

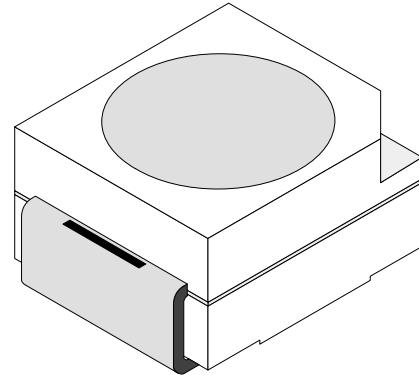
## Power SMD LED

Color	Type	Technology	Angle of Half Intensity $\pm\varphi$
Red	TLMK330.	AlInGaP on GaAs	60°

### Description

The TLM.33.. series is an advanced modification of the Vishays TLM.31.. series. It is designed to incorporate larger chips, therefore, capable of withstanding a 50 mA drive current.

The package of the TLM.33.. is the P-LCC-2 (equivalent to a size B tantalum capacitor). It consists of a lead frame which is embedded in a white thermoplastic. The reflector inside this package is filled up with clear epoxy.



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### Features

- Utilizing (AS) AlInGaP technology
- Available in 8 mm tape reel
- Suitable for all soldering methods according to CECC
- Forward voltage and color categorized per packing unit
- Luminous intensity ratio per packing unit  $I_{V_{max}}/I_{V_{min}} \leq 1.6$
- Thermal resistance  $R_{thJA} = 400\text{K/W}$
- ESD class 2

### Applications

Tail- and Stop Lights of Motor Vehicles  
 Traffic Signals and Signs  
 Exterior lighting  
 Dot Matrix Panels, Signs, Displays  
 Dashboard illumination

### Absolute Maximum Ratings

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

#### TLMK330.

Parameter	Test Conditions	Symbol	Value	Unit
Reverse voltage		$V_R$	5	V
Forward current		$I_F$	50	mA
Power dissipation	$T_{amb} \leq 73^\circ\text{C}$ (400K/W)	$P_{tot}$	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
Thermal resistance junction/ambient	mounted on PC board FR4 optional Paddesign (see page 5)	$R_{thJA}$	400	K/W

**Optical and Electrical Characteristics** $T_{amb} = 25^{\circ}C$ , unless otherwise specified

Red (TLMK330. )

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Luminous intensity	$I_F = 50 \text{ mA}$	TLMK3300	$I_V$	250			mcd
Luminous flux			$\phi_V$		1000		mlm
Luminous intensity	$I_F = 50 \text{ mA}$	TLMK3301	$I_V$	250		800	mcd
Luminous flux			$\phi_V$		1300		mlm
Luminous intensity	$I_F = 50 \text{ mA}$	TLMK3302	$I_V$	400		800	mcd
Luminous flux			$\phi_V$		1650		mlm
Dominant wavelength			$\lambda_d$	611	617	622	nm
Peak wavelength			$\lambda_p$		624		nm
Spectral bandwidth at 50% $I_{rel \text{ max}}$			$\delta\lambda$		18		nm
Viewing angle at 50% $I_V$			$2\phi$		120		deg
Forward voltage	$I_F = 50 \text{ mA}$		$V_F$		2.1	2.55	V
Reverse current	$V_R = 5 \text{ V}$		$I_R$		0.01	10	$\mu\text{A}$
Temperature coefficient of $\lambda_{dom}$	$I_F = 50 \text{ mA}$		$TC_{\lambda}$		0.05		nm/K
Temperature coefficient of $\lambda_{peak}$			$TC_{\lambda}$		0.14		nm/K
Temperature coefficient of $V_F$			$TC_V$		-2.1		mV/K
Temperature coefficient of $I_V$			$TC_{IV}$		-0.6		%/K

