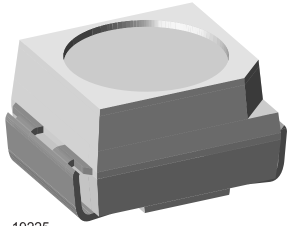
High Intensity SMD LED

Description

This device has been designed to meet the increasing demand for InGaN technology.

The package of the TLMB/ TLMBG/ TLMTG31.. is the PLCC-2 (equivalent to a size B tantalum capacitor).

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



19225

e3 Pb Pb-free

Features

- SMD LED 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 $I_{Vmax}/I_{Vmin} \leq 1.6$
- 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
TLMB3140	Blue, I_V > 20 mcd	60 °	InGaN on SiC
TLMBG3100	Blue green, I_V > 20 mcd	60 °	InGaN on SiC
TLMTG3100	True green, I_V > 66 mcd	60 °	InGaN on SiC

Absolute Maximum Ratings

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

TLMB3140 , TLMBG3100 , TLMT3100

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage		V_R	5	V
DC Forward current	$T_{amb} \leq 80$ °C	I_F	20	mA
Surge forward current	$t_p \leq 10$ µs	I_{FSM}	0.2	A
Power dissipation	$T_{amb} \leq 80$ °C	P_V	84	mW
Junction temperature		T_j	110	°C
Operating temperature range		T_{amb}	- 40 to + 100	°C

Parameter	Test condition	Symbol	Value	Unit
Storage temperature range		T_{stg}	- 40 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}	350	K/W

Optical and Electrical Characteristics

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

Pure green

TLMTG3100

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Luminous intensity [1]	I_F = 20 mA	I_V	80	180		mcd
Dominant wavelength	I_F = 20 mA	λ_d	515	528	541	nm
Peak wavelength	I_F = 20 mA	λ_p		522		nm
Angle of half intensity	I_F = 20 mA	φ		± 60		deg
Forward voltage	I_F = 20 mA	V_F		3.5	4.2	V
Reverse voltage	I_R = 10 µA	V_R	5			V
Temperature coefficient of V_F	I_F = 20 mA	TC_V		- 3.5		mV/K
Temperature coefficient of I_V	I_F = 20 mA	TC_I		- 0.3		%/K

[1] in one Packing Unit $I_{Vmax}/I_{Vmin} \leq 1.6$

Blue green

TLMBG3100

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Luminous intensity [1]	I_F = 20 mA	I_V	66	130		mcd
Dominant wavelength	I_F = 20 mA	λ_d	496	505	514	nm
Peak wavelength	I_F = 20 mA	λ_p		502		nm
Angle of half intensity	I_F = 20 mA	φ		± 60		deg
Forward voltage	I_F = 20 mA	V_F		3.5	4.2	V
Reverse voltage	I_R = 10 µA	V_R	5			V
Temperature coefficient of V_F	I_F = 20 mA	TC_V		- 4		mV/K
Temperature coefficient of I_V	I_F = 20 mA	TC_I		- 0.2		%/K

[1] in one Packing Unit $I_{Vmax}/I_{Vmin} \leq 1.6$

Blue

TLMB3140

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Luminous intensity [1)]	I_F = 20 mA	I_V	20	40		mcd
Dominant wavelength	I_F = 20 mA	λ_d	462	470	476	nm
Peak wavelength	I_F = 20 mA	λ_p		464		nm
Angle of half intensity	I_F = 20 mA	φ		± 60		deg
Forward voltage	I_F = 20 mA	V_F		3.5	4.2	V
Reverse voltage	I_R = 10 µA	V_R	5			V
Temperature coefficient of V_F	I_F = 20 mA	TC_V		- 4		mV/K
Temperature coefficient of I_V	I_F = 20 mA	TC_I		- 0.4		%/K

[1)] in one Packing Unit $I_{Vmax}/I_{Vmin} \leq 1.6$

Typical Characteristics (T_{amb} = 25 °C unless otherwise specified)

