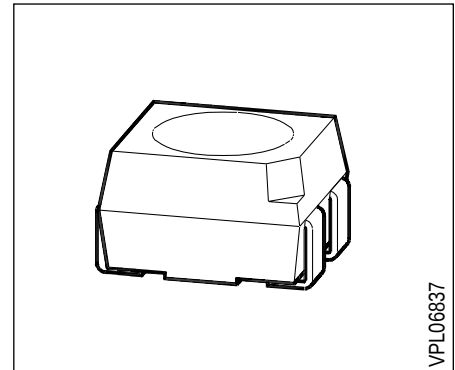


## Multi TOPLED®

**LSS T670, LOO T670, LYY T670  
LGG T670, LPP T670**

### Besondere Merkmale

- Gehäusebauform: P-LCC-4
- Gehäusefarbe: weiß
- als optischer Indikator einsetzbar
- beide Leuchtdiodenchips getrennt ansteuerbar
- zur Hinterleuchtung, Lichtleiter- und Linseneinkopplung
- für alle SMT-Bestück- und Löttechniken geeignet
- gegurtet (8-mm-Filmgurt)
- Störimpulsfest nach DIN 40839



### Features

- P-LCC-4 package
- color of package: white
- for use as optical indicator
- both chips can be controlled separately
- for backlighting, optical coupling into light pipes and lenses
- suitable for all SMT assembly and soldering methods
- available taped on reel (8 mm tape)
- load dump resistant acc. to DIN 40839

| Typ           | Emissions-<br>farbe       | Farbe der<br>Lichtaustritts-<br>fläche | Lichtstärke <sup>1)</sup>                                                           | Lichtstrom                                                         | Bestellnummer |
|---------------|---------------------------|----------------------------------------|-------------------------------------------------------------------------------------|--------------------------------------------------------------------|---------------|
| Type          | Color of<br>Emission      | Color of the<br>Light Emitting<br>Area | Luminous<br>Intensity <sup>1)</sup><br>$I_F = 10 \text{ mA}$<br>$I_V \text{ (mcd)}$ | Luminous<br>Flux<br>$I_F = 10 \text{ mA}$<br>$\Phi_V \text{ (lm)}$ | Ordering Code |
| ■ LSS T670-JO | super-red/<br>super-red   | colorless clear                        | $\geq 4.0 \text{ (8 typ.)}$                                                         | 24 (typ.)                                                          | Q62703-Q2902  |
| ■ LOO T670-JO | orange/<br>orange         | colorless clear                        | $\geq 4.0 \text{ (8 typ.)}$                                                         | 24 (typ.)                                                          | Q62703-Q2903  |
| ■ LYY T670-JO | yellow/<br>yellow         | colorless clear                        | $\geq 4.0 \text{ (8 typ.)}$                                                         | 24 (typ.)                                                          | Q62703-Q2904  |
| LGG T670-JO   | green/<br>green           | colorless clear                        | $\geq 4.0 \text{ (10 typ.)}$                                                        | 30 (typ.)                                                          | Q62703-Q2905  |
| LPP T670-HO   | pure green/<br>pure green | colorless clear                        | $\geq 2.5 \text{ (5 typ.)}$                                                         | 15 (typ.)                                                          | Q62703-Q2906  |

■ Not for new design / Nicht für Neuentwicklungen

Streuung der Lichtstärke in einer Verpackungseinheit  $I_{V \max} / I_{V \min} \leq 2.0$ .<sup>1)</sup>  
Streuung der Lichtstärke in einer LED  $I_{V \max} / I_{V \min} \leq 2.0$ .

<sup>1)</sup> Bei MULTILED® mit 2 gleichfarbigen Chips in einem Gehäuse wird die Helligkeitsgruppe aus dem Mittelwert der Lichtstärken ermittelt.

Luminous intensity ratio in one packaging unit  $I_{V \max} / I_{V \min} \leq 2.0$ .<sup>1)</sup>  
Luminous intensity ratio in one LED  $I_{V \max} / I_{V \min} \leq 2.0$ .

