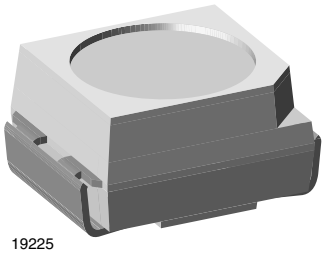
Power SMD LED PLCC-2



19225

DESCRIPTION

The VLMK33S1T1 is an advanced modification of the Vishay VLMK31.. series. It is designed to incorporate larger chips, therefore, capable of withstanding a 50 mA drive current.

The package of the VLMK33S1T1 is the PLCC-2 (equivalent to a size B tantalum capacitor).

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: power
- Angle of half intensity: ± 60°

FEATURES

- Available in 8 mm tape
- ESD-withstand voltage: up to 2 kV according to JESD22-A114-B
- Compatible with IR reflow, vapor phase and wave solder processes according to CECC 00802 and J-STD-020
- Preconditioning according to JEDEC® level 2a
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE

Pb-free

e3

RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

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 (mcd)			at I_F (mA)	WAVELENGTH (nm)			at I_F (mA)	FORWARD VOLTAGE (V)			at I_F (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
VLMK33S1T1-GS08	Amber	180	275	355	20	611	617	622	20	-	1.9	2.5	20	AlInGaP on GaAs

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C unless otherwise specified)

VLMK33S1T1

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage (1)		V_R	5	V
DC forward current		I_F	50	mA
Power dissipation		P_V	130	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
Soldering temperature	t ≤ 5 s	T_{sd}	260	°C
Thermal resistance junction to ambient	Mounted on PC board (pad size > 16 mm²)	R_{thJA}	400	K/W

Note

(1) Driving LED in reverse direction is suitable for a short term application

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OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C unless otherwise specified)
VLMK33S1T1, AMBER

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity	I_F = 20 mA	I_V	180	275	355	mcd
Luminous flux/luminous intensity		ϕ_V/I_V	-	3.14	-	mlm/mcd
Dominant wavelength	I_F = 20 mA	λ_d	611	617	622	nm
Peak wavelength	I_F = 20 mA	λ_p	-	624	-	nm
Spectral bandwidth at 50 % $I_{rel\ max.}$	I_F = 20 mA	$\Delta\lambda$	-	18	-	nm
Angle of half intensity	I_F = 20 mA	φ	-	± 60		°
Forward voltage	I_F = 20 mA	V_F	-	1.9	2.5	V
Reverse current	V_R = 5 V	V_R	-	0.01	10	µA

LUMINOUS INTENSITY CLASSIFICATION

GROUP	LUMINOUS INTENSITY (mcd)	
	MIN.	MAX.
S1	180	224
S2	224	280
T1	280	355

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 be not 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 be not orderable

