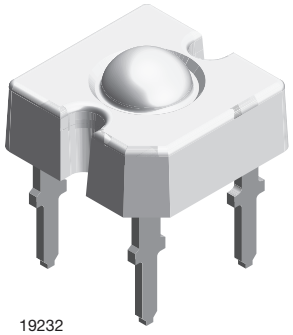
# TELUX LED



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## 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 and J-STD-020
- ESD-withstand voltage: up to 2 kV according to JESD22-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

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: standard
- Angle of half intensity: ± 30°

## 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) | | | FORWARD VOLTAGE (V) | | | TECHNOLOGY |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | | MIN. | TYP. | MAX. | | MIN. | TYP. | MAX. | MIN. | TYP. | MAX. | |
| TLWR7600 | Red | 1500 | 2100 | - | 70 | 611 | 618 | 634 | 1.83 | 2.2 | 2.67 | AlInGaP on GaAs |
| TLWY7600 | Yellow | 1000 | 1400 | - | 70 | 585 | 592 | 597 | 1.83 | 2.1 | 2.67 | AlInGaP on GaAs |

**ABSOLUTE MAXIMUM RATINGS** ($T_{amb}$ = 25 °C, unless otherwise specified)
**TLWR7600, TLWY7600**

| 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 | $I_{FSM}$ | 1 | A |
| Power dissipation | | $P_V$ | 187 | 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 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)
**TLWR7600, RED**

| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Total flux | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | $\phi_V$ | 1500 | 2100 | - | mlm |
| Luminous intensity/total flux | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | $I_V/\phi_V$ | - | 0.8 | - | mcd/mlm |
| Dominant wavelength | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | $\lambda_d$ | 611 | 618 | 634 | nm |
| Peak wavelength | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | $\lambda_p$ | - | 624 | - | nm |
| Angle of half intensity | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | $\varphi$ | - | ± 30 | - | deg |
| Total included angle | 90 % of total flux captured | $\varphi_{0.9\ V}$ | - | 75 | - | deg |
| Forward voltage | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | $V_F$ | 1.83 | 2.2 | 2.67 | V |
| Reverse voltage | $I_R$ = 10 µA | $V_R$ | 10 | 20 | - | V |
| Junction capacitance | $V_R$ = 0 V, f = 1 MHz | $C_j$ | - | 17 | - | pF |
| Temperature coefficient of $\lambda_{dom}$ | $I_F$ = 50 mA | $TC\lambda_{dom}$ | - | 0.05 | - | nm/K |

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ($T_{amb}$ = 25 °C, unless otherwise specified)
**TLWY7600, YELLOW**

| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|---|---|---|---|---|---|---|
| Total flux | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | $\phi_V$ | 1000 | 1400 | - | mlm |
| Luminous intensity/total flux | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | $I_V/\phi_V$ | - | 0.8 | - | 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 | $\varphi$ | - | ± 30 | - | deg |
| Total included angle | 90 % of total flux captured | $\varphi_{0.9\ V}$ | - | 75 | - | deg |
| Forward voltage | $I_F$ = 70 mA, $R_{thJA}$ = 200 K/W | $V_F$ | 1.83 | 2.1 | 2.67 | V |
| Reverse voltage | $I_R$ = 10 µA | $V_R$ | 10 | 15 | - | V |
| Junction capacitance | $V_R$ = 0 V, f = 1 MHz | $C_j$ | - | 32 | - | pF |
| Temperature coefficient of $\lambda_{dom}$ | $I_F$ = 50 mA | $TC\lambda_{dom}$ | - | 0.1 | - | nm/K |

| LUMINOUS FLUX CLASSIFICATION | | |
|---|---|---|
| GROUP | LUMINOUS FLUX (mlm) | |
| STANDARD | MIN. | MAX. |
| B | 1000 | 1800 |
| C | 1500 | 2400 |
| D | 2000 | 3000 |
| E | 2500 | 3600 |
| F | 3000 | 4200 |
| G | 3500 | 4800 |
| H | 4000 | 6100 |
| I | 5000 | 7300 |
| K | 6000 | 9700 |

