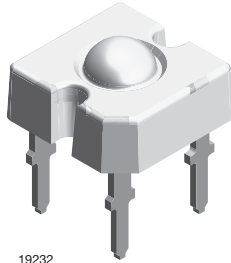


## TELUX LED



19232

### 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:  $\pm 45^\circ$

### FEATURES

- High luminous flux
- Supreme heat dissipation:  $R_{thJP}$  is 90 K/W
- High operating temperature:  
 $T_{amb} = -40\text{ }^\circ\text{C}$  to  $+100\text{ }^\circ\text{C}$
- Packed in tubes for automatic insertion
- Luminous flux and color categorized for each tube
- Small mechanical tolerances allow precise usage of external reflectors or light guides
- Compatible with wave solder processes according to CECC 00802
- ESD-withstand voltage: up to 1 kV according to JESD 22-A114-B
- AEC-Q101 qualified
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC

AUTOMOTIVE GRADE


**RoHS**  
COMPLIANT  
**GREEN**  
[5-2008]\*\*

### APPLICATIONS

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

### PARTS TABLE

PART	COLOR	LUMINOUS FLUX (mlm)			at $I_F$ (mA)	WAVELENGTH (nm)			FORWARD VOLTAGE (V)			TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
VLWTG9900	True green	2000	2500	-	50	509	523	535	-	3.9	4.7	InGaN on SiC

### ABSOLUTE MAXIMUM RATINGS ( $T_{amb} = 25\text{ }^\circ\text{C}$ , unless otherwise specified)

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage <sup>(1)</sup>	$I_R = 10\text{ }\mu\text{A}$	$V_R$	5	V
DC forward current	$T_{amb} \leq 50\text{ }^\circ\text{C}$	$I_F$	50	mA
Surge forward current	$t_p \leq 10\text{ }\mu\text{s}$	$I_{FSM}$	0.1	A
Power dissipation		$P_V$	230	mW
Junction temperature		$T_j$	100	$^\circ\text{C}$
Operating temperature range		$T_{amb}$	-40 to +100	$^\circ\text{C}$
Storage temperature range		$T_{stg}$	-55 to +100	$^\circ\text{C}$
Soldering temperature	$t \leq 5\text{ s}$ , 1.5 mm from body preheat temperature $100\text{ }^\circ\text{C}/30\text{ s}$	$T_{sd}$	260	$^\circ\text{C}$
Thermal resistance junction/ambient	With cathode heatsink of $70\text{ mm}^2$	$R_{thJA}$	200	K/W
Thermal resistance junction/pin		$R_{thJP}$	90	K/W

#### Note

<sup>(1)</sup> Driving the LED in reverse direction is suitable for a short term application

\*\* Please see document "Vishay Material Category Policy": [www.vishay.com/doc?99902](http://www.vishay.com/doc?99902)

OPTICAL AND ELECTRICAL CHARACTERISTICS (T <sub>amb</sub> = 25 °C, unless otherwise specified)							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Total flux	I <sub>F</sub> = 50 mA, R <sub>thJA</sub> = 200 K/W		φ <sub>V</sub>	2000	2500	-	lm
Luminous intensity/total flux	I <sub>F</sub> = 50 mA, R <sub>thJA</sub> = 200 K/W		I <sub>V</sub> /φ <sub>V</sub>	-	0.7	-	mcd/mlm
Dominant wavelength	I <sub>F</sub> = 50 mA, R <sub>thJA</sub> = 200 K/W		λ <sub>d</sub>	509	523	535	nm
Peak wavelength	I <sub>F</sub> = 50 mA, R <sub>thJA</sub> = 200 K/W		λ <sub>p</sub>	-	518	-	nm
Angle of half intensity	I <sub>F</sub> = 50 mA, R <sub>thJA</sub> = 200 K/W		φ	-	± 45	-	deg
Total included angle	90 % of total flux captured		φ <sub>0.9V</sub>	-	100	-	deg
Forward voltage	I <sub>F</sub> = 50 mA, R <sub>thJA</sub> = 200 K/W		V <sub>F</sub>	-	3.9	4.7	V
Reverse voltage	I <sub>R</sub> = 10 μA		V <sub>R</sub>	5	10	-	V
Junction capacitance	V <sub>R</sub> = 0, f = 1 MHz		C <sub>j</sub>	-	50	-	pF
Temperature coefficient of λ <sub>d</sub>	I <sub>F</sub> = 30 mA		TCλ <sub>d</sub>	-	0.02	-	nm/K

