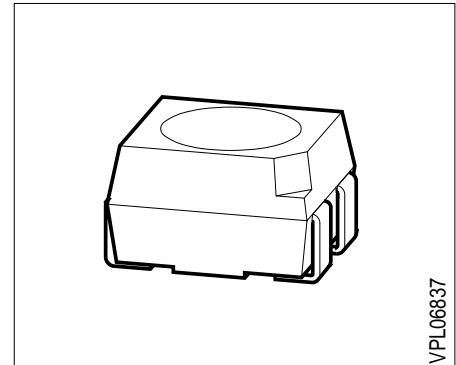


**Multi TOPLED®**

**LSG T670, LSP T670, LSY T670  
LOP T670, LYG T670, LYP T670**

**Besondere Merkmale**

- Gehäusebauform: P-LCC-4
- Gehäusefarbe: weiß
- als optischer Indikator einsetzbar
- zur Hinterleuchtung, Lichtleiter- und Linseneinkopplung
- beide Leuchtdiodenchips getrennt ansteuerbar
- hohe Signalwirkung durch Farbwechsel der LED möglich
- bei geeigneter Ansteuerung, Farbwechsel von pure green über gelb und orange bis super-rot möglich
- 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
- for backlighting, optical coupling into light pipes and lenses
- both chips can be controlled separately
- high signal efficiency possible by color change of the LED
- with appropriate controlling it is possible to change color from pure green to yellow and orange to super-red
- suitable for all SMT assembly and soldering methods
- available taped on reel (8 mm tape)
- load dump resistant acc. to DIN 40839

LSG T670, LSP T670, LSY T670, LOP T670, LYG T670, LYP T670

Typ	Emissionsfarbe	Farbe der Lichtaustrittsfläche	Lichtstärke		Bestellnummer
Type	Color of Emission	Color of the Light Emitting Area	Luminous Intensity $I_F = 10 \text{ mA}$ $I_V \text{ (mcd)}$		Ordering Code
			color 1	color 2	
LSG T670	super-red/ green	colorless clear	$\geq 4.0$ (8 typ.)	$\geq 4.0$ (10 typ.)	Q62703-Q4316
LSG T670-J+J			4.0 ... 8.0	4.0 ... 8.0	
LSG T670-J+K			4.0 ... 8.0	6.3 ... 12.5	
LSG T670-J+L			4.0 ... 8.0	10.0 ... 20.0	
LSG T670-K+J			6.3 ... 12.5	4.0 ... 8.0	
LSG T670-K+K			6.3 ... 12.5	6.3 ... 12.5	
LSG T670-K+L			6.3 ... 12.5	10.0 ... 20.0	
LSG T670-L+J			10.0 ... 20.0	4.0 ... 8.0	
LSG T670-L+K			10.0 ... 20.0	6.3 ... 12.5	
LSG T670-L+L			10.0 ... 20.0	10.0 ... 20.0	
LSY T670	super-red/ yellow	colorless clear	$\geq 4.0$ (8 typ.)	$\geq 4.0$ (10 typ.)	Q62703-Q4317
LSY T670-J+J			4.0 ... 8.0	4.0 ... 8.0	
LSY T670-J+K			4.0 ... 8.0	6.3 ... 12.5	
LSY T670-J+L			4.0 ... 8.0	10.0 ... 20.0	
LSY T670-K+J			6.3 ... 12.5	4.0 ... 8.0	
LSY T670-K+K			6.3 ... 12.5	6.3 ... 12.5	
LSY T670-K+L			6.3 ... 12.5	10.0 ... 20.0	
LSY T670-L+J			10.0 ... 20.0	4.0 ... 8.0	
LSY T670-L+K			10.0 ... 20.0	6.3 ... 12.5	
LSY T670-L+L			10.0 ... 20.0	10.0 ... 20.0	
LSP T670	super-red/ pure green	colorless clear	$\geq 4.0$ (8 typ.)	$\geq 1.6$ (3 typ.)	Q62703-Q4318
LSP T670-H+G			2.5 ... 5.0	1.6 ... 3.2	
LSP T670-H+H			2.5 ... 5.0	2.5 ... 5.0	
LSP T670-J+G			4.0 ... 8.0	1.6 ... 3.2	
LSP T670-J+H			4.0 ... 8.0	2.5 ... 5.0	
LSP T670-J+J			4.0 ... 8.0	4.0 ... 8.0	
LSP T670-K+G			6.3 ... 12.5	1.6 ... 3.2	
LSP T670-K+H			6.3 ... 12.5	2.5 ... 5.0	
LSP T670-K+J			6.3 ... 12.5	4.0 ... 8.0	
LYP T670			yellow/pure green	colorless clear	
LYP T670-J+G	4.0 ... 8.0	1.6 ... 3.2			
LYP T670-J+H	4.0 ... 8.0	2.5 ... 5.0			
LYP T670-K+G	6.3 ... 12.5	1.6 ... 3.2			
LYP T670-K+H	6.3 ... 12.5	2.5 ... 5.0			
LYP T670-L+H	10.0 ... 20.0	2.5 ... 5.0			

