Bicolor SMD LED

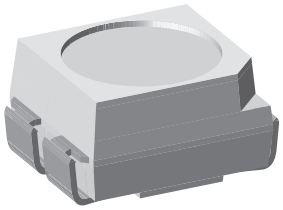
Description

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

The package of the TLMV3100 is the PLCC-3 (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.

This SMD device consists of a red and green chip. So it is possible to choose the color in one device.



e3 Pb Pb-free

Features

- SMD LED with exceptional brightness
- Multicolored
- 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 $I_{Vmax}/I_{Vmin} \leq 2.0$
- Lead-free device

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

General use

Parts Table

Part	Color, Luminous Intensity	Angle of Half Intensity (±φ)	Technology
TLMV3100	Green/Red, I_V > 2.5 mcd	60 °	GaP on GaP / GaAsP on GaP

Absolute Maximum Ratings

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

TLMV3100

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage per diode	I_R = 10 µA	V_R	6	V
DC Forward current per diode	$T_{amb} \leq 60$ °C	I_F	30	mA
Surge forward current per diode	$t_p \leq 10$ µs	I_{FSM}	0.5	A
Power dissipation per diode	$T_{amb} \leq 60$ °C	P_V	100	mW
Junction temperature		T_j	100	°C

Parameter	Test condition	Symbol	Value	Unit
Operating temperature range		T_{amb}	- 40 to + 100	°C
Storage temperature range		T_{stg}	- 55 to + 100	°C
Soldering temperature	t ≤ 5 s	T_{sd}	260	°C
Thermal resistance junction/ ambient	mounted on PC board (pad size > 16 mm^2)	R_{thJA}	400	K/W

Optical and Electrical Characteristics

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

Red

TLMV3100

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Luminous intensity [1]	I_F = 10 mA	I_V	2.5	6		mcd
Dominant wavelength	I_F = 10 mA	λ_d	612		625	nm
Peak wavelength	I_F = 10 mA	λ_p		635		nm
Angle of half intensity	I_F = 10 mA	φ		± 60		deg
Forward voltage per diode	I_F = 20 mA	V_F		2.4	3	V
Reverse current per diode	V_R = 6 V	I_R			10	µA
Junction capacitance per diode	V_R = 0, f = 1 MHz	C_j		15		pF

[1] in one Packing Unit $I_{Vmin}/I_{Vmax} \leq 0.5$

Green

TLMV3100

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Luminous intensity [1]	I_F = 10 mA	I_V	2.5	6		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		± 60		deg
Forward voltage per diode	I_F = 20 mA	V_F		2.4	3	V
Reverse current per diode	V_R = 6 V	I_R			10	µA
Junction capacitance per diode	V_R = 0, f = 1 MHz	C_j		15		pF