COLOR CLASSIFICATION

GROUP	DOMINANT WAVELENGTH (nm)	
	AMBER	
	MIN.	MAX.
1	611	618
2	614	622

Note

- Wavelength are tested at a current pulse duration of 25 ms

CROSSING TABLE

VISHAY	OSRAM
VLMK33S1T1	LAT676-S1T1

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

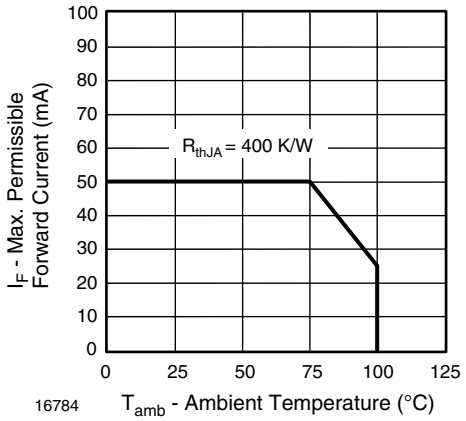


Fig. 1 - Forward Current vs. Ambient Temperature

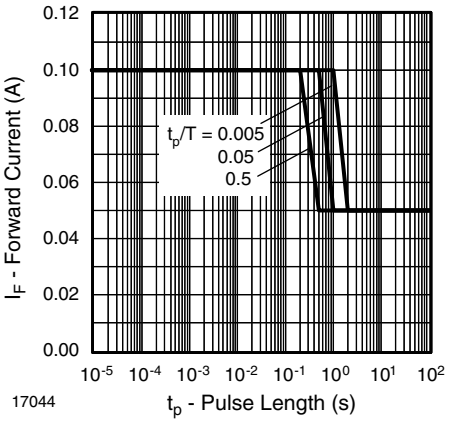


Fig. 2 - Forward Current vs. Pulse Length

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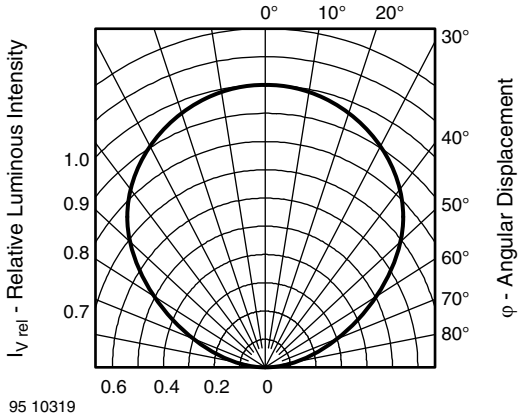


