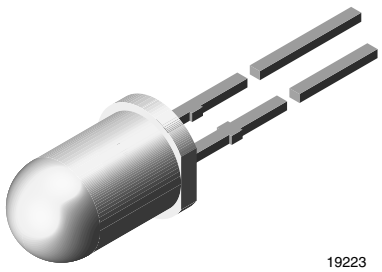
High Efficiency LED, Ø 5 mm Untinted Non-Diffused Package



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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: ± 4°

FEATRUES

- Standard T-1¾ 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

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE GREEN (5-2008)

APPLICATIONS

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

PARTS TABLE

PART	COLOR	LUMINOUS INTENSITY (mcd)			at I_F (mA)	WAVELENGTH (nm)			at I_F (mA)	FORWARD VOLTAGE (V)			at I_F (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_{amb} = 25 °C unless otherwise specified)
TLHY5800

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	6	V
DC forward current	$T_{amb} \leq 65$ °C	I_F	30	mA
Surge forward current	$t_p \leq 10$ µs	I_{FSM}	1	A
Power dissipation	$T_{amb} \leq 65$ °C	P_V	100	mW
Junction temperature		T_j	100	°C
Operating temperature range		T_{amb}	- 40 to + 100	°C
Storage temperature range		T_{stg}	- 55 to + 100	°C
Soldering temperature	t ≤ 5 s, 2 mm from body	T_{sd}	260	°C
Thermal resistance junction/ambient		R_{thJA}	350	K/W

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) TLHY5800, YELLOW						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous intensity (1)	I_F = 20 mA	I_V	100	250	-	mcd
Dominant wavelength	I_F = 10 mA	λ_d	581	-	594	nm
Peak wavelength	I_F = 10 mA	λ_p	-	585	-	nm
Angle of half intensity	I_F = 10 mA	φ	-	± 4	-	°
Forward voltage	I_F = 20 mA	V_F	-	2.4	3	V
Reverse voltage	I_R = 10 µA	V_R	6	15	-	V
Junction capacitance	V_R = 0 V, f = 1 MHz	C_j	-	50	-	pF

Note

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

LUMINOUS INTENSITY CLASSIFICATION		
GROUP	**LIGHT INTENSITY (mcd)**	
STANDARD	**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 ± 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 °C, unless otherwise specified)

