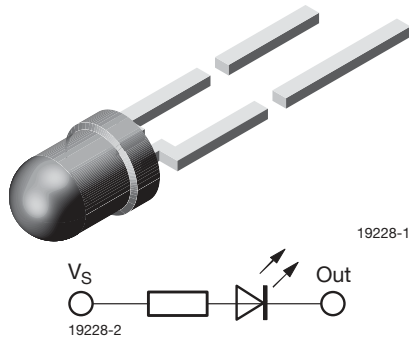


## Resistor LED for 12 V Supply Voltage



### DESCRIPTION

These devices are developed for the automotive industry and other industries which use 12 V sources.

The TLRP4900CU series contains an integrated resistor for current limiting in series with the LED chip. This allows the lamp to be driven from a 12 V source without an external current limiter.

The luminous intensity of such an LED is measured at constant voltage of 12 V.

These untinted non diffused lamps provide a wide off-axis viewing angle.

These LEDs are intended for space critical applications such as automobile instrument panels, switches and others which are driven from a 12 V source.

### FEATURES

- With current limiting resistor for 12 V
- Cost effective: save space and resistor cost
- Standard  $\varnothing$  3 mm (T-1) package
- Narrow viewing angle ( $\varphi = \pm 16^\circ$ )
- Luminous intensity categorized
- Luminous intensity and color are measured at 12 V
- Material categorization:  
For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### APPLICATIONS

- Status light in cars and other applications with a 12 V source
- Off/on indicator in cars and other applications with a 12 V source
- Background illumination for switches
- Off/on indicator in switches

### PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm resistor
- Product series: standard
- Angle of half intensity:  $\pm 16^\circ$

### PARTS TABLE

PART	COLOR	LUMINOUS INTENSITY (mcd)			at $V_S$ (V)	WAVELENGTH (nm)			at $V_S$ (V)	FORWARD VOLTAGE (V)			at $V_S$ (V)	TECHNOLOGY
		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		MIN.	TYP.	MAX.		
TLRP4900CU	Pure green	4	11	-	12	555	-	565	12	-	10	12	12	GaP on GaP
TLRP4900CU-MS12	Pure green	4	11	-	12	555	-	565	12	-	10	12	12	GaP on GaP

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

#### TLRP4900CU

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		$V_R$	6	V
Forward voltage	$T_{amb} \leq 65^\circ\text{C}$	$V_F$	16	V
Power dissipation	$T_{amb} \leq 65^\circ\text{C}$	$P_V$	240	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	$t \leq 5$ s, 2 mm from body	$T_{sd}$	260	$^\circ\text{C}$
Thermal resistance junction/ambient		$R_{thJA}$	150	K/W



<b>OPTICAL AND ELECTRICAL CHARACTERISTICS</b> ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)						
<b>TLRP4900CU, PURE GREEN</b>						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity <sup>(1)</sup>	$V_S = 12\text{ V}$	$I_V$	4	11	-	mcd
Dominant wavelength	$V_S = 12\text{ V}$	$\lambda_d$	555	-	565	nm
Peak wavelength	$V_S = 12\text{ V}$	$\lambda_p$	-	555	-	nm
Angle of half intensity	$V_S = 12\text{ V}$	$\phi$	-	$\pm 16$	-	deg
Forward current	$V_S = 12\text{ V}$	$I_F$	-	10	12	mA
Breakdown voltage	$I_R = 10\text{ }\mu\text{A}$	$V_{BR}$	6	20	-	V
Junction capacitance	$V_R = 0\text{ V}, f = 1\text{ MHz}$	$C_j$	-	50	-	pF

**Note**

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

<b>LUMINOUS INTENSITY CLASSIFICATION</b>		
GROUP	LIGHT INTENSITY (mcd)	
	MIN.	MAX.
P	4	8
Q	6.3	12.5
R	10	20
S	16	32
T	25	50
U	40	80

**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.

<b>COLOR CLASSIFICATION</b>		
GROUP	PURE GREEN	
	DOM. WAVELENGTH (nm)	
	MIN.	MAX.
0	555	559
1	558	561
2	560	563
3	562	565

