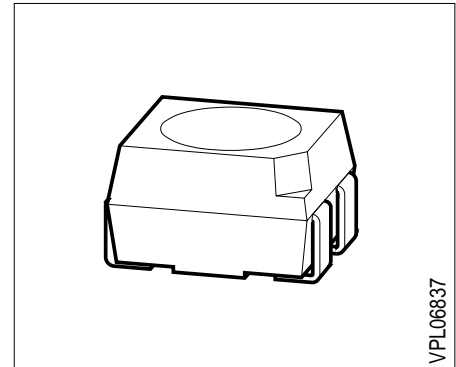


Multi TOPLED®

**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	≥ 4.0 (8 typ.)	≥ 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	≥ 4.0 (8 typ.)	≥ 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	≥ 4.0 (8 typ.)	≥ 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	≥ 4.0 (9 typ.)	≥ 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	≥ 4.0 (8 typ.)	≥ 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 $I_{V \max} / I_{V \min} \leq 2.0$.¹⁾

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

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

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

Luminous intensity ratio in one LED $I_{V \max} / I_{V \min} \leq 3.0$ (LSG T670, LOG T670, LSY T670), ≤ 4.0 (LSP T670, LOP T670, LYP T670).

¹⁾ 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.) $I_F = 10\text{ mA}$	λ_{peak}	635	610	565	557	586	nm
Dominantwellenlänge (typ.) Dominant wavelength (typ.) $I_F = 10\text{ mA}$	λ_{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	2ϕ	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	μA μA
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

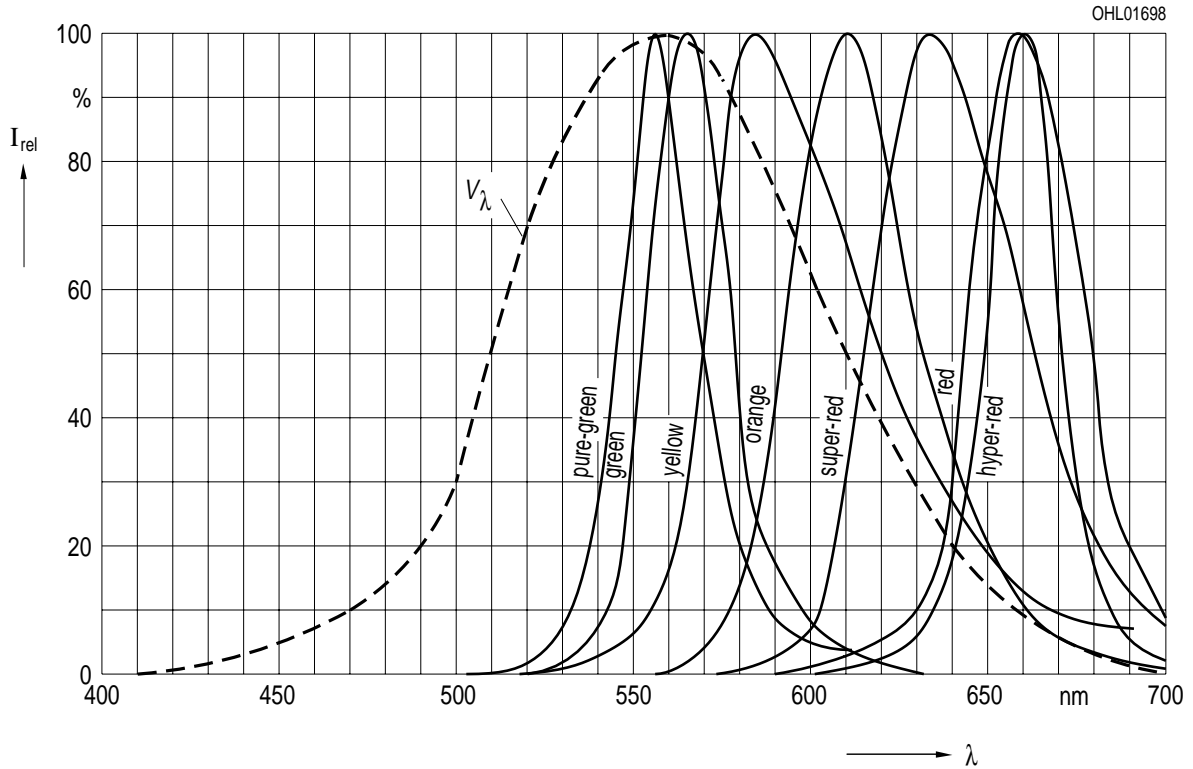
LSG T670, LSP T670, LSY T670, LOP T670, LYG T670, LYP T670