**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.

| COLOR CLASSIFICATION | | | | |
|---|---|---|---|---|
| GROUP | DOM. WAVELENGTH (nm) | | | |
| | YELLOW | | RED | |
| | MIN. | MAX. | MIN. | MAX. |
| 0 | 585 | 588 | | |
| 1 | 587 | 591 | 611 | 618 |
| 2 | 589 | 594 | 614 | 622 |
| 3 | 592 | 597 | 616 | 634 |

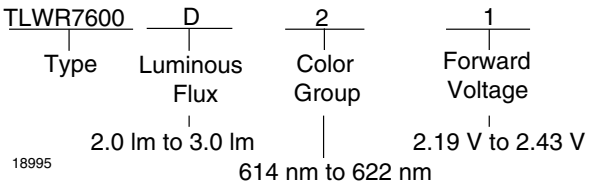
**Note**

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

| 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 |

**Note**

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



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

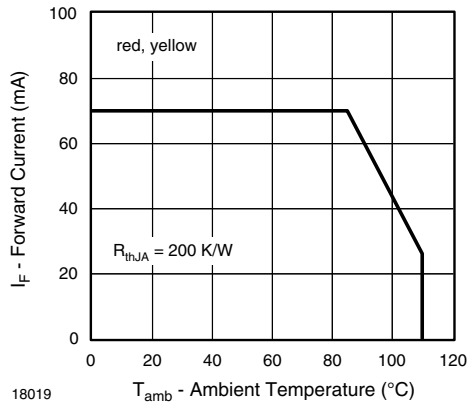



Fig. 1 - Forward Current vs. Ambient Temperature

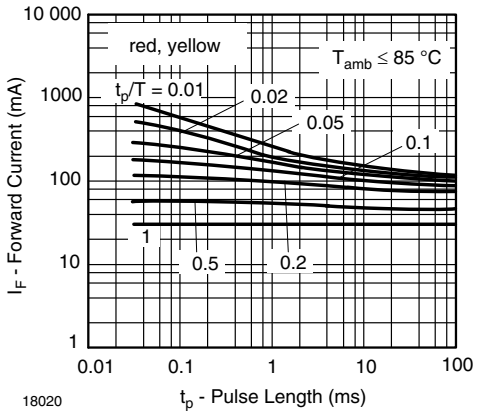



Fig. 2 - Forward Current vs. Pulse Length

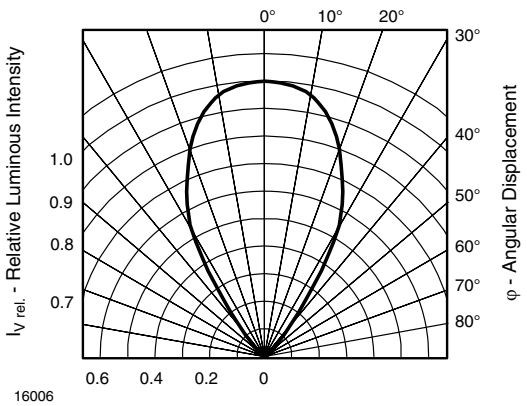



Fig. 3 - Relative Luminous Intensity vs. Angular Displacement

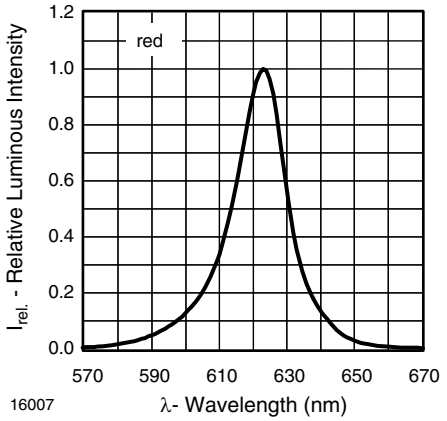



Fig. 4 - Relative Intensity vs. Wavelength

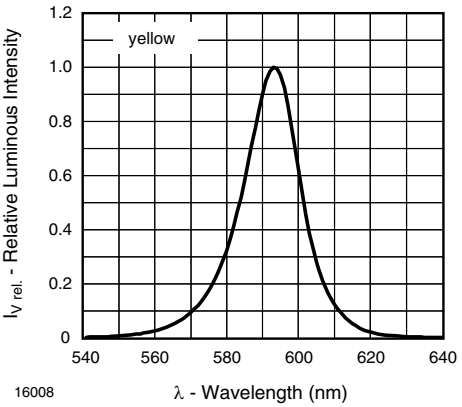



