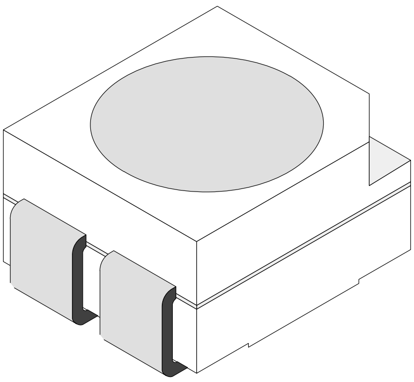
Power SMD LED

Color	Type	Technology	Angle of Half Intensity ±φ
Red	TLMK320.	AlInGaP on GaAs	60°

Description

The TLM.320. series is an advanced development in terms of heat dissipation.
The leadframe profile of this P–LCC–3 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 P–LCC–2 package.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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 $I_{Vmax}/I_{Vmin} \leqq 1.6$
- Thermal resistance R_{thJA} = 270K/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°C, unless otherwise specified
TLMK320.

Parameter	Test Conditions	Symbol	Value	Unit
Reverse voltage		V_R	5	V
Forward current		I_F	70	mA
Power dissipation	$T_{amb} \leq$ 73°C (290K/W) / 76°C (270K/W)	P_{tot}	180	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 6)	R_{thJA}	290	K/W
	mounted on PC board FR4 recommended Paddesign (see page 5)		270	

Optical and Electrical Characteristics

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

Red (**TLMK320.**)

Parameter	Test Conditions	Type	Symbol	Min	Typ	Max	Unit
Luminous intensity	I_F = 50 mA	TLMK3200	I_V	250			mcd
Luminous flux			ϕ_V		1000		mlm
Luminous intensity		TLMK3201	I_V	250		800	mcd
Luminous flux			ϕ_V		1300		mlm
Luminous intensity		TLMK3202	I_V	400		800	mcd
Luminous flux			ϕ_V		1650		mlm
Dominant wavelength			λ_d	611	617	622	nm
Peak wavelength			λ_p		624		nm
Spectral bandwidth at 50% $I_{rel\ max}$			$\delta\lambda$		18		nm
Viewing angle at 50% I_V			2φ		120		deg
Forward voltage	I_F = 50 mA		V_F		2.1	2.55	V
Reverse current	V_R = 5 V		I_R		0.01	10	μA
Temperature coefficient of λ_{dom}	I_F = 50 mA		TC_λ		0.05		nm/K
Temperature coefficient of λ_{peak}			TC_λ		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)	
	min	max
1	611	618
2	614	622

