

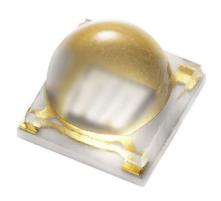
RoHS

HALOGEN

FREE GREEN

(5-2008)

UV SMD LED with Silicone Lens



DESCRIPTION

VLMU3510-365-130 is a ceramic based high power UV LED with silicone lens for long life time. The package size is 3.45 mm x 3.45 mm and the radiant power up to 835 mW at 500 mA in a wavelength range of 362.5 nm to 370 nm.

PRODUCT GROUP AND PACKAGE DATA

• Product group: LED

Package: SMD ceramic high powerProduct series: high power UV LED

• Angle of half intensity: ± 65°

• Lead-finishing: Au

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 62471 "Photobiological Safety of Lamps and Lamp Systems".

FEATURES

- Ceramic SMT package with silicone lens
- Dimension (L x W x H) in mm: 3.45 x 3.45 x 2.1
- Forward current: up to 700 mA
- Radiant power (typ.): 690 mW at 500 mA, 945 mW at 700 mA
- · Materials:
- Die: InGaN
- Resin: silicone (water clear)
- Leads / terminations finish: gold plated (Au)
- Grouping parameters:
 - Forward voltage
 - Radiant power
 - Peak wavelength
- · Reflow soldering method
- MSL 3 according to J-STD-020
- Packaging: MOQ = 1000 pieces; 12 mm tape with 500 pieces per reel, Ø 180 mm (7")
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

APPLICATIONS

- Industrial curing
- Photocatalytic purification
- · Poster printing curing
- · Counterfeit money detector
- Blood detector
- Nail curing
- Teeth curing

PARTS TABLE														
PART	COLOR	RADIANT POWER (mW)		at I _F	WAVELENGTH (nm)		at I _F	FORWARD VOLTAGE (V)		at I_	TECHNOLOGY			
		MIN.	TYP.	MAX.	(mA)	MIN.	TYP.	MAX.	(IIIA)	MIN.	TYP.	MAX.	(IIIA)	
VLMU3510-365-130	Ultraviolet	560	690	835	500	362.5	367	370	500	3.2	4.0	4.4	500	InGaN

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) VLMU3510-365-130						
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT		
DC forward current		I _F	700	mA		
Power dissipation		P _V	3	W		
Electrostatic discharge	HBM: MIL-STD-883 C 3B	ESD	2000	V		
Junction temperature		T _j	+90	°C		
Operating temperature range		T _{amb}	-40 to +85	°C		
Storage temperature range		T _{stg}	-55 to +90	°C		
Solder temperature		T _{sol}	260	°C		



OPTICAL AND ELECTRICAL CHARACTERISTICS ($T_{amb} = 25 ^{\circ}$ C, unless otherwise specified) VLMU3510-365-130, ULTRAVIOLET							
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT	
Forward voltage	I _F = 500 mA	V _F	3.2	4.0	4.4	V	
	I _F = 350 mA		-	490	-	mW	
Radiant power	I _F = 500 mA	φ _е	560	690	835		
	I _F = 700 mA		-	945	-		
	I _F = 350 mA		-	160	-		
Radiant intensity	I _F = 500 mA	l _e	-	230	-	mW/sr	
	I _F = 700 mA		-	315	-		
Peak wavelength	I _F = 500 mA	λ_{p}	362.5	367	370	nm	
Angle of half intensity	I _F = 500 mA	φ	-	± 65	-	deg	
Thermal resistance junction to case		R _{thJC}	-	5.1	-	K/W	

Note

• Tolerances: \pm 11 % for ϕ_e , \pm 0.1 V for V_F , \pm 3 nm for λ_p .

RADIANT POWER CLASSIFICATION (I _F = 500 mA)						
GROUP	MIN.	MAX.	UNIT			
GH	560	610				
HI	610	665				
IJ	665	720	mW			
JK	720	775				
KL	775	835				

PEAK WAVELENGTH CLASSIFICATION (I _F = 500 mA)						
GROUP MIN. MAX. UNIT						
P3M2	362.5	365				
P3N1	365	367.5	nm			
P3N2	367.5	370				

FORWARD VOLTAGE CLASSIFICATION (I _F = 500 mA)						
GROUP MIN. MAX. UNIT						
V1	3.2	3.6				
V2	3.6	4.0	V			
V3	4.0	4.4				

Note

In order to ensure availability, single groups for radiant intensity, wavelength, and forward voltage will not be orderable. Only one group for
radiant intensity, wavelength, and forward voltage will be shipped in any one reel.

MARKING EXAMPLE FOR SELECTION CODE ON LABEL

Selection code: IJ-P3N1-V2
IJ range: 665 mW to 720 mW
P3N1 range: 365 nm to 367.5 nm

