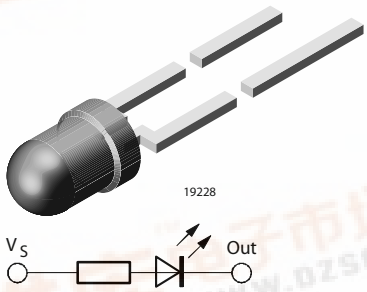
Resistor LED for 12 V Supply Voltage



FEATURES

- With current limiting resistor for 12 V
- Cost effective: save space and resistor cost
- Standard Ø 3 mm (T-1) package
- Narrow viewing angle (φ = ± 16°)
- Luminous intensity categorized
- Luminous intensity and color are measured at 12 V
- Lead (Pb)-free device

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.

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
- Product series: resistor
- Angle of half intensity: ± 16°

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLRP4900CU	Pure green, I_V > 4 mcd	GaP on GaP

ABSOLUTE MAXIMUM RATINGS [1] TLRP4900CU

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage		V_R	6	V
Forward voltage	$T_{amb} \leq 65$ °C	V_F	16	V
Power dissipation	$T_{amb} \leq 65$ °C	P_V	240	mW
Junction temperature		T_j	100	°C
Operating temperature range		T_{amb}	- 40 to + 100	°C
Storage temperature range		T_{stg}	- 55 to + 100	°C
Soldering temperature	t ≤ 5 s, 2 mm from body	T_{sd}	260	°C
Thermal resistance junction/ambient		R_{thJA}	150	K/W

Note:
[1] T_{amb} = 25 °C unless otherwise specified

OPTICAL AND ELECTRICAL CHARACTERISTICS [1] TLRP4900CU, PURE GREEN						
PARAMETER	TEST CONDITION	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity [2]	V_S = 12 V	I_V	4	11		mcd
Dominant wavelength	V_S = 12 V	λ_d	555		565	nm
Peak wavelength	V_S = 12 V	λ_p		555		nm
Angle of half intensity	V_S = 12 V	φ		± 16		deg
Forward current	V_S = 12 V	I_F		10	12	mA
Breakdown voltage	I_R = 10 µA	V_{BR}	6	20		V
Junction capacitance	V_R = 0, f = 1 MHz	C_j		50		pF

Note:
[1] T_{amb} = 25 °C unless otherwise specified
[2] In one packing unit $I_{Vmin.}/I_{Vmax.} \leq 0.5$

