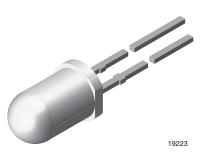


Ultrabright LED, Ø 5 mm Untinted Non-Diffused Package



www.vishay.com

DESCRIPTION

The TLC.52.. series are a clear, non-diffused 5 mm LED for high end applications where supreme luminous intensity reauired.

These lamps with clear untinted plastic case utilize the highly developed ultrabright AllnGaP (AS).

The lens and the viewing angle is optimized to achieve best performance of light output and visibility.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 5 mm
- · Product series: power
- Angle of half intensity: ± 15°

FEATURES

- Untinted non-diffused lens
- Utilizing ultrabright AllnGaP (AS)
- High luminous intensity
- High operating tempreature: T_i (chip junction temperature) up to 125 °C for AllnGaP devices
- COMPLIANT · Luminous intensity and color categorized for each packing unit
- GREEN · ESD-withstand voltage: Up to 2 kV according to JESD22-A114-B
- · Material categorization: For definitions of compliance please see www.vishay.com/doc?99912

APPLICATIONS

- Interior and exterior lighting
- Outdoor LED panels
- Instrumentation and front panel indicators
- · Central high mounted stop lights (CHMSL) for motor vehicles
- Replaces incandescent lamps
- Traffic signals
- Light guide design

PARTS TABLE															
PART	COLOR	R LUMINOUS INTENSITY		at I _F (nm) a		at I _F (mA)	FORWARD VOLTAGE (V)		at I _F (mA)	TECHNOLOGY					
		MIN.	TYP.	MAX.	(mA)	MIN.	TYP.	MAX.	(11174)	MIN.	TYP.	MAX.	(IIIA)		
TLCR5200	Red	1350	4000	-	50	611	616	622	50	-	2.1	2.7	50	AllnGaP on GaAs	
TLCY5200	Yellow	1350	4000	-	50	585	590	597	50	-	2.1	2.7	50	AllnGaP on GaAs	

ABSOLUTE MAXIMUM RATINGS (T _{amb} = 25 °C, unless otherwise specified) TLCR5200, TLCY5200									
PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT					
Reverse voltage ⁽¹⁾		V _R	5	V					
DC forward current	$T_{amb} \le 85 \ ^{\circ}C$	I _F	50	mA					
Surge forward current	t _p ≤ 10 μs	I _{FSM}	1	А					
Power dissipation		Pv	135	mW					
Junction temperature		Tj	125	°C					
Operating temperature range		T _{amb}	- 40 to + 100	°C					
Storage temperature range		T _{stg}	- 40 to + 100	°C					
Soldering temperature	$t \leq 5$ s, 2 mm from body	T _{sd}	260	°C					
Thermal resistance junction/ambient		R _{thJA}	300	K/W					

Note

⁽¹⁾ Driving the LED in reverse direction is suitable for a short term application



RoHS

HALOGEN

FREE

(5-2008)

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OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) TLCR5200, RED									
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT		
Luminous intensity ⁽¹⁾	I _F = 50 mA	TLCR5200	IV	1350	4000	-	mcd		
Dominant wavelength	I _F = 50 mA		λ_d	611	616	622	nm		
Peak wavelength	I _F = 50 mA		λρ	-	622	-	nm		
Spectral bandwidth at 50 % I _{rel max.}	I _F = 50 mA		Δλ	-	18	-	nm		
Angle of half intensity	I _F = 50 mA		φ	-	± 15	-	deg		
Forward voltage	I _F = 50 mA		V _F	-	2.1	2.7	V		
Reverse voltage	I _R = 10 μA		V _R	5	-	-	V		
Temperature coefficient of V_F	I _F = 50 mA		TC _{VF}	-	- 3.5	-	mV/K		
Temperature coefficient of λ_d	I _F = 50 mA		TCλd	-	0.05	-	nm/K		

Note

⁽¹⁾ In one packing unit $I_{Vmax}/I_{Vmin} \le 2.0$

OPTICAL AND ELECTRICAL CHARACTERISTICS (T_{amb} = 25 °C, unless otherwise specified) **TLCY5200. YELLOW**

PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity ⁽¹⁾	I _F = 50 mA	TLCY5200	Ι _V	1350	4000	-	mcd
Dominant wavelength	I _F = 50 mA		λ_d	585	590	597	nm
Peak wavelength	I _F = 50 mA		λρ	-	593	-	nm
Spectral bandwidth at 50 % I _{rel max.}	I _F = 50 mA		Δλ	-	17	-	nm
Angle of half intensity	I _F = 50 mA		φ	-	± 15	-	deg
Forward voltage	I _F = 50 mA		V _F	-	2.1	2.7	V
Reverse voltage	I _R = 10 μΑ		V _R	5	-	-	V
Temperature coefficient of V_F	I _F = 50 mA		TC _{VF}	-	- 3.5	-	mV/K
Temperature coefficient of λ_d	I _F = 50 mA		TCλd	-	0.1	-	nm/K

