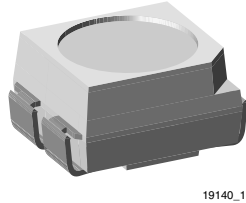


Bicolor SMD LED PLCC-3



19140_1

DESCRIPTION

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

The package of the VLMV3100 is the PLCC-3.

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.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: SMD PLCC-3
- Product series: bicolor
- Angle of half intensity: $\pm 60^\circ$

FEATURES

- SMD LED with exceptional brightness
- Multicolored
- Luminous intensity categorized
- Compatible with automatic placement equipment
- EIA and ICE standard package
- Compatible with IR reflow, vapor phase and wave soldering processes according to CECC 00802 and J-STD-020-C
- 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 $I_{Vmax}/I_{Vmin} \leq 2.0$
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- Lead (Pb)-free device
- Preconditioning: acc. to JEDEC level 2a
- ESD-withstand voltage: up to 2 kV according to JESD22-A114-B



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
VLMV3100-GS08	Green/red, $I_V > 2.8$ mcd	GaP on GaP/GaAsP on GaP
VLMV3100-GS18	Green/red, $I_V > 2.8$ mcd	GaP on GaP/GaAsP on GaP



ABSOLUTE MAXIMUM RATINGS¹⁾ VLMV3100				
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage per diode ²⁾	$I_R = 10 \mu A$	V_R	6	V
DC Forward current per diode	$T_{amb} \leq 60 \text{ }^\circ C$	I_F	30	mA
Surge forward current per diode	$t_p \leq 10 \mu s$	I_{FSM}	0.5	A
Power dissipation per diode		P_V	100	mW
Junction temperature		T_j	100	$^\circ C$
Operating temperature range		T_{amb}	- 40 to + 100	$^\circ C$
Storage temperature range		T_{stg}	- 40 to + 100	$^\circ C$
Thermal resistance junction/ambient	mounted on PC board (pad size > 16 mm ²)	R_{thJA}	400	K/W

Note:

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

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

OPTICAL AND ELECTRICAL CHARACTERISTICS¹⁾ VLMV3100, RED						
PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity ²⁾	$I_F = 10 \text{ mA}$	I_V	2.8	6		mcd
Dominant wavelength	$I_F = 10 \text{ mA}$	λ_d	612		625	nm
Peak wavelength	$I_F = 10 \text{ mA}$	λ_p		635		nm
Angle of half intensity	$I_F = 10 \text{ mA}$	φ		± 60		deg
Forward voltage per diode	$I_F = 20 \text{ mA}$	V_F		2.4	3	V
Reverse current per diode	$V_R = 6 \text{ V}$	I_R			10	μA
Junction capacitance per diode	$V_R = 0, f = 1 \text{ MHz}$	C_j		15		pF

Note:

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

²⁾ in one packing unit $I_{Vmax}/I_{Vmin} \leq 0.5$

OPTICAL AND ELECTRICAL CHARACTERISTICS¹⁾ VLMV3100, GREEN						
PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP.	MAX	UNIT
Luminous intensity ²⁾	$I_F = 10 \text{ mA}$	I_V	2.8	6		mcd
Dominant wavelength	$I_F = 10 \text{ mA}$	λ_d	562		575	nm
Peak wavelength	$I_F = 10 \text{ mA}$	λ_p		565		nm
Angle of half intensity	$I_F = 10 \text{ mA}$	φ		± 60		deg
Forward voltage per diode	$I_F = 20 \text{ mA}$	V_F		2.4	3	V
Reverse current per diode	$V_R = 6 \text{ V}$	I_R			10	μA
Junction capacitance per diode	$V_R = 0, f = 1 \text{ MHz}$	C_j		15		pF

Note:

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

²⁾ in one Packing Unit $I_{Vmax}/I_{Vmin} \leq 0.5$

COLOR CLASSIFICATION		
GROUP	GREEN	
	DOM. WAVELENGTH [NM]	
	MIN.	MAX.
3	562	565
4	564	567
5	566	569
6	568	571
7	570	573
8	572	575

Note:
Wavelengths are tested at a current pulse duration of 25 ms and an accuracy of ± 1 nm.

LUMINOUS INTENSITY CLASSIFICATION				
GROUP	LIGHT INTENSITY [MCD]			
	STANDARD	OPTIONAL	MIN	MAX
H	1	2.8	3.55	
	2	3.55	4.5	
J	1	4.5	5.6	
	2	5.6	7.1	
K	1	7.1	9.0	
	2	9.0	11.2	
L	1	11.2	14.0	
	2	14.0	18.0	
M	1	18.0	22.4	
	2	22.4	28.0	

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.

