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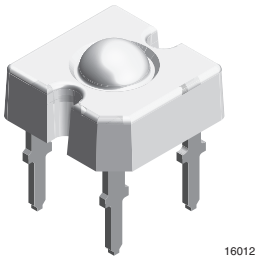
TELUX LED



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 according to CECC 00802 and J-STD-020
- 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
- Dashboard illumination
- Tail-, stop-, and turn signals of motor vehicles
- Replaces small incandescent lamps

PARTS TABLE

PART	COLOR	LUMINOUS FLUX (mlm)			at I_F (mA)	COORDINATE (x, y)			at I_F (mA)	FORWARD VOLTAGE (V)			at I_F (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
VLWW9900	White	1500	2200	-	50	-	0.33, 0.33	-	50	-	4.3	5.2	50	InGaN/TAG on SiC

ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)
VLWW9900

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	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 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)
VLWW9900, WHITE

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Total flux	I_F = 50 mA, R_{thJA} = 200 K/W	ϕ_V	1500	2200	-	mlm
Luminous intensity/total flux	I_F = 50 mA, R_{thJA} = 200 K/W	I_V/ϕ_V	-	0.7	-	mcd/mlm
Color temperature	I_F = 50 mA, R_{thJA} = 200 K/W	TK	-	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	
	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 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.

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

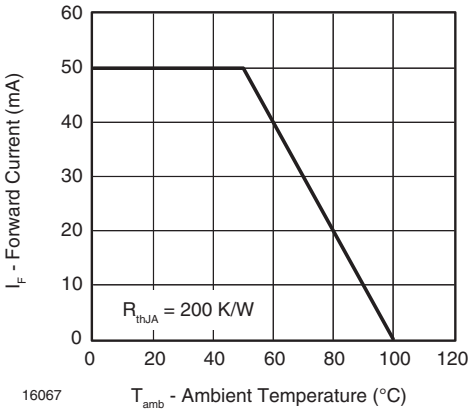


Fig. 1 - Forward Current vs. Ambient Temperature

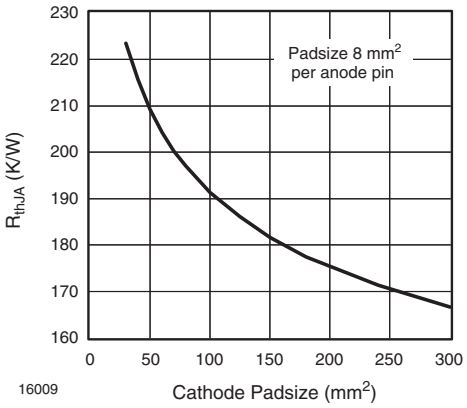


Fig. 4 - Thermal Resistance Junction Ambient vs. Cathode Padsize

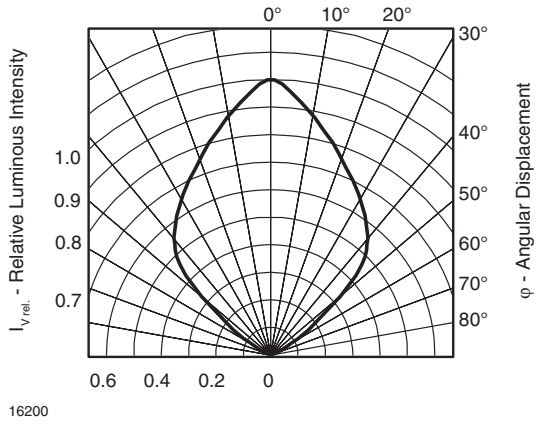


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement for 60° Emission Angle

