



SML-31 series

1608(0603)
1.6 × 0.8mm(t=0.8mm)

Features

- 1608 standard size(1.6 × 0.8mm, t=0.8mm)
- Abundant color variations with diverse luminous intensity types

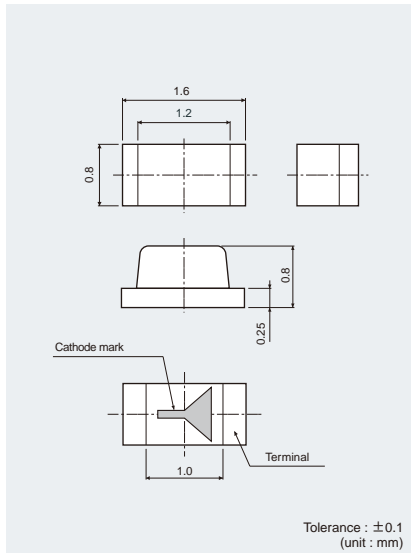


Product Specifications

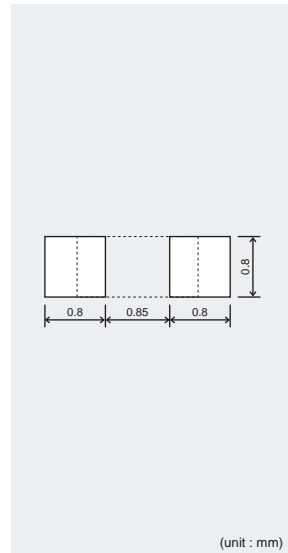
| Part No. | LED chip | Emitting color | Absolute maximum ratings (Ta=25°C) | | | | | Electrical and optical characteristics (Ta=25°C) | | | | | | | | | | | | |
|-------------------|-----------------|-----------------|------------------------------------|------------------------|------------------------------|-----------------------|--------------------------------|--|-----------------------|-----|------------------------|---|----------------------------|-----|-----|----------------------------|-----|------|-----|----|
| | | | Power dissipation PD(mW) | Forward current IF(mA) | Peak forward current IFP(mA) | Reverse voltage VR(V) | Operating temperature Topr(°C) | Storage temperature Tstg(°C) | Forward voltage VF(V) | | Reverse current IR(μA) | | Dominant wavelength λD(nm) | | | Luminous intensity Iv(mcd) | | | | |
| SML-310VT | GaAsP on GaP | Red | 55 | | | | | | 2 | 20 | | | 625 | 630 | 635 | 20 | 1.4 | 4 | 20 | |
| SML-311UT | AlGaInP on GaAs | | | 44 | | | | | 1.8 | 2 | | | 615 | 620 | 625 | 2 | 0.9 | 2.5 | 2 | |
| SML-311DT | | | Orange | | | | | | | | | | 602 | 605 | 608 | | 1.6 | 3.15 | | |
| SML-310DT | GaAsP on GaP | | | 55 | | | | | 2 | 20 | | | | | | 20 | 2.2 | 6.3 | 20 | |
| SML-311WT | AlGaInP on GaAs | Yellow | 44 | | 60 _{±1} | 4 | | -40 to +85 | 1.8 | 2 | | 4 | 587 | 590 | 593 | 2 | 0.9 | 2.5 | 2 | |
| SML-311YT | | | | | | | | | | | | | | 584 | 587 | 590 | | 2.2 | 6.3 | |
| SML-310YT | GaAsP on GaP | | | 20 | | | -30 to +85 | 2.1 | | 100 | | | | | | | | | | |
| SML-310MT | GaP | Yellowish Green | 55 | | | | | | | | | | 567 | 570 | 573 | | 3.6 | 16 | | |
| SML-310PT | | Green | | | | | | | 2.2 | | | | | 557 | 560 | 563 | | 1.4 | 4 | |
| SML312ECT | InGaN | Bluish Green | | | | | | | 3.3 | 20 | | | 520 | 527 | 535 | 20 | 90 | 200 | 20 | |
| SML312EC4T | | | | | | | | | 3.2 | | | | | 525 | | | | 36 | 90 | |
| SML312BCT | | Blue | | 84 | | 100 _{±2} | 5 | | -40 to +100 | 3.3 | | 5 | | | | | | | | 63 |
| SML312BC4T | | | | | | | | | | 3.2 | | | | 464 | 470 | 476 | | 22 | | 46 |

