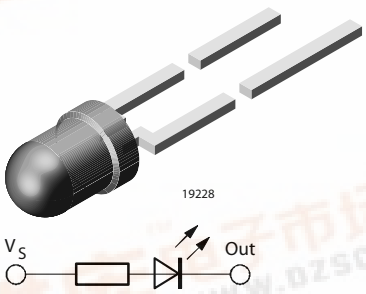
Resistor LED for 12 V Supply Voltage



FEATURES

- With current limiting resistor for 12 V
- Resistant against transient high voltage spikes
- Cost effective: save space and resistor cost
- Standard Ø 3 mm (T-1) package
- High luminous intensity
- Luminous intensity categorized
- Yellow color categorized
- Lead (Pb)-free device

Pb-free

e4

RoHS COMPLIANT

DESCRIPTION

These devices are developed for the automotive industry with special requirements as for EMC (electro magnetic compatibility) in motor vehicles with 12 V supply voltage.

The TLRY4220CU 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
- Off/on indicator in switches

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 3 mm
- Product series: resistor
- Angle of half intensity: ± 22°

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY	TECHNOLOGY
TLRY4220CU	Yellow, I_V > 6.3 mcd	GaAsP on GaP

ABSOLUTE MAXIMUM RATINGS [1] TLRY4220CU

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] TLRY4220CU, YELLOW						
PARAMETER	**TEST CONDITION**	**SYMBOL**	**MIN.**	**TYP.**	**MAX.**	**UNIT**
Luminous intensity [2]	V_S = 12 V	I_V	6.3	15		mcd
Dominant wavelength	V_S = 12 V	λ_d	581		594	nm
Peak wavelength	V_S = 12 V	λ_p		585		nm
Angle of half intensity	V_S = 12 V	φ		± 22		deg
Forward current	V_S = 12 V	I_F		10	12	mA
Breakdown voltage	I_R = 10 µA	V_{BR}	6	70		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

