

# Two-color LEDs ( $\phi 3.1$ mm)

## SPR-39 Series

The SPR-39 series are  $\phi 3.1$  mm, two-color LEDs with a high luminous efficiency. Red and green elements are built into a single package, and these LEDs are suitable for a wide range of uses.

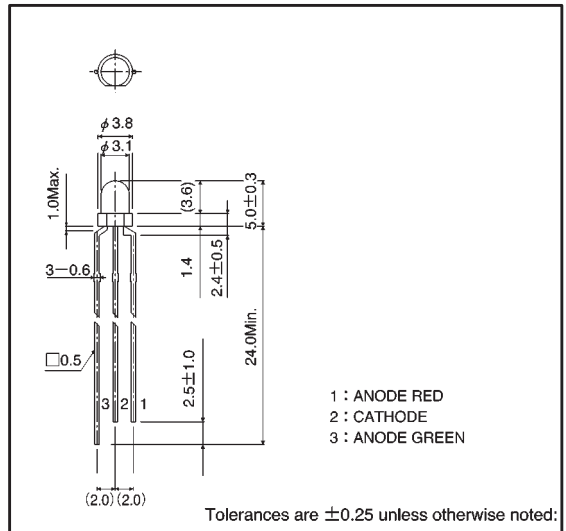
### ●Features

- 1) Two-color emission : red and green.
- 2) Epoxy resin package with a diameter of 3.1 mm.
- 3) Milky white lens.
- 4) High reliability.
- 5) Lead pitch of 2 mm.

### ●Selection guide

Emitting color	Red / Green
Lens	
Milky white	SPR-39MVW

### ●External dimensions (Units: mm)



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

Parameter	Symbol	Red	Green	Unit
Power dissipation	$P_D$	60	75	mW
Forward current	$I_F$	20	25	mA
Peak forward current	$I_{FP}$	60*	60*	mA
Reverse voltage	$V_R$	3	3	V
Operating temperature	$T_{opr}$	-25 ~ +85		$^\circ\text{C}$
Storage temperature	$T_{stg}$	-30 ~ +100		$^\circ\text{C}$
Soldering temperature	—	260 $^\circ\text{C}$ 5 seconds maximum		—

\* Pulse width 1ms Duty 1 / 5

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

Parameter	Symbol	Conditions	Red			Green			Unit
			Min.	Typ.	Max.	Min.	Typ.	Max.	
Forward voltage	$V_F$	$I_F=10\text{mA}$	—	2.0	3.0	—	2.1	3.0	V
Reverse current	$I_R$	$V_R=3\text{V}$	—	—	100	—	—	10	$\mu\text{A}$
Peak wavelength	$\lambda_P$	$I_F=10\text{mA}$	—	650	—	—	563	—	nm
Spectral line half width	$\Delta \lambda$	$I_F=10\text{mA}$	—	40	—	—	40	—	nm
Viewing angle	$2\theta_{1/2}$	Diffused	—	60	—	—	60	—	deg
Luminous intensity	$I_v$	$I_F=10\text{mA}$	2.2	6.3	—	3.6	10	—	mcd

