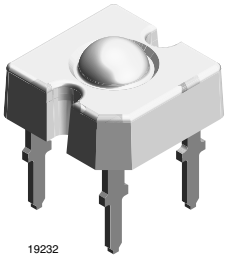
# TELUX™




## 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.

## 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
- Lead (Pb)-free device
- 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

## APPLICATIONS

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

**PARTS TABLE**

| PART | COLOR, LUMINOUS FLUX | TECHNOLOGY |
|---|---|---|
| VLWY9930 | Yellow, $\phi_V$ = (4000 to 12200) mlm | AlInGaP on Si |

| ABSOLUTE MAXIMUM RATINGS [1] VLWY9930 | | | | |
|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITION** | **SYMBOL** | **VALUE** | **UNIT** |
| Reverse voltage [2] | | $V_R$ | 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/ 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 °C, unless otherwise specified.
[2] Driving the LED in reverse direction is suitable for a short term application.

| OPTICAL AND ELECTRICAL CHARACTERISTICS [1] VLWY9930, YELLOW | | | | | | | |
|---|---|---|---|---|---|---|---|
| **PARAMETER** | **TEST CONDITION** | **PART** | **SYMBOL** | **MIN.** | **TYP.** | **MAX.** | **UNIT** |
| Total flux | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | VLWY9930 | $\phi_V$ | 4000 | | 12200 | mlm |
| Luminous intensity/total flux | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | | $I_V/\phi_V$ | | 0.7 | | mcd/mlm |
| Dominant wavelength | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | | $\lambda_d$ | 585 | 592 | 597 | nm |
| Peak wavelength | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | | $\lambda_p$ | | 594 | | nm |
| Angle of half intensity | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | | $\varphi$ | | ± 45 | | deg |
| Total included angle | 90 % of total flux captured | | $\varphi_{0.9V}$ | | 100 | | deg |
| Forward voltage | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | | $V_F$ | 1.83 | 2.5 | 3.03 | V |
| Reverse voltage | | | $V_R$ | 10 | 20 | | V |
| Temperature coefficient $\lambda_d$ | $I_F$ = 70 mA | | $TC\lambda_d$ | | 0.1 | | nm/K |
| Temperature coefficient $V_F$ | $I_F$ = 70 mA, T > - 25 °C | | $TC_{VF}$ | | - 2.0 | | mV/K |

Note:
[1] $T_{amb}$ = 25 °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 |
| 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 ± 0.1 V.

| COLOR CLASSIFICATION | | |
|---|---|---|
| **GROUP** | **DOMINANT WAVELENGTH (NM)** | |
| | **MIN.** | **MAX.** |
| 0 | 585 | 588 |
| 1 | 587 | 591 |
| 2 | 589 | 594 |
| 3 | 592 | 597 |

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. |
| H | 4000 | 6100 |
| I | 5000 | 7300 |
| K | 6000 | 9700 |
| L | 7000 | 12200 |

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 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 °C, unless otherwise specified