<sup>1)</sup> In case of MULTILED® with two chips of the same color in one package, the mean of the brightness determines the brightness group of the LED.

### Grenzwerte Maximum Ratings

| Bezeichnung<br>Parameter                                                                                                                                                                                    | Symbol<br>Symbol                     | Werte<br>Values | Einheit<br>Unit |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------------------------|-----------------|-----------------|
| Betriebstemperatur<br>Operating temperature range                                                                                                                                                           | $T_{op}$                             | – 55 ... + 100  | °C              |
| Lagertemperatur<br>Storage temperature range                                                                                                                                                                | $T_{stg}$                            | – 55 ... + 100  | °C              |
| Sperrschichttemperatur<br>Junction temperature                                                                                                                                                              | $T_j$                                | + 100           | °C              |
| Durchlaßstrom<br>Forward current                                                                                                                                                                            | $I_F$                                | 30              | mA              |
| Stoßstrom<br>Surge current<br>$t \leq 10 \mu s, D = 0.005$                                                                                                                                                  | $I_{FM}$                             | 0.5             | A               |
| Sperrspannung<br>Reverse voltage                                                                                                                                                                            | $V_R$                                | 5               | V               |
| Verlustleistung<br>Power dissipation                                                                                                                                                                        | $P_{tot}$                            | 100             | mW              |
| Wärmewiderstand<br>Thermal resistance<br>Sperrschicht / Umgebung<br>Junction / air<br>Montage auf PC-board*) (Padgröße $\geq 16 \text{ mm}^2$ )<br>mounted on PC board*) (pad size $\geq 16 \text{ mm}^2$ ) | $R_{th JA}^{1)}$<br>$R_{th JA}^{2)}$ | 480<br>650      | K/W<br>K/W      |

\*) PC-board: FR4

1) nur ein Chip betrieben

2) beide Chips betrieben

1) one system on

2) both systems on simultaneously

### Notes

Die angegebenen Grenzwerte gelten für einen Chip.

The stated maximum ratings refer to one chip.

