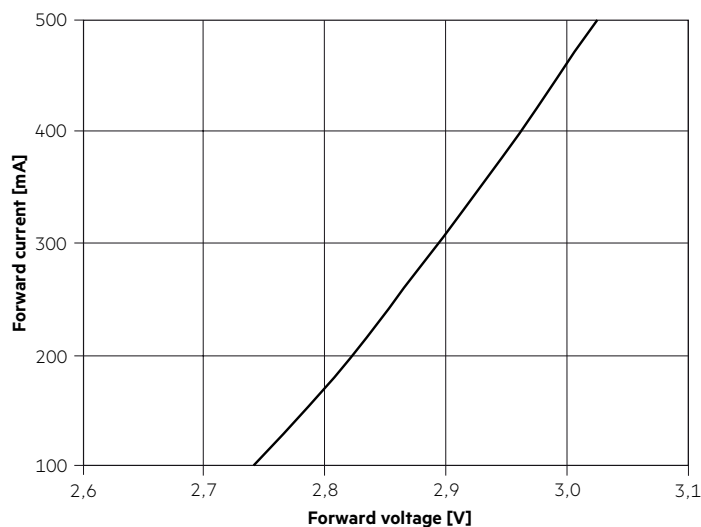
Max. DC forward current ... Max. permissible continuous operating current incl. The tolerances of the LED driver. LED module may be destroyed if this value is exceeded.

Max. permissible LF current ripple ... Max. output current of the LED driver incl. Tolerances and LF current ripple must not exceed this value.

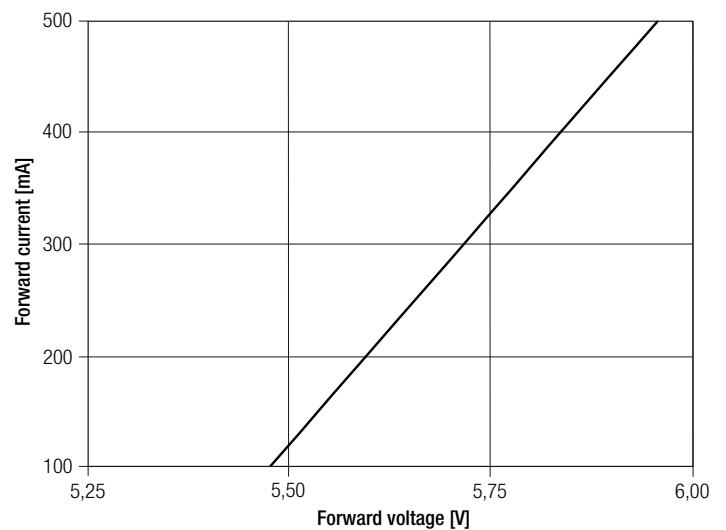
Max. permissible peak current ... The max. output peak current of the LED driver must not exceed this value.

