

# Two-color chip LEDs with reflectors

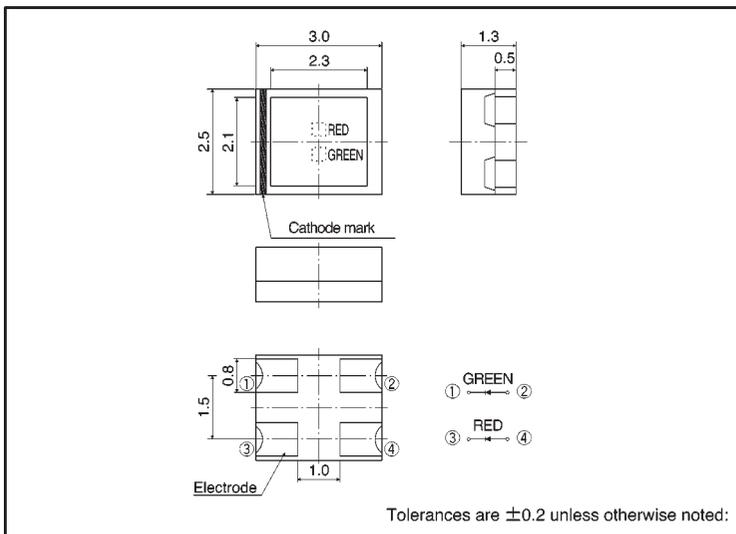
## SML-020 Series

The SML-020 series are two-color, high luminance chip LEDs with reflectors. A red emitting chip and a green emitting chip are built into a single package. The compact and leadless design of these LEDs allows for 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

Lens	Emitting color
	Red Green
Transparent clear	SML-020MVT SML-020MLT

### ●Absolute maximum ratings (Ta = 25°C)

Parameter	Symbol	Limits		Unit
		ML	MV	
Power dissipation	P <sub>D</sub>	60		mW
Forward current	I <sub>F</sub> Red	30	25	mA
	I <sub>F</sub> Green	25		
Peak forward current	I <sub>FP</sub> Red	75	60	mA*
	I <sub>FP</sub> Green	60		
Reverse voltage	V <sub>R</sub>	4		V
Operating temperature	T <sub>opr</sub>	-30~+85		°C
Storage temperature	T <sub>stg</sub>	-40~+85		°C

\* Pulse width 1ms Duty 1/5

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

Type	Parameter	Color	Forward voltage				Reverse current		Luminous intensity			Peak wavelength		Spectral line half width	
			V <sub>F</sub> (V)		Cond.	I <sub>R</sub> (μA)	Cond.	I <sub>v</sub> (mcd)		λ <sub>P</sub> (nm)	Cond.	Δλ (nm)			
			Typ.	Max.	I <sub>F</sub> (mA)	Max.	V <sub>R</sub> (V)	Min.	Typ.	I <sub>F</sub> (mA)	Typ.	I <sub>F</sub> (mA)	Typ.	I <sub>F</sub> (mA)	
SML-020MVT	V	Red	2.0	2.8	20	100	4	3.6	6.3	20	650	20	40	20	
	M	Green	2.2	2.8	20	100	4	9.0	20	20	570	20	40	20	
SML-020MLT	L	Red	1.75	2.5	20	100	4	9.0	16	20	660	20	25	20	
	M	Green	2.2	2.8	20	100	4	9.0	20	20	570	20	40	20	

●Directional pattern

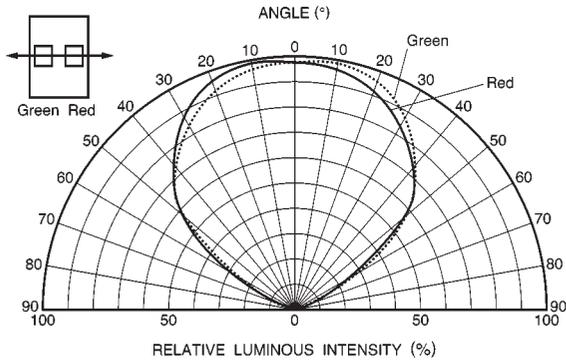


Fig. 1 Directional pattern (1)

