TELUX™ LED

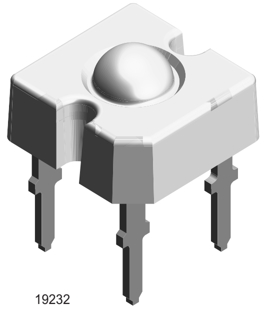
Description

The TELUX™ series is a clear, non diffused LED for high end applications where supreme luminous flux is required.

It is designed in an industry standard 7.62 mm square package utilizing highly developed InGaN technology.

The supreme heat dissipation of TELUX™ allows applications at high ambient temperatures.

All packing units are binned for luminous flux and color to achieve best homogenous light appearance in application.



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Features

- Utilizing InGaN technology
- High luminous flux
- Supreme heat dissipation: R_{thJP} is 90 K/W
- High operating temperature: T_j + 100 °C
- Packed in tubes for automatic insertion
- Luminous flux and color categorized for each tube
- Small mechanical tolerances allow precise usage of external reflectors or lightguides
- ESD-withstand voltage:
  > 1 kV acc. to MIL STD 883 D, Method 3015.7
- Lead-free device

Applications

Exterior lighting
Dashboard illumination
Tail-, Stop - and Turn Signals of motor vehicles
Replaces incandescent lamps

Parts Table

Part	Color, Luminous Intensity	Angle of Half Intensity (±φ)	Technology
TLWW8600	White, ϕ_V > 630 mlm	30 °	InGaN / TAG on SiC

Absolute Maximum Ratings

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

TLWW8600

Parameter	Test condition	Symbol	Value	Unit
Reverse voltage	I_R = 10 µA	V_R	5	V
DC Forward current	$T_{amb} \le 50$ °C	I_F	50	mA
Surge forward current	$t_p \le 10$ µs	I_{FSM}	0.1	A
Power dissipation	$T_{amb} \le 50$ °C	P_V	255	mW
Junction temperature		T_j	100	°C
Operating temperature range		T_{amb}	- 40 to + 100	°C
Storage temperature range		T_{stg}	- 55 to + 100	°C

Parameter	Test condition	Symbol	Value	Unit
Soldering temperature	t ≤ 5 s, 1.5 mm from body preheat temperature 100 °C/ 30 sec.	T_{sd}	260	°C
Thermal resistance junction/ ambient	with cathode heatsink of 70 mm^2	R_{thJA}	200	K/W
Thermal resistance junction/pin		R_{thJP}	90	K/W

Optical and Electrical Characteristics

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

White

TLWW8600

Parameter	Test condition	Symbol	Min	Typ.	Max	Unit
Total flux	I_F = 50 mA, R_{thJA} = 200 °K/W	ϕ_V	630	1000		mlm
Luminous intensity/Total flux	I_F = 50 mA, R_{thJA} = 200 °K/W	I_V/ϕ_V		0.8		mcd/mlm
Color temperature	I_F = 50 mA, R_{thJA} = 200 °K/W	T_K		5500		K
Angle of half intensity	I_F = 50 mA, R_{thJA} = 200 °K/W	φ		± 30		deg
Total included angle	90 % of Total Flux Captured	φ		75		deg
Forward voltage	I_F = 50 mA, R_{thJA} = 200 °K/W	V_F		4.3	5.2	V
Reverse voltage	I_R = 10 µA	V_R	5	10		V
Junction capacitance	V_R = 0, f = 1 MHz	C_j		50		pF

Chromaticity Coordinate Classification

Group	X		Y	
	min	max	min	max
3a	0.29	0.3025	Y = 1.4x - 0.121	Y = 1.4x - 0.071
3b	0.3025	0.315	Y = 1.4x - 0.121	Y = 1.4x - 0.071
3c	0.29	0.3025	Y = 1.4x - 0.171	Y = 1.4x - 0.121
3d	0.3025	0.315	Y = 1.4x - 0.171	Y = 1.4x - 0.121
4a	0.315	0.3275	Y = 1.4x - 0.121	Y = 1.4x - 0.071
4b	0.3275	0.34	Y = 1.4x - 0.121	Y = 1.4x - 0.071
4c	0.315	0.3275	Y = 1.4x - 0.171	Y = 1.4x - 0.121
4d	0.3275	0.34	Y = 1.4x - 0.171	Y = 1.4x - 0.121
5a	0.34	0.3525	Y = 1.4x - 0.121	Y = 1.4x - 0.071
5b	0.3525	0.365	Y = 1.4x - 0.121	Y = 1.4x - 0.071
5c	0.34	0.3525	Y = 1.4x - 0.171	Y = 1.4x - 0.121
5d	0.3525	0.365	Y = 1.4x - 0.171	Y = 1.4x - 0.121

tolerance ± 0.005

Typical Characteristics (T_{amb} = 25 °C unless otherwise specified)

