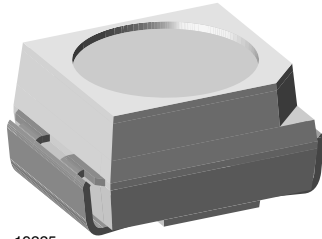


## UV SMD LED PLCC-2



19225

### DESCRIPTION

The package of the VLMU3100-series 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 silicone which guaranties long life time. The viewing angle is 120°, package dimensions are 3.2 mm x 2.8 mm x 1.9 mm.

### PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: SMD PLCC-2
- Product series: standard
- Angle of half intensity:  $\pm 60^\circ$
- Lead-finishing: Ag

### FEATURES

- UV SMD LED with exceptional brightness
- High efficient InGaN technology
- Long life time due to silicone casting
- Compatible with automatic placement equipment
- EIA and ICE standard package
- Compatible with IR reflow and vapor phase
- Available in 8 mm tape
- Low profile package
- Non-diffused lens: excellent for coupling to light pipes and backlighting
- Low power consumption
- Preconditioning: according to JEDEC level 3
- ESD-withstand voltage: up to 1 kV according to JESD22-A114-B
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### APPLICATIONS

- Curing of glue and laquer
- Recognition of safety features of money bills

### SAFETY ADVICES

Depending on the mode of operation, these devices emit highly concentrated non visible ultraviolet light which can be hazardous to the human eye. Products which incorporate these devices have to follow the safety precautions given in IEC 60825-1 "Safety of Laser Products".

### PARTS TABLE

| PART          | COLOR       | LUMINOUS INTENSITY (mcd) |      |      | at I <sub>F</sub> (mA) | WAVELENGTH (nm) |      |      | FORWARD VOLTAGE (V) |      |      | TECHNOLOGY |
|---------------|-------------|--------------------------|------|------|------------------------|-----------------|------|------|---------------------|------|------|------------|
|               |             | MIN.                     | TYP. | MAX. |                        | MIN.            | TYP. | MAX. | MIN.                | TYP. | MAX. |            |
| VLMU3100-GS08 | Ultraviolet | 9                        | 11   | 13   | 20                     | 400             | 405  | 410  | 2.8                 | 3.2  | 3.8  | InGaN      |

### ABSOLUTE MAXIMUM RATINGS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

#### VLMU3100

| PARAMETER                   | TEST CONDITION | SYMBOL           | VALUE         | UNIT |
|-----------------------------|----------------|------------------|---------------|------|
| Forward current             |                | I <sub>F</sub>   | 30            | mA   |
| Power dissipation           |                | P <sub>tot</sub> | 120           | mW   |
| Junction temperature        |                | T <sub>j</sub>   | + 100         | °C   |
| Operating temperature range |                | T <sub>amb</sub> | - 40 to + 80  | °C   |
| Storage temperature range   |                | T <sub>stg</sub> | - 40 to + 100 | °C   |
| Solder temperature          |                | T <sub>sol</sub> | 260/5         | °C/s |

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)  
**VLMU3100, ULTRAVIOLET**

| PARAMETER               | TEST CONDITION       | SYMBOL      | MIN. | TYP.     | MAX. | UNIT          |
|-------------------------|----------------------|-------------|------|----------|------|---------------|
| Luminous intensity      | $I_F = 20\text{ mA}$ | $I_V$       | 9    | 11       | 13   | mcd           |
| Dominant wavelength     | $I_F = 20\text{ mA}$ | $\lambda_d$ | 400  | 405      | 410  | nm            |
| Angle of half intensity | $I_F = 20\text{ mA}$ | $\phi$      | -    | $\pm 60$ | -    | deg           |
| Forward voltage         | $I_F = 20\text{ mA}$ | $V_F$       | 2.8  | 3.2      | 3.8  | V             |
| Reverse current         | $V_R = 5\text{ V}$   | $I_R$       | -    | -        | 10   | $\mu\text{A}$ |

