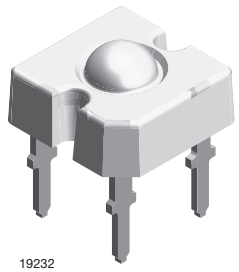
TELUX LED



19232

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 light guides
- Compatible with wave solder processes according to CECC 00802
- ESD-withstand voltage: Up to 2 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)

DESCRIPTION

The TELUX series 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 AlInGaP technology.

The supreme heat dissipation of TELUX 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.

SAE and ECE color requirements for automobile application are available for color red.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: TELUX
- Product series: power
- Angle of half intensity: See Optical and Electrical Characteristics table

APPLICATIONS

- Exterior lighting
- Dashboard illumination
- Tail-, stop-, and turn signals of motor vehicles
- 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.		
VLWR9430	Red	5000	6000	-	70	611	615	634	70	1.83	2.2	3.03	70	AlInGaP on GaAs
VLWR9530	Red	5000	6000	-	70	611	615	634	70	1.83	2.2	3.03	70	AlInGaP on GaAs

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

VLWR9430, VLWR9530

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage [1]	I_R = 100 µA	V_R	10	V
DC forward current	$T_{amb} \leq 85$ °C	I_F	70	mA
Surge forward current	$t_p \leq 10$ µs	I_{FSM}	0.1	A
Power dissipation		P_V	212	mW
Junction temperature		T_j	125	°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 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 °C, unless otherwise specified)
VLWR9430, VLWR9530, RED

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Total flux	I_F = 70 mA, R_{thJA} = 200 K/W	VLWR9430	ϕ_V	5000	6000	-	mlm
		VLWR9530		5000	6000	-	mlm
Dominant wavelength	I_F = 70 mA, R_{thJA} = 200 K/W		λ_d	611	615	634	nm
Peak wavelength	I_F = 70 mA, R_{thJA} = 200 K/W		λ_p	-	624	-	nm
Angle of half intensity	I_F = 70 mA, R_{thJA} = 200 K/W	VLWR9430	φ	-	25 x 68	-	deg
		VLWR9530	φ	-	40 x 90	-	deg
Forward voltage	I_F = 70 mA, R_{thJA} = 200 K/W		V_F	1.83	2.2	3.03	V
Reverse voltage			V_R	10	20	-	V
Temperature coefficient < λ_d	I_F = 70 mA		$T_C\lambda_d$	-	17	-	nm/K
Temperature coefficient V_F	I_F = 70 mA, T > - 25 °C		T_cV_F	-	- 2	-	mV/K

FORWARD VOLTAGE CLASSIFICATION

GROUP	FORWARD VOLTAGE (V)	
	MIN.	MAX.
Y	1.83	2.07
Z	1.95	2.19
0	2.07	2.31
1	2.19	2.43
2	2.31	2.55
3	2.43	2.67
4	2.55	2.79
5	2.67	2.91
6	2.79	3.03

Note

- Voltages are tested at a current pulse duration of 1 ms.

COLOR CLASSIFICATION

GROUP	DOM. WAVELENGTH (nm)	
	MIN.	MAX.
1	611	618
2	614	622
3	616	634

Note

- Wavelengths are tested at a current pulse duration of 25 ms and an accuracy of ± 1 nm.

LUMINOUS FLUX CLASSIFICATION

GROUP	LUMINOUS FLUX (mlm)	
	MIN.	MAX.
I	5000	7300
K	6000	9700
L	7000	12 200

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)

