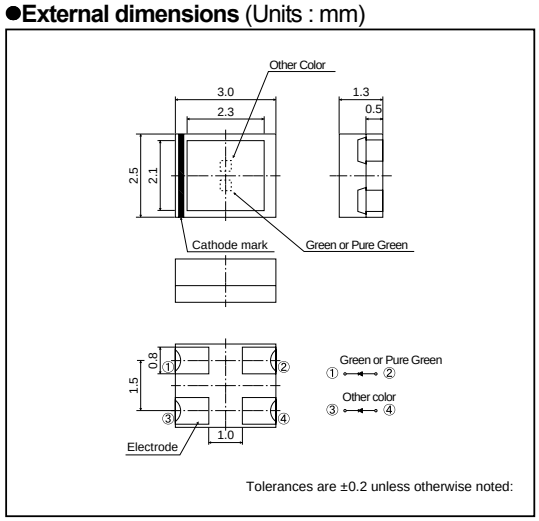
Two-color chip LEDs with reflectors

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.

●**External dimensions** (Units : mm)



●**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

●**Selection guide**

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

●**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	Topr	−30~+85	←	←	←	←	˚C
Storage temperature	Tstg	−40~+85	←	←	←	←	˚C

∗ Pulse width 1ms Duty 1 / 5

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

Type		Color	Forward voltage V_F (V) Typ.	Forward voltage V_F (V) Max.	Cond. I_F (mA)	Reverse current I_R (μA) Max.	Cond. V_R (V)	Luminous intensity I_V (mcd) Min.	Luminous intensity I_V (mcd) Typ.	Cond. I_F (mA)	Peak wavelength λ_P (nm) Typ.	Cond. I_F (mA)	Spectral line half width $\Delta\lambda$ (nm) Typ.	Cond. I_F (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				9.0	20		570		40	
SML-020MLT	L	Red	1.75	2.5				9.0	16		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

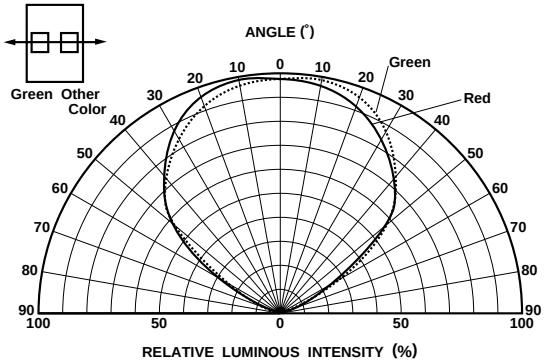


Fig. 1 Directional pattern (1)

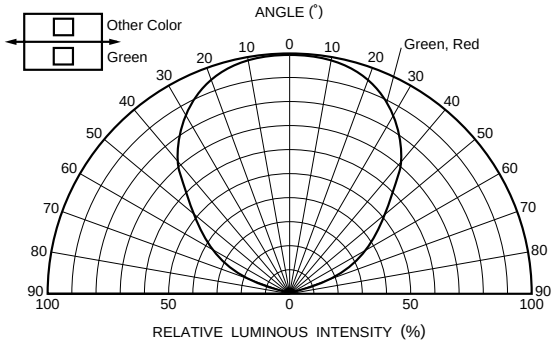


Fig. 2 Directional pattern (2)

●Electrical characteristics1 (SML-020MVT)

