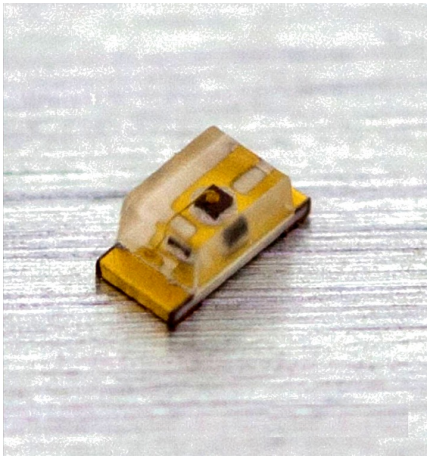
WINGER® WEMRD01-C3M
SMD LED 0603, red
typ. 630 nm, up to 160 mcd, 130°



Item number	60316063000
Type	WEMRD01-C3M
Brand	WINGER®
Package	SMD 0603 (1.6 × 0.8 mm)
Emitted colour	red, typ. 630 nm
Luminous intensity	up to 160 mcd
Viewing angle	130°

The WINGER® WEMRD01-C3M is a 0603-package SMD LED (1.6 × 0.8 mm). It emits red light (typ. 630 nm) at up to 160 mcd with a 130° 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	1.7 [1]	2.0	2.3 [1]	V	I_F = 20 mA
Viewing angle (50 % power angle)	2θ½		130		°	I_F = 20 mA
Luminous intensity	I_V	90 [1]	120 [1]	160	mcd	I_F = 20 mA
Dominant wavelength	λ_D	625 [1]	630	636 [1]	nm	I_F = 20 mA
Recommended forward current	$I_{F(rec)}$		10	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].

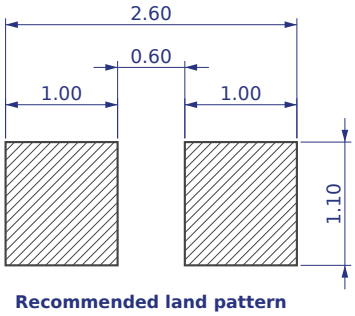
2 Absolute Maximum Ratings

Parameter	Symbol	Rating
Forward current [1]	I_F	20 mA
Peak forward current (duty cycle 1/10, pulse width 0.1 ms) [1]	I_{FP}	140 mA
Reverse voltage	V_R	5 V [1]
Max. power dissipation	P_D	0.047 W
Operating temperature range	T_{OPR}	−40 … +85 °C [1]
Storage temperature range	T_{STG}	−40 … +100 °C [1]
Soldering temperature [1]	T_{SOL}	max. 3 s at 300 °C

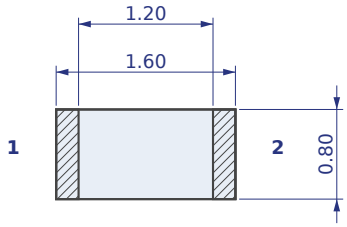
[1] Value according to the previous typ-identical datasheet version.
Absolute maximum ratings at T_A = 25 °C [1].

3 Mechanical Data

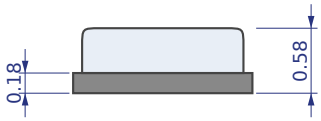
Parameter	Value
Package	SMD 0603, 2-pad chip LED
Length	1.60 mm
Width	0.80 mm
Height	0.58 mm
Polarity	pin 1 = cathode (−), pin 2 = anode (+)
Recommended land pattern (land × gap × land, land width)	1.00 mm × 0.60 mm × 1.00 mm, 1.10 mm



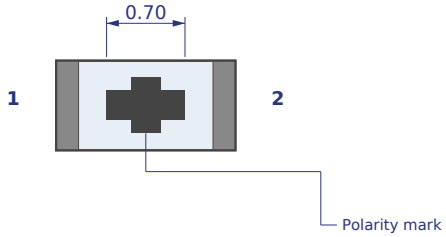
Recommended land pattern



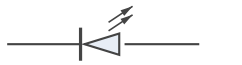
Top view



Side view



Bottom view



Cathode (−) Anode (+)

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

4 Ordering Information and Packaging

Parameter	Value
Item number	60316063000
Type	WEMRD01-C3M
Packaging	on reel (tape & reel)
Packaging unit	4000 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	ramp ≤ 4 °C/s; soak 180–200 °C for > 120 s; peak 260 °C, max. 10 s; time above 220 °C max. 60 s [1]
Hand soldering	max. 300 °C, max. 3 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 … +100 °C [1]
Recommended storage conditions	before opening: ≤ 30 °C / 80 % RH; after opening: ≤ 30 °C / 60 % RH [1]
Shelf life	12 months unopened; 72 h after opening [1]
Moisture sensitivity level (MSL)	MSL 4 [1]

- 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.
- Do not open the moisture-proof bag until ready to use. If the bag has failed or the storage time has been exceeded, bake at 70 ± 3 °C for 24 h [1].

[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.

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