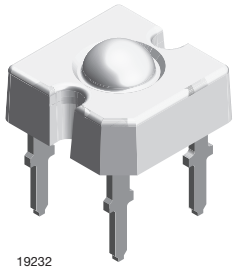
TELUX LED



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FEATURES

- High luminous flux
- Supreme heat dissipation: R_{thJP} is 90 K/W
- High operating temperature: T_{amb} = -40 °C to +110 °C
- Meets SAE and ECE color requirements for the automobile industry for color red
- 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 lightguides
- Compatible with wave solder processes according to CECC 00802 and J-STD-020
- ESD-withstand voltage: up to 2 kV according to JESD22-A114-B
- AEC-Q101 qualified
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912

AUTOMOTIVE GRADE

Pb-free

e4

RoHS COMPLIANT

HALOGEN FREE

GREEN (5-2008)

DESCRIPTION

The VLWB9900 is a clear, non diffused LED for 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 VLWB9900 allows applications at high ambient temperatures.

All packing units are binned for luminous flux 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
- Replaces 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.		
VLWB9900	Blue	800	1600	-	50	462	470	476	50	-	3.9	4.7	50	InGaN on SiC

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

VLWB9900

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage [1]	I_R = 100 µA	V_R	5	V
DC forward current	$T_{amb} \leq 85$ °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 +110	°C
Storage temperature range		T_{stg}	-55 to +110	°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)
VLWB9900, BLUE

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Total flux	I_F = 50 mA, R_{thJA} = 200 K/W	ϕ_V	800	1600	-	mlm
Luminous intensity/total flux	I_F = 50 mA, R_{thJA} = 200 K/W	I_V/ϕ_V	-	0.8	-	mcd/mlm
Dominant wavelength	I_F = 50 mA, R_{thJA} = 200 K/W	λ_d	462	470	476	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	$\varphi_{0.9\ V}$	-	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 V, f = 1 MHz	C_j	-	50	-	pF
Temperature coefficient of < λ_{dom}	I_F = 30 mA	$T_C\lambda_{dom}$	-	0.02	-	nm/K

LUMINOUS FLUX CLASSIFICATION

GROUP	LUMINOUS FLUX (mlm)	
STANDARD	MIN.	MAX.
A	800	1250
B	1000	1800
C	1500	2400
D	2000	3000

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 on each 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.
3	462	468
4	466	472
5	470	476

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)