Luminous Intensity Classification

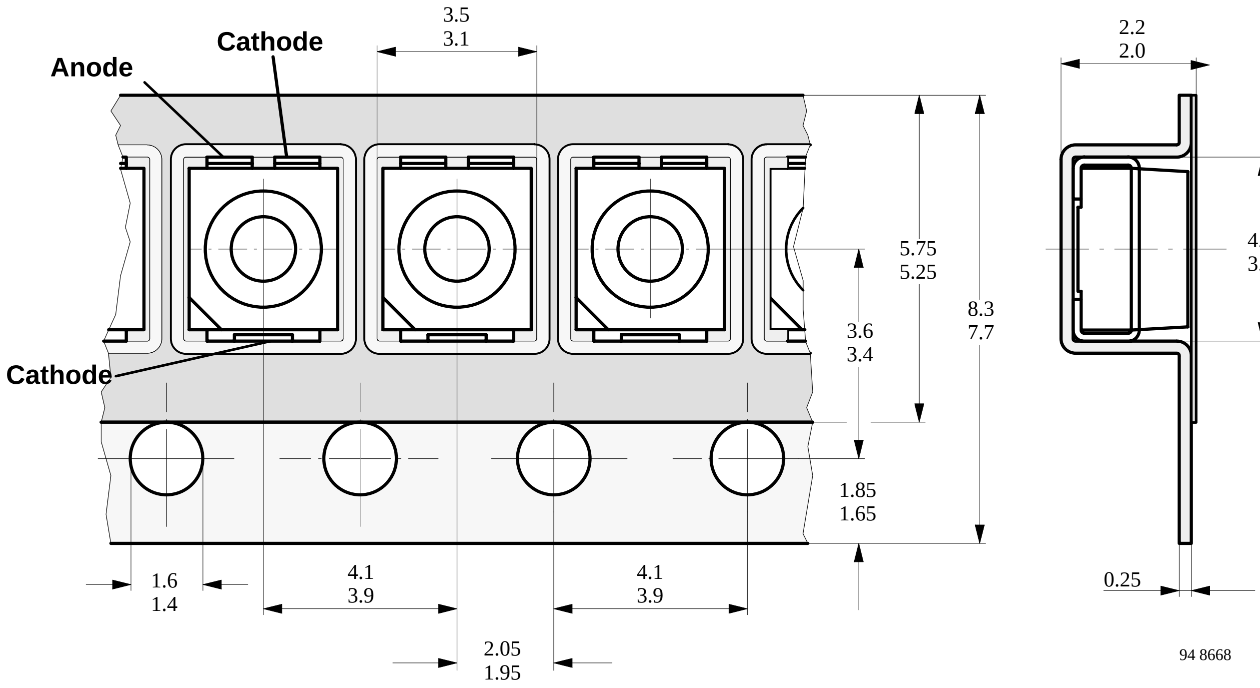
Group	Luminous Intensity (mcd)	
	min	max
Ya	250	400
Yb	320	500
Za	400	640
Zb	500	800

Group Name on Label

Example: Yb12

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

Taping of TLM.320.



Tape dimensions in mm for P–LCC–3

Typical Characteristics (T$_{amb}$ = 25°C, unless otherwise specified)

