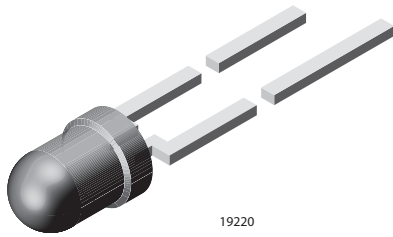


# High Intensity LED, Ø 3 mm Untinted Clear Package



## DESCRIPTION

This LED contains the double heterojunction (DH) GaAlAs on GaAs technology.

This deep red LED can be utilized over a wide range of drive current. It can be DC or pulse driven to achieve desired light output.

The device is available in a 3 mm untinted clear package.

## PRODUCT GROUP AND PACKAGE DATA

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

## FEATURES

- Exceptional brightness
- Very high intensity even at low drive currents
- Wide viewing angle
- Low forward voltage
- 3 mm (T-1) untinted clear package
- Deep red color
- Categorized for luminous intensity
- Outstanding material efficiency
- Material categorization: For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



## APPLICATIONS

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

## PARTS TABLE

PART	COLOR	LUMINOUS INTENSITY (mcd)			at I <sub>F</sub> (mA)	WAVELENGTH (nm)			at I <sub>F</sub> (mA)	FORWARD VOLTAGE (V)			at I <sub>F</sub> (mA)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
TLDR4100	Red	40	90	-	20	-	648	-	20	-	1.8	2.2	20	GaAlAs on GaAs
TLDR4100-AS12	Red	40	90	-	20	-	648	-	20	-	1.8	2.2	20	GaAlAs on GaAs

## ABSOLUTE MAXIMUM RATINGS (T<sub>amb</sub> = 25 °C, unless otherwise specified)

### TLDR4100

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V <sub>R</sub>	6	V
DC forward current	T <sub>amb</sub> ≤ 60 °C	I <sub>F</sub>	50	mA
Surge forward current	t <sub>p</sub> ≤ 10 μs	I <sub>FSM</sub>	1	A
Power dissipation	T <sub>amb</sub> ≤ 60 °C	P <sub>V</sub>	100	mW
Junction temperature		T <sub>j</sub>	+ 100	°C
Operating temperature range		T <sub>amb</sub>	- 40 to + 100	°C
Storage temperature range		T <sub>stg</sub>	- 55 to + 100	°C
Soldering temperature	t ≤ 5 s, 2 mm from body	T <sub>sd</sub>	260	°C
Thermal resistance junction/ambient		R <sub>thJA</sub>	400	K/W

<b>OPTICAL AND ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
<b>TLDR4100, RED</b>						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity <sup>(1)</sup>	$I_F = 20\text{ mA}$	$I_V$	40	90	-	mcd
Luminous intensity	$I_F = 1\text{ mA}$	$I_V$	-	3.5	-	mcd
Dominant wavelength	$I_F = 20\text{ mA}$	$\lambda_d$	-	648	-	nm
Peak wavelength	$I_F = 20\text{ mA}$	$\lambda_p$	-	650	-	nm
Spectral half line width	$I_F = 20\text{ mA}$	$\Delta\lambda$	-	20	-	nm
Angle of half intensity	$I_F = 20\text{ mA}$	$\varphi$	-	$\pm 22$	-	deg
Forward voltage	$I_F = 20\text{ mA}$	$V_F$	-	1.8	2.2	V
Reverse current	$V_R = 6\text{ V}$	$I_R$	-	-	10	$\mu\text{A}$
Junction capacitance	$V_R = 0\text{ V}, f = 1\text{ MHz}$	$C_j$	-	30	-	pF

**Note**

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

<b>LUMINOUS INTENSITY CLASSIFICATION</b>		
GROUP	LIGHT INTENSITY (mcd)	
STANDARD	MIN.	MAX.
U	40	80
V	63	125
W	100	200
X	130	260

**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.

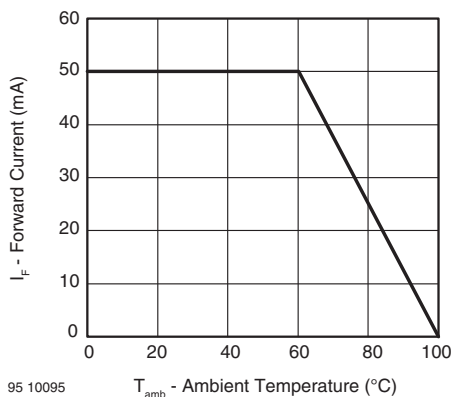
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Current vs. Ambient Temperature for InGaN