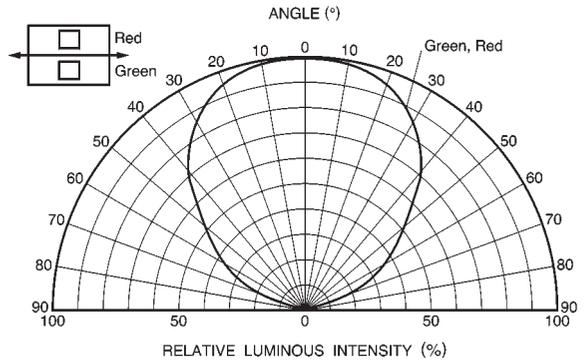


Fig. 2 Directional pattern (2)

●Electrical characteristic curves 1 (SML-020MVT)

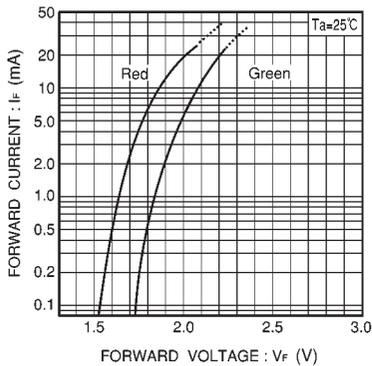


Fig. 3 Forward current vs. forward voltage

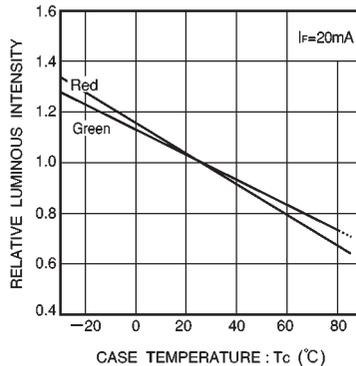


Fig. 4 Luminous intensity vs. case temperature

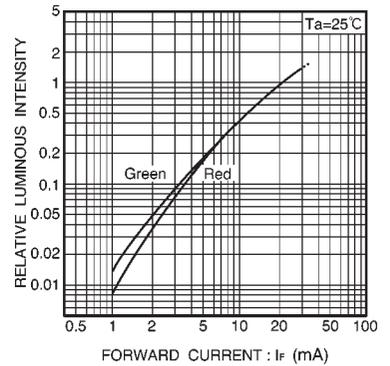


Fig. 5 Luminous intensity vs. forward current

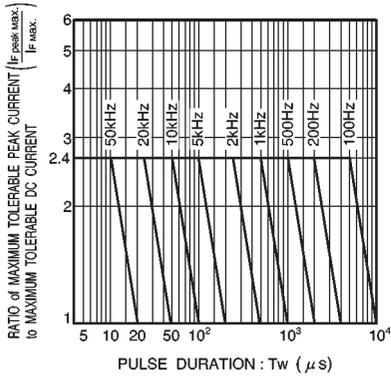


Fig. 6 Maximum tolerable peak current vs. pulse duration

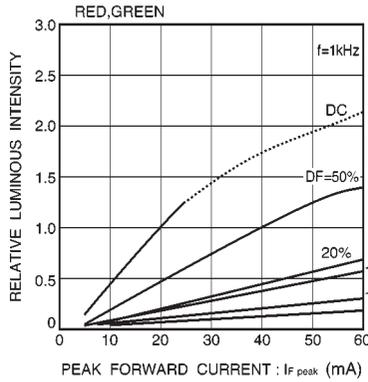


Fig. 7 Luminous intensity vs. peak forward current

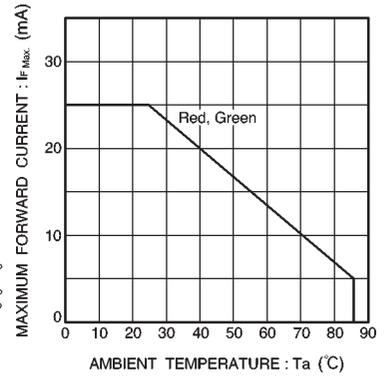


Fig. 8 Maximum forward current vs. ambient temperature

● Electrical characteristic curves 2 (SML-020MLT)