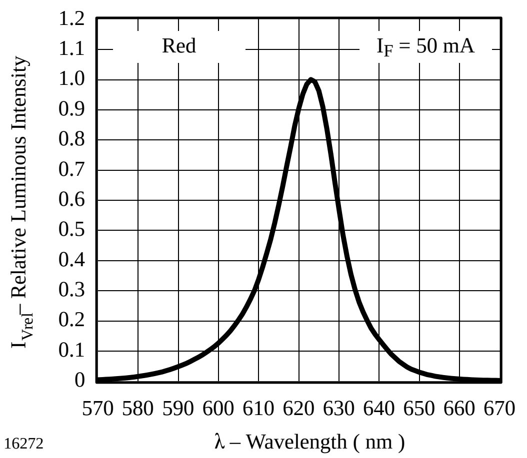


Figure 1 Relative Luminous Intensity vs. Wavelength

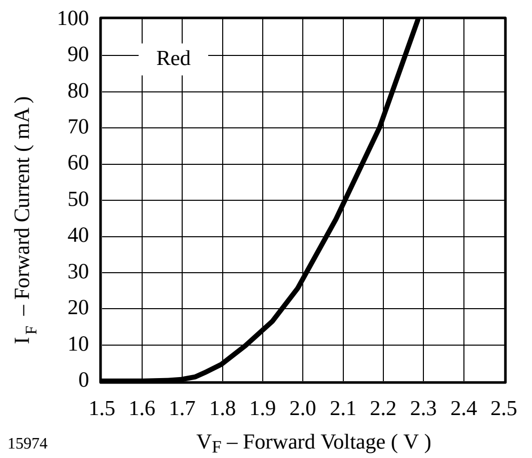


Figure 2 Forward Current vs. Forward Voltage

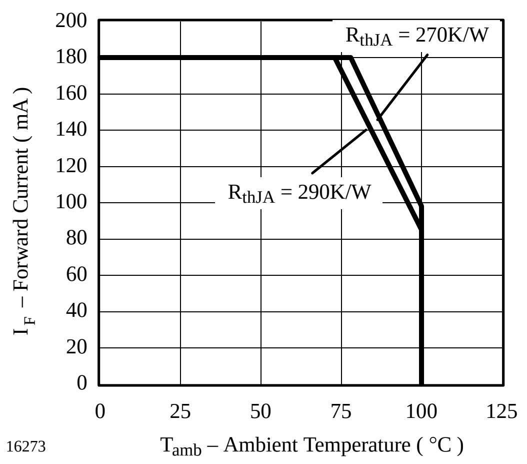


Figure 3 Power Dissipation vs. Ambient Temperature

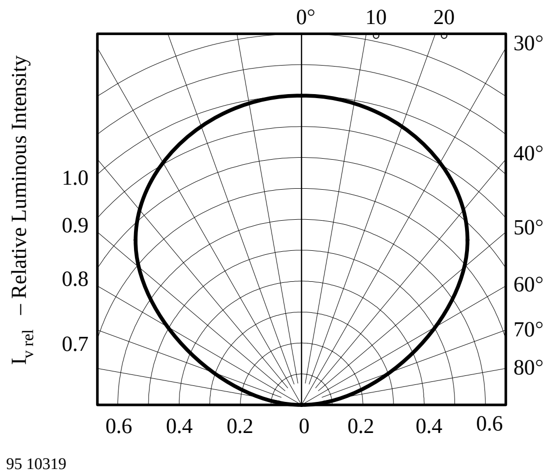


