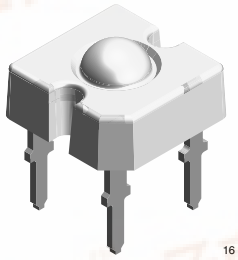
TELUX™



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.

PRODUCT GROUP AND PACKAGE DATA

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

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
- Compatible with wave solder processes acc. to CECC 00802 and J-STD-020
- ESD-withstand voltage: up to 1 kV according to JESD22-A114-B
- AEC-Q101 qualified
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- Find out more about Vishay's Automotive Grade Product requirements at: www.vishay.com/applications

AUTOMOTIVE GRADE

Pb-free

e3

RoHS COMPLIANT

GREEN (5-2008)**

APPLICATIONS

- Exterior lighting
- Dashboard illumination
- Tail-, stop- and turn signals of motor vehicles
- Replaces incandescent lamps

PARTS TABLE

PART	COLOR, LUMINOUS FLUX	TECHNOLOGY
VLWW9900	White, $Ø_V$ > 1500 mlm	InGaN/TAG on SiC

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

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage [1]	I_R = 10 µA	V_R	5	V
DC forward current	T_{amb} ≤ 50 °C	I_F	50	mA
Surge forward current	t_p ≤ 10 µs	I_{FSM}	0.1	A
Power dissipation		P_V	255	mW
Junction temperature		T_j	100	°C
Operating temperature range		T_{amb}	- 40 to + 100	°C
Storage temperature range		T_{stg}	- 40 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] 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

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) VLWW9900, WHITE							
PARAMETER	**TEST CONDITION**	**SYMBOL**	**PART**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Total flux	I_F = 50 mA, R_{thJA} = 200 °K/W	$Ø_V$	VLWW9900	1500	2200		mlm
Luminous intensity/total flux	I_F = 50 mA, R_{thJA} = 200 °K/W	$I_V/Ø_V$			0.7		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			± 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			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**	
VLWW9900	**MIN.**	**MAX.**	**MIN.**	**MAX.**
3a	0.2900	0.3025	Y = 1.4x - 0.121	Y = 1.4x - 0.071
3b	0.3025	0.3150	Y = 1.4x - 0.121	Y = 1.4x - 0.071
3c	0.2900	0.3025	Y = 1.4x - 0.171	Y = 1.4x - 0.121
3d	0.3025	0.3150	Y = 1.4x - 0.171	Y = 1.4x - 0.121
4a	0.3150	0.3275	Y = 1.4x - 0.121	Y = 1.4x - 0.071
4b	0.3275	0.3400	Y = 1.4x - 0.121	Y = 1.4x - 0.071
4c	0.3150	0.3275	Y = 1.4x - 0.171	Y = 1.4x - 0.121
4d	0.3275	0.3400	Y = 1.4x - 0.171	Y = 1.4x - 0.121
5a	0.3400	0.3525	Y = 1.4x - 0.121	Y = 1.4x - 0.071
5b	0.3525	0.3650	Y = 1.4x - 0.121	Y = 1.4x - 0.071
5c	0.3400	0.3525	Y = 1.4x - 0.171	Y = 1.4x - 0.121
5d	0.3525	0.3650	Y = 1.4x - 0.171	Y = 1.4x - 0.121

Note:
Tolerance ± 0.01

LUMINOUS FLUX CLASSIFICATION		
GROUP	**LUMINOUS FLUX (mlm)**	
	MIN.	**MAX.**
C	1500	2400
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.