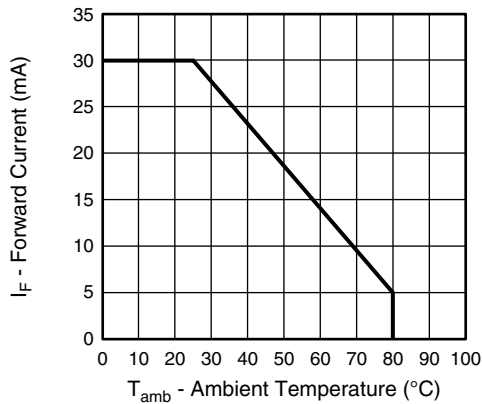
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Current vs. Ambient Temperature

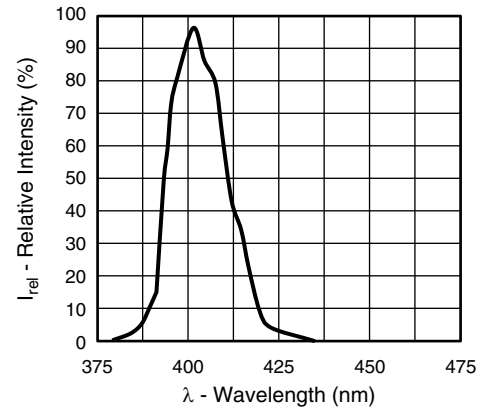


Fig. 3 - Relative Intensity vs. Wavelength

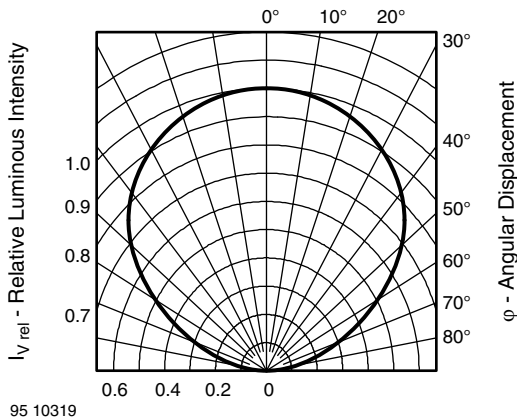


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

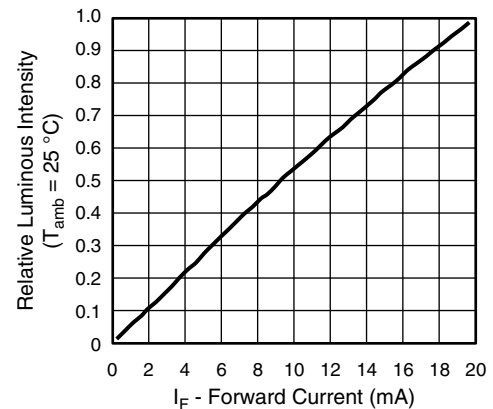
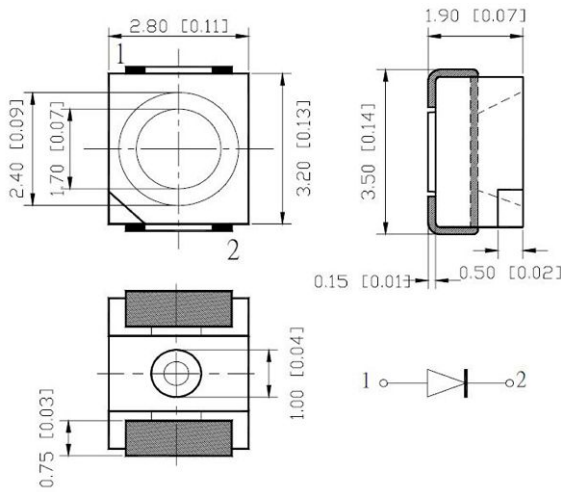
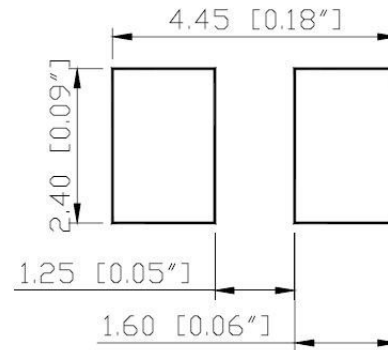