LSG T670, LSP T670, LSY T670, LOP T670, LYG T670, LYP T670

Typ	Emissions- farbe	Farbe der Lichtaustritts- fläche	Lichtstärke		Bestellnummer
Type	Color of Emission	Color of the Light Emitting Area	Luminous Intensity $I_F = 10 \text{ mA}$ $I_V \text{ (mcd)}$		Ordering Code
			color 1	color 2	
LYG T670	yellow/ green	colorless clear	$\geq 4.0$ (9 typ.)	$\geq 4.0$ (10 typ.)	Q62703-Q4502
LYG T670-J+J			4.0 ... 8.0	4.0 ... 8.0	
LYG T670-J+K			4.0 ... 8.0	6.3 ... 12.5	
LYG T670-J+L			4.0 ... 8.0	10.0 ... 20.0	
LYG T670-K+J			6.3 ... 12.5	4.0 ... 8.0	
LYG T670-K+K			6.3 ... 12.5	6.3 ... 12.5	
LYG T670-K+L			6.3 ... 12.5	10.0 ... 20.0	
LYG T670-L+J			10.0 ... 20.0	4.0 ... 8.0	
LYG T670-L+K			10.0 ... 20.0	6.3 ... 12.5	
LYG T670-L+L			10.0 ... 20.0	10.0 ... 20.0	
LOP T670	orange/ pure green	colorless clear	$\geq 4.0$ (8 typ.)	$\geq 1.6$ (3 typ.)	Q62703-Q4319
LOP T670-J+G			4.0 ... 8.0	1.6 ... 3.2	
LOP T670-J+H			4.0 ... 8.0	2.5 ... 5.0	
LOP T670-J+J			4.0 ... 8.0	4.0 ... 8.0	
LOP T670-K+G			6.3 ... 12.5	1.6 ... 3.2	
LOP T670-K+H			6.3 ... 12.5	2.5 ... 5.0	
LOP T670-K+J			6.3 ... 12.5	4.0 ... 8.0	

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

Streuung der Lichtstärke in einer LED  $I_{V \max} / I_{V \min} \leq 3.0$  (LSG T670, LOG T670, LSY T670),  $\leq 4.0$  (LSP T670, LOP T670, LYP T670).

<sup>1)</sup> Bei MULTILED® bestimmt die Helligkeit des jeweils dunkleren Chips in einem Gehäuse die Helligkeitsgruppe der LED.

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  $I_{V \max} / I_{V \min} \leq 3.0$  (LSG T670, LOG T670, LSY T670),  $\leq 4.0$  (LSP T670, LOP T670, LYP T670).

<sup>1)</sup> In case of MULTILED®, the brightness of the darker chip in one package determines the brightness group of the LED.

**LSG T670, LSP T670, LSY T670, LOP T670, LYG T670, LYP T670**

**Grenzwerte  
Maximum Ratings**

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

\*) PC-board: FR4

1) nur ein Chip betrieben

1) one system only

2) beide Chips betrieben

2) both systems on simultaneously

**Notes**

Die angegebenen Grenzdaten gelten für einen Chip.

