WINGER® WEDRGB02-UM LED 4,8 mm straw-hat, rainbow fading, typ. 625/520/470 nm, up to 650/1,500/900 mcd



Item number	40099200
Type	WEDRGB02-UM
Brand	WINGER®
Package	4.8 mm straw-hat, water-clear, 2-lead, internal RGB fading IC
Emitted colour	red typ. 625 nm / green typ. 520 nm / blue typ. 470 nm, colour-changing
Luminous intensity	up to 650 mcd (red) / 1,500 mcd (green) / 900 mcd (blue)
Viewing angle	120°

The WINGER® WEDRGB02-UM is a through-hole 4.8 mm straw-hat LED with a water-clear lens and two leads. An internal IC automatically cycles through red, green and blue (fading / rainbow). Typical dominant wavelengths are 625 / 520 / 470 nm; maximum luminous intensities are 650 / 1,500 / 900 mcd. The viewing angle is typ. 120°. The typ. cycle time is approx. 30 s.

Operate only within the stated supply voltage and current ratings.

1 Optical and Electrical Characteristics

Red

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous intensity	I_V	400 [1]	500 [1]	650	mcd	
Dominant wavelength [1]	λ_D	620	625	630	nm	

Green

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous intensity	I_V	1,000 [1]	1,200 [1]	1,500	mcd	
Dominant wavelength [1]	λ_D	515	520	525	nm	

Blue

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Luminous intensity	I_V	600 [1]	750 [1]	900	mcd	
Dominant wavelength [1]	λ_D	460	470	470	nm	

Common / operating characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Viewing angle (50 % power angle)	2θ½		120		°	
Operating voltage	V_O		4.2	4.5 [1]	V	
Forward current	I_F			40	mA	
Recommended forward current [1]	I_F(rec)			20	mA	
Cycle time	t_{cyc}		approx. 30		s	
Reverse current [1]	I_R			5	µA	V_R = 5 V

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

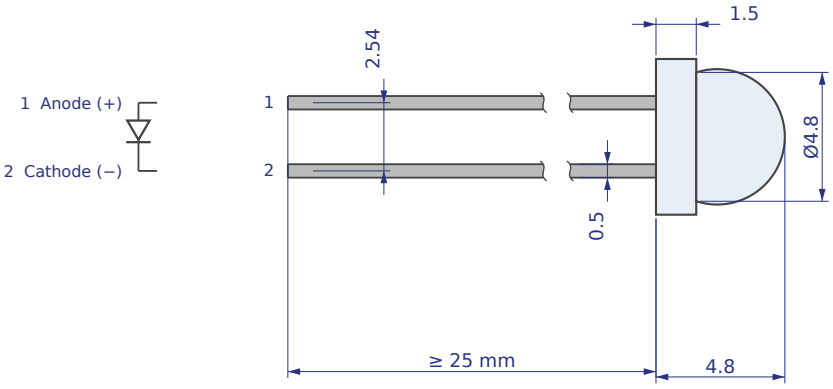
2 Absolute Maximum Ratings

Parameter	Symbol	Rating
Forward current [1]	I_F	40 mA
Peak forward current (duty cycle 1/10, pulse width 0.1 ms) [1]	I_{FP}	120 mA
Operating voltage [1]	V_O	4.5 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, > 3 mm from the epoxy body [1]

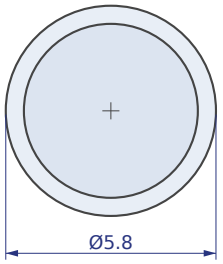
[1] Min./max. range according to the previous typ-identical datasheet version.
Absolute maximum ratings at T_A = 25 °C [1].

3 Mechanical Data

Parameter	Value
Package	4.8 mm straw-hat, through-hole, water-clear lens, 2 leads
Lens diameter	Ø 4.8 mm
Flange diameter	Ø 5.8 mm
Flange thickness	1.5 mm
Overall height (flange back to tip, including flange)	4.8 mm
Lead spacing	2.54 mm typ.
Lead cross-section	0.5 mm
Lead length	≥ 25 mm, equal length
Polarity	pin 1 = anode (+), pin 2 = cathode (−)
General tolerance [1]	±0.25 mm



Side view



View from the lead side (not to scale)

Side view (schematic, not to scale). Pin 1 = anode (+), pin 2 = cathode (−). Leads shown shortened.

[1] Min./max. range according to the previous typ-identical datasheet version.
Dimensions in mm. General tolerance ±0.25 mm [1].

4 Ordering Information and Packaging

Parameter	Value
Item number	40099200
Type	WEDRGB02-UM
Packaging	loose in bag
Packaging unit	500 pcs per bag

5 Handling and Application Notes

- This LED contains an internal colour-changing IC. Operate it only within the operating voltage and current ratings given in this datasheet. Do not exceed V_O or I_F.
- Do not exceed the absolute maximum ratings, not even briefly.
- 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.
- 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)	typ. 1,000 V (InGaN chips; AlInGaP typ. 2,000 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, > 3 mm from the epoxy body [1]
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.

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

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
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.

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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