Fig. 4 - Specific Luminous Intensity vs. Forward Current

**PACKAGE DIMENSIONS** in millimeters



**SOLDER PAD LAYOUT**



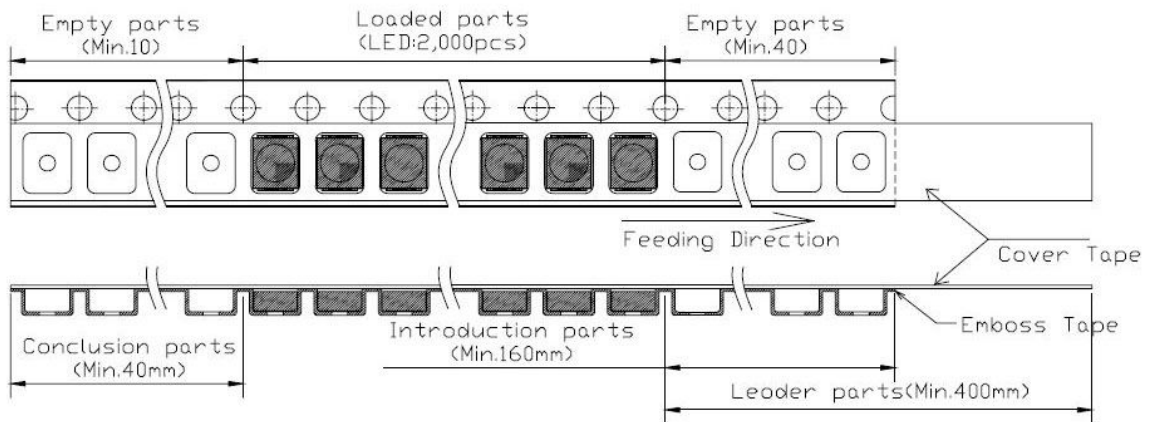
**METHOD OF TAPING/POLARITY AND TAPE AND REEL**

**SMD LED (VLM3 - SERIES)**

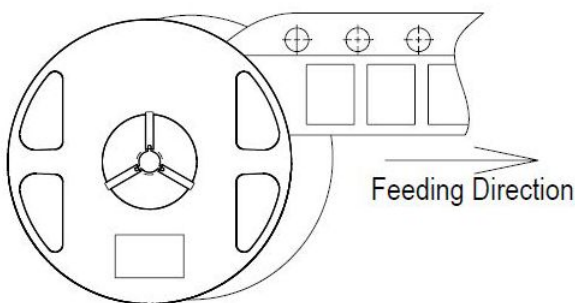
Vishay's LEDs in SMD packages are available in an antistatic 8 mm blister tape (in accordance with DIN IEC 40 (CO 564) for automatic component insertion. The blister

tape is a plastic strip with impressed component cavities, covered by a top tape.

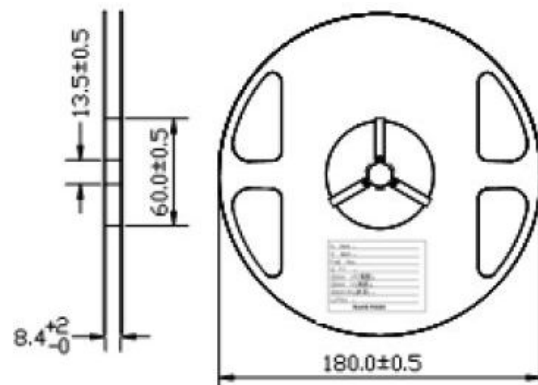
**ARRANGEMENT OF TAPE**



**FEEDING DIRECTION**



**DIMENSIONS OF REEL** in millimeters



**SOLDERING PROFILE**

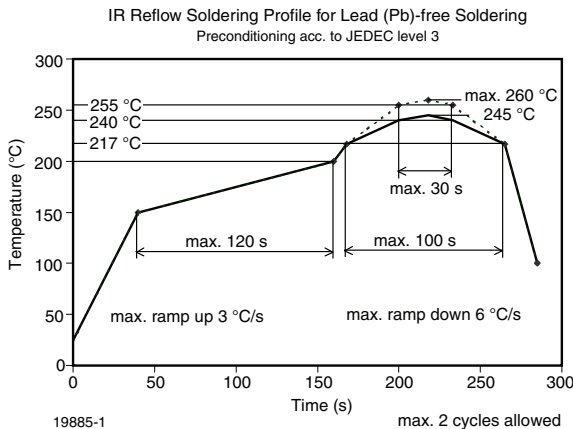
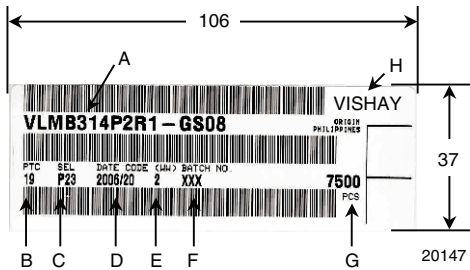


