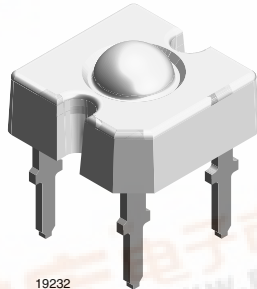


TELUX™



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 with super bright, 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: ± 45

FEATURES

- High luminous flux
- Supreme heat dissipation: R_{thJP} is 90 K/W
- High operating temperature:
 $T_{amb} = -40\text{ }^{\circ}\text{C}$ to $+110\text{ }^{\circ}\text{C}$
- 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
- Lead (Pb)-free device
- Component in accordance to RoHS 2002/95/EC and WEEE 2002/96/EC
- ESD-withstand voltage: up to 2 kV according to JESD22-A114-B
- Compatible with wave solder processes acc. to CECC 00802 and J-STD-020C
- Automotive qualified AEC-Q101



RoHS
COMPLIANT

APPLICATIONS

- Exterior lighting
- Tail-, stop- and turn signals of motor vehicles
- Traffic light and signs

PARTS TABLE

PART	COLOR, LUMINOUS FLUX	TECHNOLOGY
VLWR9930	Red, $\phi_V = (4000 \text{ to } 12\,200) \text{ mlm}$	AlInGaP on Si
VLWR9931	Red, $\phi_V = (5000 \text{ to } 12\,200) \text{ mlm}$	AlInGaP on Si

ABSOLUTE MAXIMUM RATINGS ¹⁾ VLWR9930, VLWR9931

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage ²⁾	$I_R = 100 \mu A$	V_R	10	V
DC Forward current	$T_{amb} \leq 85^\circ C$	I_F	70	mA
Surge forward current	$t_p \leq 10 \mu s$	I_{FSM}	0.1	A
Power dissipation		P_V	212	mW
Junction temperature		T_j	125	$^\circ C$
Operating temperature range		T_{amb}	- 40 to + 110	$^\circ C$
Storage temperature range		T_{stg}	- 40 to + 110	$^\circ C$
Soldering temperature	$t \leq 5 s$, 1.5 mm from body preheat temperature 100 $^\circ C$ /30 s	T_{sd}	260	$^\circ C$
Thermal resistance junction/ambient	with anode heatsink of 70 mm ²	R_{thJA}	200	K/W
Thermal resistance junction/pin		R_{thJP}	90	K/W

Note:

¹⁾ $T_{amb} = 25^\circ C$, unless otherwise specified.²⁾ Driving the LED in reverse direction is suitable for a short term application.**OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ VLWR993., RED**

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Total flux	$I_F = 70 \text{ mA}$, $R_{thJA} = 200 \text{ K/W}$	VLWR9930	ϕ_V	4000		12 200	mlm
		VLWR9931	ϕ_V	5000		12 200	mlm
Luminous intensity/total flux	$I_F = 70 \text{ mA}$, $R_{thJA} = 200 \text{ K/W}$		I_V/ϕ_V		0.7		mcd/mlm
Dominant wavelength	$I_F = 70 \text{ mA}$, $R_{thJA} = 200 \text{ K/W}$		λ_d	611	615	634	nm
Peak wavelength	$I_F = 70 \text{ mA}$, $R_{thJA} = 200 \text{ K/W}$		λ_p		624		nm
Angle of half intensity	$I_F = 70 \text{ mA}$, $R_{thJA} = 200 \text{ K/W}$		φ		± 45		deg
Total included angle	90 % of total flux captured		$\varphi_{0.9V}$		100		deg
Forward voltage	$I_F = 70 \text{ mA}$, $R_{thJA} = 200 \text{ K/W}$		V_F	1.83	2.5	3.03	V
Reverse voltage			V_R	10	20		V
Temperature coefficient λ_d	$I_F = 70 \text{ mA}$		TC_{λ_d}		0.065		nm/K
Temperature coefficient V_F	$I_F = 70 \text{ mA}$, $T > - 25^\circ C$		TC_{V_F}		- 2		mV/K

Note:

¹⁾ $T_{amb} = 25^\circ C$, unless otherwise specified.**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 and a accuracy of $\pm 0.1 \text{ V}$.**COLOR CLASSIFICATION**

GROUP	DOMINANT 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 $\pm 1 \text{ nm}$.