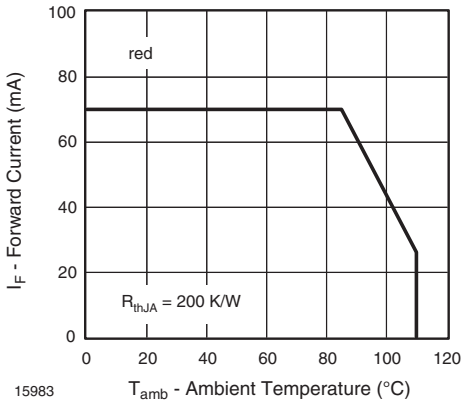


Fig. 1 - Maximum Permissible Forward Current vs. Ambient Temperature

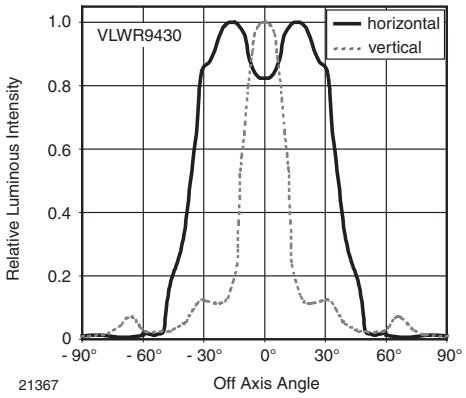


Fig. 4 - Relative Luminous Intensity vs. Off Axis

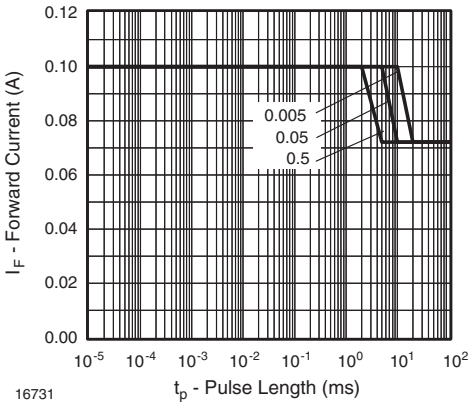


Fig. 2 - Permissible Forward Current vs. Pulse Length

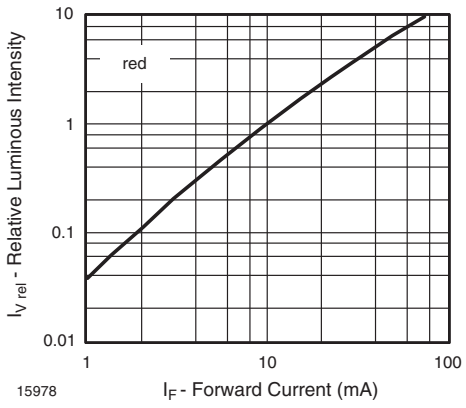


Fig. 5 - Relative Luminous Flux vs. Forward Current

