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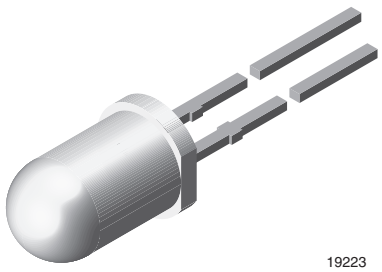
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China

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



19223

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
- Yellow and green 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)

DESCRIPTION

The TLH.5800 series 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 these devices provide a very high luminous intensity.

The yellow and green LEDs are categorized in luminous intensity and additionally in wavelength groups.

That allows users to assemble LEDs with uniform appearance.

APPLICATIONS

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

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 5 mm
- Product series: standard
- Angle of half intensity: ± 4°

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
TLHG5800	Green	430	700	-	20	562	-	575	10	-	2.4	3	20	GaP on GaP
TLHP5800	Pure green	25	85	-	20	555	-	565	10	-	2.4	3	20	GaP on GaP

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C unless otherwise specified)
TLHY5800, TLHG5800, TLHP5800

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	-	deg
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 $I_{Vmin.}/I_{Vmax.} \leq 0.5$

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)
TLHG5800, GREEN

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity (1)	I_F = 20 mA	I_V	430	700	-	mcd
Dominant wavelength	I_F = 10 mA	λ_d	562	-	575	nm
Peak wavelength	I_F = 10 mA	λ_p	-	565	-	nm
Angle of half intensity	I_F = 10 mA	φ	-	± 4	-	deg
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 $I_{Vmin.}/I_{Vmax.} \leq 0.5$

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)
TLHP5800, PURE GREEN

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity (1)	I_F = 20 mA	I_V	25	85	-	mcd
Dominant wavelength	I_F = 10 mA	λ_d	555	-	565	nm
Peak wavelength	I_F = 10 mA	λ_p	-	555	-	nm
Angle of half intensity	I_F = 10 mA	φ	-	± 4	-	deg
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.
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)

