

## Hyper 3 mm (T1) LED, Non Diffused Hyper-Bright LED

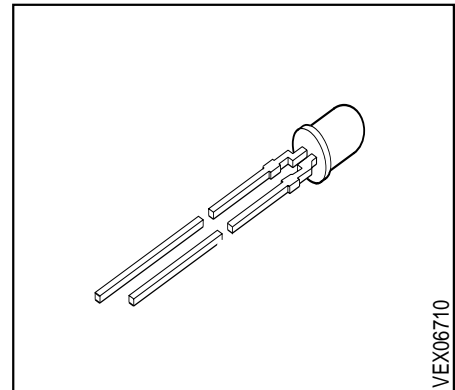
LS 3336, LA 3336, LO 3336  
LY 3336

### Besondere Merkmale

- nicht eingefärbtes, klares Gehäuse
- zur Einkopplung in Lichtleiter
- als optischer Indikator einsetzbar
- Lötspieße mit Aufsetzebene
- gegurtet lieferbar
- Störimpulsfest nach DIN 40839

### Features

- colorless, clear package
- optical coupling into light pipes
- for use as optical indicator
- solder leads with stand-off
- available taped on reel
- load dump resistant acc. to DIN 40839



Typ Type	Emissionsfarbe Color of Emission	Gehäusefarbe Color of Package	Lichtstärke Luminous Intensity $I_F = 20 \text{ mA}$ $I_V \text{ (mcd)}$	Bestellnummer Ordering Code
LS 3336-QT	super-red	colorless clear	63 ... 500	Q62703-Q3482
LS 3336-R			100 ... 200	Q62703-Q3484
LS 3336-S			160 ... 320	Q62703-Q3485
LS 3336-T			250 ... 500	Q62703-Q3813
LS 3336-RU			100 ... 800	Q62703-Q3486
LA 3336-RU	amber	colorless clear	100 ... 800	Q62703-Q3554
LA 3336-S			160 ... 320	Q62703-Q3551
LA 3336-T			250 ... 500	Q62703-Q3552
LA 3336-U			400 ... 800	Q62703-Q3553
LA 3336-SV			160 ... 1250	Q62703-Q3555
LO 3336-RU	orange	colorless clear	100 ... 800	Q62703-Q3144
LO 3336-S			160 ... 320	Q62703-Q3176
LO 3336-T			250 ... 500	Q62703-Q3170
LO 3336-U			400 ... 800	Q62703-Q3307
LO 3336-SV			160 ... 1250	Q62703-Q3177
LY 3336-RU	yellow	colorless clear	100 ... 800	Q62703-Q3487
LY 3336-S			160 ... 320	Q62703-Q3489
LY 3336-T			250 ... 500	Q62703-Q3490
LY 3336-U			400 ... 800	Q62703-Q3814
LY 3336-SV			160 ... 1250	Q62703-Q3491

Streuung der Lichtstärke in einer Verpackungseinheit  $I_{V \max} / I_{V \min} \leq 2.0$ .  
Luminous intensity ratio in one packaging unit  $I_{V \max} / I_{V \min} \leq 2.0$ .

## Grenzwerte Maximum Ratings

Bezeichnung Parameter	Symbol Symbol	Werte Values		Einheit Unit
		LS, LO, LA	LY	
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	20	mA
Stoßstrom Surge current $t \leq 10 \mu s, D = 0.005$	$I_{FM}$	1	0.2	A
Sperrspannung <sup>1)</sup> Reverse voltage <sup>1)</sup>	$V_R$	3		V
Verlustleistung Power dissipation $T_A \leq 25 \text{ °C}$	$P_{tot}$	80	55	mW
Wärmewiderstand Thermal resistance Sperrschicht / Umgebung Junction / air	$R_{th JA}$	500		K/W

1) Belastung in Sperrichtung sollte vermieden werden.

1) Reverse biasing should be avoided.