LUMINOUS FLUX CLASSIFICATION		
GROUP	LUMINOUS FLUX (lm)	
	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 groups 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	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<sub>amb</sub> = 25 °C, unless otherwise specified)**

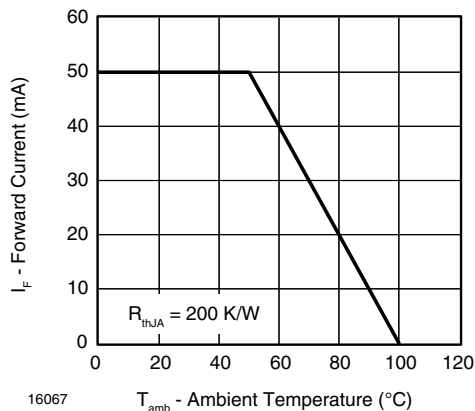


Fig. 1 - Max. Permissible Forward Current vs. Ambient Temperature

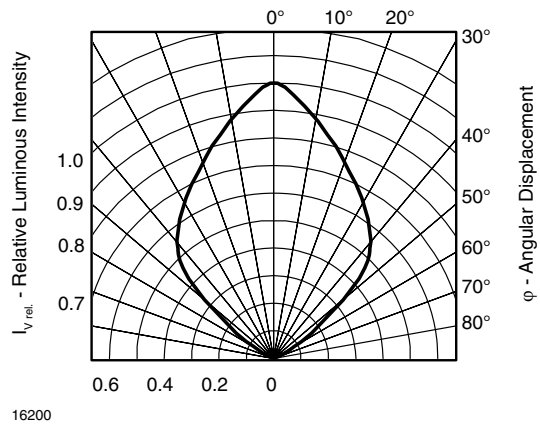


Fig. 2 - Rel. Luminous Intensity vs. Angular Displacement

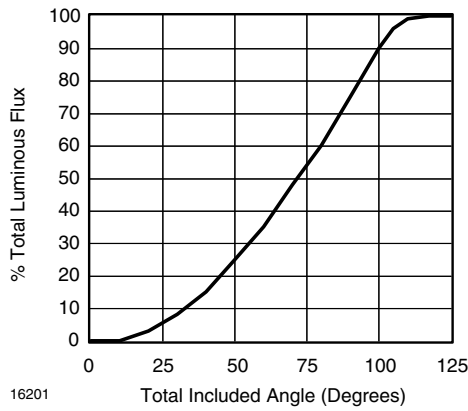


Fig. 3 - Percentage Total Luminous Flux vs. Total Included Angle for 90° emission angle