[1] in one Packing Unit $I_{Vmin}/I_{Vmax} \leq 0.5$

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

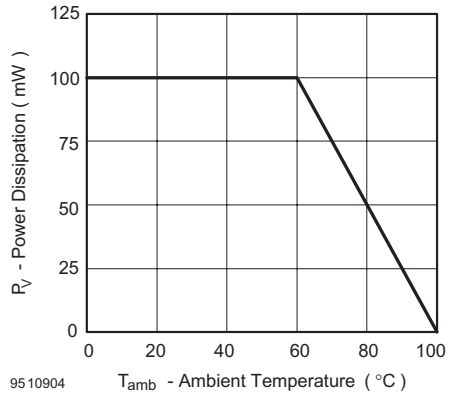


Figure 1. Power Dissipation vs. Ambient Temperature

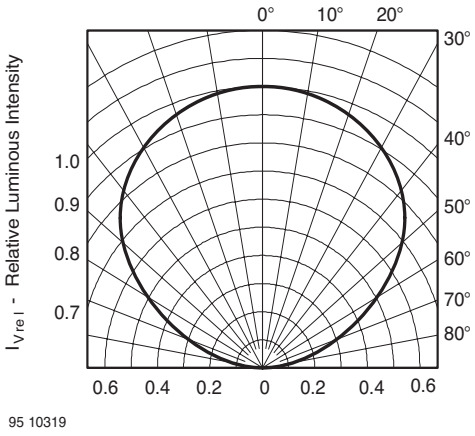


Figure 4. Rel. Luminous Intensity vs. Angular Displacement

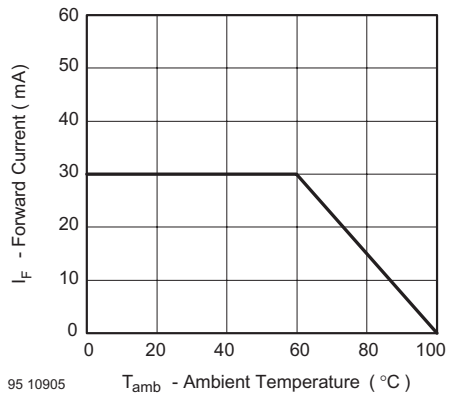


Figure 2. Forward Current vs. Ambient Temperature for InGaN

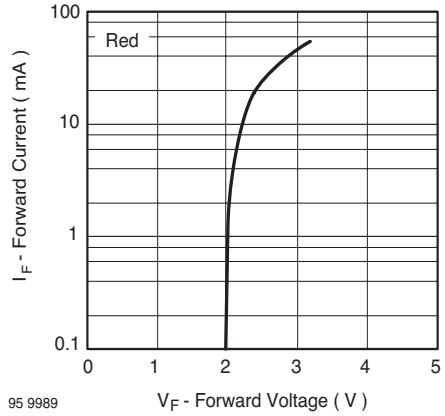


Figure 5. Forward Current vs. Forward Voltage

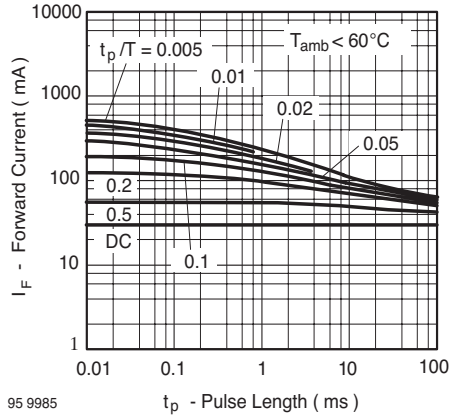


Figure 3. Pulse Forward Current vs. Pulse Duration

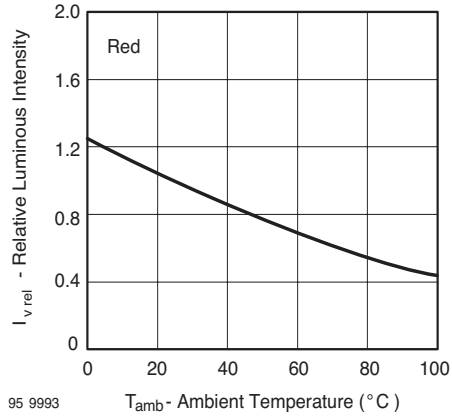