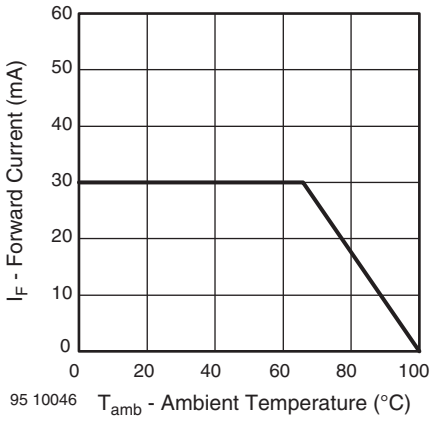


Fig. 1 - Forward Current vs. Ambient Temperature

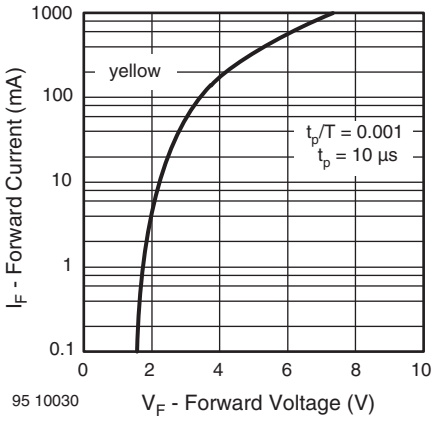


Fig. 4 - Forward Current vs. Forward Voltage

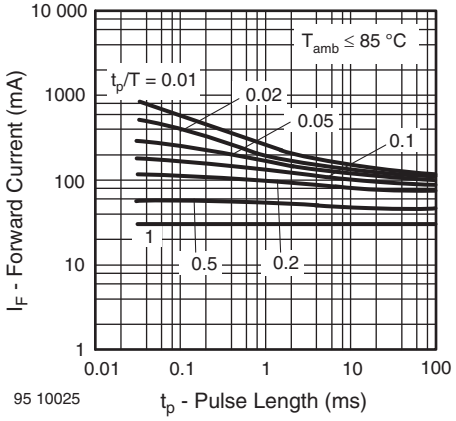


Fig. 2 - Forward Current vs. Pulse Length

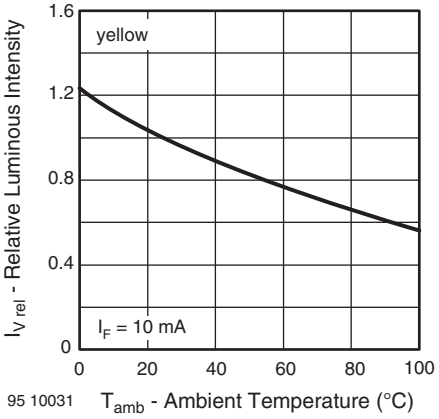


Fig. 5 - Relative Luminous Intensity vs. Ambient Temperature

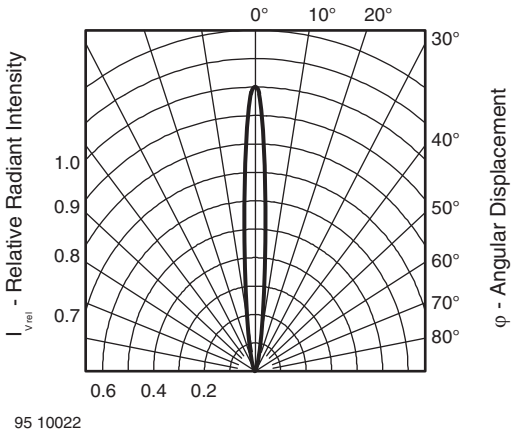


Fig. 3 - Relative Luminous Intensity vs. Angular Displacement

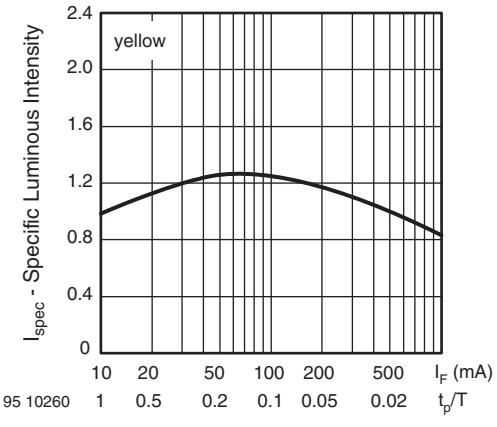


Fig. 6 - Relative Luminous Intensity vs. Forward Current/Duty Cycle

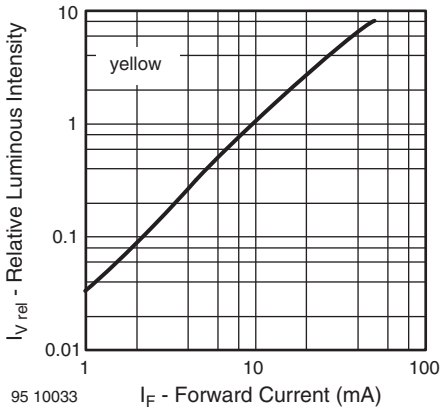


