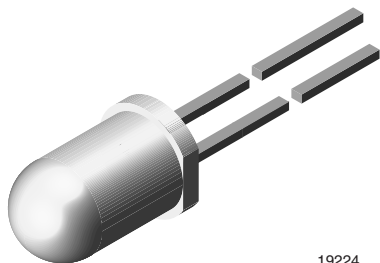


Ultrabright LED, Ø 5 mm Untinted Non-Diffused Package



19224

DESCRIPTION

The TLCR6200 is a clear, non-diffused 5 mm LED for high end applications where supreme luminous intensity required.

These lamps with clear untinted plastic case utilize the highly developed ultrabright AlInGaP (AS).

The lens and the viewing angle is optimized to achieve best performance of light output and visibility.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 5 mm
- Product series: power
- Angle of half intensity: $\pm 15^\circ$

FEATURES

- Untinted non-diffused lens
- Utilizing ultrabright AlInGaP (AS)
- High luminous intensity
- High operating temperature: T_j (chip junction temperature) up to 125°C for AlInGaP devices
- Luminous intensity and color categorized for each packing unit
- ESD-withstand voltage: up to 2 kV according to JESD22-A114-B
- Material categorization: for definitions of compliance please see www.vishay.com/doc?99912



RoHS
COMPLIANT
HALOGEN
FREE
GREEN
(5-2008)

APPLICATIONS

- Interior and exterior lighting
- Outdoor LED panels
- Instrumentation and front panel indicators
- Central high mounted stop lights (CHMSL) for motor vehicles
- Replaces incandescent lamps
- Traffic signals
- Light guide design

PARTS TABLE

| PART | COLOR | LUMINOUS INTENSITY (mcd) | | | 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. | | |
| TLCR6200-AS12 | Red | 1350 | 4000 | - | 50 | 611 | 616 | 622 | 50 | - | 2.1 | 2.7 | 50 | AlInGaP on GaAs |

ABSOLUTE MAXIMUM RATINGS ($T_{amb} = 25^\circ\text{C}$ unless otherwise specified)

| PARAMETER | TEST CONDITION | SYMBOL | VALUE | UNIT |
|--|---------------------------------------|------------|-------------|------------------|
| Reverse voltage ⁽¹⁾ | | V_R | 5 | V |
| DC forward current | $T_{amb} \leq 85^\circ\text{C}$ | I_F | 50 | mA |
| Surge forward current | $t_p \leq 10 \mu\text{s}$ | I_{FSM} | 1 | A |
| Power dissipation | | P_V | 135 | mW |
| Junction temperature | | T_j | 125 | $^\circ\text{C}$ |
| Operating temperature range | | T_{amb} | -40 to +100 | $^\circ\text{C}$ |
| Storage temperature range | | T_{stg} | -40 to +100 | $^\circ\text{C}$ |
| Soldering temperature | $t \leq 5 \text{ s}$, 2 mm from body | T_{sd} | 260 | $^\circ\text{C}$ |
| Thermal resistance junction to ambient | | R_{thJA} | 300 | K/W |

Note

- ⁽¹⁾ Driving the LED in reverse direction is suitable for a short term application

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ($T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified)
TLCR6200, RED

| PARAMETER | TEST CONDITION | SYMBOL | MIN. | TYP. | MAX. | UNIT |
|--|-------------------------------|------------------|------|----------|------|------------|
| Luminous intensity ⁽¹⁾ | $I_F = 50\text{ mA}$ | I_V | 1350 | 4000 | - | mcd |
| Dominant wavelength | $I_F = 50\text{ mA}$ | λ_d | 611 | 616 | 622 | nm |
| Peak wavelength | $I_F = 50\text{ mA}$ | λ_p | - | 622 | - | nm |
| Spectral bandwidth at 50 % $I_{rel\text{ max.}}$ | $I_F = 50\text{ mA}$ | $\Delta\lambda$ | - | 18 | - | nm |
| Angle of half intensity | $I_F = 50\text{ mA}$ | ϕ | - | ± 15 | - | $^{\circ}$ |
| Forward voltage | $I_F = 50\text{ mA}$ | V_F | - | 2.1 | 2.7 | V |
| Reverse voltage | $I_R = 10\text{ }\mu\text{A}$ | V_R | 5 | - | - | V |
| Temperature coefficient of V_F | $I_F = 50\text{ mA}$ | TC_{VF} | - | -3.5 | - | mV/K |
| Temperature coefficient of λ_d | $I_F = 50\text{ mA}$ | TC_{λ_d} | - | 0.05 | - | nm/K |