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

Relative spectral emission

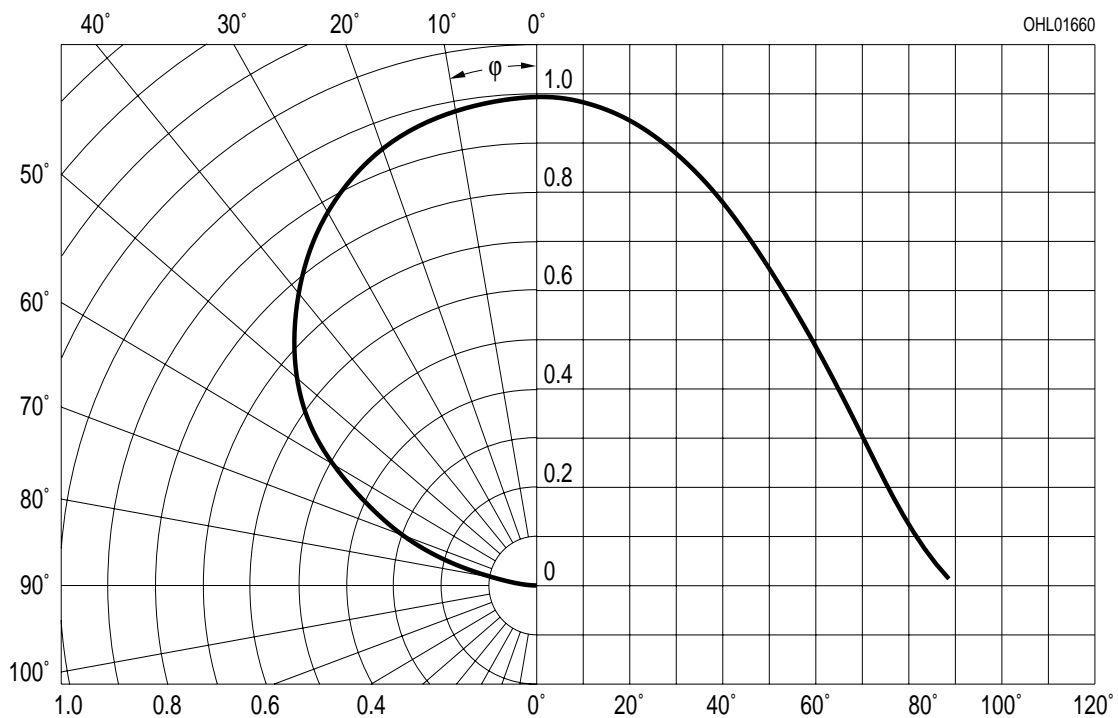
$V(\lambda)$ = spektrale Augenempfindlichkeit