The stated maximum ratings refer to one chip.

LSG T670, LSP T670, LSY T670, LOP T670, LYG T670, LYP T670

Kennwerte ( $T_A = 25\text{ °C}$ )

Characteristics

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

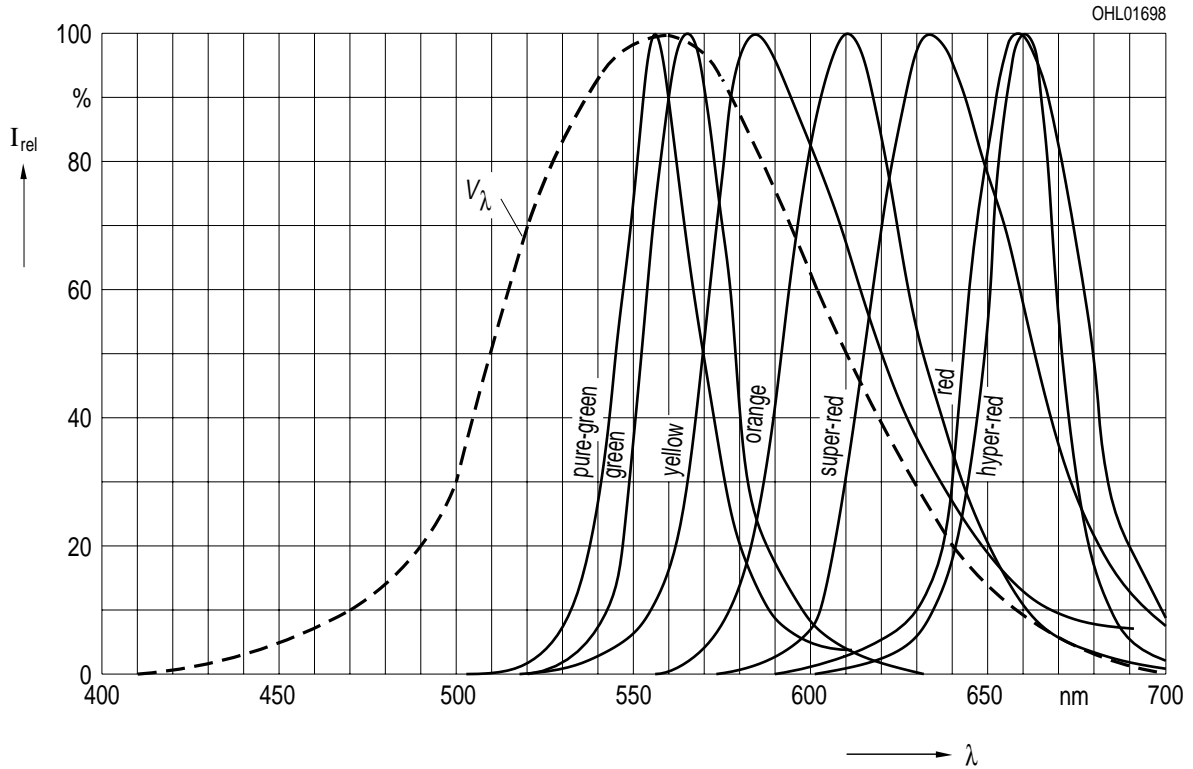
**LSG T670, LSP T670, LSY T670, LOP T670, LYG T670, LYP T670**