Figure 6. Rel. Luminous Intensity vs. Ambient Temperature

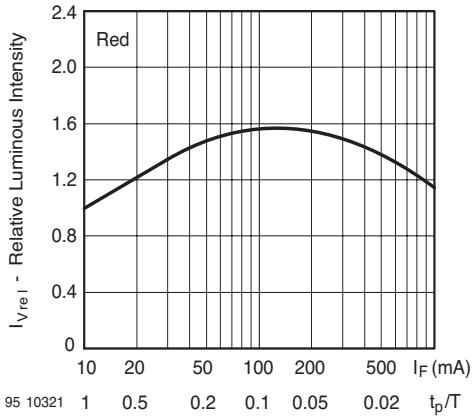


Figure 7. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

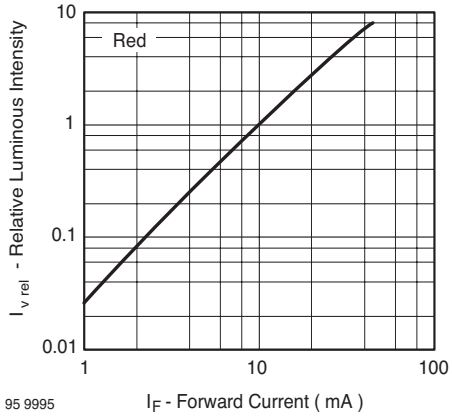


Figure 8. Relative Luminous Intensity vs. Forward Current

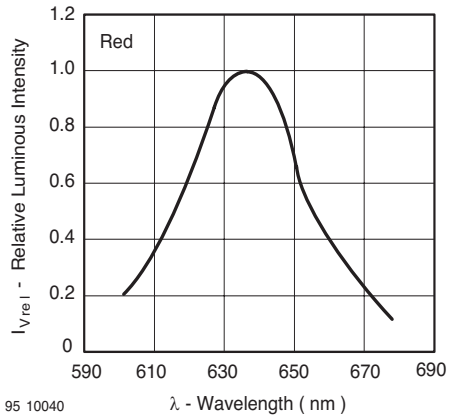


Figure 9. Relative Intensity vs. Wavelength

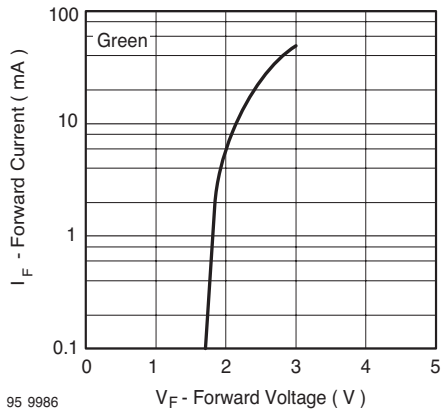


Figure 10. Forward Current vs. Forward Voltage

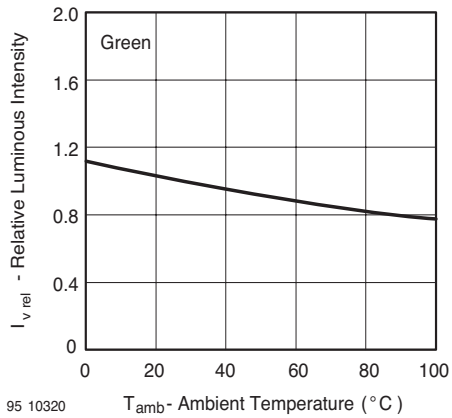


Figure 11. Rel. Luminous Intensity vs. Ambient Temperature

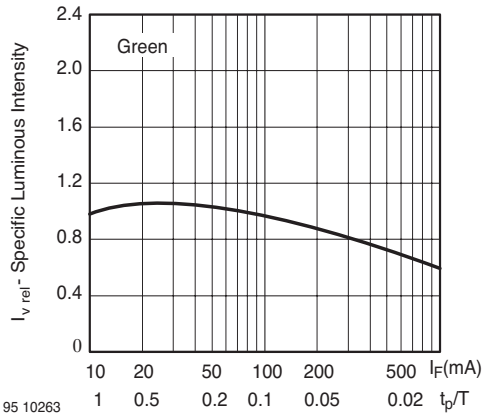


Figure 12. Specific Luminous Intensity vs. Forward Current

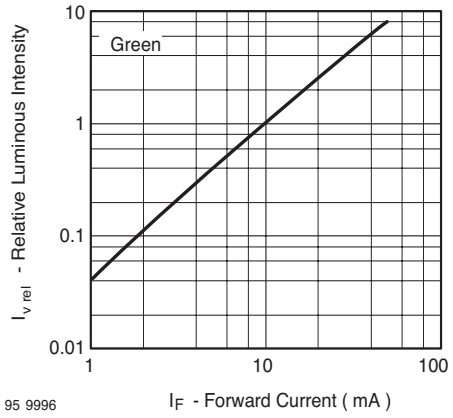


