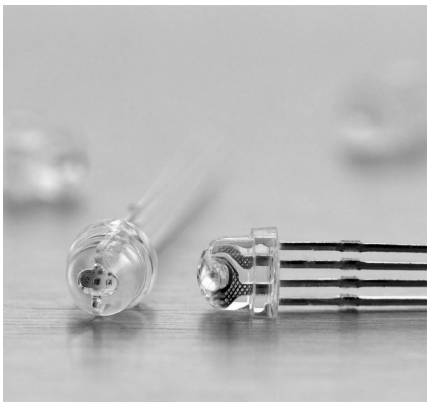
WINGER® WEDRGB03-CM LED 4,8 mm straw-hat RGB, 4-pin, common anode, typ. 625/525/470 nm, up to 500/1,500/400 mcd



Item number	40099310
Type	WEDRGB03-CM
Brand	WINGER®
Package	4.8 mm straw-hat, water-clear, 4-lead, common anode
Emitted colour	red typ. 625 nm / green typ. 525 nm / blue typ. 470 nm
Luminous intensity	up to 500 mcd (red) / 1,500 mcd (green) / 400 mcd (blue)
Viewing angle	120°

The WINGER® WEDRGB03-CM is a through-hole 4.8 mm straw-hat RGB LED with a water-clear lens and four leads, common anode. Typical dominant wavelengths are 625 nm (red), 525 nm (green) and 470 nm (blue). Maximum luminous intensities are 500 / 1,500 / 400 mcd at a viewing angle of typ. 120°.

Typical uses are signalling and status indication as well as illumination or backlighting, depending on the number and arrangement of the LEDs.

1 Optical and Electrical Characteristics

Red chip (AlInGaP)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward voltage [1]	V_F	1.8	2.0	2.2	V	I_F = 20 mA
Luminous intensity	I_V	380 [1]	460 [1]	500	mcd	I_F = 20 mA
Dominant wavelength [1]	λ_D	620	625	630	nm	I_F = 20 mA

Green chip (InGaN)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward voltage [1]	V_F	2.8	3.2	3.4	V	I_F = 20 mA
Luminous intensity	I_V		1,200	1,500	mcd	I_F = 20 mA
Dominant wavelength [1]	λ_D	515	525	530	nm	I_F = 20 mA

Blue chip (InGaN)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward voltage [1]	V_F	2.8	3.2	3.4	V	I_F = 20 mA
Luminous intensity	I_V	250 [1]	300 [1]	400	mcd	I_F = 20 mA
Dominant wavelength [1]	λ_D	465	470	475	nm	I_F = 20 mA

Common characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Viewing angle (50 % power angle)	2θ½		120		°	
Recommended forward current [1]	I_F(rec)			20	mA	
Reverse current [1]	I_R			5	µA	V_R = 5 V

[1] Min./max. range according to the previous typ-identical datasheet version.
Unless otherwise stated, values at I_F = 20 mA, T_A = 25 °C.
Measurement tolerances [1]: forward voltage ±0.1 V; peak wavelength ±2.0 nm; luminous intensity ±15 %; viewing angle ±15 %.
It is strongly recommended to limit the die temperature to 55 °C [1].

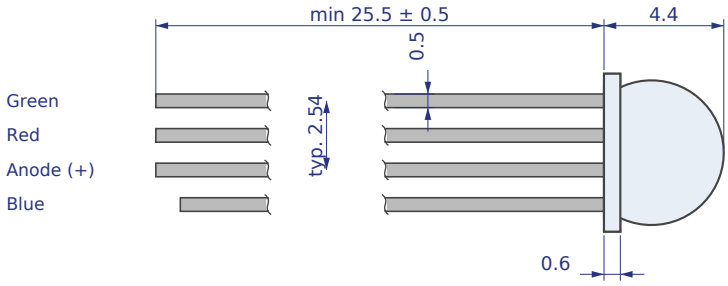
2 Absolute Maximum Ratings

Parameter	Symbol	Rating
Forward current [1]	I_F	3 × 20 mA
Peak forward current (duty cycle 1/10, pulse width 0.1 ms) [1]	I_{FP}	3 × 100 mA
Reverse voltage [1]	V_R	5 V
Max. power dissipation	P_D	210 mW
Operating temperature range [1]	T_{OPR}	−20 … +50 °C
Storage temperature range [1]	T_{STG}	−40 … +85 °C
Lead soldering temperature	T_{SOL}	260 °C for max. 5 s [1]

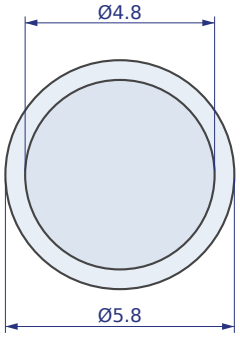
[1] Min./max. range according to the previous typ-identical datasheet version.
Absolute maximum ratings at T_A = 25 °C [1].