**Forward Voltage Classification**

Group	Forward Voltage (V)		Unit
	min	max	
1	1.85	2.25	V
2	2.15	2.55	V

**Color Classification**

Group	Red	
	Dom. wavelenght (nm)	
1	611	618
2	614	622

**Luminous Intensity Classification**

Group	Luminous Intensity (mcd)	
	min	max
Ya	250	400
Yb	320	500
Za	400	640
Zb	500	800

**Group Name on Label**

Example: Yb12

Luminous Intensity Group	Half Group	Wavelength	Forward Voltage
Y	b	1	2

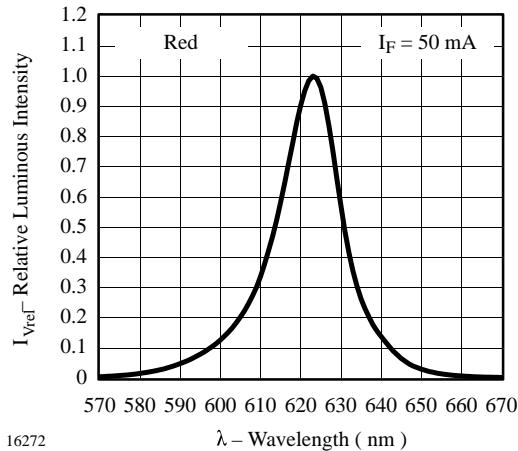
**Typical Characteristics** ( $T_{amb} = 25^{\circ}C$ , unless otherwise specified)


