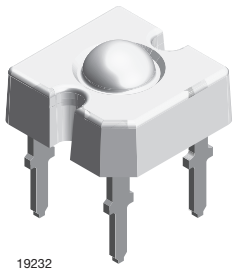
TELUX LED



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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°

FEATURES

- High luminous flux
- Supreme heat dissipation: R_{thJP} is 90 K/W
- High operating temperature: T_{amb} = - 40 °C to + 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 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

Pb-free

e3

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	2500	-	50	509	523	535	50	-	3.9	4.7	50	InGaN on SiC

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)
VLWTG9900

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage (1)	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 mm²	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 °C, unless otherwise specified)
VLWTG9900, TRUE GREEN

PARAMETER	TEST CONDITION	PART	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		$I_V/\phi V$	-	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		$\varphi_{0.9V}$	-	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		Cj	-	50	-	pF
Temperature coefficient of λ_d	I_F = 30 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

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_{amb} = 25 °C, unless otherwise specified)

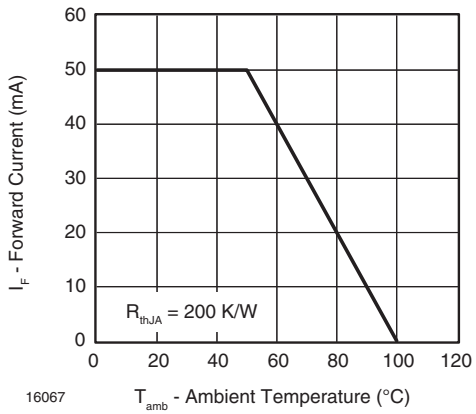


Fig. 1 - Maximum Permissible Forward Current vs. Ambient Temperature

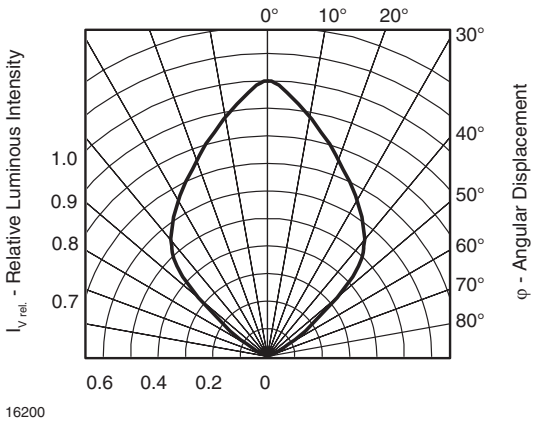


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

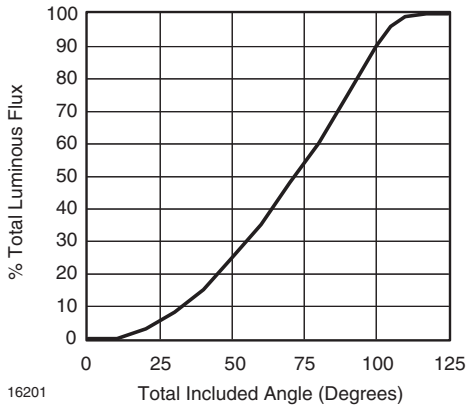


Fig. 3 - Percentage Total Luminous Flux vs. Total Included Angle for 90 ° Emission Angle