LUMINOUS FLUX CLASSIFICATION

GROUP	LUMINOUS FLUX (lm)	
	MIN.	MAX.
H	4000	6100
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 $\pm 11\%$.

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 be not 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

$T_{amb} = 25^\circ\text{C}$, unless otherwise specified

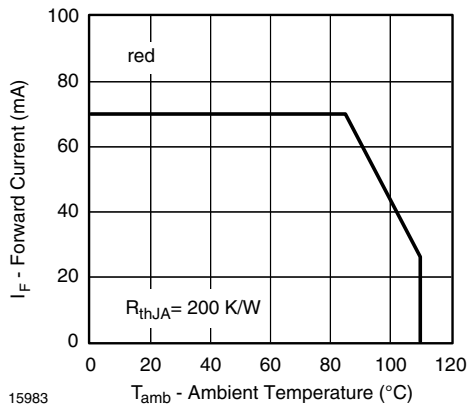


Figure 1. Forward Current vs. Ambient Temperature

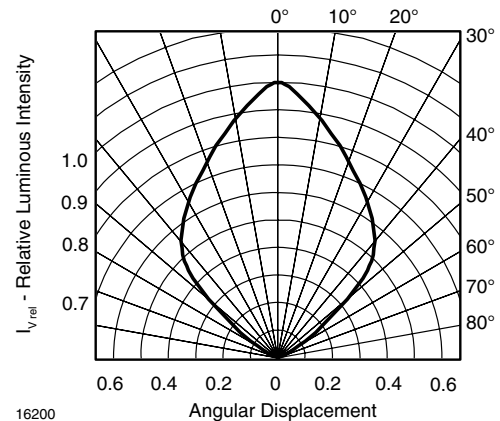


Figure 3. Rel. Luminous Intensity vs. Angular Displacement

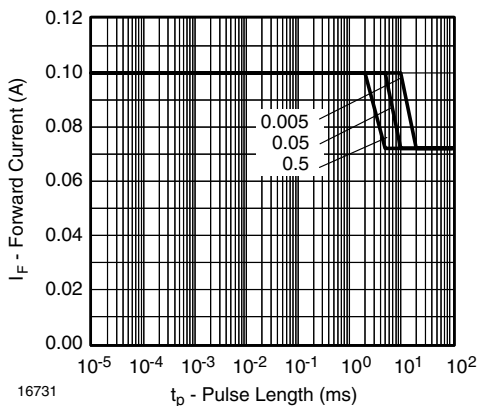


Figure 2. Forward Current vs. Pulse Length

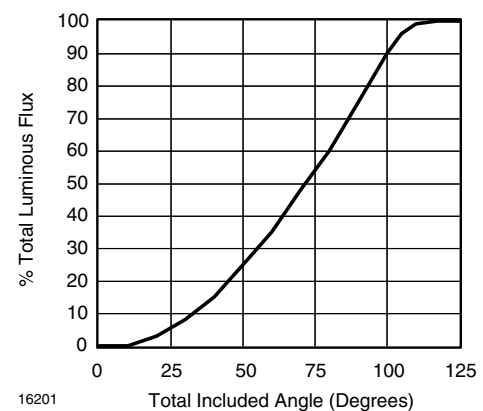


Figure 4. Percentage Total Luminous Flux vs. Total Included Angle for 90° Emission Angle

