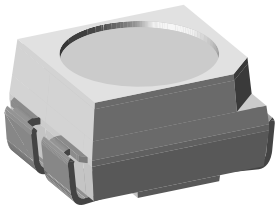
Power SMD LED PLCC-4



19210

FEATURES

- Available in 8 mm tape
- High brightness SMD LED
- Luminous intensity and color categorized per packing unit
- Luminous intensity ratio per packing unit $I_{Vmax.}/I_{Vmin.} \leq 1.6$
- ESD-withstand voltage: up to 2 kV according to JESD22-A114-B
- Suitable for all soldering methods according to CECC 00802 and J-STD-020C
- Preconditioning: acc. to JEDEC level 2a
- Qualified according to JEDEC moisture sensitivity level 2a
- Automotive qualified: AEC-Q101
- Lead (Pb)-free device
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- Compatible with IR reflow solder processes according to CECC 00802 and J-STD-020C

DESCRIPTION

The VLMK32.., VLMY32.. is an advanced development in terms of heat dissipation.

The leadframe profile of this PLCC-4 SMD package is optimized to reduce the thermal resistance.

This allows higher drive current and doubles the light output compared to Vishay's high intensity SMD LED in PLCC-2 package.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: SMD PLCC-4
- Product series: power
- Angle of half intensity: ± 60°

APPLICATIONS

- Interior and exterior lighting
- Indicator and backlighting purposes for audio, video, LCDs, switches, symbols, illuminated advertising etc.
- Illumination purpose, alternative to incandescent lamps
- General use

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
VLMK32ABBB-GS08	Amber, I_V = (1400 to 2850) mcd	AlInGaP on Si
VLMY32ABBB-GS08	Yellow, I_V = (1400 to 2850) mcd	AlInGaP on Si

ABSOLUTE MAXIMUM RATINGS [1] VLMK32.., VLMY32..

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage [2]		V_R	5	V
Forward current		I_F	70	mA
Power dissipation		P_{tot}	200	mW
Junction temperature		T_j	125	°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 FR4	R_{thJA}	290	K/W

Note:
[1] T_{amb} = 25 °C, unless otherwise specified
[2] Driving the LED in reverse direction is suitable for short term application

OPTICAL AND ELECTRICAL CHARACTERISTICS [1] VLMK32., AMBER							
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous intensity [2]	I_F = 50 mA	VLMK32ABBB	I_V	1400		2850	mcd
Dominant wavelength	I_F = 50 mA		λ_d	610		621	nm
Spectral bandwidth at 50 % $I_{rel\ max.}$	I_F = 50 mA		$\Delta\lambda$		18		nm
Angle of half intensity	I_F = 50 mA		φ		± 60		deg
Forward voltage [3]	I_F = 50 mA		V_F	1.85		3.03	V
Reverse current	V_R = 5 V		I_R		0.01	10	µA

Note:
[1] T_{amb} = 25 °C, unless otherwise specified
[2] In one packing unit $I_{Vmax.}/I_{Vmin.} \leq 1.6$
[3] Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of ± 0.1 V

OPTICAL AND ELECTRICAL CHARACTERISTICS [1] VLMY32.., YELLOW							
PARAMETER	**TEST CONDITION**	**PART**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous intensity [2]	I_F = 50 mA	VLMY32ABBB	I_V	1400		2850	mcd
Dominant wavelength	I_F = 50 mA		λ_d	585	588	594	nm
Spectral bandwidth at 50 % $I_{rel\ max.}$	I_F = 50 mA		$\Delta\lambda$		18		nm
Angle of half intensity	I_F = 50 mA		φ		± 60		deg
Forward voltage [3]	I_F = 50 mA		V_F	1.85		3.03	V
Reverse current	V_R = 5 V		I_R		0.01	10	µA

Note:
[1] T_{amb} = 25 °C, unless otherwise specified
[2] In one packing unit $I_{Vmax.}/I_{Vmin.} \leq 1.6$
[3] Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of ± 0.1 V

LUMINOUS INTENSITY CLASSIFICATION		
GROUP	**LIGHT INTENSITY (mcd)**	
STANDARD	**MIN.**	**MAX.**
AB	1400	1800
BA	1800	2240
BB	2240	2850

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.