Figure 6 Rel. Luminous Intensity vs. Angular Displacement

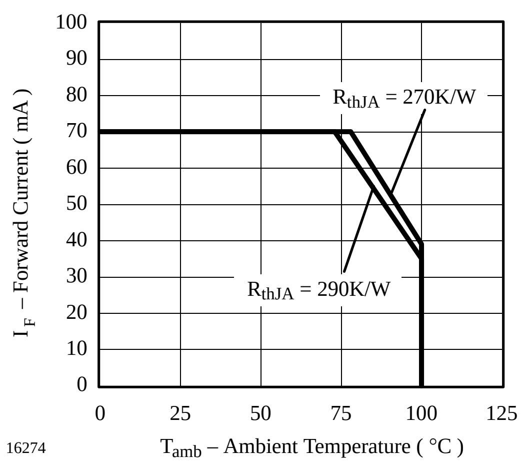


Figure 4 Forward Current vs. Ambient Temperature

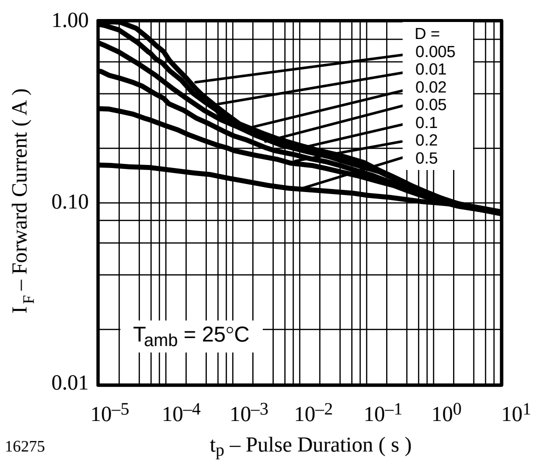


Figure 7 Forward Current vs. Pulse Duration

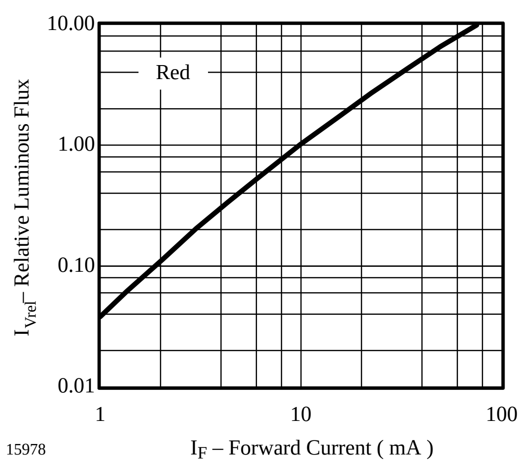
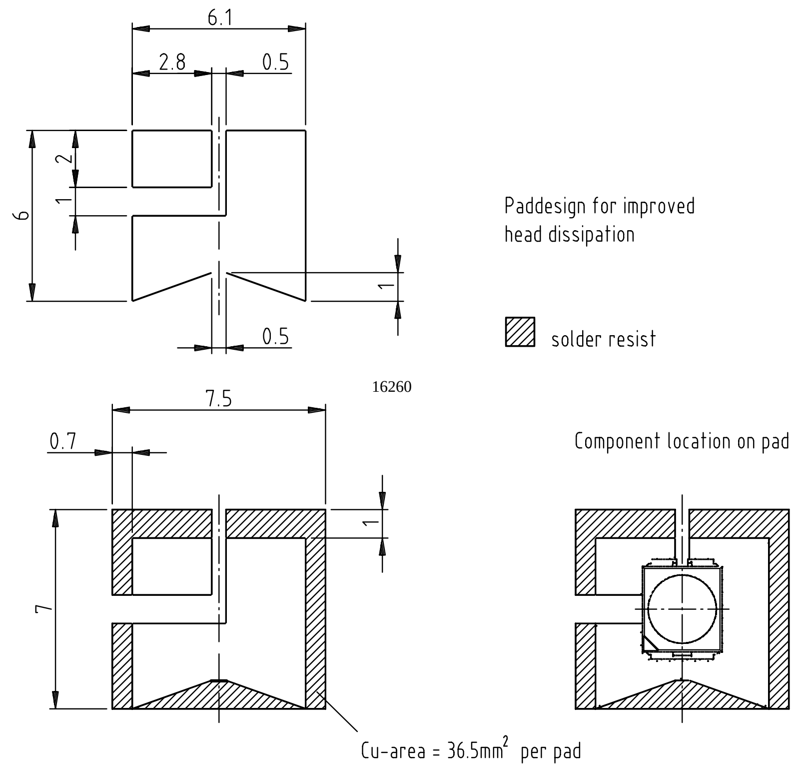
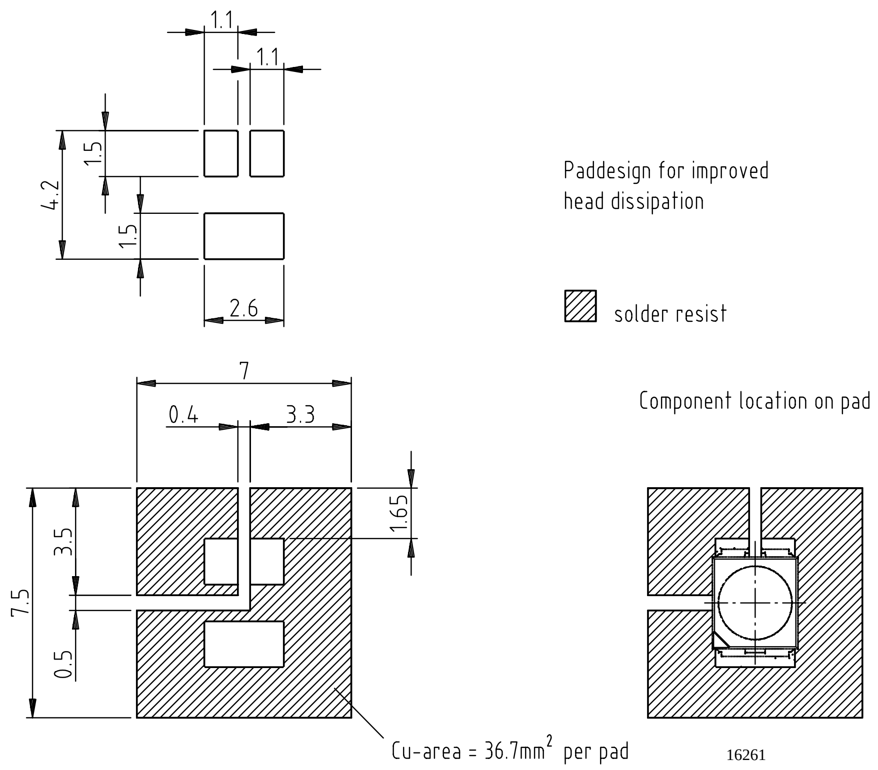