Note

⁽¹⁾ In one packing unit $I_{Vmax}/I_{Vmin.} \leq 2.0$

LUMINOUS INTENSITY CLASSIFICATION

| GROUP | LIGHT INTENSITY (mcd) | |
|-------|-----------------------|---------|
| | MIN. | MAX. |
| FF | 1350 | 2700 |
| GG | 1800 | 3600 |
| HH | 2400 | 4800 |
| II | 3200 | 6400 |
| KK | 4300 | 8600 |
| LL | 5750 | 11 500 |
| MM | 7500 | 15 000 |
| NN | 10 000 | 20 000 |
| PP | 13 500 | 27 000 |
| QQ | 18 000 | 36 000 |
| RR | 24 000 | 48 000 |
| SS | 32 000 | 64 000 |
| TT | 43 000 | 86 000 |
| UU | 57 500 | 115 000 |

Note

- Luminous intensity is tested at a current pulse duration of 25 ms and an accuracy of $\pm 11\%$.
The type numbers represent the order groups which include only a few brightness groups. Only one group will be shipped on each bag (there will be no mixing of two groups on each bag).
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 bag.
In order to ensure availability, single wavelength groups will not be orderable

COLOR CLASSIFICATION

| GROUP | DOM. WAVELENGTH (nm) | |
|-------|----------------------|------|
| | RED | |
| | MIN. | MAX. |
| 1 | 611 | 618 |
| 2 | 614 | 622 |

Note

- Wavelengths are tested at a current pulse duration of 25 ms and an accuracy of $\pm 1\text{ nm}$

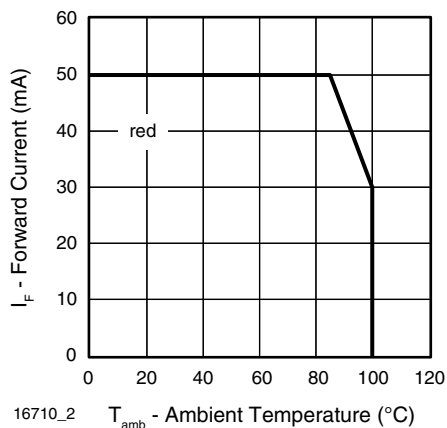
TYPICAL CHARACTERISTICS ($T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified)