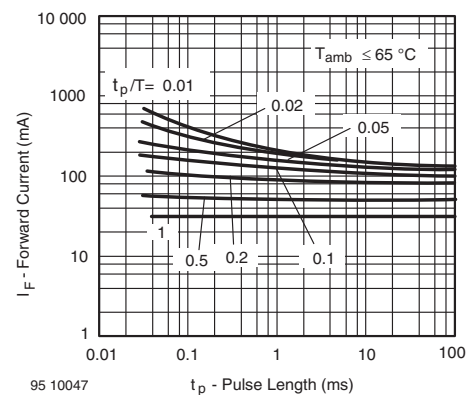


Fig. 2 - Forward Current vs. Pulse Length

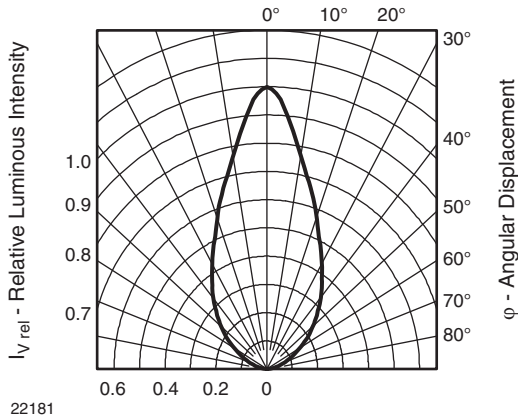


Fig. 3 - Relative Luminous Intensity vs. Angular Displacement

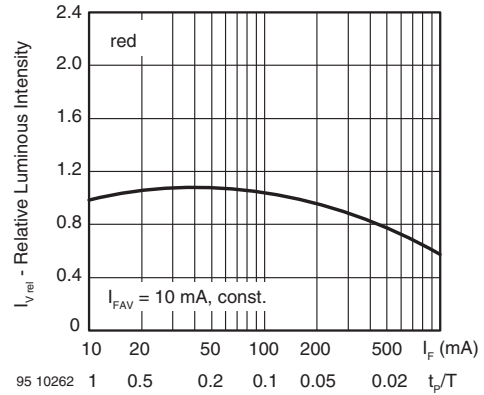


Fig. 6 - Relative Luminous Intensity vs. Forward Current/Duty Cycle

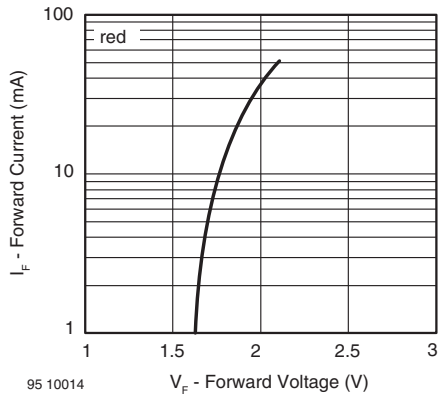


Fig. 4 - Forward Current vs. Forward Voltage

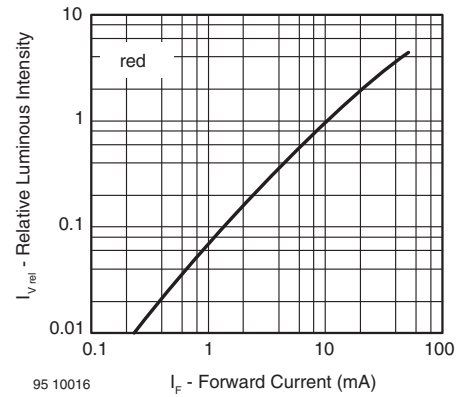


Fig. 7 - Relative Luminous Intensity vs. Forward Current

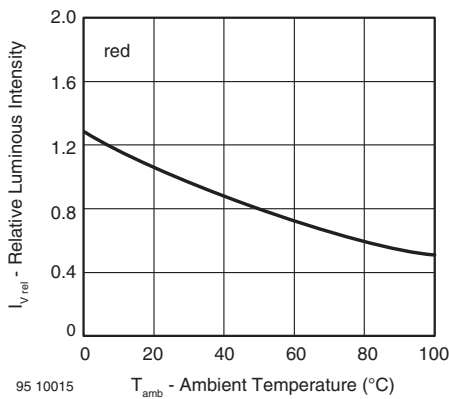


Fig. 5 - Relative Luminous Intensity vs. Ambient Temperature

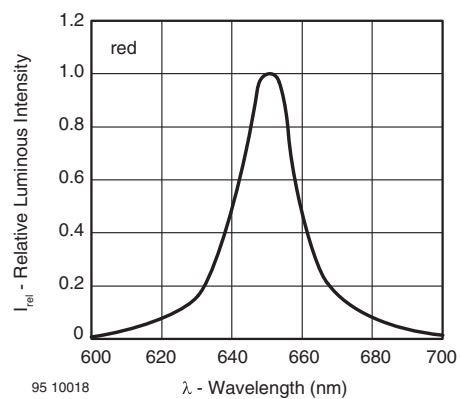
