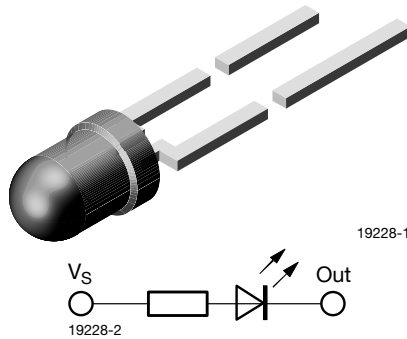


Resistor LED for 12 V Supply Voltage



DESCRIPTION

These devices are developed for the automotive industry in motor vehicles with 12 V supply voltage.

The TLRE4406 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 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.

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
- AEC-Q101 qualified
- Material categorization:
For definitions of compliance please see www.vishay.com/doc?99912



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: $\pm 30^\circ$

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.		
TLRE4406	Yellow	63	-	260	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	13.5	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

OPTICAL AND ELECTRICAL CHARACTERISTICS (T _{amb} = 25 °C, unless otherwise specified) TLRE4406, YELLOW						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity ⁽¹⁾	V _S = 12 V	I _V	63	-	260	mcd
Dominant wavelength	V _S = 12 V	λ _d	581	588	594	nm
Peak wavelength	V _S = 12 V	λ _p	-	590	-	nm
Angle of half intensity	V _S = 12 V	φ	-	± 30	-	deg
Forward current	V _S = 12 V	I _F	-	10	12	mA
Breakdown voltage	I _R = 10 μA	V _{BR}	13.5	50	-	V
Junction capacitance	V _R = 0 V, f = 1 MHz	C _j	-	50	-	pF

Note

(1) In one packing unit I_{Vmin}/I_{Vmax} ≤ 0.5.

LUMINOUS INTENSITY CLASSIFICATION		
GROUP	LUMINOUS INTENSITY (mcd)	
	MIN.	MAX.
V	63	125
W	100	200
X	130	260

Note

- Luminous flux is tested at a current pulse duration of 25 ms and an accuracy of ± 11 %.
- 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 in 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.

COLOR CLASSIFICATION		
GROUP	DOM. WAVELENGTH (nm)	
	YELLOW	
	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 and an accuracy of ± 1 nm.

TYPICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified)

