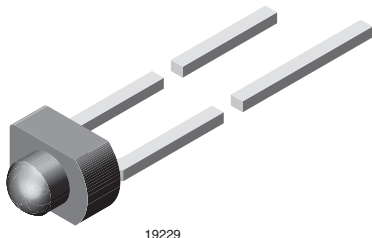




## Universal LED, Ø 1.8 mm Tinted Diffused Miniplast Package



## FEATURES

- For DC and pulse operation
- Luminous intensity categorized
- End-to-end stackable in centre-to-centre spacing of 0.1" (2.54 mm)
- Material categorization:  
For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



**RoHS**  
COMPLIANT  
HALOGEN  
**FREE**  
**GREEN**  
(5-2008)

## PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 1.8 mm (miniplast)
- Product series: standard
- Angle of half intensity:  $\pm 20^\circ$

## APPLICATIONS

- General indicating and lighting purposes

## 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. |               |              |
| TLUR2400      | Red   | 4                        | 15   | -    | 10            | -               | 630  | -    | 10            | -                   | 2    | 3    | 20            | GaAsP on GaP |
| TLUR2400-AS12 | Red   | 4                        | 15   | -    | 10            | -               | 630  | -    | 10            | -                   | 2    | 3    | 20            | GaAsP on GaP |
| TLUR2401      | Red   | 4                        | -    | 32   | 10            | -               | 630  | -    | 10            | -                   | 2    | 3    | 20            | GaAsP on GaP |
| TLUR2401-AS12 | Red   | 4                        | -    | 32   | 10            | -               | 630  | -    | 10            | -                   | 2    | 3    | 20            | GaAsP on GaP |

**ABSOLUTE MAXIMUM RATINGS** ( $T_{amb} = 25^\circ\text{C}$ , unless otherwise specified)  
**TLUR2400, TLUR2401**

| PARAMETER                           | TEST CONDITION                                | SYMBOL     | VALUE         | UNIT             |
|-------------------------------------|-----------------------------------------------|------------|---------------|------------------|
| Reverse voltage                     |                                               | $V_R$      | 6             | V                |
| DC forward current                  |                                               | $I_F$      | 20            | mA               |
| Surge forward current               | $t_p \leq 10 \mu\text{s}$                     | $I_{FSM}$  | 0.5           | A                |
| Power dissipation                   | $T_{amb} \leq 55^\circ\text{C}$               | $P_V$      | 60            | 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               | $t \leq 3 \text{ s, } 2 \text{ mm from body}$ | $T_{sd}$   | 260           | $^\circ\text{C}$ |
|                                     | $t \leq 5 \text{ s, } 4 \text{ mm from body}$ | $T_{sd}$   | 260           | $^\circ\text{C}$ |
| Thermal resistance junction/ambient |                                               | $R_{thJA}$ | 450           | K/W              |

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)  
**TLUR2400, TLUR2401, RED**

| PARAMETER                         | TEST CONDITION                          | PART     | SYMBOL      | MIN. | TYP.     | MAX. | UNIT |
|-----------------------------------|-----------------------------------------|----------|-------------|------|----------|------|------|
| Luminous intensity <sup>(1)</sup> | $I_F = 10\text{ mA}$                    | TLUR2400 | $I_V$       | 4    | 15       |      | mcd  |
|                                   |                                         | TLUR2401 | $I_V$       | 4    |          | 32   | mcd  |
| Dominant wavelength               | $I_F = 10\text{ mA}$                    |          | $\lambda_d$ |      | 630      |      | nm   |
| Peak wavelength                   | $I_F = 10\text{ mA}$                    |          | $\lambda_p$ |      | 640      |      | nm   |
| Angle of half intensity           | $I_F = 10\text{ mA}$                    |          | $\phi$      |      | $\pm 20$ |      | deg  |
| Forward voltage                   | $I_F = 20\text{ mA}$                    |          | $V_F$       |      | 2        | 3    | V    |
| Reverse voltage                   | $I_R = 10\text{ }\mu\text{A}$           |          | $V_R$       | 6    | 15       |      | V    |
| Junction capacitance              | $V_R = 0\text{ V}$ , $f = 1\text{ MHz}$ |          | $C_j$       |      | 50       |      | pF   |

**Note**

<sup>(1)</sup> In one packing unit  $I_{Vmin}/I_{Vmax} \leq 0.5$

**LUMINOUS INTENSITY CLASSIFICATION**

| GROUP | LIGHT INTENSITY (mcd) |      |
|-------|-----------------------|------|
|       | MIN.                  | MAX. |
| P     | 4                     | 8    |
| Q     | 6.3                   | 12.5 |
| R     | 10                    | 20   |
| S     | 16                    | 32   |
| T     | 25                    | 50   |

**Note**

- Luminous intensity is tested at a current pulse duration of 25 ms. The above 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 on any one bag. In order to ensure availability, single wavelength groups will not be orderable.