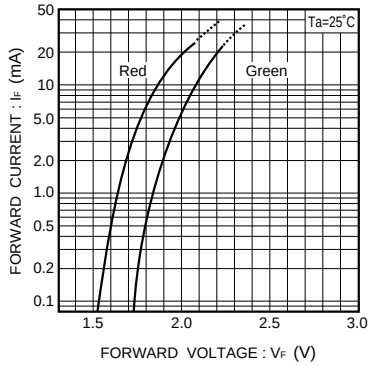


Fig. 3 Forward current vs. forward voltage

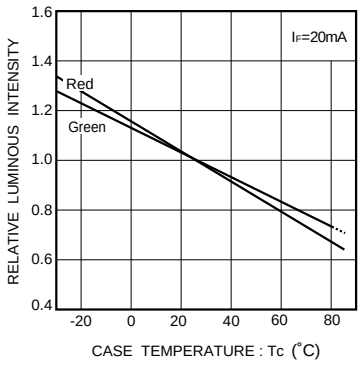


Fig. 4 Luminous intensity vs. case temperature

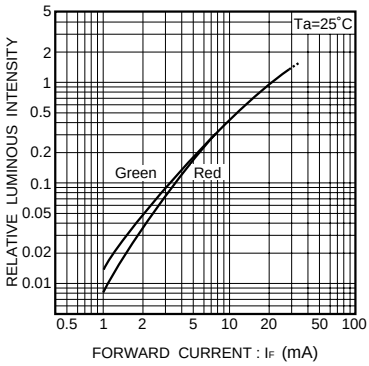


Fig. 5 Luminous intensity vs. forward current

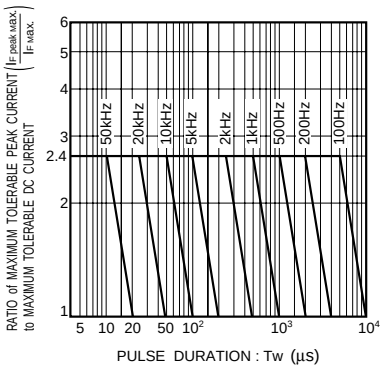


Fig. 6 Maximum tolerable peak current vs. pulse duration

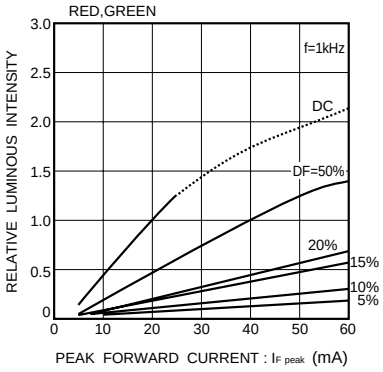


Fig. 7 Luminous intensity vs. peak forward current

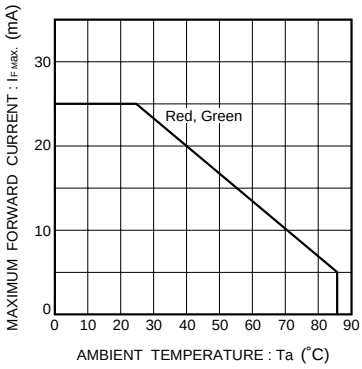


Fig. 8 Maximum forward current vs. ambient temperature

●**Electrical characteristics2** (SML-020MLT)

