



# SML-51 Series

1608(0603)  
1.6 × 0.8mm (t=0.55mm)

## Features

- Original device technology enables high brightness and high reliability
- High reliability due to the wide operation temperature (-40°C to +100°C) (SML-512(A) Series)

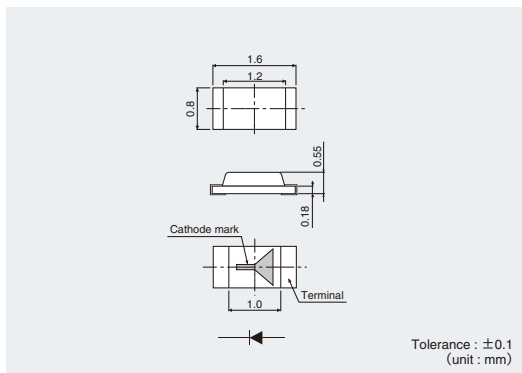
| Color Type | V | U | C | D |
|------------|---|---|---|---|
|            | ■ | ■ | ■ | ■ |
|            | ■ | ■ | ■ | ■ |

## Specifications

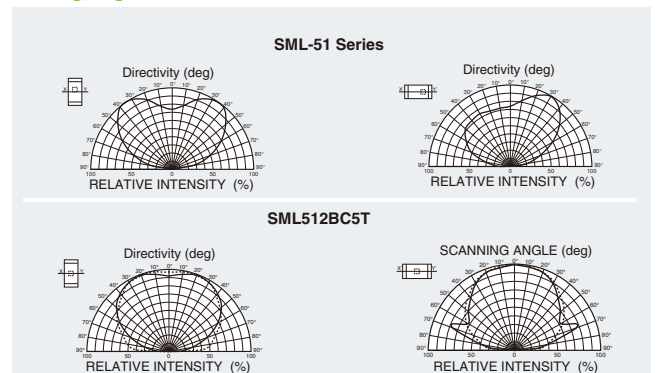
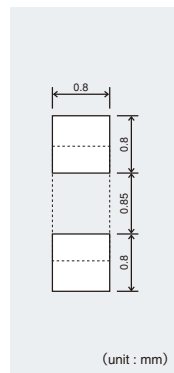
| Part No.       | Chip Structure  | Emitting Color  | Absolute Maximum Ratings (Ta=25°C) |                        |   |                       |                                |                              | Electrical and Optical Characteristics (Ta=25°C) |        |                              |       |                             |      |     |                             |     |    |
|----------------|-----------------|-----------------|------------------------------------|------------------------|---|-----------------------|--------------------------------|------------------------------|--|--------|------------------------------|-------|-----------------------------|------|-----|-----------------------------|-----|----|
|                |                 |                 | Power Dissipation PD(mW)           | Forward Current IF(mA) | Peak Forward Current I <sub>F</sub> P(mA) | Reverse Voltage VR(V) | Operating Temperature Topr(°C) | Storage Temperature Tstg(°C) | Forward Voltage VF Typ. (V)                      | IF(mA) | Reverse Current IR Max. (μA) | VR(V) | Dominant Wavelength λD (nm) |      |     | Luminous Intensity Iv (mcd) |     |    |
| ■ SML-512VW(A) | AlGaInP on GaAs | Red             | 75                                 | 30                     | 100*2                                     | 5                     | -40 to +100                    | -40 to +100                  | 2.0  | 20     | 10                           | 5     | 626                         | 630  | 636 | 35.5                        | 56  |    |
| ■ SML-512VW    |                 |                 |                                    |                        |   |                       |                                |                              |  |        |                              |       | 619                         | 624  | 629 | 22                          | 63  |    |
| ■ SML-512UW    |                 |                 |                                    |                        |   |                       |                                |                              |  |        |                              |       | 615                         | 620  | 625 | 14                          | 40  |    |
| ■ SML-511UW    |                 |                 |                                    |                        |   |                       |                                |                              |  |        |                              |       | 600                         | 603  | 606 | 71                          | 112 |    |
| ■ SML-512CW(A) | AlGaInP on GaAs | Orange          | 75                                 | 30                     | 100*2                                     | 5                     | -40 to +100                    | -40 to +100                  | 2.0  | 20     | 10                           | 5     | 600                         | 603  | 606 | 36                          | 100 | 20 |
| ■ SML-512DW    |                 |                 |                                    |                        |   |                       |                                |                              |  |        |                              |       | 603                         | 606  | 609 | 14                          | 40  |    |
| ■ SML-511DW    |                 |                 |                                    |                        |   |                       |                                |                              |  |        |                              |       | 602                         | 605  | 608 | 14                          | 40  |    |
| ■ SML-512WW    | AlGaInP on GaAs | Yellow          | 75                                 | 30                     | 100*2                                     | 5                     | -40 to +100                    | -40 to +100                  | 2.0  | 20     | 10                           | 5     | 587                         | 590  | 593 | 36                          | 63  |    |
| ■ SML-511WW    |                 |                 |                                    |                        |   |                       |                                |                              |  |        |                              |       | 567                         | 570  | 575 | 22                          | 40  |    |
| ■ SML-512MW    |                 |                 |                                    |                        |   |                       |                                |                              |  |        |                              |       | 567                         | 570  | 575 | 14                          | 40  |    |
| ■ SML-512PW(A) | AlGaInP on GaAs | Yellowish Green | 65                                 | 25                     | 100*2                                     | 5                     | -40 to +100                    | -40 to +100                  | 2.1  | 100    | 5                            | 5     | 557                         | 560  | 563 | 5.6                         | 14  |    |
| ■ SML512BC5T   |                 |                 |                                    |                        |   |                       |                                |                              |  |        |                              |       | InGaN                       | Blue | 66  | 20                          |     |    |

