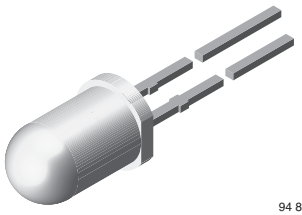
Ultrabright LED, ∅ 5 mm Untinted Non-Diffused



FEATURES

- Untinted non diffused lens
- Utilizing ultrabright AlInGaP and OMA technology
- Very high luminous intensity
- Very small emission angle
- High operating temperature: T_j (chip junction temperature) up to 125 °C for AlInGaP devices
- Luminous intensity and color categorized for each packing unit
- ESD-withstand voltage: 2 kV acc. to MIL STD 883 D, Method 3015.7 for AlInGaP
- Lead (Pb)-free device

DESCRIPTION

The TLCY.581. is a clear, non diffused 5 mm LED for high end applications where supreme luminous intensity and a very small emission angle is required.

These lamps with clear untinted plastic case utilize the highly developed ultrabright AlInGaP OMA technology.

The very small viewing angle of these devices provide a very high luminous intensity.

PRODUCT GROUP AND PACKAGE DATA

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

APPLICATIONS

- Interior and exterior lighting
- Outdoor LED panels, displays
- Instrumentation and front panel indicators
- Replaces incandescent lamps
- Traffic signals and signs
- Light guide design

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLCY5810	Yellow, $I_V \geq 10000$ mcd	AlInGaP on Si

ABSOLUTE MAXIMUM RATINGS[1] TLCY581.

PARAMETER	TEST CONDITION	PART	SYMBOL	VALUE	UNIT
Reverse voltage			V_R	5	V
DC Forward current	$T_{amb} \leq 85°C$		I_F	50	mA
Surge forward current	$t_p \leq 10$ µs	TLCY5810	I_{FSM}	0.1	A
Power dissipation		TLCY5810	P_V	150	mW
Junction temperature		TLCY5810	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 ≤ 5 s, 2 mm from body		T_{sd}	260	°C
Thermal resistance junction/ ambient			R_{thJA}	300	K/W

Note:
[1] T_{amb} = 25 °C, unless otherwise specified

OPTICAL AND ELECTRICAL CHARACTERISTICS[1] TLCY55810, YELLOW							
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**MIN**	**TYP.**	**MAX**	**UNIT**
Luminous intensity [2]	I_F = 50 mA	TLCY5810	I_V	10000			mcd
Dominant wavelength	I_F = 50 mA		λ_d	585	590	597	nm
Peak wavelength	I_F = 50 mA		λ_p		593		nm
Spectral bandwidth at 50 % $I_{rel\ max}$	I_F = 50 mA		$\Delta\lambda$		17		nm
Angle of half intensity	I_F = 50 mA		φ		± 4		deg
Forward voltage	I_F = 50 mA		V_F		2.2	3.0	V
Reverse voltage	I_R = 10 μA		V_R	5			V
Temperature coefficient of V_F	I_F = 50 mA		TC_{VF}		- 3.5		mV/K
Temperature coefficient of λ_d	I_F = 50 mA		$TC\lambda_d$		0.1		nm/K

Note:
[1] T_{amb} = 25 °C, unless otherwise specified
[2] in one Packing Unit $I_{Vmax}/I_{Vmin} \leq 2.0$

LUMINOUS INTENSITY CLASSIFICATION		
GROUP	**LIGHT INTENSITY (MCD)/LUMINOUS FLUX (MLM)**	
	MIN	**MAX**
MM	7500	15000
NN	10000	20000
PP	13500	27000
QQ	18000	36000
RR	24000	48000
SS	32000	64000
TT	43000	86000
UU	57500	115000

