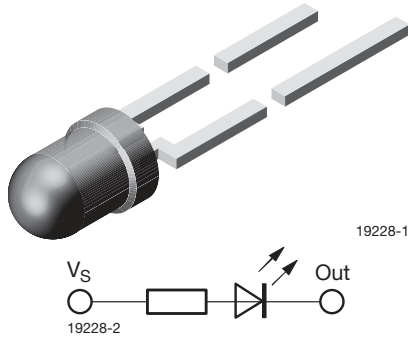


## Resistor LED for 12 V Supply Voltage



### FEATURES

- With current limiting resistor for 12 V
- Cost effective: save space and resistor cost
- Standard Ø 3 mm (T-1) package
- High luminous intensity
- Luminous intensity categorized
- Color categorized
- Material categorization:  
For definitions of compliance please see [www.vishay.com/doc?99912](http://www.vishay.com/doc?99912)



### DESCRIPTION

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

The TLRE4200 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.

These tinted non-diffused lamps provide a high luminous intensity.

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

### APPLICATIONS

- Status light in cars
- Off/on indicator in cars
- 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:  $\pm 22^\circ$

### 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.		
TLRE4200	Yellow	25	70	-	12	581	588	594	12	-	10	12	12	AllnGaP on GaAs

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

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		$V_R$	6	V
Forward voltage	$T_{amb} \leq 60^\circ\text{C}$	$V_F$	16	V
Power dissipation	$T_{amb} \leq 60^\circ\text{C}$	$P_V$	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

**OPTICAL AND ELECTRICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)  
**TLRE4200, YELLOW**

PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity <sup>(1)</sup>	$V_S = 12\text{ V}$	$I_V$	25	70	-	mcd
Dominant wavelength	$V_S = 12\text{ V}$	$\lambda_d$	581	588	594	nm
Peak wavelength	$V_S = 12\text{ V}$	$\lambda_p$	-	590	-	nm
Angle of half intensity	$V_S = 12\text{ V}$	$\phi$	-	$\pm 22$	-	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	50	-	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.
T	25	50
U	40	80
V	63	125
W	100	200
X	130	260
Y	180	360
Z	240	480

**Note**

- Luminous intensity is tested at a current pulse duration of 25 ms. These 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 are 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 are not be orderable.

**COLOR CLASSIFICATION**

GROUP	YELLOW	
	DOM. WAVELENGTH (nm)	
	MIN.	MAX.
1	581	584
2	583	586
3	585	588
4	587	590
5	589	592
6	591	594

**Note**

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

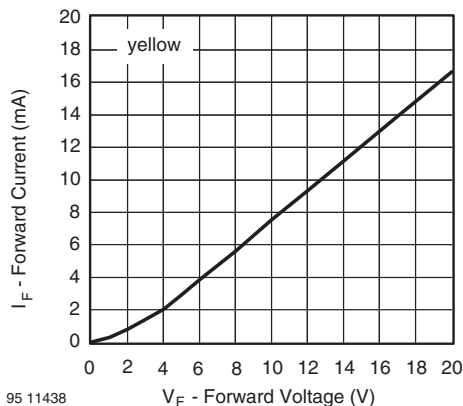
**TYPICAL CHARACTERISTICS** ( $T_{amb} = 25\text{ }^{\circ}\text{C}$ , unless otherwise specified)