Fig. 7 - Relative Luminous Intensity vs. Forward Current

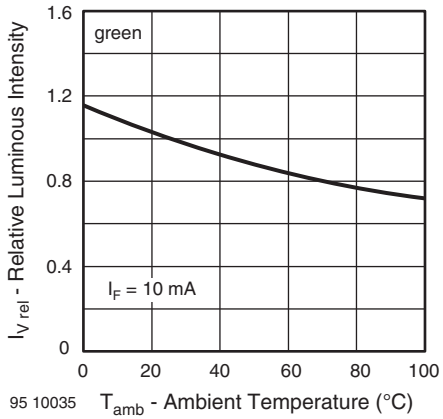


Fig. 10 - Relative Luminous Intensity vs. Ambient Temperature

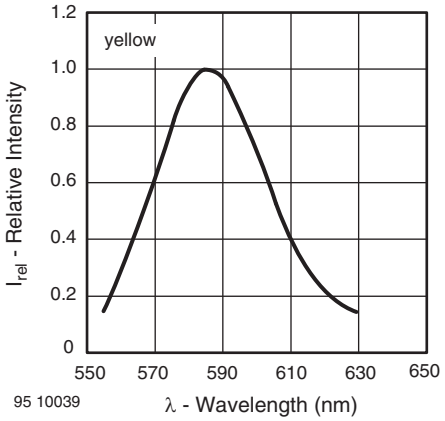


Fig. 8 - Relative Intensity vs. Wavelength

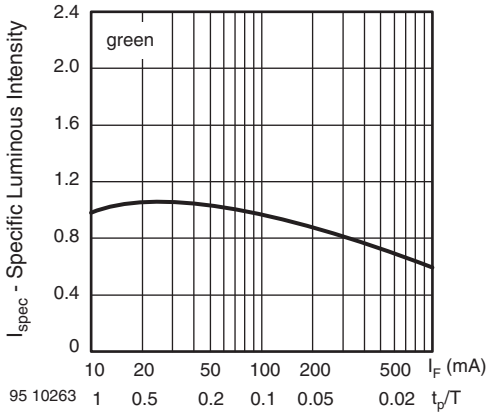


Fig. 11 - Specific Luminous Intensity vs. Forward Current

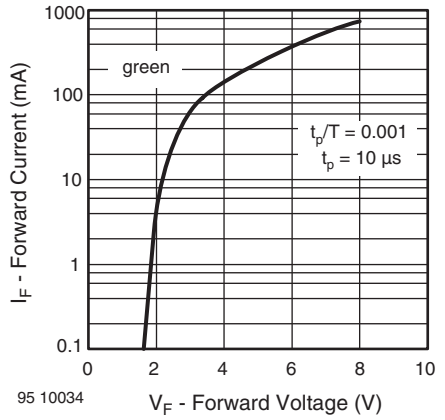


Fig. 9 - Forward Current vs. Forward Voltage

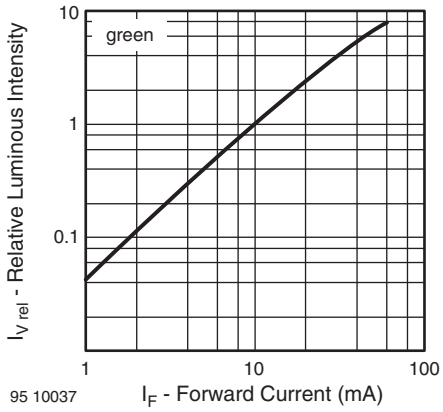


Fig. 12 - Relative Luminous Intensity vs. Forward Current

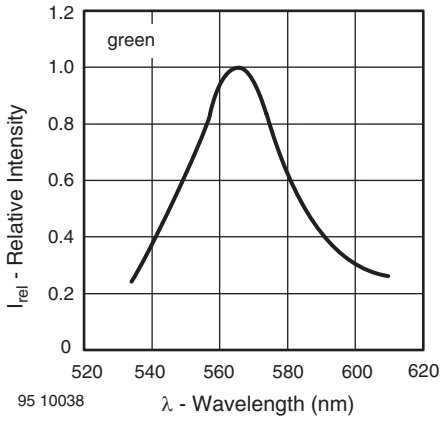


Fig. 13 - Relative Intensity vs. Wavelength

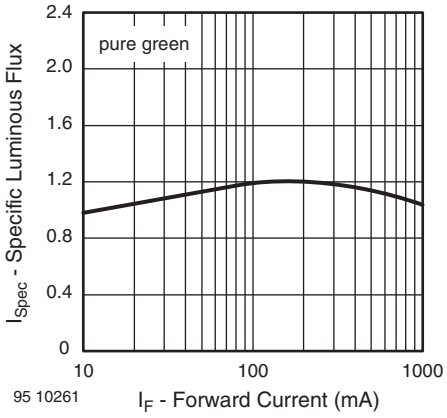