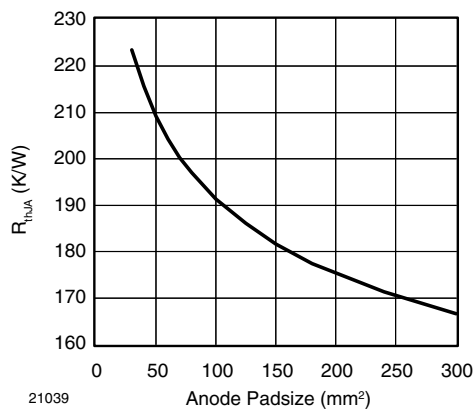
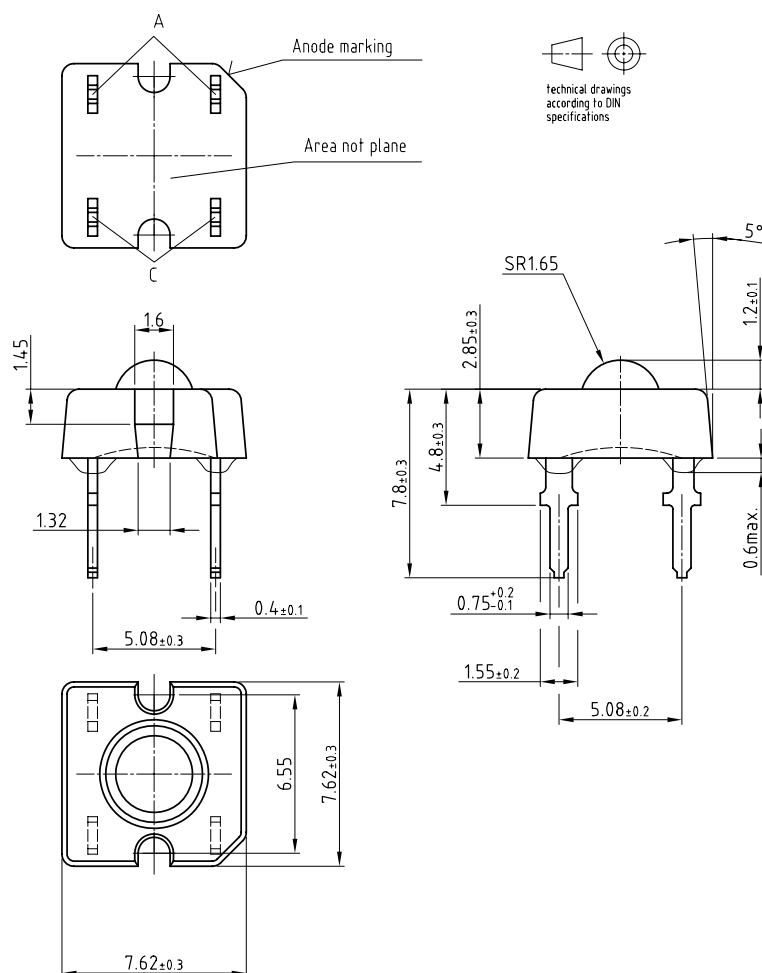


Figure 5. Thermal Resistance Junction Ambient vs. Anode Padsize

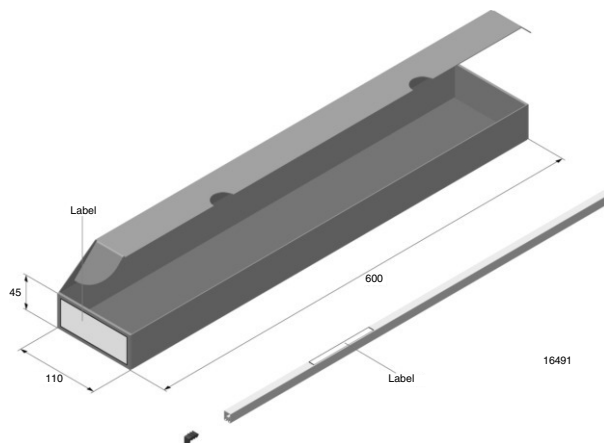
PACKAGE DIMENSIONS in millimeters



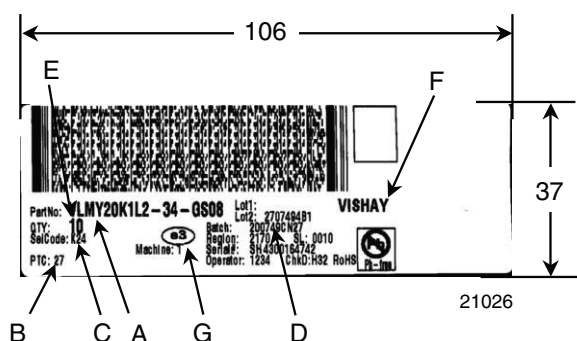
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Issue: 1; 22.01.08

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FAN FOLD BOX Dimensions in millimeters