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

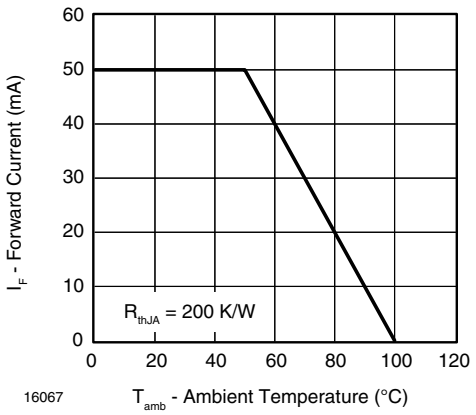


Figure 1. Forward Current vs. Ambient Temperature

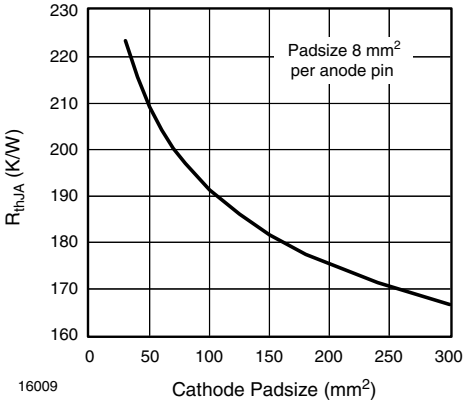


Figure 4. Thermal Resistance Junction Ambient vs. Cathode Padsize

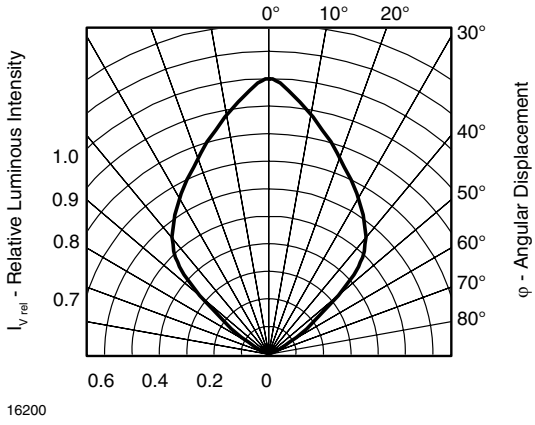


Figure 2. Rel. Luminous Intensity vs. Angular Displacement for 60° emission angle

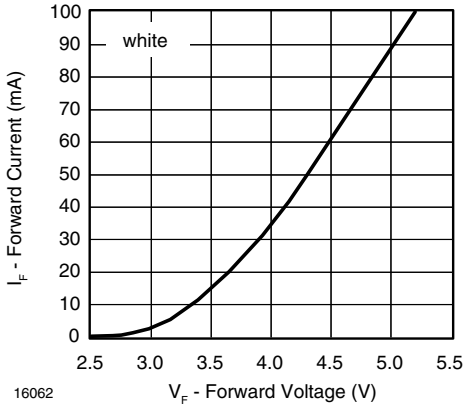


Figure 5. Forward Current vs. Forward Voltage

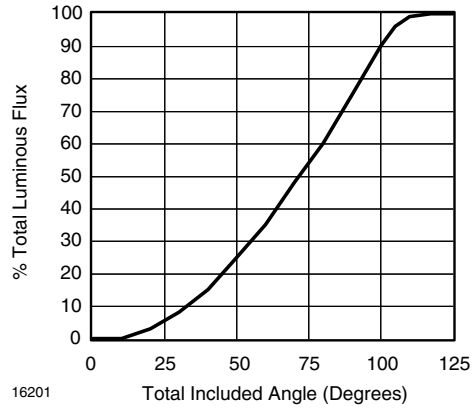


Figure 3. Percentage Total Luminous Flux vs. Total Included Angle for 60° Emission Angle