## Kennwerte ( $T_A = 25\text{ °C}$ )

### Characteristics

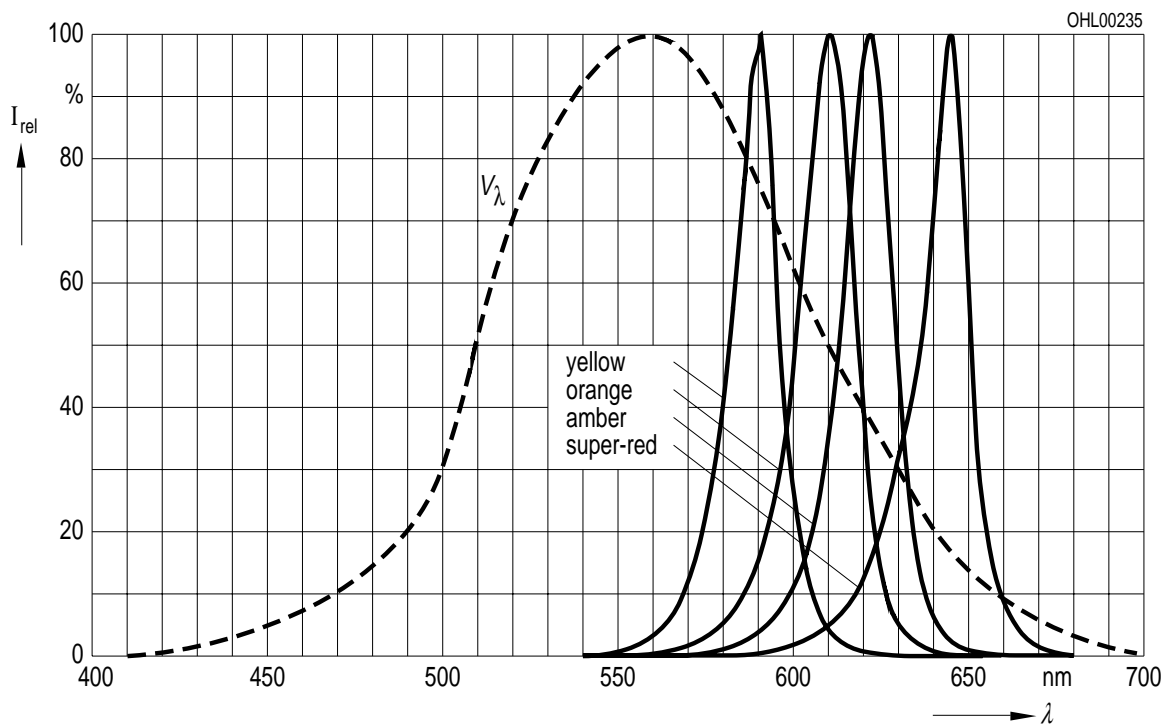
Bezeichnung Parameter	Symbol Symbol	Werte Values				Einheit Unit
		LS	LA	LO	LY	
Wellenlänge des emittierten Lichtes Wavelength at peak emission $I_F = 20\text{ mA}$	(typ.) $\lambda_{\text{peak}}$ (typ.)	645	622	610	591	nm
Dominantwellenlänge Dominant wavelength $I_F = 20\text{ mA}$	(typ.) $\lambda_{\text{dom}}$ (typ.)	632	615	605	587	nm
Spektrale Bandbreite bei 50% $I_{\text{rel max}}$ Spectral bandwidth at 50% $I_{\text{rel max}}$ $I_F = 20\text{ mA}$	(typ.) $\Delta\lambda$ (typ.)	16	16	16	15	nm
Abstrahlwinkel bei 50% $I_v$ (Vollwinkel) Viewing angle at 50% $I_v$	$2\varphi$	50	50	50	50	Grad deg.
Durchlaßspannung Forward voltage $I_F = 20\text{ mA}$	(typ.) $V_F$ (max.) $V_F$	2.0 2.6	2.0 2.6	2.0 2.6	2.0 2.6	V V
Sperrstrom Reverse current $V_R = 3\text{ V}$	(typ.) $I_R$ (max.) $I_R$	0.01 10	0.01 10	0.01 10	0.01 10	$\mu\text{A}$ $\mu\text{A}$
Temperaturkoeffizient von $\lambda_{\text{dom}}$ ( $I_F = 20\text{ mA}$ ) Temperature coefficient of $\lambda_{\text{dom}}$ ( $I_F = 20\text{ mA}$ )	$TC_\lambda$	0.014	0.062	0.067	0.096	nm/K
Temperaturkoeffizient von $\lambda_{\text{peak}}$ , $I_F = 20\text{ mA}$ Temperature coefficient of $\lambda_{\text{peak}}$ , $I_F = 20\text{ mA}$	(typ.) $TC_\lambda$ (typ.)	0.14	0.13	0.13	0.13	nm/K
Temperaturkoeffizient von $V_F$ , $I_F = 20\text{ mA}$ (typ.) Temperature coefficient of $V_F$ , $I_F = 20\text{ mA}$ (typ.)	$TC_V$	-1.95	-1.78	-1.67	-2.51	mV/K

Relative spektrale Emission  $I_{rel} = f(\lambda)$ ,  $T_A = 25\text{ °C}$ ,  $I_F = 20\text{ mA}$