※1:Duty1/5, 200Hz / ※2:Duty1/10, 1kHz

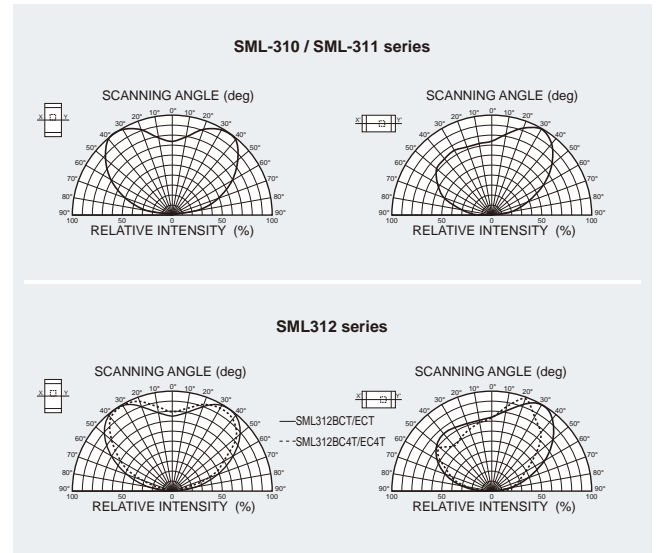
Dimensions



Recommended Solder Pattern

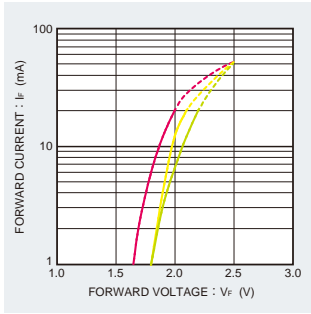


Viewing Angle

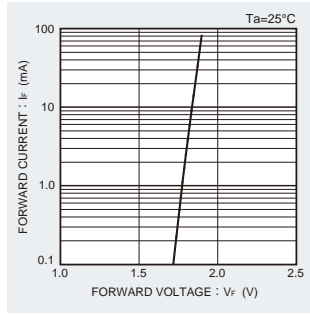


Electrical Characteristics Curves

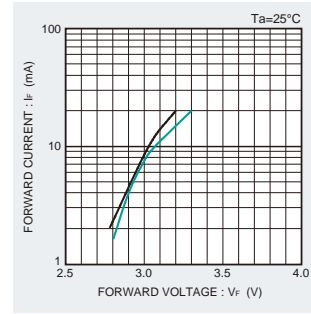
Forward Current-Forward Voltage



- SML-310VT
- SML-310DT
- SML-310YT
- SML-310MT
- SML-310PT

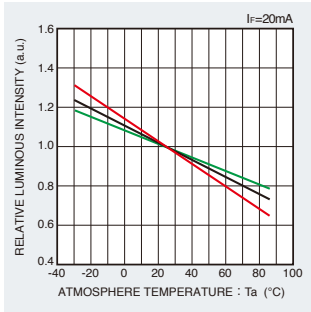


- SML-311UT
- SML-311DT
- SML-311YT
- SML-311WT
- SML-311YT

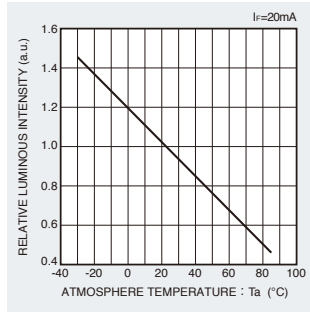


- SML312BC4T
- SML312EC4T
- SML312BT
- SML312ECT

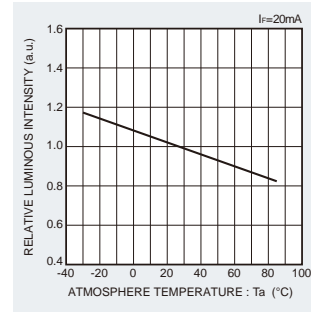
Luminous Intensity-Atmosphere Temperature



