

Two-color chip LEDs with reflectors

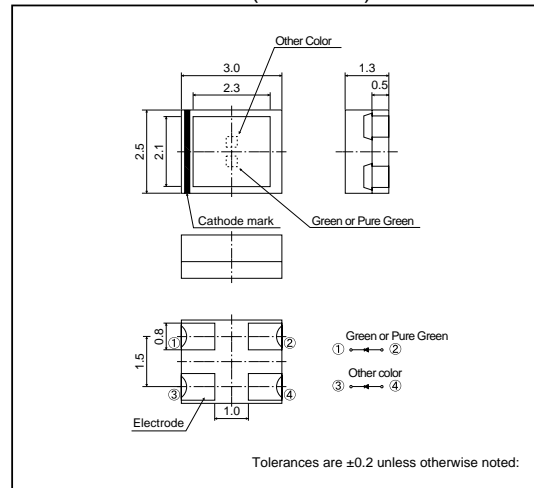
SML-020 Series

The SML-020 series are two-color, high luminance chip LEDs with reflectors. Two-color chips are built into a single package. These LEDs are compact and leadless to allow a high mounting density.

●Features

- 1) Reflectors are used to achieve a high luminance.
- 2) Two-color emission, rectangular and leadless (3×2.5 mm).
- 3) Can be mounted by automatic mounting.
- 4) Available on tape

●External dimensions (Units : mm)



●Selection guide

| Emitting color Lens | Red Green | Orange Green | Yellow Green | Orange Pure Green |
|------------------------|-------------------|--------------------------|-----------------|----------------------|
| | Transparent clear | SML-020MVT SML-020MLT | SML-020MDT | SML-020MYT |

●Absolute maximum ratings (Ta=25°C)

| Parameter | Symbol | Limits | | | | | Unit |
|-----------------------|-----------------------------|---------|-----|-----|-----|-----|---------|
| | | MLT | MVT | MDT | MYT | PDT | |
| Power dissipation | P _D | 60 | ← | ← | ← | ← | mW/chip |
| Forward current | I _F Other Color | 30 | 25 | ← | ← | ← | mA |
| | I _F Green | 25 | | | | | |
| Peak forward current | I _{FP} Other Color | 75 | 60 | ← | ← | ← | mA* |
| | I _{FP} Green | 60 | | | | | |
| Reverse voltage | V _R | 4 | ← | ← | ← | ← | V |
| Operating temperature | T _{opr} | -30~+85 | ← | ← | ← | ← | °C |
| Storage temperature | T _{stg} | -40~+85 | ← | ← | ← | ← | °C |

* Pulse width 1ms Duty 1 / 5

Light Emitting Diodes

●Electrical and optical characteristics (Ta=25°C)

| Type | Parameter | Color | Forward voltage | | | Reverse current | | | Luminous intensity | | | Peak wavelength | | Spectral line half width | | | | | | |
|------------|-----------|------------|--------------------|------|---------------------|---------------------|--------------------|---------------------------|--------------------|---------------------|---------------------|-----------------|---------|--------------------------|------|---------------------------|------|---------------------------|-----|----|
| | | | V _F (V) | | I _R (μA) | I _R (μA) | V _R (V) | I _v (mcd) | | I _p (nm) | I _p (nm) | Δλ (nm) | Δλ (nm) | | | | | | | |
| | | | Typ. | Max. | | | | Cond. I _F (mA) | Max. | | | | | Min. | Typ. | Cond. I _F (mA) | Typ. | Cond. I _F (mA) | | |
| SML-020MVT | V | Red | 2.0 | 2.8 | 20 | 100 | 4 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | 20 | | | | |
| | M | Green | 2.2 | 2.8 | | | | | | | | | | | | | 3.6 | 6.3 | 650 | 40 |
| SML-020MLT | L | Red | 1.75 | 2.5 | | | | | | | | | | | | | 9.0 | 20 | 660 | 25 |
| | M | Green | 2.2 | 2.8 | | | | | | | | | | | | | 9.0 | 20 | 570 | 40 |
| SML-020MDT | D | Orange | 2.0 | 2.8 | | | | | | | | | | | | | 5.6 | 10 | 610 | 40 |
| | M | Green | 2.2 | 2.8 | | | | | | | | | | | | | 9.0 | 20 | 570 | 40 |
| SML-020MYT | Y | Yellow | 2.1 | 2.8 | | | | | | | | | | | | | 3.6 | 6.3 | 585 | 40 |
| | M | Green | 2.2 | 2.8 | | | | | | | | | | | | | 9.0 | 20 | 570 | 40 |
| SML-020PDT | D | Orange | 2.0 | 2.8 | | | | | | | | | | | | | 5.6 | 10 | 610 | 40 |
| | P | Pure Green | 2.2 | 2.8 | | | | | | | | | | | | | 2.2 | 4.0 | 555 | 40 |