### Relative spectral emission

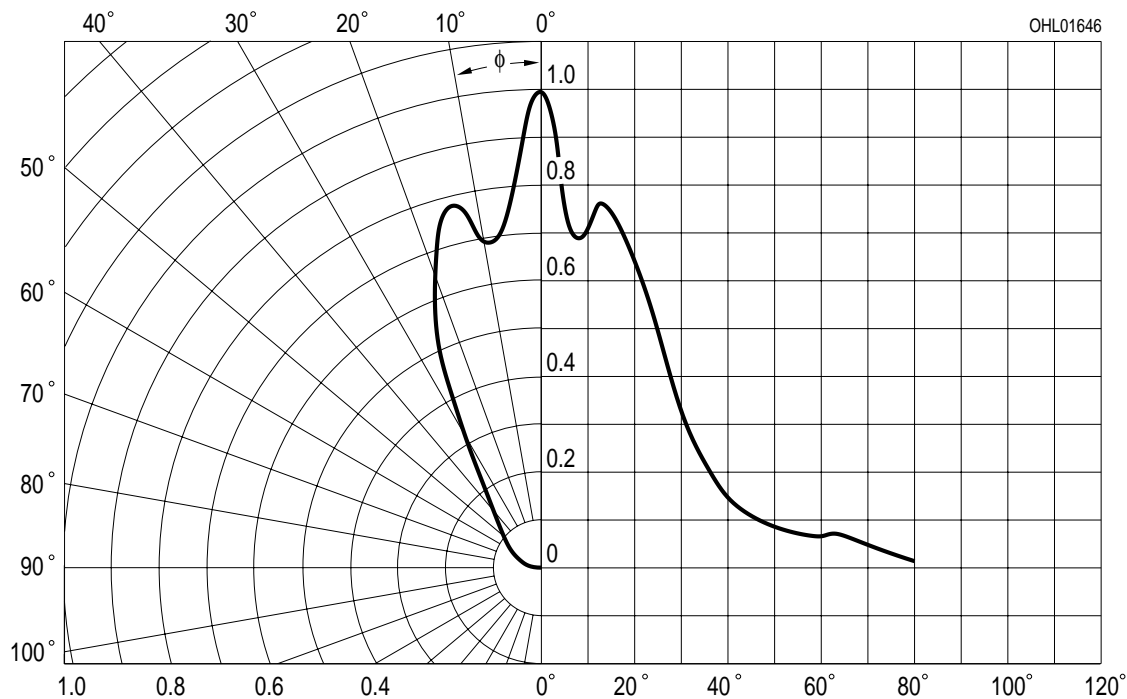
$V(\lambda)$  = spektrale Augenempfindlichkeit