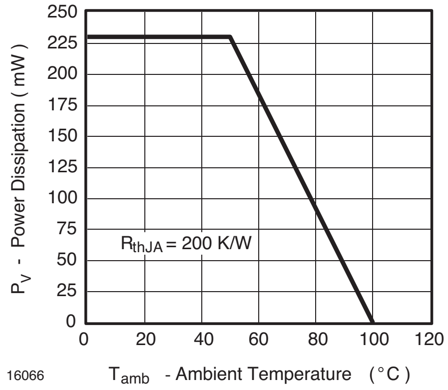


Figure 1. Power Dissipation vs. Ambient Temperature for InGaN

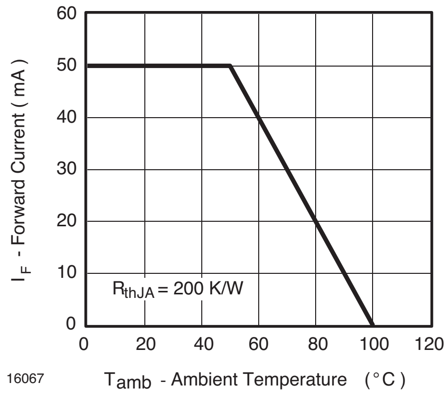


Figure 2. Forward Current vs. Ambient Temperature for InGaN

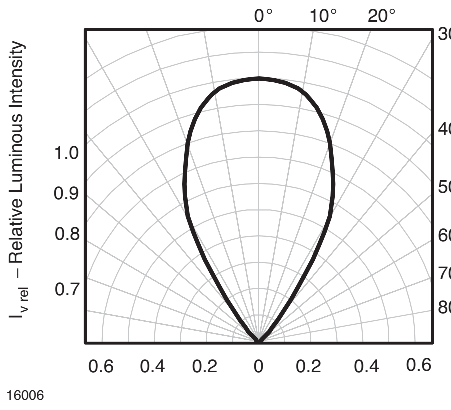


Figure 3. Rel. Luminous Intensity vs. Angular Displacement for 60 ° emission angle

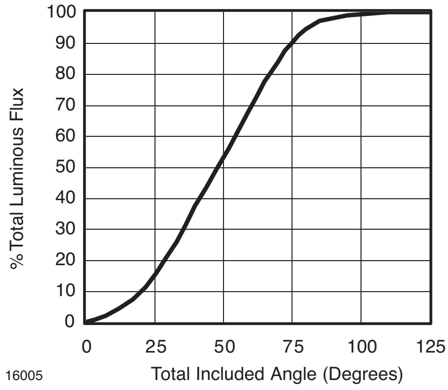


Figure 4. Percentage Total Luminous Flux vs. Total Included Angle for 60 ° emission angle