●Luminous intensity vs. wavelength

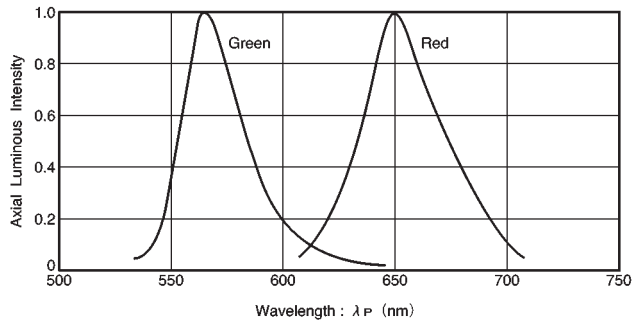


Fig.1

●Directional pattern

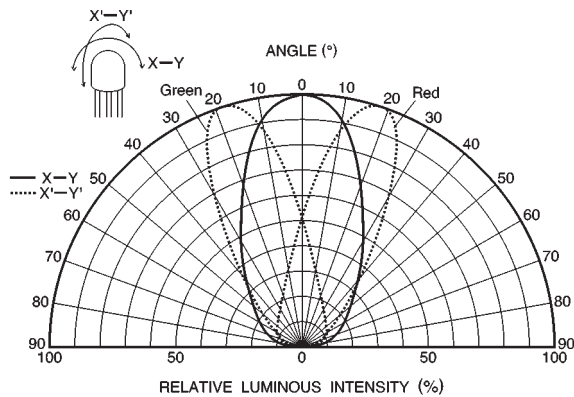


Fig. 2

●Electrical characteristic curves (red, green)

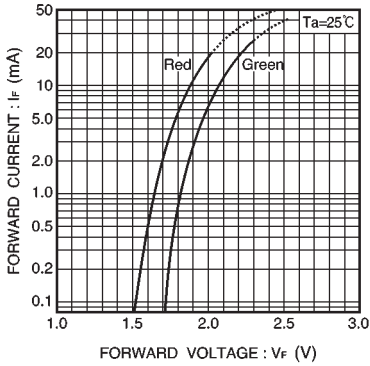


Fig. 3 Forward current vs. forward voltage

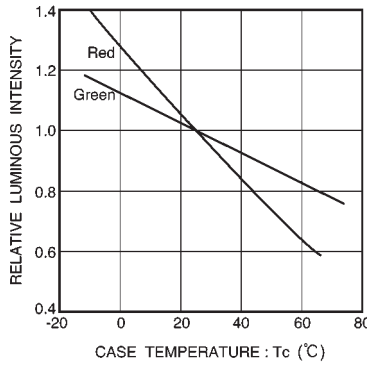


Fig. 4 Luminous intensity vs. case temperature

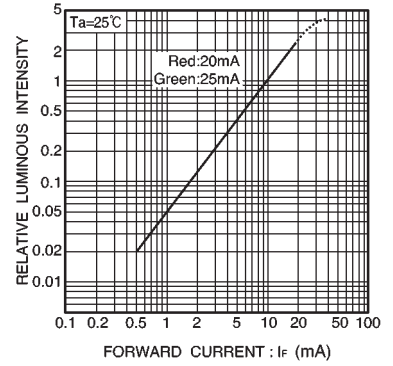


Fig. 5 Luminous intensity vs. forward current

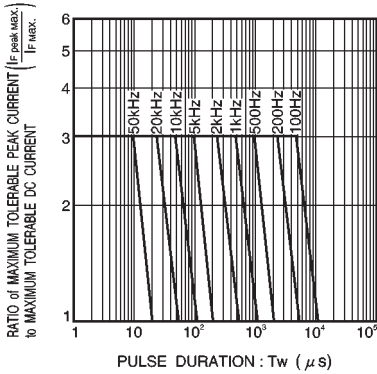


Fig. 6 Maximum tolerable peak current vs. pulse duration (red)

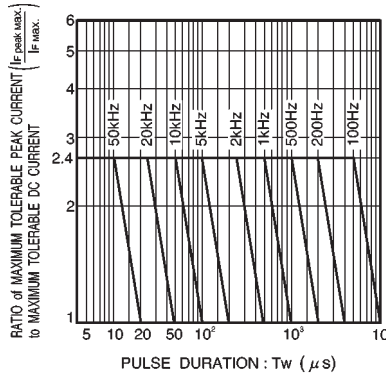


Fig. 7 Maximum tolerable peak current vs. pulse duration (green)

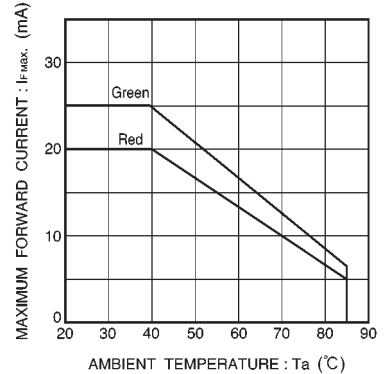


Fig. 8 Maximum forward current vs. ambient temperature