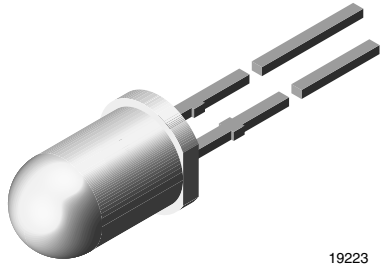




# High Efficiency LED, Ø 5 mm Untinted Non-Diffused Package



19223

## DESCRIPTION

The TLHY5800 was developed for standard applications which need a very small radiation angle or a very high luminous intensity.

It is housed in a 5 mm untinted non-diffused plastic package. The very small viewing angle of this device provides a very high luminous intensity.

The LED is categorized in luminous intensity and additionally in wavelength groups.

That allows users to assemble the LED with uniform appearance.

## PRODUCT GROUP AND PACKAGE DATA

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

## FEATURES

- Standard T-1 $\frac{3}{4}$  package
- Small mechanical tolerances
- Suitable for DC and high peak current
- Very small viewing angle
- Very high intensity
- Luminous intensity categorized
- Color categorized
- ESD-withstand voltage up to 2 kV according to JESD22-A114-B
- Material categorization: for definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



## APPLICATIONS

- Status lights
- Off / on indicator
- Lightpipe
- Outdoor display
- Medical instruments
- Maintenance lights
- Legend lights

PARTS TABLE														
PART	COLOR	LUMINOUS INTENSITY (mcd)			at I <sub>F</sub> (mA)	WAVELENGTH (nm)			at I <sub>F</sub> (mA)	FORWARD VOLTAGE (V)			at I <sub>F</sub> (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
TLHY5800	Yellow	100	250	-	20	581	-	594	10	-	2.4	3	20	GaAsP on GaP

ABSOLUTE MAXIMUM RATINGS (T <sub>amb</sub> = 25 °C unless otherwise specified)				
TLHY5800				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V <sub>R</sub>	6	V
DC forward current	T <sub>amb</sub> ≤ 65 °C	I <sub>F</sub>	30	mA
Surge forward current	t <sub>p</sub> ≤ 10 μs	I <sub>FSM</sub>	1	A
Power dissipation	T <sub>amb</sub> ≤ 65 °C	P <sub>V</sub>	100	mW
Junction temperature		T <sub>j</sub>	100	°C
Operating temperature range		T <sub>amb</sub>	- 40 to + 100	°C
Storage temperature range		T <sub>stg</sub>	- 55 to + 100	°C
Soldering temperature	t ≤ 5 s, 2 mm from body	T <sub>sd</sub>	260	°C
Thermal resistance junction/ambient		R <sub>thJA</sub>	350	K/W

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)  
**TLHY5800, YELLOW**

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity <sup>(1)</sup>	$I_F = 20\text{ mA}$	$I_V$	100	250	-	mcd
Dominant wavelength	$I_F = 10\text{ mA}$	$\lambda_d$	581	-	594	nm
Peak wavelength	$I_F = 10\text{ mA}$	$\lambda_p$	-	585	-	nm
Angle of half intensity	$I_F = 10\text{ mA}$	$\phi$	-	$\pm 4$	-	$^{\circ}$
Forward voltage	$I_F = 20\text{ mA}$	$V_F$	-	2.4	3	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$	$V_R$	6	15	-	V
Junction capacitance	$V_R = 0\text{ V}$ , $f = 1\text{ MHz}$	$C_j$	-	50	-	pF

**Note**

(1) In one packing unit  $I_{Vmin.}/I_{Vmax.} \leq 0.5$

**LUMINOUS INTENSITY CLASSIFICATION**

GROUP STANDARD	LIGHT INTENSITY (mcd)	
	MIN.	MAX.
W	100	200
X	130	260
Y	180	360
Z	240	480
AA	320	640
BB	430	860
CC	575	1150
DD	750	1500
EE	1000	2000
FF	1350	2700