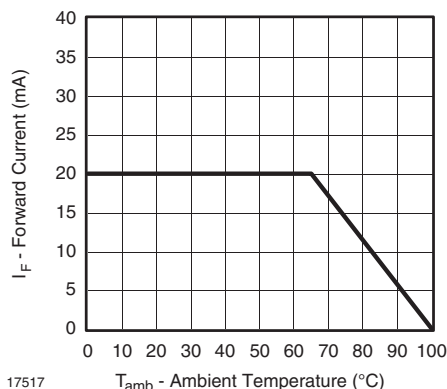
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Current vs. Ambient Temperature

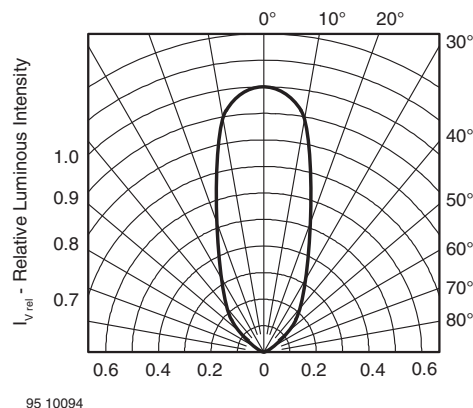


Fig. 2 - Relative Luminous Intensity vs. Angular Displacement

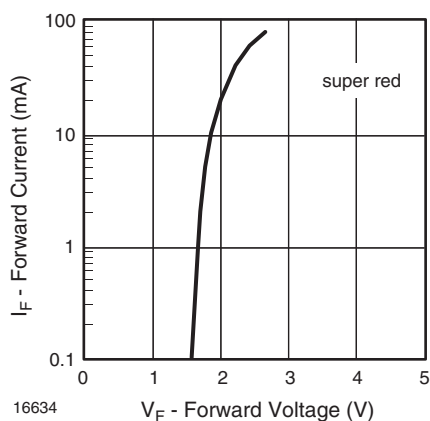


Fig. 3 - Forward Current vs. Forward Voltage

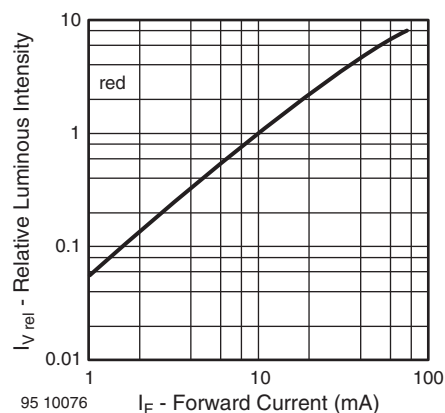


Fig. 5 - Relative Luminous Intensity vs. Forward Current

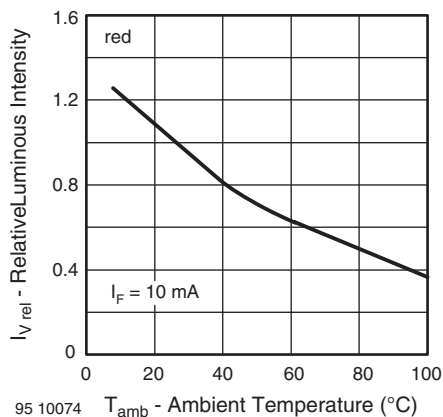


Fig. 4 - Relative Luminous Intensity vs. Ambient Temperature

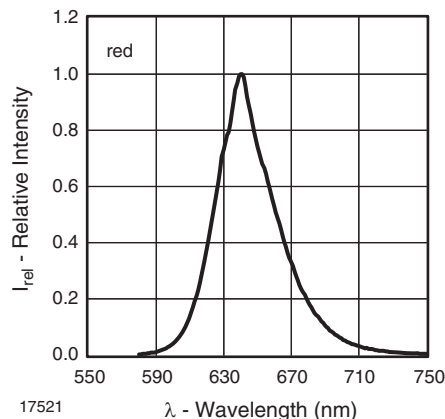
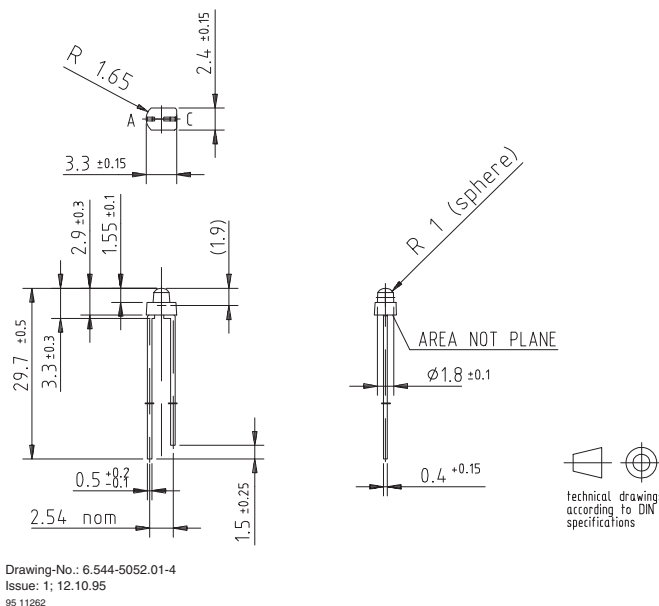