Fig. 3 - Relative Luminous Intensity vs. Angular Displacement

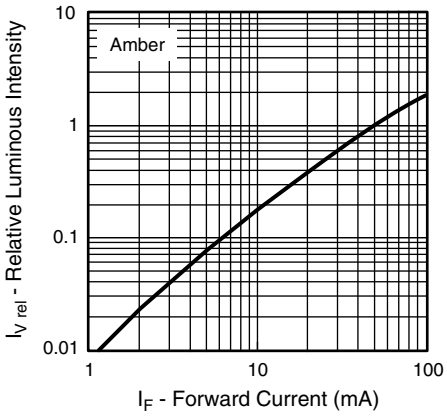


Fig. 6 - Relative Luminous Intensity vs. Forward Current

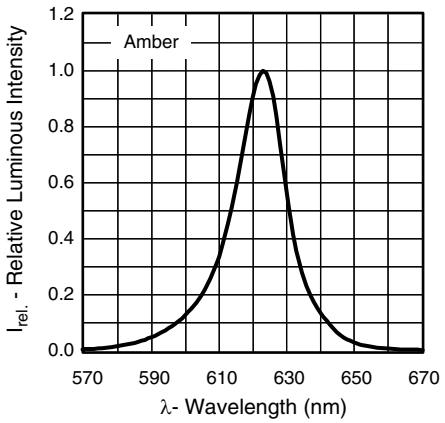


Fig. 4 - Relative Intensity vs. Angular Displacement

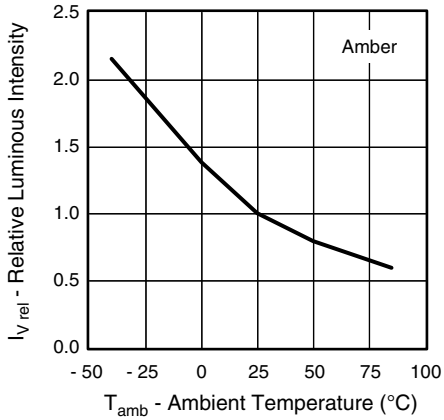


Fig. 7 - Relative Luminous Intensity vs. Ambient Temperature

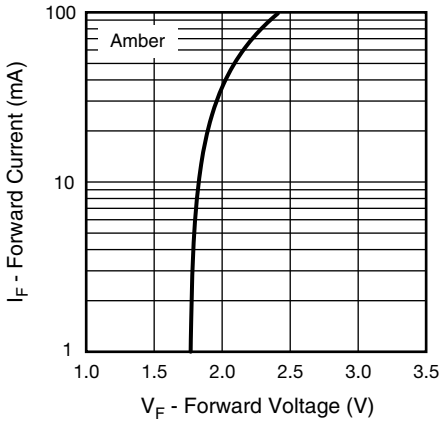


Fig. 5 - Forward Current vs. Forward Voltage

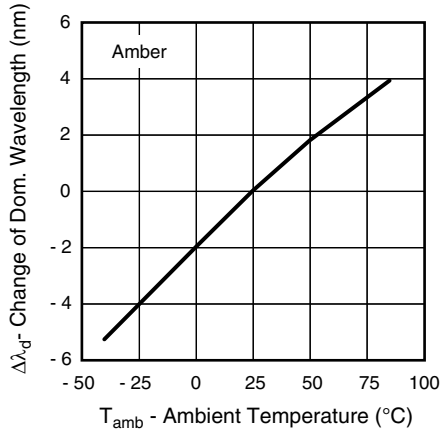


Fig. 8 - Change of Dominant Wavelength vs. Ambient Temperature

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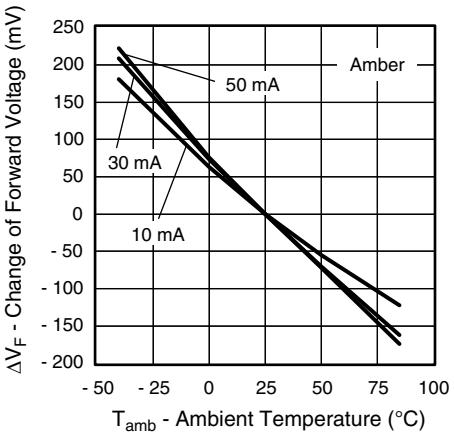
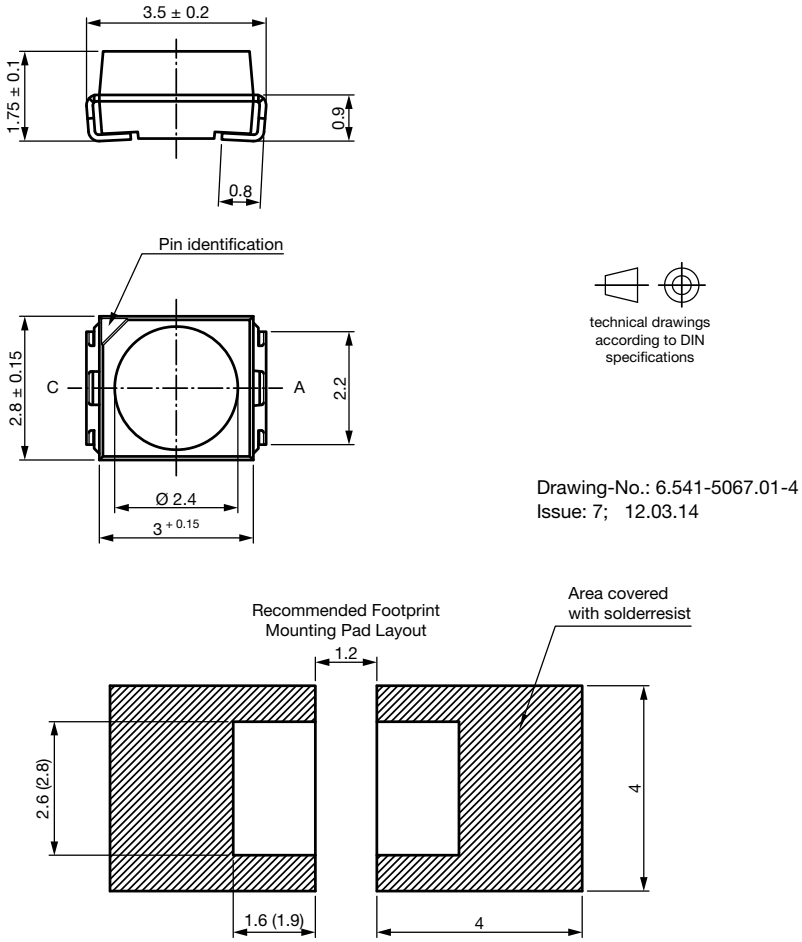


Fig. 9 - Change of Forward Voltage vs. Ambient Temperature

PACKAGE DIMENSIONS in millimeters

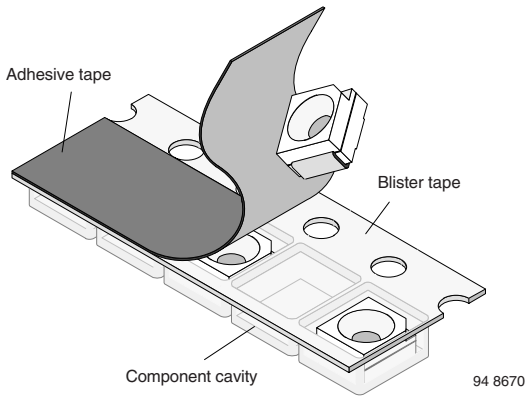


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METHOD OF TAPING / POLARITY AND TAPE AND REEL

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.



TAPING OF VLM.3..