**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.

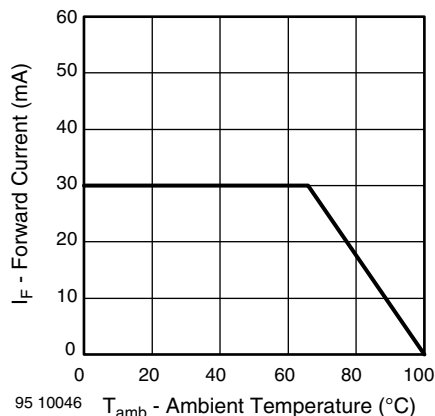
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Current vs. Ambient Temperature

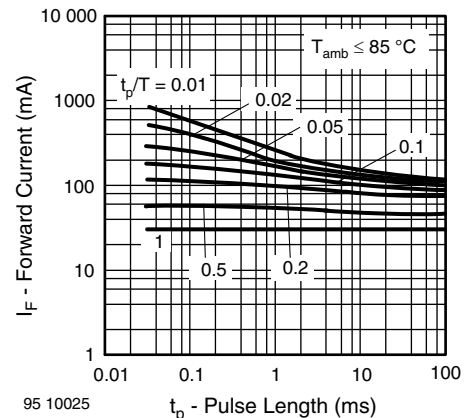


Fig. 2 - Forward Current vs. Pulse Length

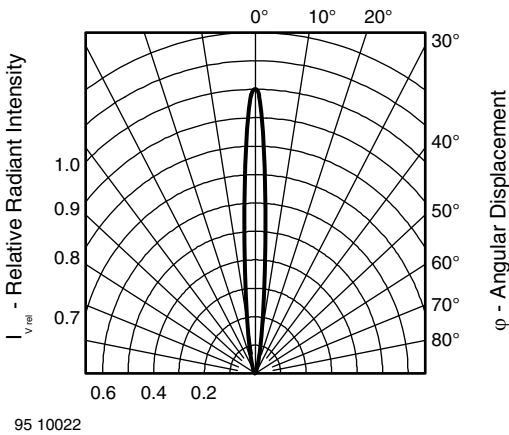


Fig. 3 - Relative Luminous Intensity vs. Angular Displacement

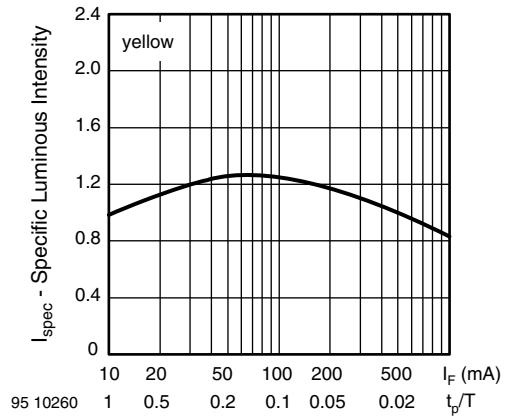


Fig. 6 - Relative Luminous Intensity vs. Forward Current/Duty Cycle

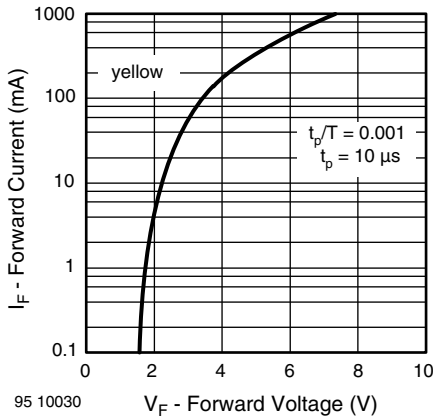