TYPICAL CHARACTERISTICS

T_{amb} = 25 °C, unless otherwise specified

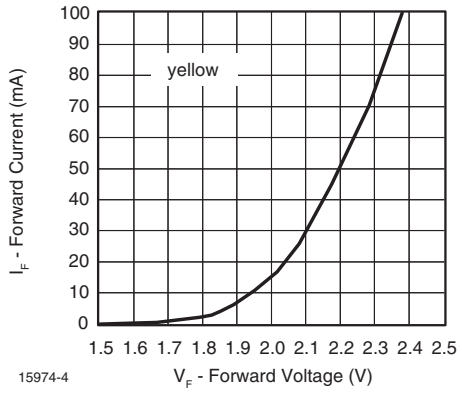


Figure 1. Forward Current vs. Forward Voltage

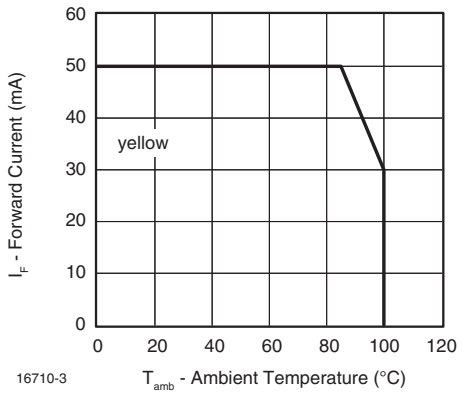


Figure 2. Forward Current vs. Ambient Temperature

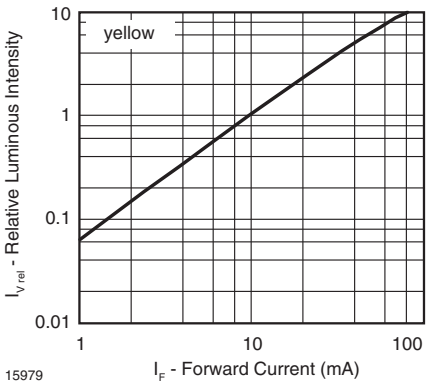


Figure 3. Relative Luminous Flux vs. Forward Current

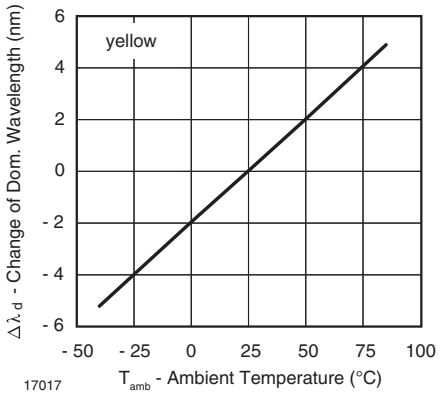


Figure 6. Dominant Wavelength vs. Ambient Temperature

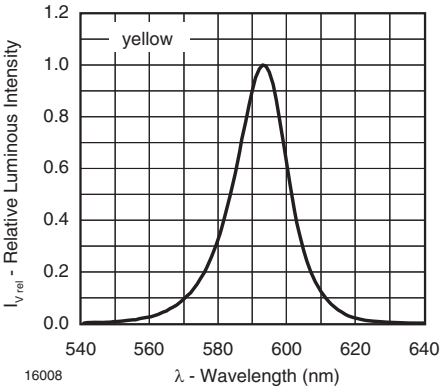


Figure 4. Relative Intensity vs. Wavelength

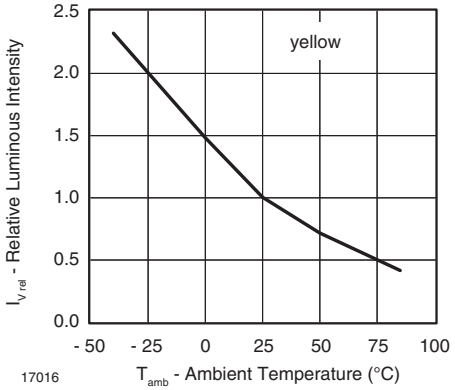


Figure 7. Relative Luminous Intensity vs. Ambient Temperature