Figure 1 Relative Luminous Intensity vs. Wavelength

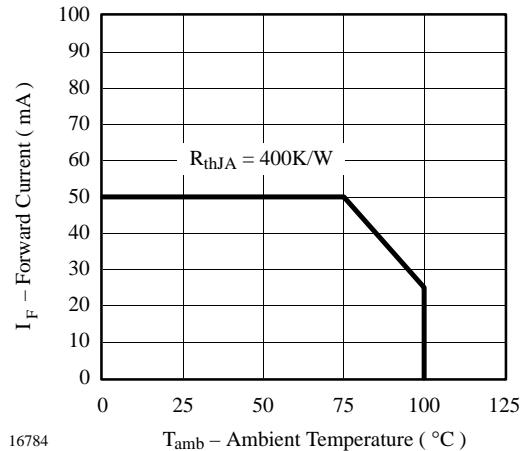


Figure 4 Forward Current vs. Ambient Temperature

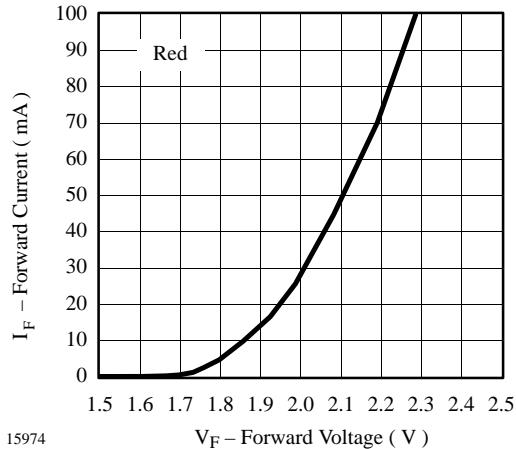


Figure 2 Forward Current vs. Forward Voltage

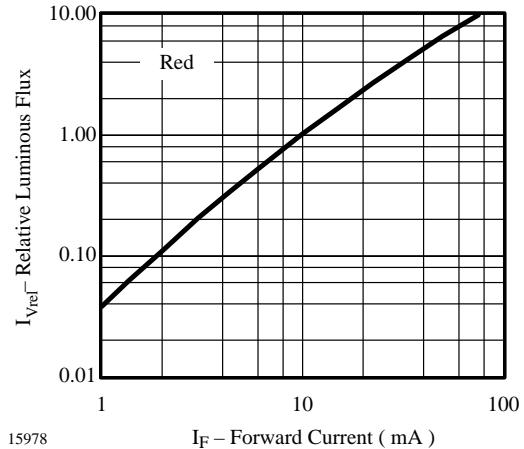


Figure 5 Relative Luminous Flux vs. Forward Current

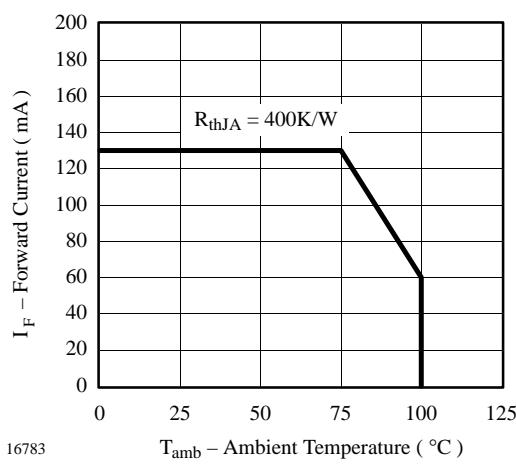


Figure 3 Forward Current vs. Ambient Temperature

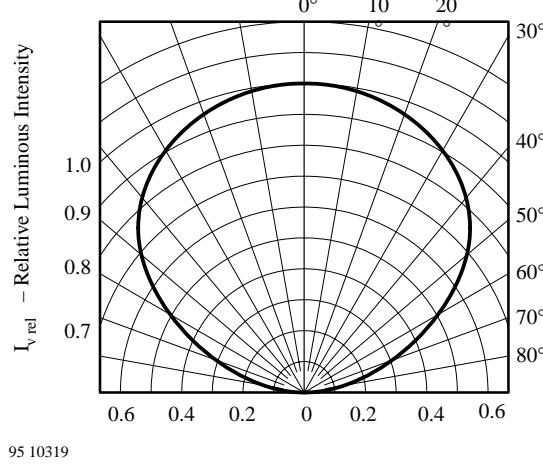
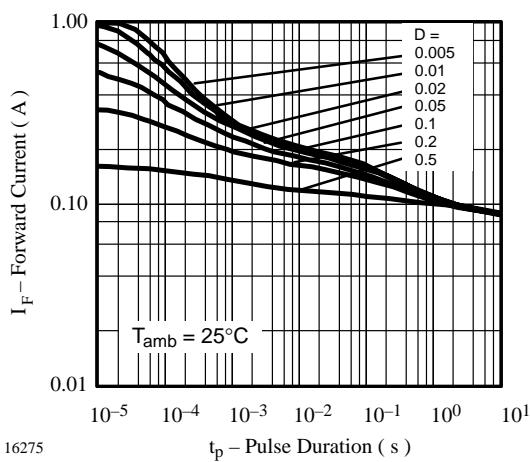
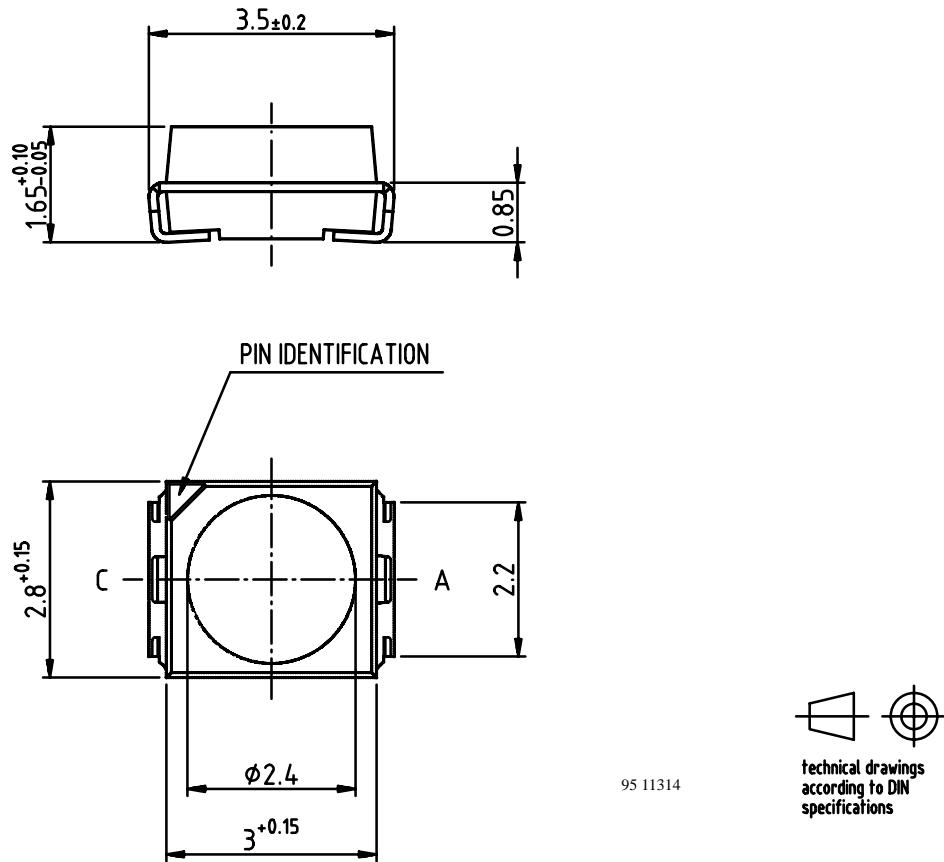