Fig. 1 - Forward Current vs. Forward Voltage

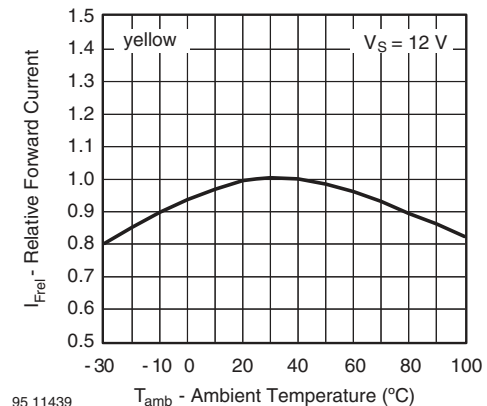


Fig. 2 - Relative Forward Current vs. Ambient Temperature

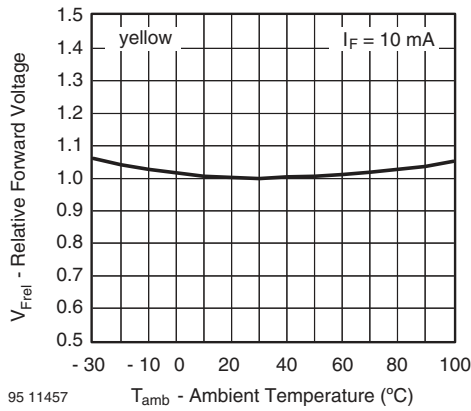


Fig. 3 - Relative Forward Voltage vs. Ambient Temperature

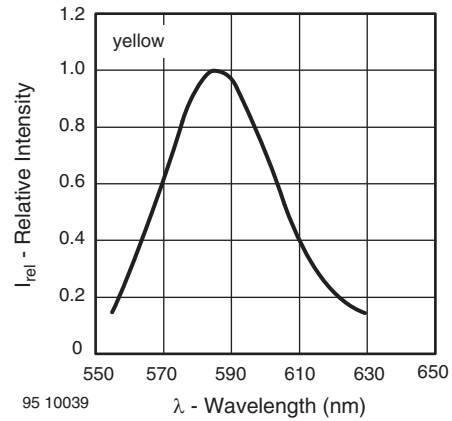


Fig. 6 - Relative Intensity vs. Wavelength

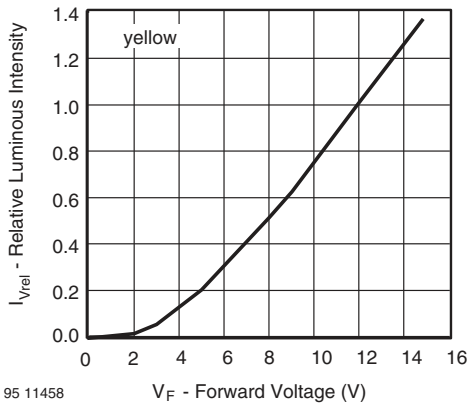


Fig. 4 - Relative Luminous Intensity vs. Forward Voltage

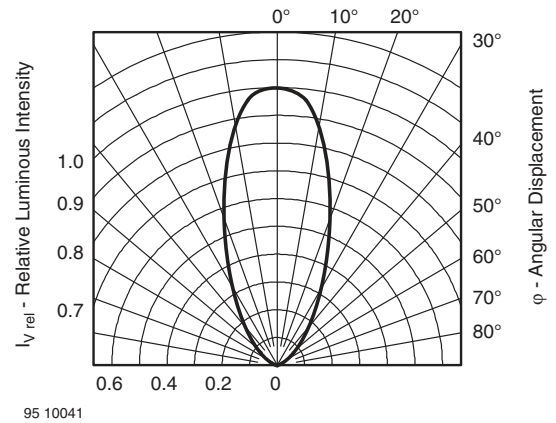


Fig. 7 - Relative Luminous Intensity vs. Angular Displacement

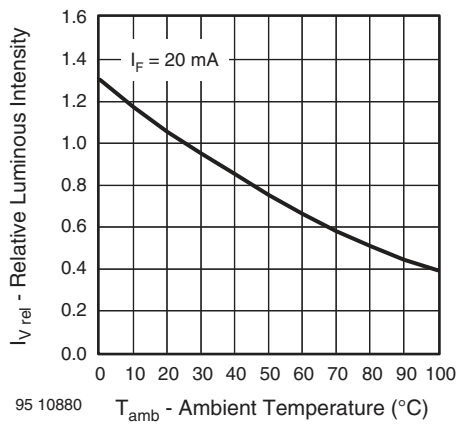


Fig. 5 - Relative Luminous Intensity vs. Ambient Temperature





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