Fig. 1 - Forward Current vs. Ambient Temperature

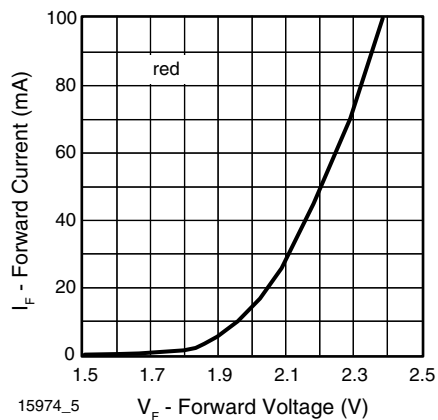


Fig. 3 - Forward Current vs. Forward Voltage

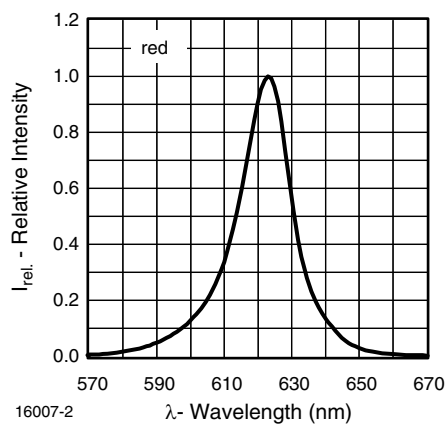


Fig. 2 - Relative Intensity vs. Wavelength

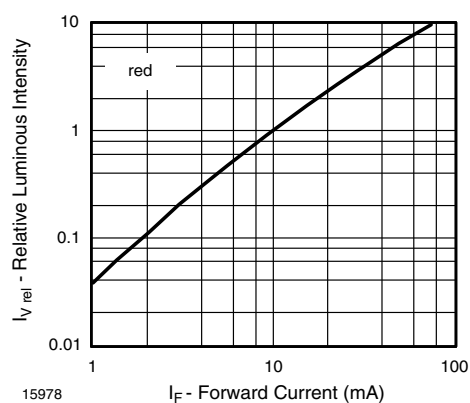
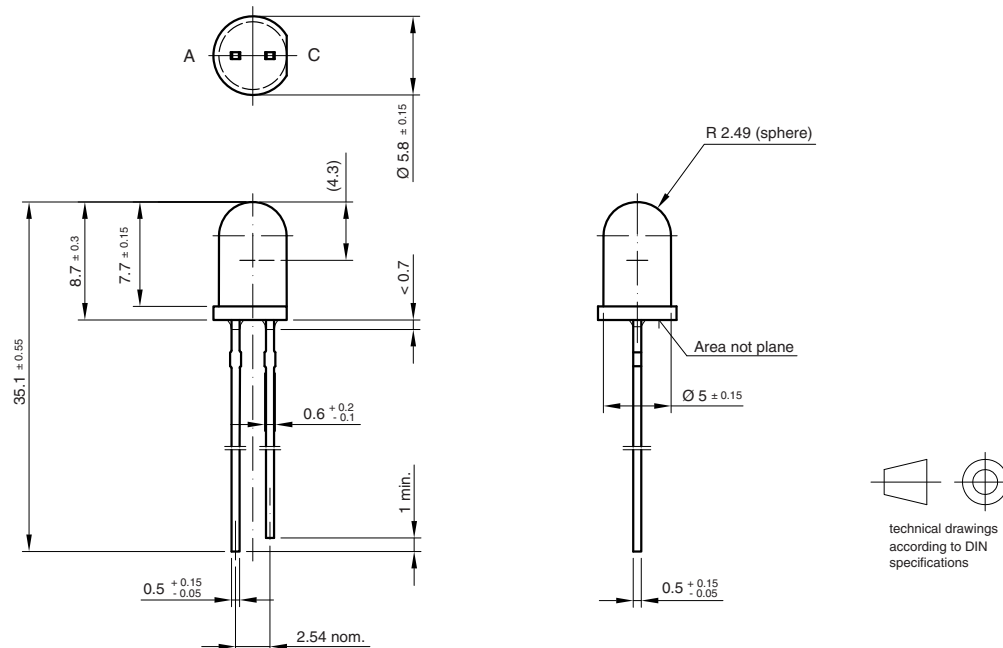