COLOR CLASSIFICATION				
GROUP	**YELLOW**		**AMBER**	
	DOM. WAVELENGTH (nm)			
	MIN.	**MAX.**	**MIN.**	**MAX.**
X	585	588		
Y	588	591		
Z	591	594		
W			610	615
X			615	621

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

CROSSING TABLE	
VISHAY	**OSRAM**
VLMK32ABBB-GS08	LAE6SF-AABB
VLMY32ABBB-GS08	LYE6SF-AABB

TYPICAL CHARACTERISTICS

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

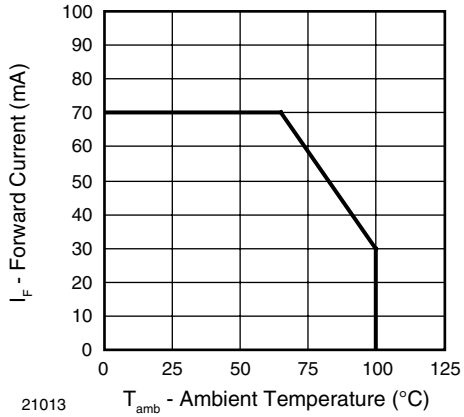


Figure 1. Forward Current vs. Ambient Temperature

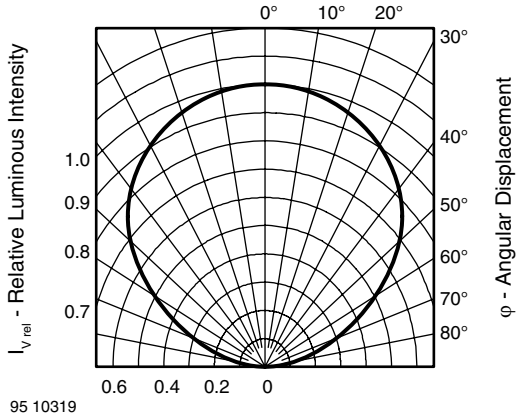


Figure 2. Rel. Luminous Intensity vs. Angular Displacement