\* 1:Duty1/5, 200Hz / \* 2:Duty1/10, 1kHz / \* 3:Reference

## Dimensions

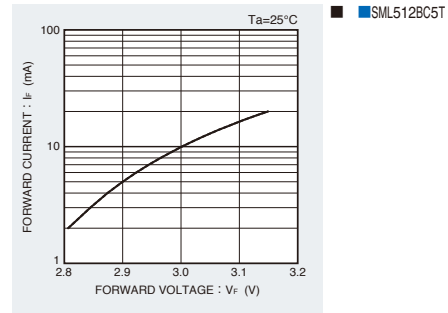
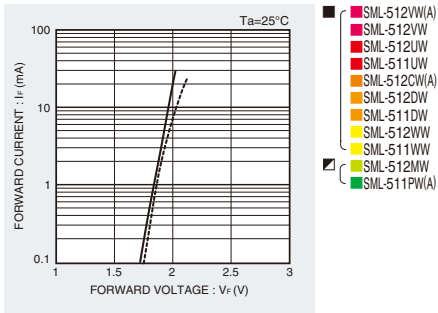


## Recommended Solder Pattern Viewing Angle

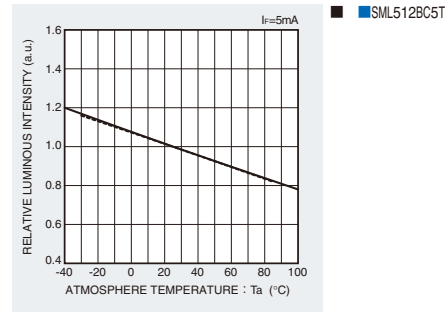
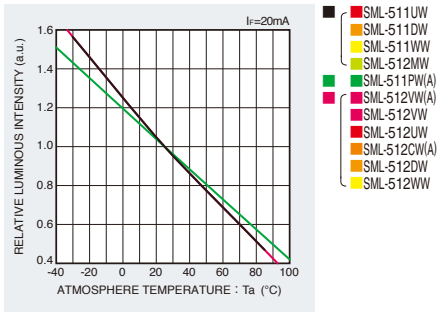