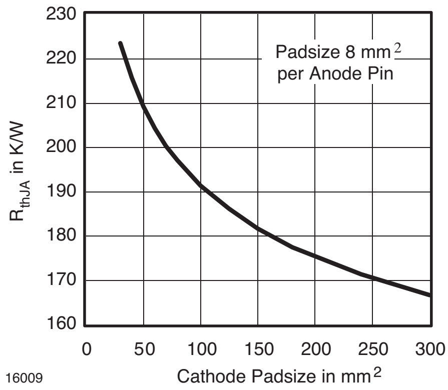


Figure 5. Thermal Resistance Junction Ambient vs. Cathode Padsize

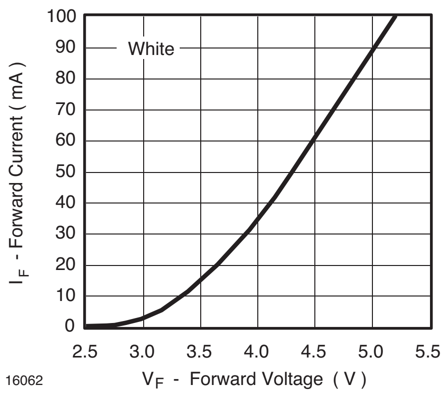


Figure 6. Forward Current vs. Forward Voltage

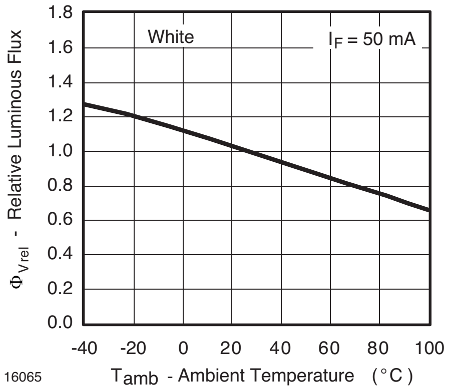


Figure 7. Rel. Luminous Flux vs. Ambient Temperature

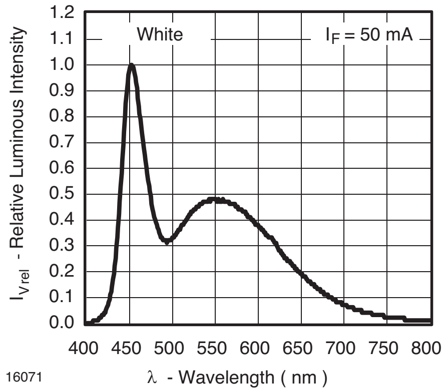


Figure 10. Relative Intensity vs. Wavelength

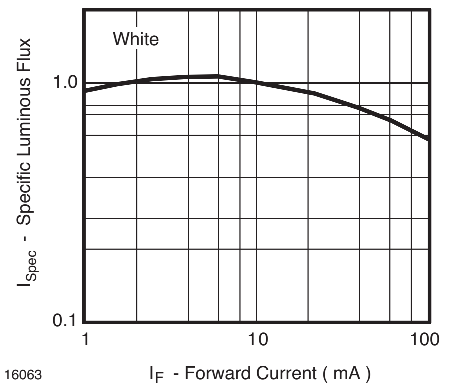


Figure 8. Specific Luminous Flux vs. Forward Current

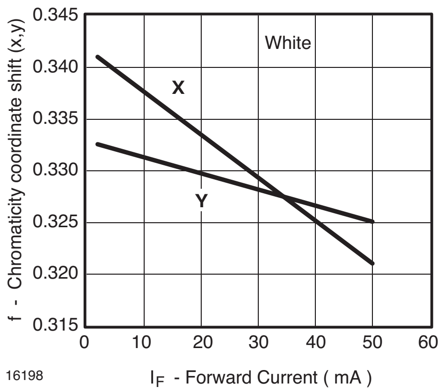