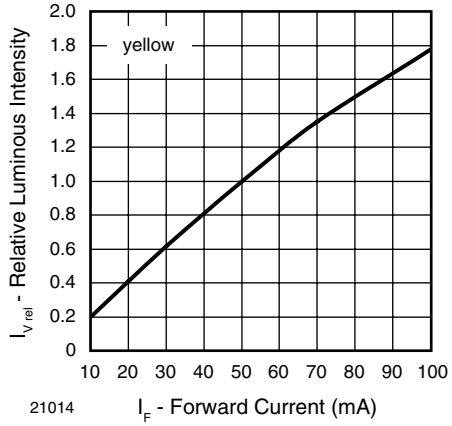


Figure 3. Relative Luminous Intensity vs. Forward Current

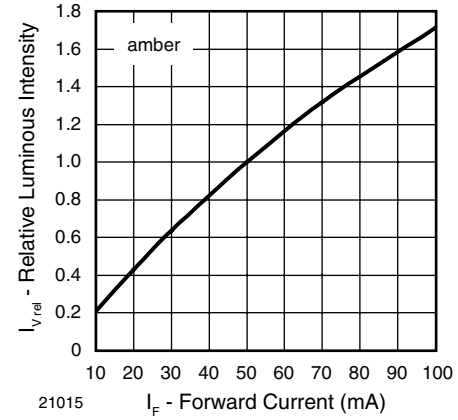


Figure 4. Relative Luminous Intensity vs. Forward Current

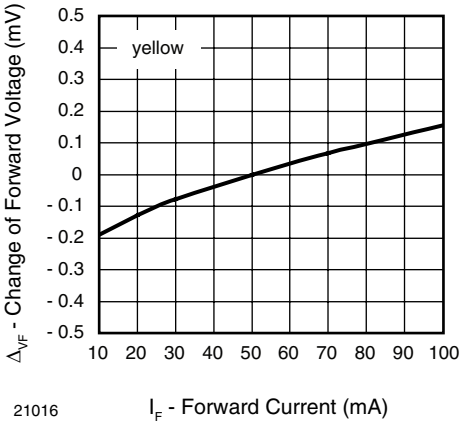


Figure 5. Change of Forward Voltage vs. Forward Current

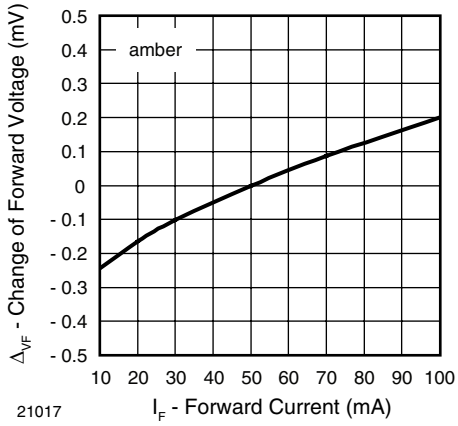


Figure 6. Change of Forward Voltage vs. Forward Current

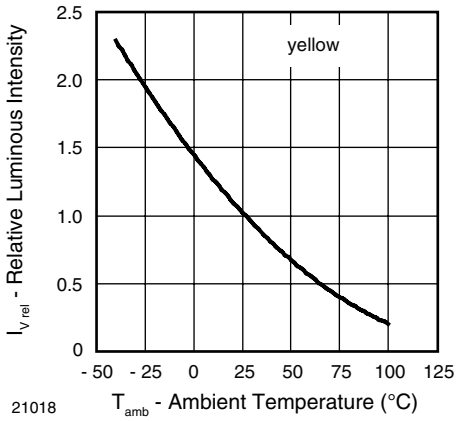


Figure 7. Relative Lum. Intensity vs. Ambient Temperature

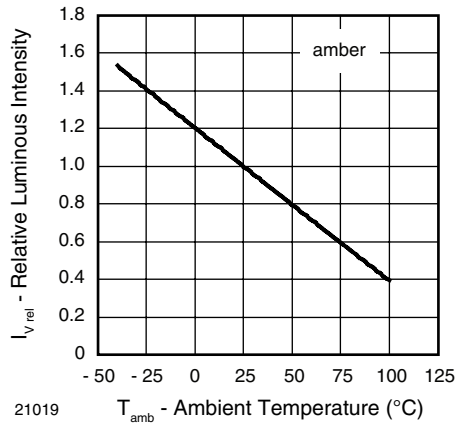


Figure 8. Relative Lum. Intensity vs. Ambient Temperature

