WINGER® WEBRD05-DW LED 3 mm red, diffused, up to 4,500 mcd

Item number	301625120
Type	WEBRD05-DW
Brand	WINGER®
Package	3 mm, diffused
Emitted colour	red, typ. 625 nm
Luminous intensity	3,000–4,500 mcd
Viewing angle	40°



The WINGER® WEBRD05-DW is a through-hole LED in the widely used 3 mm standard package with a diffused lens. It emits red light at a typical dominant wavelength of 625 nm, with a luminous intensity of 3,000–4,500 mcd and a viewing angle of 40°.

Owing to its compact size, diffused lens and high brightness it is suited to a wide range of uses, such as model making, indicator and display lighting, effect lighting and vehicle applications.

1 Optical and Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward voltage [1][2]	V_F	1.9	2.1	2.4	V	
Viewing angle (50 % power angle)	2θ½		40		°	
Luminous intensity	I_V	3,000 [1]		4,500	mcd	
Dominant wavelength [1]	λ_D	620	625	630	nm	
Recommended forward current	$I_{F(rec)}$			20	mA	
Reverse current	I_R			20	µA	V_R = 5 V

[1] Min./max. range according to the previous datasheet version.
[2] Typ. 2.1 V according to the previous datasheet version (min. 1.9 V, max. 2.4 V). The shop lists typ. 3.2 V, which is not plausible for this red AlInGaP LED.
Test conditions (I_F) for the characteristics on request. Unless otherwise stated, 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 55 °C.

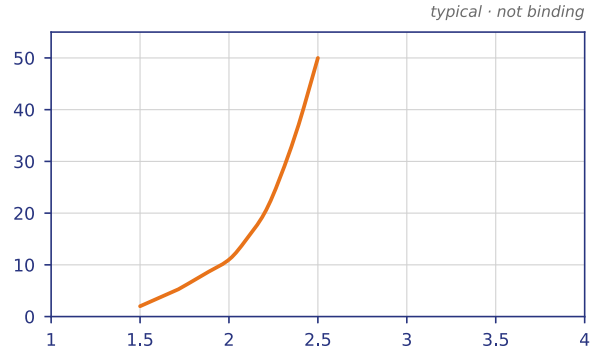
2 Absolute Maximum Ratings

Parameter	Symbol	Rating
Forward current	I_F	30 mA
Peak forward current (duty cycle 1/10, pulse width 0.1 ms)	I_{FP}	100 mA
Reverse voltage	V_R	5 V
Max. power dissipation	P_D	80 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

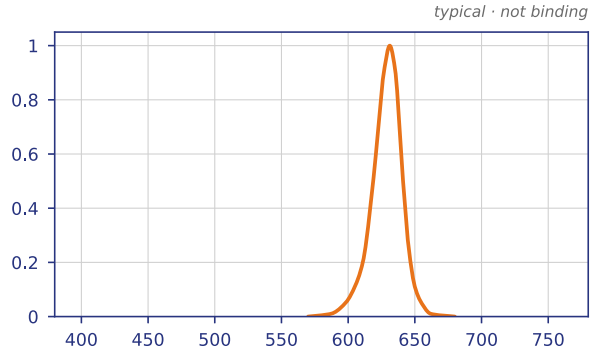
Absolute maximum ratings at T_A = 25 °C.

3 Characteristic Curves

Forward current vs. forward voltage



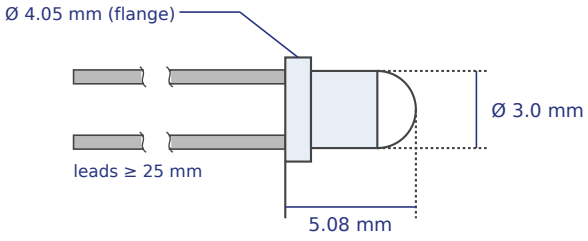
Relative spectral emission

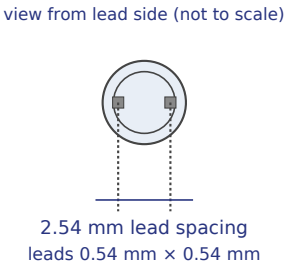


Typical curves taken over from the previous datasheet version (read graphically, approximate values) – not binding; the table values apply. Spectrum normalised to its maximum (approx. 631 nm).

4 Mechanical Data

Parameter	Value
Package	3 mm round, through-hole, diffused lens
Body diameter	Ø 3.0 mm
Flange diameter	Ø 4.05 mm
Body height (flange to lens tip)	5.08 mm
Height from flange front face to lens tip	4.08 mm
Lead spacing / lead cross-section	2.54 mm / 0.54 mm × 0.54 mm
Lead length	≥ 25 mm (anode; cathode 1.5 mm shorter)
Polarity	long lead = anode (+); short lead and flat on flange = cathode (−)
General tolerance	±0.25 mm





Side view (schematic, not to scale). Long lead = anode, flat on flange = cathode side.

Dimensions in mm, taken from the product-page drawing (shop). The previous datasheet version stated flange Ø 3.8 mm, overall body height 6.3 mm (5.3 mm from the flange front face to the lens tip), lead length 29.0 mm and lead cross-section 0.5 mm × 0.5 mm. General tolerance ±0.25 mm according to the previous datasheet version.

5 Ordering Information and Packaging

Parameter	Value
Item number	301625120
Type	WEBRD05-DW
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 55 °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)	2,000 V [4] (HBM, ANSI/ESDA/JEDEC JS-001)

- 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
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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