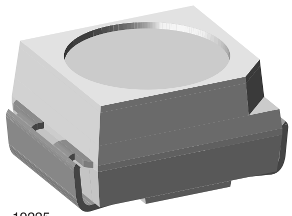
Standard SMD LED PLCC-2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FEATURES

- SMD LEDs with exceptional brightness
- Luminous intensity categorized
- Compatible with automatic placement equipment
- EIA and ICE standard package
- Compatible with infrared, vapor phase and wave solder processes according to CECC
- Available in 8 mm tape
- Low profile package
- Non-diffused lens: excellent for coupling to light pipes and backlighting
- Low power consumption
- Luminous intensity ratio in one packaging unit $I_{Vmax}/I_{Vmin} \leq 2.0$, optional ≤ 1.6
- Lead (Pb)-free device

Pb-free

e3

DESCRIPTION

These devices have been designed to meet the increasing demand for surface mounting technology.

The package of the TLMS310. is the PLCC-2 (equivalent to a size B tantalum capacitor).

It consists of a lead frame which is embedded in a white thermoplast. The reflector inside this package is filled up with clear epoxy.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: SMD PLCC-2
- Product series: standard
- Angle of half intensity: ± 60°

APPLICATIONS

- Automotive: backlighting in dashboards and switches
- Telecommunication: indicator and backlighting in telephone and fax
- Indicator and backlight for audio and video equipment
- Indicator and backlight in office equipment
- Flat backlight for LCDs, switches and symbols

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLMS3100-GS08	Red, I_V > 2.5 mcd	GaAsP on GaP
TLMS3100-GS18	Red, I_V > 2.5 mcd	GaAsP on GaP
TLMS3101-GS08	Red, I_V = (4 to 12.5) mcd	GaAsP on GaP
TLMS3101-GS18	Red, I_V = (4 to 12.5) mcd	GaAsP on GaP

ABSOLUTE MAXIMUM RATINGS[1] TLMS310.				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	6	V
DC Forward current	$T_{amb} \leq 60$ °C	I_F	30	mA
Surge forward current	$t_p \leq 10$ µs	I_{FSM}	0.5	A
Power dissipation	$T_{amb} \leq 60$ °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}	- 40 to + 100	°C
Soldering temperature	$t \leq 5$ s	T_{sd}	260	°C
Thermal resistance junction/ ambient	mounted on PC board (pad size > 16 mm^2)	R_{thJA}	400	K/W

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

OPTICAL AND ELECTRICAL CHARACTERISTICS[1] TLMS310., RED							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity [2]	I_F = 10 mA	TLMS3100	I_V	2.5	7.5		
		TLMS3101	I_V	4		12.5	mcd
Dominant wavelength	I_F = 10 mA		λ_d	624		636	nm
Peak wavelength	I_F = 10 mA		λ_p		640		nm
Angle of half intensity	I_F = 10 mA		φ		± 60		deg
Forward voltage	I_F = 20 mA		V_F		2.0	2.6	V
Reverse voltage	I_R = 10 µA		V_R	6			V
Junction capacitance	V_R = 0, f = 1 MHz		C_j		7.0		pF
Temperature coefficient of V_F	I_F = 20 mA		TC_{VF}		- 1.8		mV/K
Temperature coefficient of λ_d	I_F = 10 mA		$TC\lambda_d$		0.05		nm/K

Note:
[1] T_{amb} = 25 °C, unless otherwise specified
[2] in one packing unit $I_{Vmax}/I_{Vmin} \leq 1.6$