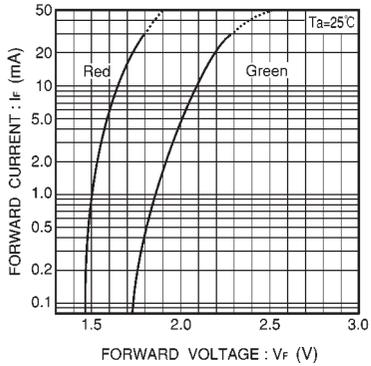


Fig. 9 Forward current vs. forward voltage

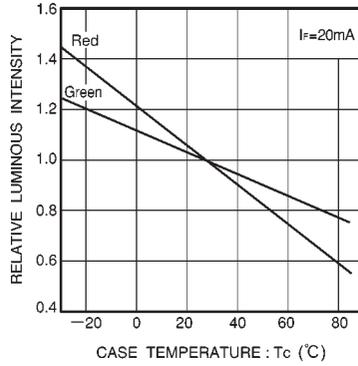


Fig. 10 Luminous intensity vs. case temperature

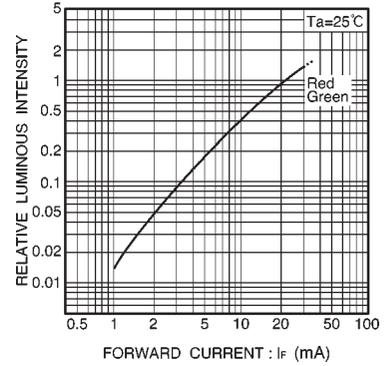


Fig. 11 Luminous intensity vs. forward current

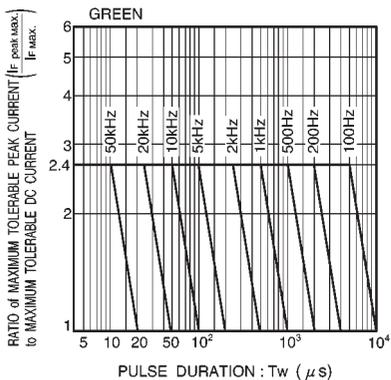


Fig. 12 Maximum tolerable peak current vs. pulse duration

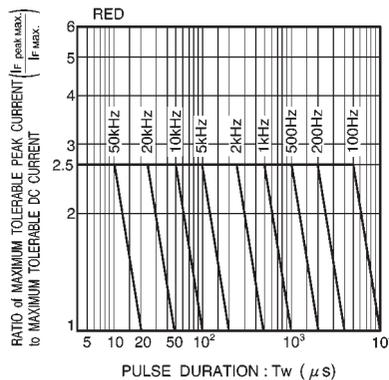


Fig. 13 Maximum tolerable peak current vs. pulse duration

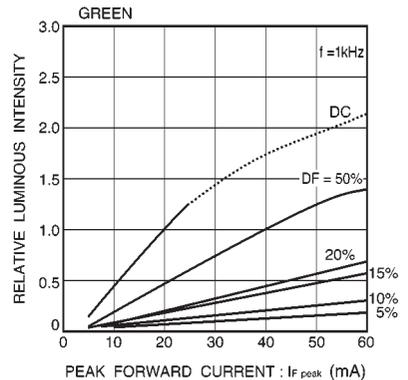


Fig. 14 Luminous intensity vs. peak forward current

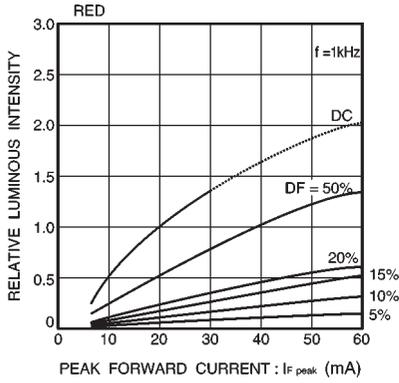


Fig. 15 Luminous intensity vs. peak forward current

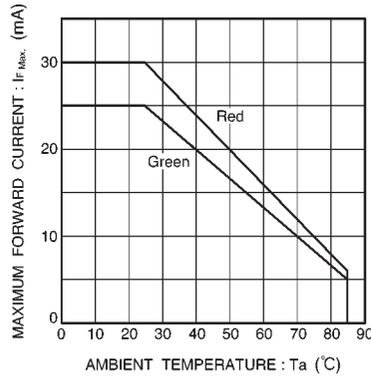


Fig. 16 Maximum forward current vs. ambient temperature