Fig. 5 - Vishay Lead (Pb)-free Reflow Soldering Profile (acc. to J-STD-020C)

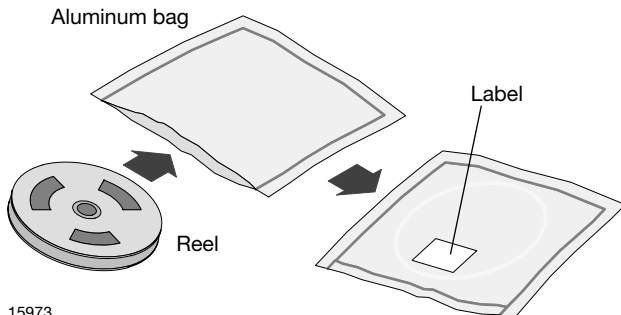
**BAR CODE PRODUCT LABEL (example)**



- A. Type of component
- B. Manufacturing plant
- C. SEL - selection code (bin):  
e.g.: P2 = code for luminous intensity group  
3 = code for color group
- D. Date code year/week
- E. Day code (e.g. 2: Tuesday)
- F. Batch no.
- G. Total quantity
- H. Company code

**DRY PACKING**

The reel is packed in an anti-humidity bag to protect the devices from absorbing moisture during transportation and storage.



**FINAL PACKING**

The sealed reel is packed into a cardboard box. A secondary cardboard box is used for shipping purposes.

**RECOMMENDED METHOD OF STORAGE**

Dry box storage is recommended as soon as the aluminum bag has been opened to prevent moisture absorption. The following conditions should be observed, if dry boxes are not available:

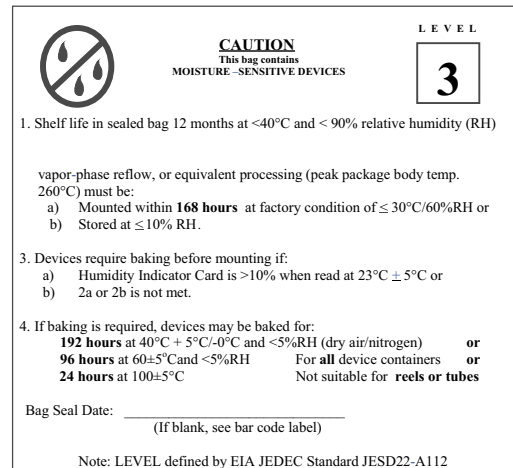
- Storage temperature 10 °C to 30 °C
- Storage humidity ≤ 60 % RH max.

After more than 168 h under these conditions moisture content will be too high for reflow soldering.

In case of moisture absorption, the devices will recover to the former condition by drying under the following condition:

- 192 h at 40 °C + 5 °C/- 0 °C and < 5 % RH (dry air/nitrogen) or
- 96 h at 60 °C + 5 °C and < 5 % RH for all device containers or
- 24 h at 100 °C + 5 °C not suitable for reel or tubes.

An EIA JEDEC standard JESD22-A112 level 3 label is included on all dry bags.



Example of JESD22-A112 level 3 label

**ESD PRECAUTION**

Proper storage and handling procedures should be followed to prevent ESD damage to the devices especially when they are removed from the antistatic shielding bag. Electro-static sensitive devices warning labels are on the packaging.

**VISHAY SEMICONDUCTORS STANDARD BAR CODE LABELS**

The Vishay Semiconductors standard bar code labels are printed at final packing areas. The labels are on each packing unit and contain Vishay Semiconductors specific data.



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**Please note that some Vishay documentation may still make reference to RoHS Directive 2002/95/EC. We confirm that all the products identified as being compliant to Directive 2002/95/EC conform to Directive 2011/65/EU.**

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- Помощь Конструкторского Отдела и консультации квалифицированных инженеров;
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