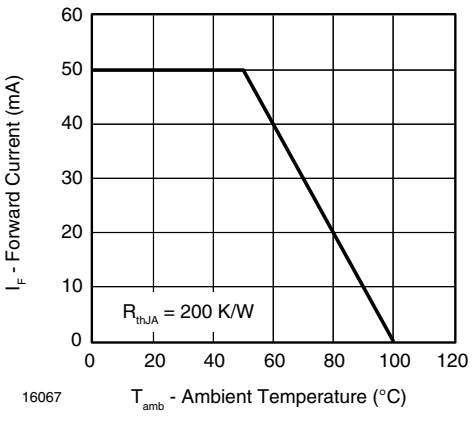


Fig. 1 - Forward Current vs. Ambient Temperature for InGaN

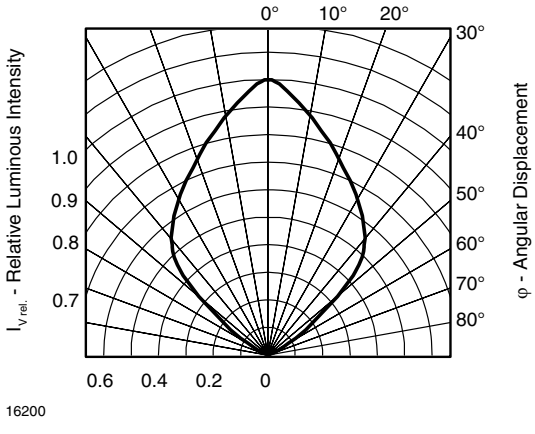


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

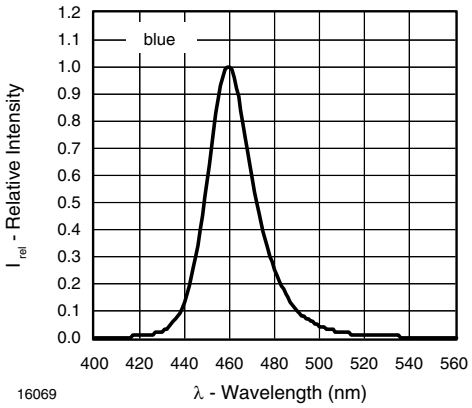


Fig. 3 - Relative Intensity vs. Wavelength

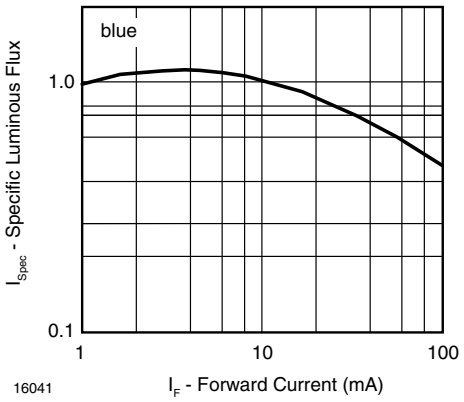


Fig. 6 - Specific Luminous Flux vs. Forward Current

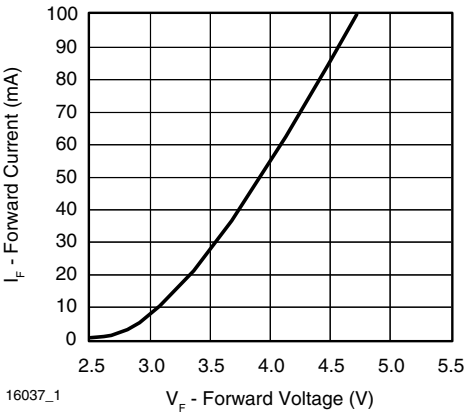


Fig. 4 - Forward Current vs. Forward Voltage

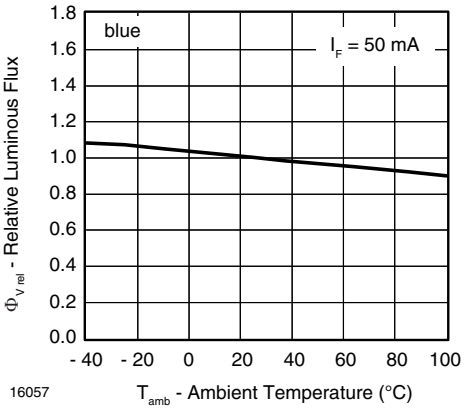


Fig. 7 - Relative Luminous Flux vs. Forward Current