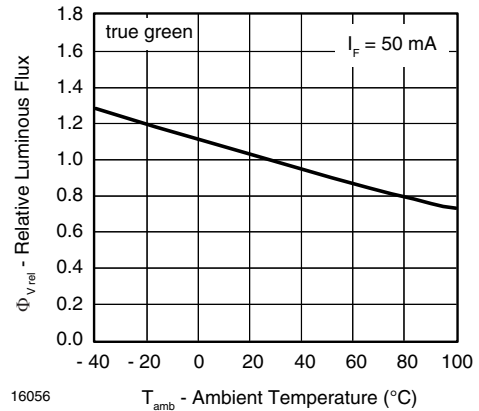


Fig. 6 - Rel. Luminous Flux vs. Ambient Temperature

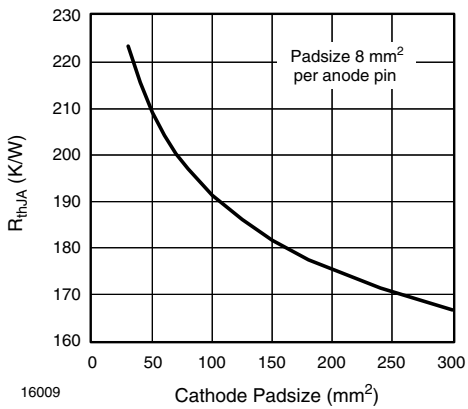


Fig. 4 - Thermal Resistance Junction Ambient vs. Cathode Padsizes

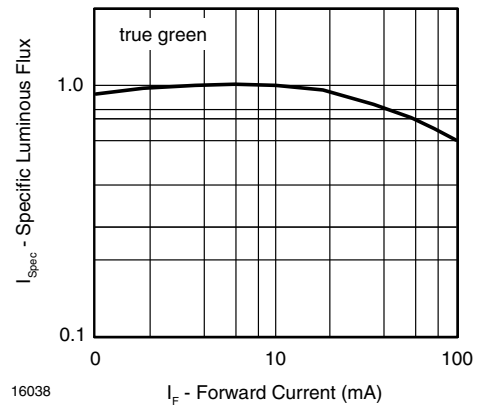


Fig. 7 - Specific Luminous Flux vs. Forward Current

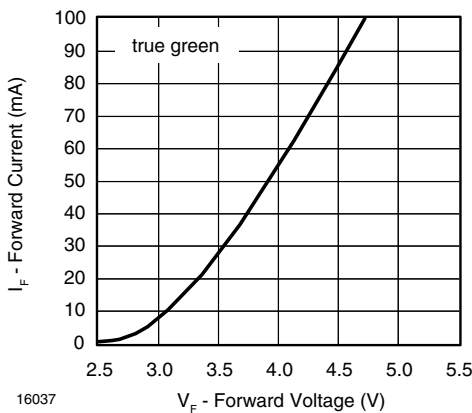


