



# 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) |     |      |     |
| <b>SML-310VT</b>  | GaAsP on GaP    | Red             | 55                                 |                        |                              |                       |                                |  | 2                      | 20  |                         |   | 625                         | 630 | 635 | 20                          | 1.4 | 4    | 20  |
| <b>SML-311UT</b>  | AlGaInP on GaAs |                 |                                    | 44                     |                              |                       |                                |  | 1.8                    | 2   |                         |   | 615                         | 620 | 625 | 2                           | 0.9 | 2.5  | 2   |
| <b>SML-311DT</b>  |                 |                 | Orange                             |                        |                              |                       |                                |  |                        |     |                         |   | 602                         | 605 | 608 |                             | 1.6 | 3.15 |     |
| <b>SML-310DT</b>  | GaAsP on GaP    |                 |                                    | 55                     |                              |                       |                                |  | 2                      | 20  |                         |   | 602                         | 605 | 608 | 20                          | 2.2 | 6.3  | 20  |
| <b>SML-311WT</b>  | AlGaInP on GaAs | Yellow          | 44                                 |                        | 60 <sub>±1</sub>             | 4                     |                                | -40 to +85                                       | 1.8                    | 2   |                         | 4 | 587                         | 590 | 593 | 2                           | 0.9 | 2.5  | 2   |
| <b>SML-311YT</b>  |                 |                 |                                    |                        |                              |                       |                                |  |                        |     |                         |   |                             | 584 | 587 | 590                         |     | 2.2  | 6.3 |
| <b>SML-310YT</b>  | GaAsP on GaP    |                 |                                    | 20                     |                              |                       | -30 to +85                     | 2.1  |                        | 100 |                         |   | 567                         | 570 | 573 |                             | 3.6 | 16   |     |
| <b>SML-310MT</b>  | GaP             | Yellowish Green | 55                                 |                        |                              |                       |                                | 2.2  |                        |     |                         |   | 557                         | 560 | 563 |                             | 1.4 | 4    |     |
| <b>SML-310PT</b>  |                 | Green           |                                    |                        |                              |                       |                                |  |                        |     |                         |   |                             | 557 | 560 | 563                         |     | 1.4  | 4   |
| <b>SML312ECT</b>  | InGaN           | Bluish Green    |                                    |                        |                              |                       |                                | 3.3  | 20                     |     |                         |   | 520                         | 527 | 535 | 20                          | 90  | 200  | 20  |
| <b>SML312EC4T</b> |                 |                 |                                    |                        |                              |                       |                                | 3.2  |                        |     |                         |   | 525                         |     |     |                             | 36  | 90   |     |
| <b>SML312BCT</b>  |                 | Blue            |                                    | 84                     |                              | 100 <sub>±2</sub>     | 5                              |  | 3.3                    |     | 5                       |   | 464                         | 470 | 476 |                             | 22  | 63   |     |
| <b>SML312BC4T</b> |                 |                 |                                    |                        |                              |                       |                                | 3.2  |                        |     |                         |   |                             |     |     |                             |     | 46   |     |

