

Chip LEDs with low power consumption

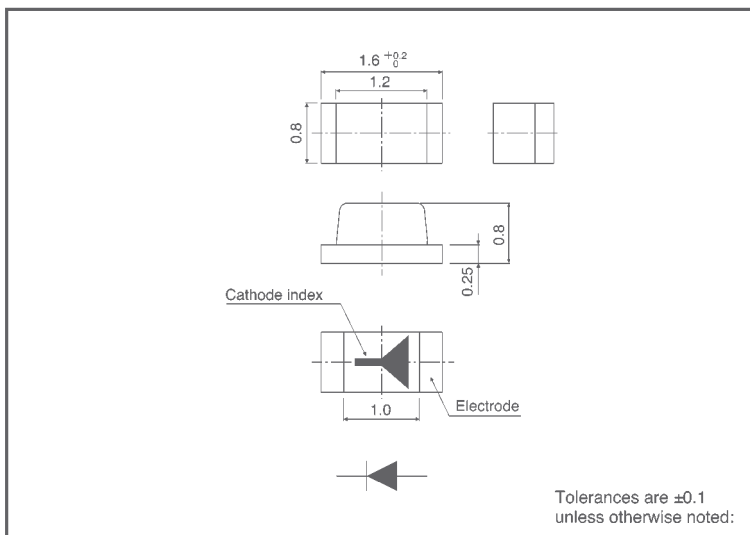
SML-311 Series

The SML-311 series are low power consumption, chip LEDs equipped with an AlGaInP chip. These LEDs are compact and leadless to allow a higher mounting density, and low power consumption makes them an ideal light source for battery driven products.

●Features

- 1) Three colors : red, orange and yellow.
- 2) Low power consumption chip LEDs equipped with an AlGaInP chip.
- 3) Six times the brightness of previous GaAsP chips at $I_F = 2 \text{ mA}$.
- 4) Compact $1.6\text{mm} \times 0.8\text{mm}$ surface mount package.
- 5) Thin 0.8mm package.
- 6) Ideal light source for battery driven products.

●External dimensions (Units: mm)



●Selection guide

| Emitting color | Red | Orange | Yellow |
|-------------------|-----------|-----------|-----------|
| Lens | | | |
| Transparent clear | SML-311UT | SML-311DT | SML-311YT |

●Absolute maximum ratings ($T_a = 25^\circ\text{C}$)

| Parameter | Symbol | Red | Orange | Yellow | Unit |
|-----------------------|-----------|----------------|-----------|-----------|------------------|
| | | SML-311UT | SML-311DT | SML-311YT | |
| Power dissipation | P_D | 22 | 22 | 22 | mW |
| Forward current | I_F | 10 | 10 | 10 | mA |
| Peak forward current | I_{FP} | 60 | 60 | 60 | mA* |
| Reverse voltage | V_R | 4 | 4 | 4 | V |
| Operating temperature | T_{opr} | $-30 \sim +85$ | | | $^\circ\text{C}$ |
| Storage temperature | T_{stg} | $-40 \sim +85$ | | | $^\circ\text{C}$ |

* Pulse width 1ms Duty 1 / 5

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

| Parameter Type | | Color | Forward voltage | | | Reverse current | | Luminous intensity | | | Peak wavelength | | Spectral line half width | |
|-----------------------|----|--------|-----------------|------|---------|-----------------|--------|--------------------|-----|---------|-----------------|---------|--------------------------|---------|
| | | | VF (V) | | Cond. | IR (μA) | Cond. | IV (mcd) | | Cond. | λP (nm) | Cond. | Δλ (nm) | Cond. |
| | | | Typ. | Max. | IF (mA) | Max. | VR (V) | Min. | Typ | IF (mA) | Typ. | IF (mA) | Typ. | IF (mA) |
| | | | | | | | | | | | | | | |
| SML-311 | UT | Red | 1.8 | 2.2 | 2 | 100 | 4 | 0.9 | 2.5 | 2 | 630 | 2 | 18 | 2 |
| | DT | Orange | 1.8 | 2.2 | 2 | 100 | 4 | 0.9 | 2.5 | 2 | 611 | 2 | 16 | 2 |
| | YT | Yellow | 1.8 | 2.2 | 2 | 100 | 4 | 0.56 | 1.6 | 2 | 590 | 2 | 15 | 2 |