Fig. 16 - Specific Luminous Intensity vs. Forward Current

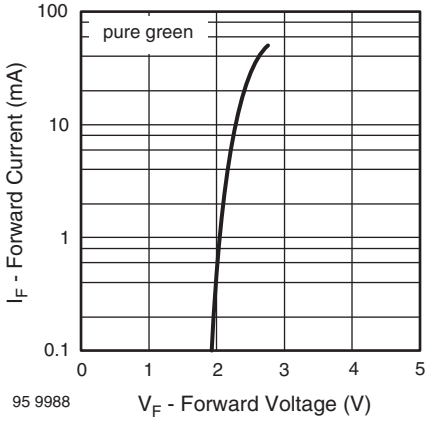


Fig. 14 - Forward Current vs. Forward Voltage

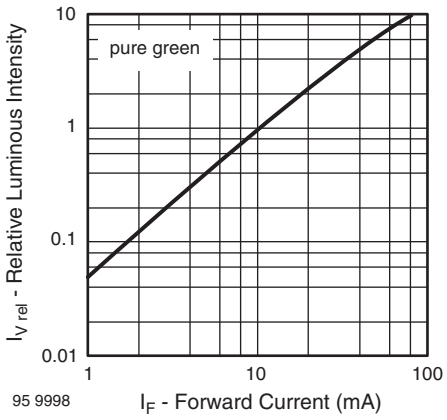


Fig. 17 - Relative Luminous Intensity vs. Forward Current

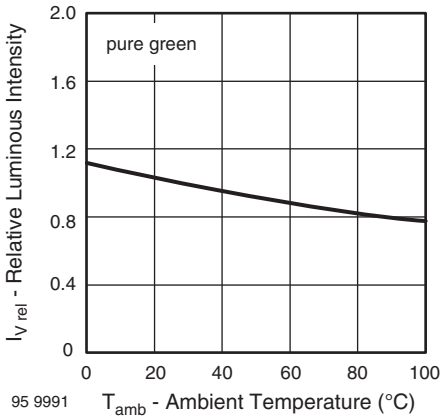


Fig. 15 - Relative Luminous Intensity vs. Ambient Temperature

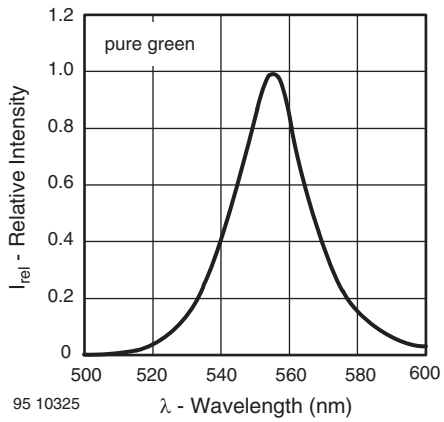
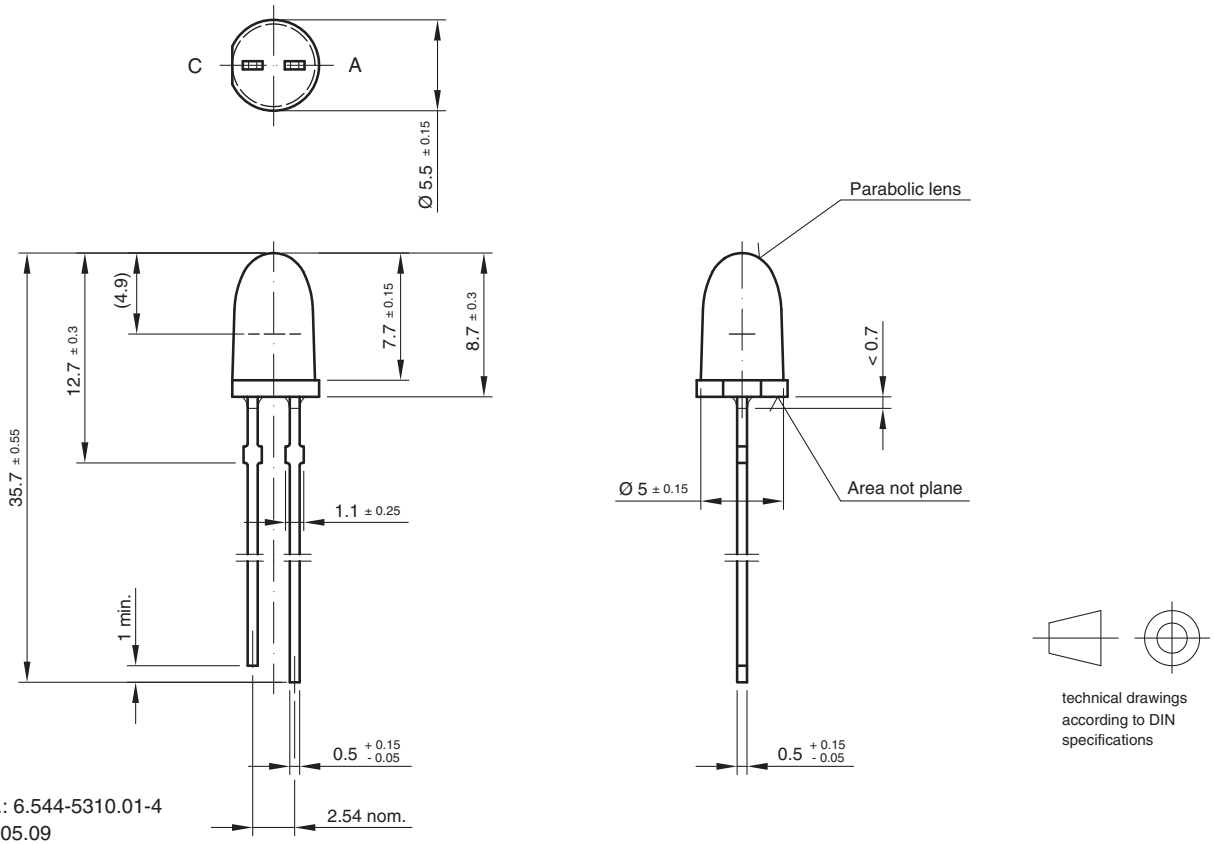


Fig. 18 - Relative Intensity vs. Wavelength

PACKAGE DIMENSIONS in millimeters



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Issue: 4; 19.05.09
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