Fig. 5 - Forward Current vs. Forward Voltage

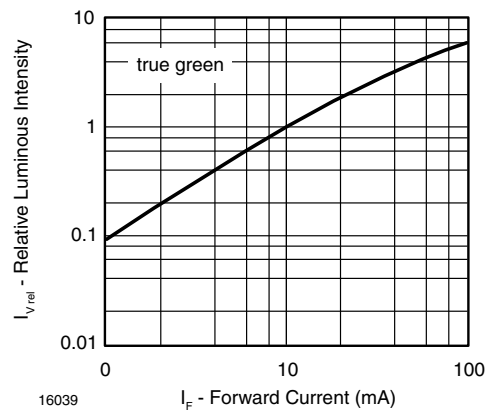


Fig. 8 - Relative Luminous Intensity vs. Forward Current

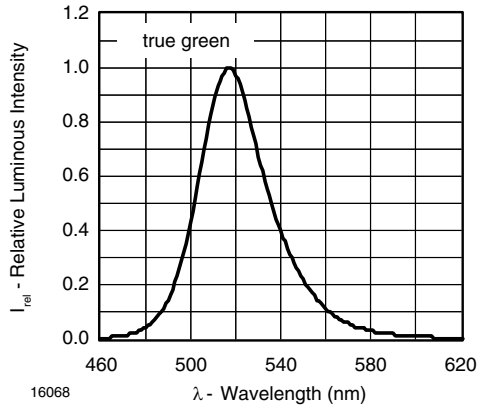


Fig. 9 - Relative Intensity vs. Wavelength

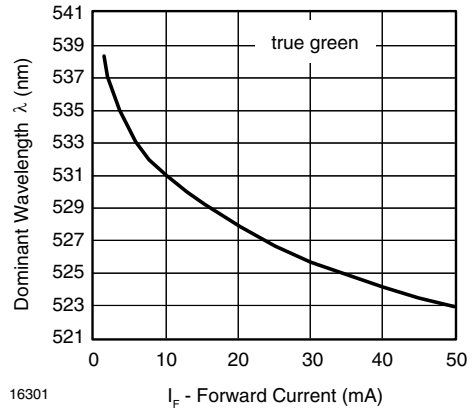
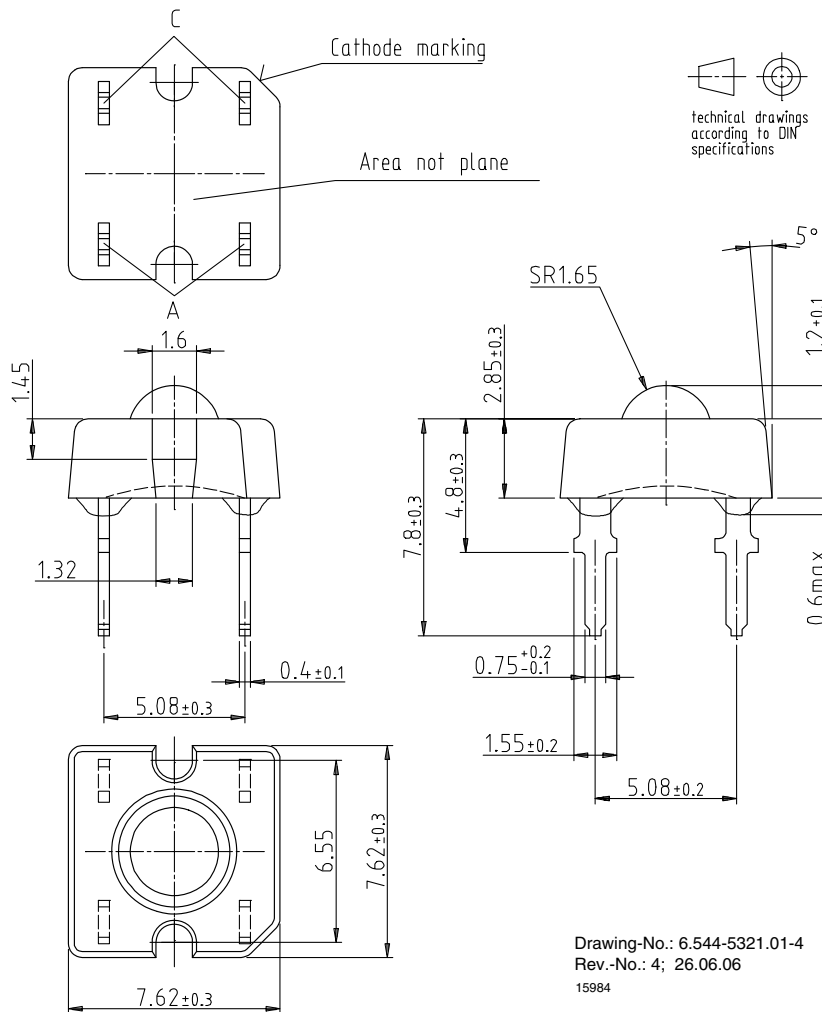