●Directional pattern

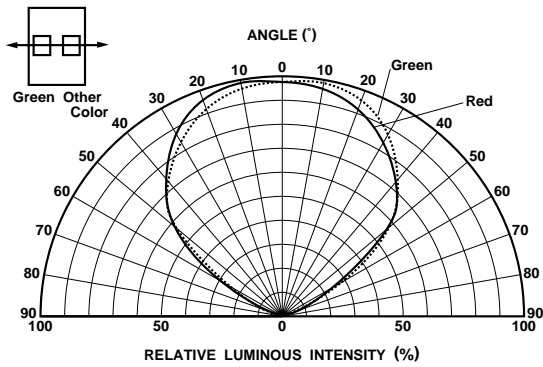


Fig. 1 Directional pattern (1)

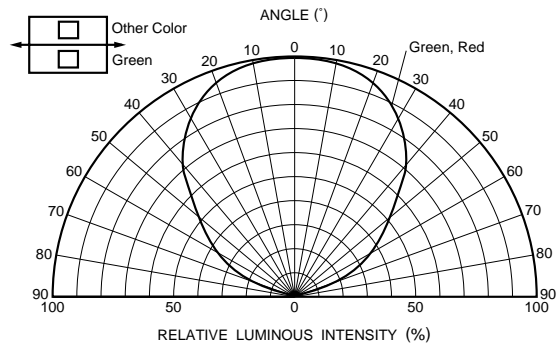


Fig. 2 Directional pattern (2)

●Electrical characteristics1 (SML-020MVT)