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

**Relative spectral emission**

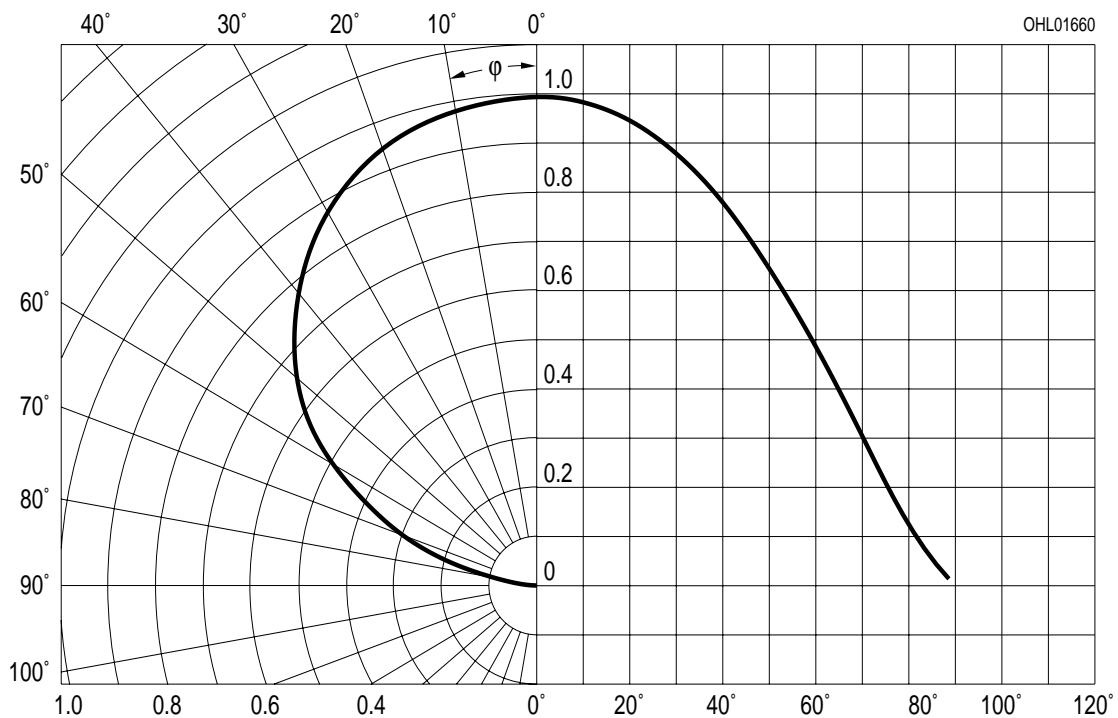
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