※1:Duty1/5, 200Hz / ※2:Duty1/10, 1kHz

## Dimensions



## Recommended Solder Pattern

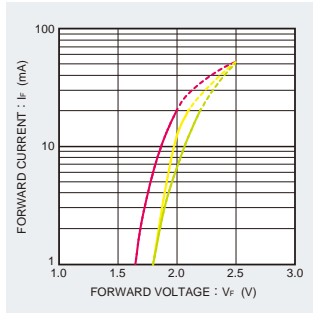


## Viewing Angle

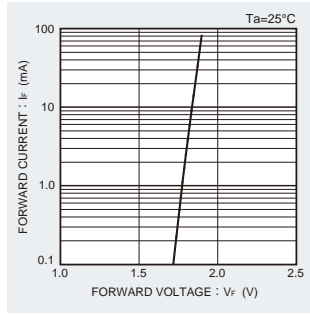


## Electrical Characteristics Curves

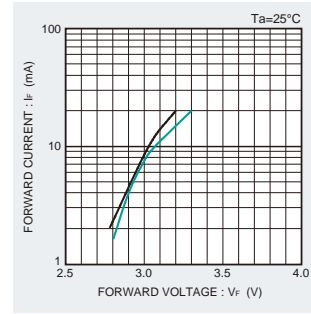
### Forward Current-Forward Voltage



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

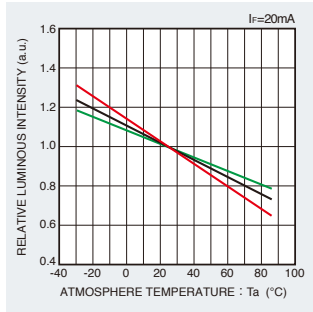


- SML-311UT
- SML-311DT
- SML-311WT
- SML-311YT

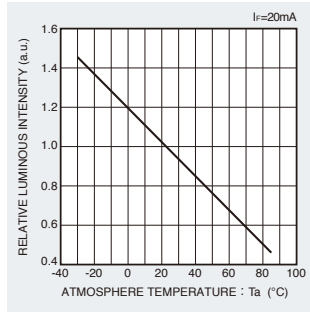


- SML312BC4T
- SML312EC4T
- SML312BCT
- SML312ECT

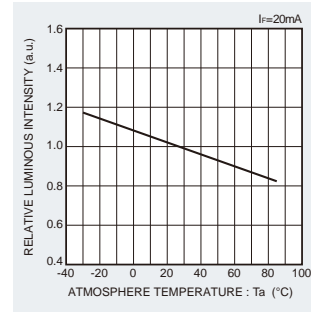
### Luminous Intensity-Atmosphere Temperature