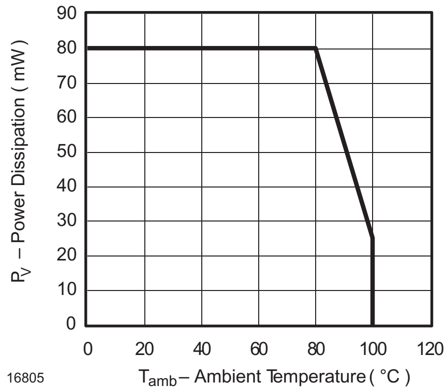


Figure 1. Power Dissipation vs. Ambient Temperature

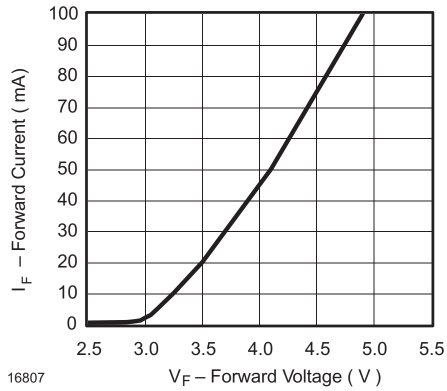


Figure 3. Forward Current vs. Forward Voltage

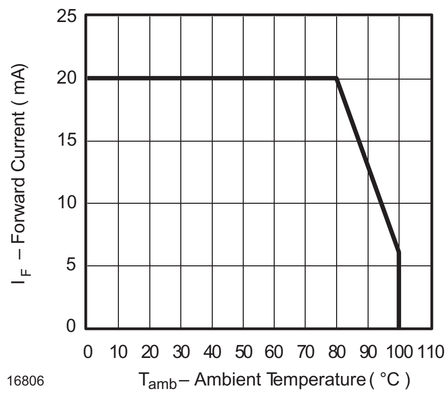


Figure 2. Forward Current vs. Ambient Temperature for InGaN

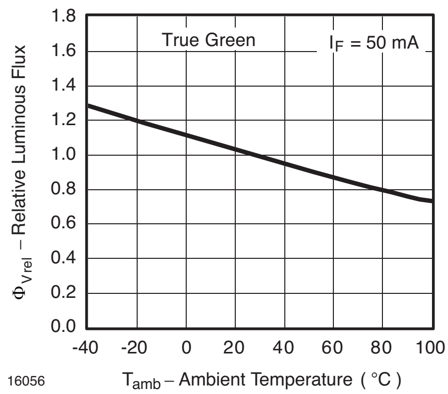


Figure 4. Rel. Luminous Flux vs. Ambient Temperature

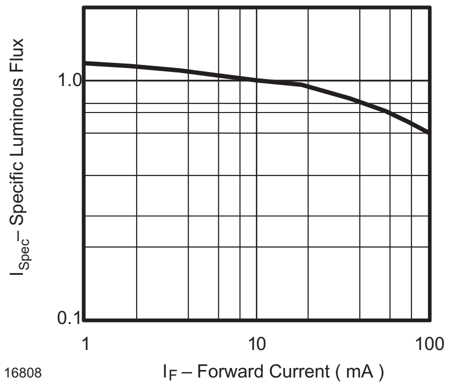


Figure 5. Specific Luminous Flux vs. Forward Current

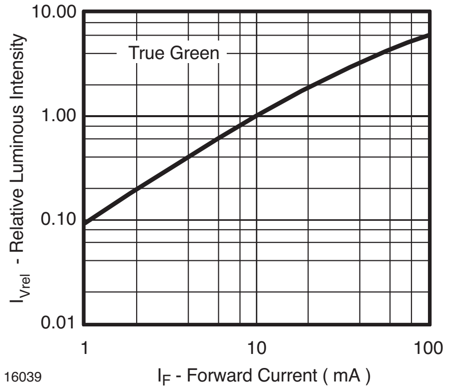


Figure 6. Relative Luminous Flux vs. Forward Current

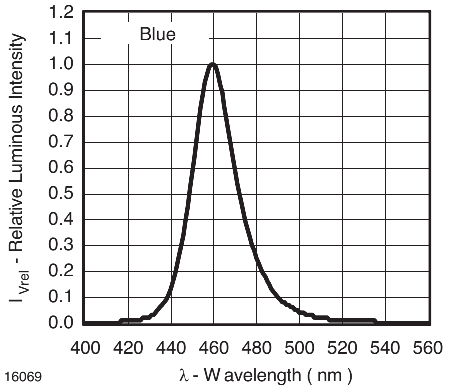


Figure 7. Relative Intensity vs. Wavelength