Standard eye response curve



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

Radiation characteristic

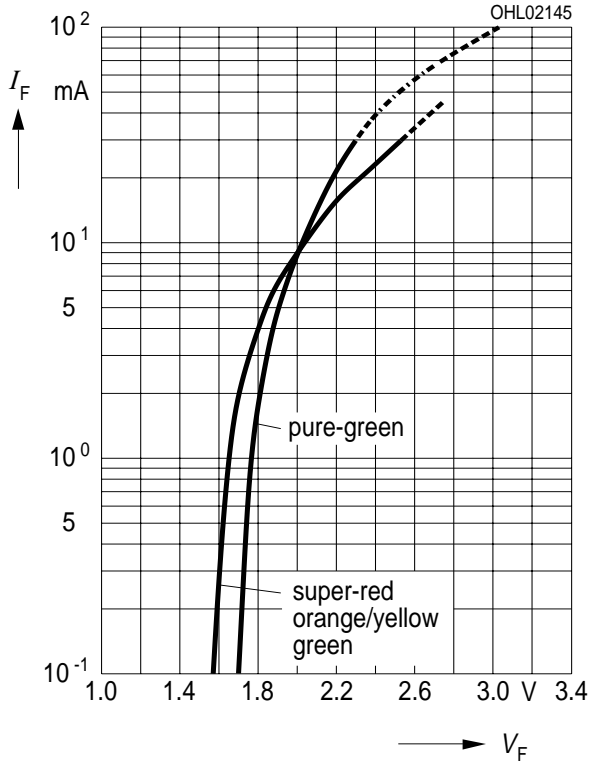


LSG T670, LSP T670, LSY T670, LOP T670, LYG T670, LYP T670

Durchlaßstrom $I_F = f(V_F)$

Forward current

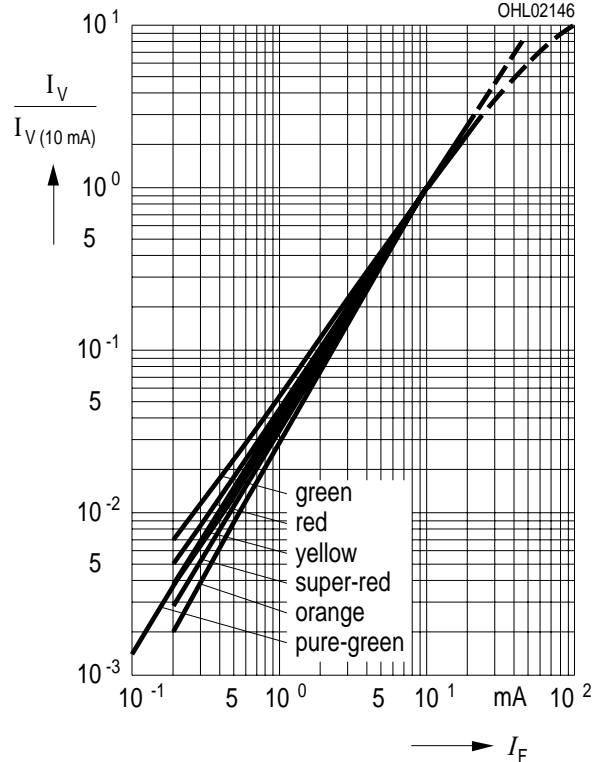
$T_A = 25^\circ\text{C}$



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

Relative luminous intensity

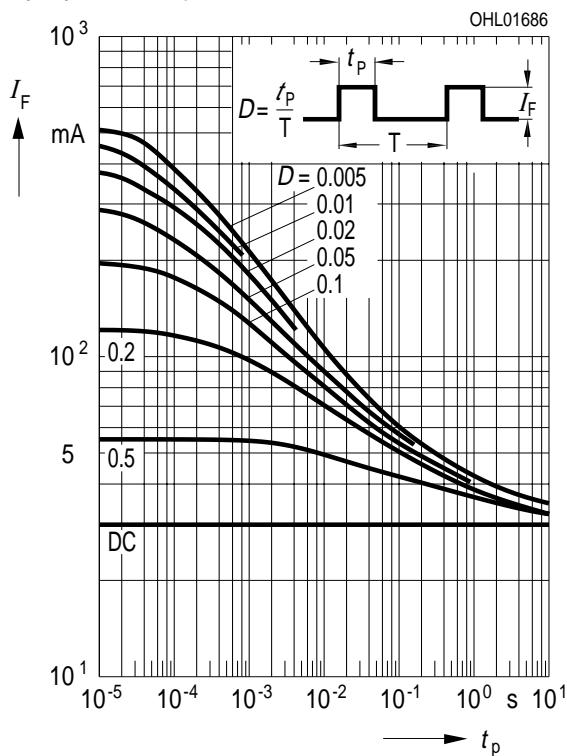
$T_A = 25^\circ\text{C}$