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

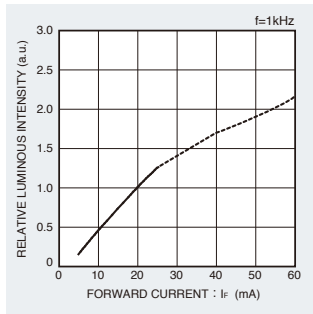


- SML-311UT
- SML-311DT
- SML-311WT
- SML-311YT

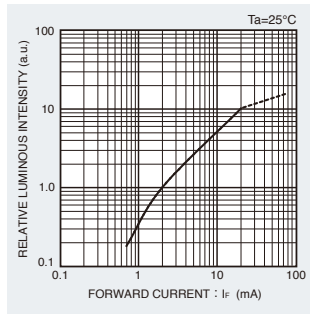


- SML312BC4T
- SML312EC4T
- SML312BCT
- SML312ECT

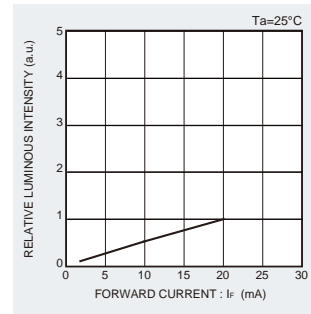
### Luminous Intensity-Forward Current



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

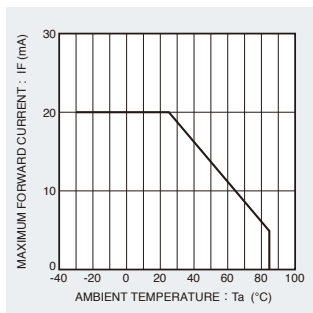


- SML-311UT
- SML-311DT
- SML-311WT
- SML-311YT

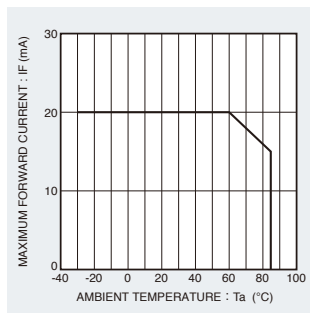


- SML312BC4T
- SML312EC4T
- SML312BCT
- SML312ECT

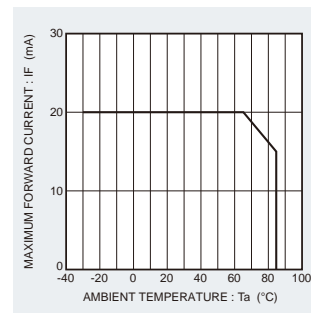
### Deratings



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



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



- SML312BC4T
- SML312EC4T
- SML312BCT
- 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 <sup>※1</sup> |            |            |            |           |          |          |          |          |           |            |            |            |            |             |              |  |  |
|                     |            |                          | SML-310VT <sup>※</sup>  |            |            |            |           |          |          |          |          |           |            |            |            |            |             |              |  |  |

### 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 <sup>※1</sup> |            |            |            |           |          |          |          |          |           |            |            |            |            |             |              |  |
|                     |            |                          | SML-311WT <sup>※1</sup> |            |            |            |           |          |          |          |          |           |            |            |            |            |             |              |  |
|                     |            |                          | SML-310YT <sup>※</sup>  |            |            |            |           |          |          |          |          |           |            |            |            |            |             |              |  |

### 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 <sup>※</sup> |            |            |            |            |           |          |          |                         |          |           |            | SML312ECT <sup>※</sup> |            |            |             |              |
|                     |            |                          | SML-310PT <sup>※</sup> |            |            |            |            |           |          |          | SML312EC4T <sup>※</sup> |          |           |            |                        |            |            |             |              |

### Blue (B)

(Ta=25°C, If=20mA)

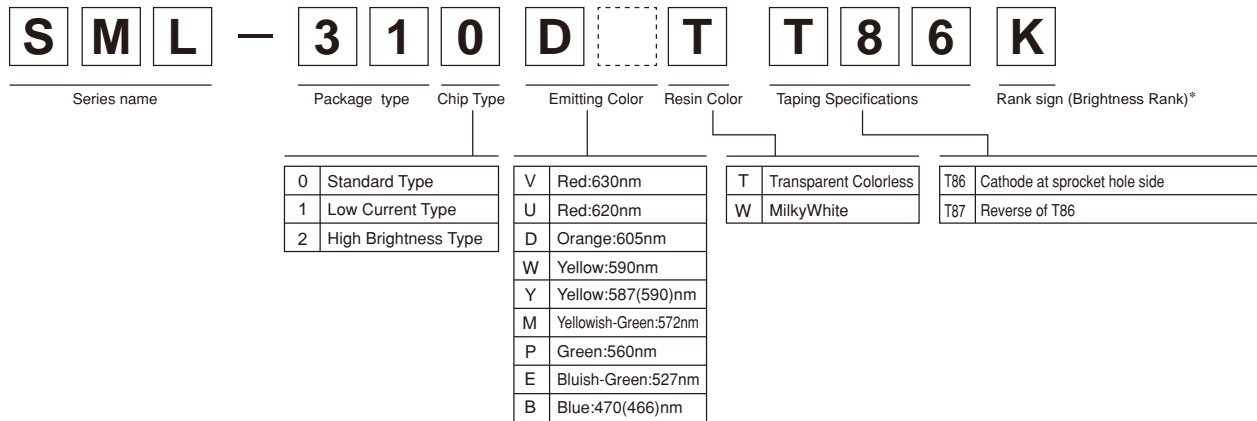
| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | G          | H          | J          | K          | L          | M       | N        | P        | Q        | R          | S         | T          | U          | V          | W          |  |
|---------------------|------------|--------------------------|------------|------------|------------|------------|------------|---------|----------|----------|----------|------------|-----------|------------|------------|------------|------------|--|
|                     |            |                          | 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

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На всех этапах разработки и производства наши партнеры могут получить квалифицированную поддержку опытных инженеров.

Система менеджмента качества компании отвечает требованиям в соответствии с ГОСТ Р ИСО 9001, ГОСТ РВ 0015-002 и ЭС РД 009

### Офис по работе с юридическими лицами:

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