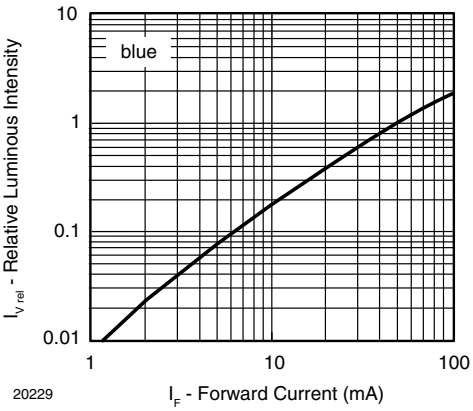


Fig. 5 - Relative Luminous Flux vs. Forward Current

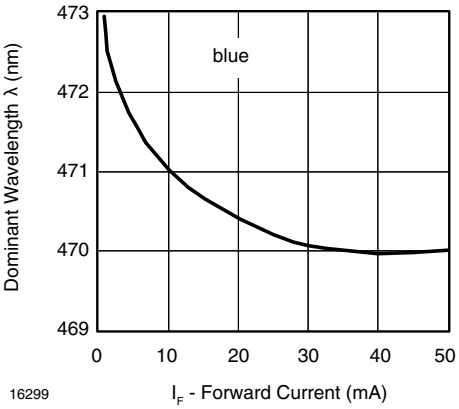
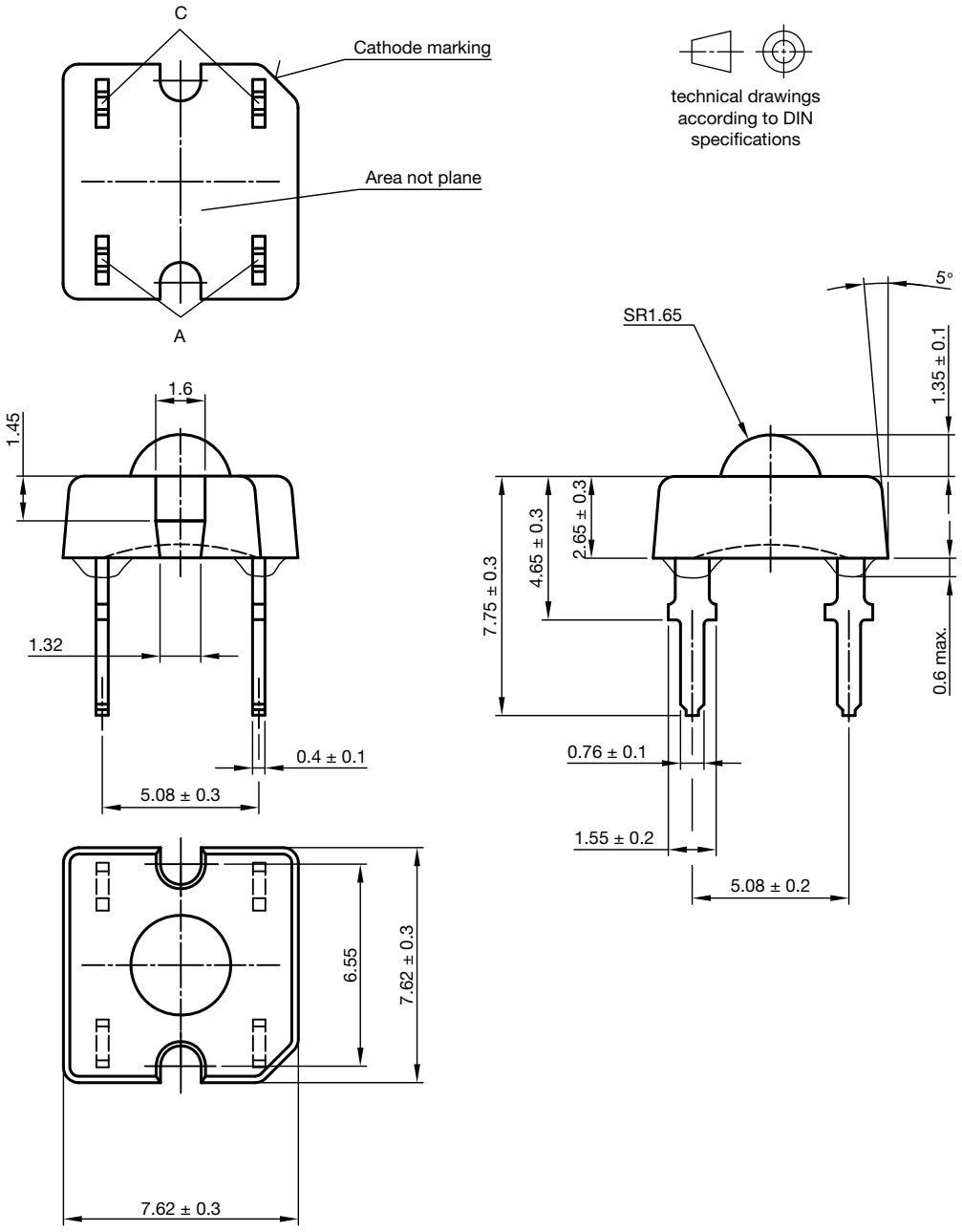


Fig. 8 - Dominant Wavelength vs. Forward Current

PACKAGE DIMENSIONS in millimeters



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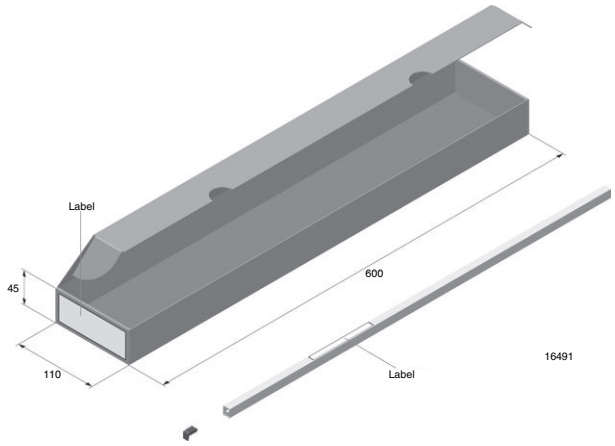
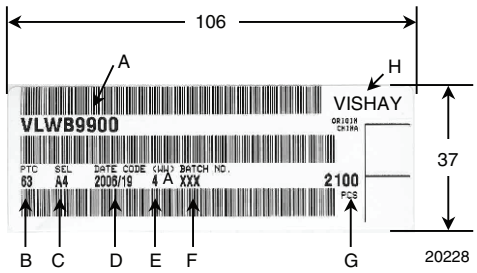
Issue: 5; 25.07.14

FAN FOLD BOX DIMENSIONS in millimeters

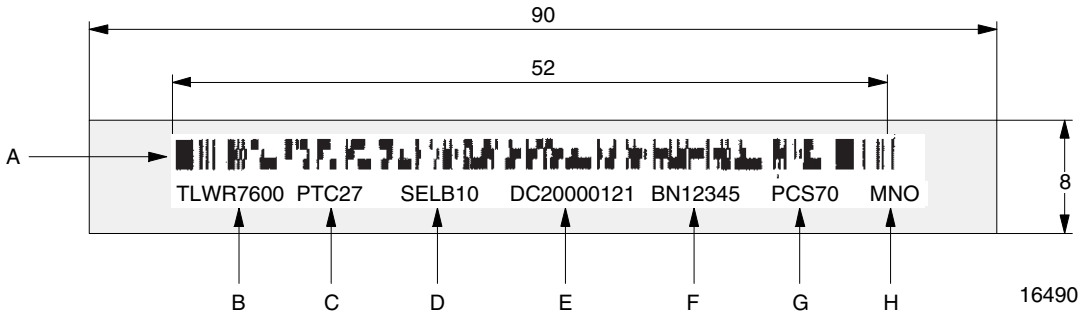


LABEL OF FAN FOLD BOX (example)