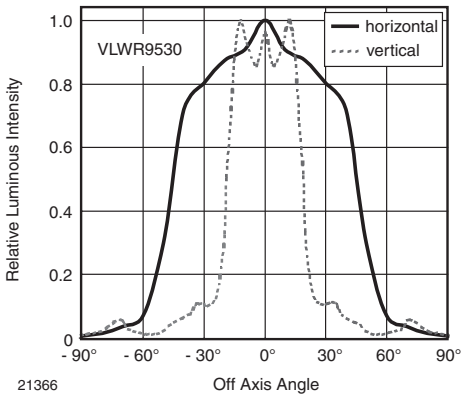


Fig. 3 - Relative Luminous Intensity vs. Off Axis

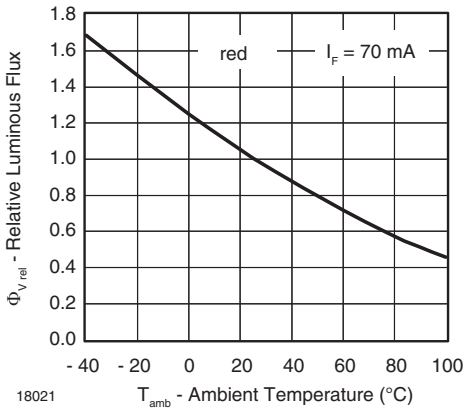


Fig. 6 - Relative Luminous Flux vs. Ambient Temperature

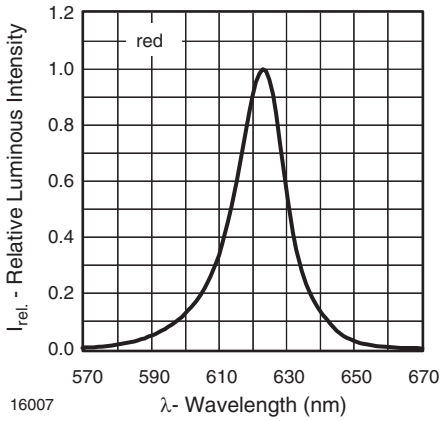


Fig. 7 - Relative Intensity vs. Wavelength

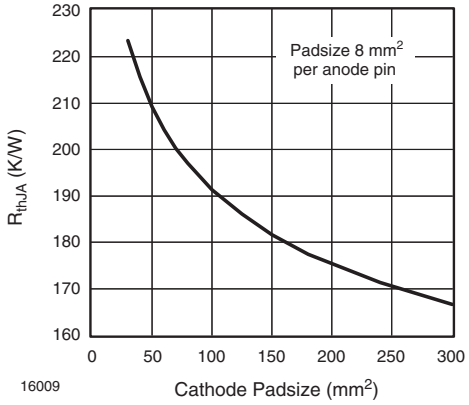
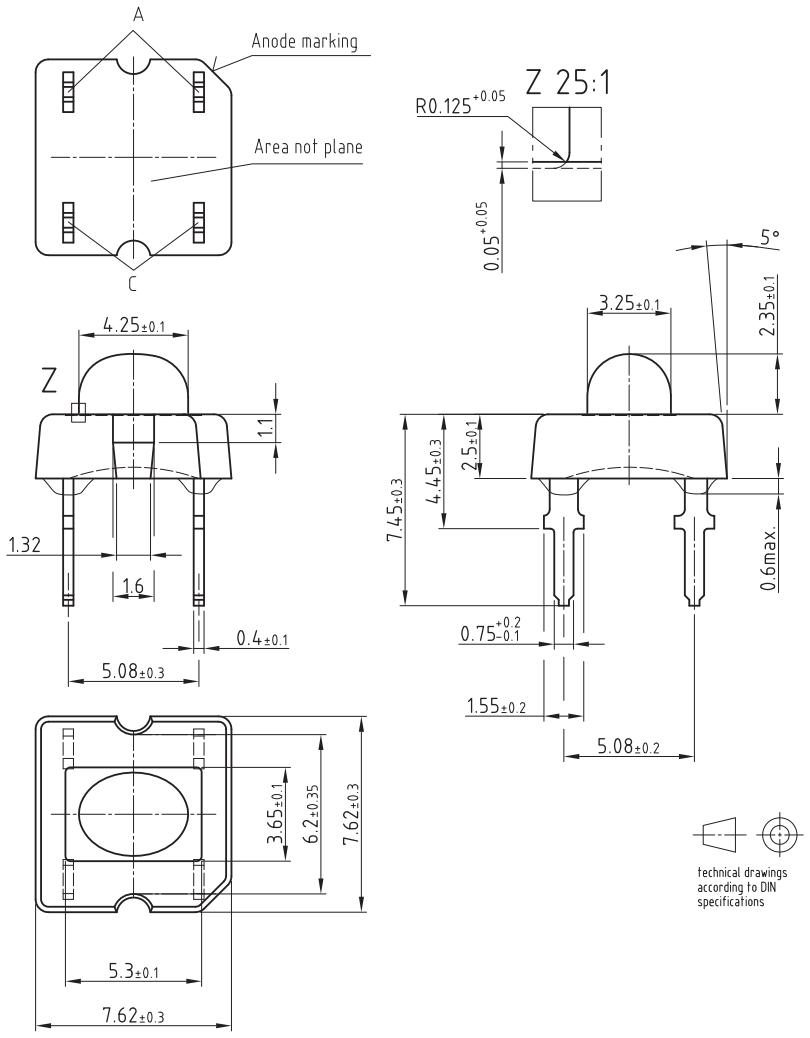