Note

⁽¹⁾ In one packing unit $I_{Vmax}/I_{Vmin.} \le 2.0$

LUMINOUS INTENSITY CLASSIFICATION							
GROUP	LIGHT INTE	NSITY (mcd)					
STANDARD	MIN.	MAX.					
FF	1350	2700					
GG	1800	3600					
HH	2400	4800					
I	3200	6400					
KK	4300	8600					
LL	5750	11 500					
MM	7500	15 000					
NN	10 000	20 000					
PP	13 500	27 000					
QQ	18 000	36 000					
RR	24 000	48 000					
SS	32 000	64 000					
ТТ	43 000	86 000					
UU	57 500	115 000					

Note

 Luminous intensity is tested at a current pulse duration of 25 ms. The 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 in any one bag.

In order to ensure availability, single wavelength groups will not be orderable.

COLOR CLASSIFICATION									
	DOM. WAVELENGTH (nm)								
GROUP	YEL	LOW	RED						
	MIN.	MAX.	MIN.	MAX.					
0	585	588							
1	587	591	611	618					
2	589	594	614	622					
3	592	597							
Note									

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

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2 For technical questions, contact: <u>LED@vishay.com</u> Document Number: 81354



TLCR5200, TLCY5200

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

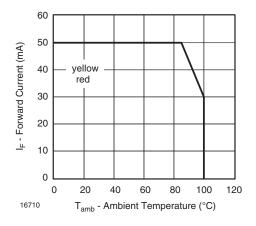


Fig. 1 - Forward Current vs. Ambient Temperature

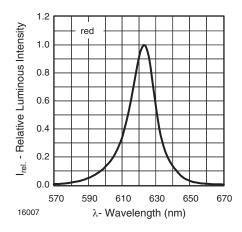


Fig. 2 - Relative Intensity vs. Wavelength

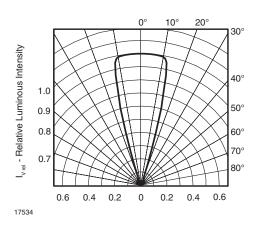


Fig. 3 - Relative Intensity vs. Angular Displacement

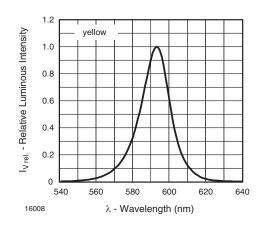


Fig. 4 - Relative Intensity vs. Wavelength

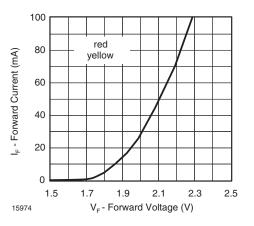


Fig. 5 - Forward Current vs. Forward Voltage

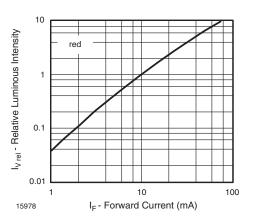


Fig. 6 - Relative Luminous Flux vs. Forward Current

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TLCR5200, TLCY5200

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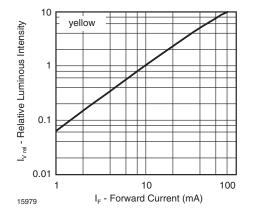
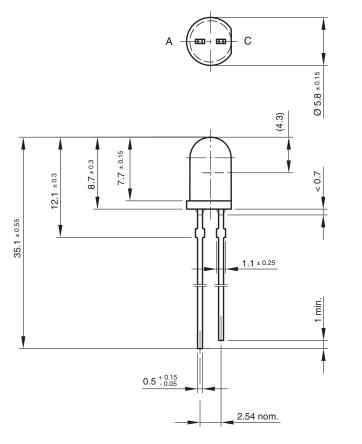
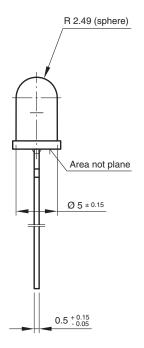


Fig. 7 - Relative Luminous Flux vs. Forward Current

PACKAGE DIMENSIONS in millimeters





	(2	6	7	
			P	7	

technical drawings according to DIN specifications

Drawing-No.: 6.544-5258.07-4 Issue: 4; 19.05.09 14339

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