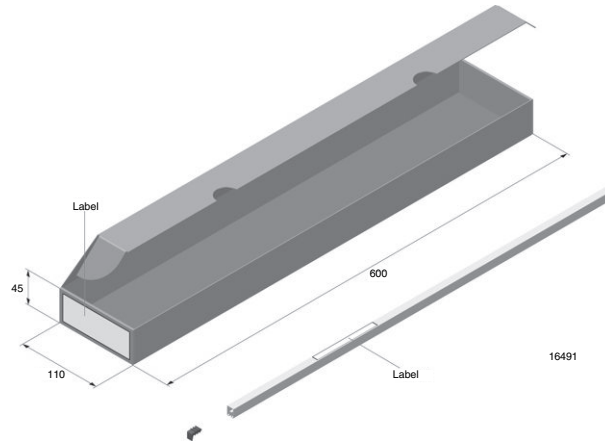
Fig. 10 - Dominant Wavelength vs. Forward Current

**PACKAGE DIMENSIONS** in millimeters

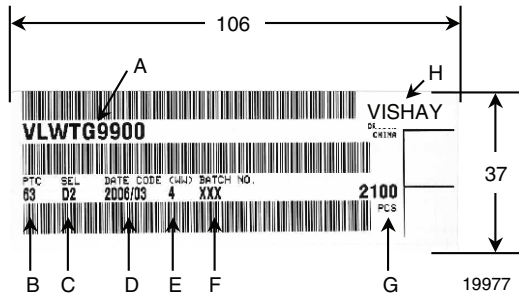


Drawing-No.: 6.544-5321.01-4  
 Rev.-No.: 4; 26.06.06  
 15984

**FAN FOLD BOX DIMENSIONS** in millimeters

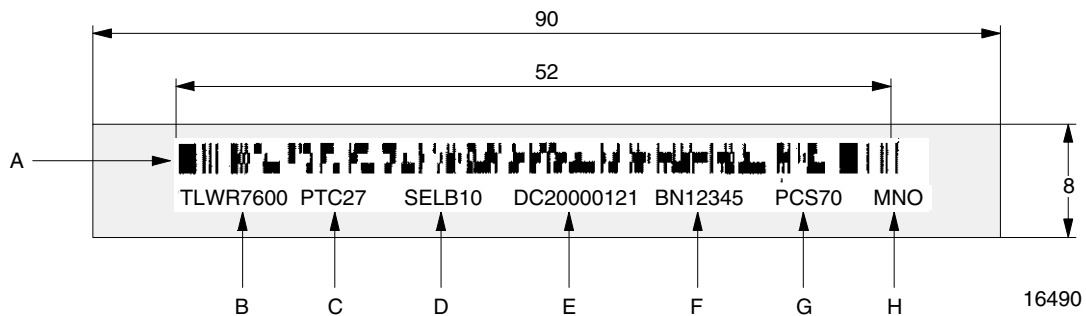


**LABEL OF FAN FOLD BOX** (example)



- 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

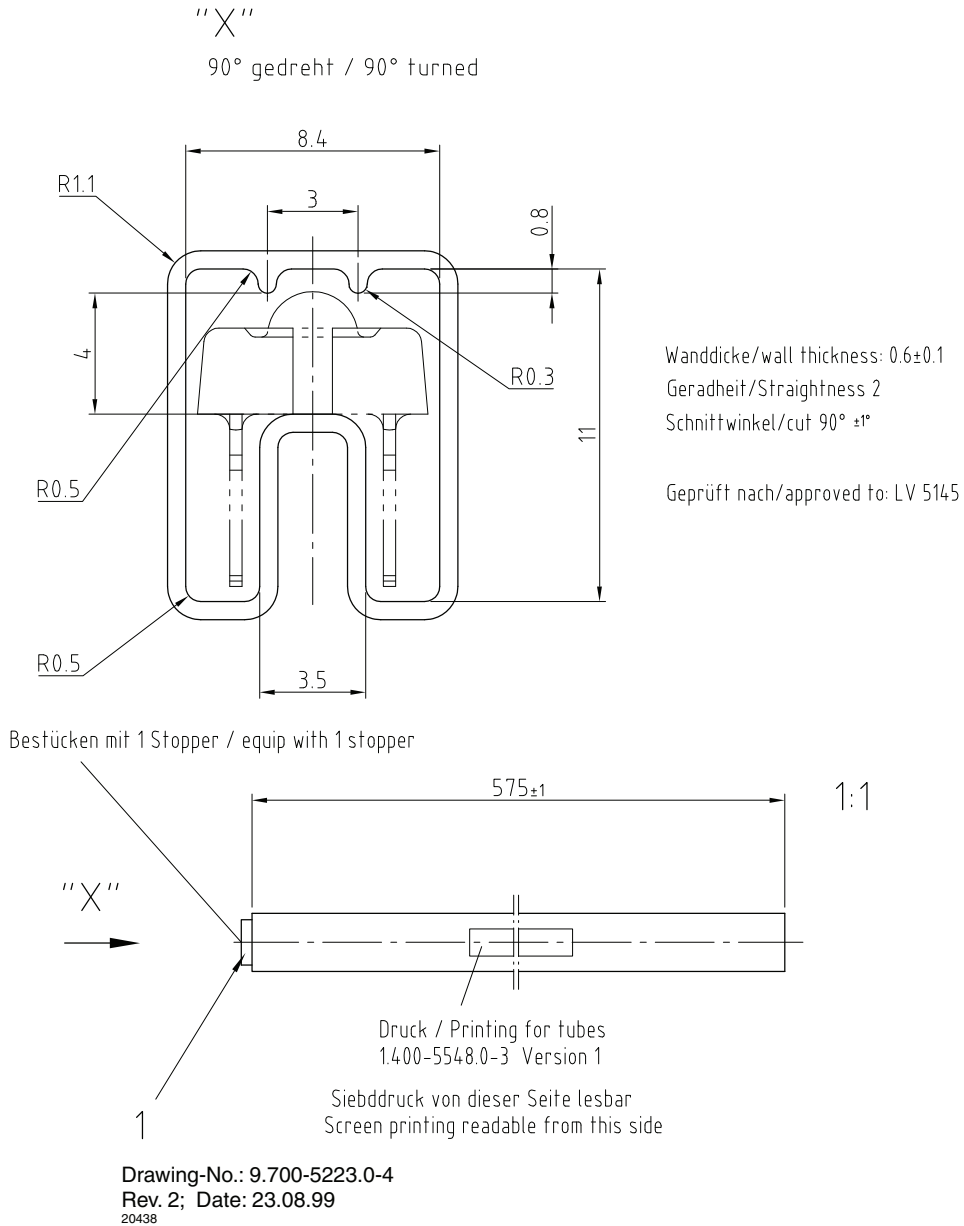


Fig. 11 - Drawing Proportions not scaled



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### Офис по работе с юридическими лицами:

105318, г.Москва, ул.Щербаковская д.3, офис 1107, 1118, ДЦ «Щербаковский»

Телефон: +7 495 668-12-70 (многоканальный)

Факс: +7 495 668-12-70 (доб.304)

E-mail: [info@moschip.ru](mailto:info@moschip.ru)

Skype отдела продаж:

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