### 5.2 Typ. forward voltage vs. forward current

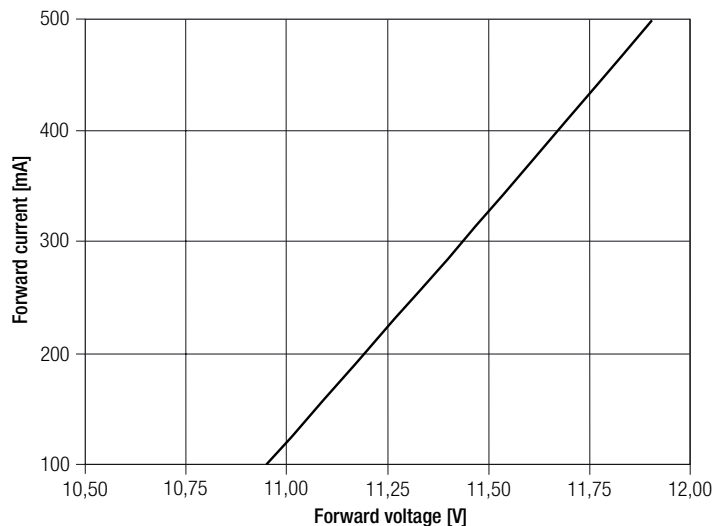
**LLE G4 24x70mm 160lm 8xx ADV**



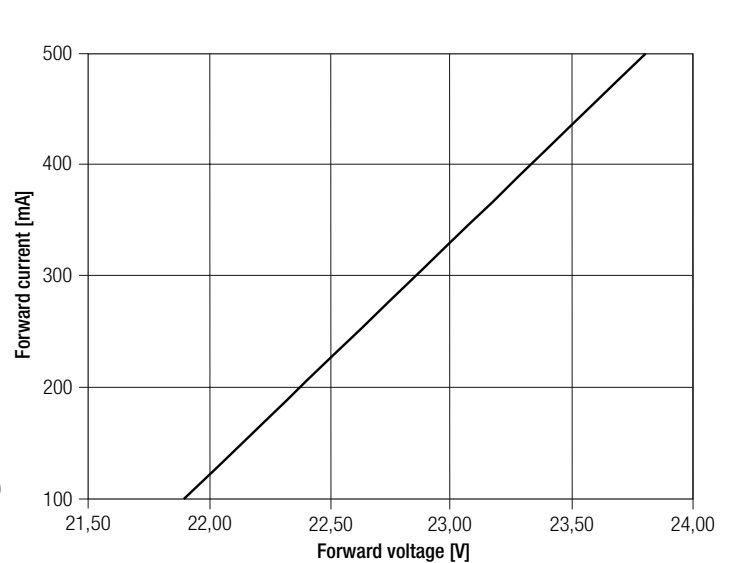
**LLE G4 24x140mm 325lm 8xx ADV**



**LLE G4 24x280mm 650lm 8xx ADV**

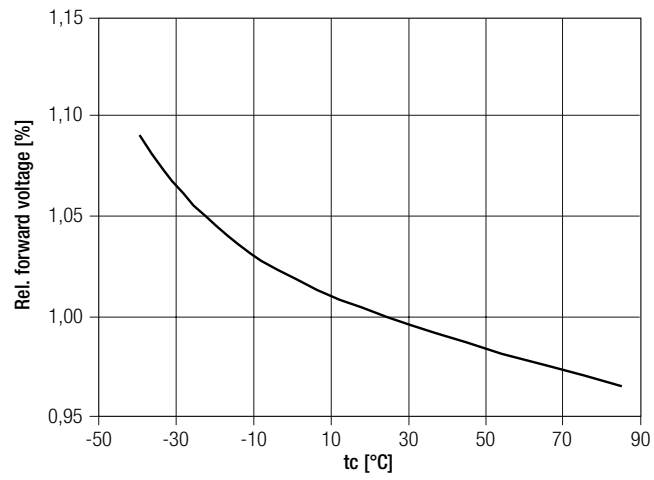


**LLE G4 24x560mm 1300lm 8xx ADV**



The diagrams are based on statistic values.  
The real values can be different.

### 5.3 Forward voltage vs. tc temperature



The diagrams are based on statistic values.  
The real values can be different.

## 6. Photometric characteristics

### 6.1 Coordinates and tolerances according to CIE 1931

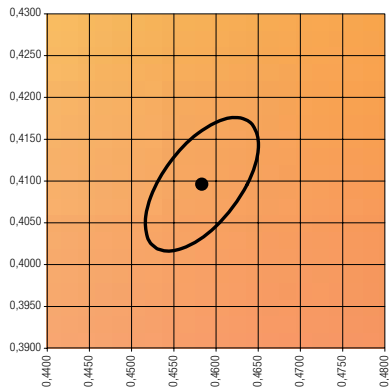
The specified colour coordinates are integral measured by current impulse of 325 mA and a duration of 100 ms.

The ambient temperature of the measurement is  $t_a = 25^\circ\text{C}$ .

