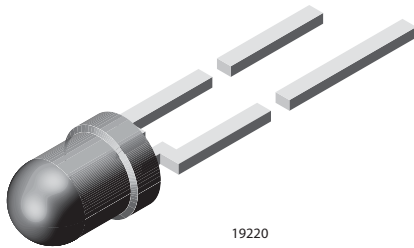


## High Efficiency LED, Ø 3 mm Tinted Undiffused Package



### FEATURES

- Standard T-1 package
- Small mechanical tolerances
- Suitable for DC and high peak current
- Wide viewing angle
- Luminous intensity categorized
- Color categorized
- Compliant to RoHS Directive 2002/95/EC and in accordance to WEEE 2002/96/EC



### DESCRIPTION

The TLHO42M1N2 was developed for standard applications like general indicating and lighting purposes.

It is housed in a 3 mm tinted clear plastic package. The wide viewing angle of these devices provides a high brightness across a large field of view.

The LED is categorized in luminous intensity groups and additionally in wavelength groups.

That allows users to assemble LEDs with uniform appearance.

### APPLICATIONS

- Status lights
- Off/on indicator
- Background illumination
- Readout lights
- Maintenance lights
- Legend light

### PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm
- Product series: standard
- Angle of half intensity:  $\pm 22^\circ$

### PARTS TABLE

| PART       | COLOR, LUMINOUS INTENSITY         | TECHNOLOGY   |
|------------|-----------------------------------|--------------|
| TLHO42M1N2 | Soft orange, $I_V$ (18 to 45) mcd | GaAsP on GaP |

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

| PARAMETER                           | TEST CONDITION                        | SYMBOL     | VALUE         | UNIT             |
|-------------------------------------|---------------------------------------|------------|---------------|------------------|
| Reverse voltage <sup>1)</sup>       |                                       | $V_R$      | 6             | V                |
| DC forward current                  |                                       | $I_F$      | 30            | mA               |
| Surge forward current               | $t_p \leq 10 \mu\text{s}$             | $I_{FSM}$  | 1             | A                |
| Power dissipation                   |                                       | $P_V$      | 100           | mW               |
| Junction temperature                |                                       | $T_j$      | 100           | $^\circ\text{C}$ |
| Operating temperature range         |                                       | $T_{amb}$  | - 40 to + 100 | $^\circ\text{C}$ |
| Storage temperature range           |                                       | $T_{stg}$  | - 55 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/ambient |                                       | $R_{thJA}$ | 400           | K/W              |

Note:

<sup>1)</sup> Driving the LED in reverse direction is suitable for a short term application

\*\* Please see document "Vishay Material Category Policy": [www.vishay.com/doc?99902](http://www.vishay.com/doc?99902)

| OPTICAL AND ELECTRICAL CHARACTERISTICS ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ unless otherwise specified) |                             |            |             |      |          |      |               |
|---|-----------------------------|------------|-------------|------|----------|------|---------------|
| TLHO42M1N2, SOFT ORANGE   |                             |            |             |      |          |      |               |
| PARAMETER   | TEST CONDITION              | PART       | SYMBOL      | MIN. | TYP.     | MAX. | UNIT          |
| Luminous intensity  | $I_F = 10\text{ mA}$        | TLHO42M1N2 | $I_V$       | 18   |          | 45   | mcd           |
| Dominant wavelength   | $I_F = 10\text{ mA}$        |            | $\lambda_d$ | 598  |          | 611  | nm            |
| Peak wavelength   | $I_F = 10\text{ mA}$        |            | $\lambda_p$ |      | 605      |      | nm            |
| Angle of half intensity   | $I_F = 10\text{ mA}$        |            | $\phi$      |      | $\pm 22$ |      | deg           |
| Forward voltage   | $I_F = 10\text{ mA}$        |            | $V_F$       |      | 2.2      | 2.6  | V             |
| Reverse current   | $V_R = 6\text{ V}$          |            | $I_R$       |      |          | 10   | $\mu\text{A}$ |
| Junction capacitance  | $V_R = 0, f = 1\text{ MHz}$ |            | $C_j$       |      | 50       |      | pF            |

| LUMINOUS INTENSITY CLASSIFICATION |                       |          |      |      |
|-----------------------------------|-----------------------|----------|------|------|
| GROUP                             | LIGHT INTENSITY (mcd) |          |      |      |
|                                   | STANDARD              | OPTIONAL | MIN. | MAX. |
| M                                 | 1                     |          | 18   | 22.4 |
|                                   | 2                     |          | 22.4 | 28   |
| N                                 | 1                     |          | 28   | 35.5 |
|                                   | 2                     |          | 35.5 | 45   |

Note:  
Luminous intensity 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 reel (there will be no mixing of two groups on each reel).  
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 on any one reel.  
In order to ensure availability, single wavelength groups will not be orderable.

| COLOR CLASSIFICATION |                      |      |
|----------------------|----------------------|------|
| GROUP                | SOFT ORANGE          |      |
|                      | DOM. WAVELENGTH (NM) |      |
|                      | MIN.                 | MAX. |
| 1                    | 598                  | 601  |
| 2                    | 600                  | 603  |
| 3                    | 602                  | 605  |
| 4                    | 604                  | 607  |
| 5                    | 606                  | 609  |
| 6                    | 608                  | 611  |

Note:  
Wavelengths are tested at a current pulse duration of 25 ms.

