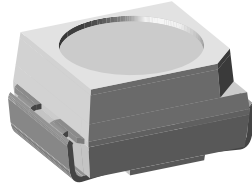


Standard SMD LED PLCC-2



94 8553

FEATURES

- Lead (Pb)-free product - RoHS compliant
- 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 (Pb)-free device
- preconditioning: acc. to JEDEC level 2a
- ESD-withstand voltage: up to 1 kV according to JESD22-A114-B



DESCRIPTION

This device has been designed for applications requiring narrow brightness and color selection.

The package of this device 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
VLMS3100-GS08	Red, $I_V > 2.8$ mcd	GaAsP on GaP
VLMS3100-GS18	Red, $I_V > 2.8$ mcd	GaAsP on GaP
VLMS3101-GS08	Red, $I_V = (4.5 \text{ to } 11.2)$ mcd	GaAsP on GaP
VLMS3101-GS18	Red, $I_V = (4.5 \text{ to } 11.2)$ mcd	GaAsP on GaP

ABSOLUTE MAXIMUM RATINGS ¹⁾ VLMS310.				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage ²⁾		V_R	6	V
DC Forward current	$T_{amb} \leq 60\text{ }^\circ\text{C}$	I_F	30	mA
Surge forward current	$t_p \leq 10\text{ }\mu\text{s}$	I_{FSM}	0.5	A
Power dissipation	$T_{amb} \leq 60\text{ }^\circ\text{C}$	P_V	100	mW
Junction temperature		T_j	100	$^\circ\text{C}$
Operating temperature range		T_{amb}	- 40 to + 100	$^\circ\text{C}$
Storage temperature range		T_{stg}	- 40 to + 100	$^\circ\text{C}$
Soldering temperature	$t \leq 5\text{ s}$	T_{sd}	260	$^\circ\text{C}$
Thermal resistance junction/ambient	mounted on PC board (pad size > 16 mm ²)	R_{thJA}	400	K/W

Note:

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

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

OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ VLMS310., RED							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity ²⁾	$I_F = 10\text{ mA}$	VLMS3100	I_V	2.8	7.1		mcd
		VLMS3101	I_V	4.5		11.2	mcd
Dominant wavelength	$I_F = 10\text{ mA}$		λ_d	624	630	636	nm
Peak wavelength	$I_F = 10\text{ mA}$		λ_p		640		nm
Angle of half intensity	$I_F = 10\text{ mA}$		ϕ		± 60		deg
Forward voltage	$I_F = 20\text{ mA}$		V_F		2.0	2.6	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$		V_R	6			V
Junction capacitance	$V_R = 0, f = 1\text{ MHz}$		C_j		7		pF
Temperature coefficient of V_F	$I_F = 20\text{ mA}$		TC_{V_F}		- 1.8		mV/K
Temperature coefficient of λ_d	$I_F = 10\text{ mA}$		TC_{λ_d}		0.05		nm/K

Note:

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

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

LUMINOUS INTENSITY CLASSIFICATION				
GROUP	LIGHT INTENSITY (MCD)			
	STANDARD	OPTIONAL	MIN	MAX
H	1	2.80	3.55	
	2	3.55	4.50	
J	1	4.50	5.60	
	2	5.60	7.10	
K	1	7.10	9.00	
	2	9.00	11.20	
L	1	11.20	14.00	
	2	14.00	18.00	

Note:

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

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
VLMS3100	LST670-J1L2
VLMS3101	LST670-J1K2

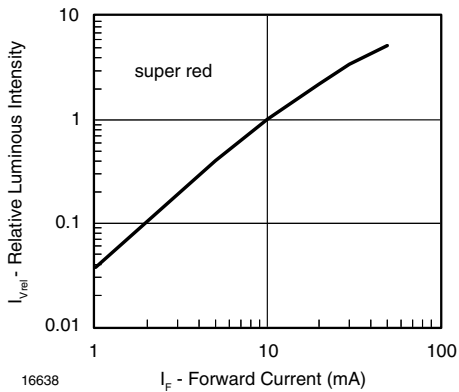


Figure 7. Relative Luminous Intensity vs. Forward Current

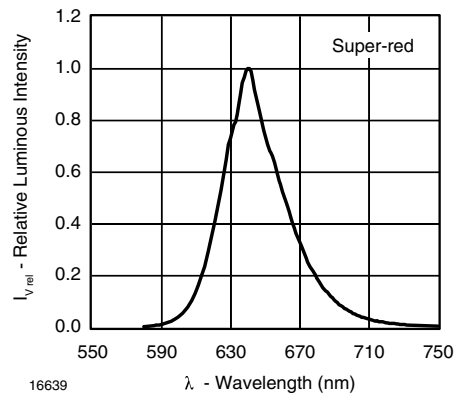


Figure 9. Relative Luminous Intensity vs. Wavelength

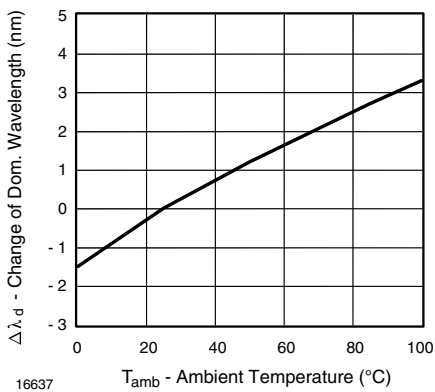
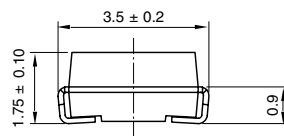
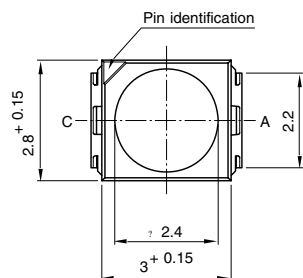


Figure 8. Change of Dominant Wavelength vs. Ambient Temperature

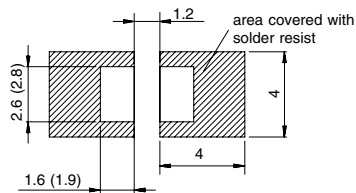
PACKAGE DIMENSIONS in millimeters



technical drawings according to DIN specifications



Mounting Pad Layout



Drawing-No.: 6.541-5025.01-4
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