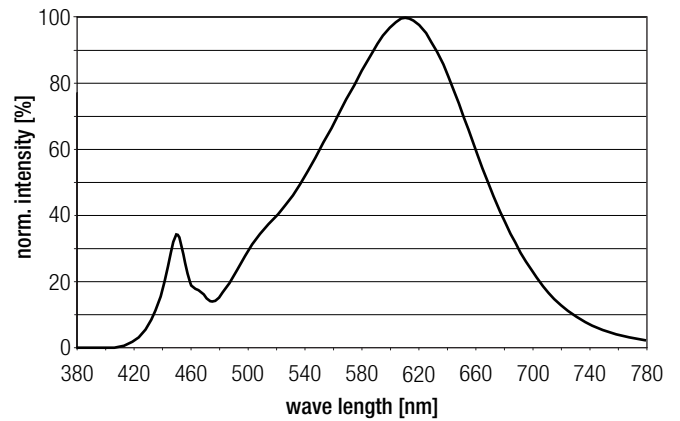
The measurement tolerance of the colour coordinates are  $\pm 0.01$ .

#### 2,700 K

|        | x0     | y0     |
|--------|--------|--------|
| Centre | 0.4578 | 0.4093 |

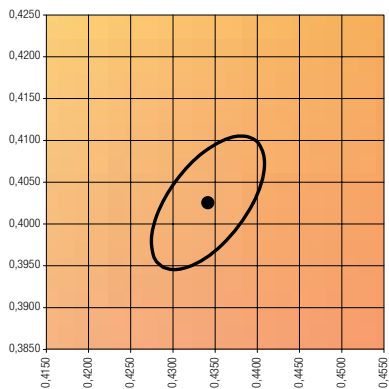


— MacAdam Ellipse: 3SDCM

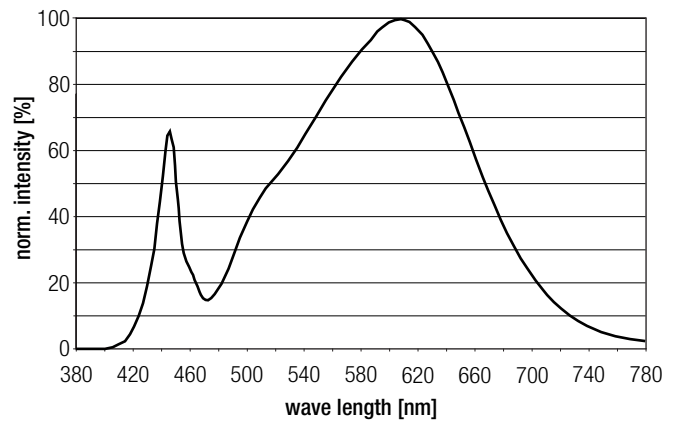


#### 3,000 K

|        | x0     | y0     |
|--------|--------|--------|
| Centre | 0.4340 | 0.4026 |

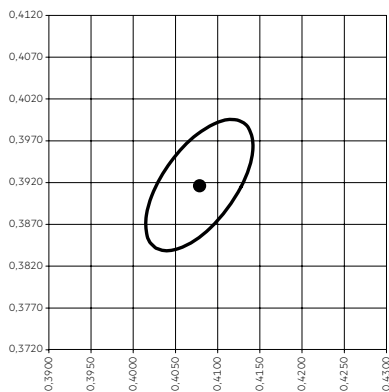


— MacAdam Ellipse: 3SDCM

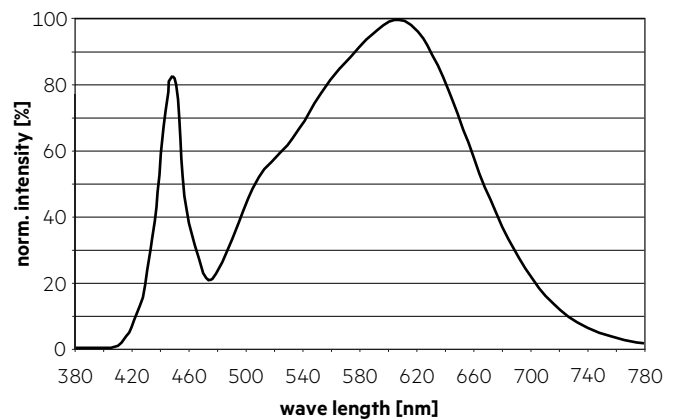


#### 3,500 K

|        | x0     | y0     |
|--------|--------|--------|
| Center | 0.4078 | 0.3917 |