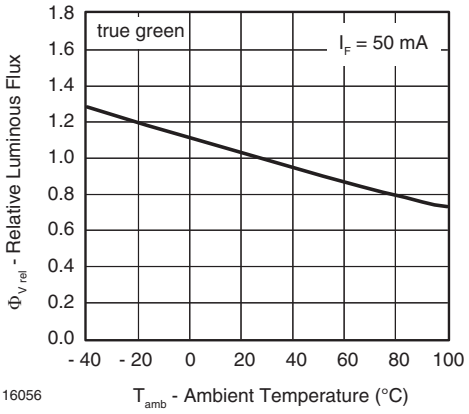


Fig. 6 - Relative Luminous Flux vs. Ambient Temperature

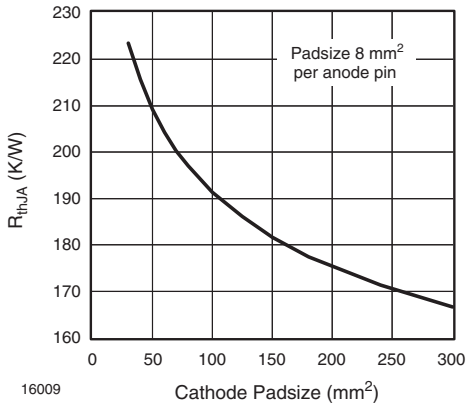


Fig. 4 - Thermal Resistance Junction Ambient vs. Cathode Padsize

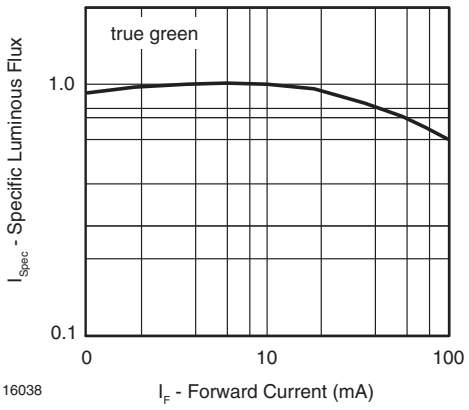


Fig. 7 - Specific Luminous Flux vs. Forward Current

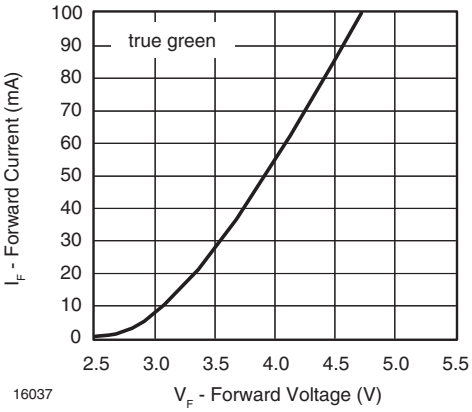


Fig. 5 - Forward Current vs. Forward Voltage

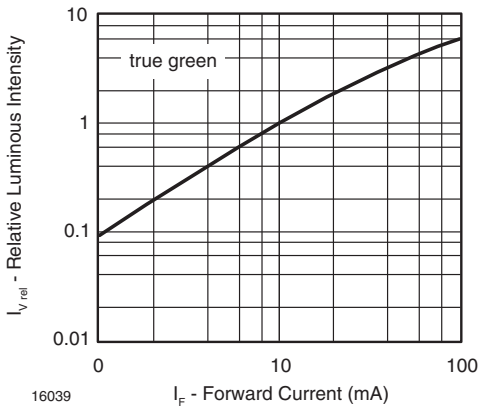


Fig. 8 - Relative Luminous Intensity vs. Forward Current