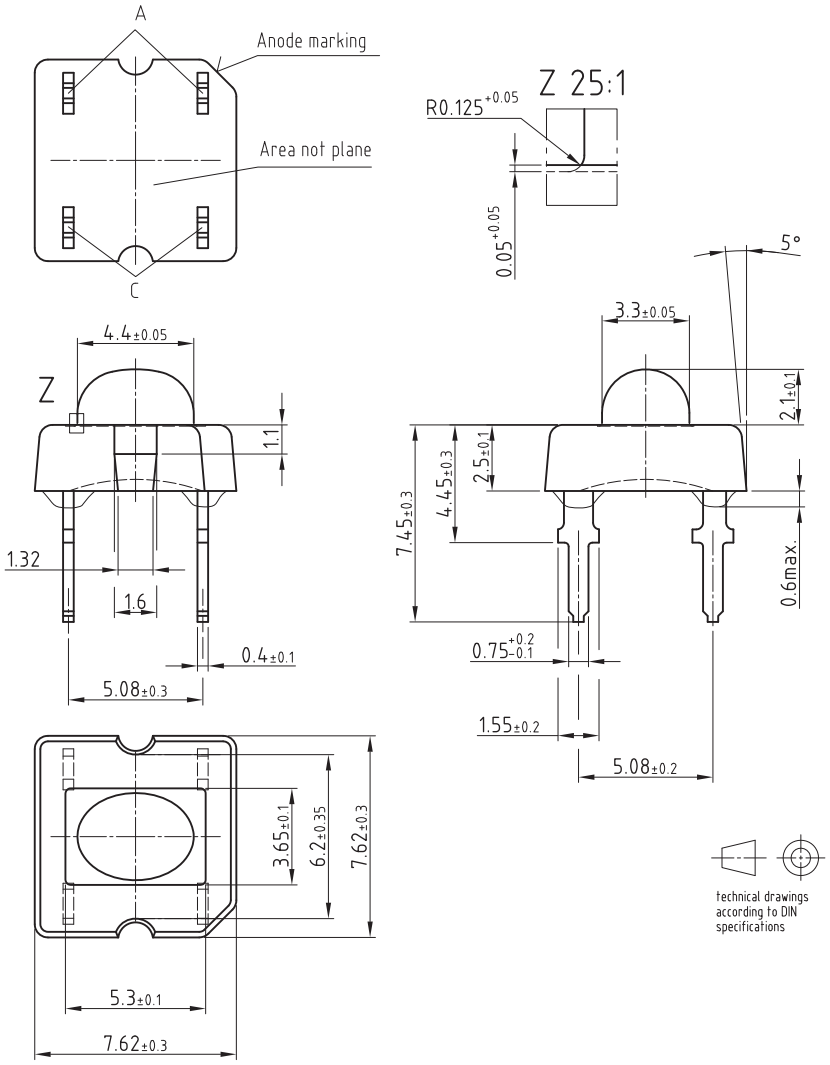
Fig. 8 - Thermal Resistance Junction Ambient vs. Cathode Padsize

PACKAGE DIMENSIONS in millimeters: **VLWR9430**



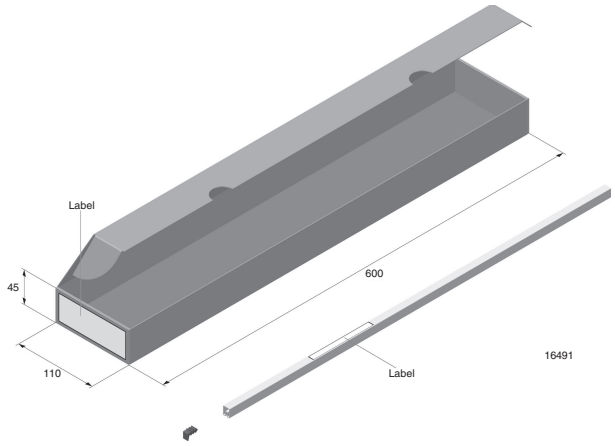
Drawing-No.: 6.544-5395.01-4
Issue: 1; 14.05.08
21364

PACKAGE DIMENSIONS in millimeters: **VLWR9530**

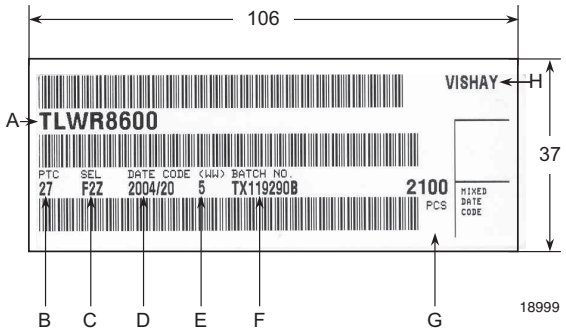


Drawing-No.: 6.544-5395.02-4
Issue: 1; 14.05.08
21365

FAN FOLD BOX DIMENSIONS in millimeters



LABEL OF FAN FOLD BOX (example)

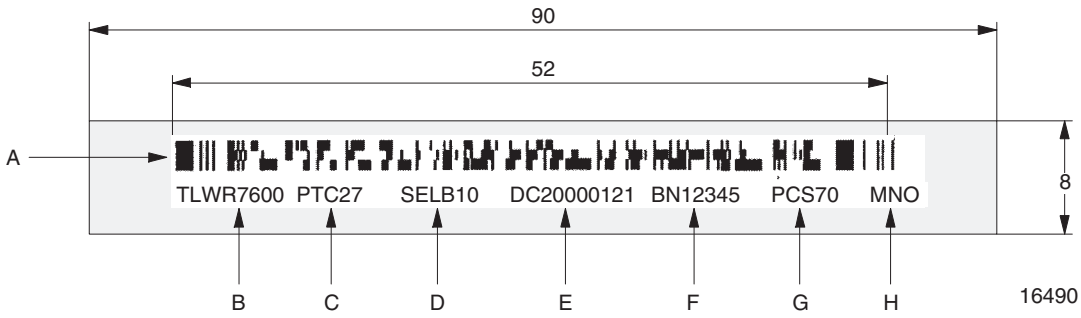


A. Type of component
B. Manufacturing plant
C. SEL - selection code (bin):
digit 1 - code for luminous flux group
digit 2 - code for dominant wavelength group
digit 3 - code for forward voltage group
D. Date code year/week
E. Day code (e.g. 5: Friday)
F. Batch no.
G. Total quantity
H. Company code