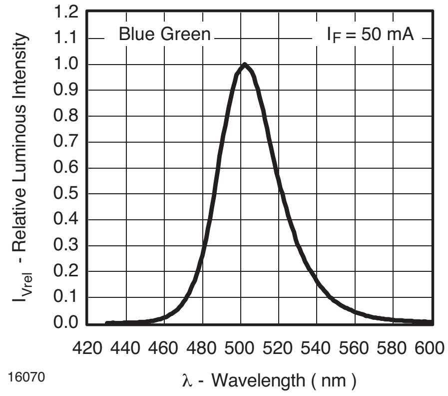


Figure 8. Relative Intensity vs. Wavelength

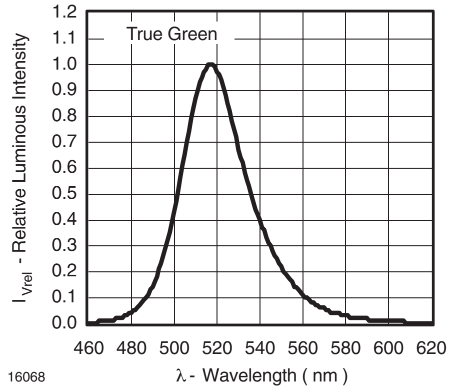


Figure 9. Relative Intensity vs. Wavelength

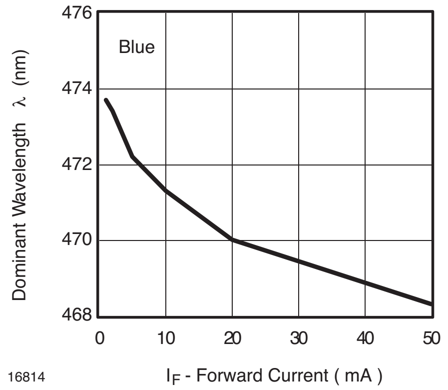


Figure 10. Dominant Wavelength vs. Forward Current

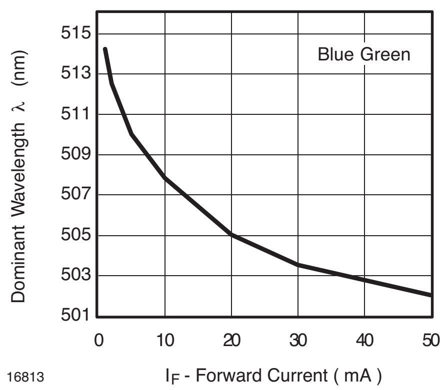


Figure 11. Dominant Wavelength vs. Forward Current

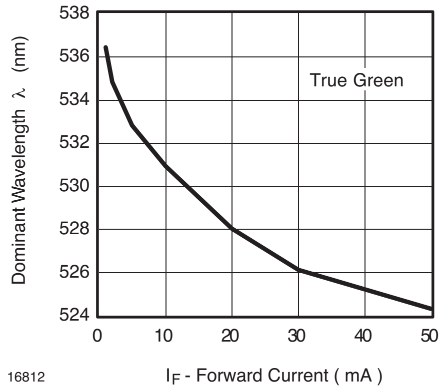
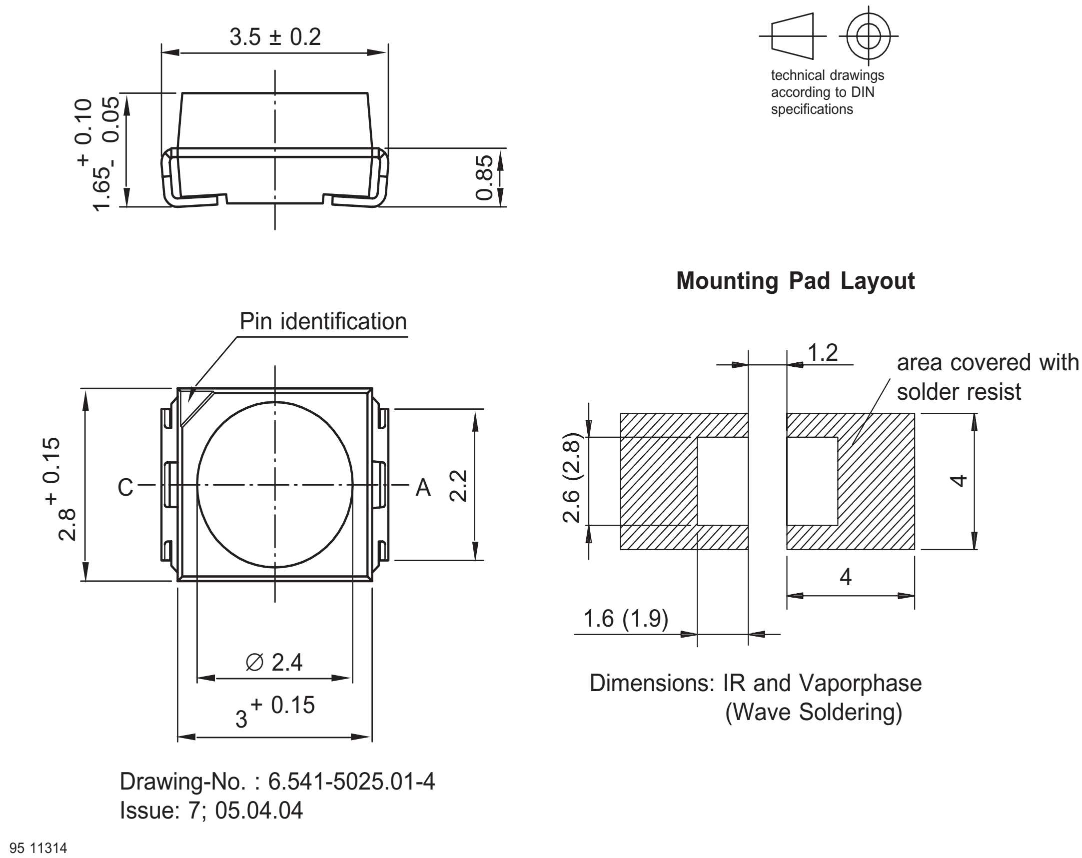


Figure 12. Dominant Wavelength vs. Forward Current

Package Dimensions in mm



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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