Figure 13. Relative Luminous Intensity vs. Forward Current

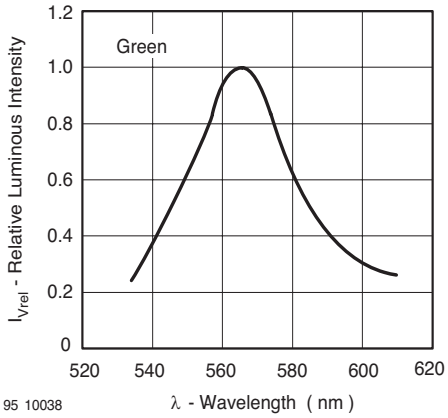
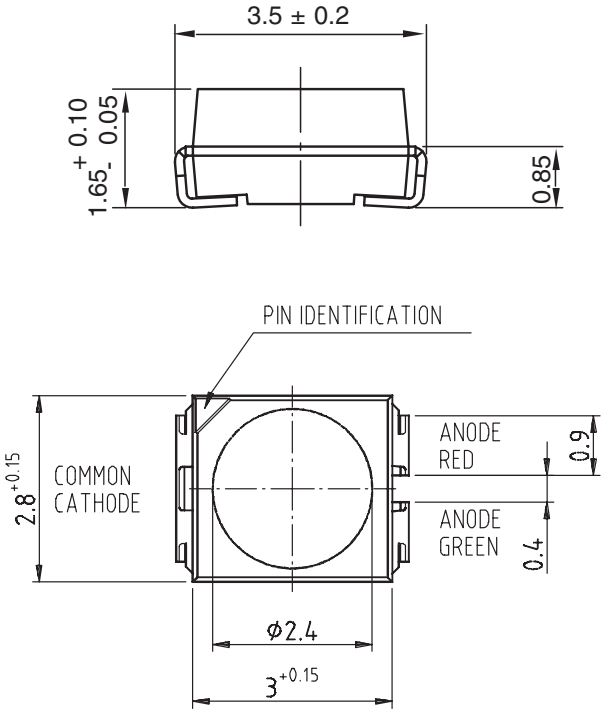
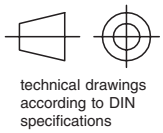


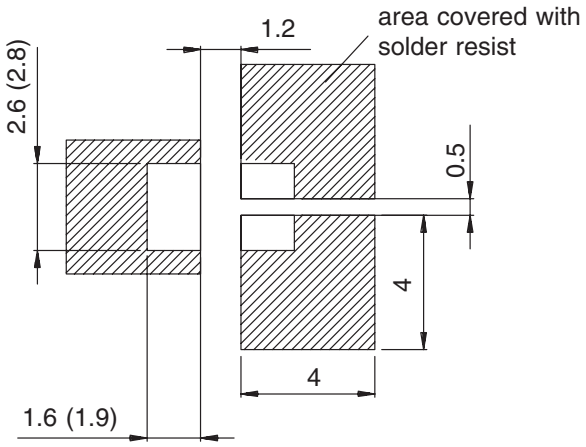
Figure 14. Relative Intensity vs. Wavelength

Package Dimensions in mm





Mounting Pad Layout



Dimensions: IR and Vaporphase
(Wave Soldering)

Drawing-No. : 6.541-5054.01-4
Issue: 1; 19.02.04

16276_1

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.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany
Telephone: 49 (0)7131 67 2831, Fax number: 49 (0)7131 67 2423

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