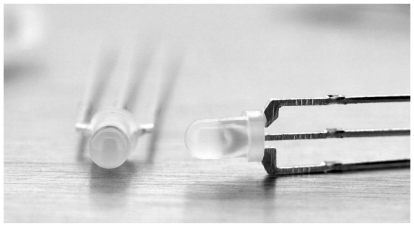
WINGER® WEBRG02-GW LED 3 mm duo LED, red/green, diffused, common anode, typ. 1,400 / 1,700 mcd



Item number	352062000
Type	WEBRG02-GW
Brand	WINGER®
Package	3 mm, 3-lead, diffused, common anode
Emitted colour	red typ. 620 nm / green typ. 520 nm
Luminous intensity	typ. 1,400 mcd (red) / typ. 1,700 mcd (green)
Viewing angle	75°

The WINGER® WEBRG02-GW is a 3 mm through-hole duo LED with a diffused lens and three leads in a common-anode configuration. The red chip (AlInGaP) has a typical dominant wavelength of 620 nm and a typical luminous intensity of 1,400 mcd; the green chip (InGaN) has a typical dominant wavelength of 520 nm and a typical luminous intensity of 1,700 mcd. The viewing angle is typ. 75°.

Driving both chips together produces mixed (yellowish) light. Typical uses include indicators and model-railway signals. Pin assignment (from the product-page drawing): pin 1 = red cathode, pin 2 = common anode (longest lead), pin 3 = green cathode.

1 Optical and Electrical Characteristics

Red chip (AlInGaP)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward voltage [1]	V_F	1.9	2.1	2.5	V	I_F = 20 mA
Luminous intensity	I_V		1,400 [1]		mcd	I_F = 20 mA
Dominant wavelength [1]	λ_D	615	620	630	nm	I_F = 20 mA

Green chip (InGaN)

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward voltage [1]	V_F	3.0	3.2	3.6	V	I_F = 20 mA
Luminous intensity	I_V		1,700 [1]		mcd	I_F = 20 mA
Dominant wavelength [1]	λ_D	515	520	525	nm	I_F = 20 mA

Common characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Viewing angle (50 % power angle)	2θ½		75		°	
Recommended forward current	I_F(rec)			20	mA	
Reverse current	I_R			5	µA	V_R = 5 V

[1] Min./max. range according to the previous datasheet version.
Unless otherwise stated, I_F = 20 mA, T_A = 25 °C.
Measurement tolerances: forward voltage ±0.1 V; luminous intensity ±15 %; viewing angle ±15 %; wavelength ±2.0 nm.
It is strongly recommended to limit the die temperature to 60 °C.
The shop lists the typ. luminous intensities 1,400 mcd (red) and 1,700 mcd (green) as maximum values; they are typ. values in the previous datasheet version and are shown as typ. here.

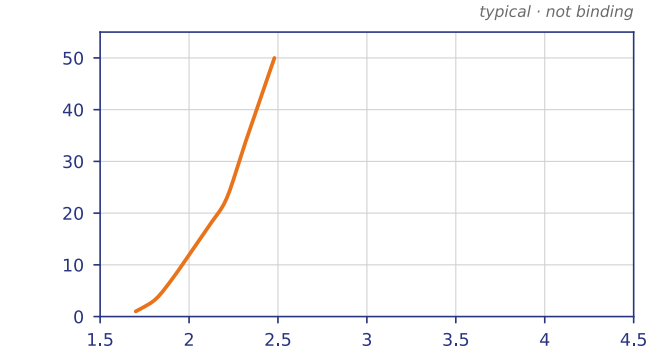
2 Absolute Maximum Ratings

Parameter	Symbol	Rating
Forward current	I_F	2 × 30 mA
Peak forward current (duty cycle 1/10, pulse width 0.1 ms)	I_{FP}	2 × 70 mA
Reverse voltage	V_R	5 V
Power dissipation, red [2]	P_D	70 mW
Power dissipation, green [2]	P_D	100 mW
Operating temperature range	T_{OPR}	−20 … +50 °C
Storage temperature range	T_{STG}	−40 … +80 °C
Lead soldering temperature	T_{SOL}	260 °C for max. 5 s, 3 mm from the epoxy body

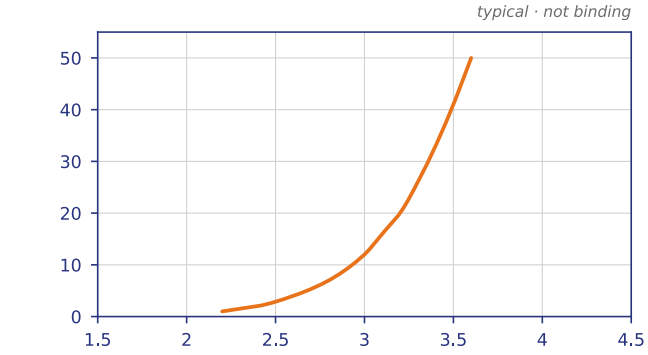
[2] The shop lists the pair 0.1 W / 0.08 W in the same order as the colours (red/green). That assignment would give 100 mW to the red chip and 80 mW to the green chip, which contradicts the previous datasheet (70 mW red / 100 mW green) and the estimate $V_{F,max} \cdot I_{F,max}$. Values according to the previous datasheet version.
Absolute maximum ratings at T_A = 25 °C. Currents are per chip; “2 ×” denotes the two chips.