TYPICAL CHARACTERISTICS

T_{amb} = 25 °C unless otherwise specified

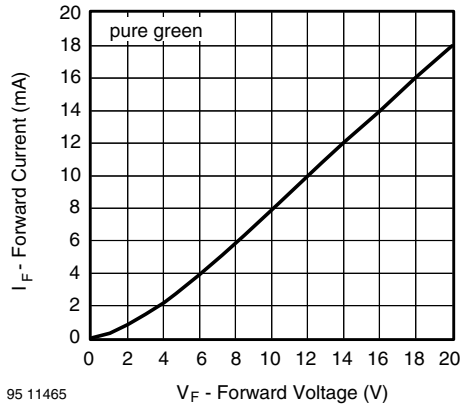


Figure 1. Forward Current vs. Forward Voltage

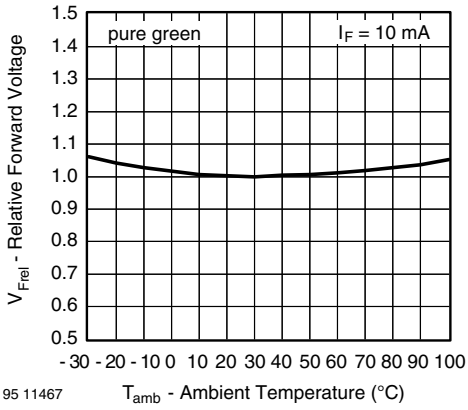


Figure 3. Relative Forward Voltage vs. Ambient Temperature

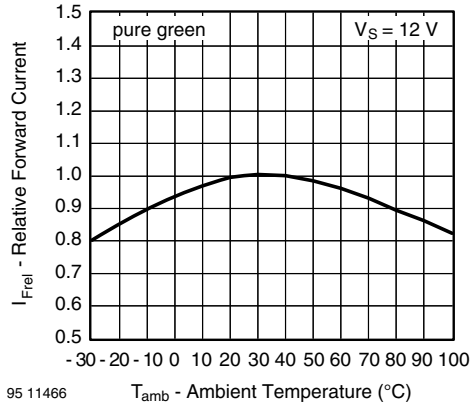


Figure 2. Relative Forward Current vs. Ambient Temperature

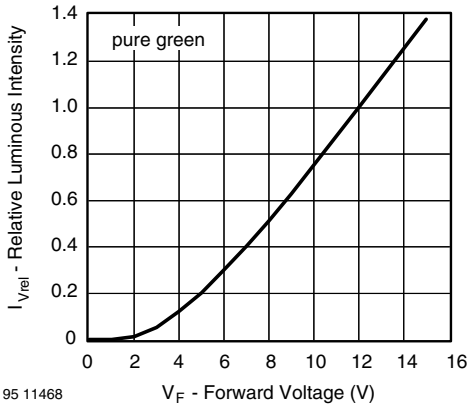


Figure 4. Relative Luminous Intensity vs. Forward Voltage

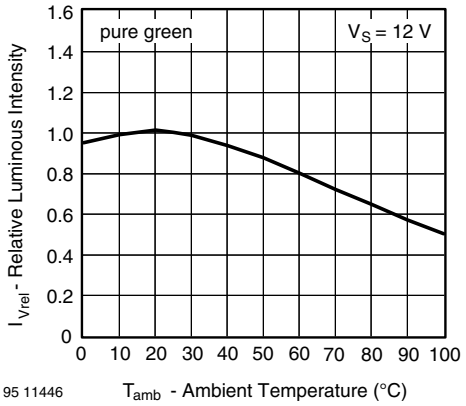


Figure 5. Rel. Luminous Intensity vs. Ambient Temperature

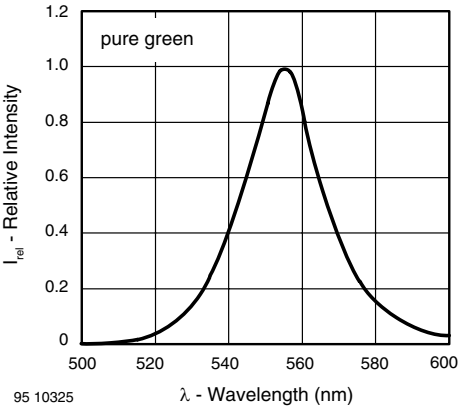


Figure 6. Relative Intensity vs. Wavelength

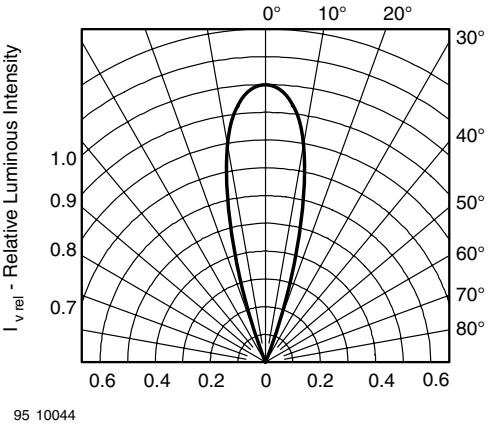
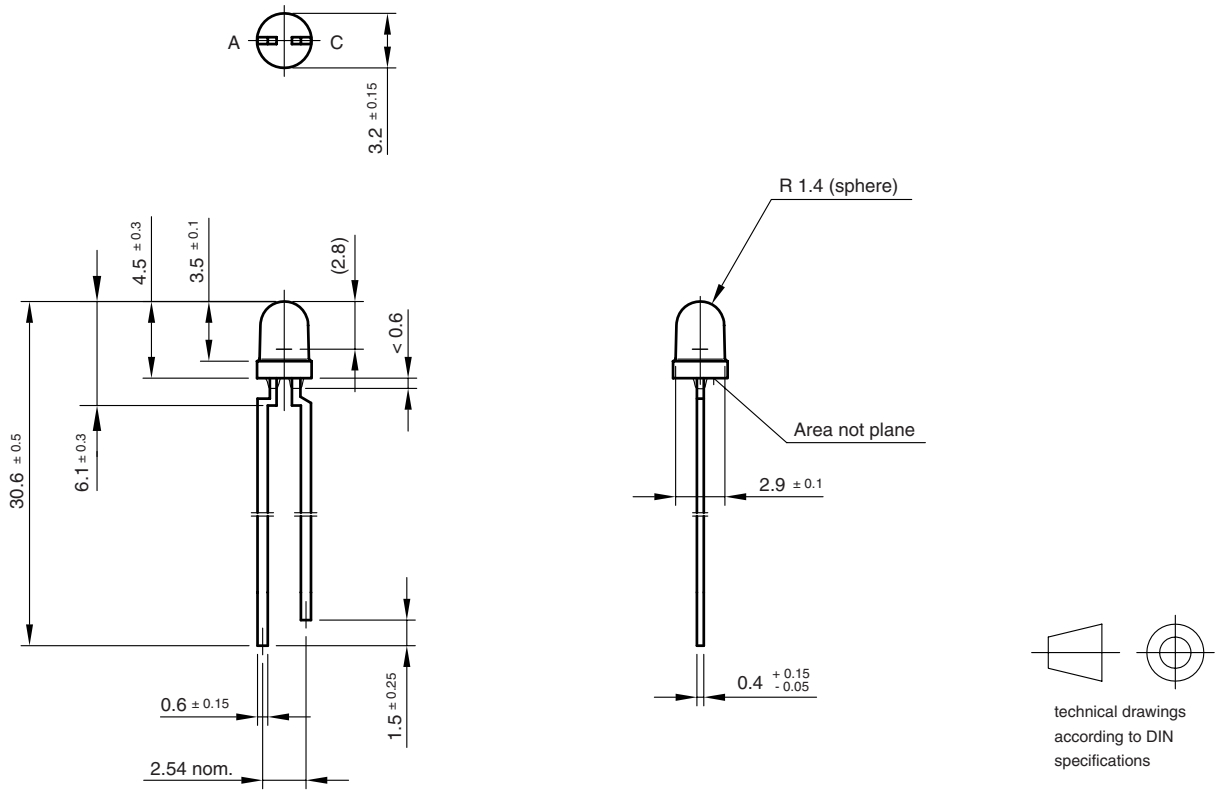


Figure 7. Rel. Luminous Intensity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters



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