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

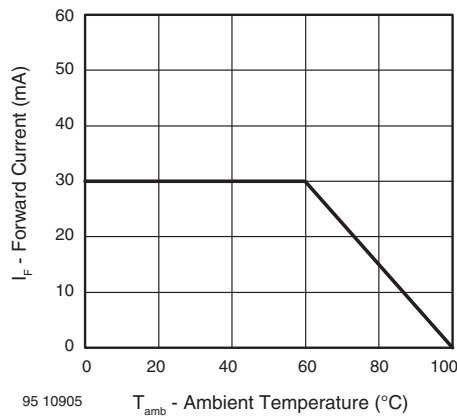


Figure 1. Forward Current vs. Ambient Temperature

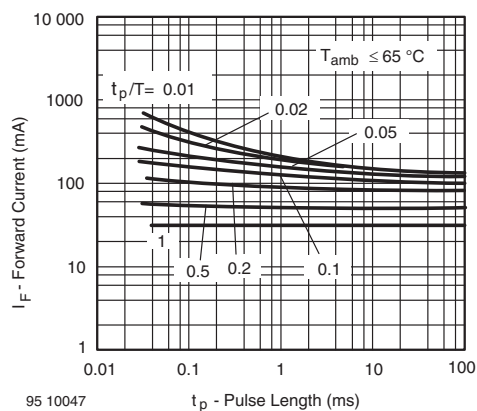


Figure 2. Forward Current vs. Pulse Length

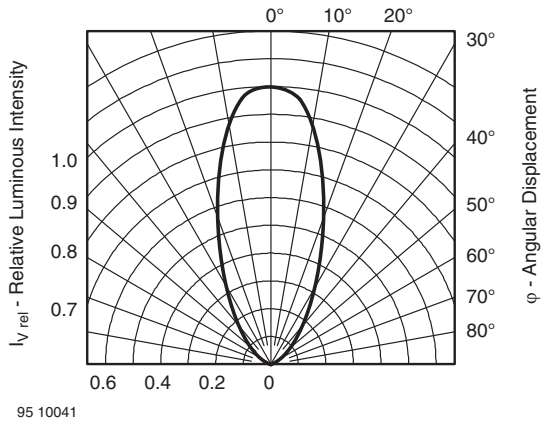


Figure 3. Rel. Luminous Intensity vs. Angular Displacement

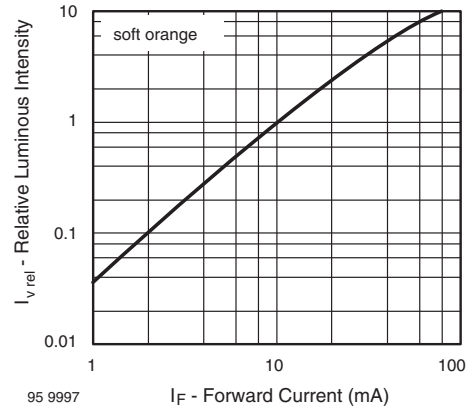


Figure 6. Relative Luminous Intensity vs. Forward Current

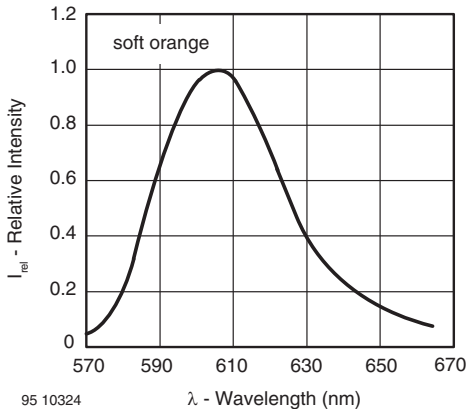