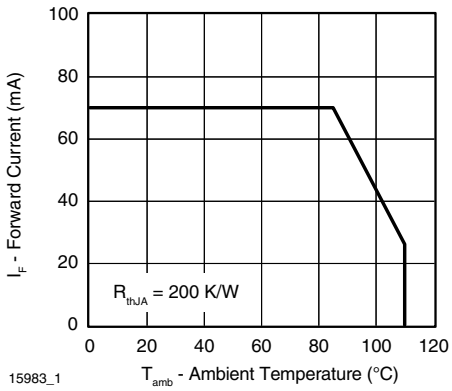



Figure 1. Forward Current vs. Ambient Temperature

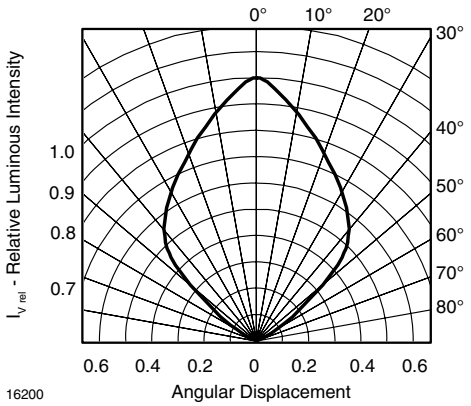



Figure 3. Rel. Luminous Intensity vs. Angular Displacement

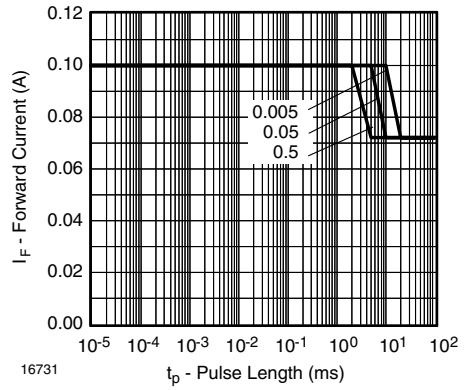



Figure 2. Forward Current vs. Pulse Length

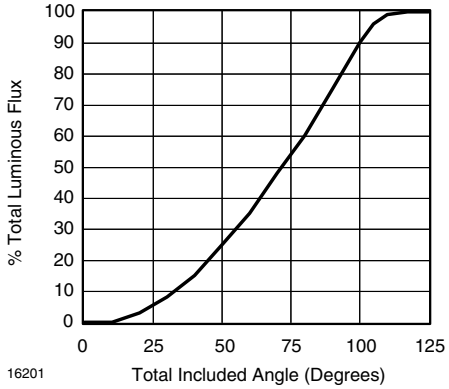



Figure 4. Percentage Total Luminous Flux vs. Total Included Angle for 90° Emission Angle

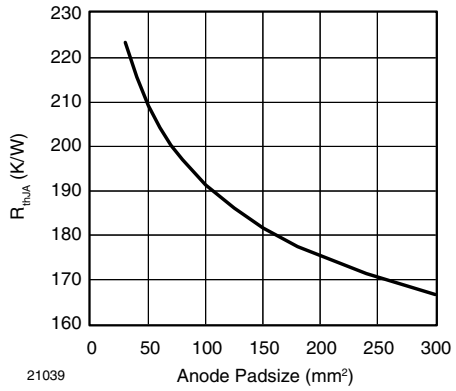
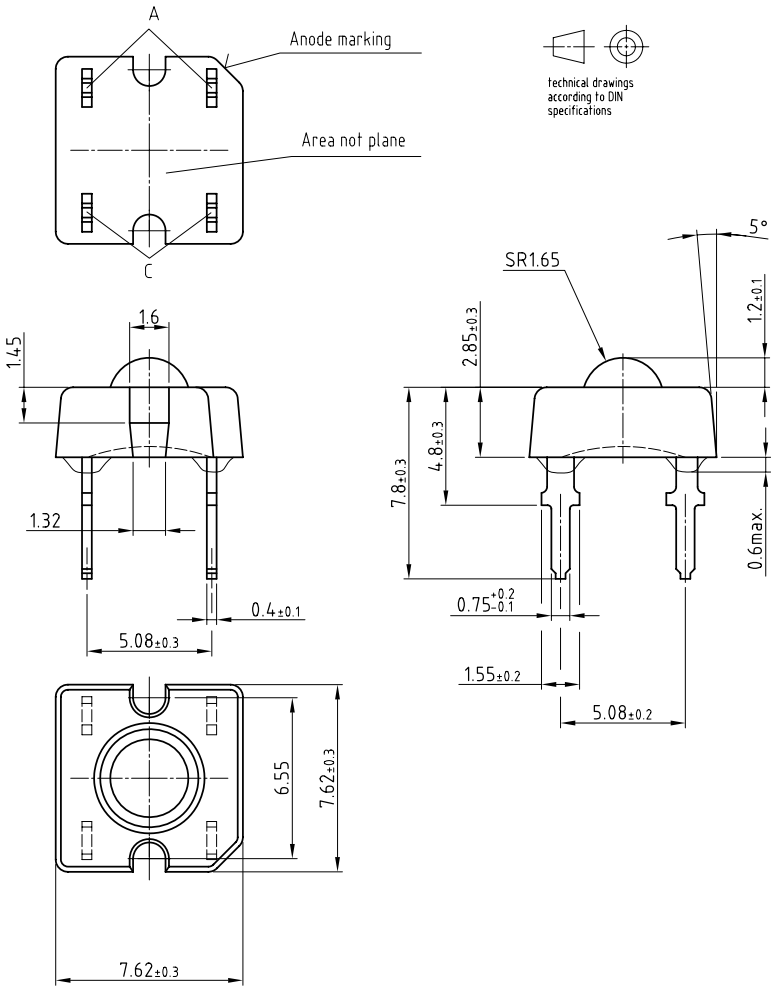