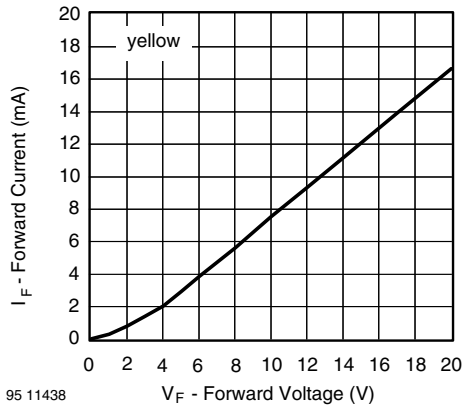


Figure 1. Forward Current vs. Forward Voltage

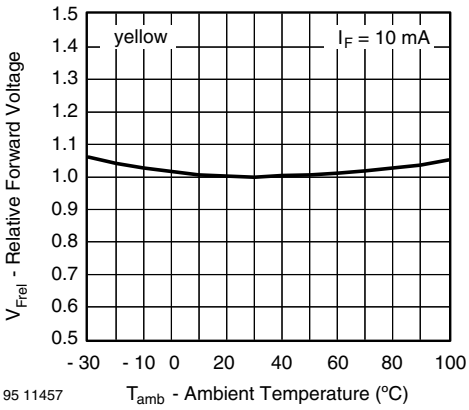


Figure 3. Relative Forward Voltage vs. Ambient Temperature

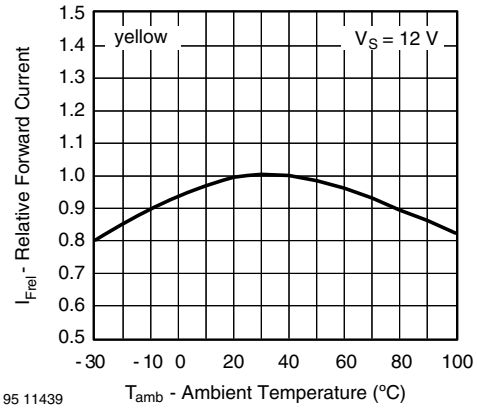


Figure 2. Relative Forward Current vs. Ambient Temperature

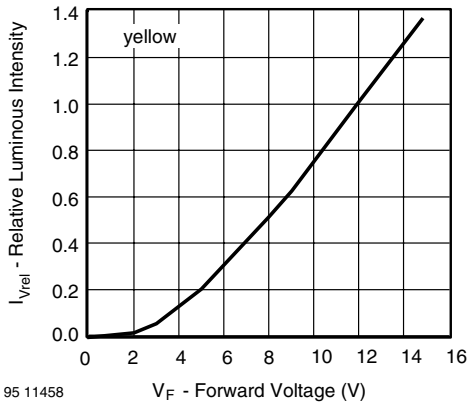


Figure 4. Relative Luminous Intensity vs. Forward Voltage

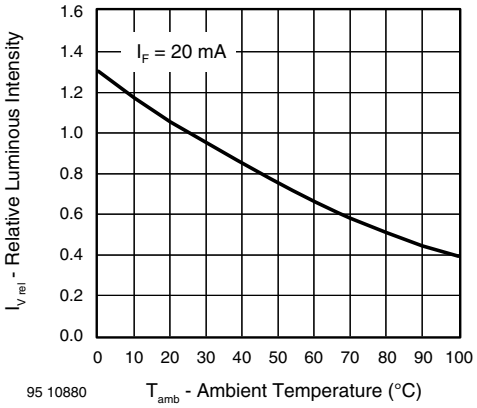


Figure 5. Rel. Luminous Intensity vs. Ambient Temperature

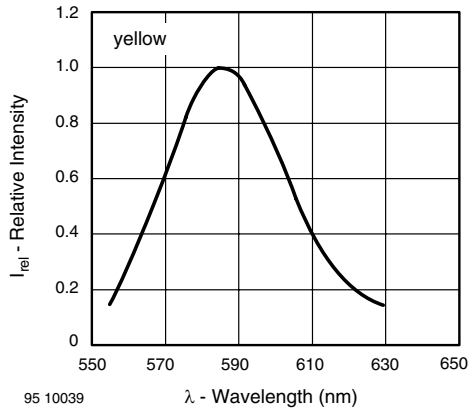


Figure 6. Relative Intensity vs. Wavelength

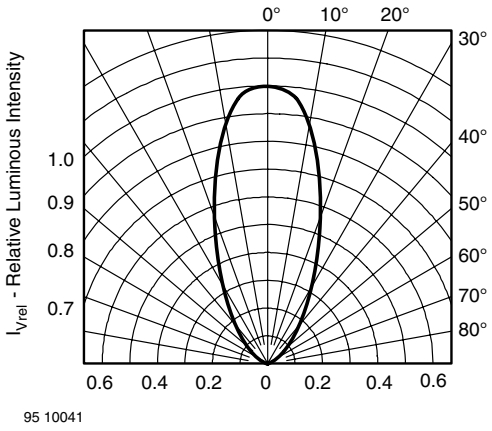
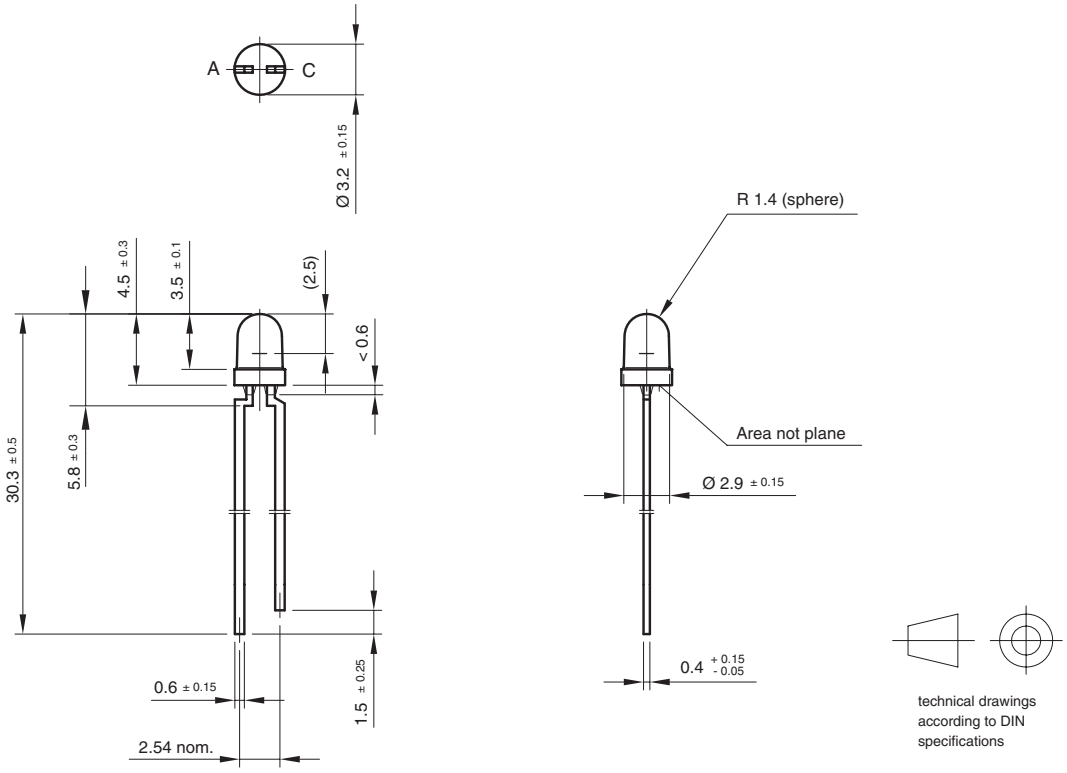


Figure 7. Rel. Luminous Intensity vs. Angular Displacement

PACKAGE DIMENSIONS in millimeters



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

Disclaimer

All product specifications and data are subject to change without notice.

Vishay Intertechnology, Inc., its affiliates, agents, and employees, and all persons acting on its or their behalf (collectively, “Vishay”), disclaim any and all liability for any errors, inaccuracies or incompleteness contained herein or in any other disclosure relating to any product.

Vishay disclaims any and all liability arising out of the use or application of any product described herein or of any information provided herein to the maximum extent permitted by law. The product specifications do not expand or otherwise modify Vishay’s terms and conditions of purchase, including but not limited to the warranty expressed therein, which apply to these products.

No license, express or implied, by estoppel or otherwise, to any intellectual property rights is granted by this document or by any conduct of Vishay.

The products shown herein are not designed for use in medical, life-saving, or life-sustaining applications unless otherwise expressly indicated. Customers using or selling Vishay products not expressly indicated for use in such applications do so entirely at their own risk and agree to fully indemnify Vishay for any damages arising or resulting from such use or sale. Please contact authorized Vishay personnel to obtain written terms and conditions regarding products designed for such applications.

Product names and markings noted herein may be trademarks of their respective owners.