Figure 11. Chromaticity Coordinate Shift vs. Forward Current

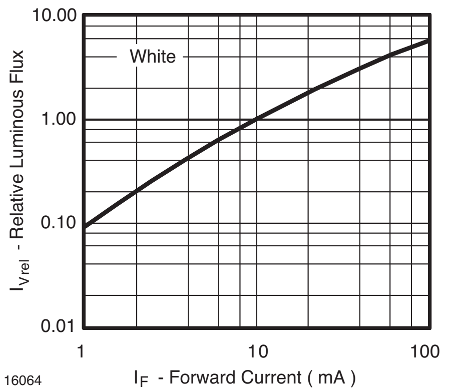


Figure 9. Relative Luminous Flux vs. Forward Current

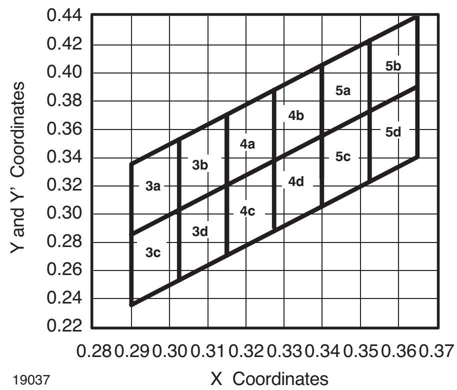
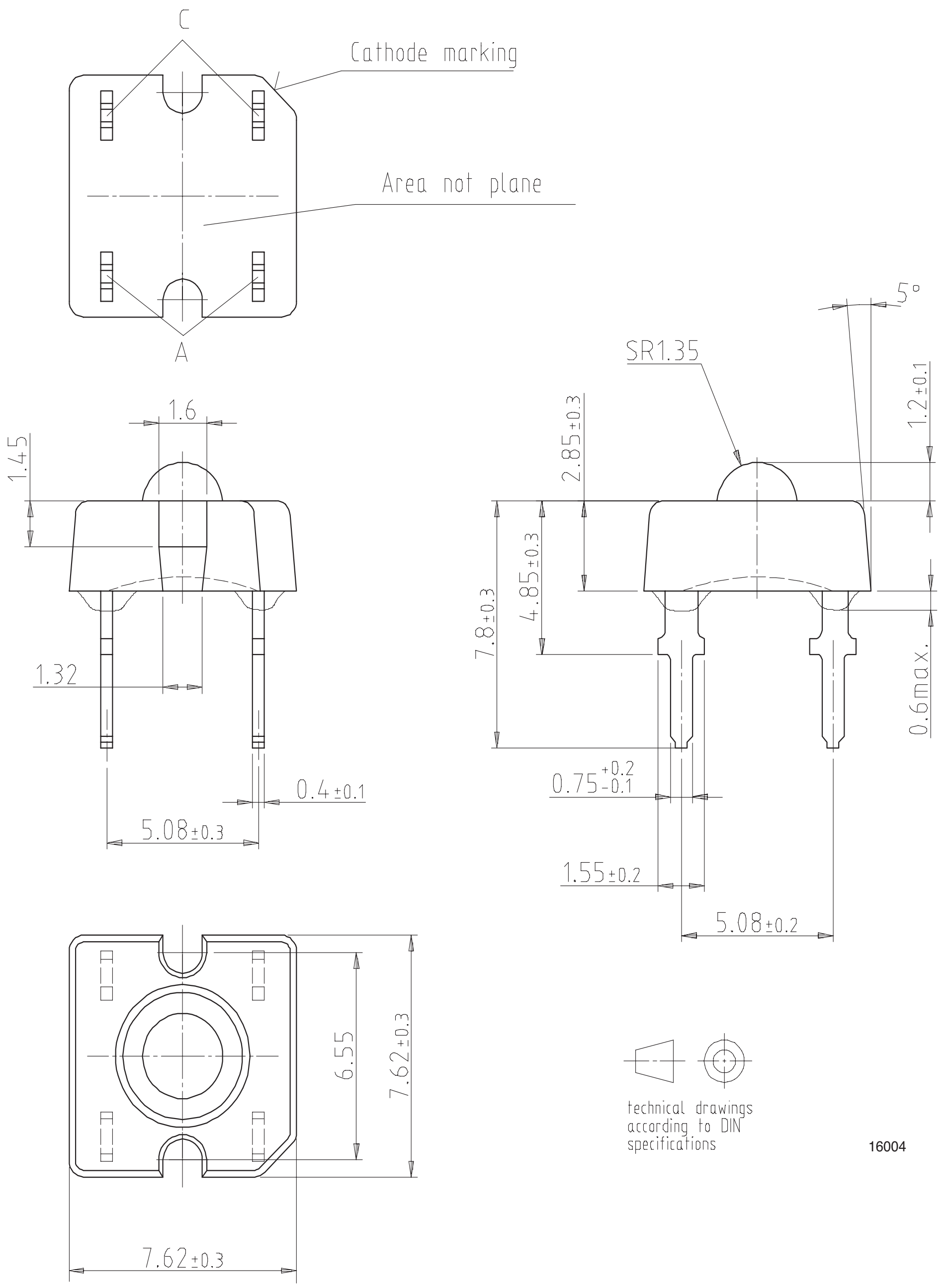


Figure 12. Coordinates of Colorgroups

Package 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 operatingsystems 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.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany
Telephone: 49 (0)7131 67 2831, Fax number: 49 (0)7131 67 2423