• V2 range: 3.6 V to 4.0 V

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

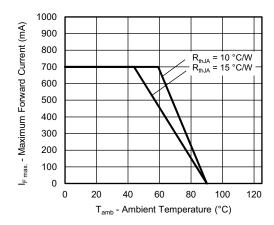


Fig. 1 - Maximum Forward Current vs. Ambient Temperature

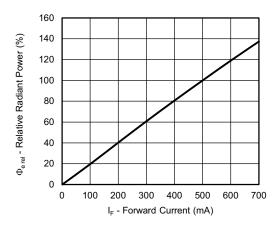


Fig. 2 - Relative Radiant Power vs. Forward Current

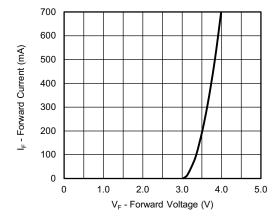


Fig. 3 - Forward Current vs. Forward Voltage

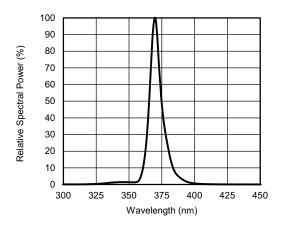


Fig. 4 - Relative Spectral Power vs. Wavelength

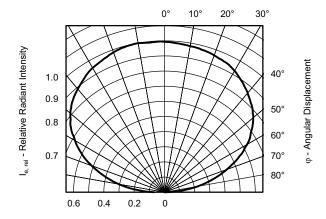


Fig. 5 - Relative Radiant Intensity vs. Angular Displacement

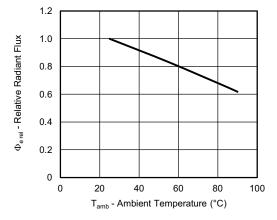
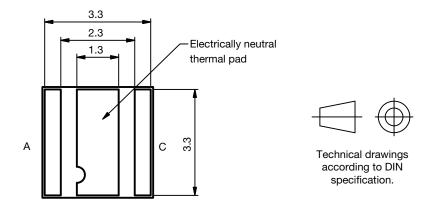
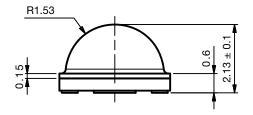
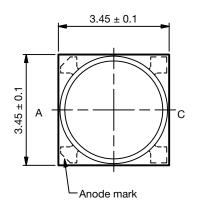


Fig. 6 - Relative Radiant Flux vs. Ambient Temperature

PACKAGE DIMENSIONS in millimeters

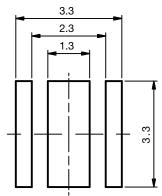






Recommended solder pad footprint

Not indicated tolerances ± 0.2



Drawing-No.: 6.541-5112.01-4 Issue: prel; 27.01.16

WIRING

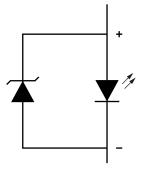
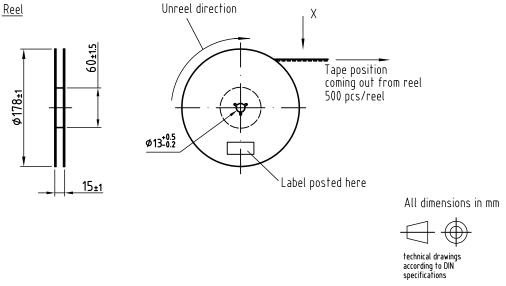
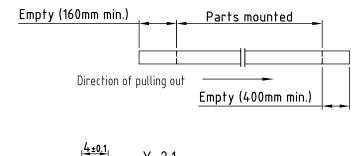


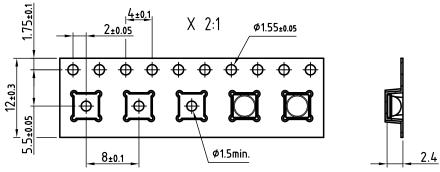
Fig. 7 - Wiring Diagram

TAPE AND REEL DIMENSIONS in millimeters



Leader and trailer tape:

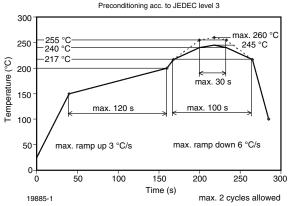




Drawing refers to following types: VLMU3510... Reel dimensions and tape Drawing-No.: 9.800-5139.01-4 Issue: prel; 02.03.16

MOQ: 1000 pieces (2 reels each with 500 pieces)

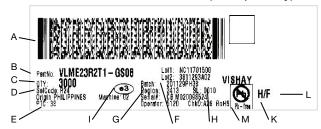
SOLDERING PROFILE



IR Reflow Soldering Profile for Lead (Pb)-free Soldering

Fig. 8 - Vishay Lead (Pb)-free Reflow Soldering Profile (acc. to J-STD-020C)

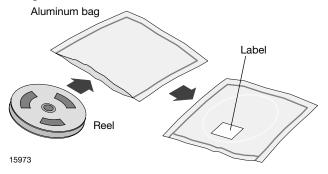
BAR CODE PRODUCT LABEL (example only)



- a. 2D barcode
- b. Vishay part number
- c. Quantity
- d. SEL = selection code (binning)
- e. Code of manufacturing plant
- f. Batch = date code: year/week/plant code
- g. Region code
- h. SL = sales location
- i. Terminations finishing
- j. Lead (Pb)-free symbol
- k. Halogen-free symbol
- I. RoHS symbol

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.

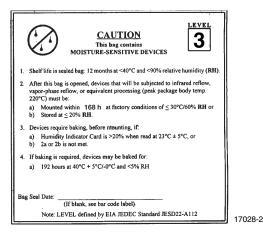
In case of moisture absorption, the devices will recover to the former condition by drying under the following condition:

192 h at 40 °C + 5 °C / - 0 °C and < 5 % RH (dry air / nitrogen) or

24 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. Electrostatic 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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Vishay

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