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

**Radiation characteristic**

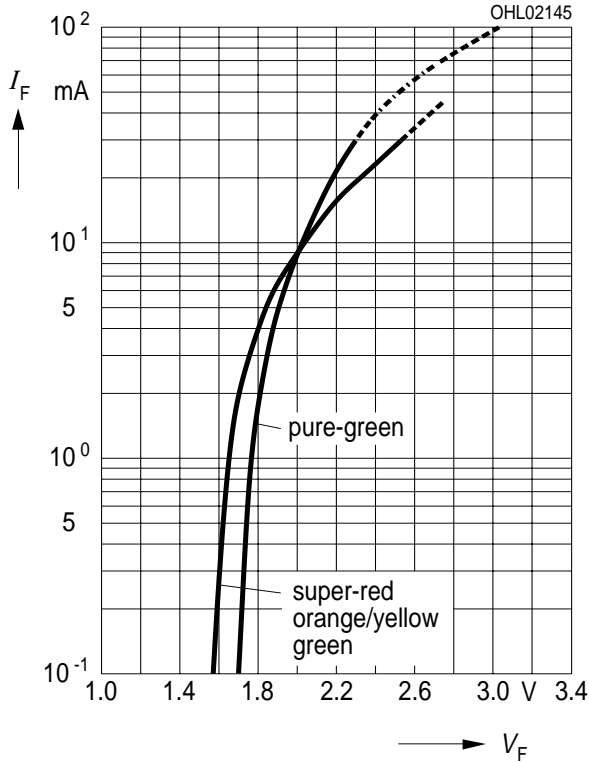


### LSG T670, LSP T670, LSY T670, LOP T670, LYG T670, LYP T670

Durchlaßstrom  $I_F = f(V_F)$

Forward current

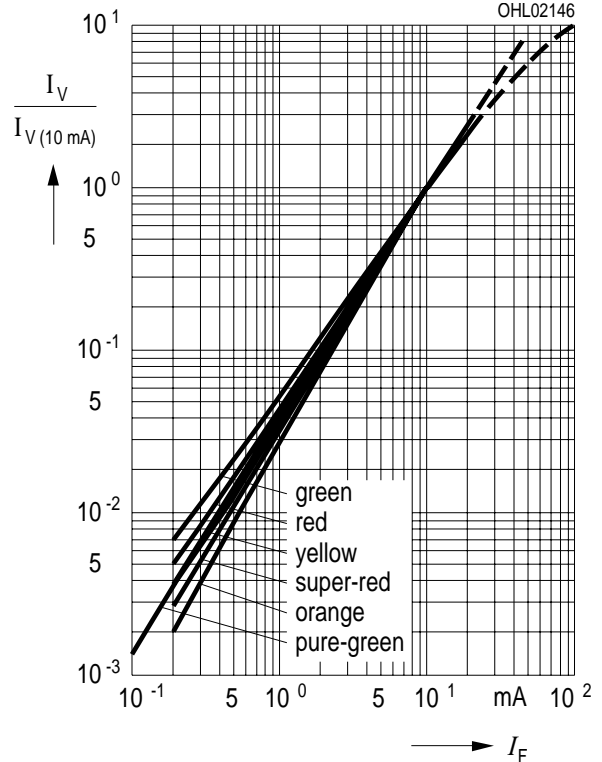
$T_A = 25^\circ\text{C}$



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

Relative luminous intensity

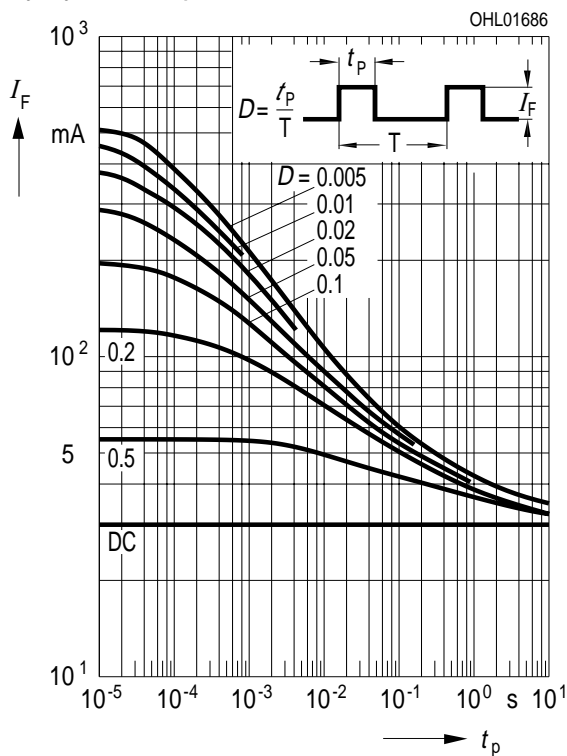
$T_A = 25^\circ\text{C}$



Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$