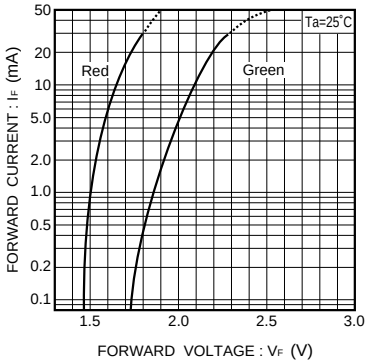


Fig. 9 Forward current vs. forward voltage

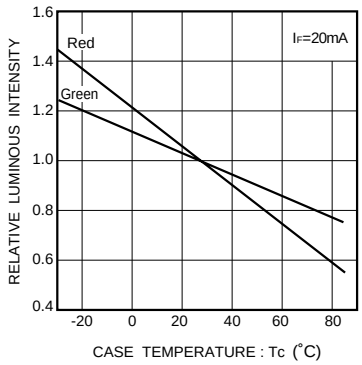


Fig. 10 Luminous intensity vs. case temperature

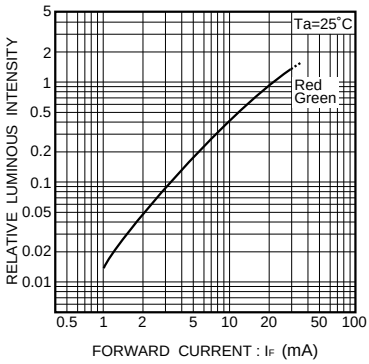


Fig. 11 Luminous intensity vs. forward current

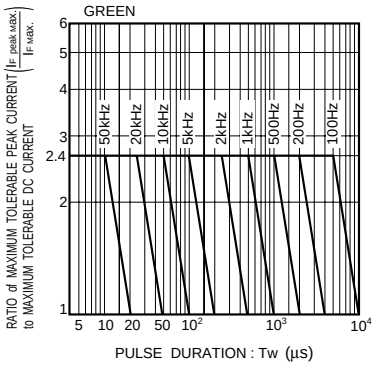


Fig. 12 Maximum tolerable peak current vs. pulse duration

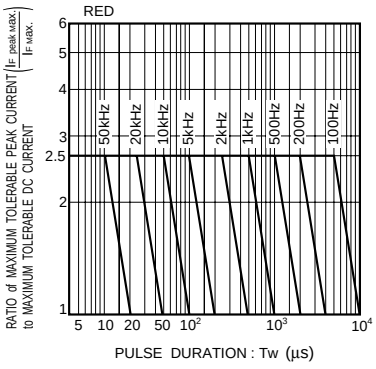


Fig. 13 Maximum tolerable peak current vs. pulse duration

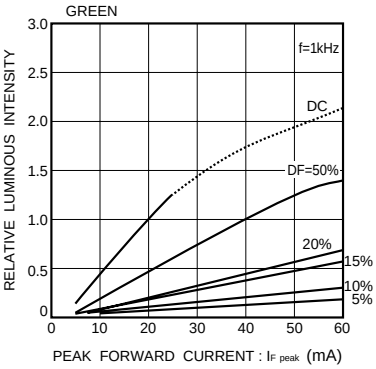


Fig. 14 Luminous intensity vs. peak forward current

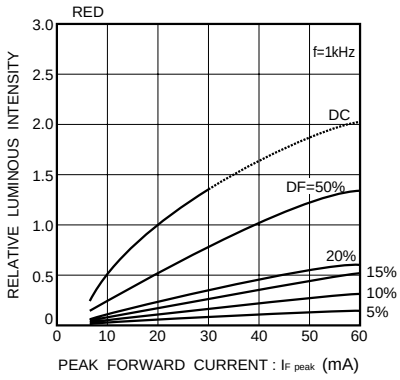


Fig. 15 Luminous intensity vs. peak forward current

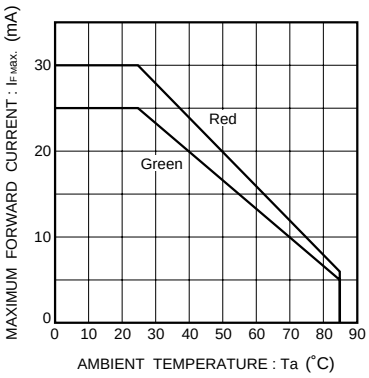


Fig. 16 Maximum forward current vs. ambient temperature

●Electrical characteristics3 (SML-020MDT)