TYPICAL CHARACTERISTICS

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

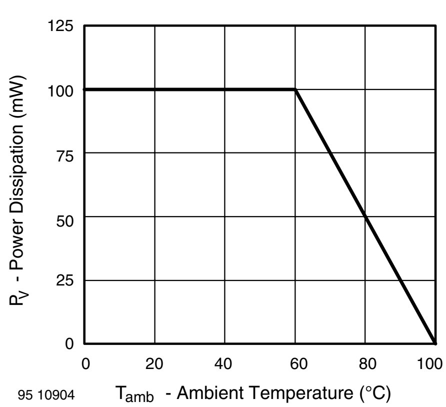


Figure 1. Power Dissipation vs. Ambient Temperature

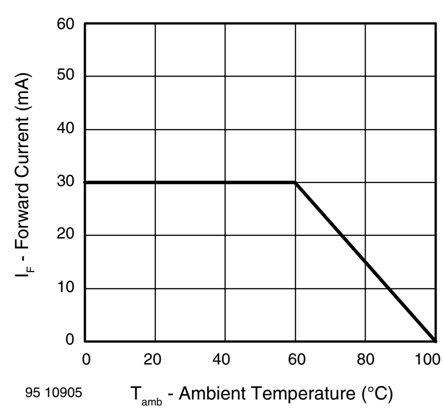


Figure 2. Forward Current vs. Ambient Temperature for InGaN

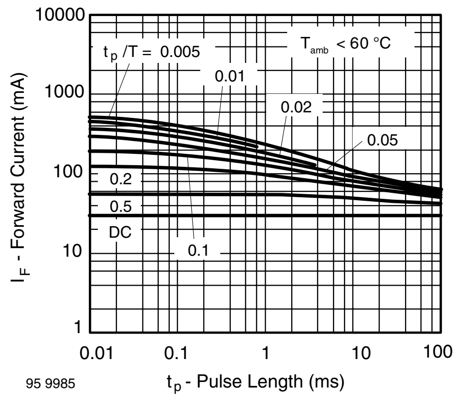


Figure 3. Pulse Forward Current vs. Pulse Duration

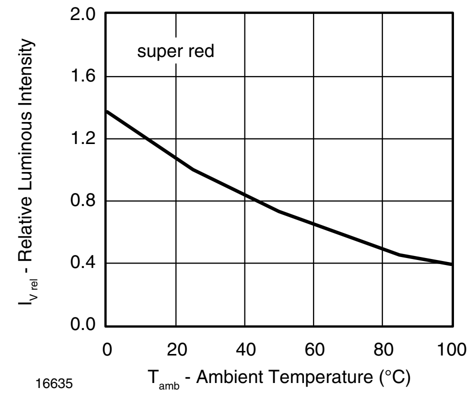


Figure 6. Rel. Luminous Intensity vs. Ambient Temperature

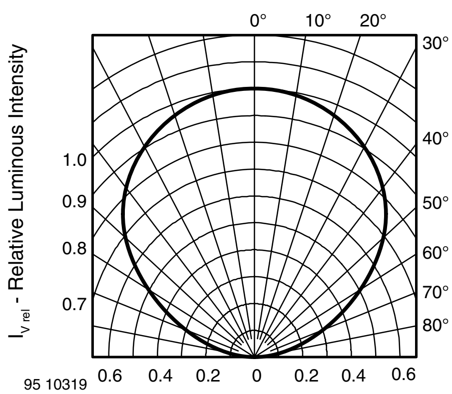


Figure 4. Rel. Luminous Intensity vs. Angular Displacement

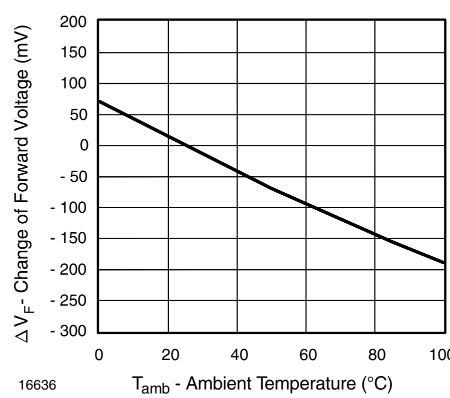


Figure 7. Change of Forward Voltage vs. Ambient Temperature