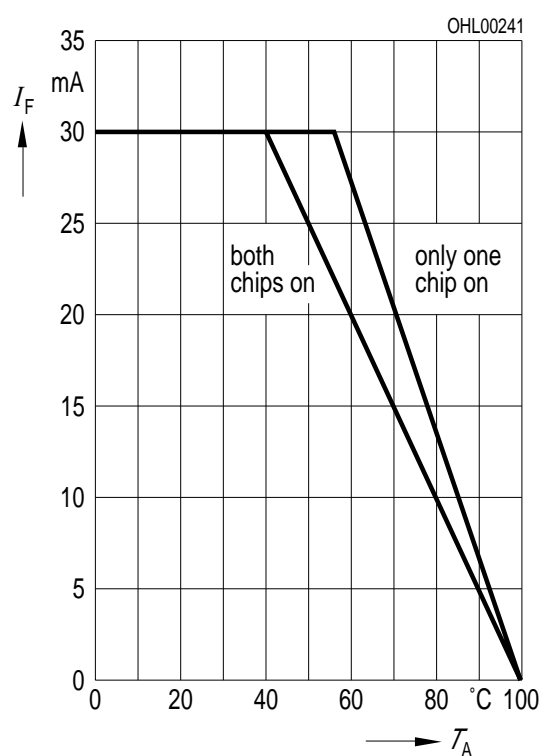
Permissible pulse handling capability

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



Maximal zulässiger Durchlaßstrom  $I_F = f(T_A)$

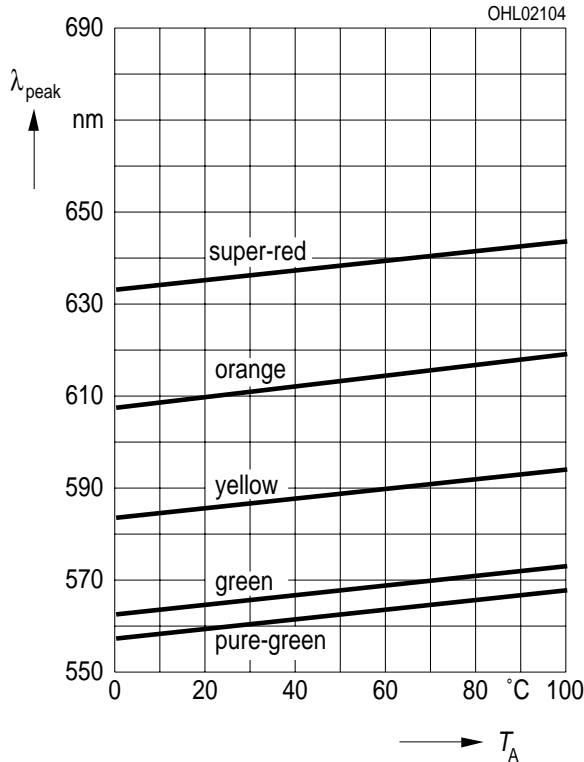
Max. permissible forward current



### LSG T670, LSP T670, LSY T670, LOP T670, LYG T670, LYP T670

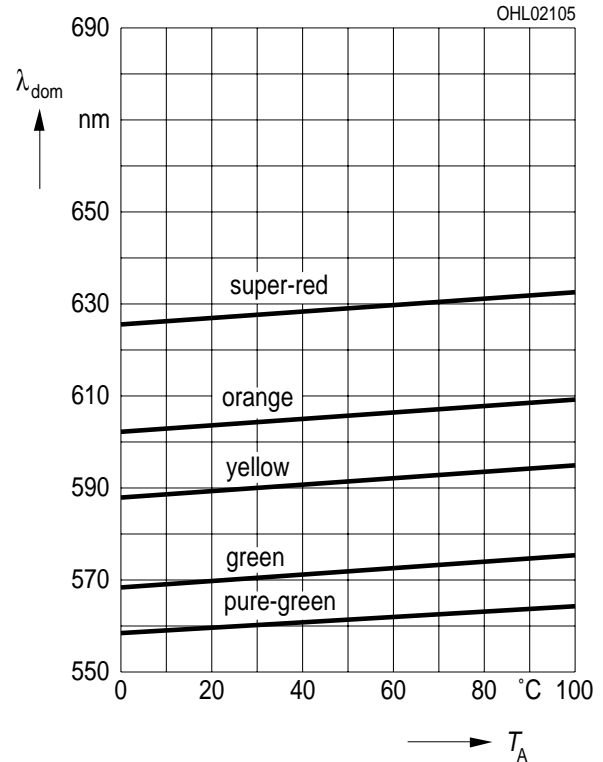
**Wellenlänge der Strahlung  $\lambda_{\text{peak}} = f(T_A)$**   
**Wavelength at peak emission**

