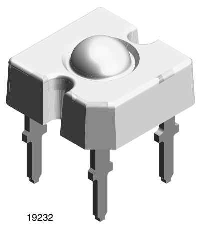
TELUX™



FEATURES

- High luminous flux
- Supreme heat dissipation: R_{thJP} = 90 K/W
- High operating temperature: T_{amb} = - 40 °C to + 110 °C
- Packed in tubes for automatic insertion
- Luminous flux, forward voltage and color categorized for each tube
- Small mechanical tolerances allow precise usage of external reflectors or light guides
- Lead (Pb)-free device - RoHS-COMPLIANT
- ESD-withstand voltage: up to 1 kV according to JESD22-A114-B
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- Compatible with wave solder processes according to CECC 00802 and J-STD-020C
- Automotive qualified

DESCRIPTION

The VLWTG9900 is a clear, non diffused LED for applications where high 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 VLWTG9900 allows applications at high ambient temperatures.

All packing units are binned for luminous flux, forward voltage and color to achieve the most homogenous light appearance in application.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: TELUX™
- Product series: power
- Angle of half intensity: ± 45°

APPLICATIONS

- Exterior lighting
- Replacement of small incandescent lamps
- Traffic signals and signs

PARTS TABLE		
PART	COLOR, LUMINOUS FLUX	TECHNOLOGY
VLWTG9900	True green, ϕ_V = 2500 mlm (typ.)	InGaN on SiC

ABSOLUTE MAXIMUM RATINGS[1] VLWTG9900

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage	I_R = 10 µA	V_R	5	V
DC Forward current	$T_{amb} \leq 50$ °C	I_F	50	mA
Surge forward current	$t_p \leq 10$ µs	I_{FSM}	0.1	A
Power dissipation		P_V	230	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
Soldering temperature	t ≤ 5 s, 1.5 mm from body preheat temperature 100 °C/ 30 s	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

Note:
[1] T_{amb} = 25 °C, unless otherwise specified

OPTICAL AND ELECTRICAL CHARACTERISTICS[1] VLWTG9900, TRUE GREEN

PARAMETER	TEST CONDITION	SYMBOL	MIN	TYP.	MAX	UNIT
Total flux	I_F = 50 mA, R_{thJA} = 200 °K/W	ϕ_V	2000	2500		mlm
Luminous intensity/Total flux	I_F = 50 mA, R_{thJA} = 200 °K/W	I_V/ϕ_V		0.7		mcd/mlm
Dominant wavelength	I_F = 50 mA, R_{thJA} = 200 °K/W	λ_d	509	523	535	nm
Peak wavelength	I_F = 50 mA, R_{thJA} = 200 °K/W	λ_p		518		nm
Angle of half intensity	I_F = 50 mA, R_{thJA} = 200 °K/W	φ		± 45		deg
Total included angle	90 % of Total Flux Captured	φ		100		deg
Forward voltage	I_F = 50 mA, R_{thJA} = 200 °K/W	V_F		3.9	4.7	V
Reverse voltage	I_R = 10 µA	V_R	5	10		V
Junction capacitance	V_R = 0, f = 1 MHz	C_j		50		pF
Temperature coefficient of λ_{dom}	I_F = 30 mA	$TC\lambda_{dom}$		0.02		nm/K

Note:
[1] T_{amb} = 25 °C, unless otherwise specified

LUMINOUS FLUX CLASSIFICATION

GROUP	TRUE GREEN LUMINOUS FLUX (MLM)	
	MIN.	MAX.
D	2000	3000
E	2500	3600
F	3000	4200

Note:
Luminous flux is tested at a current pulse duration of 25 ms and an accuracy of ± 11 %.
The above type numbers represent the order grous which include only a few brightness groups. Only one group will be shipped in one tube (there will be no mixing of two groups on each tube).
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 in any one tube.
In order to ensure availability, single wavelength groups will not be orderable.