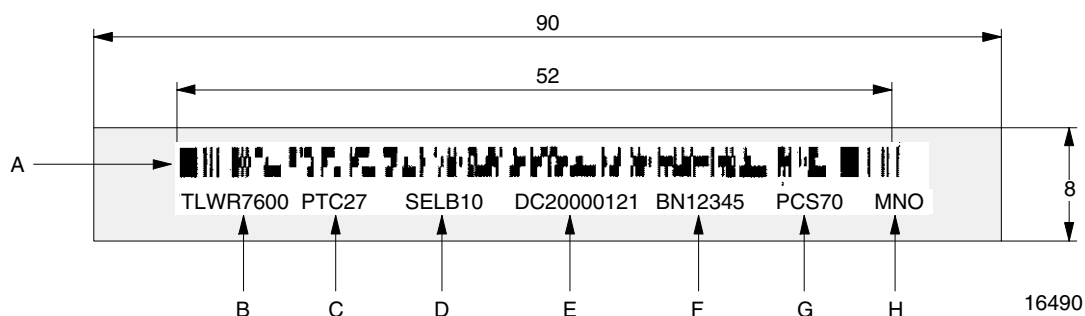


LABEL OF FAN FOLD BOX
EXAMPLE:



- A) Type of component
- B) PTC = manufacturing plant
- C) SEL - selection code (bin):
e.g.: K2 = code for luminous intensity group
4 = code for color group
- D) Batch/date code
- E) Total quantity
- F) Company code
- G) Code for lead (Pb)-free classification (e3)

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

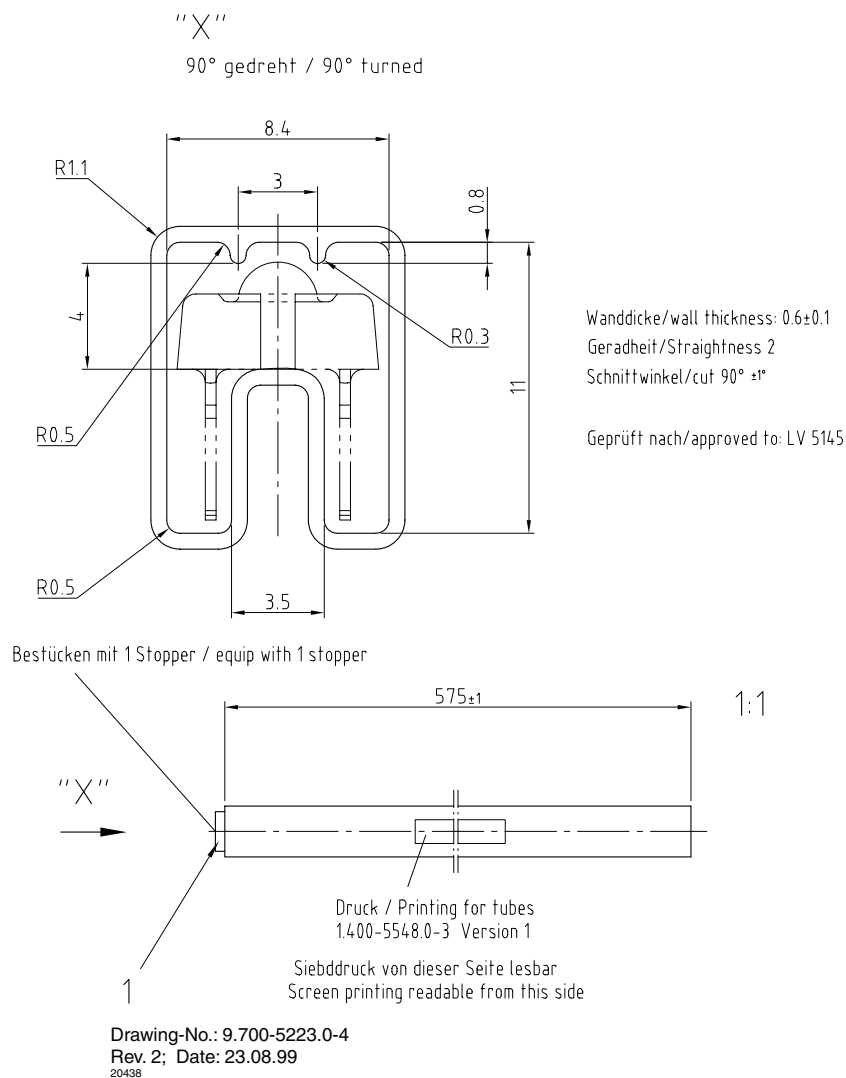


Figure 6. Drawing Proportions not Scaled

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All product specifications and data are subject to change without notice.

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