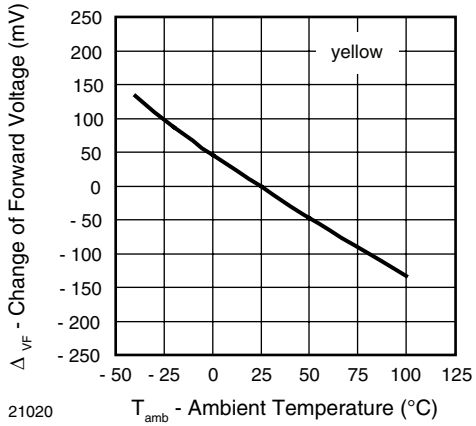


Figure 9. Change of Forward Voltage vs. Ambient Temperature

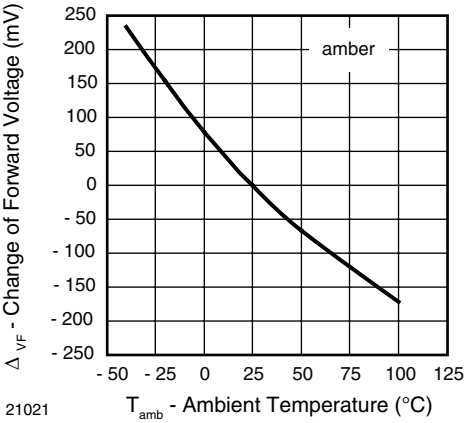


Figure 10. Change of Forward Voltage vs. Ambient Temperature

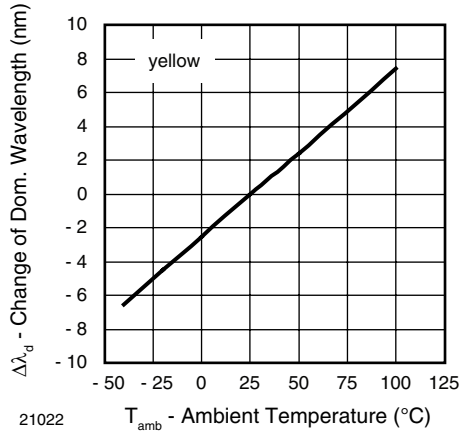


Figure 11. Change of Dominant Wavelength vs. Ambient Temperature

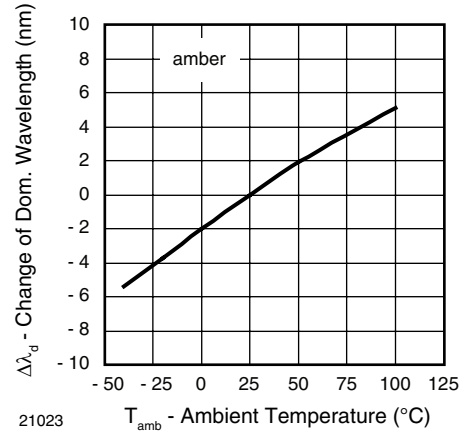


Figure 12. Change of Dominant Wavelength vs. Ambient Temperature

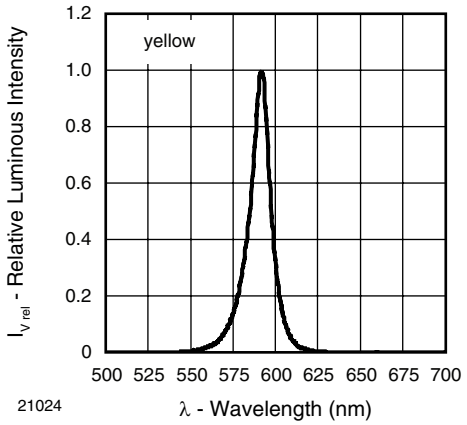


Figure 13. Relative Intensity vs. Wavelength

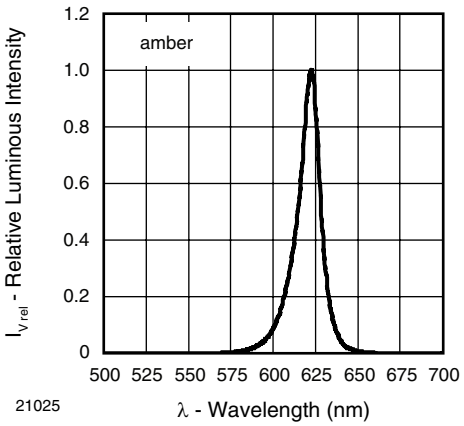
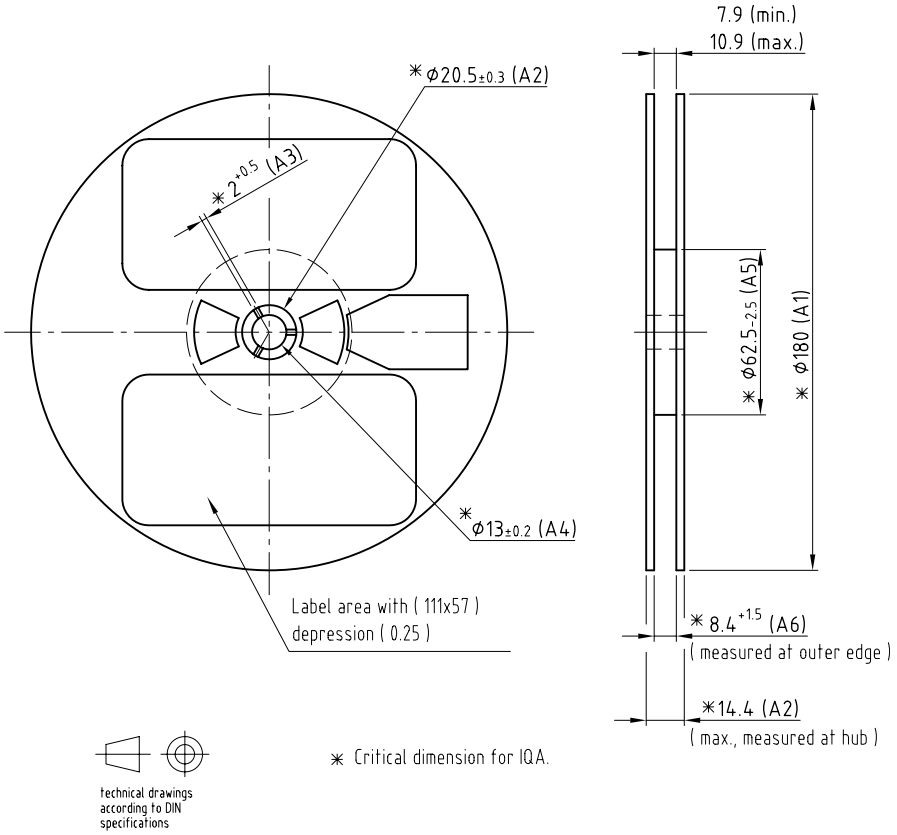