Fig. 4 - Forward Current vs. Forward Voltage

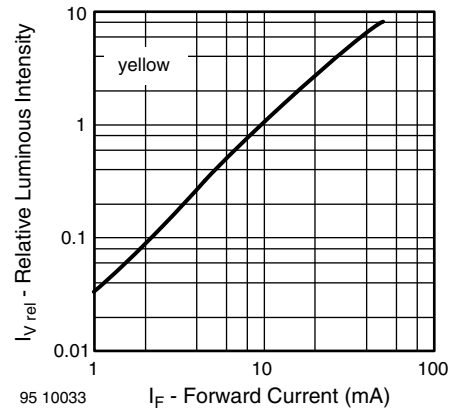


Fig. 7 - Relative Luminous Intensity vs. Forward Current

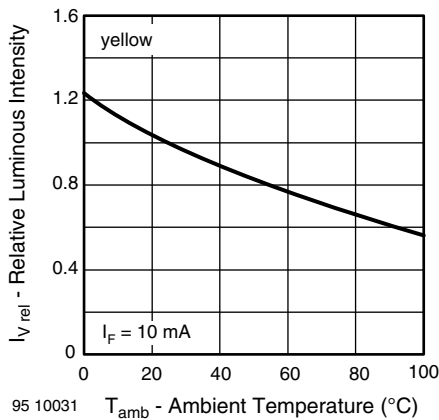


Fig. 5 - Relative Luminous Intensity vs. Ambient Temperature

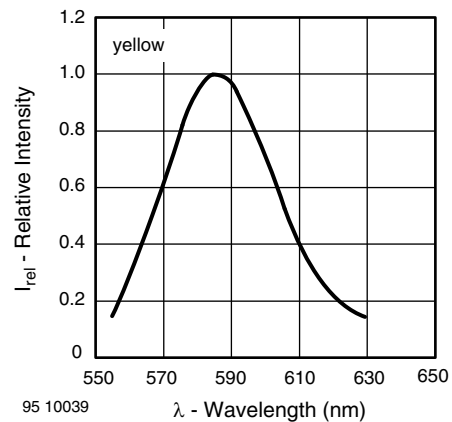
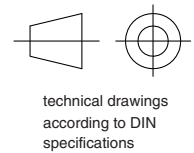
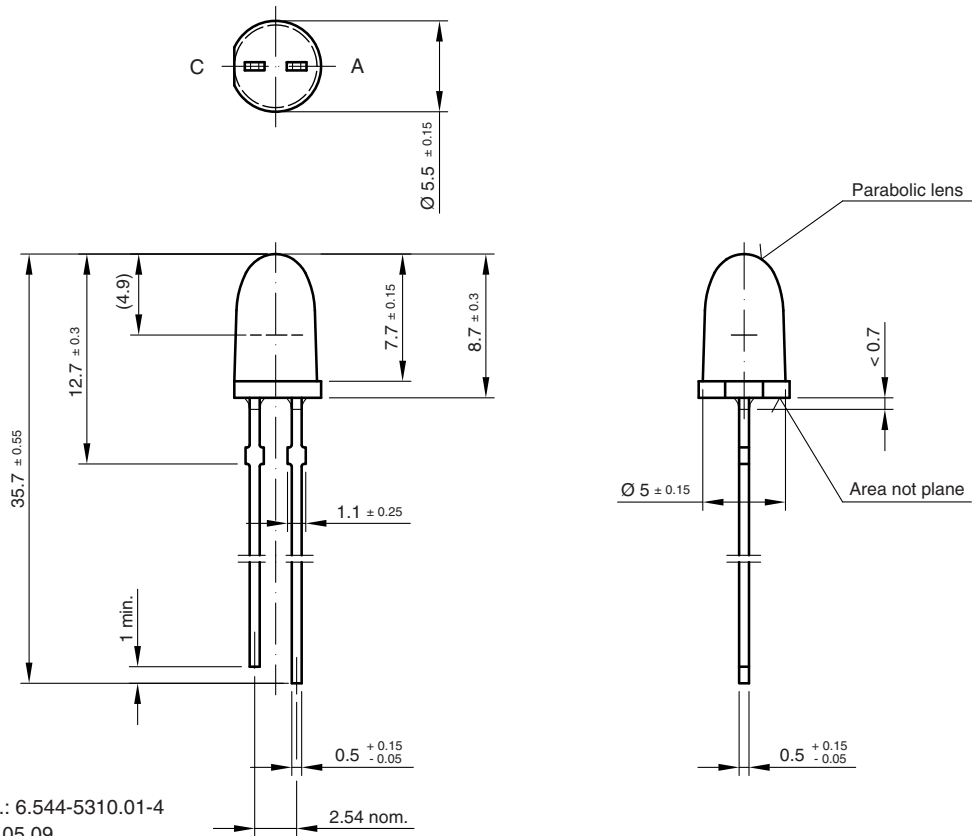


Fig. 8 - Relative Intensity vs. Wavelength



PACKAGE DIMENSIONS in millimeters



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