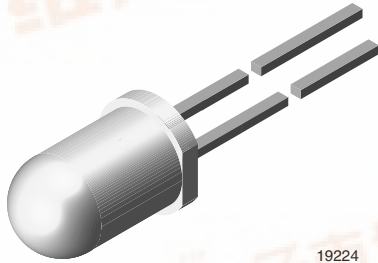


## Ultrabright LED, Ø 5 mm Untinted Non-Diffused



### DESCRIPTION

The TLC.68.. series is a clear, non diffused 5 mm LED for high end applications where supreme luminous intensity required.

These lamps with clear untinted plastic case utilize the highly developed ultrabright AllnGaP (AS).

The lens and the viewing angle is optimized to achieve best performance of light output and visibility.

### PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 5 mm
- Product series: power
- Angle of half intensity:  $\pm 4^\circ$

### FEATURES

- Untinted non diffused lens
- Utilizing ultrabright AllnGaP (AS)
- High luminous intensity
- High operating temperature:  
 $T_j$  (chip junction temperature) up to 125 °C for AllnGaP devices
- Luminous intensity and color categorized for each packing unit
- ESD-withstand voltage: up to 2 kV according to JESD22-A114-B
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC



RoHS  
COMPLIANT

### APPLICATIONS

- Interior and exterior lighting
- Outdoor LED panels
- Instrumentation and front panel indicators
- Central high mounted stop lights (CHMSL) for motor vehicles
- Replaces incandescent lamps
- Traffic signals
- Light guide design

### PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLCR6800	Red, $I_V > 7500$ mcd	AllnGaP on GaAs
TLCY6800	Yellow, $I_V > 5750$ mcd	AllnGaP on GaAs

### ABSOLUTE MAXIMUM RATINGS <sup>1)</sup> TLCR6800, TLCY6800

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage <sup>2)</sup>		$V_R$	5	V
DC Forward current	$T_{amb} \leq 85^\circ\text{C}$	$I_F$	50	mA
Surge forward current	$t_p \leq 10 \mu\text{s}$	$I_{FSM}$	1	A
Power dissipation		$P_V$	135	mW
Junction temperature		$T_j$	125	°C
Operating temperature range		$T_{amb}$	- 40 to + 100	°C
Storage temperature range		$T_{stg}$	- 40 to + 100	°C
Soldering temperature	$t \leq 5$ s, 2 mm from body	$T_{sd}$	260	°C
Thermal resistance junction/ambient		$R_{thJA}$	300	K/W

Note:

<sup>1)</sup>  $T_{amb} = 25^\circ\text{C}$ , unless otherwise specified

<sup>2)</sup> Driving the LED in reverse direction is suitable for a short term application



OPTICAL AND ELECTRICAL CHARACTERISTICS <sup>1)</sup> TLCR6800, RED							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity <sup>2)</sup>	$I_F = 50 \text{ mA}$	TLCR6800	$I_V$	7500	35 000		mcd
Dominant wavelength	$I_F = 50 \text{ mA}$		$\lambda_d$	611	616	622	nm
Peak wavelength	$I_F = 50 \text{ mA}$		$\lambda_p$		622		nm
Spectral bandwidth at 50 % $I_{rel \text{ max.}}$	$I_F = 50 \text{ mA}$		$\Delta\lambda$		18		nm
Angle of half intensity	$I_F = 50 \text{ mA}$		$\varphi$		$\pm 4$		deg
Forward voltage	$I_F = 50 \text{ mA}$		$V_F$		2.1	2.7	V
Reverse voltage	$I_R = 10 \mu\text{A}$		$V_R$	5			V
Temperature coefficient of $V_F$	$I_F = 50 \text{ mA}$		$TC_{V_F}$		- 3.5		mV/K
Temperature coefficient of $\lambda_d$	$I_F = 50 \text{ mA}$		$TC_{\lambda_d}$		0.05		nm/K

Note:

<sup>1)</sup>  $T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

<sup>2)</sup> In one packing unit  $I_{Vmax.}/I_{Vmin.} \leq 2.0$

OPTICAL AND ELECTRICAL CHARACTERISTICS <sup>1)</sup> TLCY6800, YELLOW							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity <sup>2)</sup>	$I_F = 50 \text{ mA}$	TLCY6800	$I_V$	5750	25 000		mcd
Dominant wavelength	$I_F = 50 \text{ mA}$		$\lambda_d$	585	590	597	nm
Peak wavelength	$I_F = 50 \text{ mA}$		$\lambda_p$		593		nm
Spectral bandwidth at 50 % $I_{rel \text{ max.}}$	$I_F = 50 \text{ mA}$		$\Delta\lambda$		17		nm
Angle of half intensity	$I_F = 50 \text{ mA}$		$\varphi$		$\pm 4$		deg
Forward voltage	$I_F = 50 \text{ mA}$		$V_F$		2.1	2.7	V
Reverse voltage	$I_R = 10 \mu\text{A}$		$V_R$	5			V
Temperature coefficient of $V_F$	$I_F = 50 \text{ mA}$		$TC_{V_F}$		- 3.5		mV/K
Temperature coefficient of $\lambda_d$	$I_F = 50 \text{ mA}$		$TC_{\lambda_d}$		0.1		nm/K

Note:

<sup>1)</sup>  $T_{amb} = 25 \text{ }^\circ\text{C}$ , unless otherwise specified

<sup>2)</sup> In one packing unit  $I_{Vmax.}/I_{Vmin.} \leq 2.0$

LUMINOUS INTENSITY CLASSIFICATION			
GROUP	LIGHT INTENSITY (mcd)		
	STANDARD	MIN.	MAX.
FF	1350	2700	
GG	1800	3600	
HH	2400	4800	
II	3200	6400	
KK	4300	8600	
LL	5750	11 500	
MM	7500	15 000	
NN	10 000	20 000	
PP	13 500	27 000	
QQ	18 000	36 000	
RR	24 000	48 000	
SS	32 000	64 000	
TT	43 000	86 000	
UU	57 500	115 000	

Note:

Luminous intensity is tested at a current pulse duration of 25 ms and an accuracy of  $\pm 11 \%$ .

The above type numbers represent the order groups which include only a few brightness groups. Only one group will be shipped on each bag (there will be no mixing of two groups on each bag).

In order to ensure availability, single brightness groups will not be orderable.

In a similar manner for colors where wavelength groups are measured and binned, single wavelength groups will be shipped in any one bag.

In order to ensure availability, single wavelength groups will not be orderable.

COLOR CLASSIFICATION				
GROUP	DOM. WAVELENGTH (nm)			
	YELLOW		RED	
	MIN.	MAX.	MIN.	MAX.
0	585	588		
1	587	591	611	618
2	589	594	614	622
3	592	597		

Note:

Wavelengths are tested at a current pulse duration of 25 ms and an accuracy of  $\pm 1 \text{ nm}$ .