Note

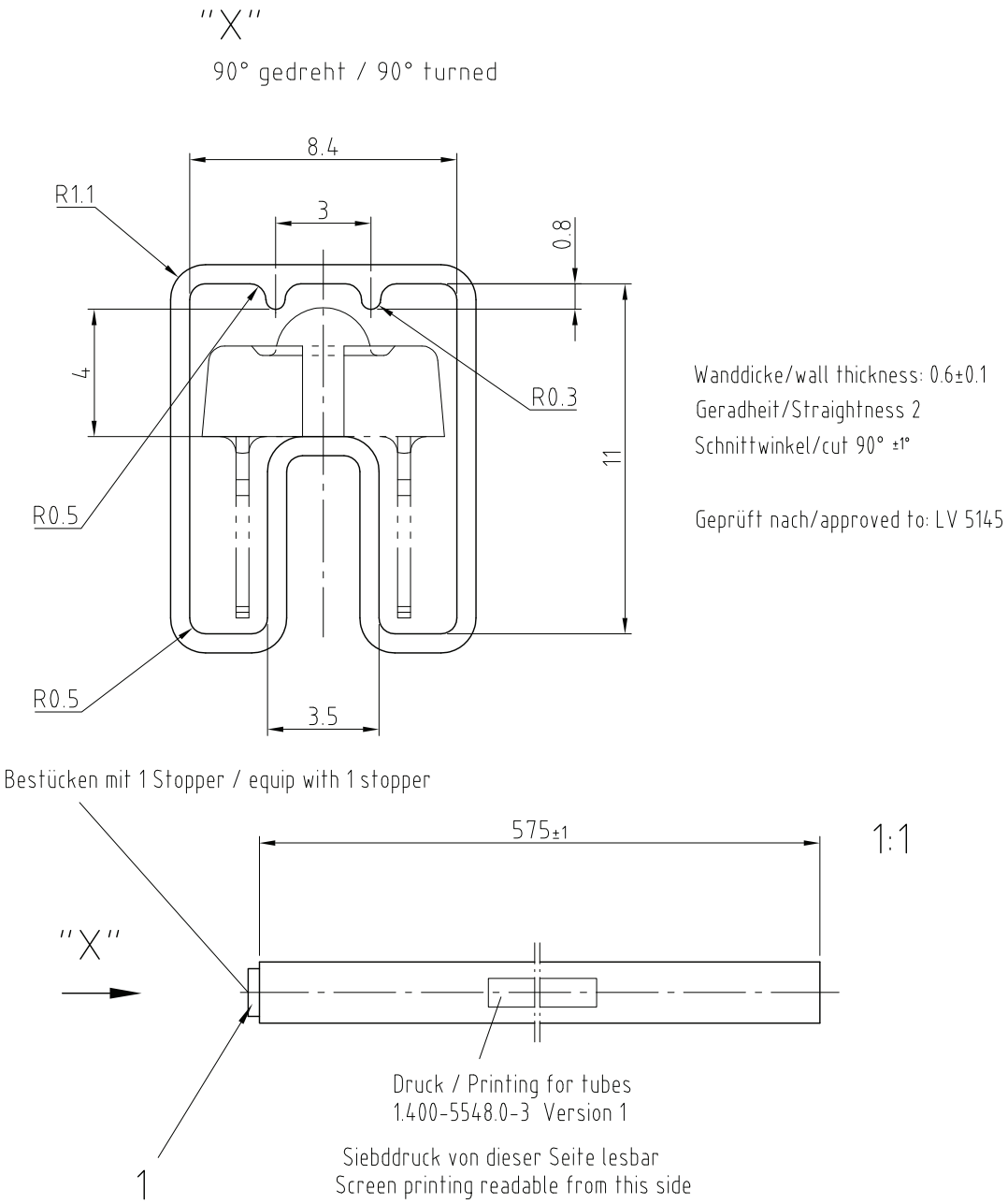
- Any distance between bar code and character is more than 1 mm

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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