Figure 14. Relative Intensity vs. Wavelength

REEL DIMENSIONS in millimeters



GS08 = 2000 pcs

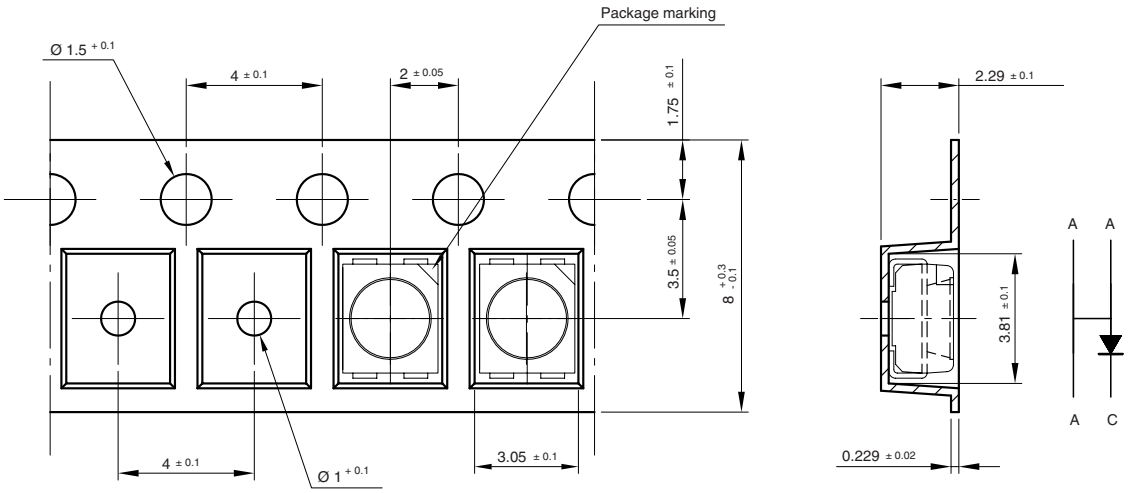
Not indicated tolerances ±0.05
Material: black static dissipative

Drawing refers to following types: ϕ180 mm Plastic reel
Drawing-No.: 9.800-5086.01-4
Issue: 2; 05.05.08
20983

TAPING DIMENSIONS in millimeters

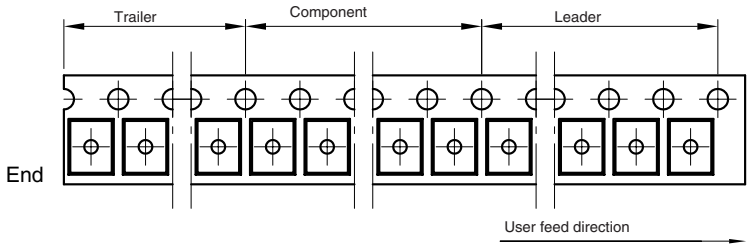
Taping and orientation

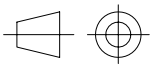
180 reel come in quantity of 2000 units
330 reel come in quantity of 8000 units