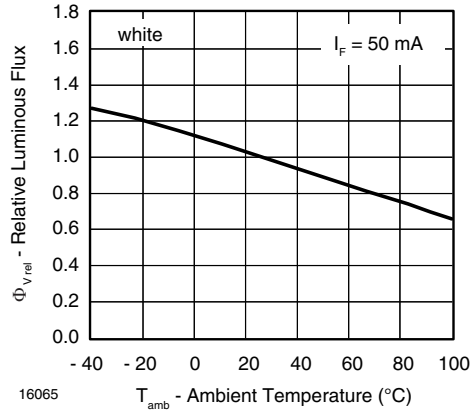


Figure 6. Rel. Luminous Flux vs. Ambient Temperature

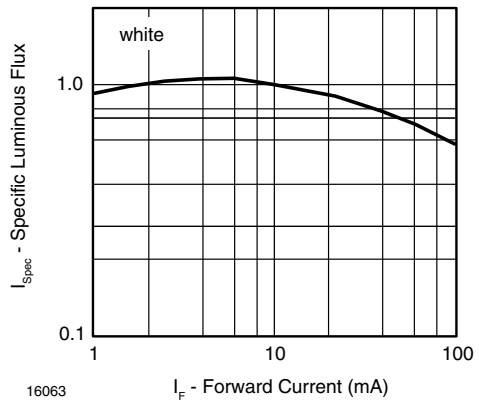


Figure 7. Specific Luminous Flux vs. Forward Current

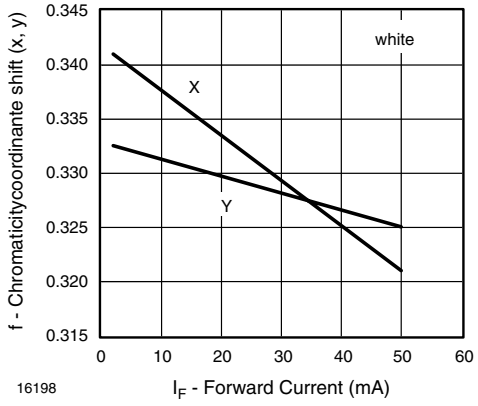


Figure 10. Chromaticity Coordinate Shift vs. Forward Current

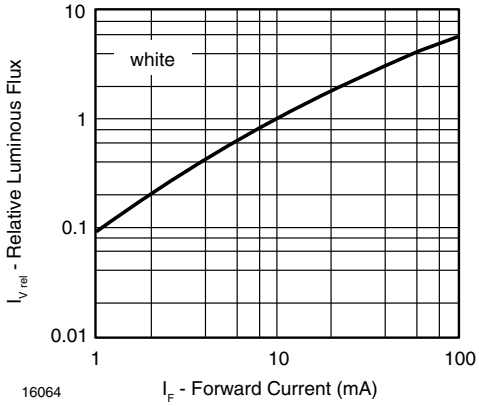