Fig. 4 - Relative Luminous Intensity vs. Forward Current

PACKAGE DIMENSIONS in millimeters

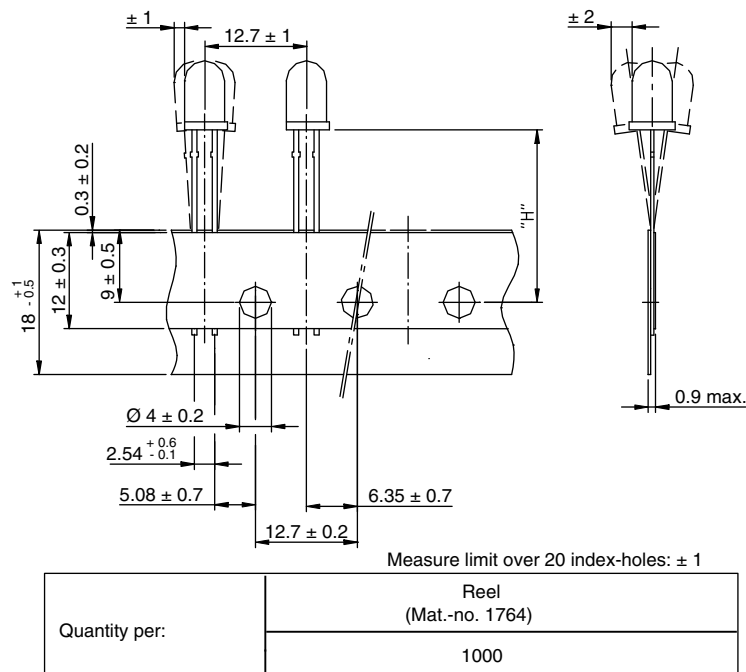


Drawing-No.: 6.544-5259.07-4

Issue: 4; 19.05.09

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TAPE DIMENSIONS in millimeters



94 8172

| | |
|--------|-----------------------|
| Option | Dim. "H" \pm 0.5 mm |
| AS | 17.3 |

Explanation

12 - cathode leaves first

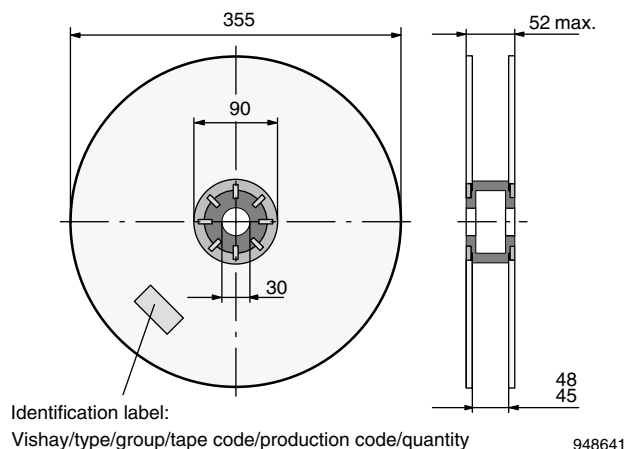
REEL


Fig. 5 - Reel Dimensions

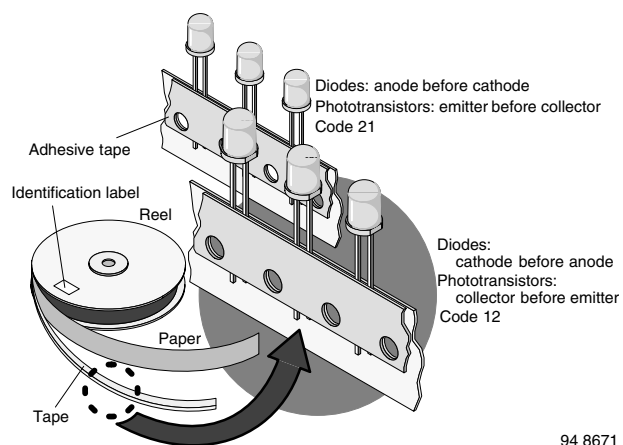
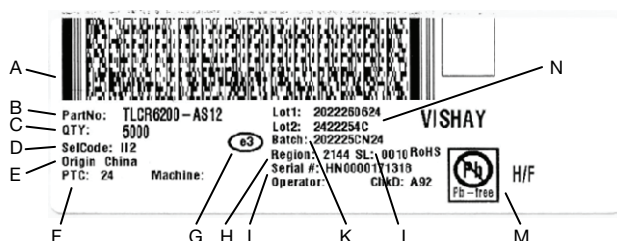
TAPE


Fig. 6 - LED in Tape

AS12 = cathode leaves tape first

AS21 = anode leaves tape first

| PACKING | | |
|---------------|---------|----------|
| MATERIAL | PACKING | QUANTITY |
| TLCR6200-AS12 | Reel | 5 x 1000 |

BAR CODE PRODUCT LABEL (example)


- A. 2D barcode
- B. Part No: Vishay part number
- C. QTY: quantity
- D. SelCode: selection bin code
- E. Country of origin
- F. PTC: production plant code
- G. Termination finish
- H. Region code
- I. Serial#: serial number
- K. Batch number: year, week, country code, plant code
- L. SL: storage location
- M. Environmental symbols: RoHS, lead (Pb)-free, halogen-free
- N. Lot numbers



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