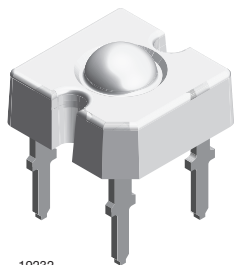


TELUX LED



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:
 $T_{amb} = -40^\circ\text{C}$ to $+100^\circ\text{C}$
- 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
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE
GRADE

RoHS
COMPLIANT
HALOGEN
FREE
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)			at I_F (mA)	FORWARD VOLTAGE (V)			at I_F (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
VLWTG9900	True green	2000	4000	-	50	509	520	535	50	-	3.9	4.7	50	InGaN on SiC

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

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage ⁽¹⁾	$I_R = 10 \mu\text{A}$	V_R	5	V
DC forward current	$T_{amb} \leq 50^\circ\text{C}$	I_F	50	mA
Surge forward current	$t_p \leq 10 \mu\text{s}$	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 +110	$^\circ\text{C}$
Storage temperature range		T_{stg}	-55 to +110	$^\circ\text{C}$
Soldering temperature	$t \leq 5 \text{ s}$, 1.5 mm from body preheat temperature $100^\circ\text{C} / 30 \text{ s}$	T_{sd}	260	$^\circ\text{C}$
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⁾ Driving the LED in reverse direction is suitable for a short term application

OPTICAL AND ELECTRICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified)
VLWTG9900, TRUE GREEN

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Total flux	$I_F = 50\text{ mA}$, $R_{thJA} = 200\text{ K/W}$	Φ_V	2000	4000	-	mlm
Luminous intensity/total flux	$I_F = 50\text{ mA}$, $R_{thJA} = 200\text{ K/W}$	I_V/Φ_V	-	0.7	-	mcd/mlm
Dominant wavelength	$I_F = 50\text{ mA}$, $R_{thJA} = 200\text{ K/W}$	λ_d	509	520	535	nm
Peak wavelength	$I_F = 50\text{ mA}$, $R_{thJA} = 200\text{ K/W}$	λ_p	-	515	-	nm
Angle of half intensity	$I_F = 50\text{ mA}$, $R_{thJA} = 200\text{ K/W}$	ϕ	-	± 45	-	deg
Total included angle	90 % of total flux captured	$\Phi_{0.9V}$	-	100	-	deg
Forward voltage	$I_F = 50\text{ mA}$, $R_{thJA} = 200\text{ K/W}$	V_F	-	3.9	4.7	V
Reverse voltage	$I_R = 10\text{ }\mu\text{A}$	V_R	5	10	-	V
Junction capacitance	$V_R = 0\text{ V}$, $f = 1\text{ MHz}$	C_j	-	50	-	pF
Temperature coefficient of λ_d	$I_F = 30\text{ mA}$	$TC\lambda_d$	-	0.02	-	nm/K

LUMINOUS FLUX CLASSIFICATION

GROUP	LUMINOUS FLUX (mlm)	
	MIN.	MAX.
D	2000	3000
E	2500	3600
F	3000	4200
G	3500	4800
H	4000	6100

Note

- Luminous flux is tested at a current pulse duration of 25 ms and an accuracy of $\pm 11\%$.
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 $\pm 1\text{ nm}$.

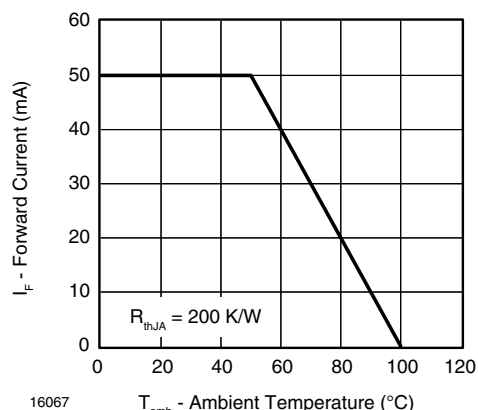
TYPICAL CHARACTERISTICS ($T_{amb} = 25^{\circ}\text{C}$, unless otherwise specified)