**Note**

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

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

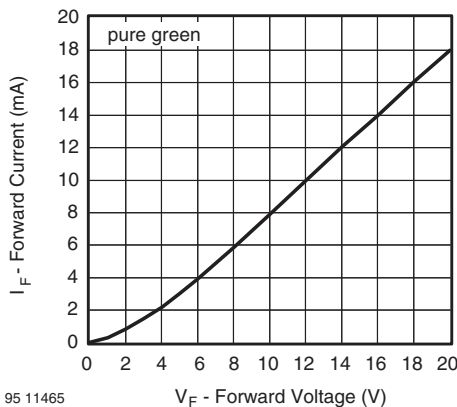


Fig. 1 - Forward Current vs. Forward Voltage

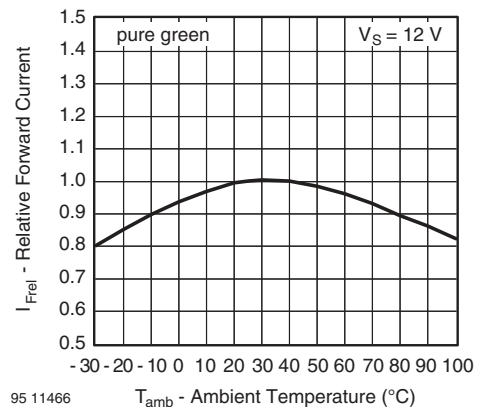


Fig. 2 - Relative Forward Current vs. Ambient Temperature

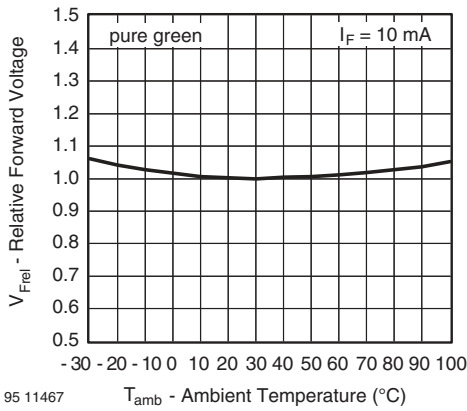


Fig. 3 - Relative Forward Voltage vs. Ambient Temperature