Zulässige Impulsbelastbarkeit $I_F = f(t_p)$

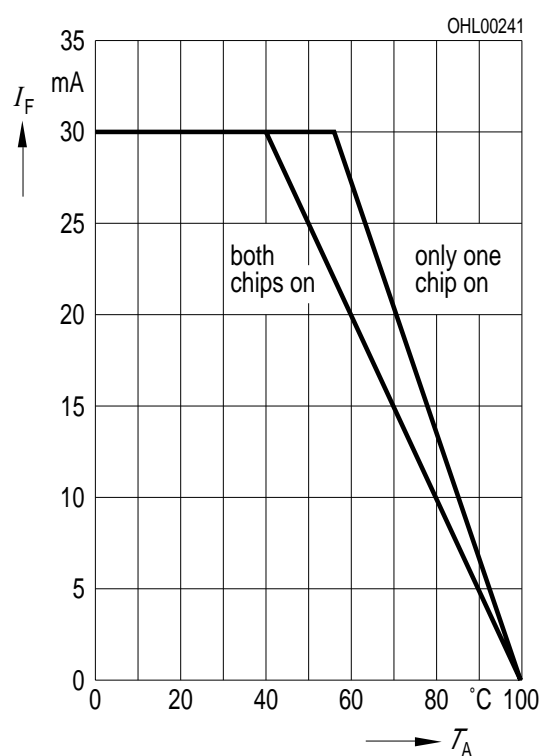
Permissible pulse handling capability

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



Maximal zulässiger Durchlaßstrom $I_F = f(T_A)$

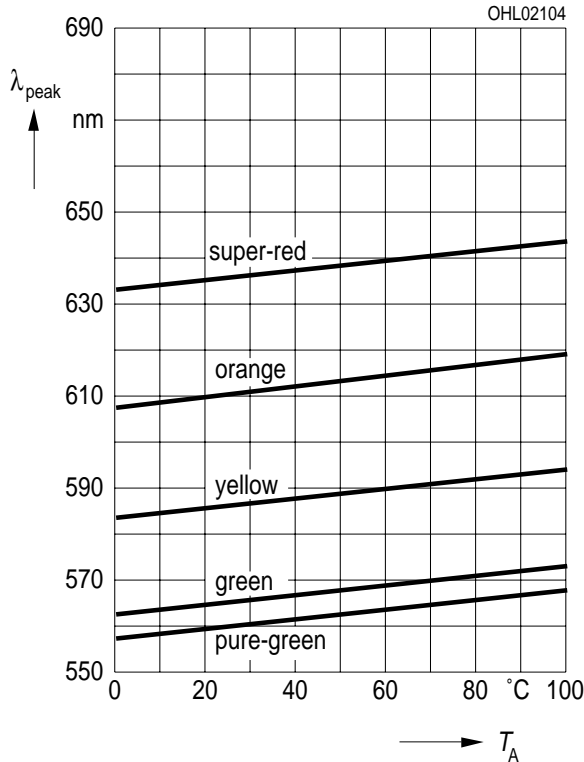
Max. permissible forward current



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

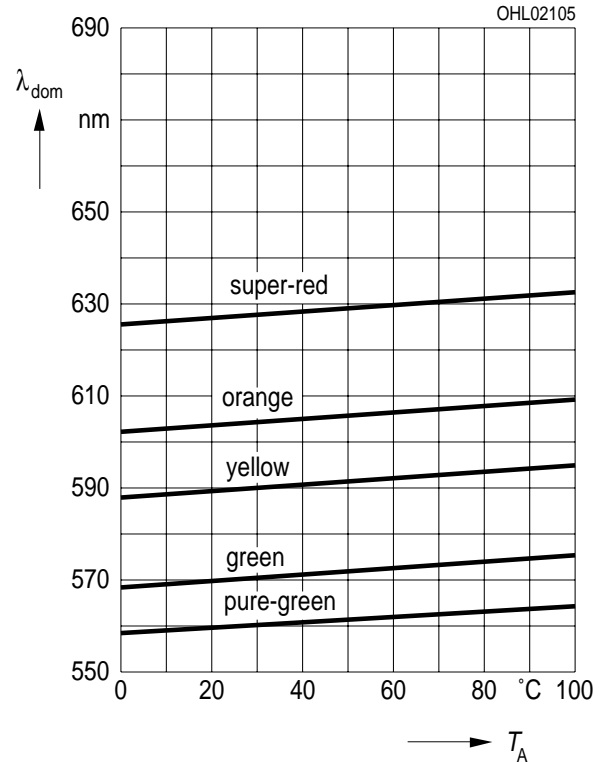
Wellenlänge der Strahlung $\lambda_{\text{peak}} = f(T_A)$
Wavelength at peak emission