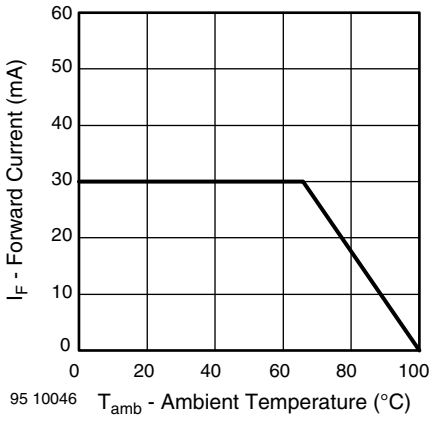


Fig. 1 - Forward Current vs. Ambient Temperature

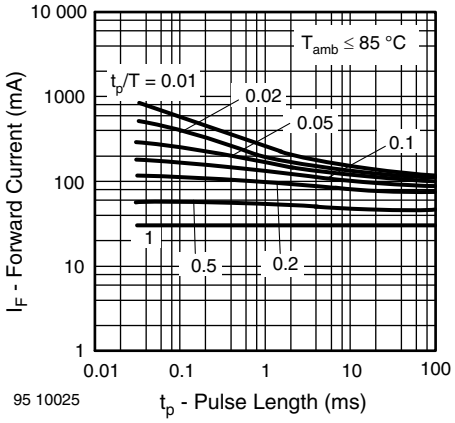


Fig. 2 - Forward Current vs. Pulse Length

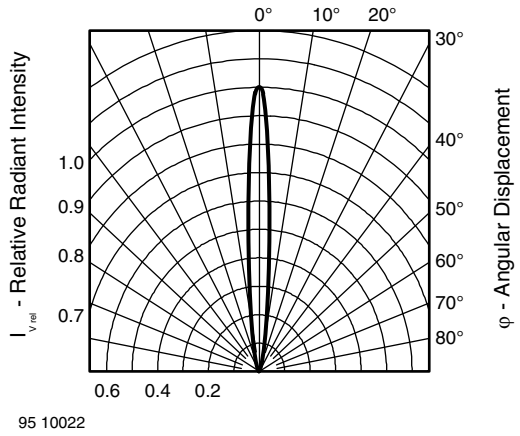


Fig. 3 - Relative Luminous Intensity vs. Angular Displacement

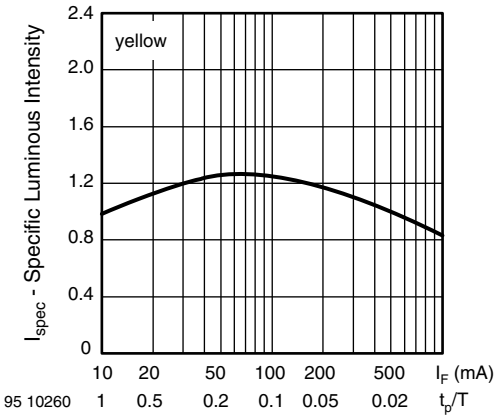


Fig. 6 - Relative Luminous Intensity vs. Forward Current/Duty Cycle

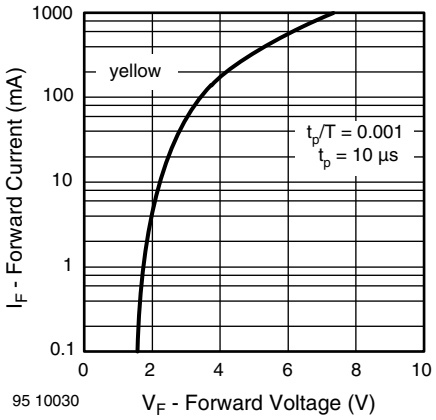