## Electrical Characteristics Curves

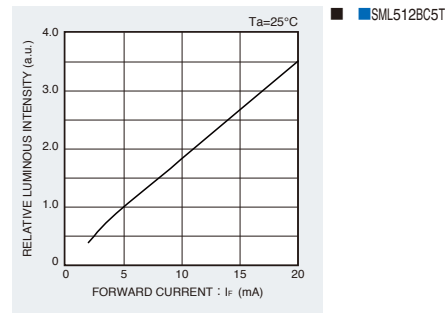
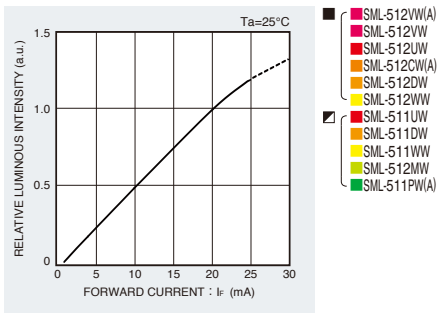
### Forward Current-Forward Voltage



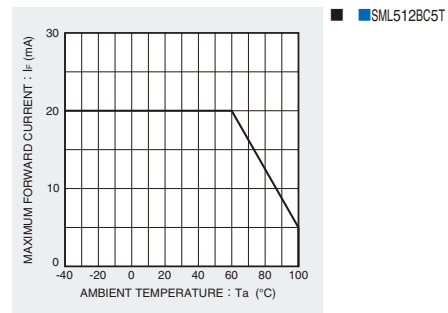
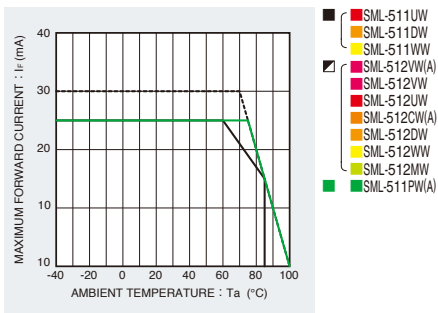
### Luminous Intensity-Atmosphere Temperature



### Luminous Intensity-Forward Current



### Derating



# SML-51 Series

## Rank Reference of Brightness

### Red (V, U)

(Ta=25°C, If=20mA)

| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | J          | K          | L         | M        | N        | P        | Q        | R         | S          | T          |
|---------------------|------------|--------------------------|------------|------------|-----------|----------|----------|----------|----------|-----------|------------|------------|
|                     |            |                          | 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 |
| Mini-mold Chip LEDs | 1608       | 0.55                     | SML-512VW* |            |           |          |          |          |          |           |            |            |
|                     |            |                          | SML-511UW* |            |           |          |          |          |          |           |            |            |
|                     |            |                          | SML-512UW* |            |           |          |          |          |          |           |            |            |

### Orange (D)

(Ta=25°C, If=20mA)

| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | J          | K          | L         | M        | N        | P        | Q        | R         | S          | T          |
|---------------------|------------|--------------------------|------------|------------|-----------|----------|----------|----------|----------|-----------|------------|------------|
|                     |            |                          | 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 |
| Mini-mold Chip LEDs | 1608       | 0.55                     | SML-511DW* |            |           |          |          |          |          |           |            |            |
|                     |            |                          | SML-512DW* |            |           |          |          |          |          |           |            |            |

### Yellow (W)

(Ta=25°C, If=20mA)

| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | J          | K          | L         | M        | N        | P        | Q        | R         | S          | T          |
|---------------------|------------|--------------------------|------------|------------|-----------|----------|----------|----------|----------|-----------|------------|------------|
|                     |            |                          | 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 |
| Mini-mold Chip LEDs | 1608       | 0.55                     | SML-511WW* |            |           |          |          |          |          |           |            |            |
|                     |            |                          | SML-512WW* |            |           |          |          |          |          |           |            |            |

### Green (M)

(Ta=25°C, If=20mA)

| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | J          | K          | L         | M        | N        | P        | Q        | R         | S          | T          |
|---------------------|------------|--------------------------|------------|------------|-----------|----------|----------|----------|----------|-----------|------------|------------|
|                     |            |                          | 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 |
| Mini-mold Chip LEDs | 1608       | 0.55                     | SML-512MW* |            |           |          |          |          |          |           |            |            |
|                     |            |                          | SML-512MW* |            |           |          |          |          |          |           |            |            |