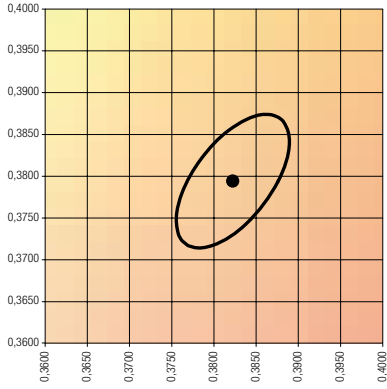
— MacAdam Ellipse: 3SDCM



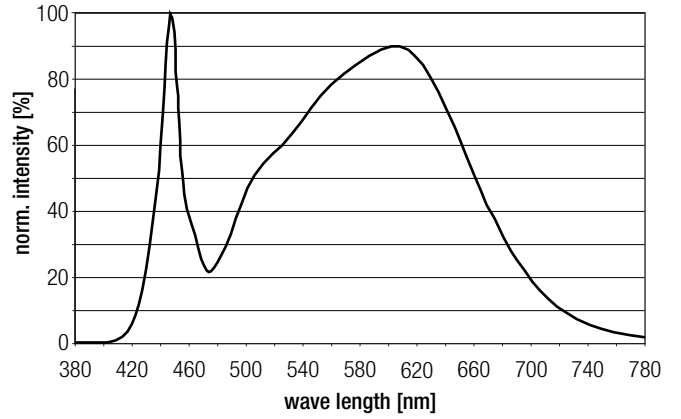


**4,000 K**

|        | x0     | y0     |
|--------|--------|--------|
| Center | 0.3822 | 0.3794 |

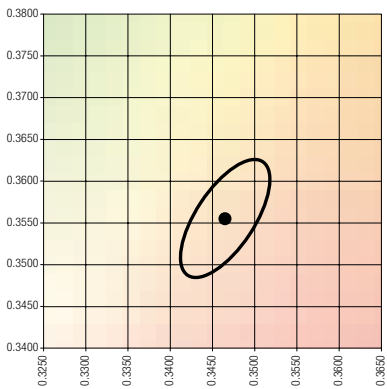


— MacAdam Ellipse: 3SDCM

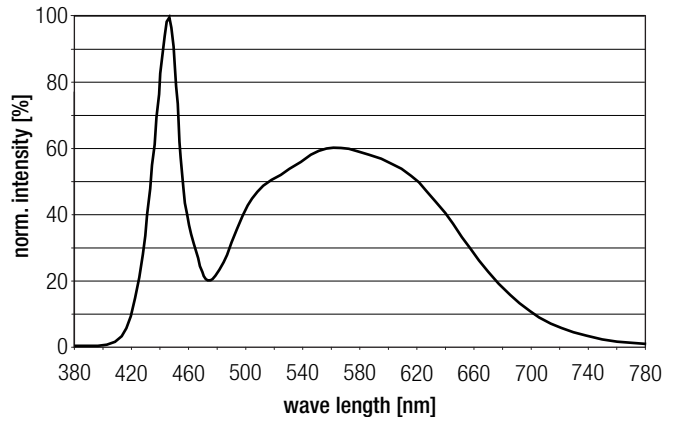


**5,000 K**

|        | x0     | y0     |
|--------|--------|--------|
| Center | 0.3447 | 0.3547 |

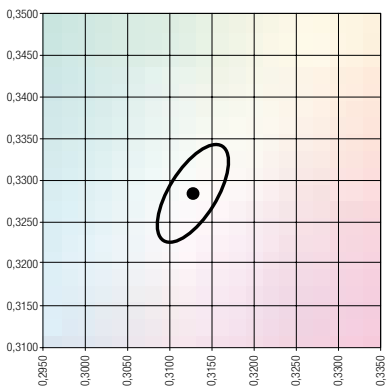


— MacAdam Ellipse: 3SDCM

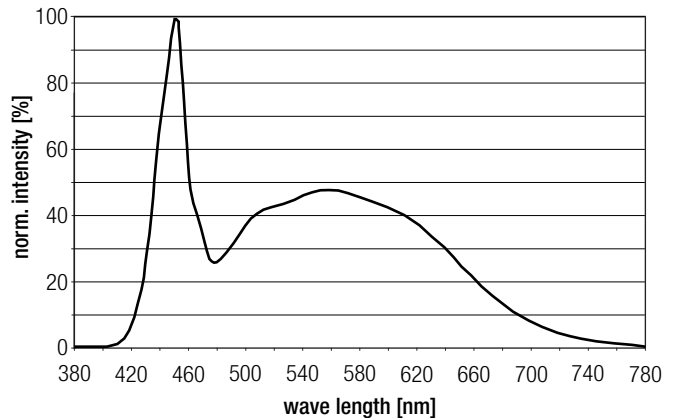


**6,500 K**

|        | x0     | y0     |
|--------|--------|--------|
| Center | 0.3126 | 0.3280 |