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

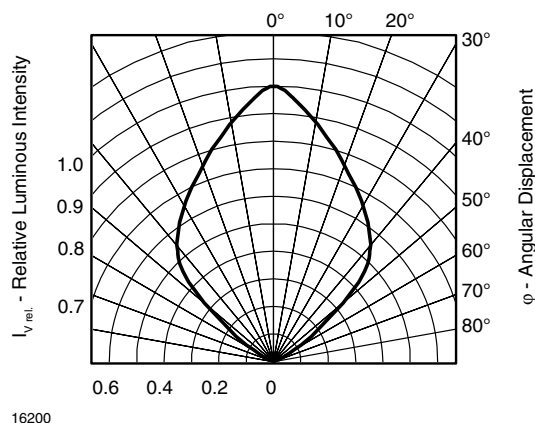


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

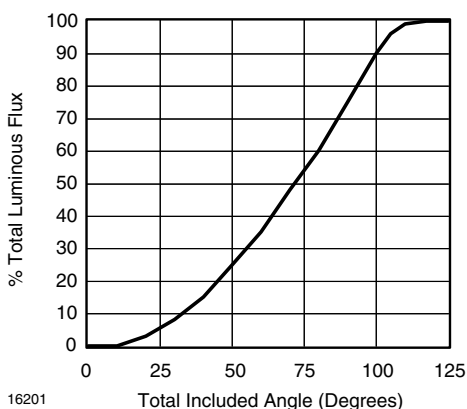


Fig. 3 - Percentage Total Luminous Flux vs. Total Included Angle for 90° Emission Angle

