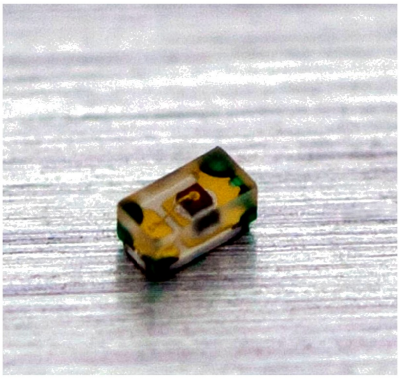
WINGER® WELRD01-C1M
SMD LED 0402, red
typ. 625 nm, up to 120 mcd, 120°



Item number	40212062800
Type	WELRD01-C1M
Brand	WINGER®
Package	SMD 0402 (1.0 × 0.5 mm)
Emitted colour	red, typ. 625 nm
Luminous intensity	up to 120 mcd
Viewing angle	120°

The WINGER® WELRD01-C1M is a 0402-package SMD LED (1.0 × 0.5 mm). It emits red light (typ. 625 nm) at up to 120 mcd with a 120° viewing angle.

SMD LEDs are used mainly in industrial applications and are also suitable for model making.

1 Optical and Electrical Characteristics

Parameter	Symbol	Min.	Typ.	Max.	Unit	Condition
Forward voltage	V_F	1.6 [1]	2	2.4 [1]	V	I_F = 20 mA
Viewing angle (50 % power angle)	2θ½		120		°	I_F = 20 mA
Luminous intensity	I_V	60 [1]	100 [1]	120	mcd	I_F = 20 mA
Dominant wavelength	λ_D		625		nm	I_F = 20 mA
Recommended forward current	$I_{F(rec)}$			20	mA	
Reverse current	I_R			10 [1]	µA	V_R = 5 V

[1] Value according to the previous typ-identical datasheet version.
Measurement tolerances: forward voltage ±0.1 V [1]; luminous intensity ±15 % [1]; viewing angle ±15 % [1]; peak wavelength ±2.0 nm [1].
It is strongly recommended to limit the die temperature to 55 °C [1].

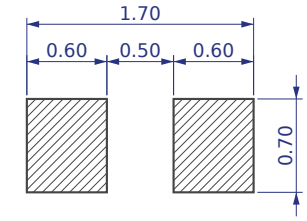
2 Absolute Maximum Ratings

Parameter	Symbol	Rating
Forward current [1]	I_F	25 mA
Peak forward current (duty cycle 1/10, pulse width 0.1 ms) [1]	I_{FP}	100 mA
Reverse voltage	V_R	5 V [1]
Max. power dissipation	P_D	0.06 W
Operating temperature range	T_{OPR}	−40 … +65 °C [1]
Storage temperature range	T_{STG}	−40 … +85 °C [1]
Soldering temperature [1]	T_{SOL}	max. 5 s at 260 °C

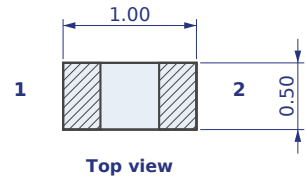
[1] Value according to the previous typ-identical datasheet version.
Absolute maximum ratings at T_A = 25 °C [1].

3 Mechanical Data

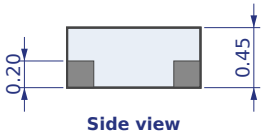
Parameter	Value
Package	SMD 0402, 2-pad chip LED
Length	1.00 mm
Width	0.50 mm
Height	0.45 mm
General tolerance	±0.10 mm
Polarity	pin 1 = cathode (−), pin 2 = anode (+)
Recommended land pattern (land × gap × land, land width)	0.60 mm × 0.50 mm × 0.60 mm, 0.70 mm



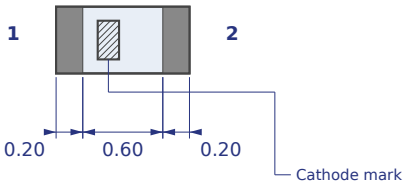
Recommended land pattern



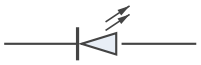
Top view



Side view



Bottom view



Cathode (−) Anode (+)

Dimensions in mm. General tolerance ±0.10 mm. Pin 1 = cathode (−), pin 2 = anode (+). Polarity marking shown schematically.

4 Ordering Information and Packaging

Parameter	Value
Item number	40212062800
Type	WELRD01-C1M
Packaging	on reel (tape & reel)
Packaging unit	3000 pcs per reel
Reel size	on request

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.
- Do not apply pressure to the lens / top surface; use a suitable pick-up nozzle for automatic placement.
- Do not apply mechanical stress to the LED or bend the PCB while the LED is hot (during and directly after soldering).
- 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).
- It is strongly recommended to limit the die temperature to 55 °C [1].

[1] Value according to the previous typ-identical datasheet version.

6 ESD Protection

Parameter	Value
ESD withstand voltage (HBM)	2,000 V (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.

7 Soldering Instructions

Parameter	Value
Reflow soldering	on request
Hand soldering	max. 260 °C, max. 5 s [1]

- Recommended method: reflow soldering according to the specified profile. Hand soldering only for repair purposes.
- Do not exceed the number of permitted reflow cycles; let the board cool down before handling.
- Hand soldering: use a temperature-controlled, grounded soldering iron; do not touch the lens with the tip.

[1] Value according to the previous typ-identical datasheet version.

8 Storage

Parameter	Value
Storage temperature	−40 … +85 °C [1]
Recommended storage conditions	on request
Shelf life	on request
Moisture sensitivity level (MSL)	on request

- Store in the original packaging in a dry, clean environment free of corrosive gases. Avoid condensation and rapid temperature changes.
- Observe the moisture sensitivity level (MSL). Re-seal opened moisture barrier bags with desiccant; bake out if the permitted floor life has been exceeded.

[1] Value according to the previous typ-identical datasheet version.

9 Environmental Compliance

Parameter	Value
RoHS (EU) 2011/65/EU incl. (EU) 2015/863	compliant (Directive 2011/65/EU) [1]
REACH (EC) 1907/2006	no SVHC of the candidate list above 0.1 % (w/w) known

Declarations of conformity are available on request.

[1] Value 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.

Winger Electronics GmbH & Co. KG · LED1.de® · Sold only to businesses, public authorities, schools and freelancers. “LED1.de” and “WINGER” are registered trademarks. Status: November 2026 – Subject to technical changes and errors.