Figure 5 Relative Luminous Flux vs. Forward Current

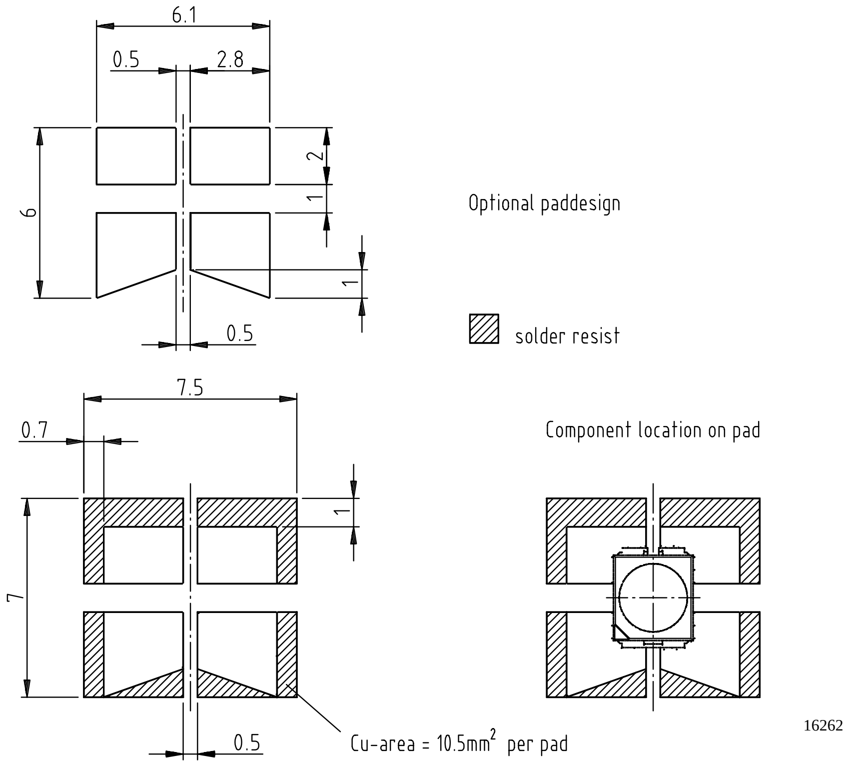
Recommended Paddesign (Wave – Soldering), R_{thJA} = 270 K/W