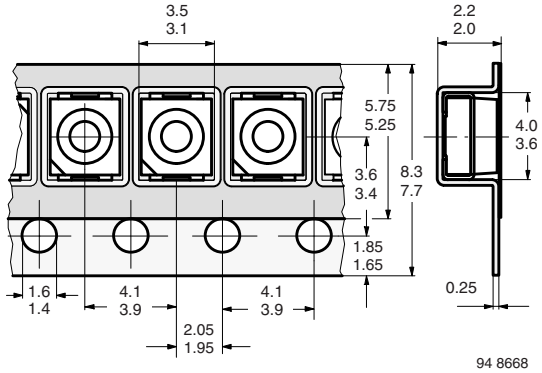


Fig. 10 - Tape Dimensions in mm for PLCC-2

REEL PACKAGE DIMENSION IN MILLIMETERS FOR SMD LEDS, TAPE OPTION GS08 (= 1500 PCS)

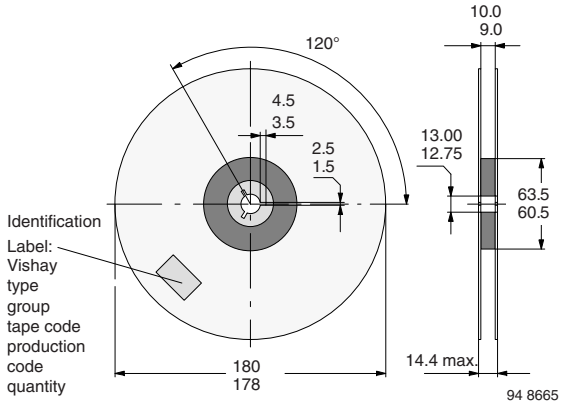


Fig. 11 - Reel Dimensions - GS08

SOLDERING PROFILE

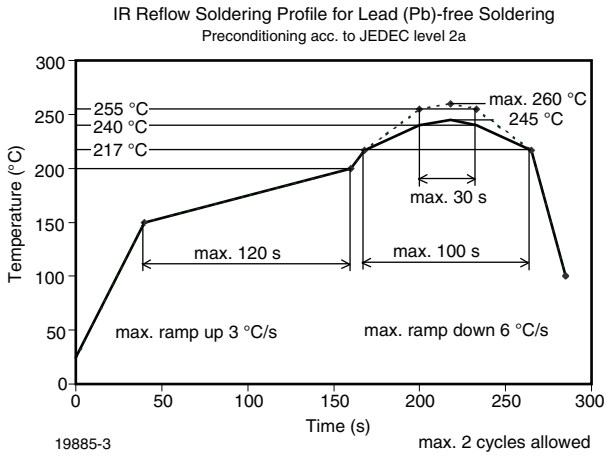


Fig. 12 - Vishay Lead (Pb)-free Reflow Soldering Profile (according to J-STD-020)

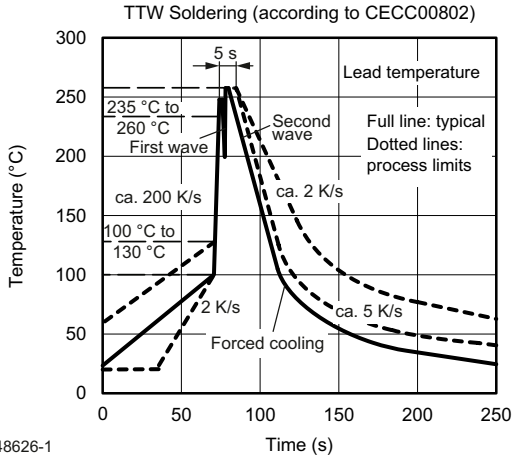


Fig. 13 - Double Wave Soldering of Opto Devices (all packages)

PACKING INFORMATION			
PART	PIECES PER REEL	REELS PER BOX	MOQ (1)
VLMK33S1T1-GS08	1500	5	7500

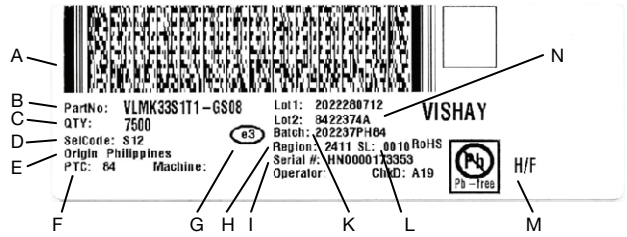
Note

(1) MOQ = minimum order quantity

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BAR CODE PRODUCT LABEL (example)



A. 2D barcode

B. Part No: Vishay part number

C. QTY: quantity

D. SelCode: selection bin code

E. Country of origin

F. PTC: production plant code

G. Termination finish

H. Region code

I. Serial#: serial number

K. Batch number: year, week, country code, plant code

L. SL: storage location

M. Environmental symbols: RoHS, lead (Pb)-free, halogen-free

N. Lot numbers

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