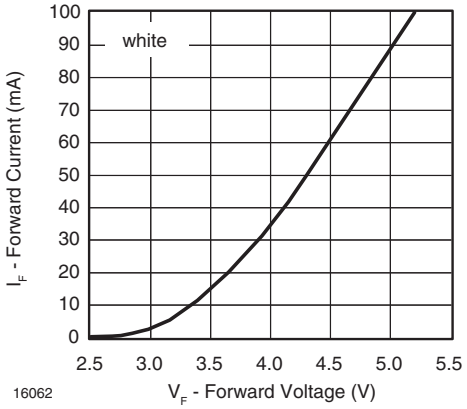


Fig. 5 - Forward Current vs. Forward Voltage

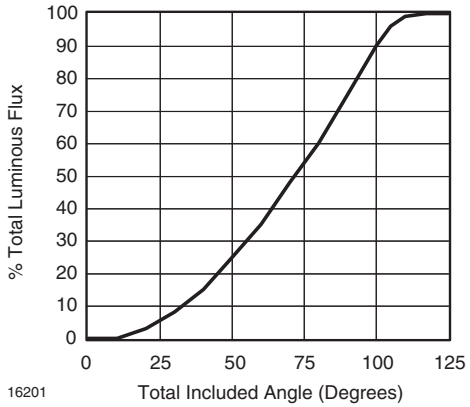


Fig. 3 - Percentage Total Luminous Flux vs. Total Included Angle for 60° Emission Angle