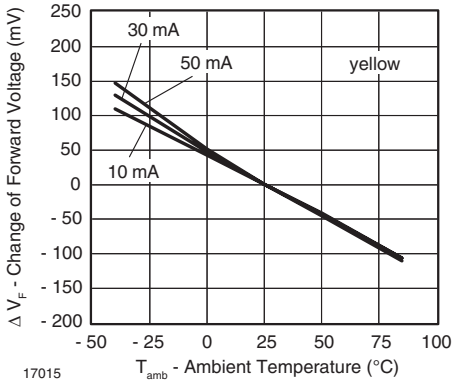


Figure 5. Forward Voltage vs. Ambient Temperature

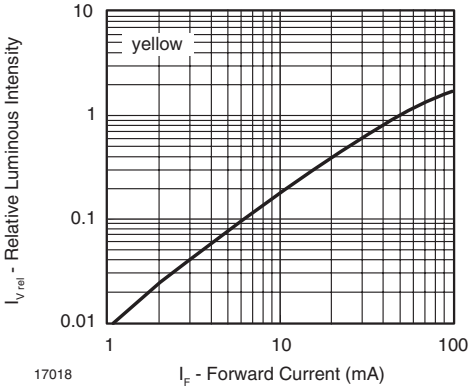


Figure 8. Relative Luminous Intensity vs. Forward Current

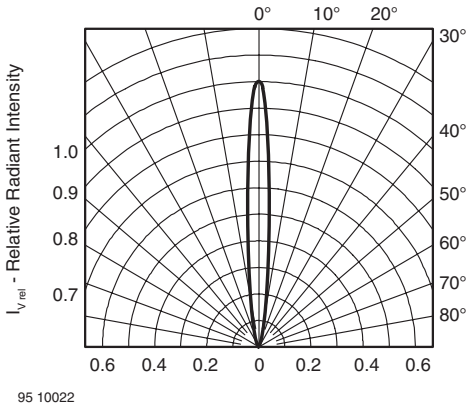
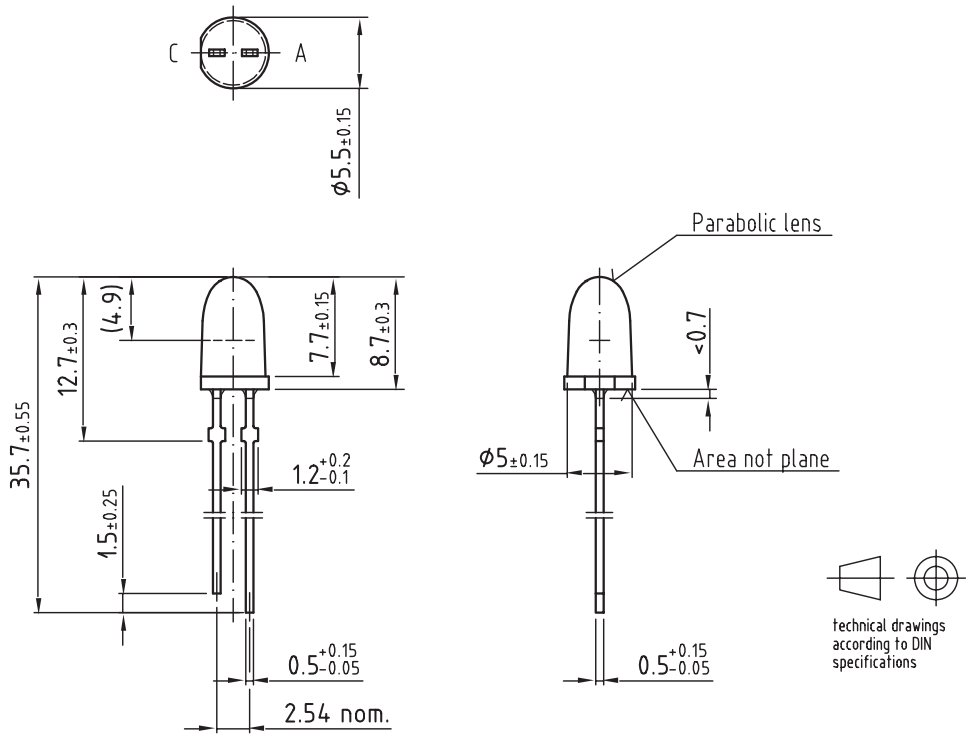


Figure 9. Relative Luminous Intensity

PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.544-5310.01-4
Issue: 2; 04.07.03
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Ozone Depleting Substances Policy Statement

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

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