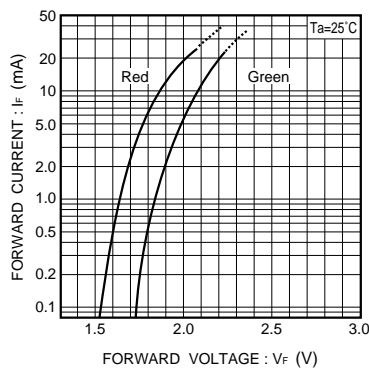


Fig. 3 Forward current vs. forward voltage

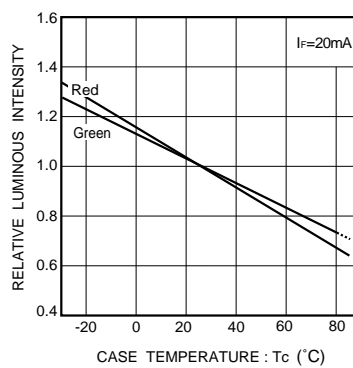


Fig. 4 Luminous intensity vs. case temperature

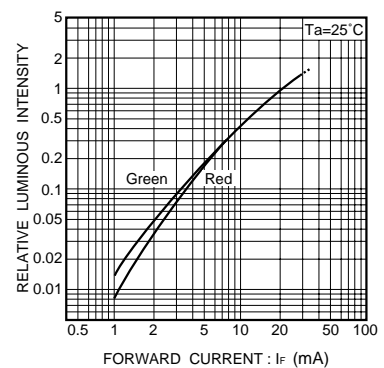


Fig. 5 Luminous intensity vs. forward current

Light Emitting Diodes

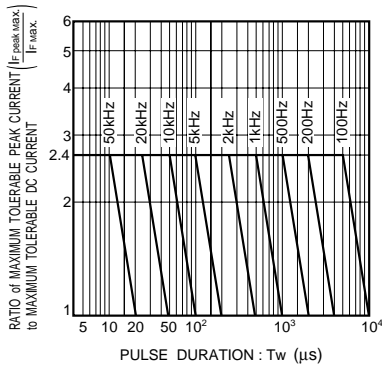


Fig. 6 Maximum tolerable peak current vs. pulse duration

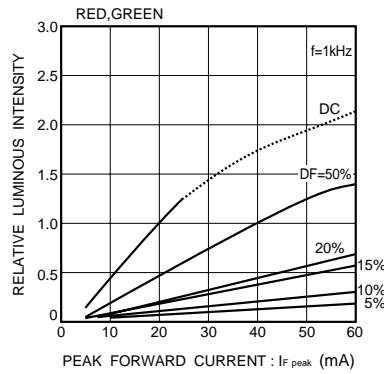


Fig. 7 Luminous intensity vs. peak forward current

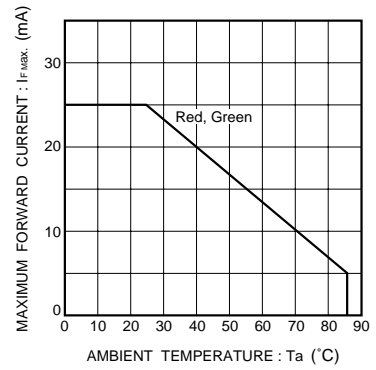


Fig. 8 Maximum forward current vs. ambient temperature

●Electrical characteristics2 (SML-020MLT)