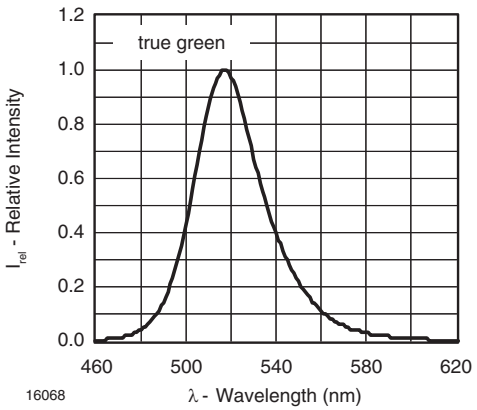


Fig. 9 - Relative Intensity vs. Wavelength

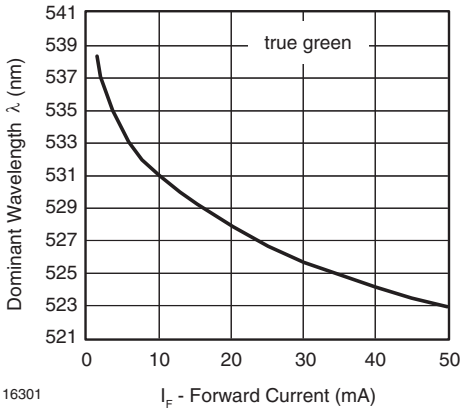
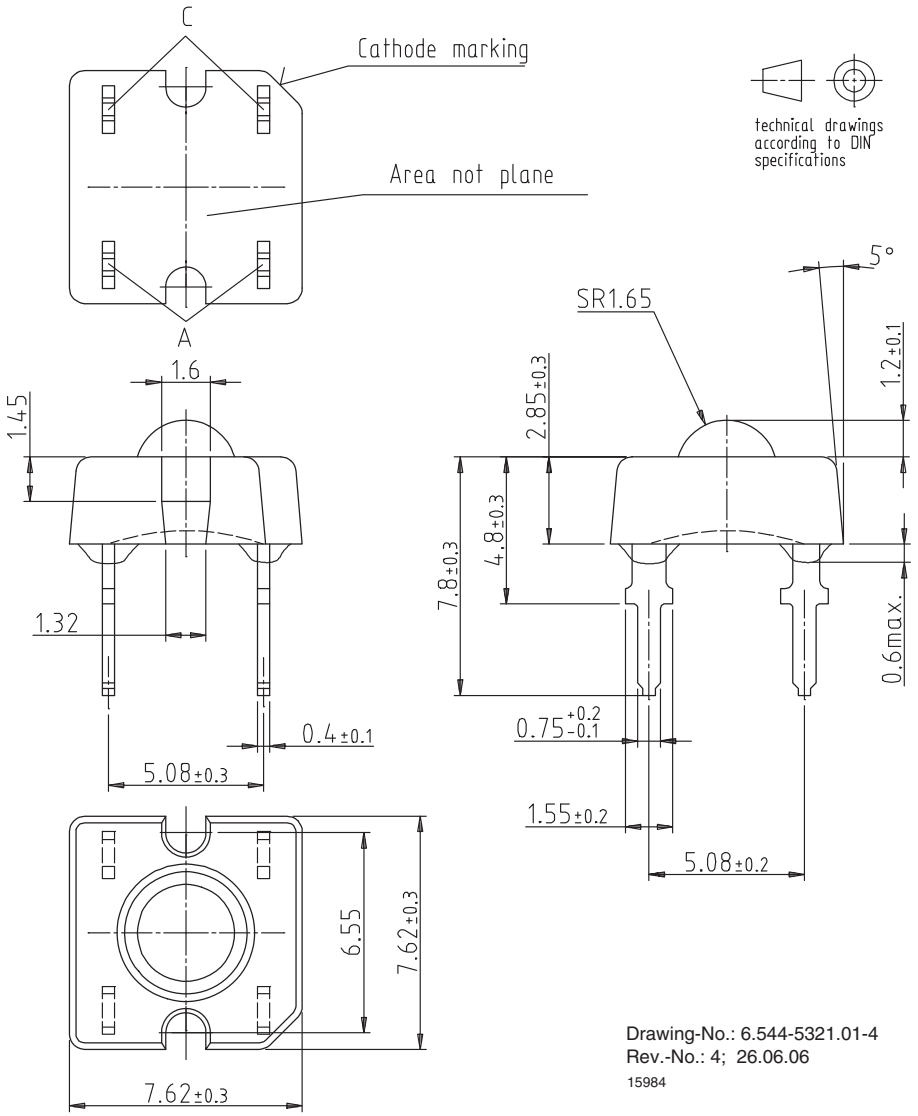
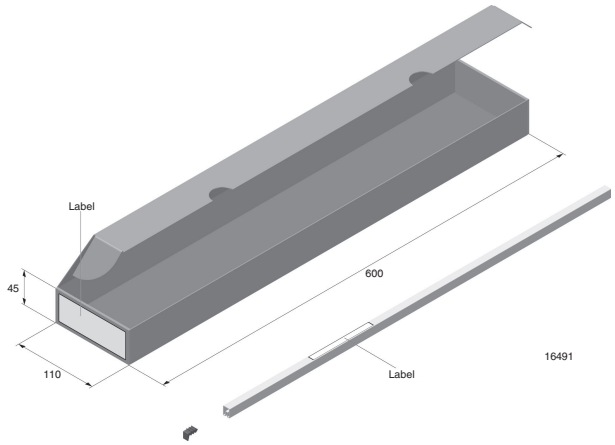


Fig. 10 - Dominant Wavelength vs. Forward Current

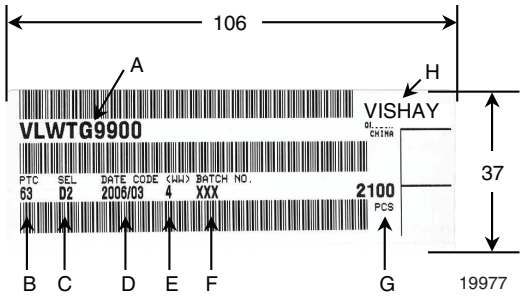
PACKAGE DIMENSIONS in millimeters



FAN FOLD BOX DIMENSIONS in millimeters

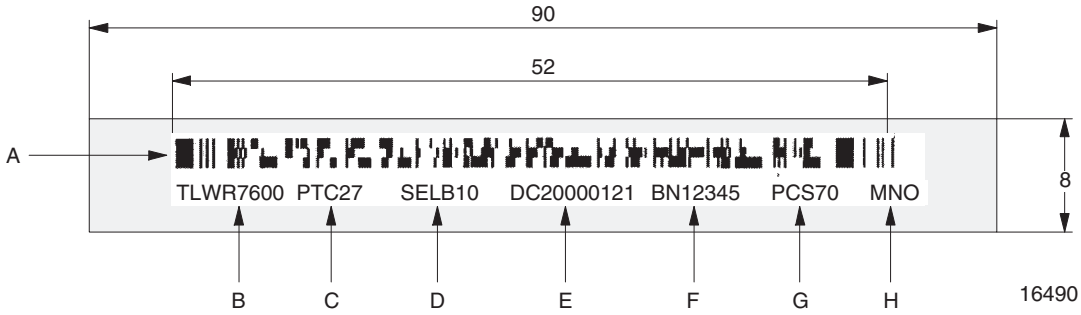


LABEL OF FAN FOLD BOX (example)



