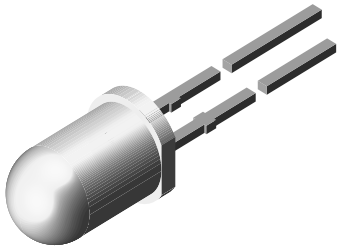
High Brightness LED, ∅ 5 mm Untinted Non-Diffused

Description

The TLC.58.. series 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 and GaP technologies.

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



e2 Pb Pb-free

Features

- Untinted non diffused lens
- Utilizing ultrabright AlInGaP, 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, 1 kV for InGaN
- Lead-free device

Applications

Interior and exterior lighting

Outdoor LED panels, displays

Instrumentation and front panel indicators

Central high mounted stop lights (CHMSL) for motor vehicles

Replaces incandescent lamps

Traffic signals and signs

Light guide design

Parts Table

Part	Color, Luminous Intensity	Angle of Half Intensity (±φ)	Technology
TLCS5810	Red, I_V > 30000 mcd (typ.)	4 °	AlInGaP on Si

Absolute Maximum Ratings

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

TLCS581.

Parameter	Test condition	Part	Symbol	Value	Unit
Reverse voltage			V_R	5	V
DC Forward current	$T_{amb} \leq 85°C$	TLCS5810	I_F	50	mA
Surge forward current	$t_p \leq 10$ µs	TLCS5800	I_{FSM}	1	A
Power dissipation	$T_{amb} \leq 85°C$	TLCS5810	P_V	135	mW
Junction temperature		TLCS5810	T_j	125	°C
Operating temperature range			T_{amb}	- 40 to + 100	°C

Parameter	Test condition	Part	Symbol	Value	Unit
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

Optical and Electrical Characteristics

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

Red

TLCS581.

Parameter	Test condition	Part	Symbol	Min	Typ.	Max	Unit
Luminous intensity [1]	I_F = 50 mA	TLCS5810	I_V	10000	30000		
Dominant wavelength	I_F = 50 mA		λ_d	620	625	630	nm
Peak wavelength	I_F = 50 mA		λ_p		632		nm
Spectral bandwidth at 50 % $I_{rel\ max}$	I_F = 50 mA		$\Delta\lambda$		18		nm
Angle of half intensity	I_F = 50 mA		φ		± 4		deg
Forward voltage	I_F = 50 mA		V_F		2.1	2.7	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		$TC\lambda_d$		0.05		nm/K

[1] in one Packing Unit $I_{Vmax}/I_{Vmin} \leq 2.0$

Typical Characteristics (Tamb = 25 °C unless otherwise specified)

