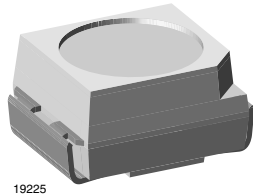


Standard SMD LED PLCC-2



FEATURES

- SMD LED with exceptional brightness
- Luminous intensity categorized
- Compatible with automatic placement equipment
- EIA and ICE standard package
- Compatible with IR reflow, vapor phase and wave solder processes according to CECC 00802 and J-STD-020B
- 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 (Pb)-free device
- Preconditioning: acc. to JEDEC level 2a
- ESD-withstand voltage: > 1 kV acc. to MIL STD 883 D, Method 3015.7



DESCRIPTION

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

The package of the VLMB/BG/TG31.. is the PLCC-2. 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: $\pm 60^\circ$

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	TECHNOLOGY
VLMB3140-GS08	Blue, $I_V > 45$ mcd	InGaN on SiC
VLMB3140-GS18	Blue, $I_V > 45$ mcd	InGaN on SiC
VLMBG3100-GS08	Blue green, $I_V > 140$ mcd	InGaN on SiC
VLMBG3100-GS18	Blue green, $I_V > 140$ mcd	InGaN on SiC
VLMTG3100-GS08	True green, $I_V > 180$ mcd	InGaN on SiC
VLMTG3100-GS18	True green, $I_V > 180$ mcd	InGaN on SiC

ABSOLUTE MAXIMUM RATINGS¹⁾ VLMB3140, VLMBG3100, VLMTG3100				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage ²⁾		V_R	5	V
DC Forward current	$T_{amb} \leq 80\text{ °C}$	I_F	20	mA
Surge forward current	$t_p \leq 10\ \mu\text{s}$	I_{FSM}	0.2	A
Power dissipation		P_V	84	mW
Junction temperature		T_j	110	°C
Operating temperature range		T_{amb}	- 40 to + 100	°C
Storage temperature range		T_{stg}	- 40 to + 100	°C
Thermal resistance junction/ambient	mounted on PC board (pad size > 16 mm ²)	R_{thJA}	350	K/W

Note:

¹⁾ $T_{amb} = 25\text{ °C}$, unless otherwise specified

²⁾ Driving LED in reverse direction is suitable for short term application

OPTICAL AND ELECTRICAL CHARACTERISTICS¹⁾ VLMB3140, BLUE						
PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP	MAX	UNIT
Luminous intensity ²⁾	$I_F = 20\text{ mA}$	I_V	45	100		mcd
Dominant wavelength	$I_F = 20\text{ mA}$	λ_d	462	470	476	nm
Peak wavelength	$I_F = 20\text{ mA}$	λ_p		464		nm
Angle of half intensity	$I_F = 20\text{ mA}$	ϕ		± 60		deg
Forward voltage	$I_F = 20\text{ mA}$	V_F		3	4.2	V
Reverse voltage	$I_R = 10\ \mu\text{A}$	V_R	5			V
Temperature coefficient of V_F	$I_F = 20\text{ mA}$	TC_V		- 4		mV/K
Temperature coefficient of I_V	$I_F = 20\text{ mA}$	TC_I		- 0.4		%/K

Note:

¹⁾ $T_{amb} = 25\text{ °C}$, unless otherwise specified

²⁾ in one Packing Unit $I_{Vmax}/I_{Vmin} \leq 1.6$

OPTICAL AND ELECTRICAL CHARACTERISTICS¹⁾ VLMBG3100, BLUE GREEN						
PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP	MAX	UNIT
Luminous intensity ²⁾	$I_F = 20\text{ mA}$	I_V	140	220		mcd
Dominant wavelength	$I_F = 20\text{ mA}$	λ_d	496	505	514	nm
Peak wavelength	$I_F = 20\text{ mA}$	λ_p		502		nm
Angle of half intensity	$I_F = 20\text{ mA}$	ϕ		± 60		deg
Forward voltage	$I_F = 20\text{ mA}$	V_F		3	4.2	V
Reverse voltage	$I_R = 10\ \mu\text{A}$	V_R	5			V
Temperature coefficient of V_F	$I_F = 20\text{ mA}$	TC_V		- 4		mV/K
Temperature coefficient of I_V	$I_F = 20\text{ mA}$	TC_I		- 0.2		%/K

Note:

¹⁾ $T_{amb} = 25\text{ °C}$, unless otherwise specified

²⁾ in one Packing Unit $I_{Vmax}/I_{Vmin} \leq 1.6$



OPTICAL AND ELECTRICAL CHARACTERISTICS¹⁾ VLMTG3100, TRUE GREEN						
PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP	MAX	UNIT
Luminous intensity ²⁾	I _F = 20 mA	I _V	180	300		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	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

Note:

¹⁾ T_{amb} = 25 °C, unless otherwise specified

²⁾ In one Packing Unit I_{Vmax}/I_{Vmin} ≤ 1.6

LUMINOUS INTENSITY CLASSIFICATION			
GROUP	LIGHT INTENSITY (MCD)		
STANDARD	OPTIONAL	MIN	MAX
P	1	45	56
	2	56	71
Q	1	71	90
	2	90	112
R	1	112	140
	2	140	180
S	1	180	224
	2	224	280
T	1	280	355
	2	355	450
U	1	450	560
	2	560	710

Note:

Luminous intensity is tested at a current pulse duration of 25 ms and an accuracy of ± 11 %.