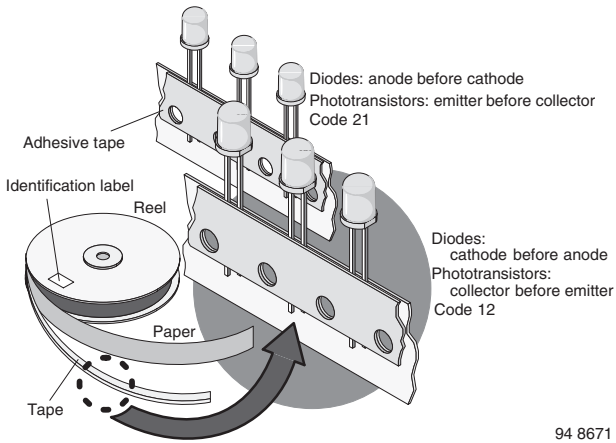


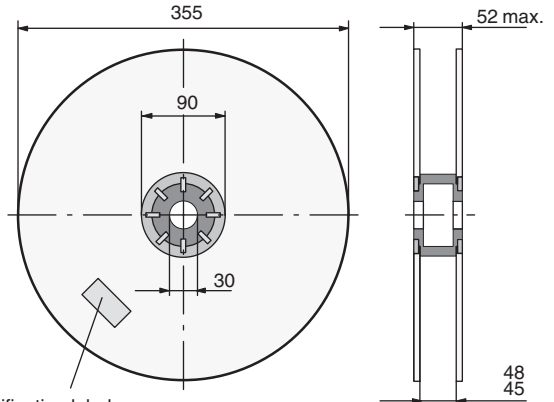
Fig. 8 - Relative Intensity vs. Wavelength

**AMMOPACK**



94 8671

**TAPE DIMENSIONS** in millimeters

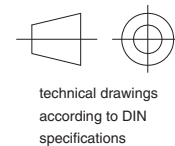
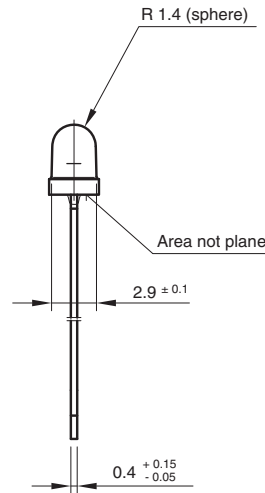
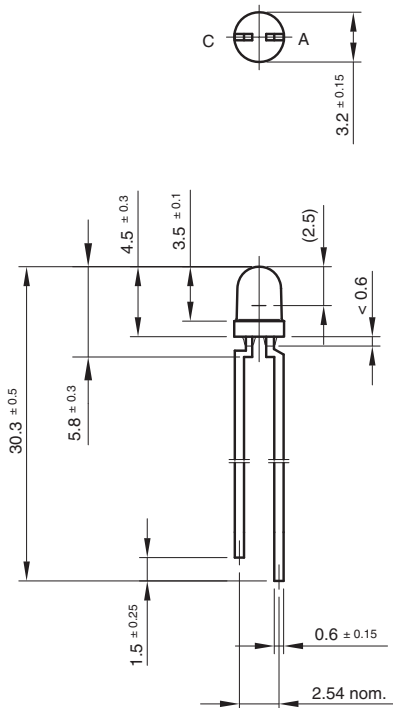


Identification label:  
Vishay/type/group/tape code/production code/quantity

948641

OPTION	DIMENSION "H" ± 0.5 mm	DIMENSION "X" ± 0.5 mm
AS	17.3	-
MS	25.5	-
CS	22.0	-
LS	21.0	-
BT	20.0	16.0

**PACKAGE DIMENSIONS** in millimeters



Drawing-No.: 6.544-5264.01-4  
Issue: 2; 23.04.98  
95 10951



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