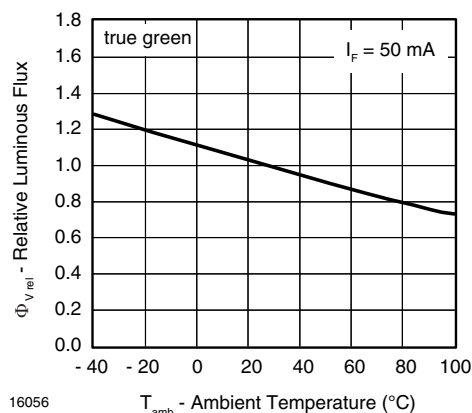


Fig. 6 - Relative Luminous Flux vs. Ambient Temperature

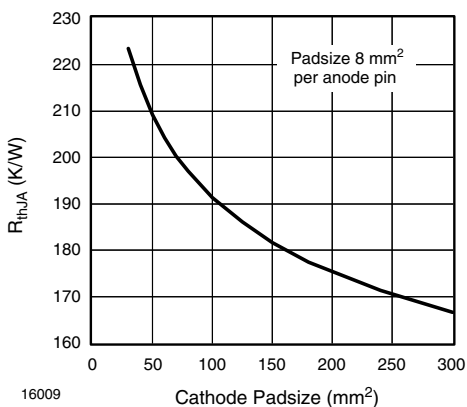


Fig. 4 - Thermal Resistance Junction Ambient vs. Cathode Padsize

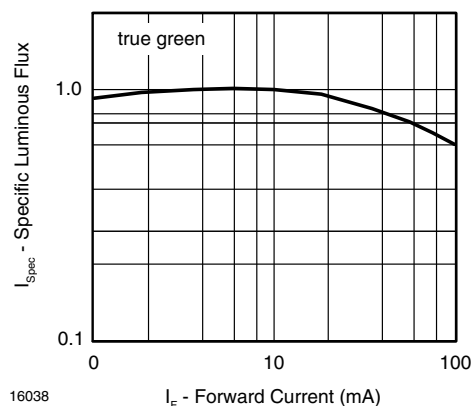


Fig. 7 - Specific Luminous Flux vs. Forward Current

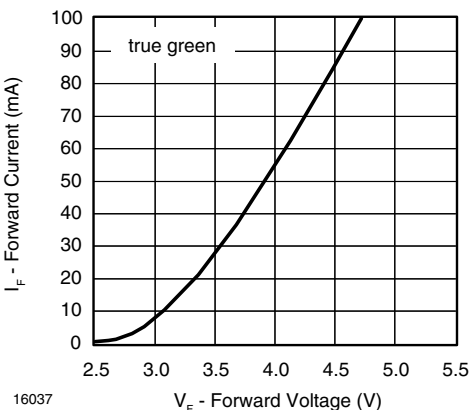


Fig. 5 - Forward Current vs. Forward Voltage

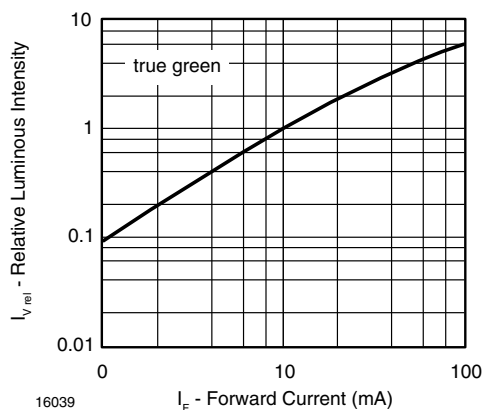