COLOR CLASSIFICATION

GROUP	TRUE GREEN DOM. WAVELENGTH (NM)	
	MIN.	MAX.
2	509	517
3	515	523
4	521	529
5	527	535

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

TYPICAL CHARACTERISTICS

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

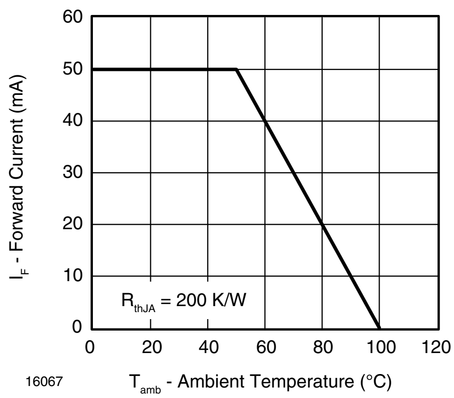


Figure 1. Forward Current vs. Ambient Temperature for InGaN

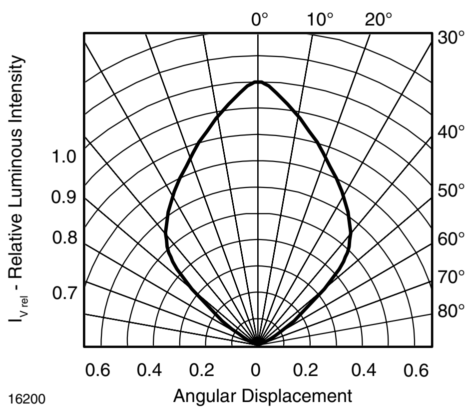


Figure 2. Rel. Luminous Intensity vs. Angular Displacement

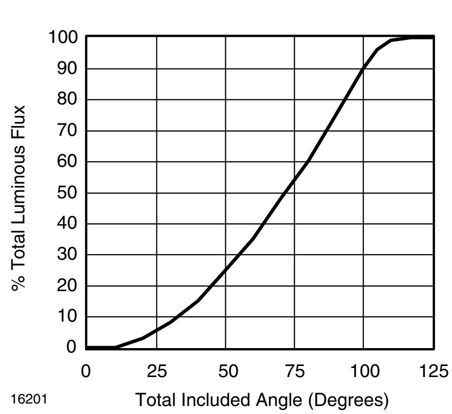


Figure 3. Percentage Total Luminous Flux vs. Total Included Angle for 90 ° emission angle