Figure 8. Relative Luminous Flux vs. Forward Current

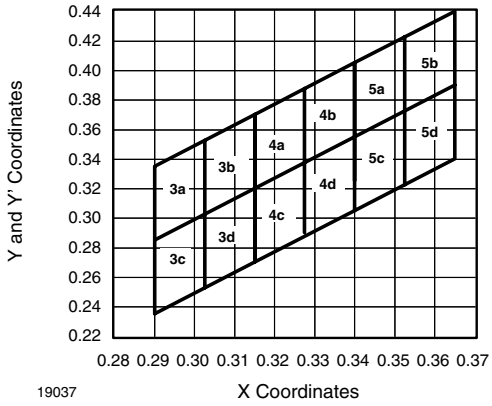


Figure 11. Coordinates of Colorgroups

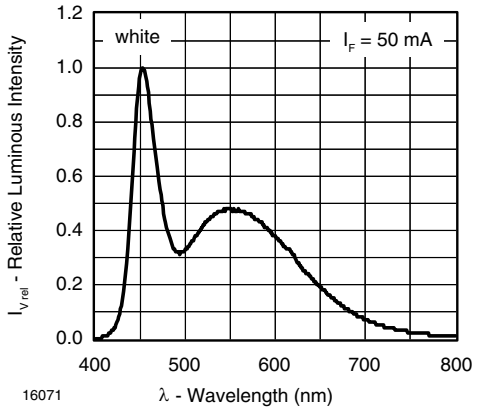
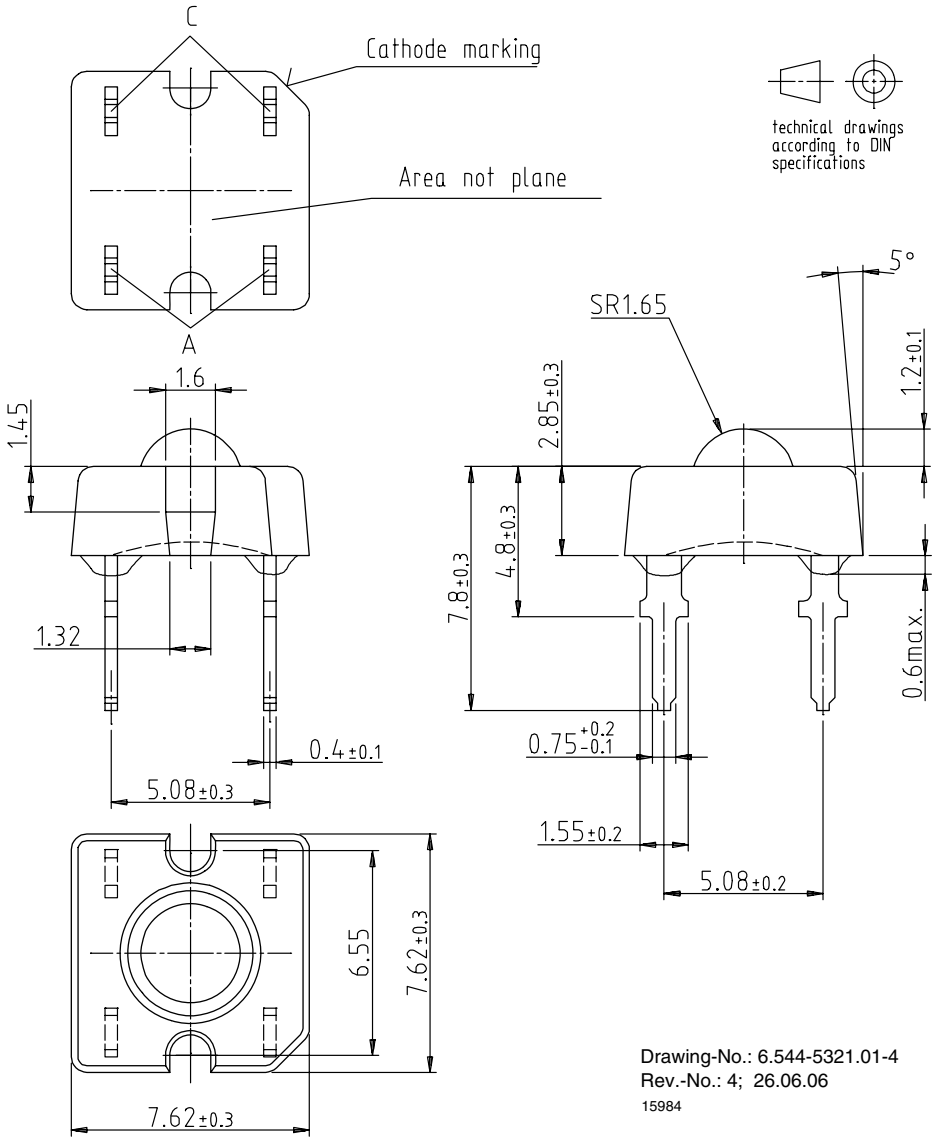


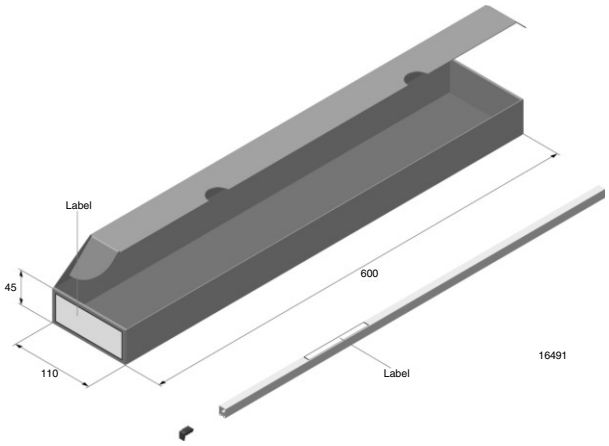
Figure 9. Relative Intensity vs. Wavelength

