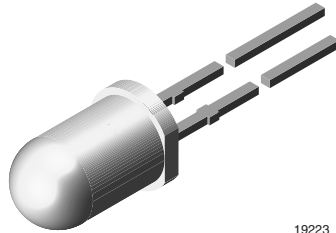


High Brightness LED, Ø 5 mm Untinted Non-Diffused



19223

DESCRIPTION

The VLC.52.. series is a clear, non diffused 5 mm LED for high end applications where supreme luminous intensity is required.

These lamps with clear untinted plastic case utilize the highly developed ultrabright AllnGaP technology.

PRODUCT GROUP AND PACKAGE DATA

- Product group: LED
- Package: 5 mm
- Product series: power
- Angle of half intensity: $\pm 15^\circ$

FEATURES

- Untinted non diffused lens
- Utilizing ultrabright AllnGaP technology
- Very high luminous intensity
- High operating temperature:
 T_j (chip junction temperature) up to 125 °C for AllnGaP devices
- Luminous intensity and color categorized for each packing unit
- ESD-withstand voltage: up to 2 kV according to JESD22-A114-B
- Compliant to RoHS directive 2002/95/EC and in accordance to WEEE 2002/96/EC
- AEC-Q101 qualified


RoHS
COMPLIANT

APPLICATIONS

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

PARTS TABLE

PART	COLOR, LUMINOUS INTENSITY (at $I_F = 50$ mA)	TECHNOLOGY
VLCS5230	Red, $I_V > 3200$ mcd (typ. 7500 mcd)	AllnGaP on Si

ABSOLUTE MAXIMUM RATINGS ¹⁾ VLCS5230

PARAMETER	TEST CONDITION	SYMBOL	VALUE	UNIT
Reverse voltage ²⁾		V_R	5	V
DC Forward current	$T_{amb} \leq 85^\circ\text{C}$	I_F	50	mA
Surge forward current	$t_p \leq 10 \mu\text{s}$	I_{FSM}	0.1	A
Power dissipation		P_V	150	mW
Junction temperature		T_j	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⁾ $T_{amb} = 25^\circ\text{C}$, unless otherwise specified

²⁾ Driving the LED in reverse direction is suitable for short term application

OPTICAL AND ELECTRICAL CHARACTERISTICS ¹⁾ VLCS5230, RED							
PARAMETER	TEST CONDITION	PART	SYMBOL	MIN.	TYP.	MAX.	UNIT
Luminous intensity ²⁾	$I_F = 50 \text{ mA}$	VLCS5230	I_V	3200	7500		mcd
Dominant wavelength ³⁾	$I_F = 50 \text{ mA}$		λ_d	620	624	630	nm
Peak wavelength	$I_F = 50 \text{ mA}$		λ_p		631		nm
Spectral bandwidth at 50 % $I_{rel \text{ max.}}$	$I_F = 50 \text{ mA}$		$\Delta\lambda$		18		nm
Angle of half intensity	$I_F = 50 \text{ mA}$		φ		± 9		deg
Forward voltage ⁴⁾	$I_F = 50 \text{ mA}$		V_F		2.2	3.0	V
Reverse voltage	$I_R = 10 \mu\text{A}$		V_R	5			V
Temperature coefficient of V_F	$I_F = 50 \text{ mA}$		TC_{V_F}		- 2		mV/K
Temperature coefficient of λ_d	$I_F = 50 \text{ mA}$		TC_{λ_d}		0.05		nm/K

Note:

¹⁾ $T_{amb} = 25 \text{ }^\circ\text{C}$, unless otherwise specified

²⁾ In one packing unit $I_{Vmax}/I_{Vmin} \leq 2.0$

³⁾ Wavelengths are tested at a current pulse duration of 25 ms and a tolerance of $\pm 1 \text{ nm}$

⁴⁾ Forward voltages are tested at a current pulse duration of 1 ms and a tolerance of $\pm 0.05 \text{ V}$

LUMINOUS INTENSITY CLASSIFICATION		
GROUP	LIGHT INTENSITY (mcd)	
	MIN.	MAX.
II	3200	6400
KK	4300	8600
LL	5750	11 500
MM	7500	15 000
NN	10 000	20 000
PP	13 500	27 000

Note:

Luminous intensity is tested at a current pulse duration of 25 ms and an accuracy of $\pm 11 \%$.

The above 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).

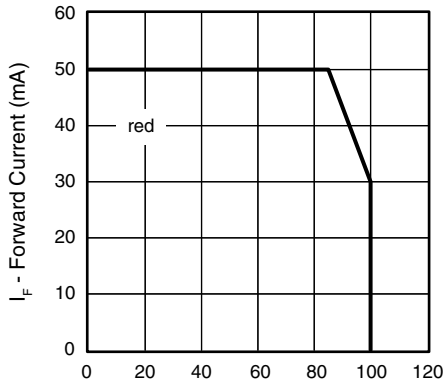
In order to ensure availability, single brightness groups will not be orderable.