Figure 4. Relative Intensity vs. Wavelength

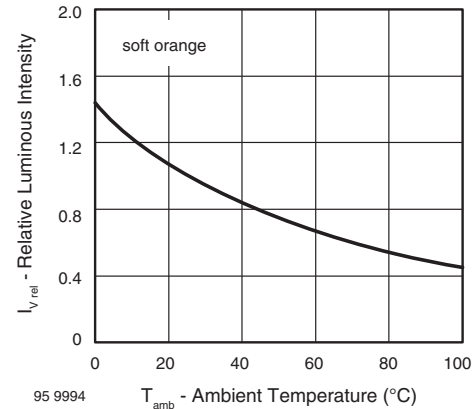


Figure 7. Rel. Luminous Intensity vs. Ambient Temperature

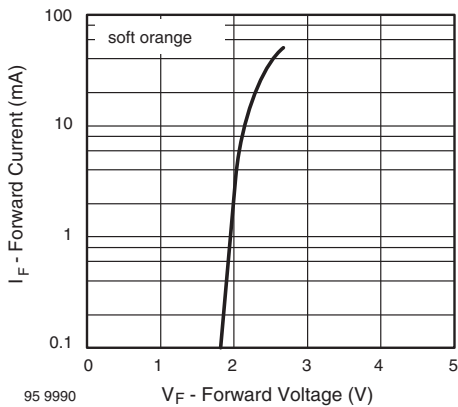


Figure 5. Forward Current vs. Forward Voltage

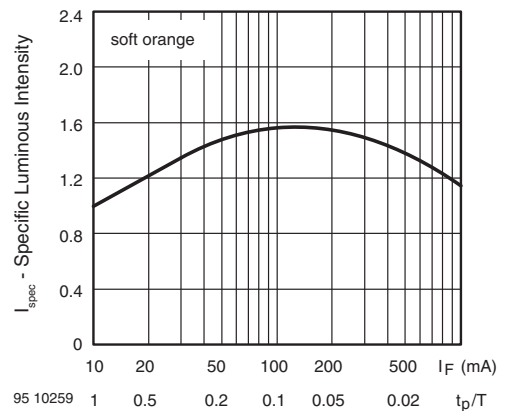
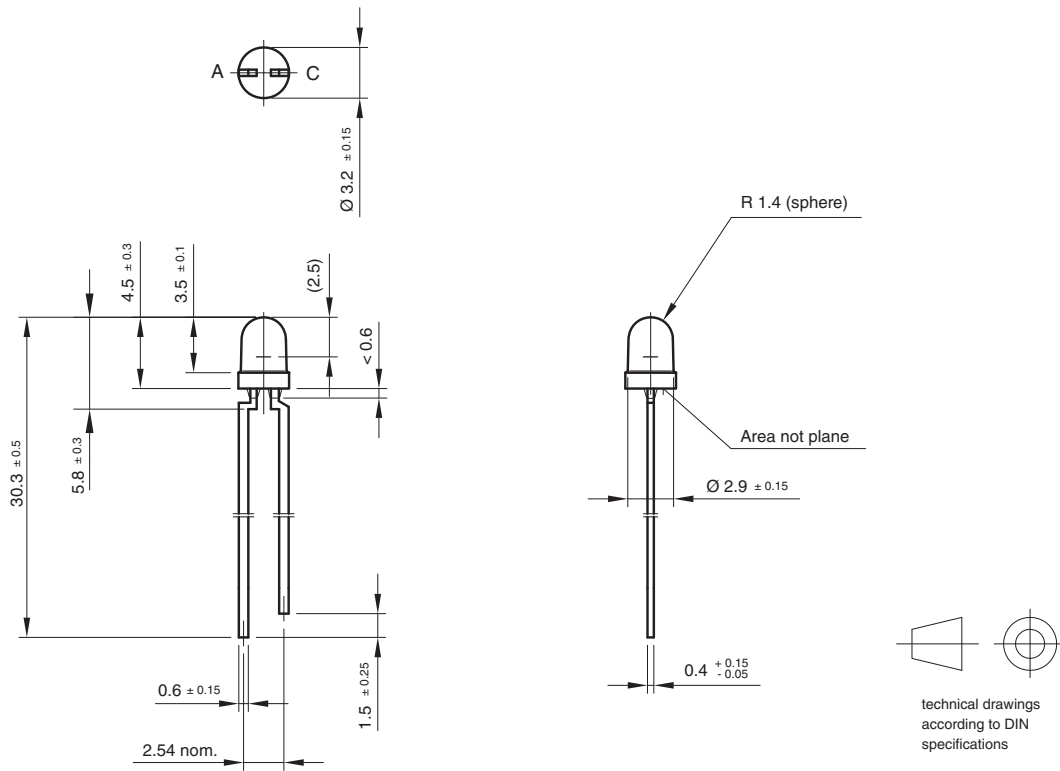


Figure 8. Rel. Lumin. Intensity vs. Forw. Current/Duty Cycle

### PACKAGE DIMENSIONS in millimeters



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