Standard eye response curve



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

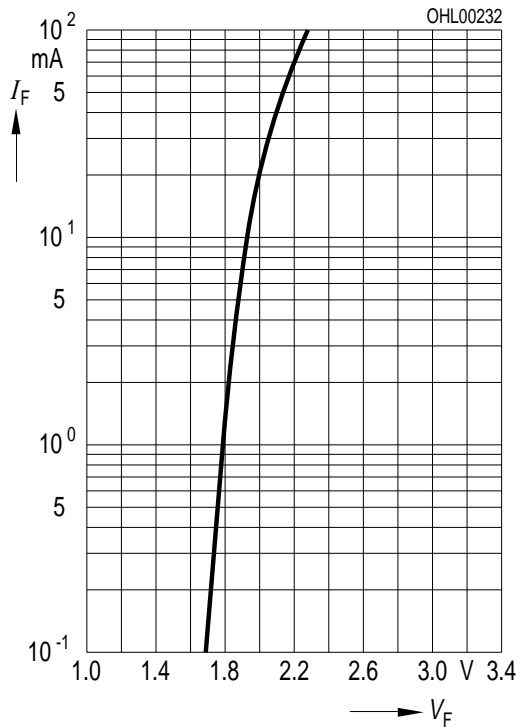
### Radiation characteristic



**Durchlaßstrom  $I_F = f(V_F)$**

**Forward current**

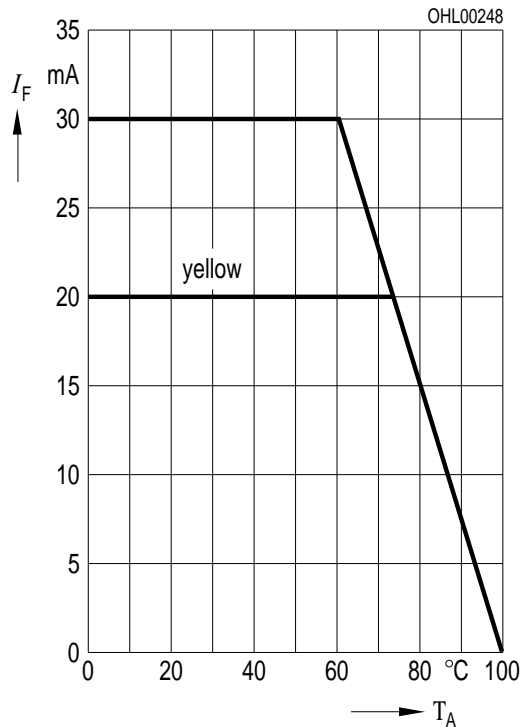
$T_A = 25^\circ\text{C}$



**Maximal zulässiger Durchlaßstrom**

**Max. permissible forward current**

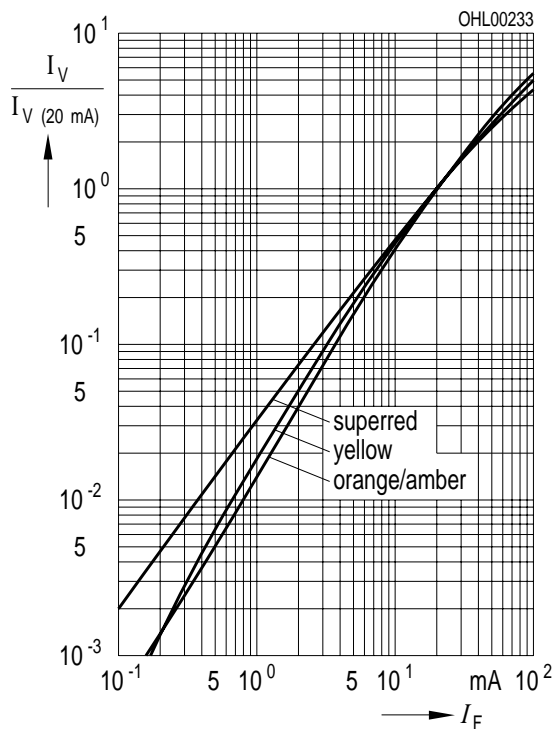
$I_F = f(T_A)$



**Relative Lichtstärke  $I_V / I_{V(20\text{ mA})} = f(I_F)$**

**Relative luminous intensity**

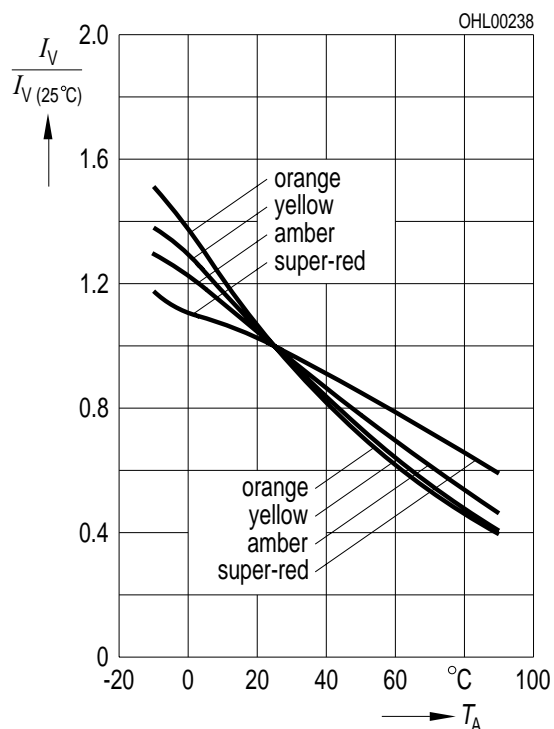
$T_A = 25^\circ\text{C}$



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

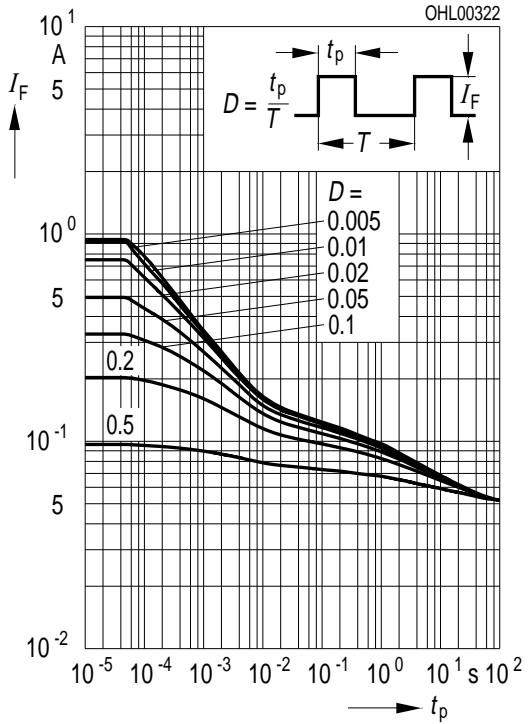