In a similar manner for colors where wavelength groups are measured and binned, single wavelength groups will be shipped in any one reel.

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

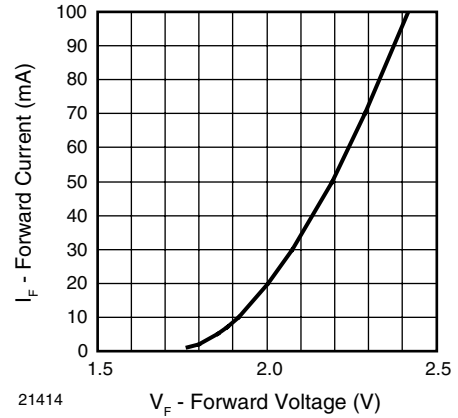
TYPICAL CHARACTERISTICS

$T_{amb} = 25\text{ }^{\circ}\text{C}$, unless otherwise specified



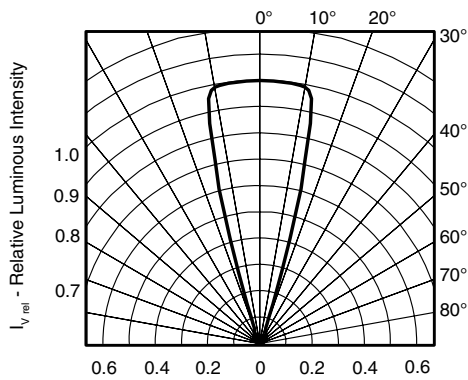
16710_2 T_{amb} - Ambient Temperature ($^{\circ}\text{C}$)

Figure 1. Max. Permissible Forward Current vs. Ambient Temperature



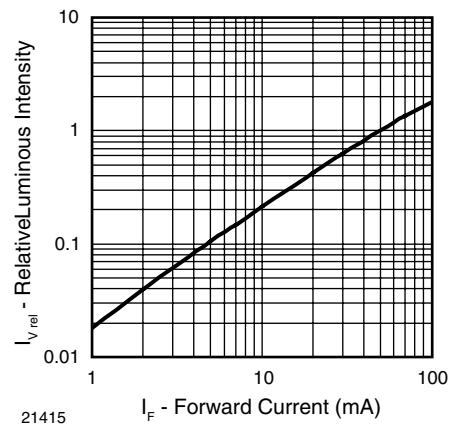
21414 V_F - Forward Voltage (V)

Figure 4. Forward Current vs. Forward Voltage



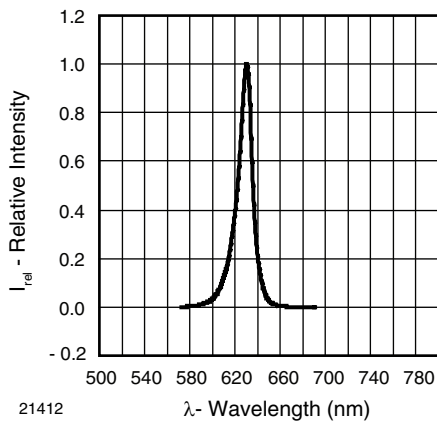
17534

Figure 2. Relative Intensity vs. Angular Displacement



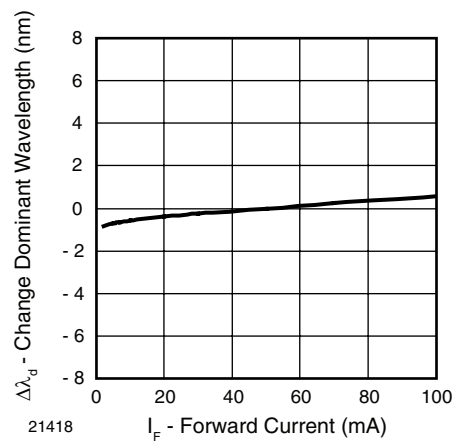
21415 I_F - Forward Current (mA)