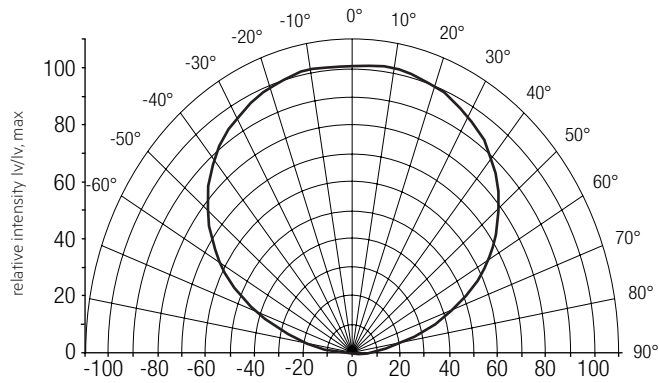


— MacAdam Ellipse: 3SDCM



### 6.2 Light distribution

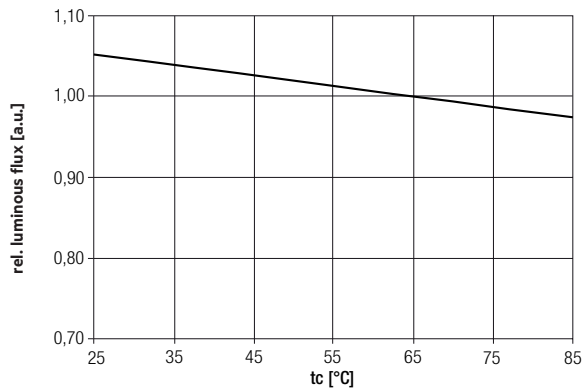
The optical design of the LLE product line ensures optimum homogeneity for the light distribution.



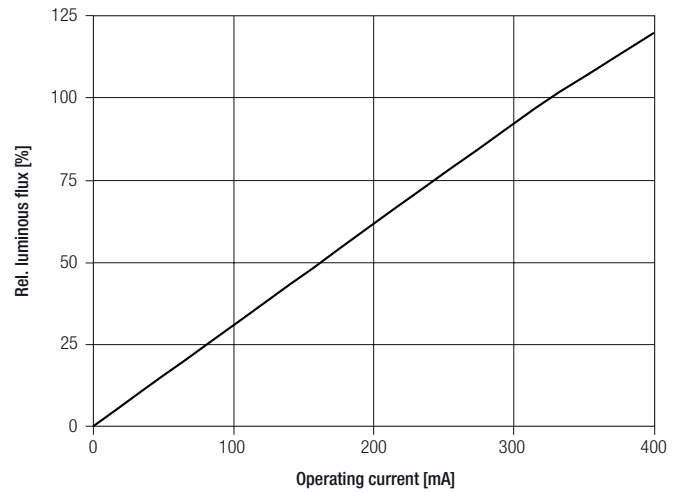
The colour temperature is measured integral over the complete module. The single LED light points can have deviations in the colour coordinates within MacAdam 3.

To ensure an ideal mixture of colours and a homogenous light distribution a suitable optic (e. g. PMMA diffuser) and a sufficient spacing between module and optic (typ. 4 cm) should be used.

### 6.3 Relative luminous flux vs. tc temperature



### 6.4 Relative luminous flux vs. operating current



The diagrams are based on statistic values. The real values can be different.

## 7. Miscellaneous

### 7.1 Additional information

Additional technical information at [www.tridonic.com](http://www.tridonic.com) → Technical Data

Guarantee conditions at [www.tridonic.com](http://www.tridonic.com) → Services

Life-time declarations are informative and represent no warranty claim.