Figure 5. Thermal Resistance Junction Ambient vs. Anode Padsize

## **PACKAGE DIMENSIONS** in millimeters

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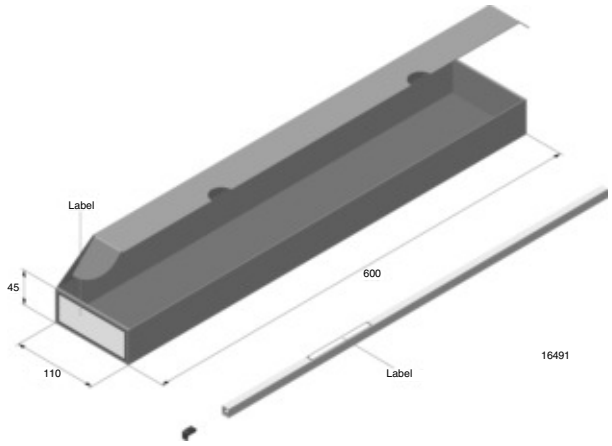
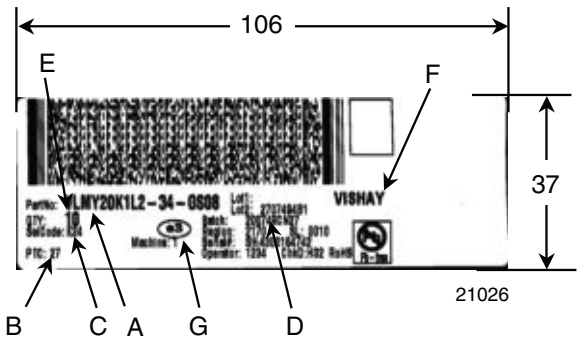
**FAN FOLD BOX** Dimensions in millimeters