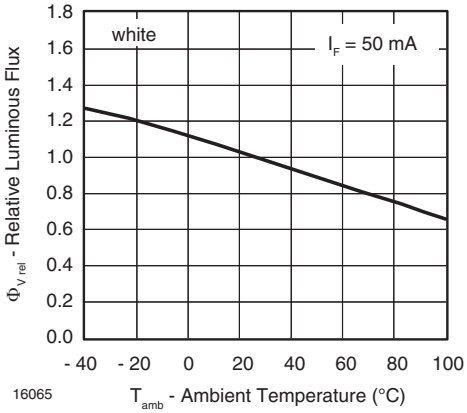


Fig. 6 - Relative Luminous Flux vs. Ambient Temperature

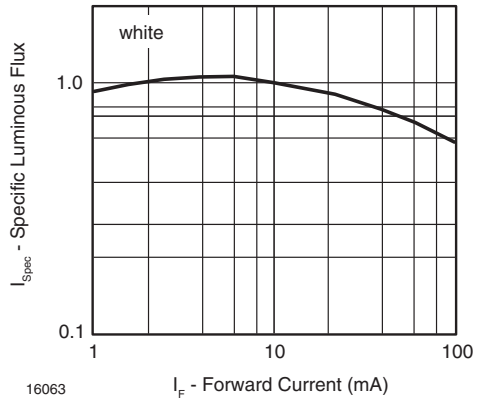


Fig. 7 - Specific Luminous Flux vs. Forward Current

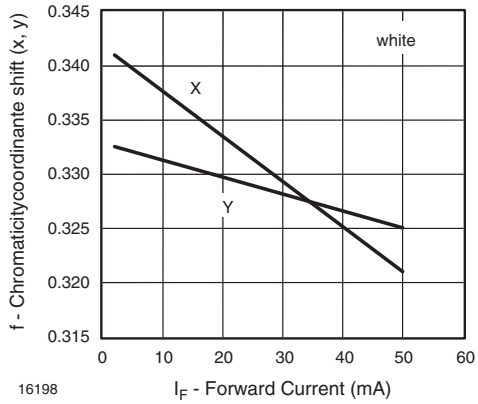


Fig. 10 - Chromaticity Coordinate Shift vs. Forward Current

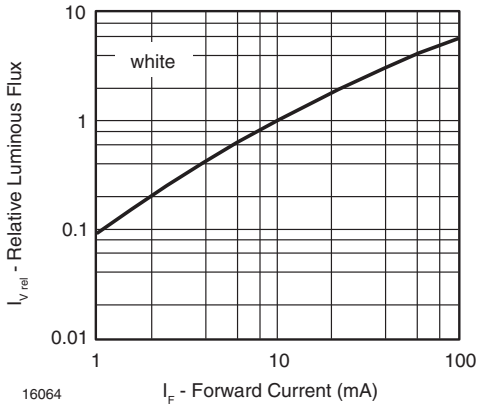


Fig. 8 - Relative Luminous Flux vs. Forward Current

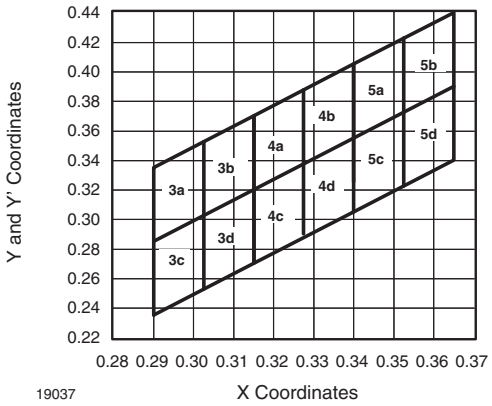


Fig. 11 - Coordinates of Colorgroups

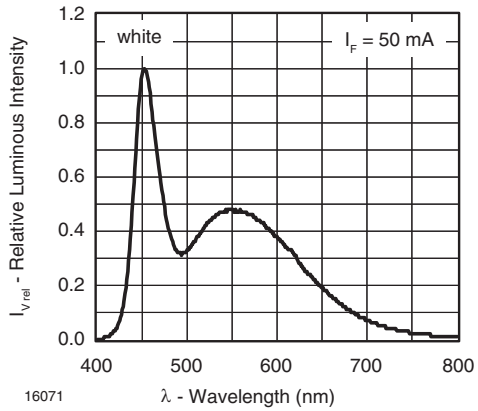
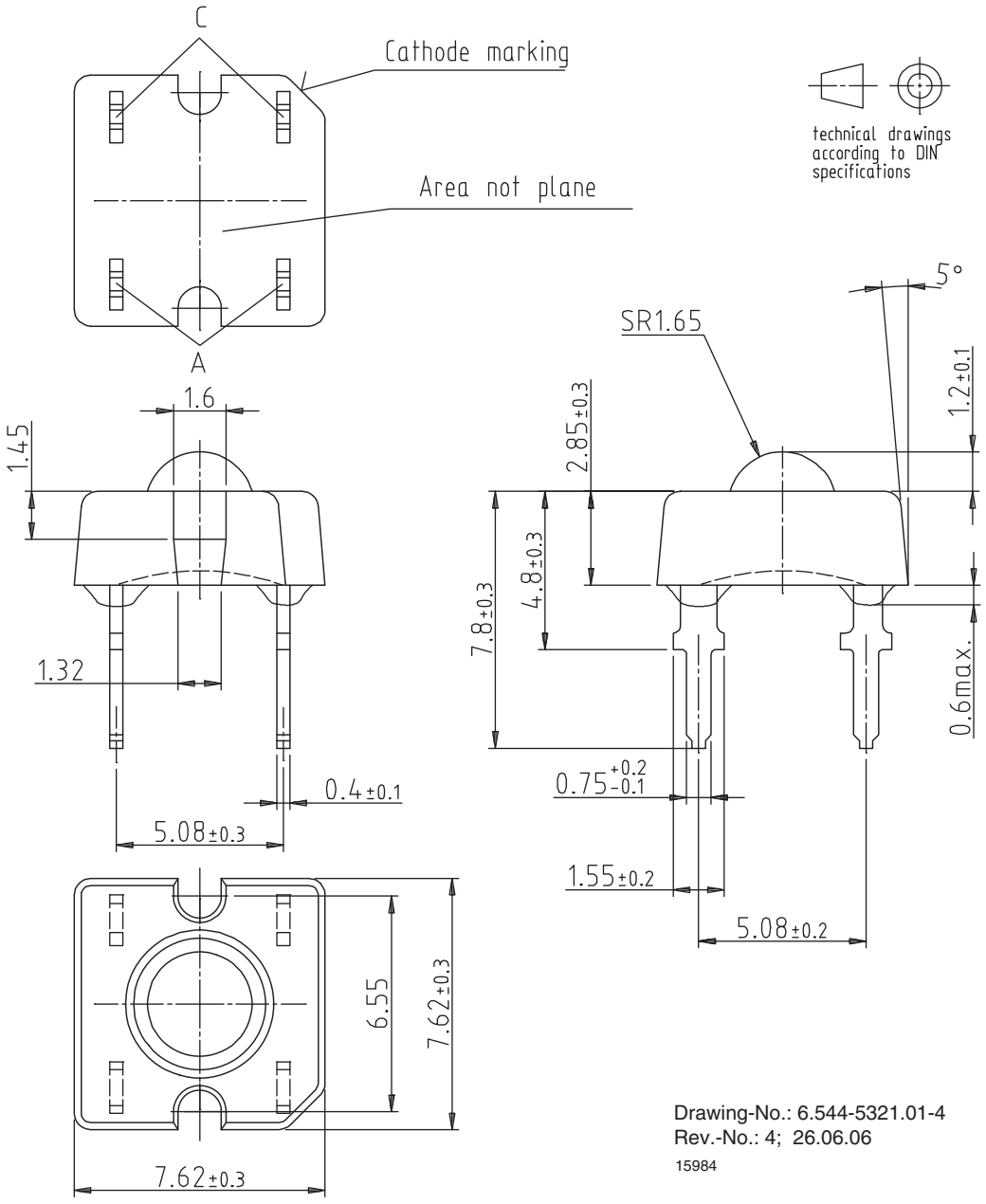