**TYPICAL CHARACTERISTICS**

$T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified

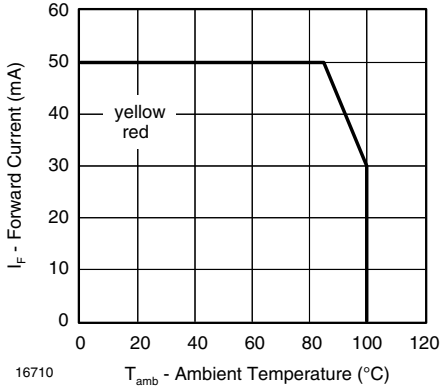


Figure 1. Forward Current vs. Ambient Temperature

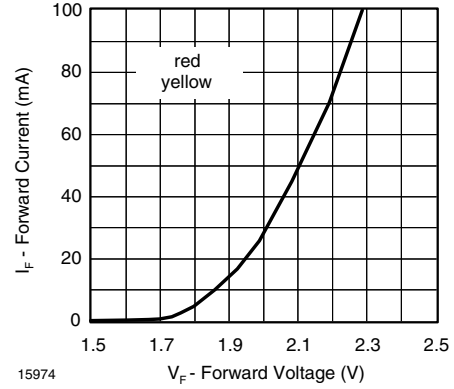


Figure 4. Forward Current vs. Forward Voltage

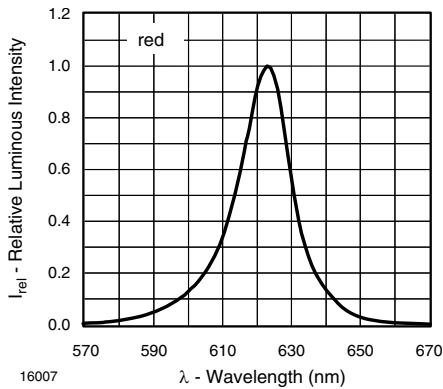


Figure 2. Relative Intensity vs. Wavelength

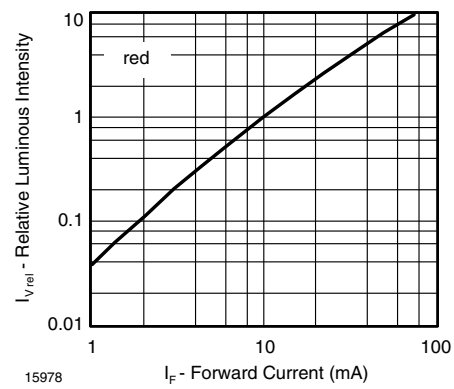


Figure 5. Relative Luminous Flux vs. Forward Current

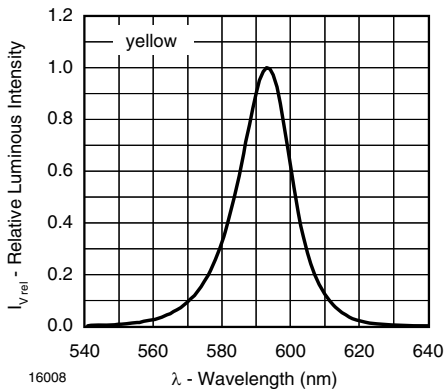


Figure 3. Relative Intensity vs. Wavelength

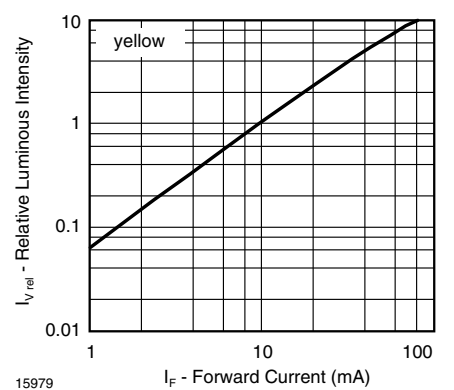


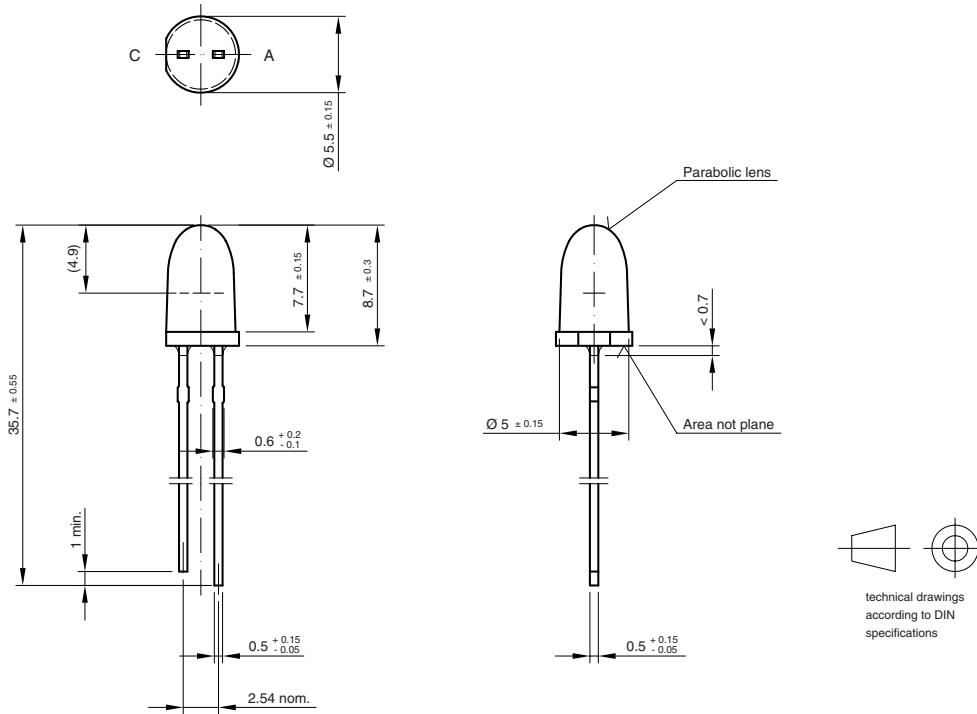
Figure 6. Relative Luminous Flux vs. Forward Current

# TLCR6800, TLCY6800

上海“TLCR6800”供应商  
Vishay Semiconductors



## PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.544-5311.01-4  
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20243

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