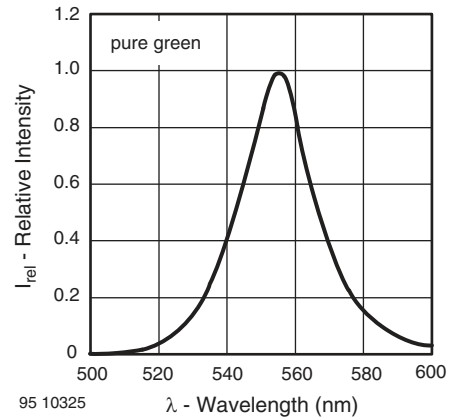


Fig. 6 - Relative Intensity vs. Wavelength

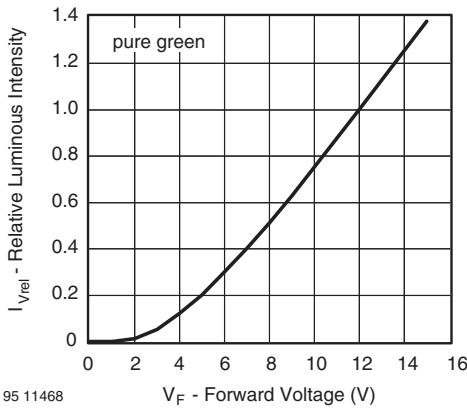


Fig. 4 - Relative Luminous Intensity vs. Forward Voltage

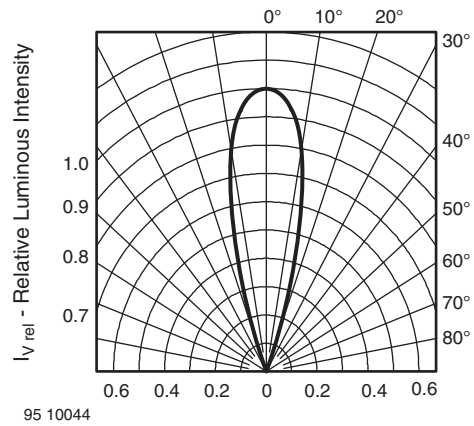


Fig. 7 - Relative Luminous Intensity vs. Angular Displacement

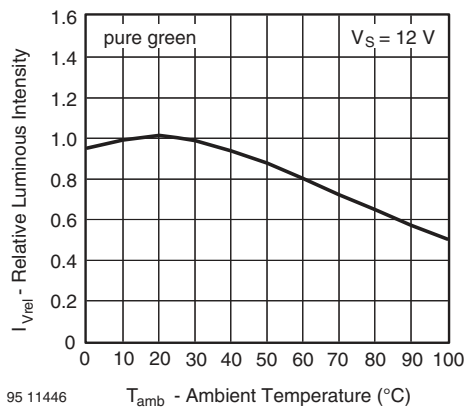
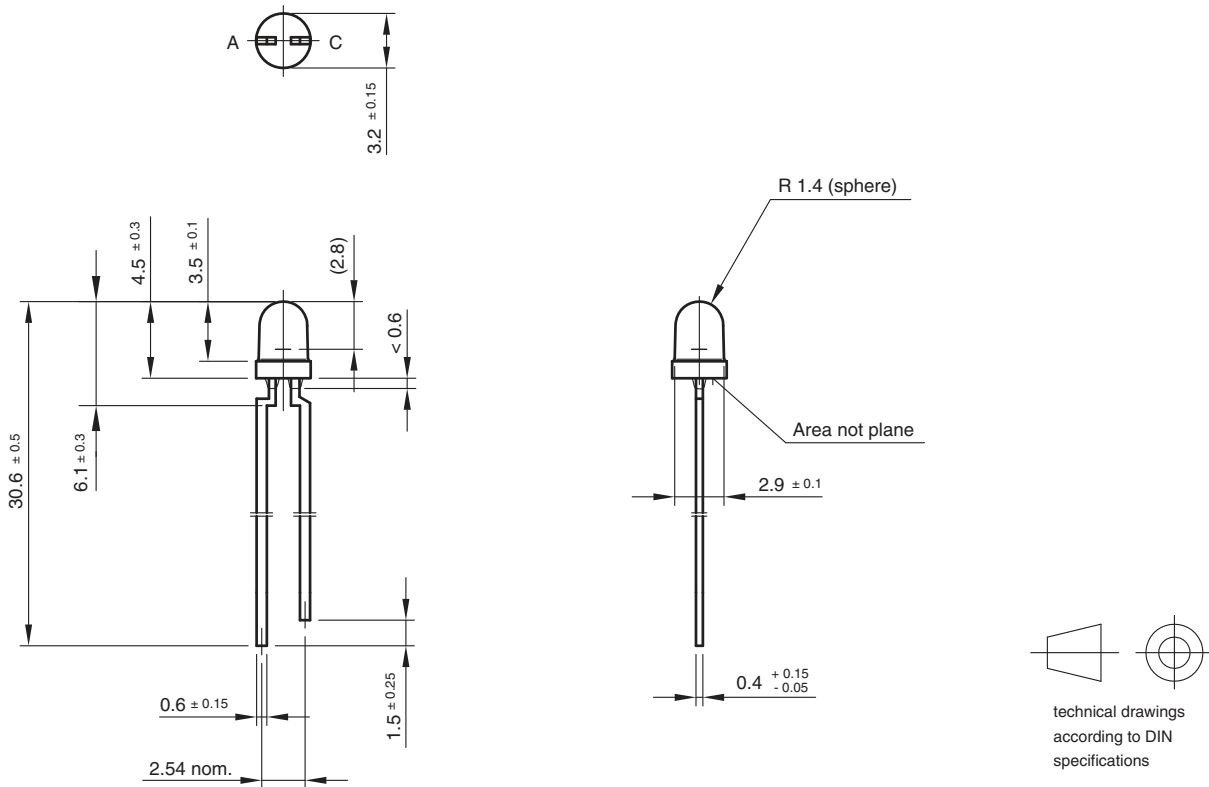