PACKAGE DIMENSIONS in millimeters

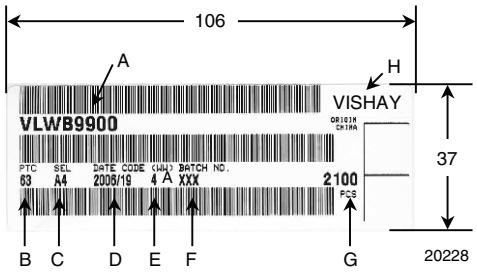


Drawing-No.: 6.544-5321.01-4
Rev.-No.: 4; 26.06.06
15984

FAN FOLD BOX Dimensions in millimeters

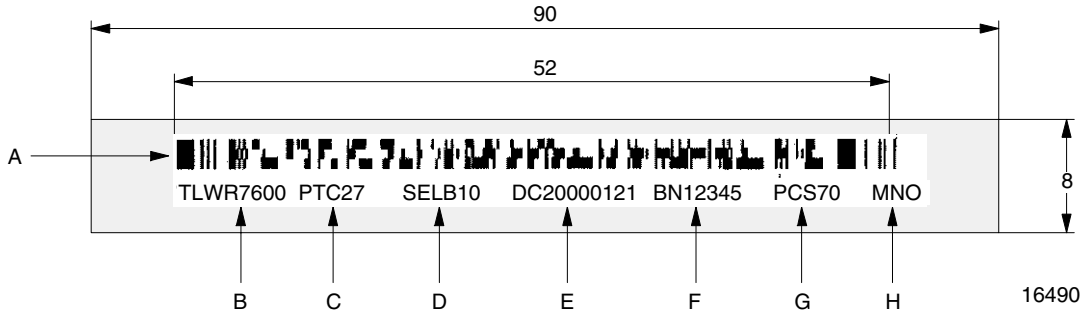


LABEL OF FAN FOLD BOX
EXAMPLE:



A) Type of component
B) Manufacturing plant
C) SEL - selection code (bin):
e.g.: A = code for luminous intensity group
4 = code for color group
D) Date code year/week
E) Day code (e.g. 4: Thursday, A: early shift)
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

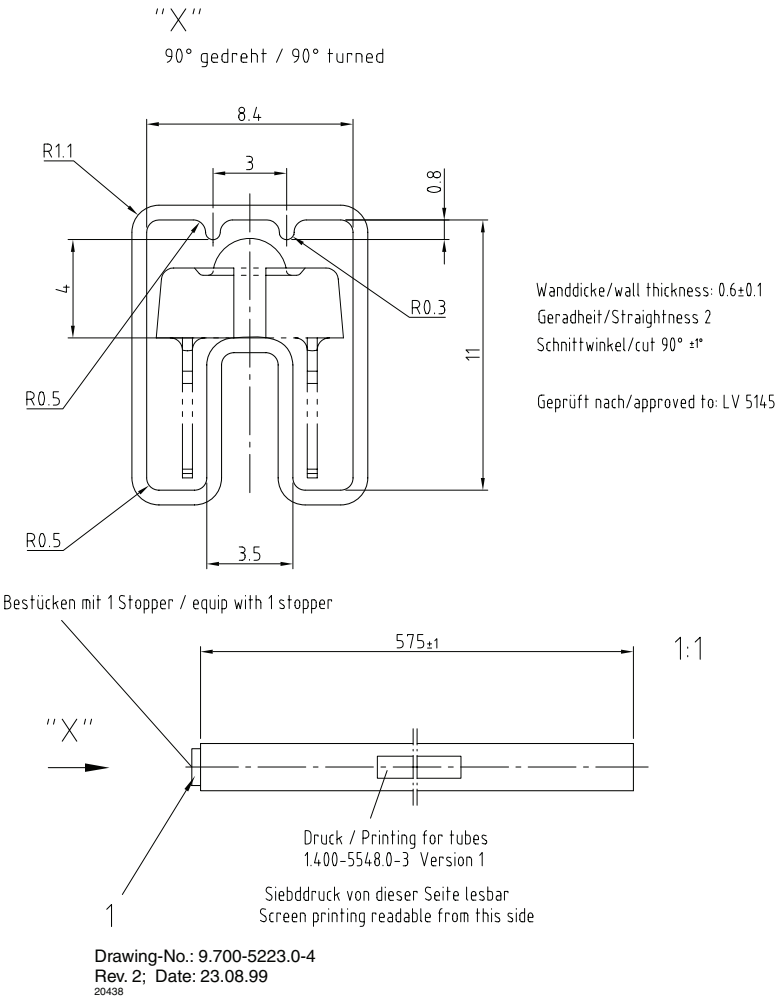


Figure 12. Drawing Proportions not scaled

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