- SML-310VT
- SML-310DT
- SML-310YT
- SML-310MT
- SML-310PT

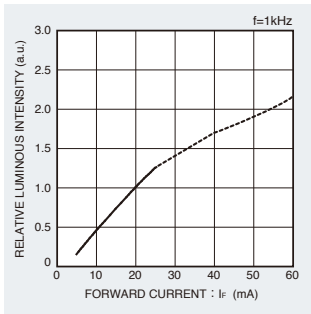


- SML-311UT
- SML-311DT
- SML-311YT
- SML-311WT
- SML-311YT

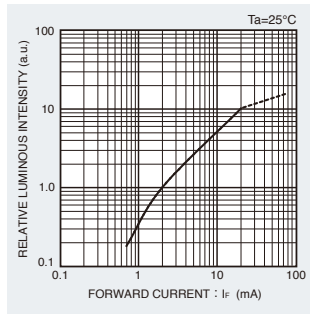


- SML312BC4T
- SML312EC4T
- SML312BT
- SML312ECT

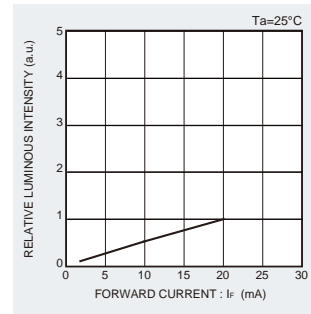
Luminous Intensity-Forward Current



- SML-310VT
- SML-310DT
- SML-310YT
- SML-310MT
- SML-310PT

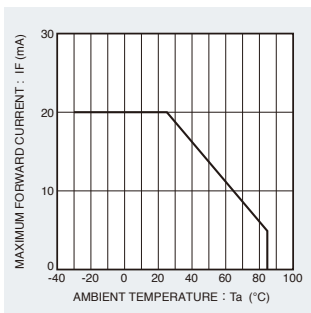


- SML-311UT
- SML-311DT
- SML-311YT
- SML-311WT
- SML-311YT

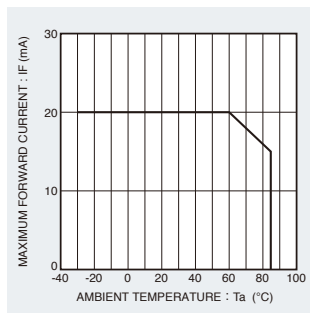


- SML312BC4T
- SML312EC4T
- SML312BT
- SML312ECT

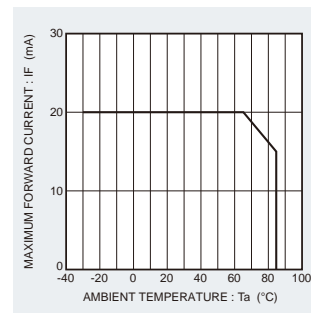
Deratings



- SML-310VT
- SML-310DT
- SML-310YT
- SML-310MT
- SML-310PT



- SML-311UT
- SML-311DT
- SML-311YT
- SML-311WT
- SML-311YT



- SML312BC4T
- SML312EC4T
- SML312BT
- SML312ECT

SML-31 series

Rank Reference of Brightness

Red (V, U)

(Ta=25°C, If=20mA)

| Package size(mm) | Height(mm) | Luminous Intensity (mcd) | G | H | J | K | L | M | N | P | Q | R | S | T | U | V | W | X | | |
|---------------------|------------|--------------------------|-------------------------|------------|------------|------------|-----------|----------|------------------------|----------|----------|-----------|------------|------------|------------|------------|-------------|--------------|--|--|
| | | | 1.0 to 1.6 | 1.6 to 2.5 | 2.5 to 4.0 | 4.0 to 6.3 | 6.3 to 10 | 10 to 16 | 16 to 25 | 25 to 40 | 40 to 63 | 63 to 100 | 100 to 160 | 160 to 250 | 250 to 400 | 400 to 630 | 630 to 1000 | 1000 to 1600 | | |
| Mini-mold Chip LEDs | 1608 | 0.8 | SML-311UT ^{※1} | | | | | | SML-310VT [※] | | | | | | | | | | | |

Orange (D)

(Ta=25°C, If=2mA)

| Package size(mm) | Height(mm) | Luminous Intensity (mcd) | G | H | J | K | L | M | N | P | Q | R | S | T | U | V | W | X | | |
|---------------------|------------|--------------------------|------------|------------|------------|------------|-----------|----------|----------|----------|----------|-----------|------------|------------|------------|------------|-------------|--------------|--|--|
| | | | 1.0 to 1.6 | 1.6 to 2.5 | 2.5 to 4.0 | 4.0 to 6.3 | 6.3 to 10 | 10 to 16 | 16 to 25 | 25 to 40 | 40 to 63 | 63 to 100 | 100 to 160 | 160 to 250 | 250 to 400 | 400 to 630 | 630 to 1000 | 1000 to 1600 | | |
| Mini-mold Chip LEDs | 1608 | 0.8 | SML-311DT | | | | | | | | | | | | | | | | | |

Yellow (Y, W)