### Blue (B)

(Ta=25°C, If=5mA)

| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | J           | K          | L          | M       | N        | P        | Q        | R        | S         | T          |
|---------------------|------------|--------------------------|-------------|------------|------------|---------|----------|----------|----------|----------|-----------|------------|
|                     |            |                          | 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 |
| Mini-mold Chip LEDs | 1608       | 0.55                     | SML-512BC5T |            |            |         |          |          |          |          |           |            |
|                     |            |                          | SML-512BC5T |            |            |         |          |          |          |          |           |            |

\*Brightness on specification sheet include tolerance of within ±10%.

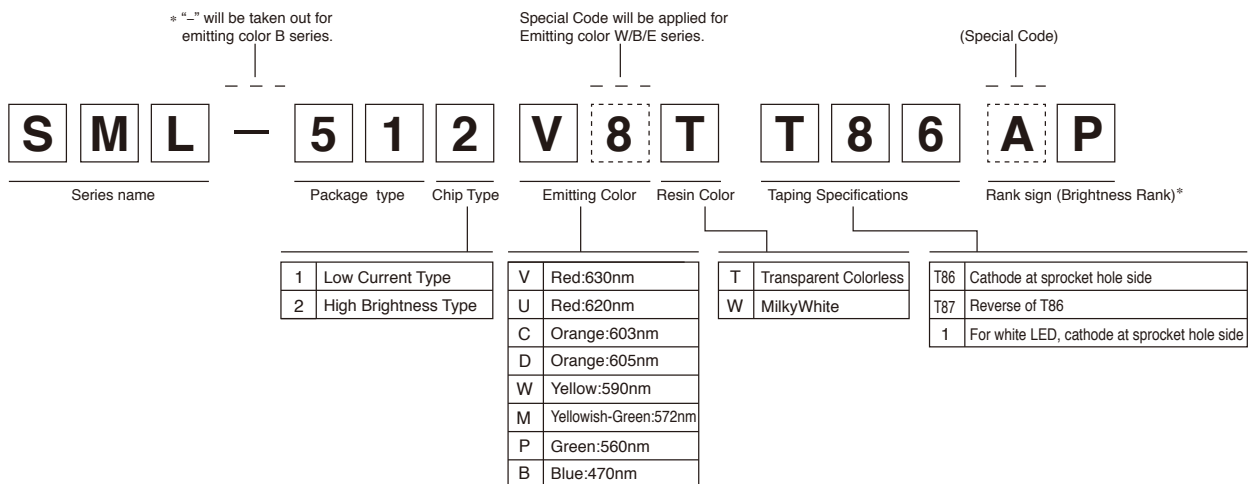
### SML-512(A)

(Ta=25°C, If=20mA)

| Package size(mm)    | Height(mm) | Luminous Intensity (mcd) | AE           | AF         | AG          | AH         | AJ       | AK         | AL         | AM         | AN         | AP       | AQ           | AR       | AS        | AT         | AU         | AV         |  |
|---------------------|------------|--------------------------|--------------|------------|-------------|------------|----------|------------|------------|------------|------------|----------|--------------|----------|-----------|------------|------------|------------|--|
|                     |            |                          | 5.6 to 7.1   | 7.1 to 9.0 | 9.0 to 11.2 | 11.2 to 14 | 14 to 18 | 18 to 22.4 | 22.4 to 28 | 28 to 35.5 | 35.5 to 45 | 45 to 56 | 56 to 71     | 71 to 90 | 90 to 112 | 112 to 140 | 140 to 180 | 180 to 224 |  |
| Mini-mold Chip LEDs | 1608       | 0.55                     | SML-512PW(A) |            |             |            |          |            |            |            |            |          | SML-512VW(A) |          |           |            |            |            |  |
|                     |            |                          | SML-512PW(A) |            |             |            |          |            |            |            |            |          | SML-512CW(A) |          |           |            |            |            |  |

\* Please note that the brightness of some products may fall between ranks (half rank).

## Part No. Construction



- \* 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.
- General products are free of ranks. Please contact sales if rank appointment is needed.

## 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.

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