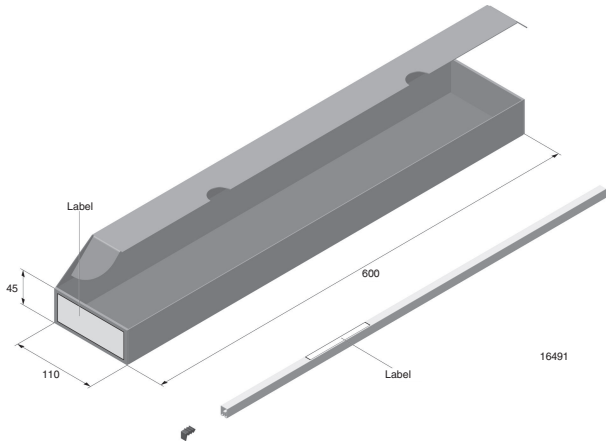
Fig. 9 - Relative Intensity vs. Wavelength

PACKAGE DIMENSIONS in millimeters

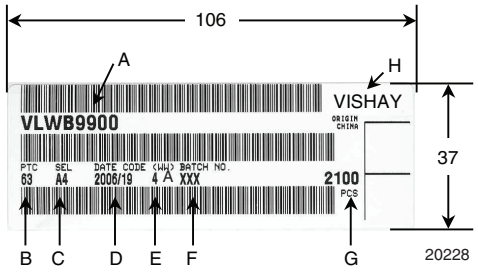


Drawing-No.: 6.544-5321.01-4
Rev.-No.: 4; 26.06.06
15984

FAN FOLD BOX DIMENSIONS in millimeters

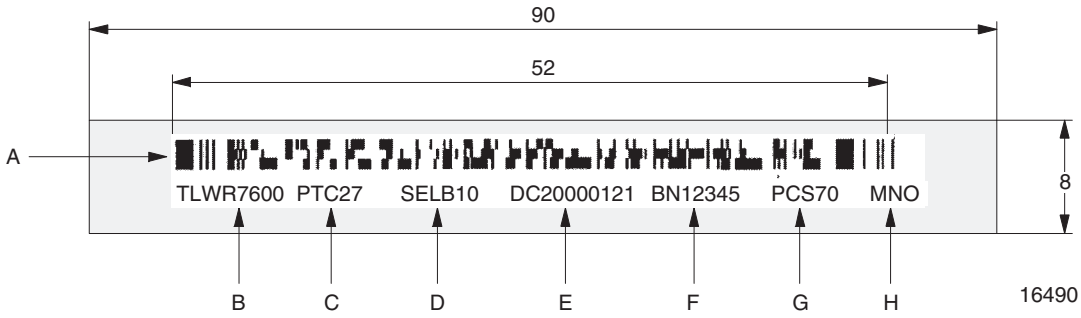


LABEL OF FAN FOLD BOX (example)