Fig. 8 - Relative Luminous Intensity vs. Forward Current

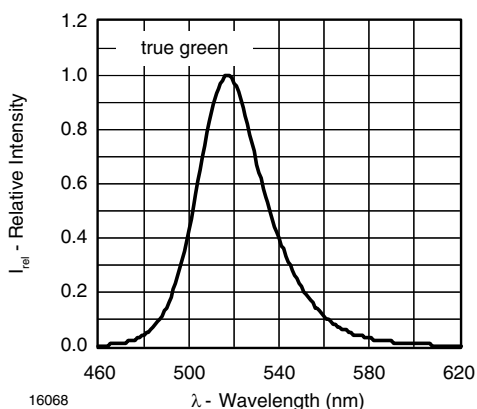


Fig. 9 - Relative Intensity vs. Wavelength

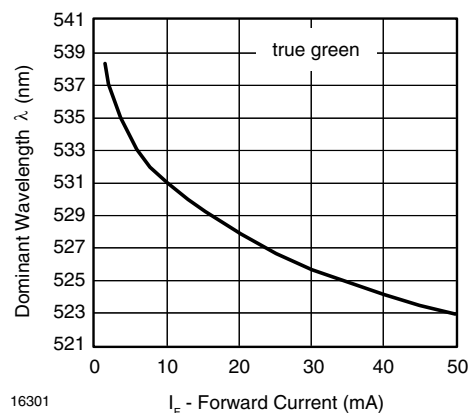
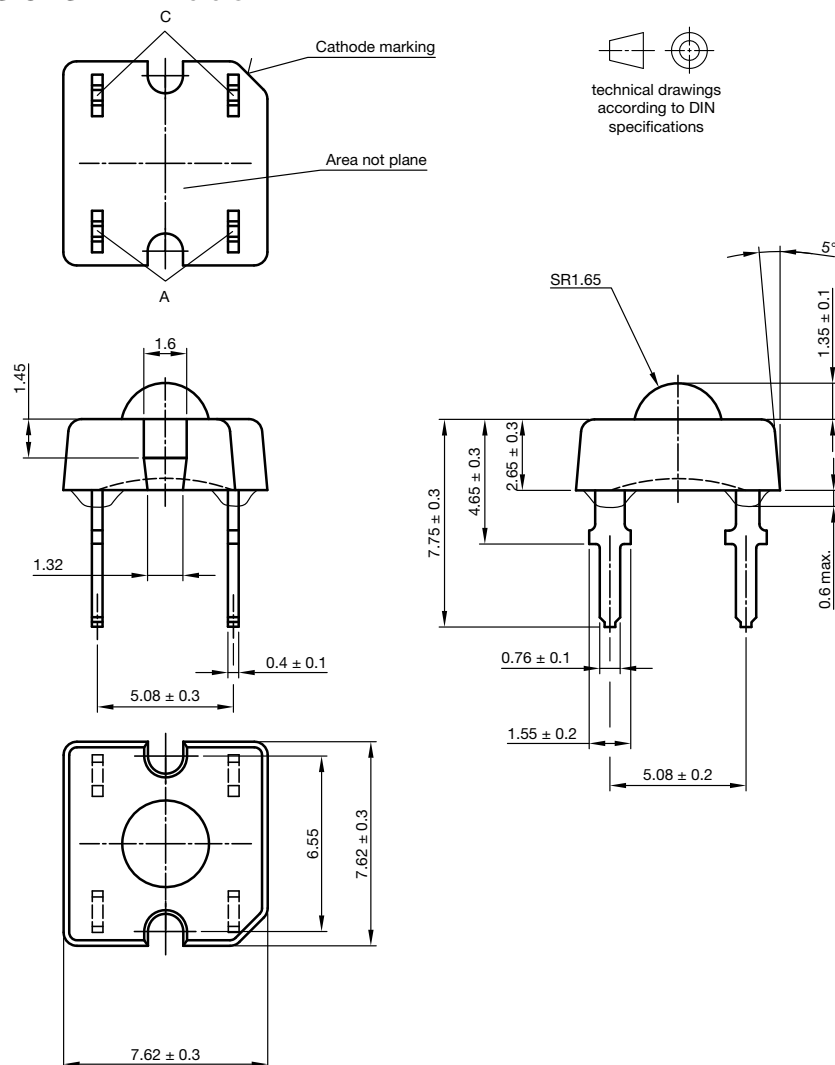
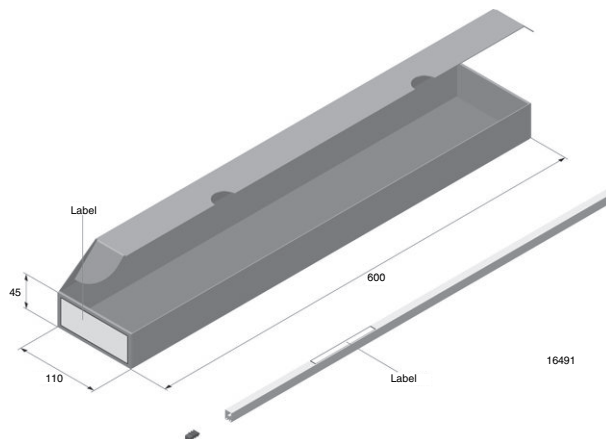
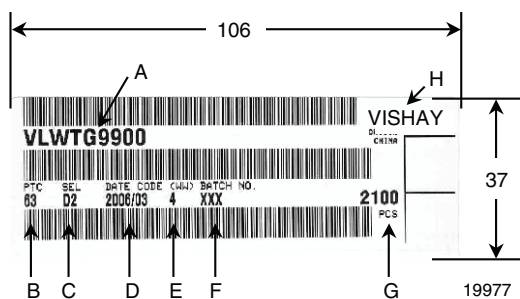


Fig. 10 - Dominant Wavelength vs. Forward Current

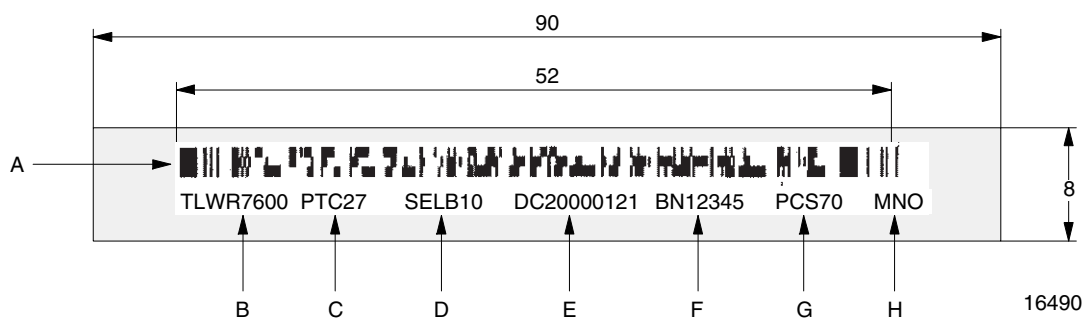
PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.544-5321.01-4
Issue: 5; 25.07.14