**Kennwerte** ( $T_A = 25\text{ °C}$ )

### Characteristics

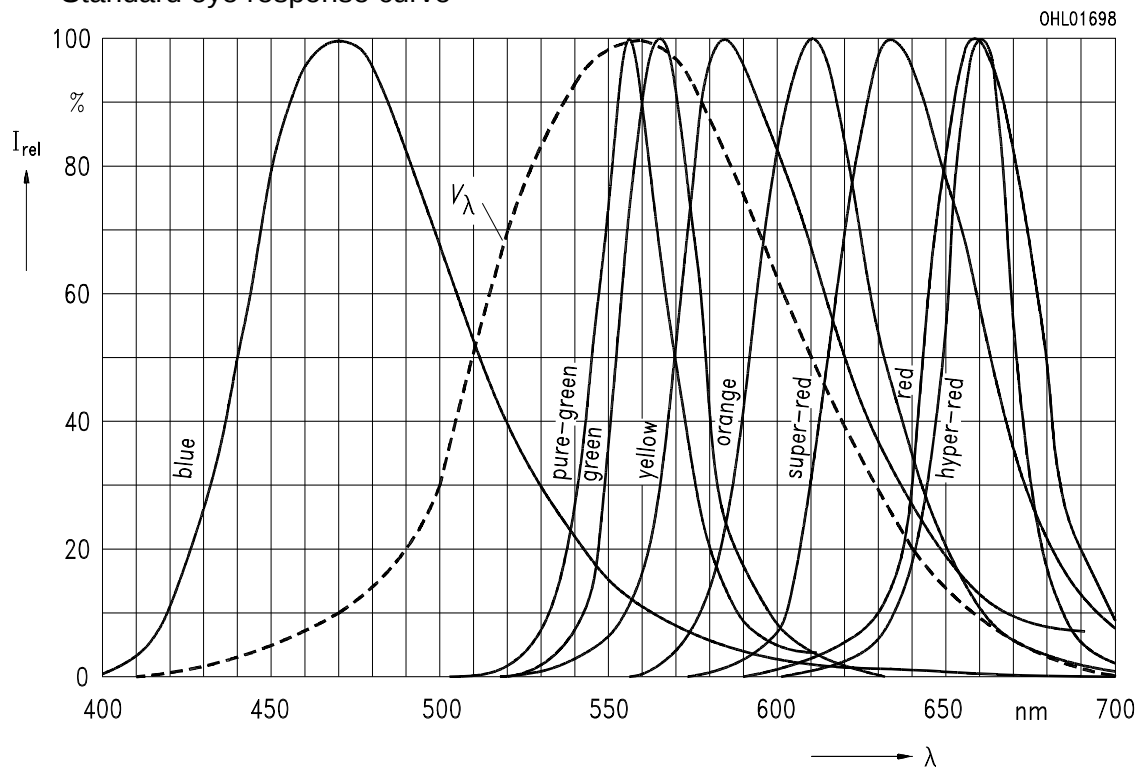
| Bezeichnung<br>Parameter                                                                                                                                                            | Symbol<br>Symbol        | Werte<br>Values |            |            |            |            | Einheit<br>Unit                |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------|-----------------|------------|------------|------------|------------|--------------------------------|
|                                                                                                                                                                                     |                         | LS              | LO         | LY         | LG         | LP         |                                |
| Wellenlänge des emittierten Lichtes (typ.)<br>Wavelength at peak emission (typ.)<br>$I_F = 10\text{ mA}$                                                                            | $\lambda_{\text{peak}}$ | 635             | 610        | 586        | 565        | 557        | nm                             |
| Dominantwellenlänge (typ.)<br>Dominant wavelength (typ.)<br>$I_F = 10\text{ mA}$                                                                                                    | $\lambda_{\text{dom}}$  | 628             | 605        | 590        | 570        | 560        | nm                             |
| Spektrale Bandbreite bei 50 % $I_{\text{rel max}}$ (typ.)<br>Spectral bandwidth at 50 % $I_{\text{rel max}}$ (typ.)<br>$I_F = 10\text{ mA}$                                         | $\Delta\lambda$         | 45              | 40         | 45         | 25         | 22         | nm                             |
| Abstrahlwinkel bei 50 % $I_V$ (Vollwinkel)<br>Viewing angle at 50 % $I_V$                                                                                                           | $2\phi$                 | 120             | 120        | 120        | 120        | 120        | deg.                           |
| Durchlaßspannung (typ.)<br>Forward voltage (max.)<br>$I_F = 10\text{ mA}$                                                                                                           | $V_F$<br>$V_F$          | 2.0<br>2.6      | 2.0<br>2.6 | 2.0<br>2.6 | 2.0<br>2.6 | 2.0<br>2.6 | V<br>V                         |
| Sperrstrom (typ.)<br>Reverse current (max.)<br>$V_R = 5\text{ V}$                                                                                                                   | $I_R$<br>$I_R$          | 0.01<br>10      | 0.01<br>10 | 0.01<br>10 | 0.01<br>10 | 0.01<br>10 | $\mu\text{A}$<br>$\mu\text{A}$ |
| Kapazität (typ.)<br>Capacitance<br>$V_R = 0\text{ V}, f = 1\text{ MHz}$                                                                                                             | $C_0$                   | 12              | 8          | 10         | 15         | 15         | pF                             |
| Schaltzeiten:<br>Switching times:<br>$I_V$ from 10 % to 90 % (typ.)<br>$I_V$ from 90 % to 10 % (typ.)<br>$I_F = 100\text{ mA}, t_p = 10\text{ }\mu\text{s}, R_L = 50\text{ }\Omega$ | $t_r$<br>$t_f$          | 300<br>150      | 300<br>150 | 300<br>150 | 450<br>200 | 450<br>200 | ns<br>ns                       |

Relative spektrale Emission  $I_{\text{rel}} = f(\lambda)$ ,  $T_A = 25^\circ\text{C}$ ,  $I_F = 10\text{ mA}$