$I_F = 10 \text{ mA}$



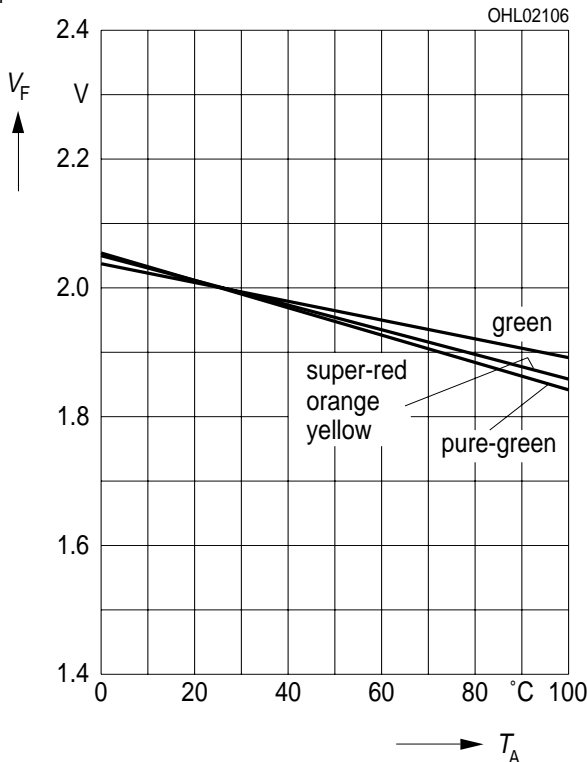
Dominantwellenlänge $\lambda_{\text{dom}} = f(T_A)$
Dominant wavelength

$I_F = 10 \text{ mA}$



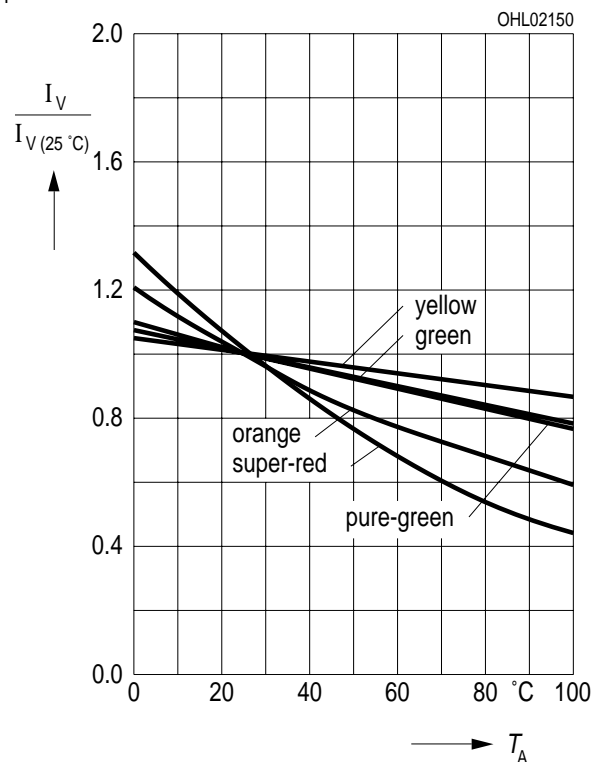
Durchlaßspannung $V_F = f(T_A)$
Forward voltage

$I_F = 10 \text{ mA}$



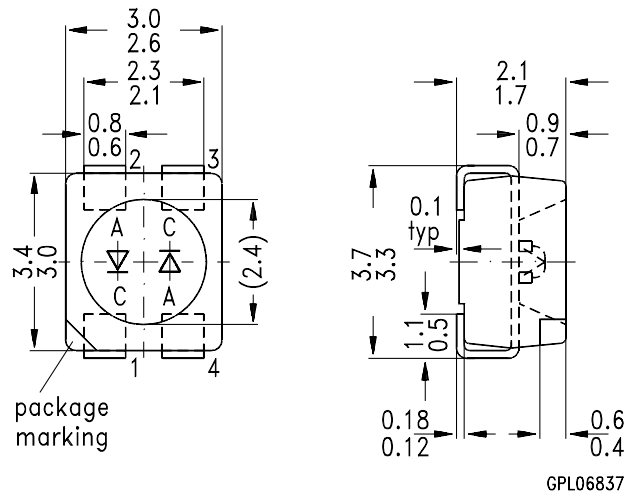
Relative Lichtstärke $I_V / I_{V(25^\circ\text{C})} = f(T_A)$
Relative luminous intensity

$I_F = 10 \text{ mA}$



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	