**Relative luminous intensity**

$I_F = 20\text{ mA}$



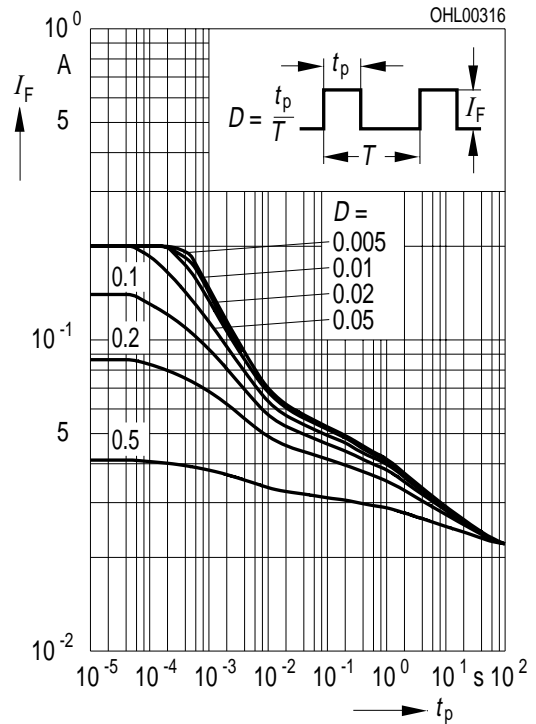
**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$**   
**Permissible pulse handling capability**  
**LS, LA, LO**

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



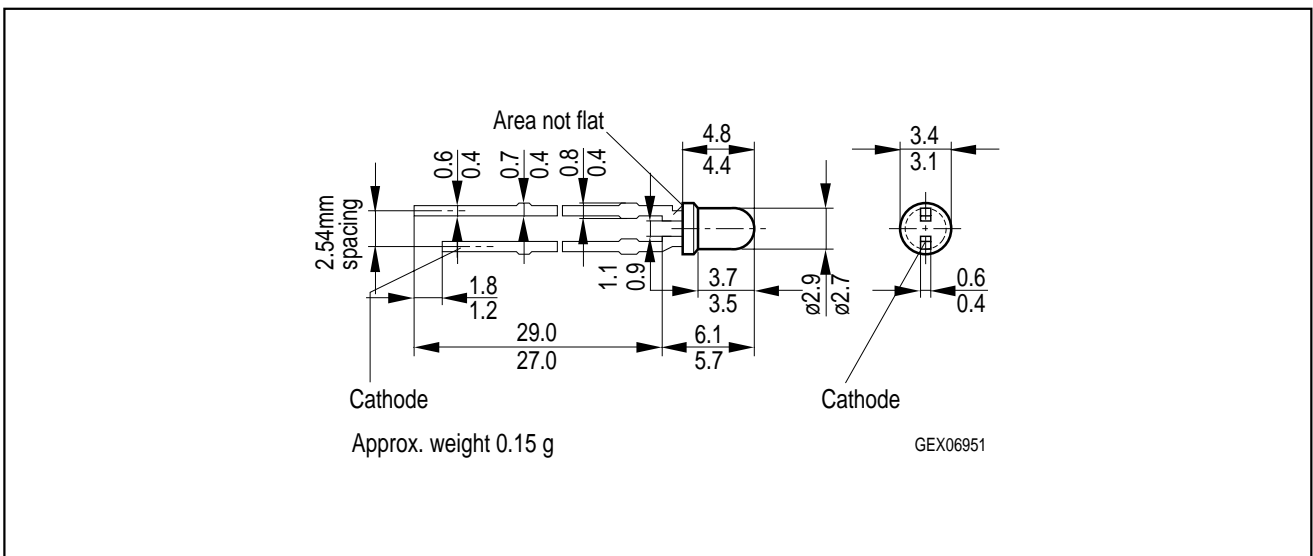
**Zulässige Impulsbelastbarkeit  $I_F = f(t_p)$**   
**Permissible pulse handling capability**  
**LY**

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



**Maßzeichnung**  
**Package Outlines**

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



**Kathodenkennzeichnung:** Kürzerer Lötspieß  
**Cathode mark:** Short solder lead