The above type numbers represent the order groups which include only a few brightness groups. Only one group will be shipped on each reel (there will be no mixing of two groups on each reel).

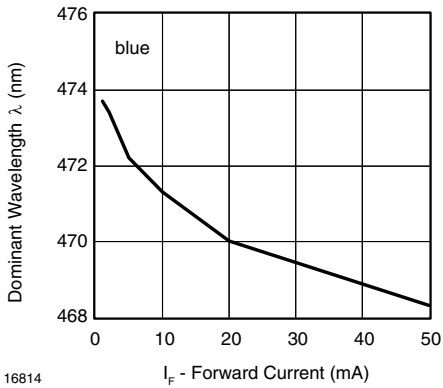
In order to ensure availability, single brightness groups will not be orderable.

In a similar manner for colors where wavelength groups are measured and binned, single wavelength groups will be shipped on any one reel.

In order to ensure availability, single wavelength groups will not be orderable.

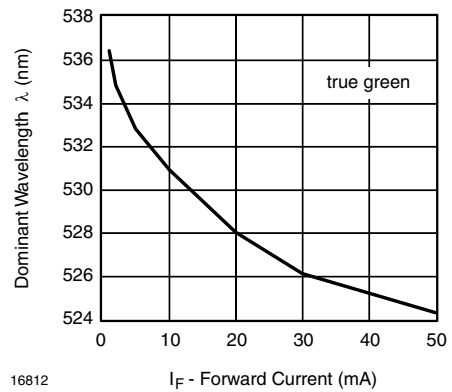
CROSSING TABLE	
VISHAY	OSRAM
VLMB3140	LBT673
VLMBG3100	LVT673
VLMTG3100	LTT673

COLOR CLASSIFICATION						
GROUP	BLUE		BLUE GREEN		TRUE GREEN	
	DOM. WAVELENGTH (NM)					
	MIN.	MAX.	MIN.	MAX.	MIN.	MAX.
2	458	464				
3	462	468	496	502	515	523
4	466	472	500	506	521	529
5	470	476	504	510	527	535
6	474	480	508	514	533	541



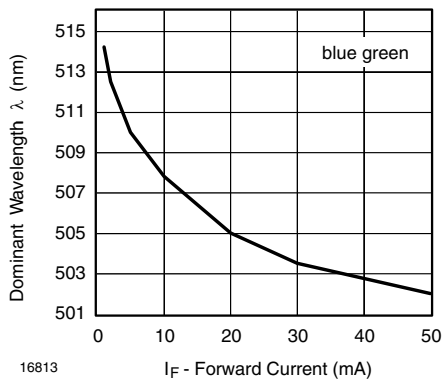
16814

Figure 7. Dominant Wavelength vs. Forward Current



16812

Figure 9. Dominant Wavelength vs. Forward Current



16813

Figure 8. Dominant Wavelength vs. Forward Current

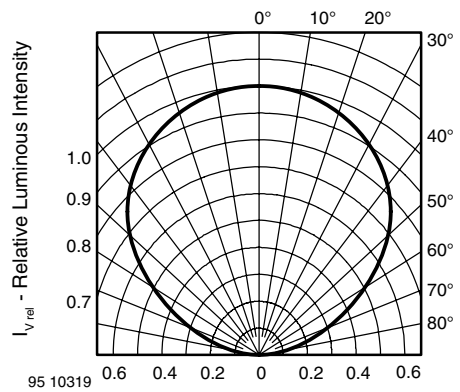
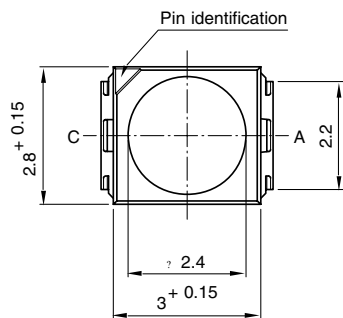
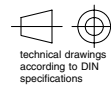
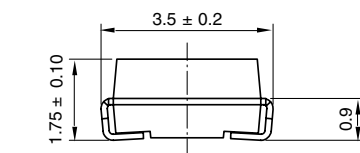
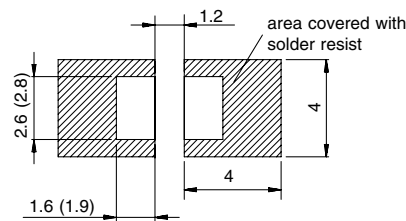


Figure 10. Relative Luminous Intensity

PACKAGE DIMENSIONS in millimeters



Mounting Pad Layout



Drawing-No.: 6.541-5025.01-4
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