Fig. 5 - Relative Intensity vs. Wavelength

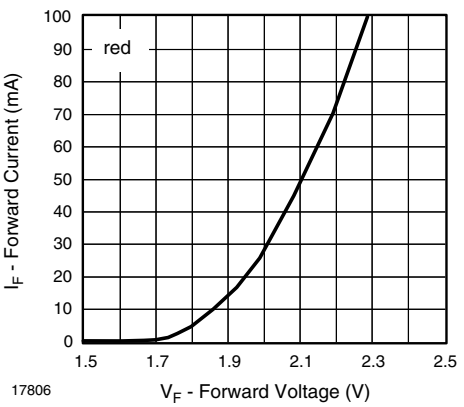



Fig. 6 - Forward Current vs. Forward Voltage

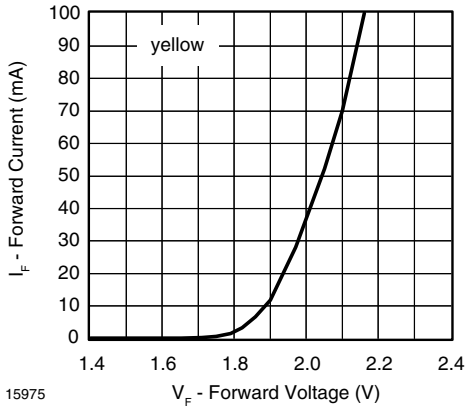



Fig. 7 - Forward Current vs. Forward Voltage

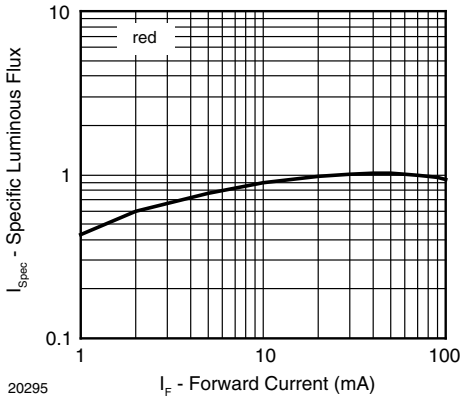



Fig. 10 - Specific Luminous Flux vs. Forward Current

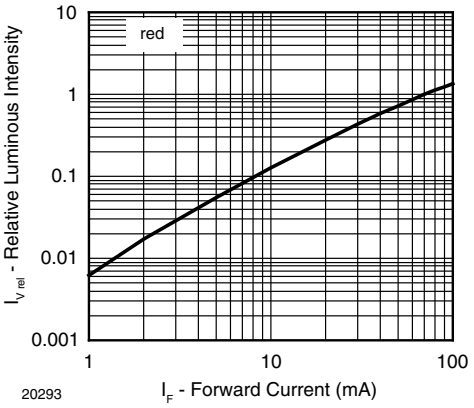



Fig. 8 - Relative Luminous Intensity vs. Forward Current

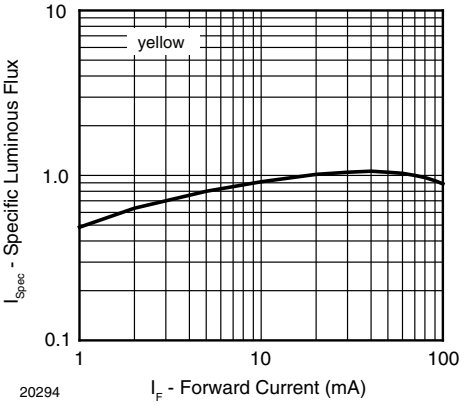



Fig. 11 - Specific Luminous Flux vs. Forward Current