200 mm min. for 180 reel
200 mm min. for 330 reel

480 mm min. for 180 reel
960 mm min. for 330 reel

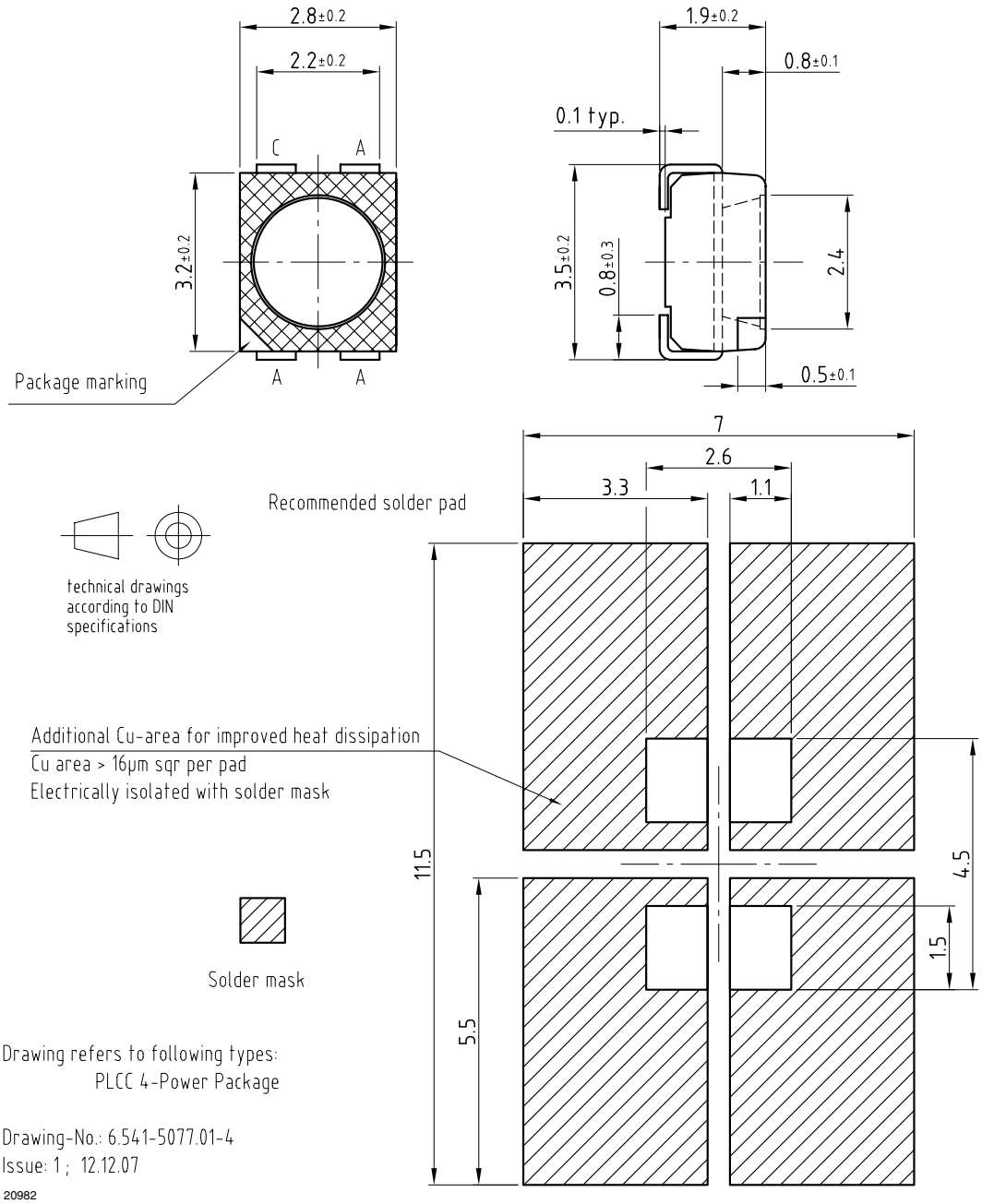




technical drawings
according to DIN
specifications

Drawing-No.: 9.700-5334.01-4
Issue: 3; 27.11.08
21066

PACKAGE/SOLDERING PADS DIMENSIONS in millimeters



SOLDERING PROFILE

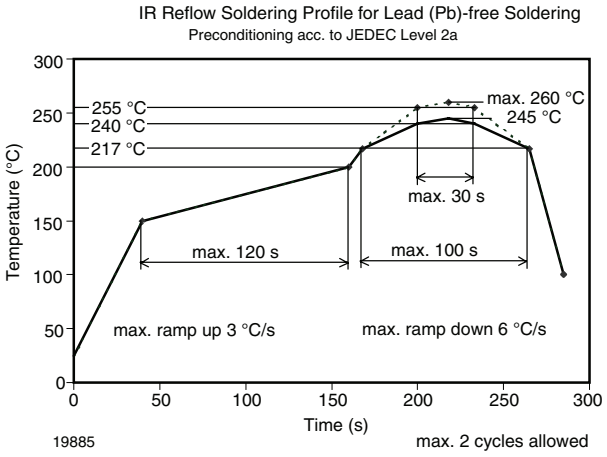


Figure 15. Vishay Lead (Pb)-free Reflow Soldering Profile
(acc. to J-STD-020B)