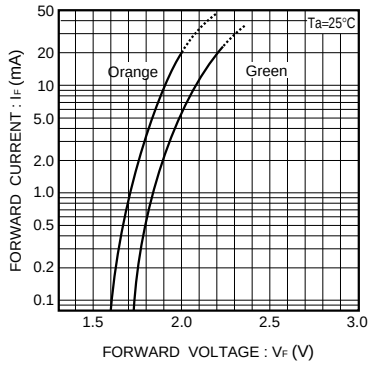


Fig. 17 Forward current vs. forward voltage

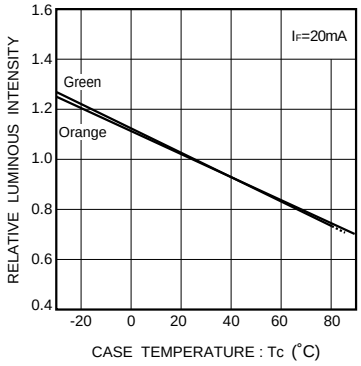


Fig. 18 Luminous intensity vs. case temperature

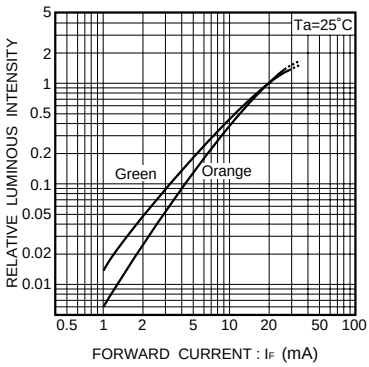


Fig. 19 Luminous intensity vs. forward current

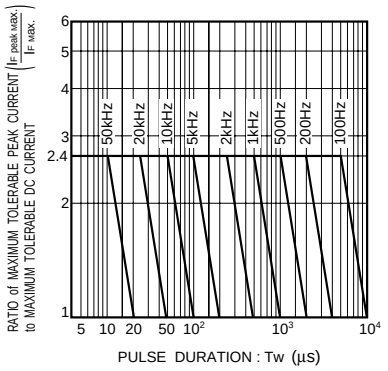


Fig. 20 Maximum tolerable peak current vs. pulse duration

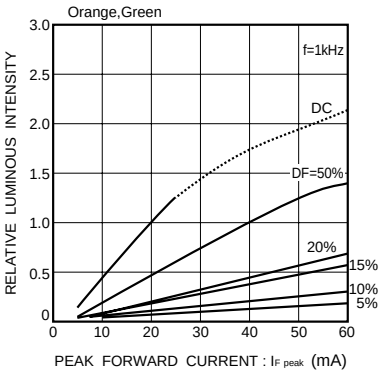


Fig. 21 Luminous intensity vs. peak forward current

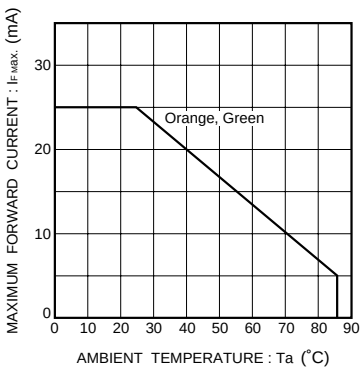


Fig. 22 Maximum forward current vs. ambient temperature

●**Electrical characteristics4** (SML-020MYT)

