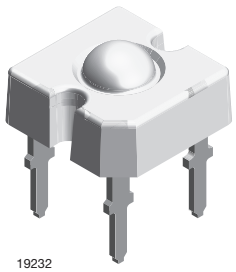
TELUX LED


19232

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 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 homogeneous 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 °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
- 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
e4
RoHS COMPLIANT
HALOGEN FREE
GREEN (5-2008)

APPLICATIONS

- Exterior lighting
- Tail-, stop-, and turn signals of motor vehicles
- 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.		
VLWR9930	Red	4000	8500	12 200	70	611	616	634	70	1.83	2.2	3.03	70	AlInGaP on Si
VLWR9931 (1)	Red	5000	8500	12 200	70	611	616	634	70	1.83	2.2	3.03	70	AlInGaP on Si
VLWR9932	Red	6000	9000	12 200	70	611	616	634	70	1.95	2.2	2.67	70	AlInGaP on Si
VLWR9933	Red	7000	9500	12 200	70	611	616	634	70	1.95	2.2	2.67	70	AlInGaP on Si

Note

(1) Not for new designs

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ABSOLUTE MAXIMUM RATINGS (T_{amb} = 25 °C, unless otherwise specified)
VLWR9930, VLWR9931, VLWR9932, VLWR9933

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}	-40 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 to ambient	With cathode heatsink of 70 mm²	R_{thJA}	200	K/W
Thermal resistance junction to 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)
VLWR9930, VLWR9931, VLWR9932, VLWR9933, RED

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Total flux	I_F = 70 mA, R_{thJA} = 200 K/W	VLWR9930	ϕ_V	4000	8500	12 200	mlm
		VLWR9931 (1)	ϕ_V	5000	8500	12 200	mlm
		VLWR9932	ϕ_V	6000	9000	12 200	mlm
		VLWR9933	ϕ_V	7000	9500	12 200	mlm
Luminous intensity/total flux	I_F = 70 mA, R_{thJA} = 200 K/W		I_V/ϕ_V	-	0.7	-	mcd/mlm
Dominant wavelength	I_F = 70 mA, R_{thJA} = 200 K/W		λ_d	611	616	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		φ	-	± 45	-	°
Total included angle	90 % of total flux captured		$\varphi_{0.9V}$	-	100	-	°
Forward voltage	I_F = 70 mA, R_{thJA} = 200 K/W	VLWR9930	V_F	1.83	2.2	3.03	V
		VLWR9931 (1)	V_F	1.83	2.2	3.03	V
		VLWR9932	V_F	1.95	2.2	2.67	V
		VLWR9933	V_F	1.95	2.2	2.67	V
Reverse voltage			V_R	10	20	-	V
Temperature coefficient < λ_d	I_F = 70 mA		$TC\lambda_d$	-	0.065	-	nm/K
Temperature coefficient V_F	I_F = 70 mA, T > -25 °C		TCV_F	-	-2	-	mV/K

Note

(1) Not for new designs

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

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LUMINOUS FLUX CLASSIFICATION		
GROUP	LUMINOUS FLUX (mlm)	
	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 ± 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)