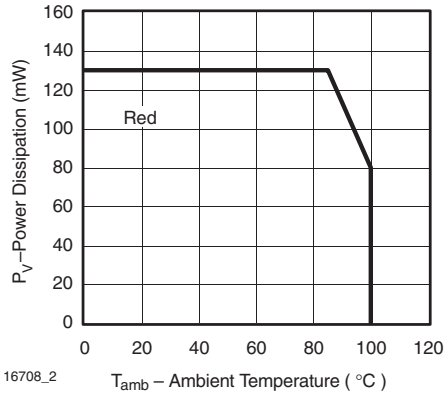


Figure 1. Power Dissipation vs. Ambient Temperature

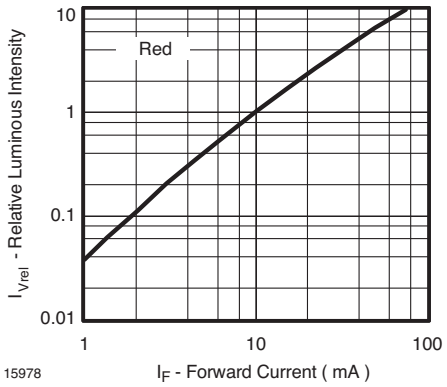


Figure 4. Relative Luminous Flux vs. Forward Current

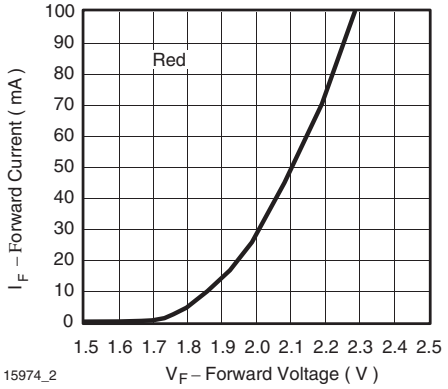


Figure 2. Forward Current vs. Forward Voltage

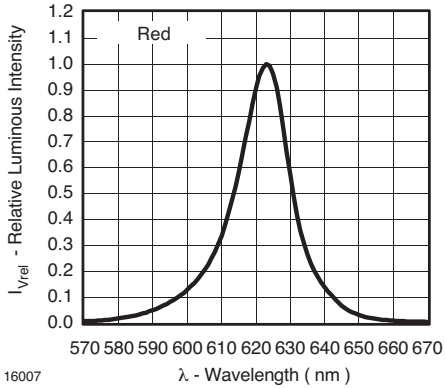


Figure 5. Relative Intensity vs. Wavelength

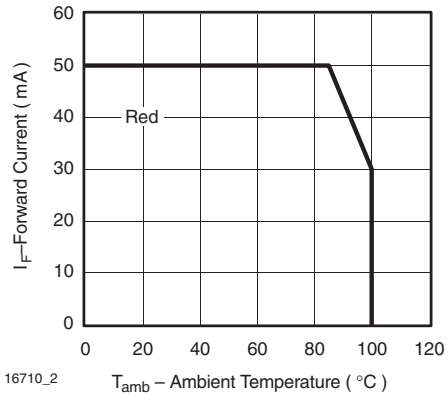
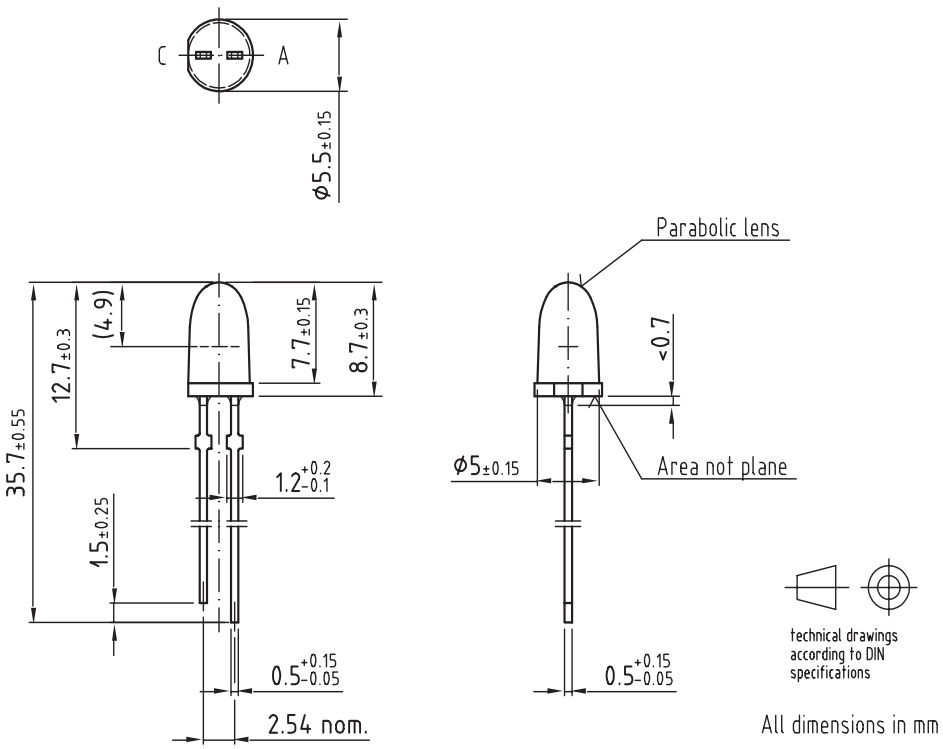


Figure 3. Forward Current vs. Ambient Temperature

Package Dimensions in mm



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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 operatingsystems 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.

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