Fig. 4 - Forward Current vs. Forward Voltage

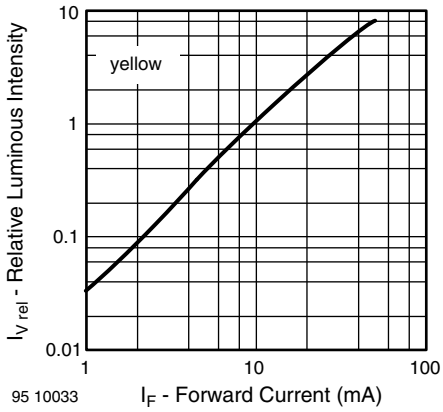


Fig. 7 - Relative Luminous Intensity vs. Forward Current

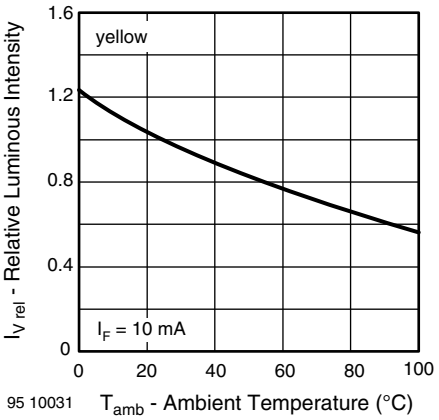


Fig. 5 - Relative Luminous Intensity vs. Ambient Temperature

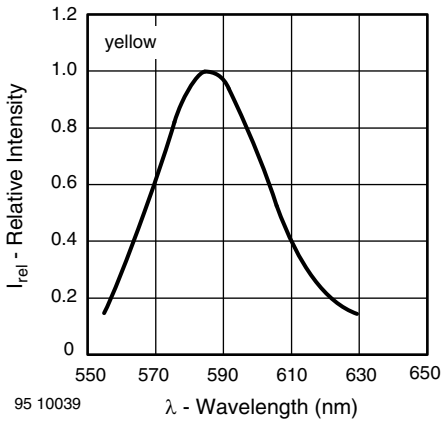
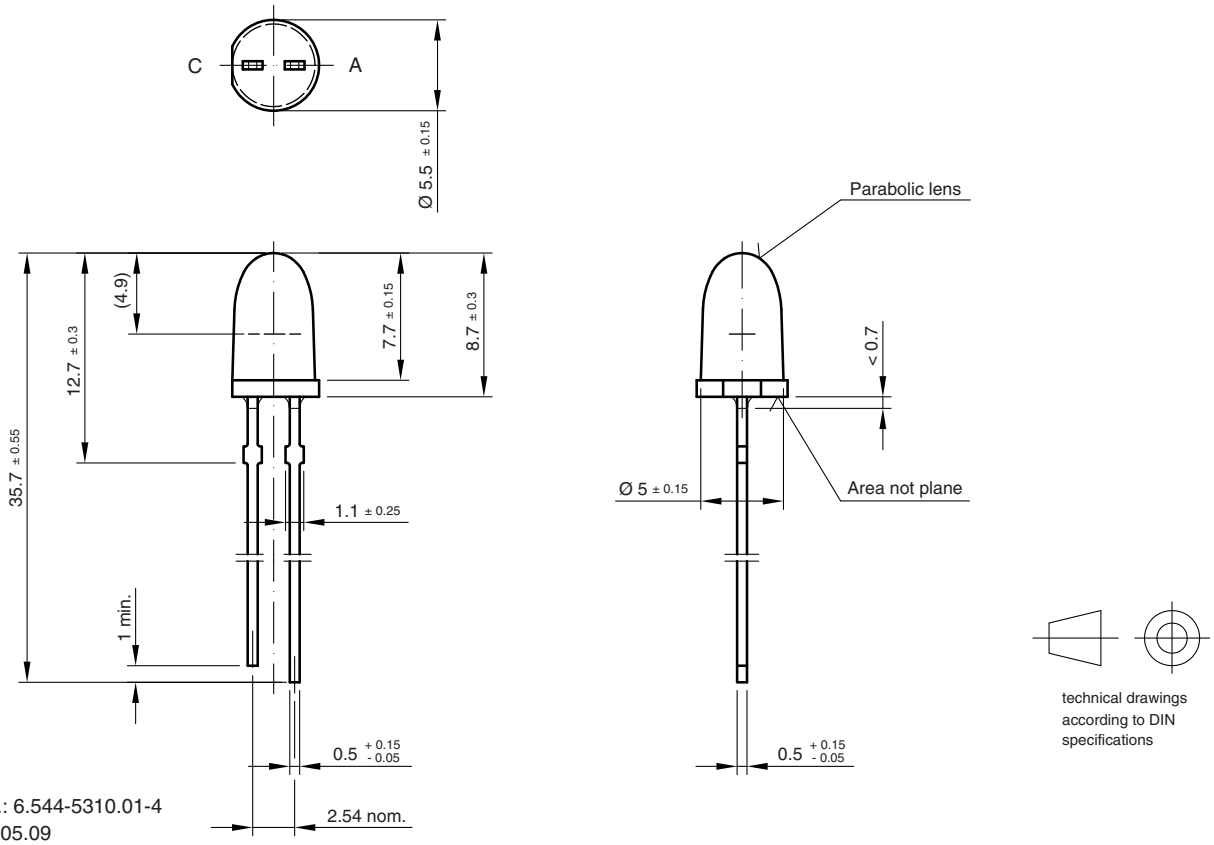


Fig. 8 - Relative Intensity vs. Wavelength

PACKAGE DIMENSIONS in millimeters



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