●Directional pattern

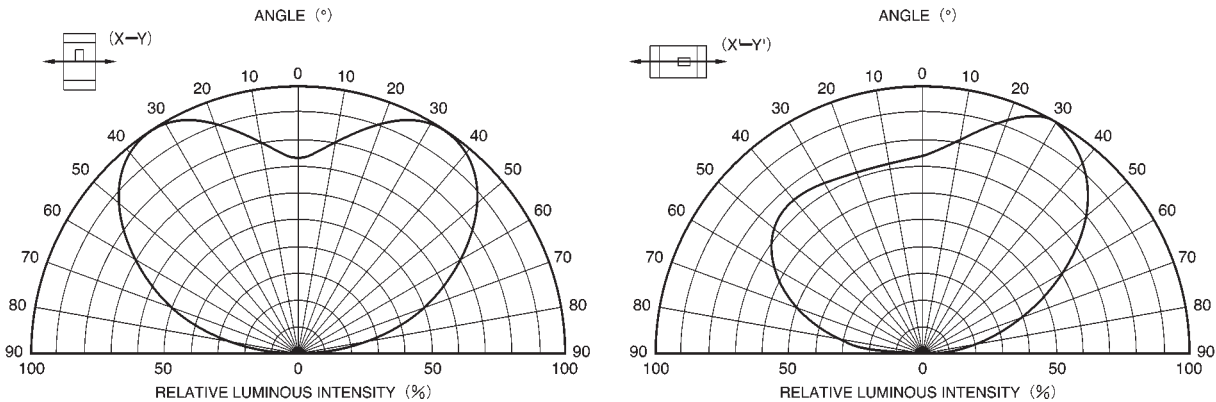


Fig. 1 Directional pattern

● Electrical characteristic curves (SML-311UT, DT, YT)

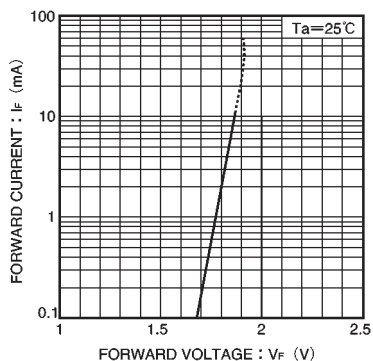


Fig. 2 Forward current vs. forward voltage

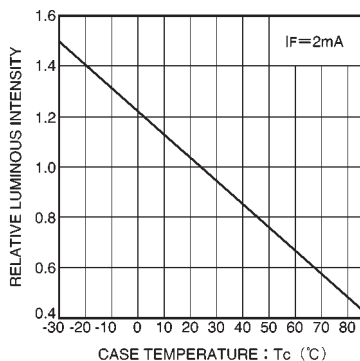


Fig. 3 Luminous intensity vs. case temperature

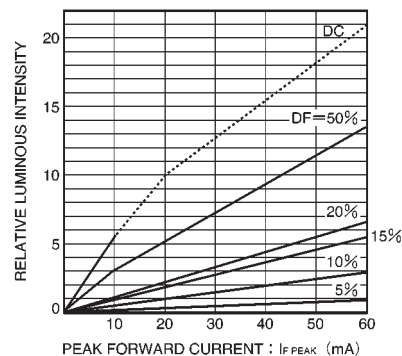


Fig. 4 Luminous intensity vs. peak forward current

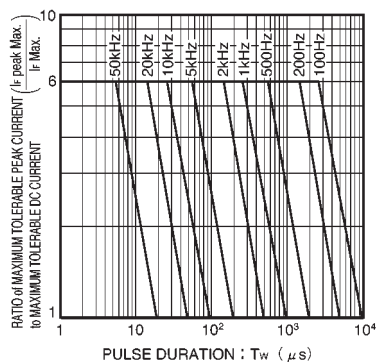


Fig. 5 Maximum tolerable peak current vs. pulse duration

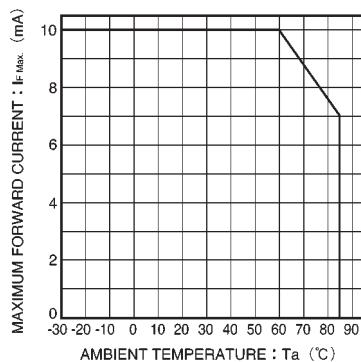


Fig. 6 Maximum forward current vs. ambient temperature