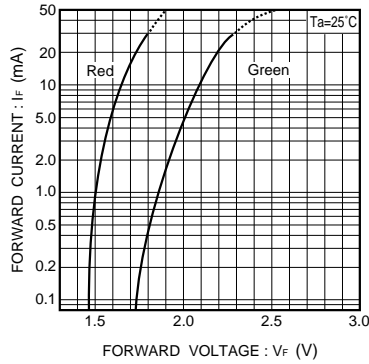


Fig. 9 Forward current vs. forward voltage

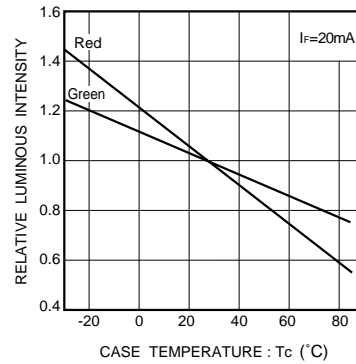


Fig. 10 Luminous intensity vs. case temperature

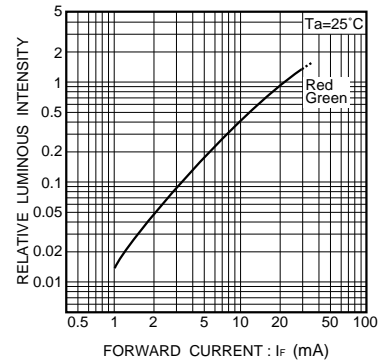


Fig. 11 Luminous intensity vs. forward current

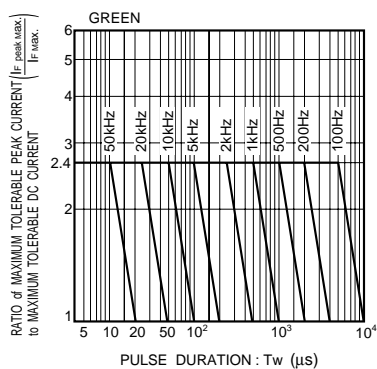


Fig. 12 Maximum tolerable peak current vs. pulse duration

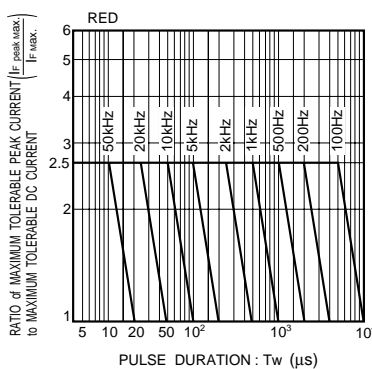


Fig. 13 Maximum tolerable peak current vs. pulse duration

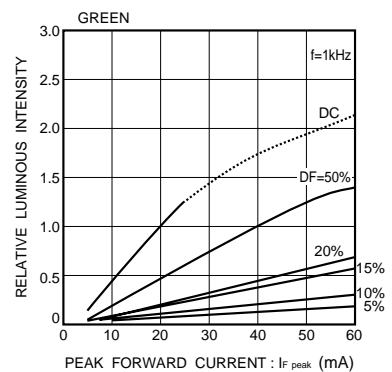


Fig. 14 Luminous intensity vs. peak forward current

Light Emitting Diodes

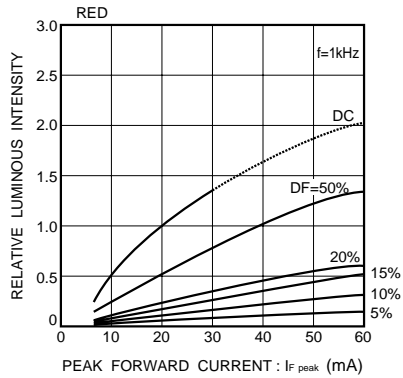


Fig. 15 Luminous intensity vs. peak forward current

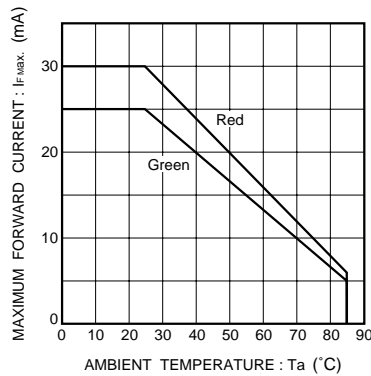


Fig. 16 Maximum forward current vs. ambient temperature

●Electrical characteristics3 (SML-020MDT)