3 Characteristic Curves

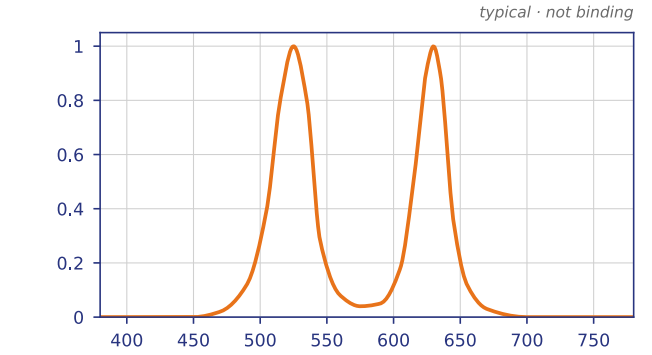
I_F vs. V_F (red, typical)



I_F vs. V_F (green, typical)



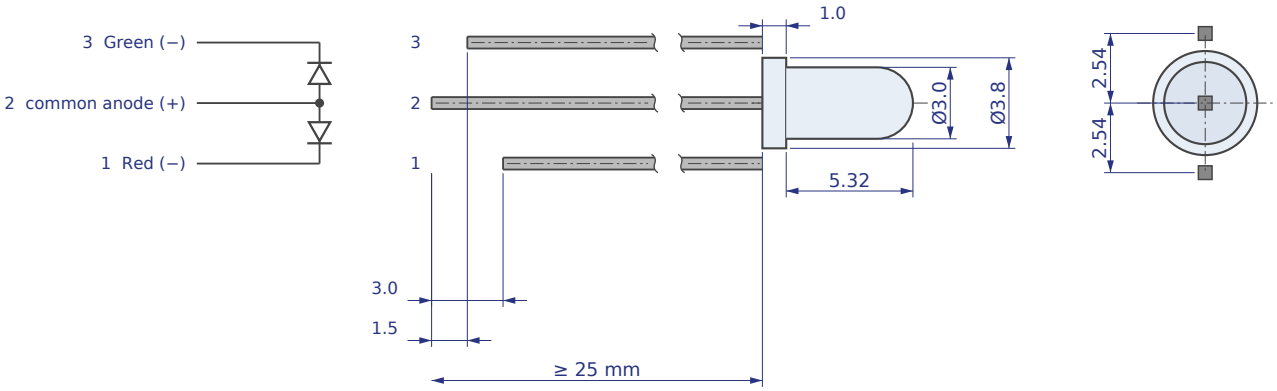
Typical spectrum (red and green)



Typical curves taken over from the previous datasheet version (read graphically, approximate values) – not binding; the table values apply. Spectrum normalised to each peak (green approx. 525 nm, red approx. 630 nm).

4 Mechanical Data

Parameter	Value
Package	3 mm round, through-hole, diffused lens, 3 leads
Body diameter	Ø 3.0 mm
Flange diameter	Ø 3.8 mm
Flange thickness	1.0 mm
Height from flange front face to lens tip	5.32 mm
Overall body height (flange back to tip)	6.32 mm
Lead spacing (adjacent)	2.54 mm typ.
Lead cross-section	on request
Lead length	≥ 25 mm (pin 2, common anode); pin 3 (green cathode) 1.5 mm shorter; pin 1 (red cathode) 3.0 mm shorter
Polarity	common anode: pin 1 = red cathode (−), pin 2 = common anode (+, longest lead), pin 3 = green cathode (−)



Side view **View from the leads**

Dimensions in mm · not to scale · leads shown shortened. Pin assignment as in the schematic (leads top to bottom).

Dimensions in mm, taken from the product-page drawing (shop). Lead cross-section is not dimensioned there (on request). The previous datasheet version used a different drawing: lead length 30 mm ±0.5 mm, flange Ø 3.85 mm ±0.2 mm, 5.3 mm ±0.2 mm from the flange front face to the lens tip, lead cross-section 0.5 mm × 0.5 mm ±0.2 mm, and only the bottom (red) lead shown 1.5 mm ±0.5 mm shorter. Pin assignment in that drawing already agreed (common anode, green at the top, red at the bottom).

5 Ordering Information and Packaging

Parameter	Value
Item number	352062000
Type	WEBRG02-GW
Packaging	loose in bag
Packaging unit	1,000 pcs per bag

6 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 [4] 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 60 °C (strongly recommended).

[4] Typical value for this LED type; not individually measured / subject to confirmation.

7 ESD Protection

Parameter	Value
ESD withstand voltage (HBM)	AlInGaP (red): 2,000 V [4]; InGaN (green): 1,000 V [4]

- 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.

[4] Typical value for this LED type; not individually measured / subject to confirmation.

8 Soldering Instructions

Parameter	Value
Wave soldering	max. 260 °C, max. 5 s, 3 mm from the epoxy body
Preheating (wave soldering)	max. 100 °C, max. 60 s [4]
Hand soldering	max. 350 °C, max. 3 s, at least 3 mm from the body, once only [4]

- 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.

[4] Typical value for this LED type; not individually measured / subject to confirmation.

9 Storage

Parameter	Value
Storage temperature	−40 … +80 °C
Recommended storage conditions	≤ 30 °C, ≤ 60 % RH, in original packaging [4]
Shelf life	12 months from delivery in unopened original packaging [4]

- 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.

[4] Typical value for this LED type; not individually measured / subject to confirmation.

10 Environmental Compliance

Parameter	Value
RoHS (EU) 2011/65/EU incl. (EU) 2015/863	compliant (Directive 2011/65/EU) [3]
REACH (EC) 1907/2006	no SVHC of the candidate list above 0.1 % (w/w) known [4]

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

[3] RoHS compliance according to the previous datasheet version.
[4] Typical value for this LED type; not individually measured / subject to confirmation.

11 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.

Values marked [4] are typical values for this LED type and have not been individually measured for this item; they are subject to confirmation. Please contact us for binding values: info@led1.de · +49 340 8508260.

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