Relative spectral emission

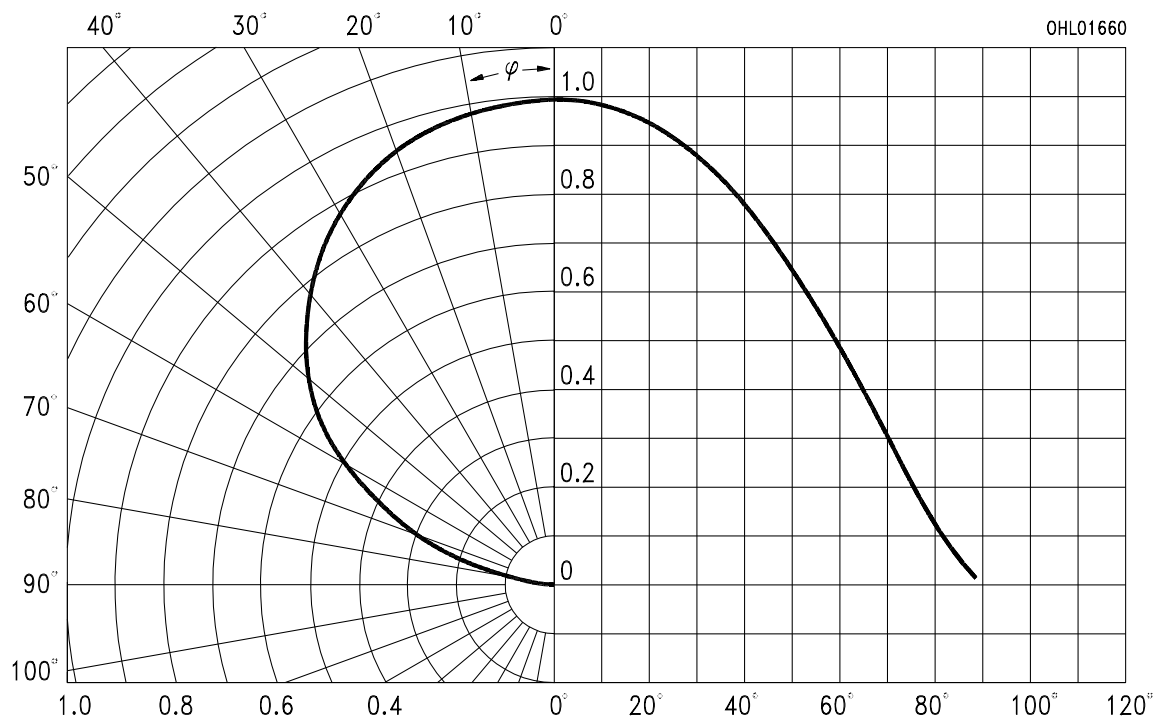
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