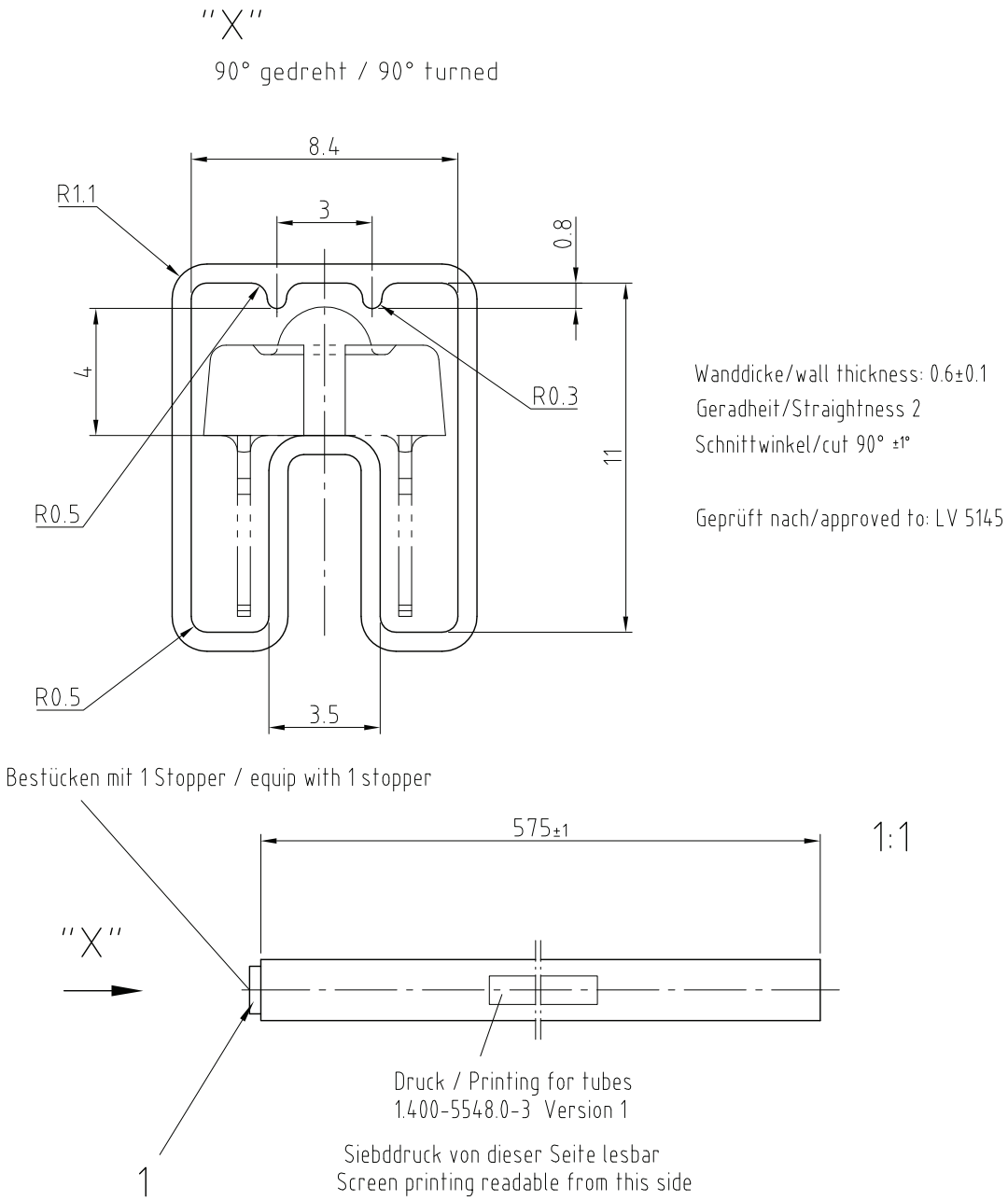
A. Type of component
B. Manufacturing plant
C. SEL - selection code (bin):
e.g.: A = code for luminous intensity group
4 = code for color group
D. Date code year/week
E. Day code (e.g. 4: Thursday, A: early shift)
F. Batch no.
G. Total quantity
H. Company code

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



Drawing-No.: 9.700-5223.0-4
Rev. 2; Date: 23.08.99
20438

Drawing Proportions not Scaled

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