$I_F = 10 \text{ mA}$



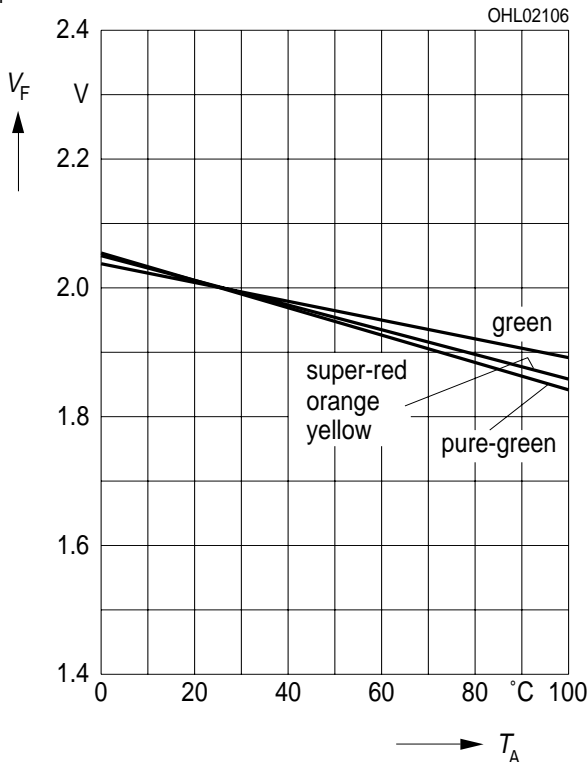
**Dominantwellenlänge  $\lambda_{\text{dom}} = f(T_A)$**   
**Dominant wavelength**

$I_F = 10 \text{ mA}$



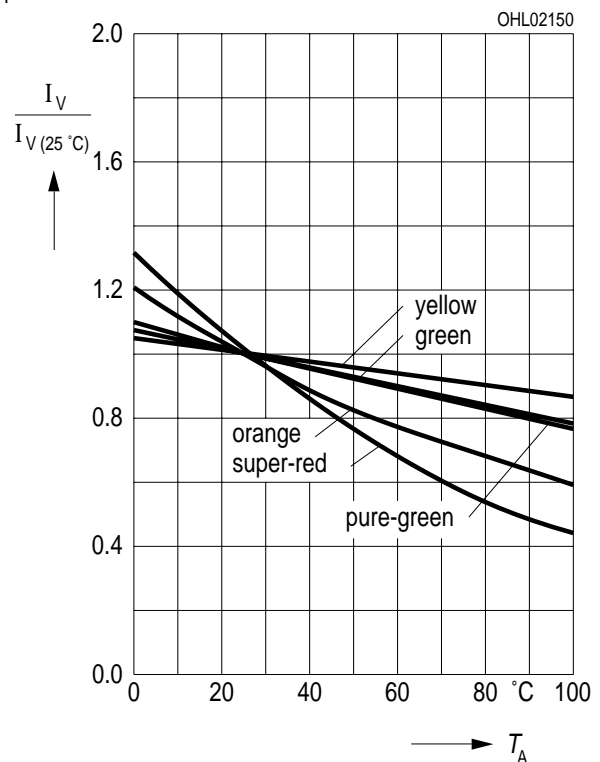
**Durchlaßspannung  $V_F = f(T_A)$**   
**Forward voltage**

$I_F = 10 \text{ mA}$



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

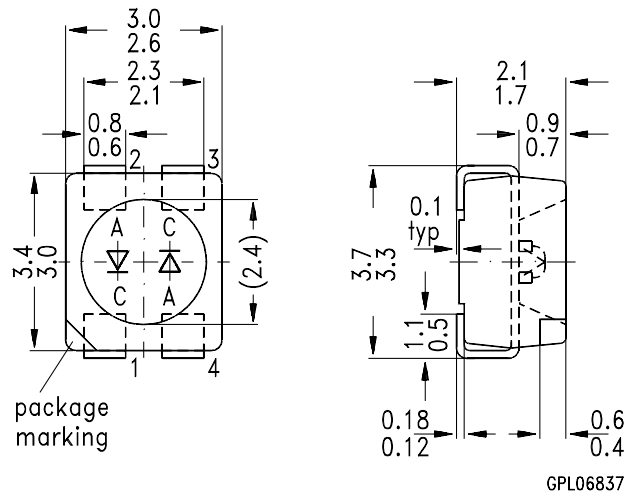
$I_F = 10 \text{ mA}$





**LSG T670, LSP T670, LSY T670, LOP T670, LYG T670, LYP T670**

**Maßzeichnung** (Maße in mm, wenn nicht anders angegeben)  
**Package Outlines** (Dimensions in mm, unless otherwise specified)



L	S	G	T670
LED	Emission color 1	Emission color 2	Package
	cathode: pin 1	cathode: pin 3	