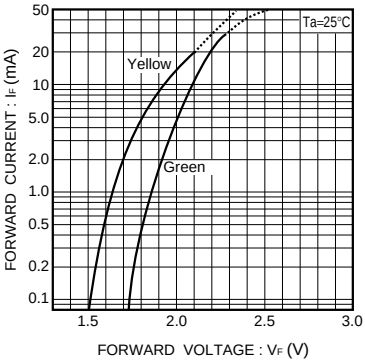


Fig. 23 Forward current vs. forward voltage

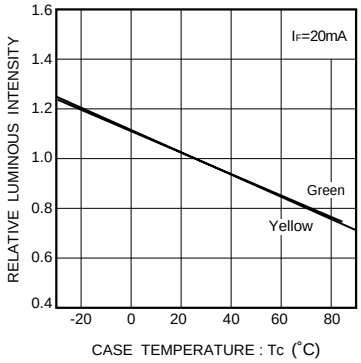


Fig. 24 Luminous intensity vs. case temperature

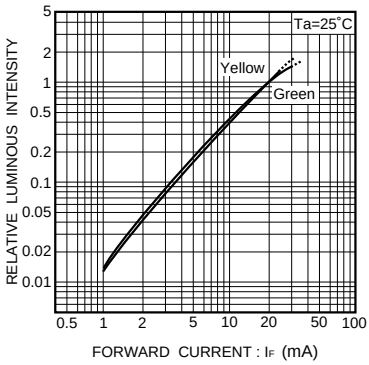


Fig. 25 Luminous intensity vs. forward current

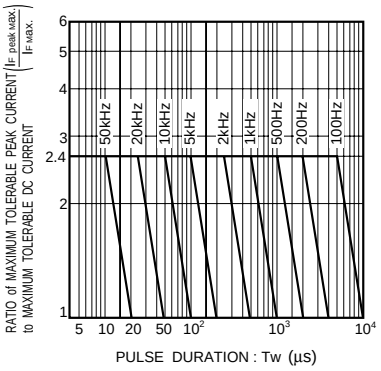


Fig. 26 Maximum tolerable peak current vs. pulse duration

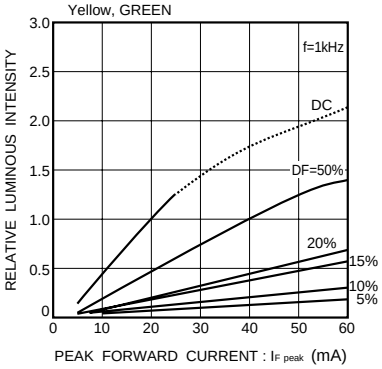


Fig. 27 Luminous intensity vs. peak forward current

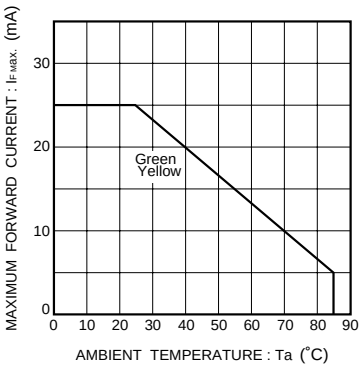


Fig. 28 Maximum forward current vs. ambient temperature

●**Electrical characteristics5** (SML-020PDT)

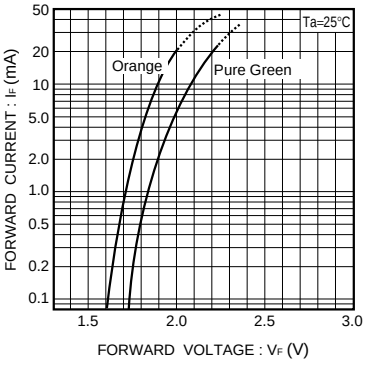


Fig. 29 Forward current vs. forward voltage

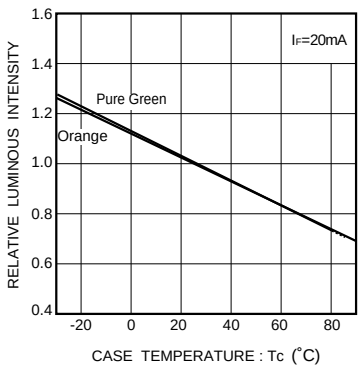


Fig. 30 Luminous intensity vs. case temperature

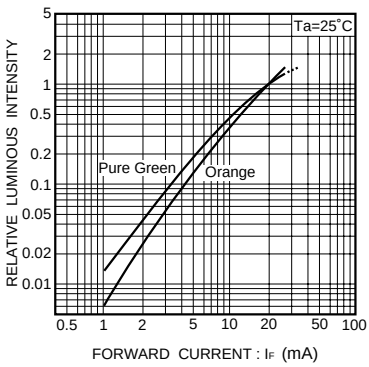


Fig. 31 Luminous intensity vs. forward current

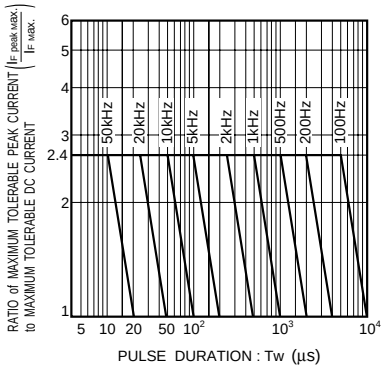


Fig. 32 Maximum tolerable peak current vs. pulse duration

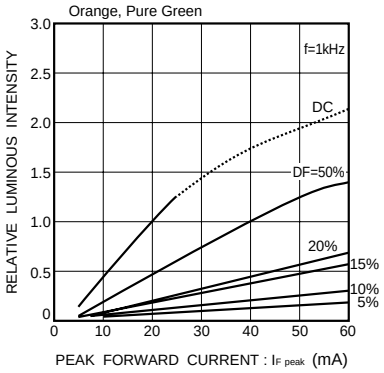


Fig. 33 Luminous intensity vs. peak forward current

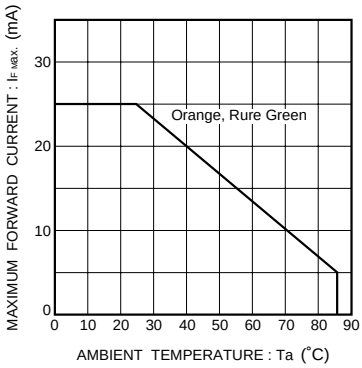


Fig. 34 Maximum forward current vs. ambient temperature