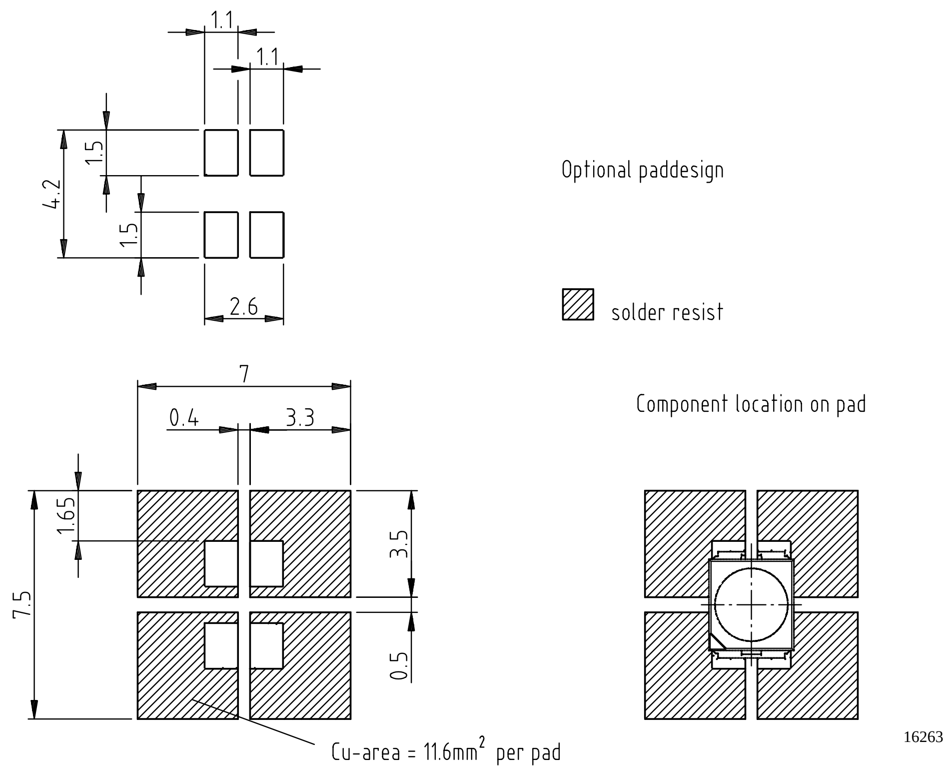
Recommended Paddesign (Reflow–Soldering), R_{thJA} = 270 K/W



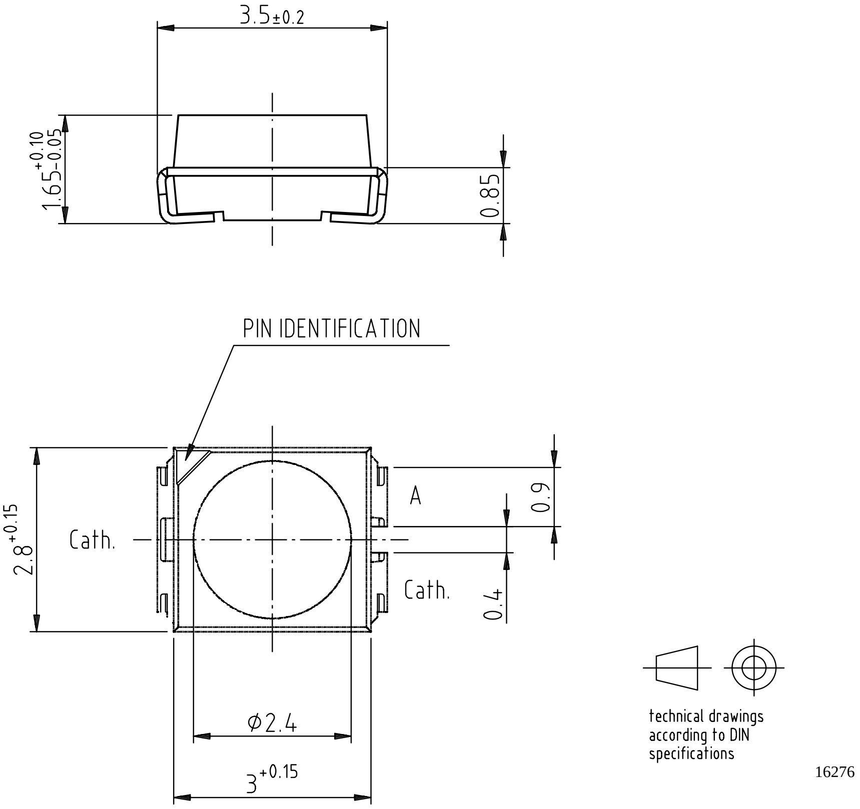
Optional Paddesign (Wave – Soldering), R_{thJA} = 290 K/W



Optional Paddesign (Reflow–Soldering), R_{thJA} = 290 K/W



Dimensions in mm



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.

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