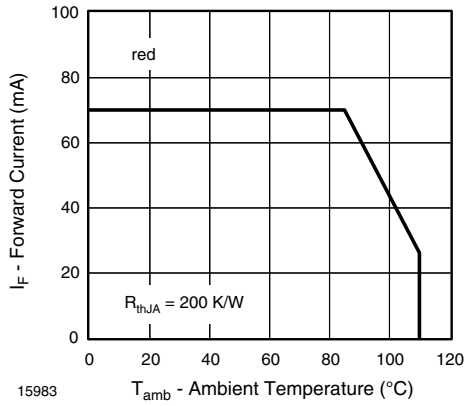


Fig. 1 - Forward Current vs. Ambient Temperature

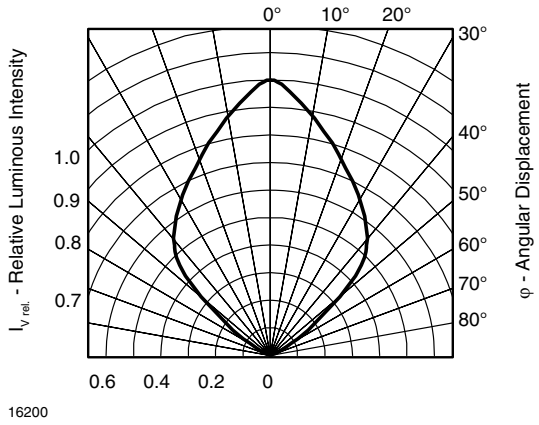


Fig. 3 - Relative Luminous Intensity vs. Angular Displacement

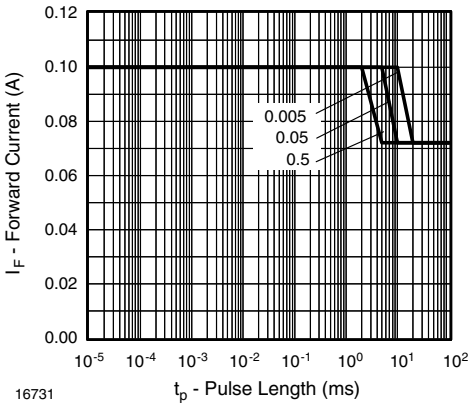


Fig. 2 - Permissible Forward Current vs. Pulse Length

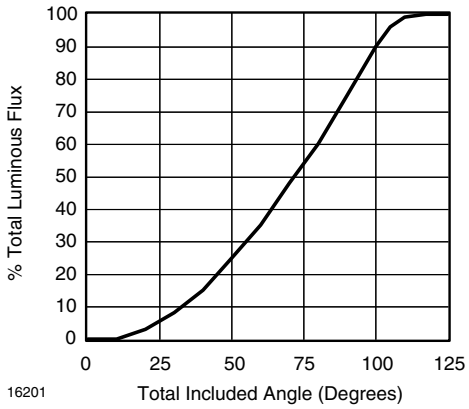


Fig. 4 - Percentage Total Luminous Flux vs. Total Included Angle for 90° Emission Angle

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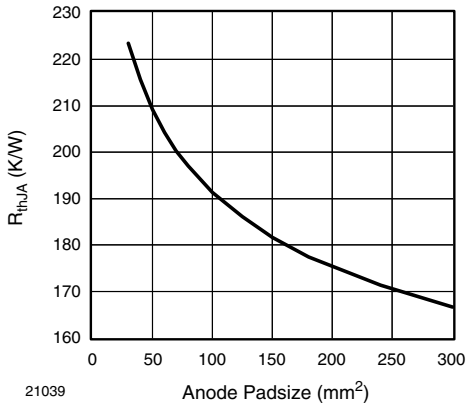
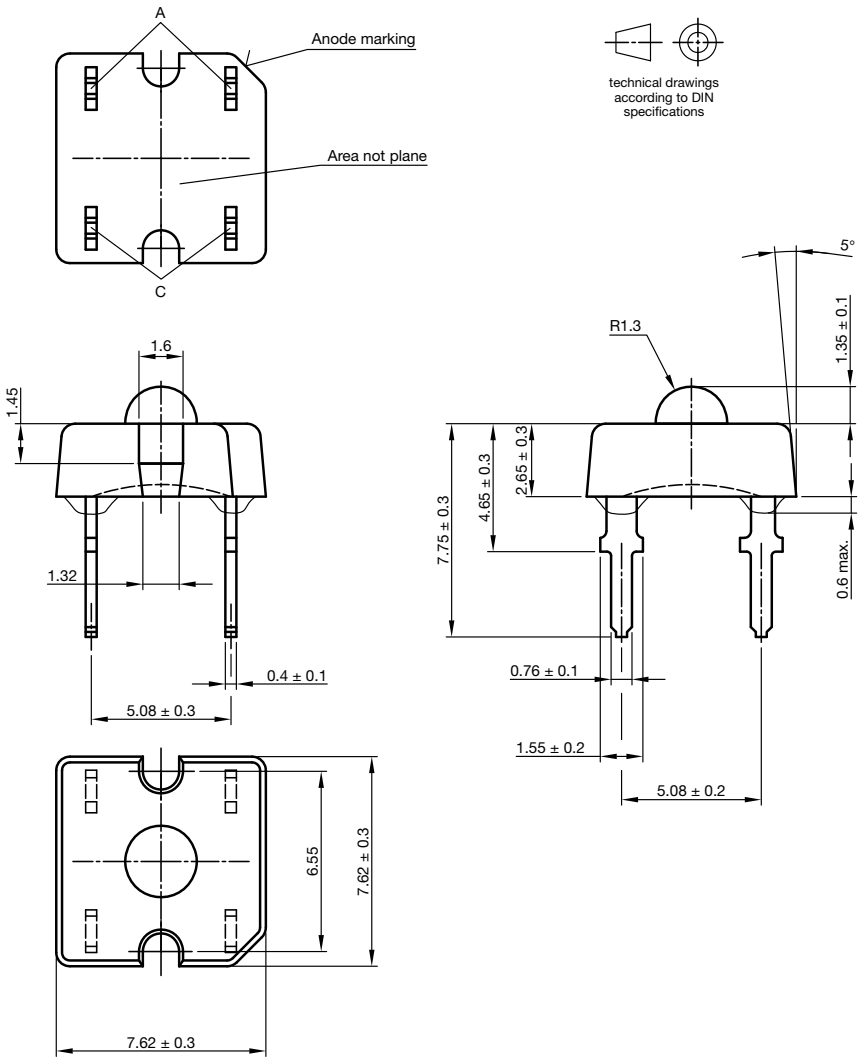