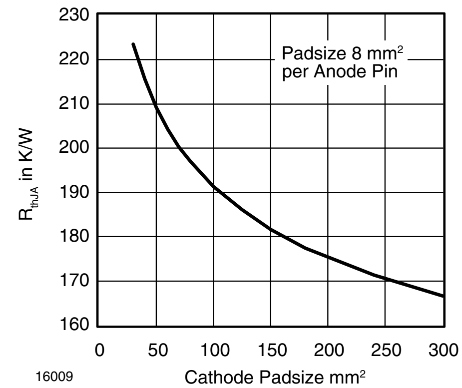


Figure 4. Thermal Resistance Junction Ambient vs. Cathode Padsize

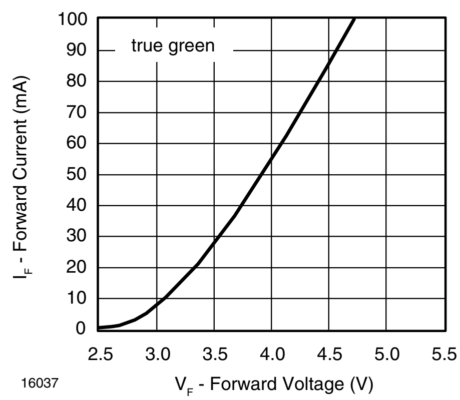


Figure 5. Forward Current vs. Forward Voltage

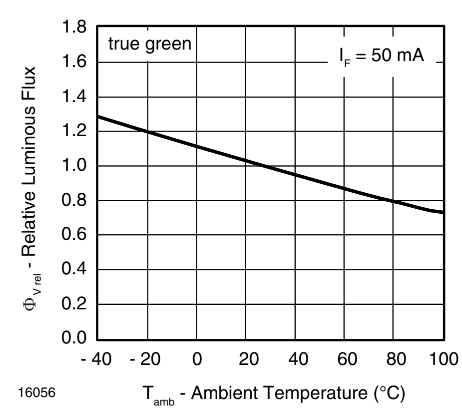


Figure 6. Rel. Luminous Flux vs. Ambient Temperature

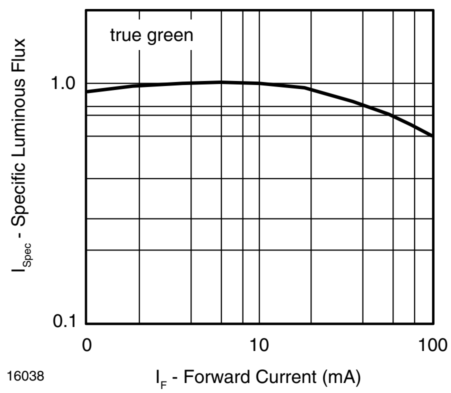