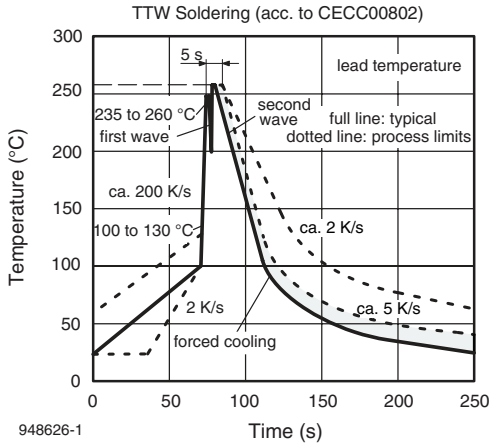
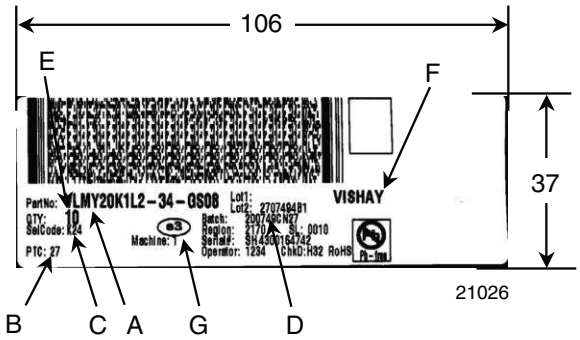


Figure 16. Double Wave Soldering of Opto Devices (all Packages)

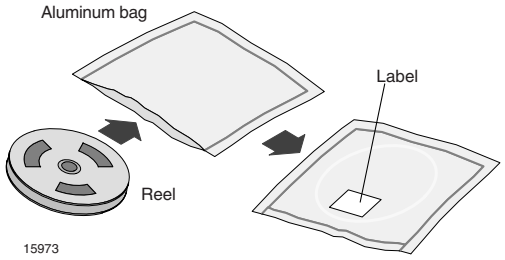
BAR CODE PRODUCT LABEL EXAMPLE:



A) Type of component
B) PTC = manufacturing plant
C) SEL - selection code (bin):
e.g.: K2 = code for luminous intensity group
4 = code for color group
D) Batch/date code
E) Total quantity
F) Company code
G) Code for lead (Pb)-free classification (e3)

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 672 h under these conditions moisture content will be too high for reflow soldering.

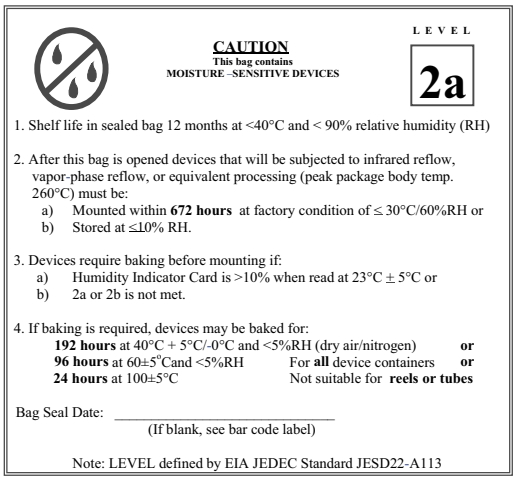
In case of moisture absorption, the devices will recover to the former condition by drying under the following condition:

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 2a label is included on all dry bags.



Example of JESD22-A112 level 2a 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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Vishay Intertechnology, Inc. hereby certifies that all its products that are identified as RoHS-Compliant fulfill the definitions and restrictions defined under Directive 2011/65/EU of The European Parliament and of the Council of June 8, 2011 on the restriction of the use of certain hazardous substances in electrical and electronic equipment (EEE) - recast, unless otherwise specified as non-compliant.

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.