Abstrahlcharakteristik  $I_{\text{rel}} = f(\varphi)$

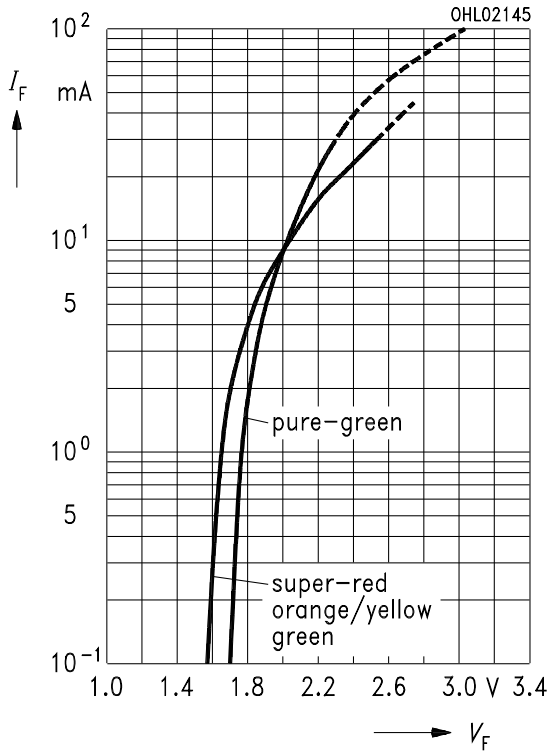
Radiation characteristic



**Durchlaßstrom  $I_F = f(V_F)$**

**Forward current**

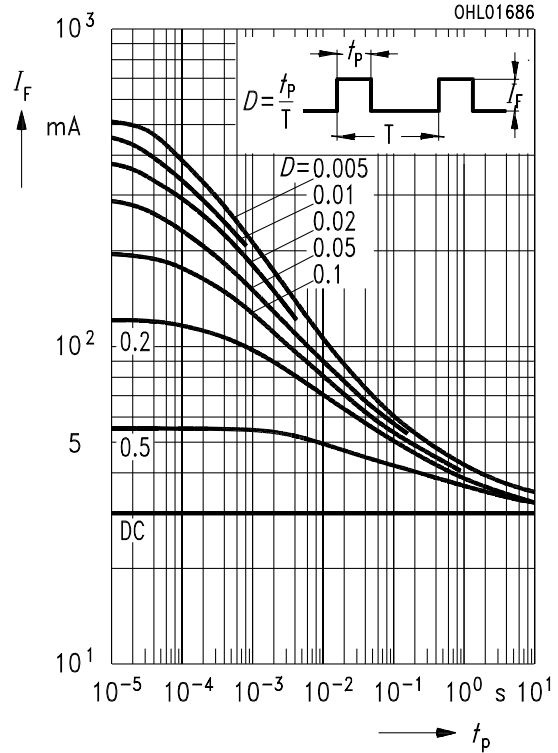
$T_A = 25^\circ\text{C}$



**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$**

**Permissible pulse handling capability**

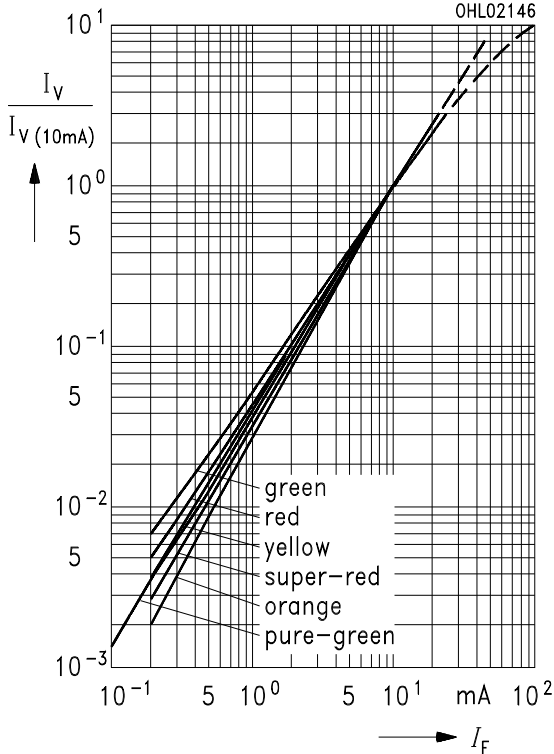
Duty cycle  $D =$  parameter,  $T_A = 25^\circ\text{C}$