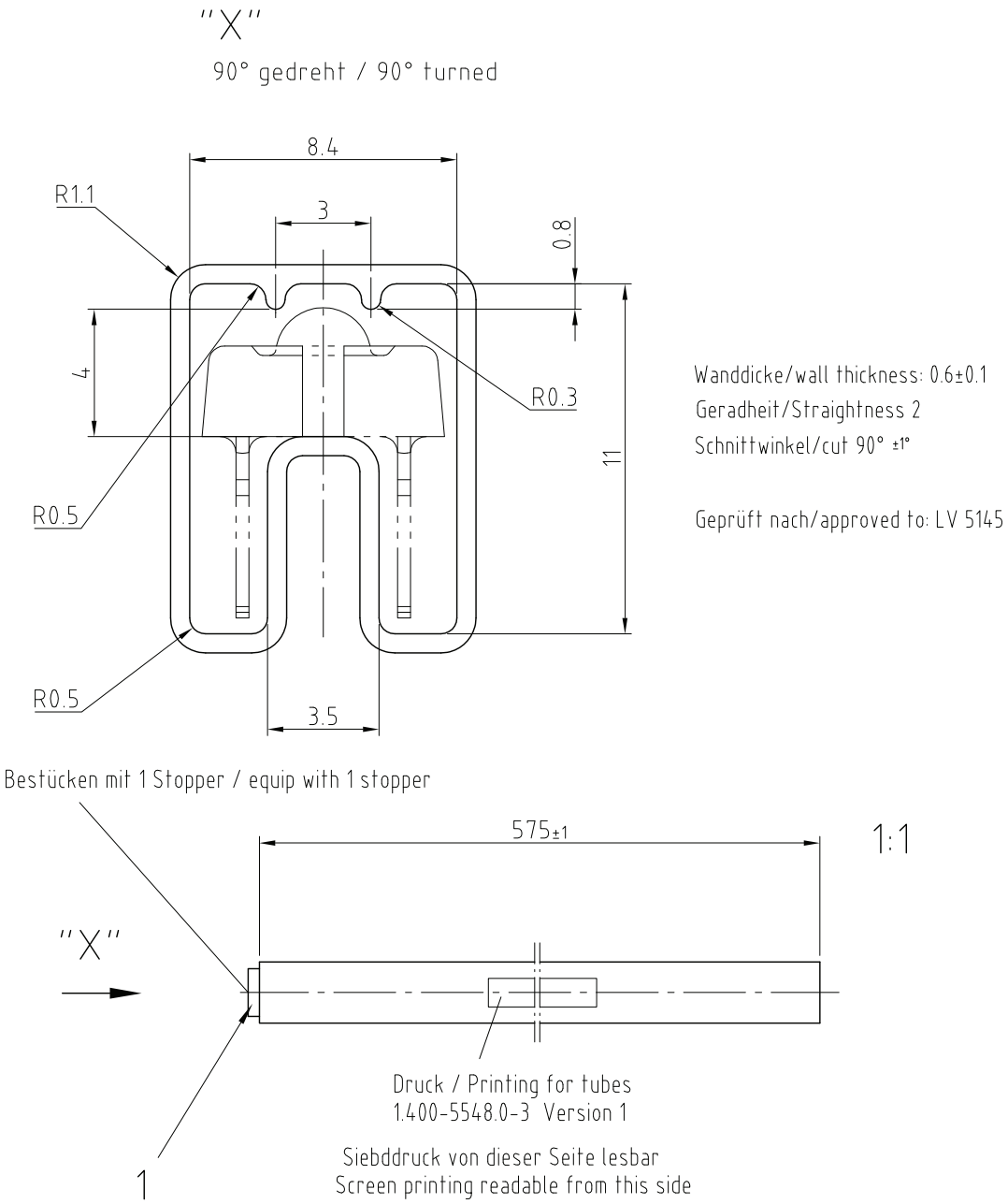
A. Type of component
B. Manufacturing plant
C. SEL - selection code (bin):
e.g.: A = code for luminous intensity group
4 = code for color group
D. Date code year / week
E. Day code (e.g. 4: Thursday, A: early shift)
F. Batch: no.
G. Total quantity
H. Company code

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



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Rev. 2; Date: 23.08.99
20438

Drawing Proportions not Scaled

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