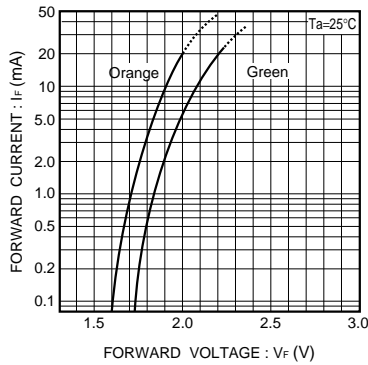


Fig. 17 Forward current vs. forward voltage

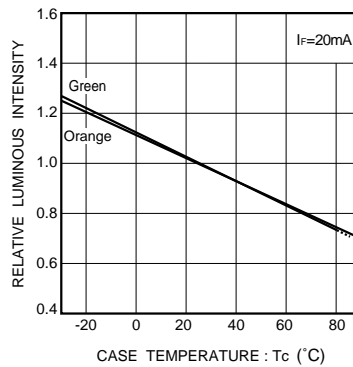


Fig. 18 Luminous intensity vs. case temperature

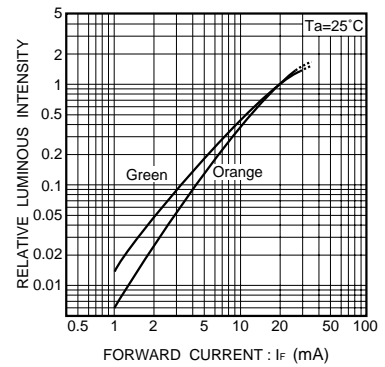


Fig. 19 Luminous intensity vs. forward current

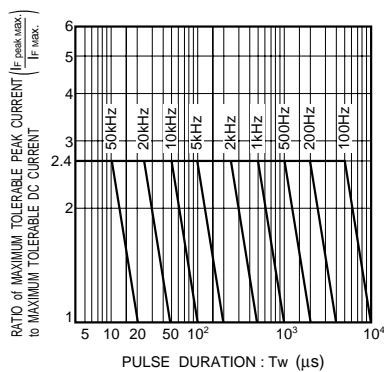


Fig. 20 Maximum tolerable peak current vs. pulse duration

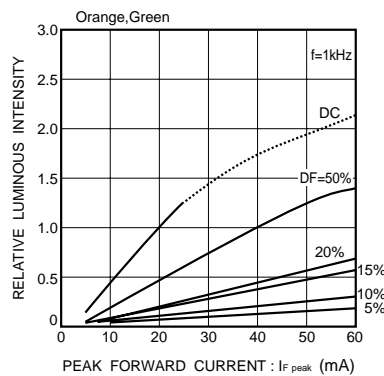


Fig. 21 Luminous intensity vs. peak forward current

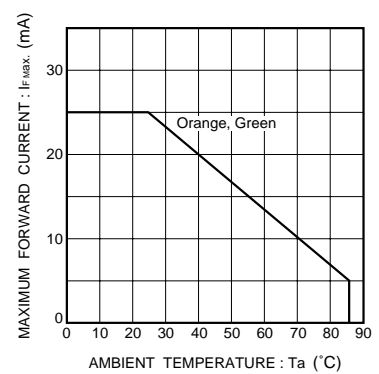


Fig. 22 Maximum forward current vs. ambient temperature

Light Emitting Diodes

●Electrical characteristics4 (SML-020MYT)