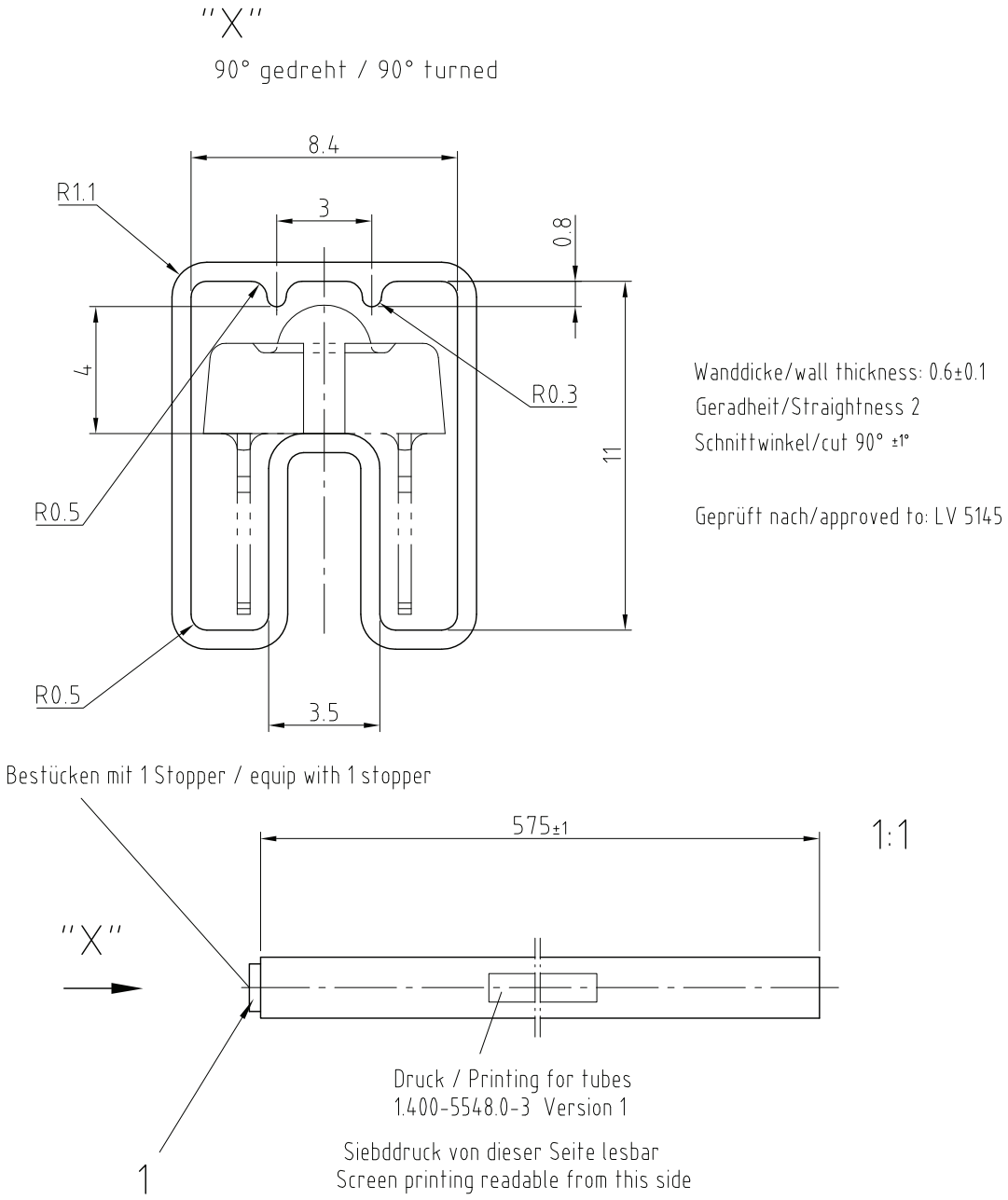
A. Type of component
B. Manufacturing plant
C. SEL - selection code (bin):
e.g.: D = code for luminous intensity group
2 = code for color group
D. Date code year/week
E. Day code (e. g. 4: Thursday)
F. Batch no.
G. Total quantity
H. Company code

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



Drawing-No.: 9.700-5223.0-4
Rev. 2; Date: 23.08.99
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Fig. 11 - Drawing Proportions not scaled

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