Figure 7. Specific Luminous Flux vs. Forward Current

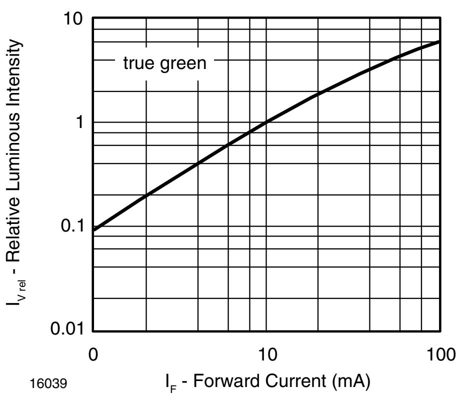


Figure 8. Relative Luminous Intensity vs. Forward Current

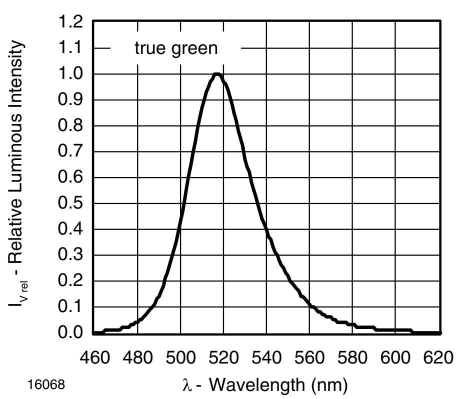


Figure 9. Relative Intensity vs. Wavelength

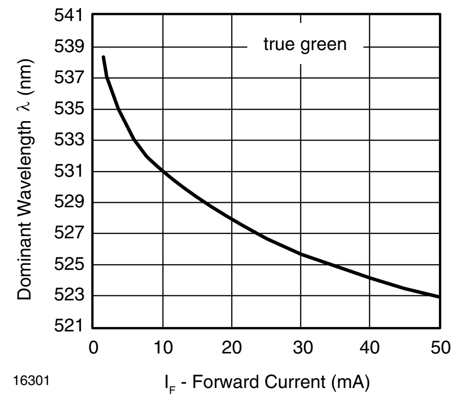
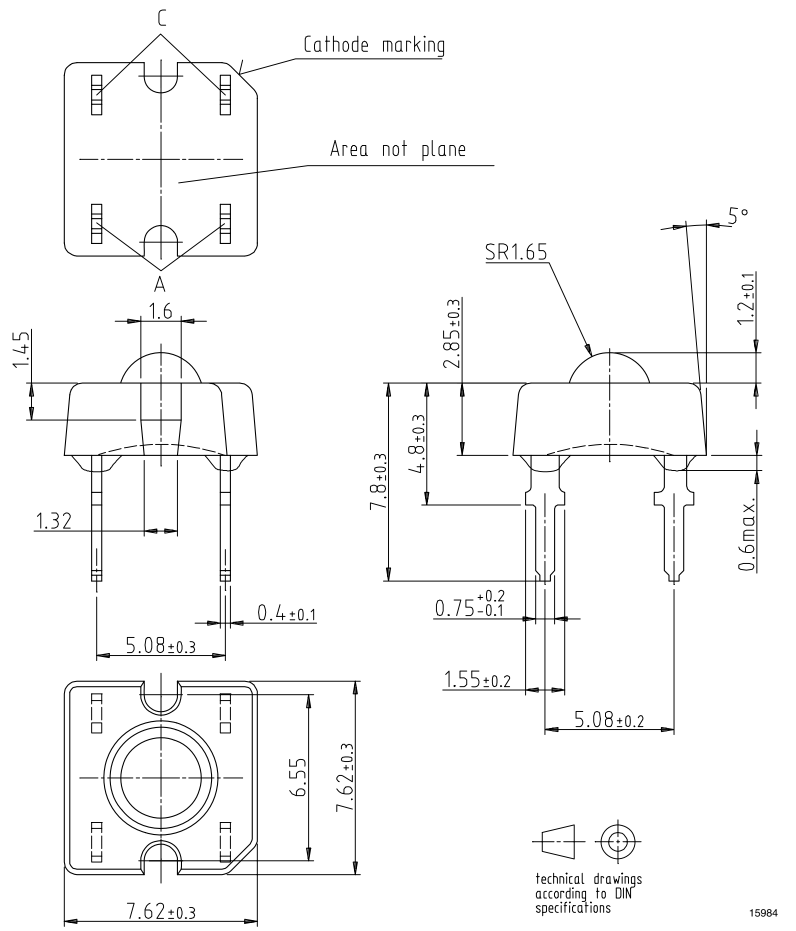
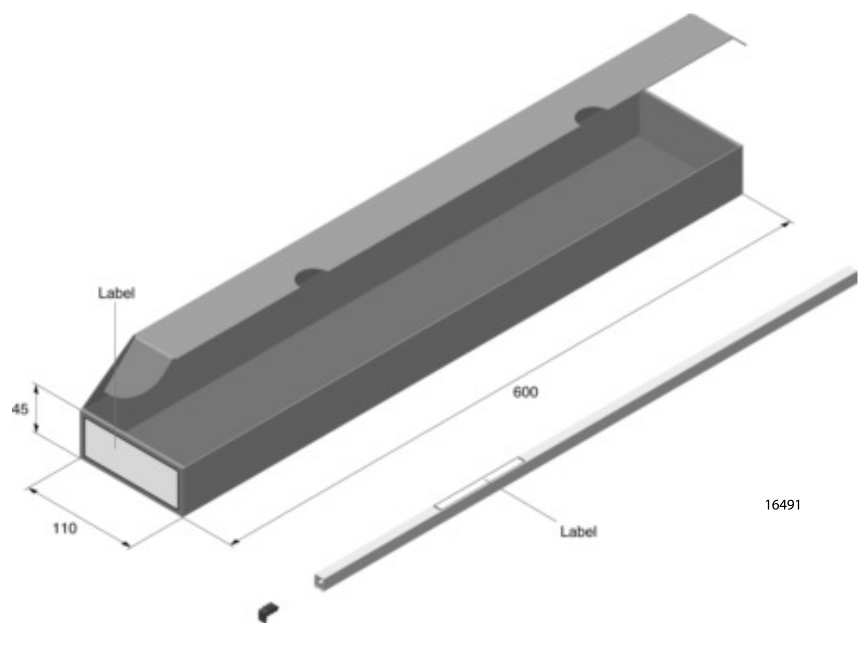