Fig. 5 - Thermal Resistance Junction Ambient vs. Anode Padsize

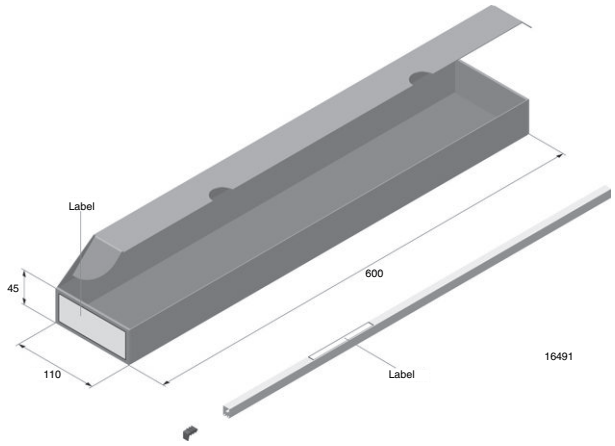
PACKAGE DIMENSIONS in millimeters



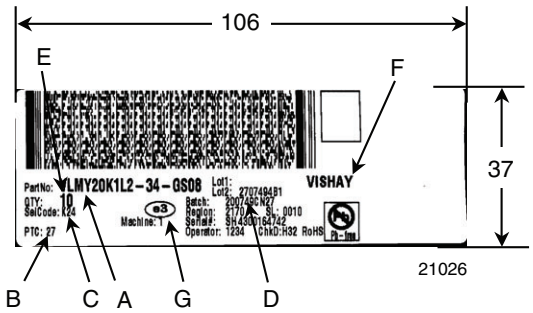
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Issue: 3; 27.02.15

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FAN FOLD BOX DIMENSIONS in millimeters

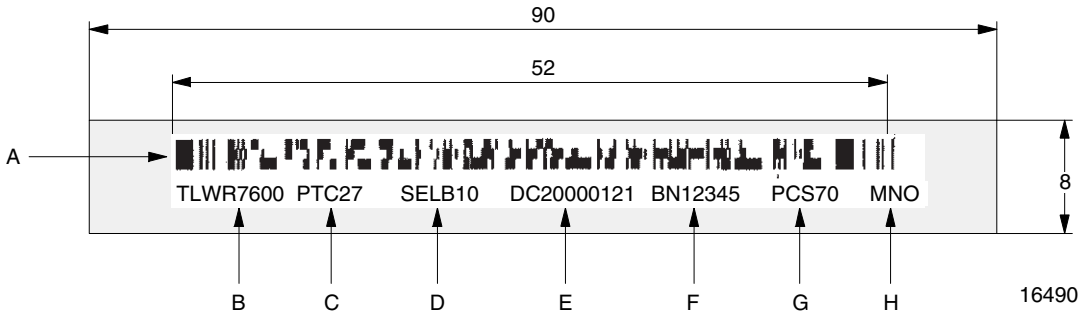


LABEL OF FAN FOLD BOX (example)