Fig. 6 - Relative Intensity vs. Wavelength

## PACKAGE DIMENSIONS in millimeters



Drawing-No.: 6.544-5052.01-4  
Issue: 1; 12.10.95  
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### REEL DIMENSIONS in millimeters

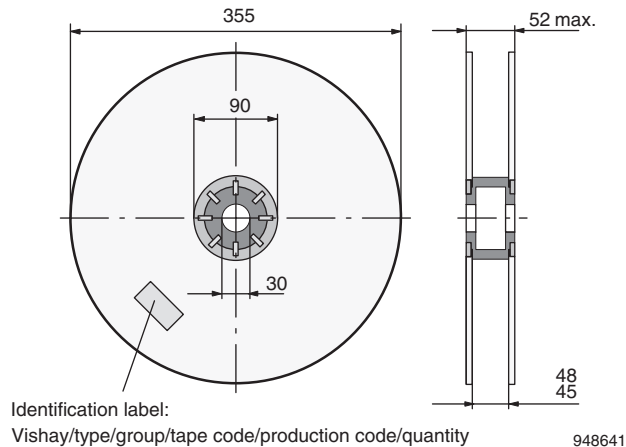


Fig. 7 - Reel

## TAPE

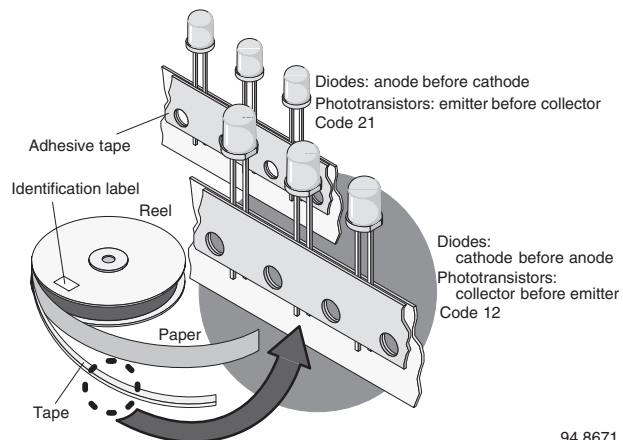
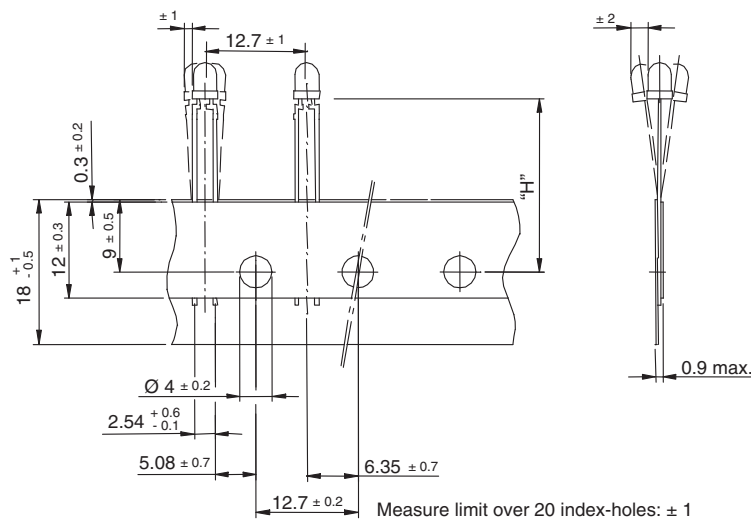


Fig. 8 - LED in Tape

### TAPE DIMENSIONS in millimeters



|               |                           |
|---------------|---------------------------|
| Quantity per: | Reel<br>(Mat. - No. 1764) |
|               | 2000                      |

94 8171

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



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