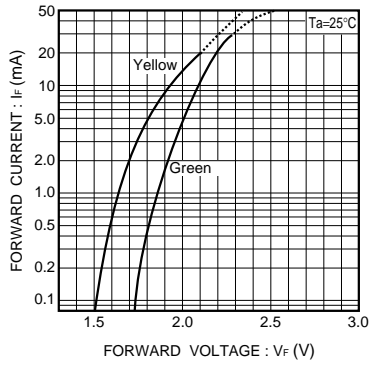


Fig. 23 Forward current vs. forward voltage

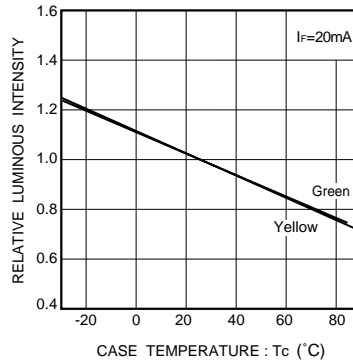


Fig. 24 Luminous intensity vs. case temperature

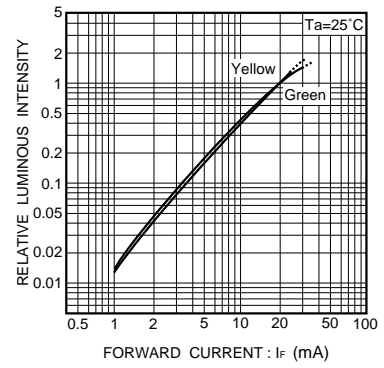


Fig. 25 Luminous intensity vs. forward current

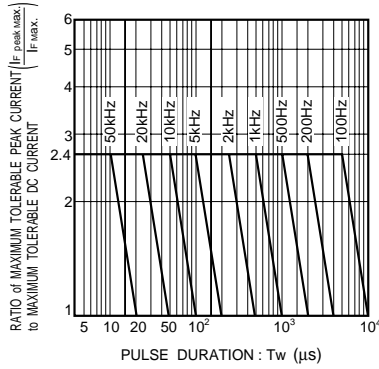


Fig. 26 Maximum tolerable peak current vs. pulse duration

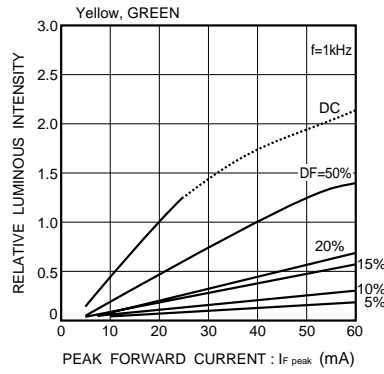


Fig. 27 Luminous intensity vs. peak forward current

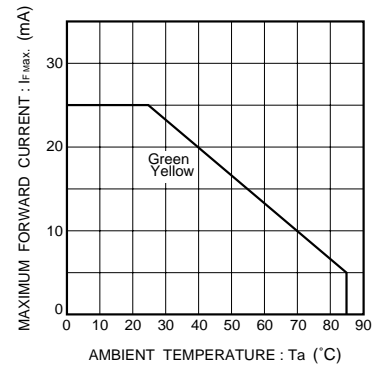


Fig. 28 Maximum forward current vs. ambient temperature

●Electrical characteristics5 (SML-020PDT)

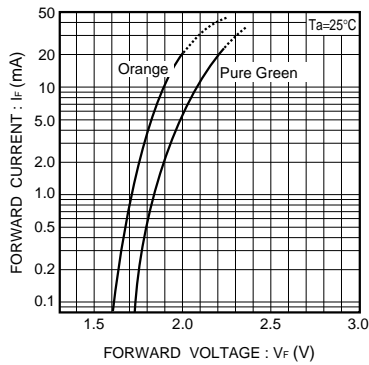


Fig. 29 Forward current vs. forward voltage

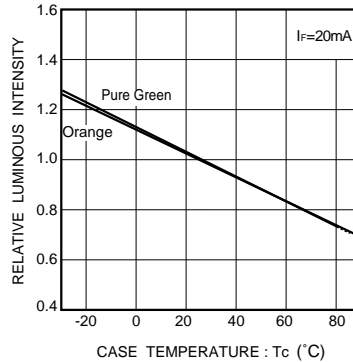


Fig. 30 Luminous intensity vs. case temperature

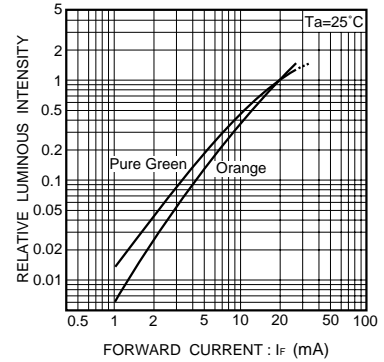


Fig. 31 Luminous intensity vs. forward current

Light Emitting Diodes

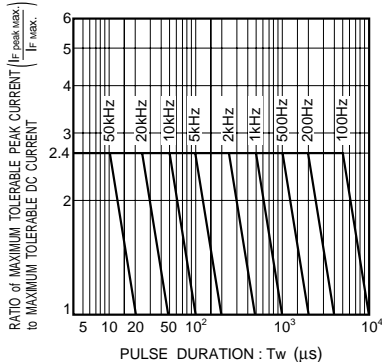


Fig. 32 Maximum tolerable peak current vs. pulse duration

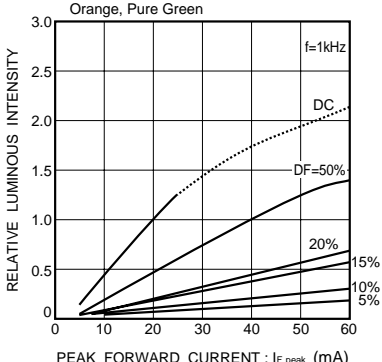


Fig. 33 Luminous intensity vs. peak forward current

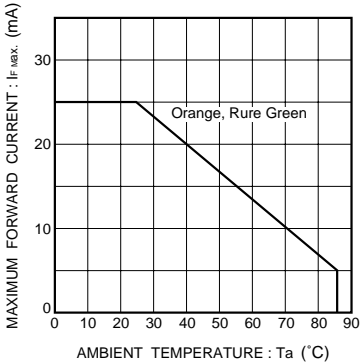


Fig. 34 Maximum forward current vs. ambient temperature

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