TYPICAL CHARACTERISTICS

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

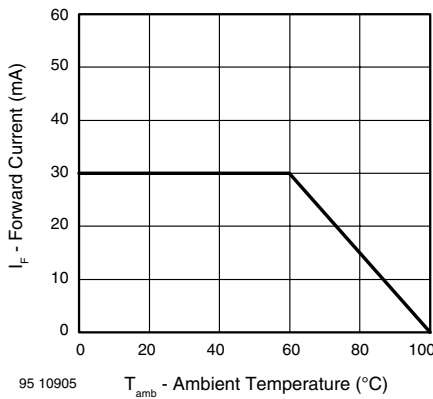


Figure 1. Forward Current vs. Ambient Temperature

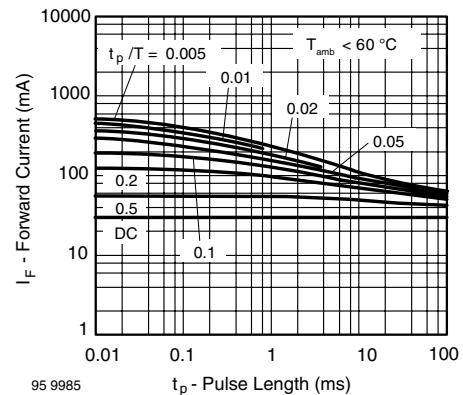
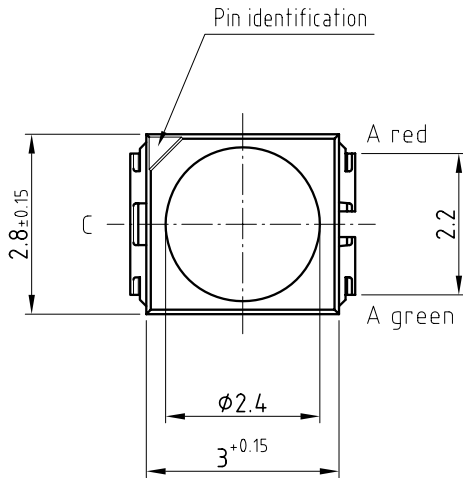
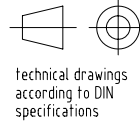
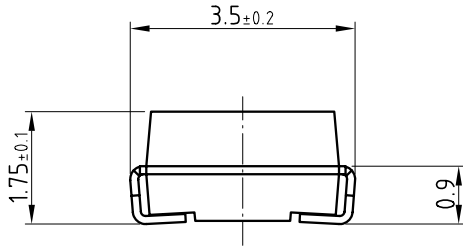
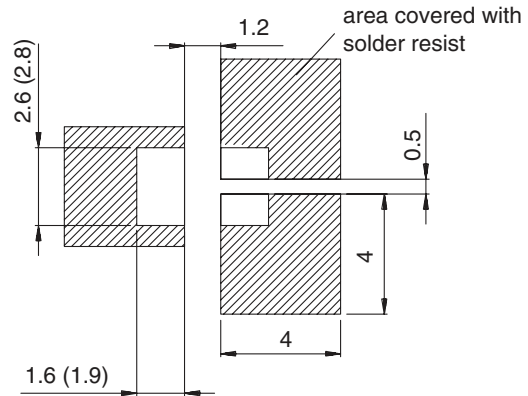


Figure 2. Pulse Forward Current vs. Pulse Duration

PACKAGE DIMENSIONS



Mounting Pad Layout



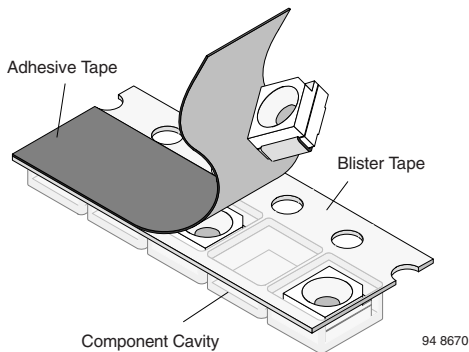
Dimensions: IR and Vaporphase (Wave Soldering)

Drawing-No.: 6.541-5068.01-4
Issue: 2; 30.05.07

METHOD OF TAPING/POLARITY AND TAPE AND REEL

SMD LED (VLM.3 - SERIES)

Vishay's LEDs in SMD packages are available in an antistatic 8 mm blister tape (in accordance with DIN IEC 40 (CO) 564) for automatic component insertion. The blister tape is a plastic strip with impressed component cavities, covered by a top tape.



TAPING OF VLM.3...

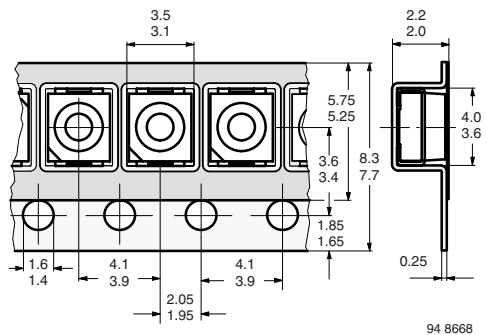


Figure 14. Tape Dimensions in mm for PLCC-2