Figure 10. Dominant Wavelength vs. Forward Current

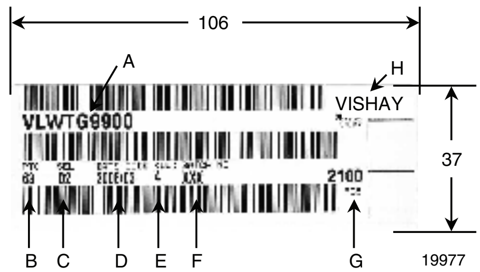
PACKAGE DIMENSIONS in millimeters



FAN FOLD BOX Dimensions in millimeters

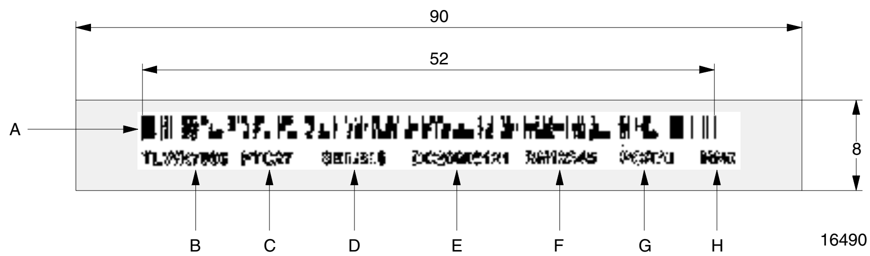


LABEL OF FAN FOLD BOX



A) Type of component
B) Manufacturing plant
C) SEL - selection code (bin):
e.g.: D = code for luminous intensity group
2 = code for color group
D) Date code year/week
E) Day code (e. g. 4: Thursday)
F) Batch no.
G) Total quantity
H) Company code

EXAMPLE FOR TELUX TUBE LABEL Dimensions in millimeters



A) Bar code
B) Type of component
C) Manufacturing plant
D) SEL - selection code (bin)
Digit 1 - code for luminous flux group
Digit 2 - code for dominant wavelength group
Digit 3 - code for forward voltage group
E) Date code
F) Batch no.
G) Total quantity
H) Company code

TUBE WITH BAR CODE LABEL Dimensions in millimeters

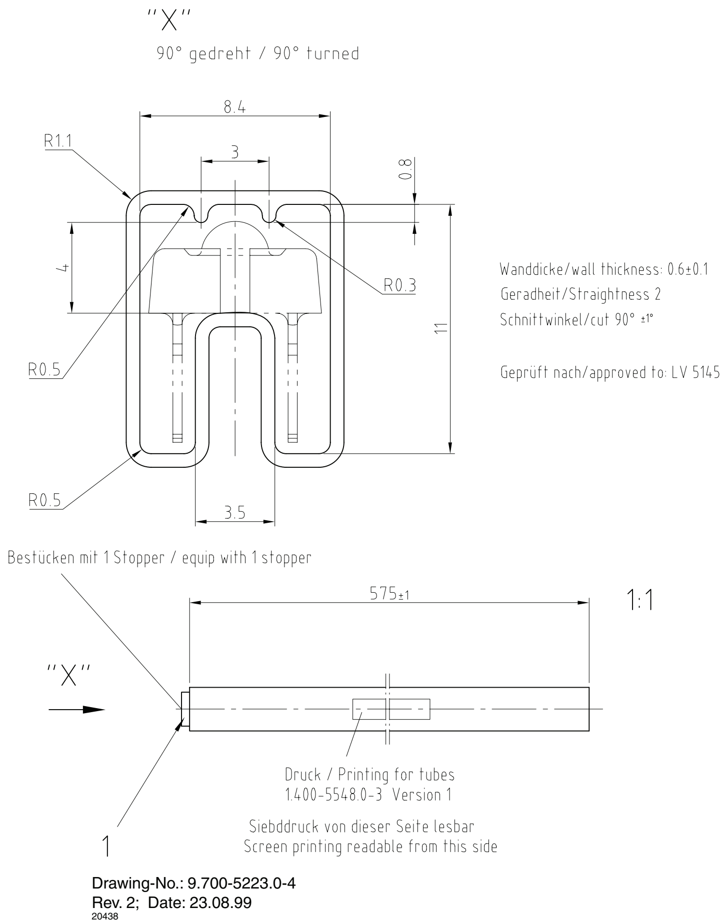


Figure 9. Drawing Proportions not Scaled

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.

Vishay Semiconductor GmbH, P.O.B. 3535, D-74025 Heilbronn, Germany

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