3 Mechanical Data

Parameter	Value
Package	4.8 mm straw-hat, through-hole, water-clear lens, 4 leads, common anode
Lens diameter	Ø 4.8 mm
Flange diameter	Ø 5.8 mm
Flange thickness	0.6 mm
Overall height (flange back to tip, including flange)	4.4 mm
Lead spacing	typ. 2.54 mm
Lead thickness	0.5 mm
Lead length	min 25.5 mm ±0.5 mm
Polarity	common anode, pins top to bottom: green cathode, red cathode, common anode, blue cathode (drawn shorter; amount on request)
General tolerance [1]	±0.25 mm



Side view



View from the lead side (not to scale)

Side view (schematic, not to scale). Common anode; pin assignment top to bottom as labelled. Leads shown shortened. Lead pitch typ. 2.54 mm. The blue lead is drawn shorter; the amount remains undimensioned.

[1] Min./max. range according to the previous typ-identical datasheet version.
Dimensions in mm. General tolerance ±0.25 mm [1]. The blue lead is drawn shorter; the amount remains undimensioned.

4 Ordering Information and Packaging

Parameter	Value
Item number	40099310
Type	WEDRGB03-CM
Packaging	loose in bag
Packaging unit	500 pcs per bag

5 Handling and Application Notes

- Always operate the LED with a current-limiting series resistor or a constant-current source – never connect it directly to a voltage source. Series resistor: $R = (U_{supply} - V_F) / I_F$.
- When connecting LEDs in parallel, use a separate series resistor for each LED or string.
- Do not exceed the absolute maximum ratings, not even briefly; avoid reverse voltage.
- Bend the leads only before soldering and at room temperature, never directly at the body (typ. at least 3 mm from the body). Hold the lead firmly between body and bending point; never use the body as a fulcrum.
- Do not apply mechanical stress to the leads or the lens while the LED is hot (during and directly after soldering). Let it cool down to room temperature first.
- Clean with isopropyl alcohol only if necessary; do not use aggressive solvents. Ultrasonic cleaning only after prior qualification.
- Do not look directly into the LED at short distance for a longer period (glare).
- Protect the LED against current surges and overvoltage; limit the die temperature to 55 °C (strongly recommended) [1].

[1] Min./max. range according to the previous typ-identical datasheet version.

6 ESD Protection

Parameter	Value
ESD withstand voltage (HBM)	AlInGaP (red): typ. 2,000 V; InGaN (green, blue): typ. 1,000 V

- LEDs are electrostatic-sensitive devices (ESD). Electrostatic discharge or voltage surges can damage the LED immediately or reduce its service life without visible signs.
- Handle and process only in an ESD protected area (EPA) in accordance with IEC 61340-5-1: grounded work surfaces, equipment and soldering irons, wrist straps or ESD gloves, ESD-safe packaging and transport containers.
- Keep the LEDs in their ESD-safe packaging until processing.

7 Soldering Instructions

Parameter	Value
Wave soldering	max. 260 °C, max. 5 s, typ. 3 mm from the epoxy body
Preheating (wave soldering)	max. 100 °C, max. 60 s
Hand soldering	max. 350 °C, max. 3 s, at least 3 mm from the body, once only

- Recommended methods: wave soldering or hand soldering. Through-hole LEDs are not intended for reflow soldering unless explicitly stated.
- Solder only once if possible and keep the specified minimum distance between soldering point and body. Never dip the body into the solder.
- Hand soldering: use a temperature-controlled, grounded soldering iron; do not touch the body with the tip.
- Shorten the leads preferably after soldering and without transferring stress to the body.

8 Storage

Parameter	Value
Storage temperature	−40 … +85 °C
Recommended storage conditions	≤ 30 °C, ≤ 60 % RH, in original packaging
Shelf life	12 months from delivery in unopened original packaging

- Store in the original packaging in a dry, clean environment free of corrosive gases. Avoid condensation and rapid temperature changes.
- High humidity or sulphur-containing atmospheres can discolour the lead surface and impair solderability; process the LEDs promptly.
- Store cool and dry; protect from direct sunlight and heat; keep away from ignition sources.

9 Environmental Compliance

Parameter	Value
RoHS (EU) 2011/65/EU incl. (EU) 2015/863	compliant (Directive 2011/65/EU) [2]
REACH (EC) 1907/2006	no SVHC of the candidate list above 0.1 % (w/w) known

Declarations of conformity are available on request.
Dispose of as electronic waste in accordance with local regulations.

[2] RoHS compliance according to the previous typ-identical datasheet version.

10 Warranty and Application Limits

- Perform an acceptance inspection on arrival of the goods; return defective items stating the defect and quantity.
- Integration of the LEDs into the application and verification of service life and other qualities in practical use shall be carried out by the user.
- Do not use the LEDs in applications requiring higher reliability and safety where failure or malfunction could endanger life or health. The seller assumes no liability for claims or damages resulting from use contrary to the intended purpose or without written consent.
- The seller assumes no responsibility for damage or defects caused by operation at currents exceeding the absolute maximum ratings; these are not covered by warranty.

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