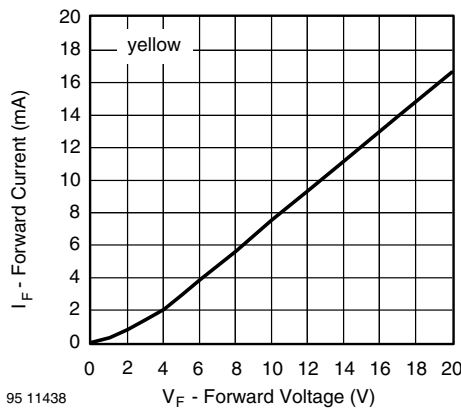


Fig. 1 - Forward Current vs. Forward Voltage

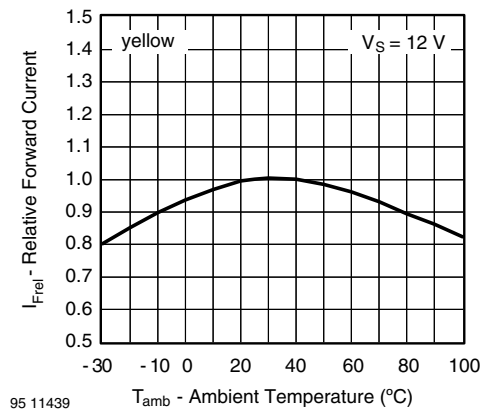


Fig. 2 - Relative Forward Current vs. Ambient Temperature

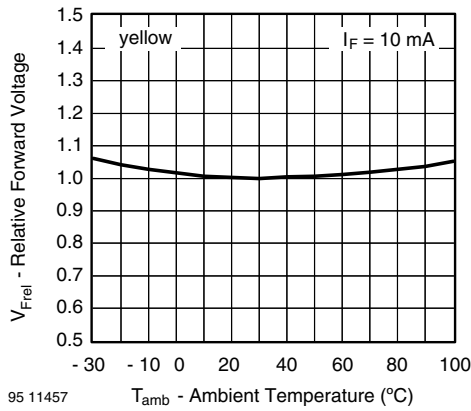


Fig. 3 - Relative Forward Voltage vs. Ambient Temperature

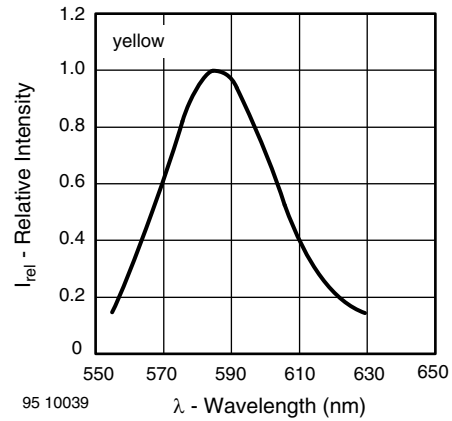


Fig. 6 - Relative Intensity vs. Wavelength

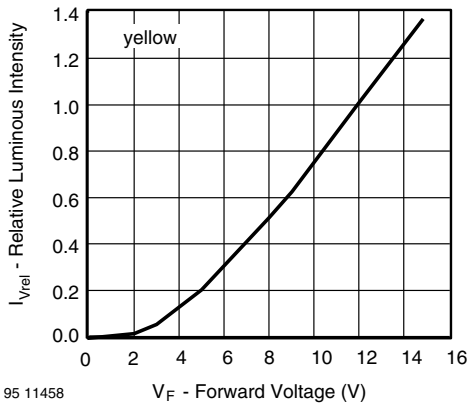


Fig. 4 - Relative Luminous Intensity vs. Forward Voltage

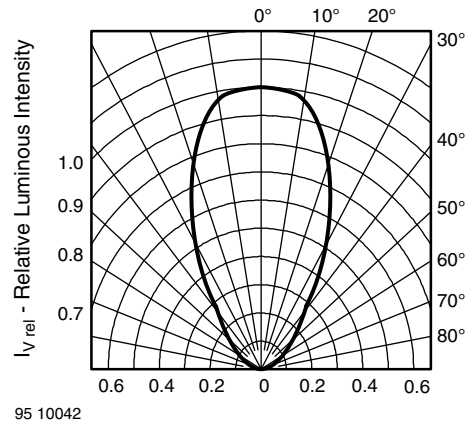


Fig. 7 - Relative Luminous Intensity vs. Angular Displacement

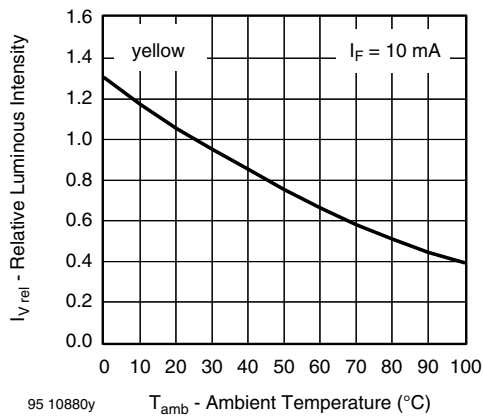
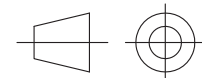
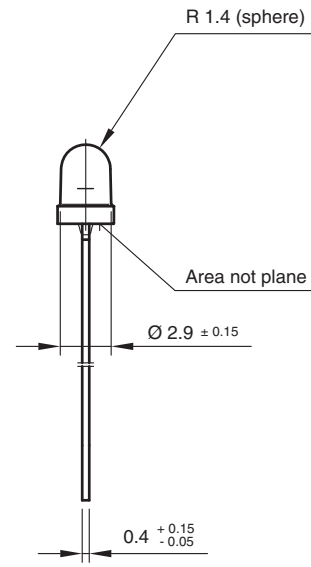
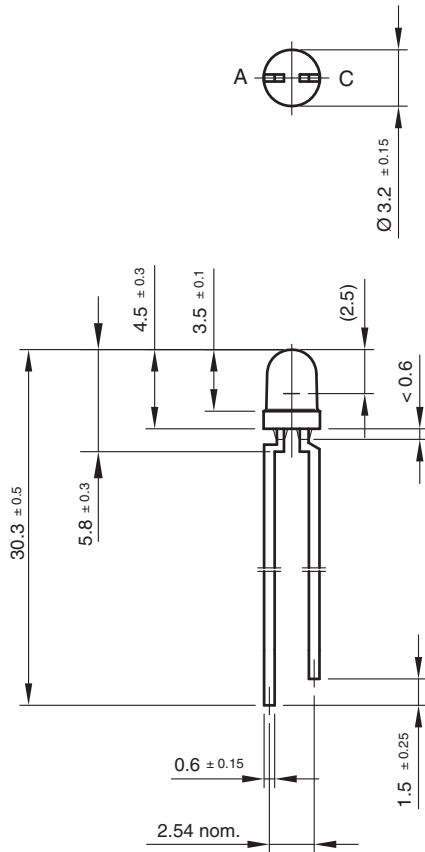


Fig. 5 - Relative Luminous Intensity vs. Ambient Temperature



PACKAGE DIMENSIONS in millimeters



technical drawings according to DIN specifications

Drawing-No.: 6.544-5255.01-4
Issue: 7; 25.09.08
95 10913



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