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

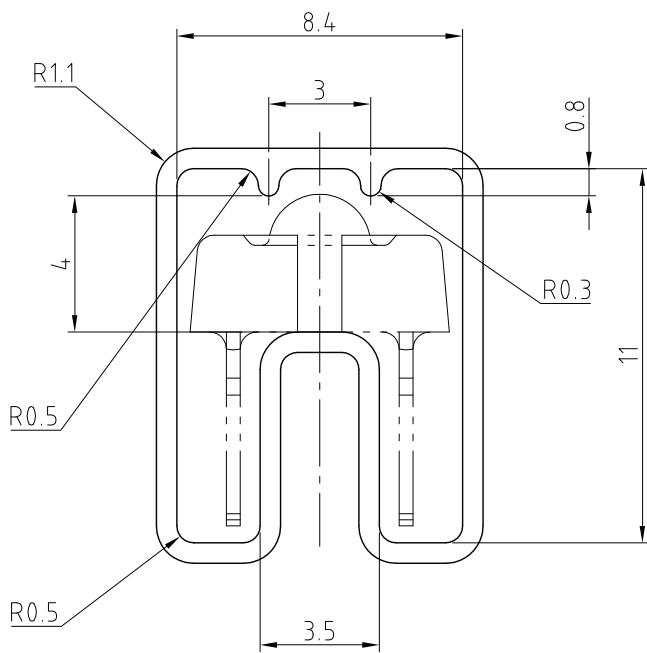
EXAMPLE FOR TELUX TUBE LABEL DIMENSIONS in millimeters


- 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

"X"

90° gedreht / 90° turned



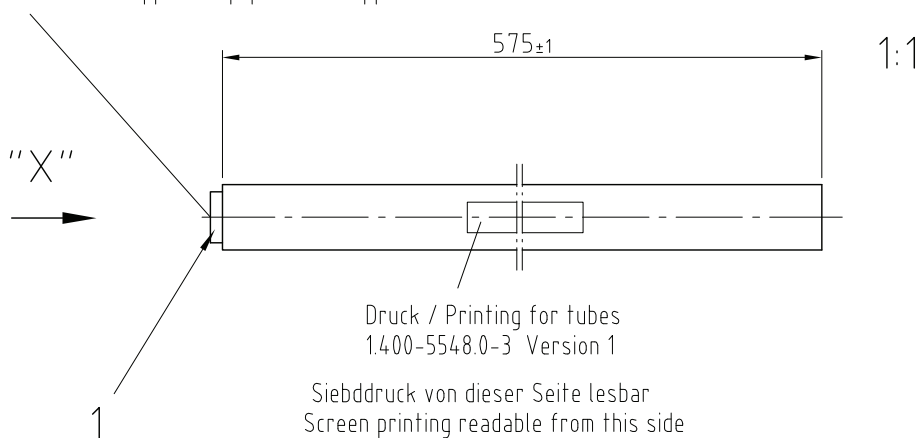
Wanddicke/wall thickness: 0.6 ± 0.1

Geradheit/Straightness 2

Schnittwinkel/cut $90^\circ \pm 1^\circ$

Geprüft nach/approved to: LV 5145

Bestücken mit 1 Stopper / equip with 1 stopper



Drawing-No.: 9.700-5223.0-4

Rev. 2; Date: 23.08.99

20438

Fig. 11 - Drawing Proportions not scaled



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