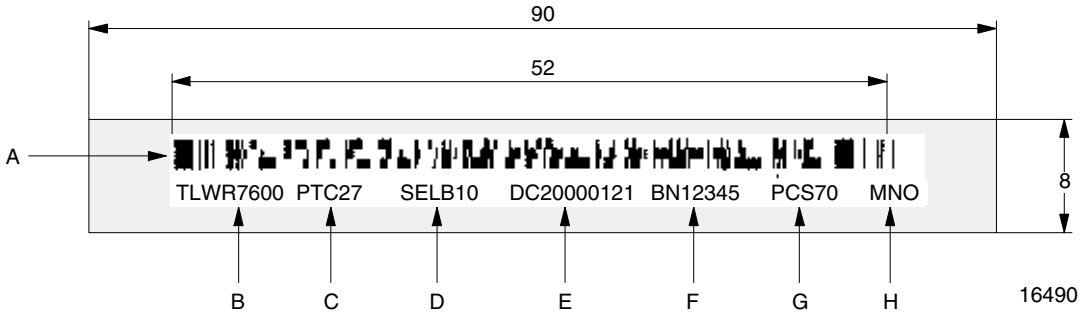



**LABEL OF FAN FOLD BOX**
**EXAMPLE:**




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

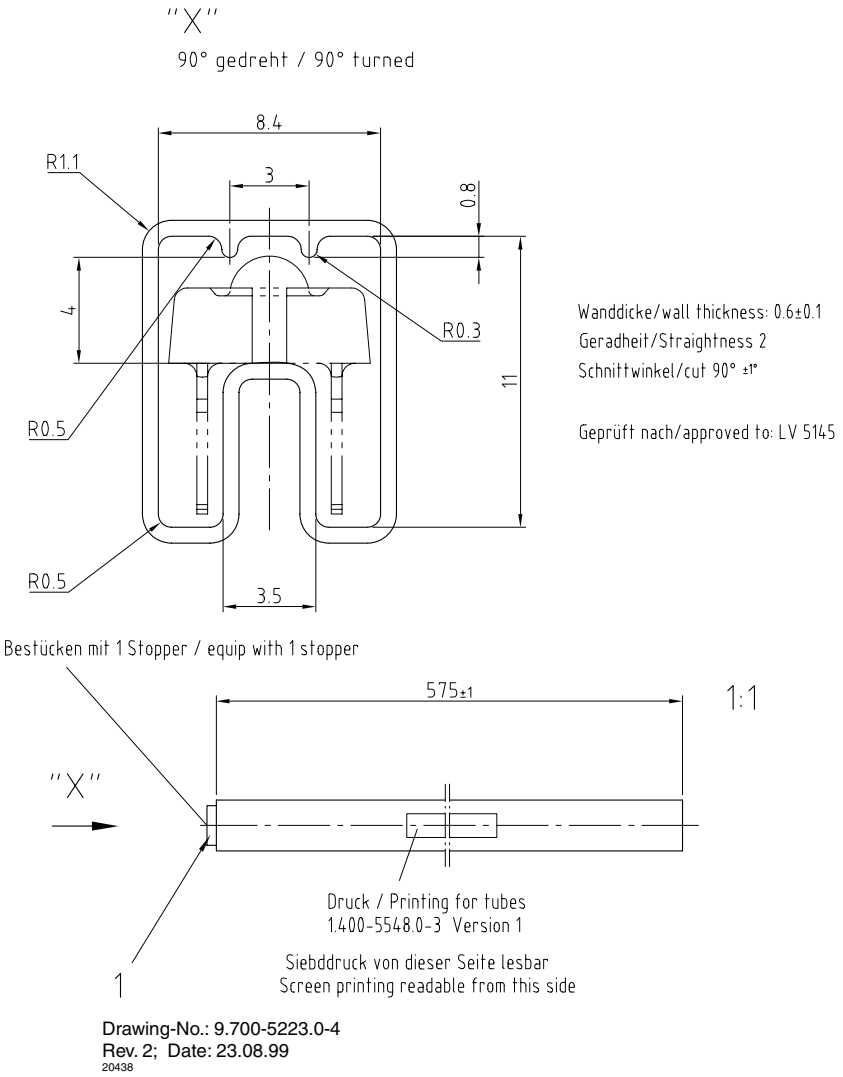



Figure 6. Drawing Proportions not scaled

## OZONE DEPLETING SUBSTANCES POLICY STATEMENT

It is the policy of Vishay Semiconductor GmbH to

1. Meet all present and future national and international statutory requirements.
2. Regularly and continuously improve the performance of our products, processes, distribution and operating systems with respect to their impact on the health and safety of our employees and the public, as well as their impact on the environment.

It is particular concern to control or eliminate releases of those substances into the atmosphere which are known as ozone depleting substances (ODSs).

The Montreal Protocol (1987) and its London Amendments (1990) intend to severely restrict the use of ODSs and forbid their use within the next ten years. Various national and international initiatives are pressing for an earlier ban on these substances.

Vishay Semiconductor GmbH has been able to use its policy of continuous improvements to eliminate the use of ODSs listed in the following documents.

1. Annex A, B and list of transitional substances of the Montreal Protocol and the London Amendments respectively.
2. Class I and II ozone depleting substances in the Clean Air Act Amendments of 1990 by the Environmental Protection Agency (EPA) in the USA.
3. Council Decision 88/540/EEC and 91/690/EEC Annex A, B and C (transitional substances) respectively.

Vishay Semiconductor GmbH can certify that our semiconductors are not manufactured with ozone depleting substances and do not contain such substances.



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