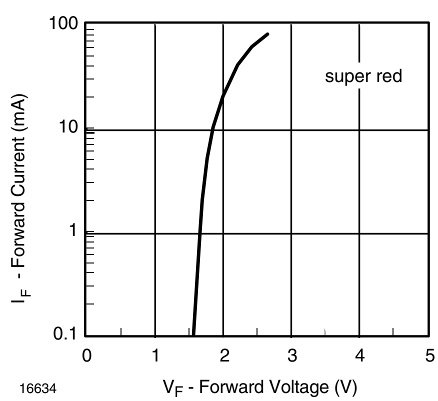


Figure 5. Forward Current vs. Forward Voltage

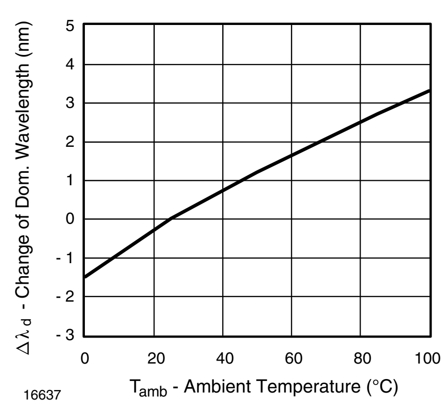


Figure 8. Change of Dominant Wavelength vs. Ambient Temperature

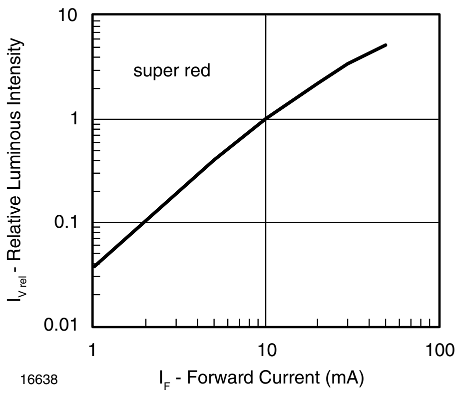


Figure 9. Relative Luminous Intensity vs. Forward Current

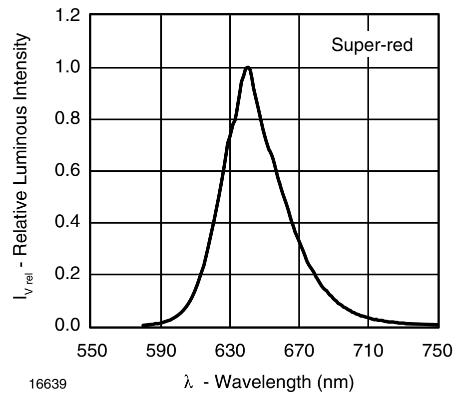
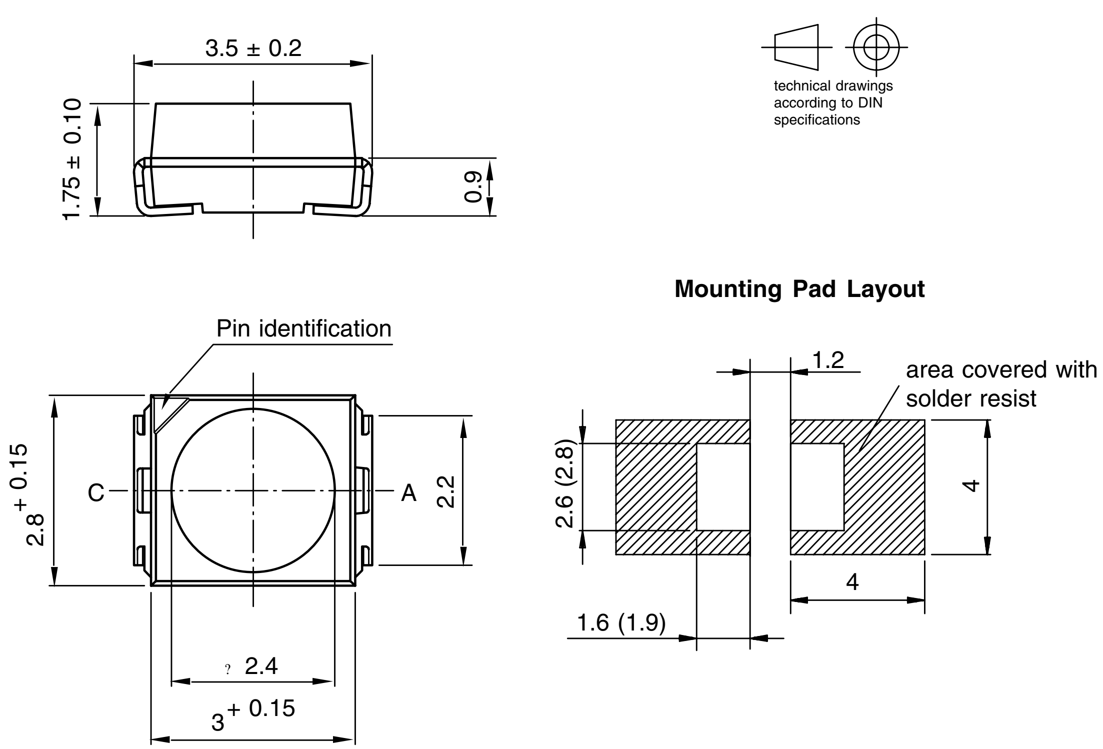


Figure 10. Relative Intensity vs. Wavelength

PACKAGE DIMENSIONS in millimeters



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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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