A. Type of component
B. Manufacturing plant
C. SEL - selection code (bin):
e.g.: 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)

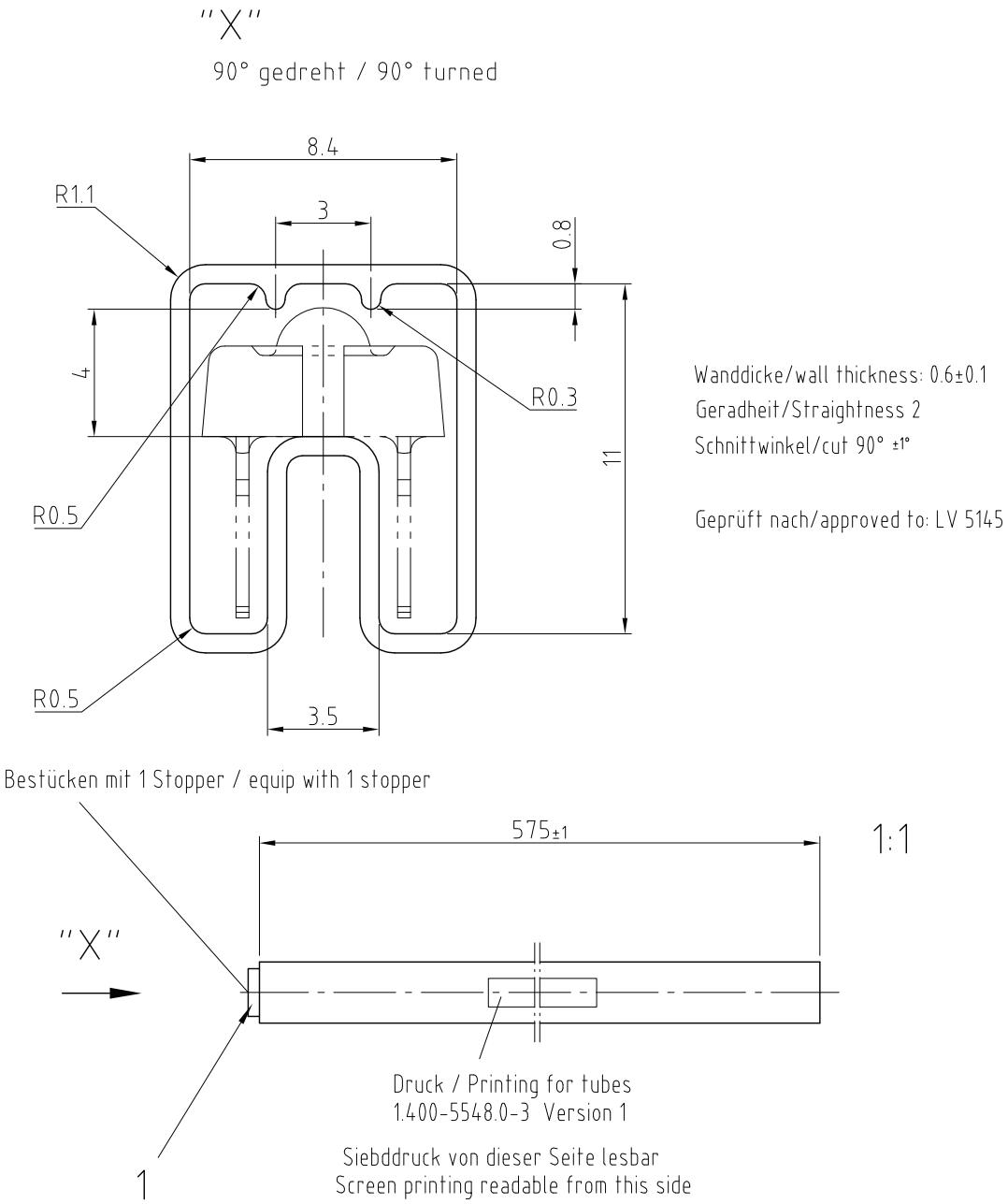
EXAMPLE FOR TELUX TUBE LABEL DIMENSIONS in millimeters



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

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TUBE WITH BAR CODE LABEL DIMENSIONS in millimeters



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