**Relative Lichtstärke  $I_V/I_{V(10\text{ mA})} = f(I_F)$**

**Relative luminous intensity**

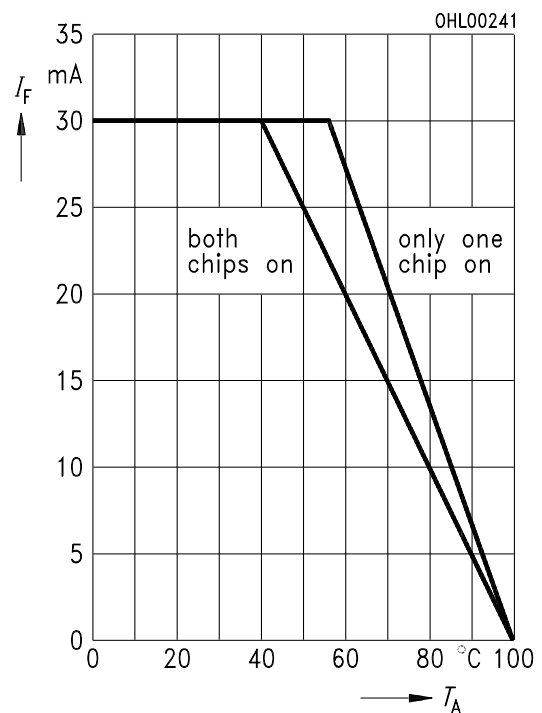
$T_A = 25^\circ\text{C}$



**Maximal zulässiger Durchlaßstrom**

**Max. permissible forward current**

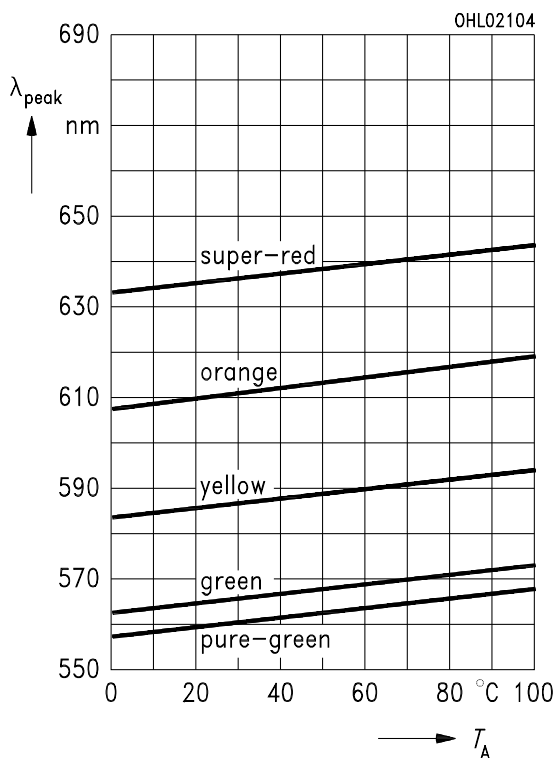
$I_F = f(T_A)$



**Wellenlänge der Strahlung  $\lambda_{\text{peak}} = f(T_A)$**

**Wavelength at peak emission**

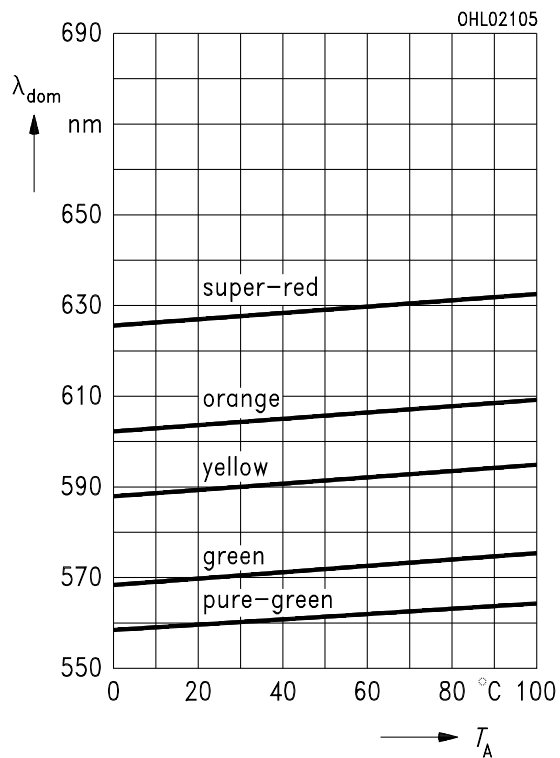
$I_F = 10 \text{ mA}$