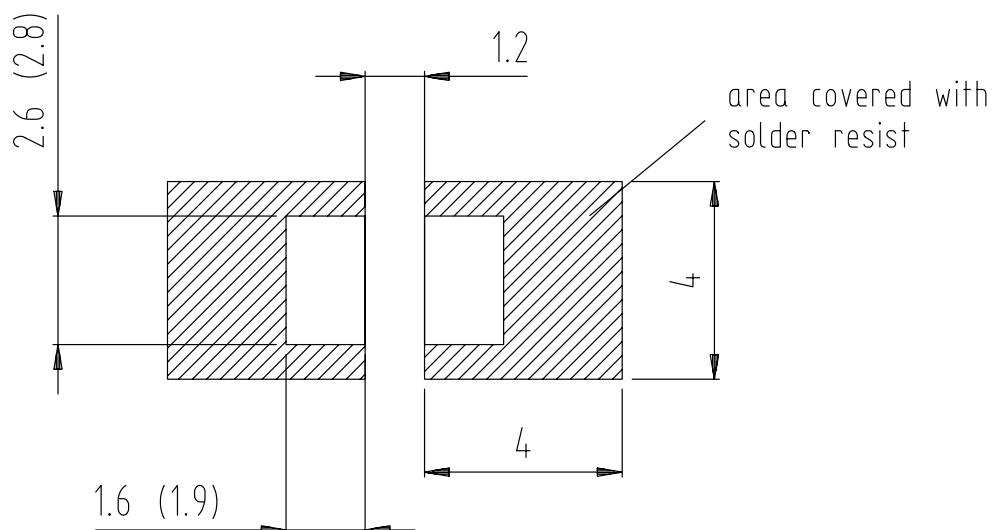
Figure 6 Rel. Luminous Intensity vs. Angular Displacement



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Figure 7 Forward Current vs. Pulse Duration

**Dimensions in mm**

**PCB Layout in mm**

Dimensions: IR and Vaporphase  
( Wave Soldering )

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## Ozone Depleting Substances Policy Statement

It is the policy of **Vishay Semiconductor GmbH** to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

**Vishay Semiconductor GmbH** has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

**Vishay Semiconductor GmbH** can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.

**We reserve the right to make changes to improve technical design and may do so without further notice.**

Parameters can vary in different applications. All operating parameters must be validated for each customer application by the customer. Should the buyer use Vishay-Telefunken products for any unintended or unauthorized application, the buyer shall indemnify Vishay-Telefunken against all claims, costs, damages, and expenses, arising out of, directly or indirectly, any claim of personal damage, injury or death associated with such unintended or unauthorized use.

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