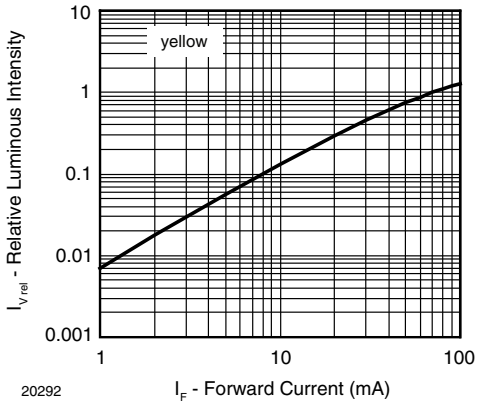



Fig. 9 - Relative Luminous Intensity vs. Forward Current

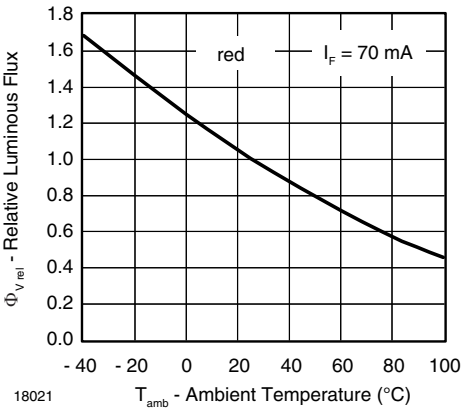



Fig. 12 - Relative Luminous Flux vs. Ambient Temperature

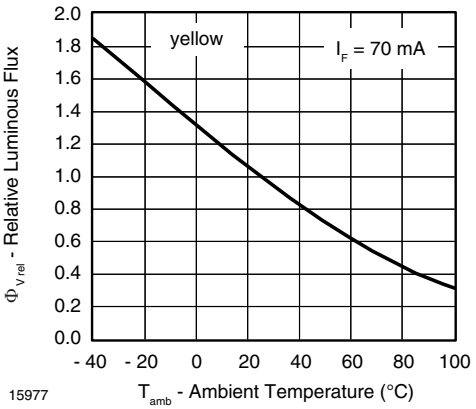



Fig. 13 - Relative Luminous Flux vs. Ambient Temperature

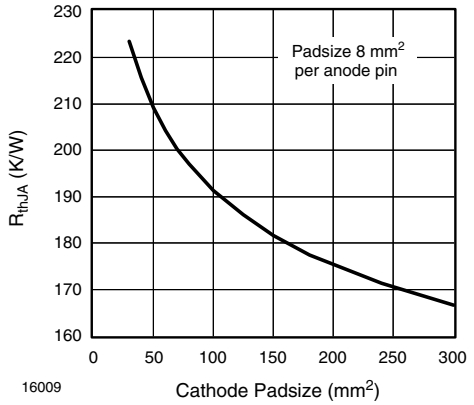



Fig. 14 - Thermal Resistance Junction Ambient vs. Cathode Padsize

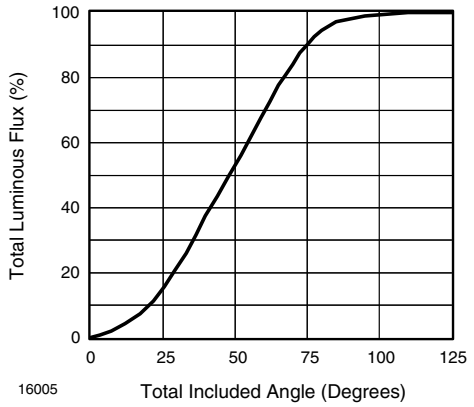
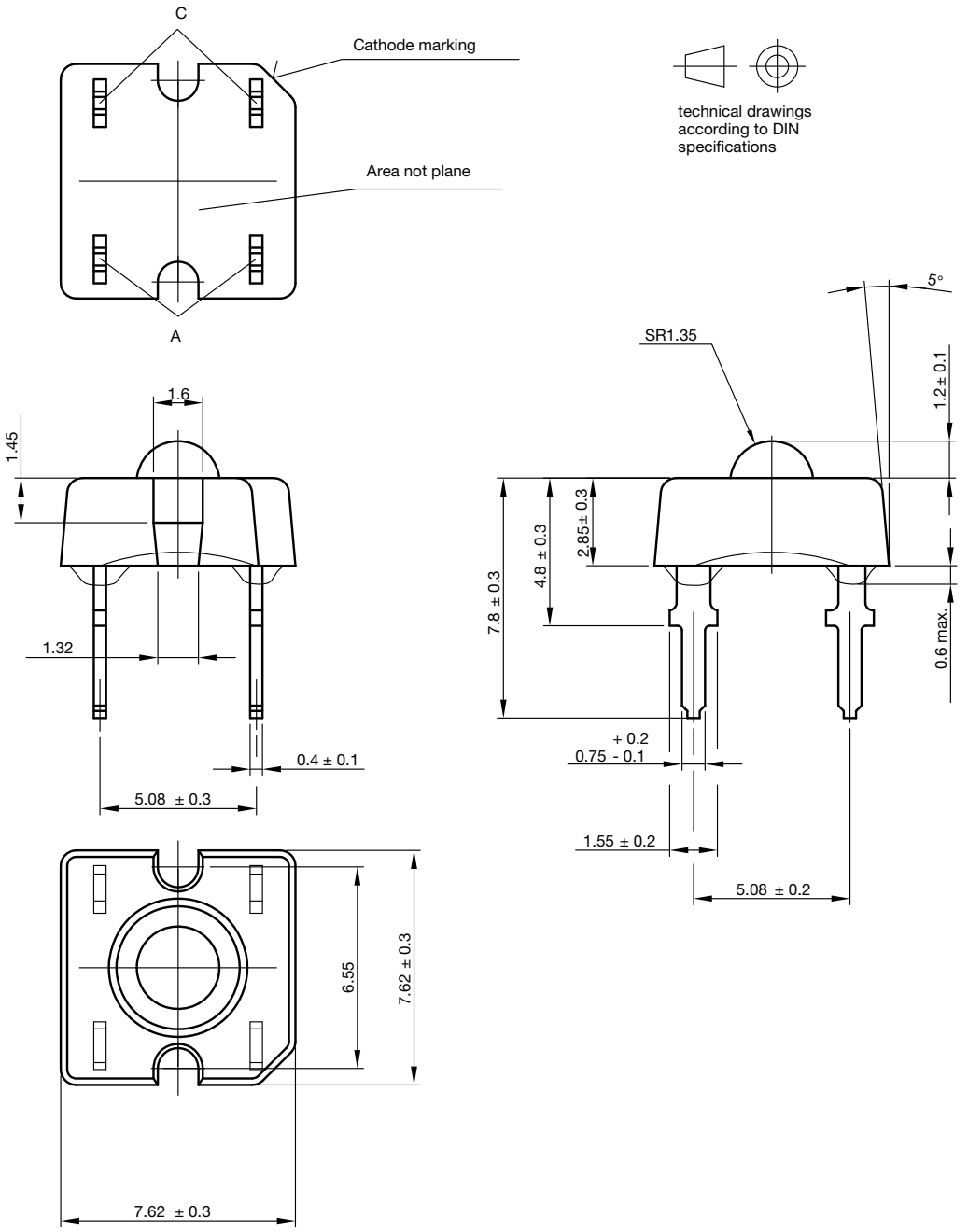