**Dominantwellenlänge  $\lambda_{\text{dom}} = f(T_A)$**

**Dominant wavelength**

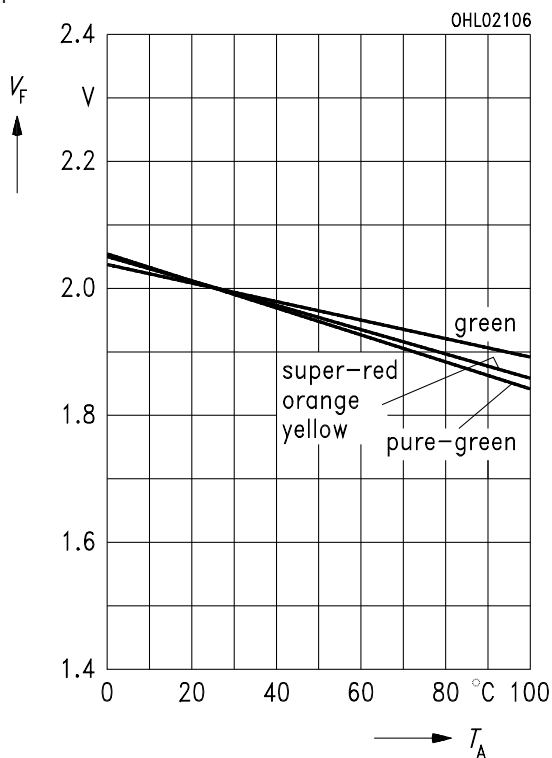
$I_F = 10 \text{ mA}$



**Durchlaßspannung  $V_F = f(T_A)$**

**Forward voltage**

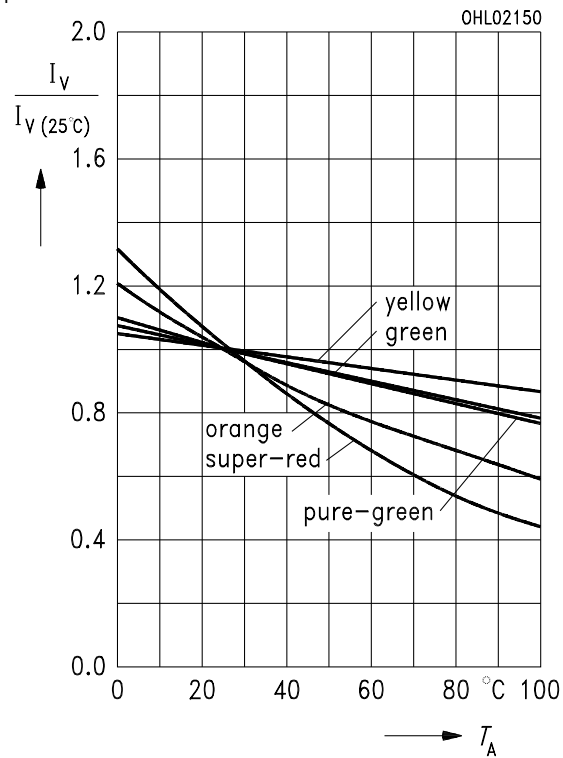
$I_F = 10 \text{ mA}$



**Relative Lichtstärke  $I_V / I_{V(25^\circ\text{C})} = f(T_A)$**

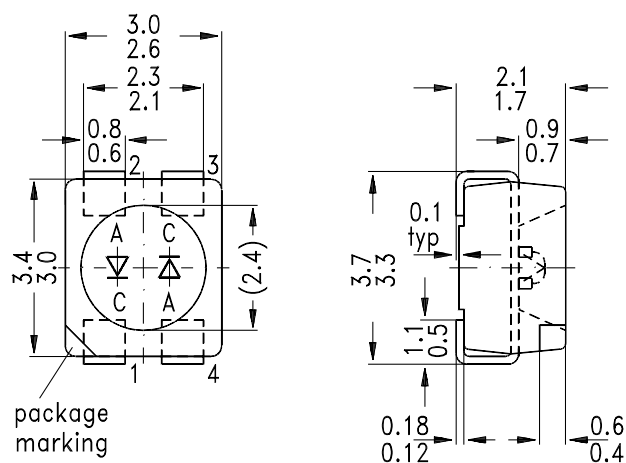
**Relative luminous intensity**

$I_F = 10 \text{ mA}$



### Maßzeichnung Package Outlines

(Maße in mm, wenn nicht anders angegeben)  
(Dimensions in mm, unless otherwise specified)



GPL06837