Fig. 5 - Relative Luminous Intensity vs. Ambient Temperature



PACKAGE DIMENSIONS in millimeters

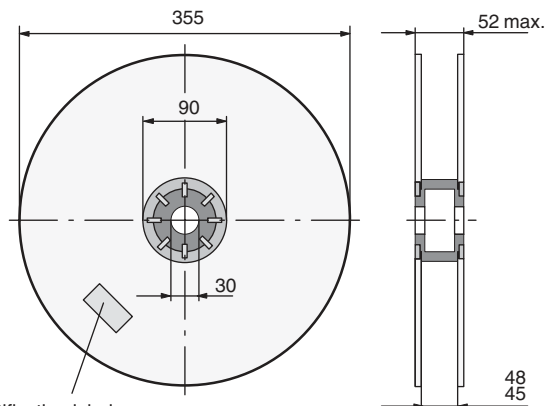


Drawing-No.: 6.544-5255.02-4

Issue: 3; 23.04.98

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REEL DIMENSIONS in millimeters

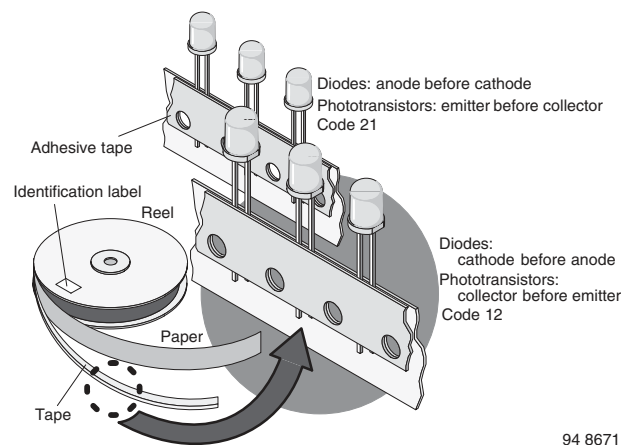


Identification label:  
Vishay/type/group/tape code/production code/quantity

948641

Fig. 8 - Reel

TAPE

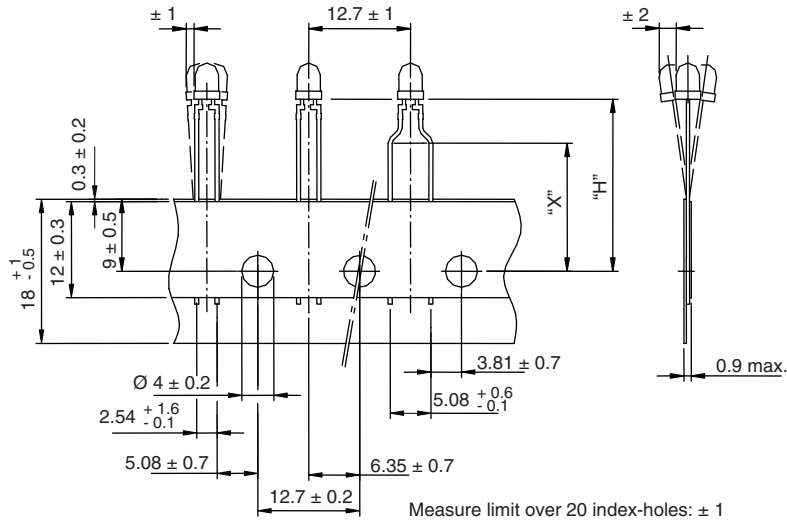


94 8671

Fig. 9 - LED in Tape



**TAPE DIMENSIONS** in millimeters



Quantity per:	Reel (Mat.-no. 1764)
	2000

21885

Option	Dim. "H" ± 0.5 mm	Dim. "X" ± 0.5 mm
MS	25.5	-



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