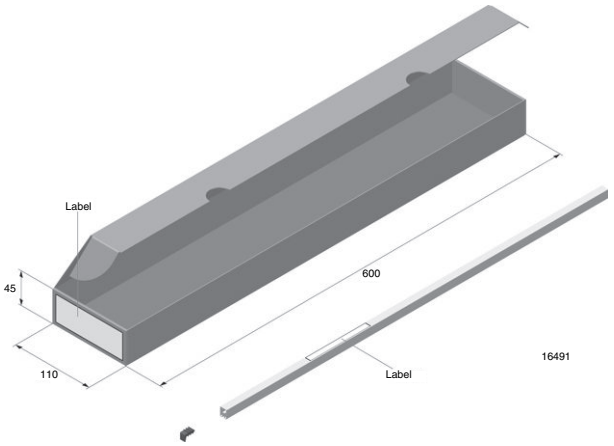

Fig. 15 - Percentage Total Luminous Flux vs. Total Included Angle for 90° Emission Angle

**PACKAGE DIMENSIONS** in millimeters

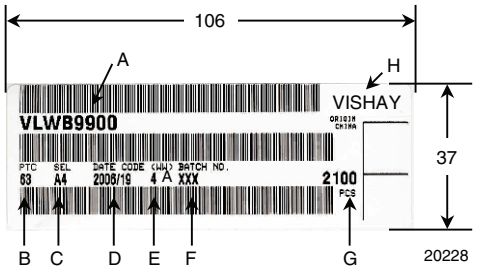



Drawing-No.: 6.544-5321.02-4
Issue: 3; 26.06.06
16004

## FAN FOLD BOX DIMENSIONS in millimeters

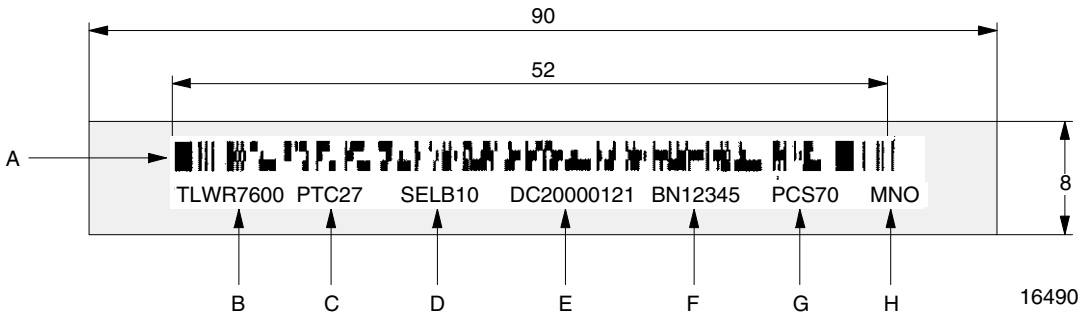



## LABEL OF FAN FOLD BOX (example)



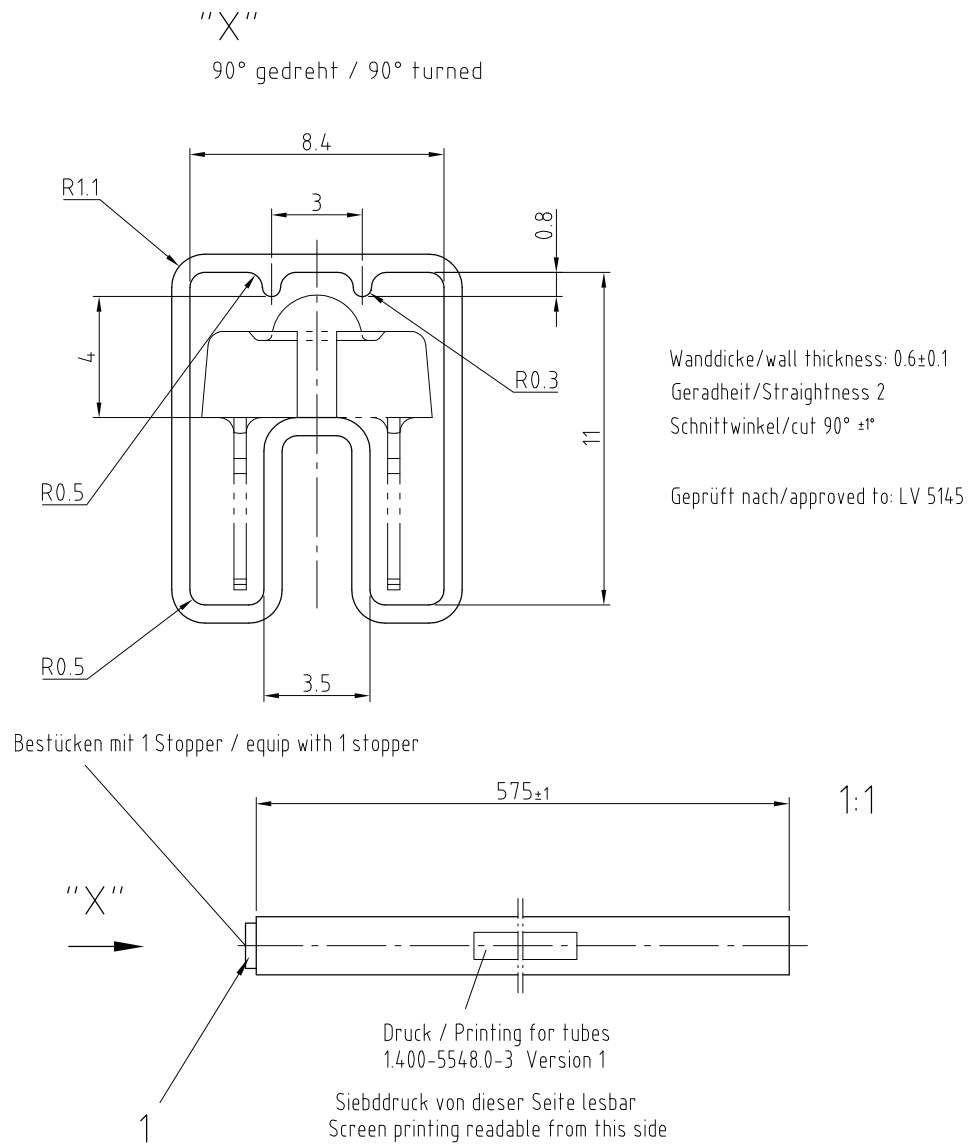

A. Type of component
B. Manufacturing plant
C. SEL - selection code (bin):
e.g.: A = code for luminous intensity group
4 = code for color group
D. Date code year/week
E. Day code (e.g. 4: Thursday, A: early shift)
F. Batch: no.
G. Total quantity
H. Company code

## 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

Fig. 16 - Drawing Proportions not Scaled

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LifeElectronics
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*ИНН 7805602321 КПП 780501001 Р/С 40702810122510004610 ФАКБ "АБСОЛЮТ БАНК" (ЗАО) в г.Санкт-Петербурге К/С 30101810900000000703 БИК 044030703*

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- *Специальные условия для постоянных клиентов.*
- *Подбор аналогов.*
- *Поставку компонентов в любых объемах, удовлетворяющих вашим потребностям.*

- *Приемлемые сроки поставки, возможна ускоренная поставка.*
- *Доставку товара в любую точку России и стран СНГ.*
- *Комплексную поставку.*
- *Работу по проектам и поставку образцов.*
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- *Тестирование поставляемой продукции.*
- *Поставку компонентов, требующих военную и космическую приемку.*
- *Входной контроль качества.*
- *Наличие сертификата ISO.*

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- *Техническую поддержку проекта.*
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*Email: org@lifeelectronics.ru*

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