Figure 5. Relative Luminous Intensity vs. Forward Current



21412

Figure 3. Relative Intensity vs. Wavelength



21418

Figure 6. Change of Dominant Wavelength vs. Forward Current

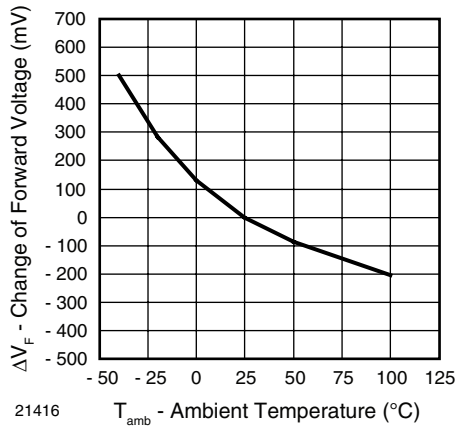


Figure 7. Change of Forward Voltage vs. Ambient Temperature

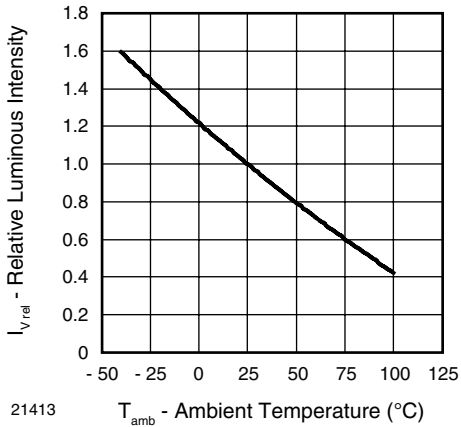


Figure 8. Relative Luminous Intensity vs. Ambient Temperature

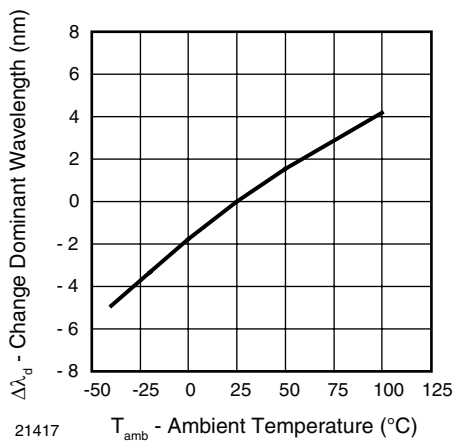
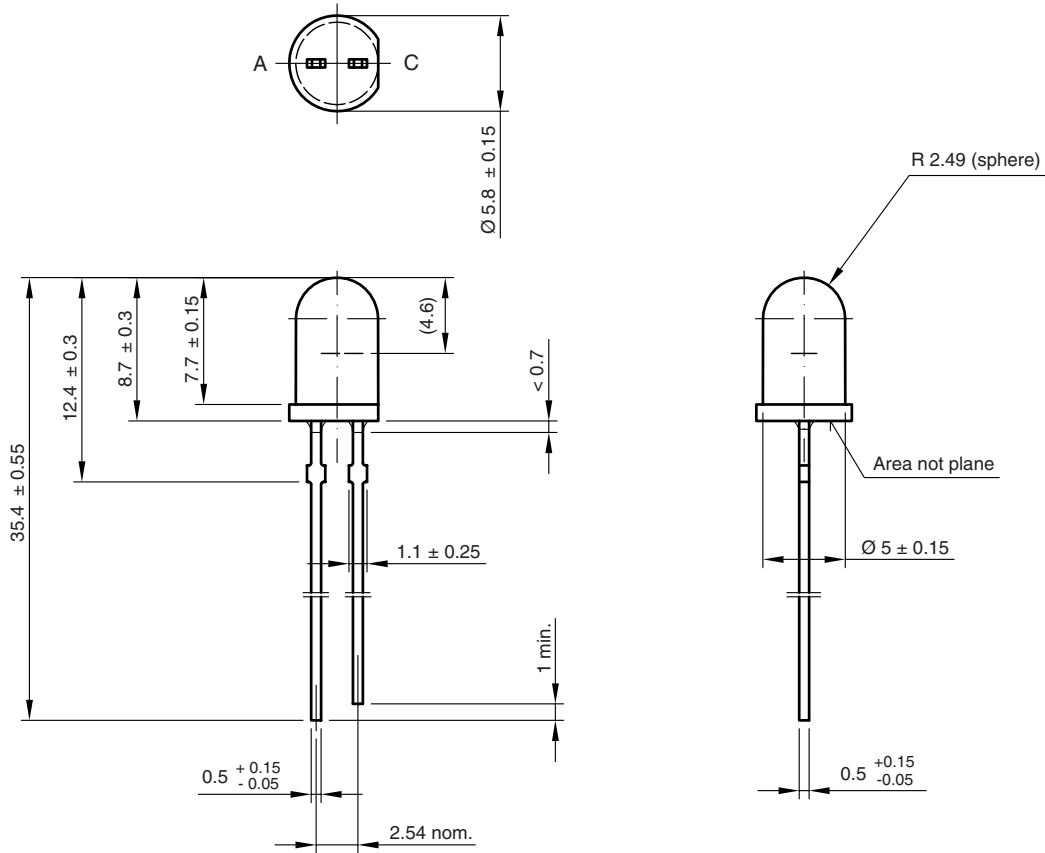


Figure 9. Change of Dominant Wavelength vs. Ambient Temperature

PACKAGE DIMENSIONS in millimeters



technical drawings
according to DIN
specifications

6.544-5258.12-4
Issue: 2; 19.05.09
21698



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.