(Ta=25°C, If=20mA)

| Package size(mm) | Height(mm) | Luminous Intensity (mcd) | G | H | J | K | L | M | N | P | Q | R | S | T | U | V | W | X | | |
|---------------------|------------|--------------------------|-------------------------|------------|------------|------------|-----------|----------|------------------------|----------|----------|-----------|------------|------------|------------|------------|-------------|--------------|--|--|
| | | | 1.0 to 1.6 | 1.6 to 2.5 | 2.5 to 4.0 | 4.0 to 6.3 | 6.3 to 10 | 10 to 16 | 16 to 25 | 25 to 40 | 40 to 63 | 63 to 100 | 100 to 160 | 160 to 250 | 250 to 400 | 400 to 630 | 630 to 1000 | 1000 to 1600 | | |
| Mini-mold Chip LEDs | 1608 | 0.8 | SML-311YT ^{※1} | | | | | | | | | | | | | | | | | |
| | | | SML-311WT ^{※1} | | | | | | SML-310YT [※] | | | | | | | | | | | |

Green (M, P, E)

(Ta=25°C, If=20mA)

| Package size(mm) | Height(mm) | Luminous Intensity (mcd) | F | G | H | J | K | L | M | N | P | Q | R | S | T | U | V | W | X | |
|---------------------|------------|--------------------------|------------------------|------------|------------|------------|------------|-----------|------------------------|----------|----------|----------|-----------|------------|------------------------|------------|------------|-------------|--------------|--|
| | | | 0.63 to 1.0 | 1.0 to 1.6 | 1.6 to 2.5 | 2.5 to 4.0 | 4.0 to 6.3 | 6.3 to 10 | 10 to 16 | 16 to 25 | 25 to 40 | 40 to 63 | 63 to 100 | 100 to 160 | 160 to 250 | 250 to 400 | 400 to 630 | 630 to 1000 | 1000 to 1600 | |
| Mini-mold Chip LEDs | 1608 | 0.8 | SML-310MT [※] | | | | | | SML-310PT [※] | | | | | | SML312ECT [※] | | | | | |

Blue (B)

(Ta=25°C, If=20mA)

| Package size(mm) | Height(mm) | Luminous Intensity (mcd) | G | H | J | K | L | M | N | P | Q | R | S | T | U | V | W | | | |
|---------------------|------------|--------------------------|------------|------------|------------|------------|------------|---------|------------|----------|----------|----------|-----------|------------|------------|------------|------------|--|--|--|
| | | | 0.9 to 1.4 | 1.4 to 2.2 | 2.2 to 3.6 | 3.6 to 5.6 | 5.6 to 9.0 | 9 to 14 | 14 to 22 | 22 to 36 | 36 to 56 | 56 to 90 | 90 to 140 | 140 to 220 | 220 to 360 | 360 to 560 | 560 to 900 | | | |
| Mini-mold Chip LEDs | 1608 | 0.8 | | | | | | | SML312BC4T | | | | | | SML312BCT | | | | | |

※Brightness on specification sheet include tolerance of within ±10%. ※1:If=2mA

Part No. Construction

* "-" will be taken out for emitting color B/E series.

Special Code will be applied for Emitting color B/E series.



- * Concerning the Brightness rank
- Please refer to the rank chart above for luminous intensity classification.
- Part name is individual for each rank.
- When shipped as sample, the part name will be a representative part name.

Packing Specification

ROHM LED products are being shipped with desiccant (silica gel) concluded in moisture-proof bags. Pasting the moisture sensitive label on the outer surface of the moisture-proof bags or enclosing the humidity indication card inside the bag is available upon request. Please contact the nearest sales office or distributor if necessary.

Notes

- 1) The information contained herein is subject to change without notice.
- 2) Before you use our Products, please contact our sales representative and verify the latest specifications :
- 3) Although ROHM is continuously working to improve product reliability and quality, semiconductors can break down and malfunction due to various factors.
Therefore, in order to prevent personal injury or fire arising from failure, please take safety measures such as complying with the derating characteristics, implementing redundant and fire prevention designs, and utilizing backups and fail-safe procedures. ROHM shall have no responsibility for any damages arising out of the use of our Products beyond the rating specified by ROHM.
- 4) Examples of application circuits, circuit constants and any other information contained herein are provided only to illustrate the standard usage and operations of the Products. The peripheral conditions must be taken into account when designing circuits for mass production.
- 5) The technical information specified herein is intended only to show the typical functions of and examples of application circuits for the Products. ROHM does not grant you, explicitly or implicitly, any license to use or exercise intellectual property or other rights held by ROHM or any other parties. ROHM shall have no responsibility whatsoever for any dispute arising out of the use of such technical information.
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