

SANKEN

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LIGHT EMITTING DIODES

T-1 3/4 Special Configuration Type (Diffused)

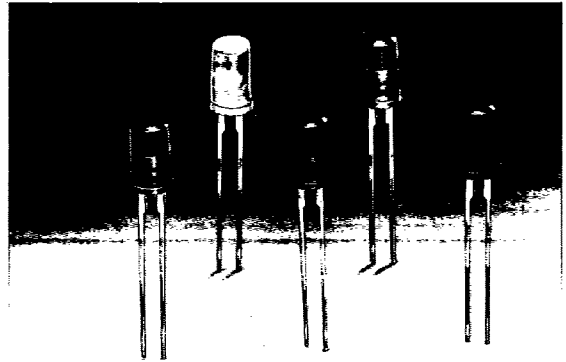
SEL 1111 R	SEL 1811 D
SEL 1311 G	SEL 1911 D
SEL 1711 Y	

FEATURES

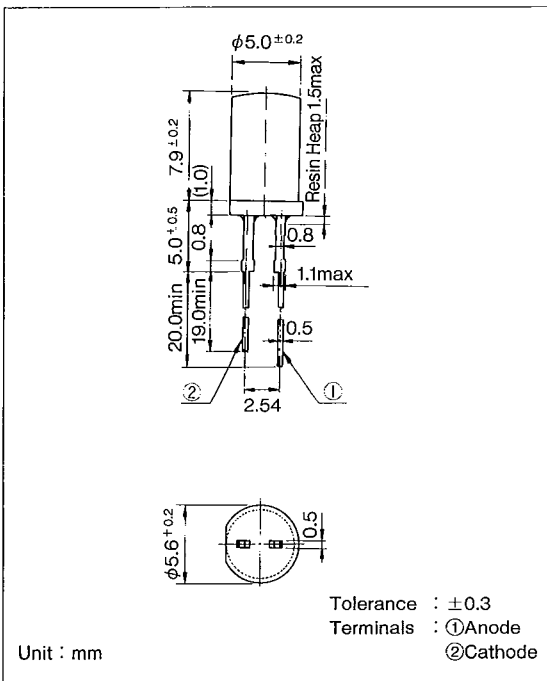
- Wide Viewing Angle
- Available in Wide Varieties
- For Display and Other General Uses
- Long-life/High Reliability
- Selection of 5 Colors/Intensities
- Pulse-Drivable
- CMOS/MOS, TTL Compatible

APPLICATIONS

- General Use
- Panel Display
- Low Power Circuit
- Portable Device
- Display of Battery and Communication Devices



Package Dimensions



Intensity Ranks

Type No.	Intensity Min. (mcd)	Condition I _F (mA)	Color	
			Lens	Chip
SEL 1111 R A B C D	0.7	10	R	R
	0.9			
	1.2			
	1.6			
SEL 1311 G A B C D	1.0	10	G	G
	4.8			
	6.4			
	8.8			
SEL 1711 Y A B C D	5.0	10	Y	Y
	6.9			
	9.0			
	12.0			
SEL 1811 D A B C D	3.0	10	O	A
	4.0			
	5.4			
	7.2			
SEL 1911 D A B C D	3.0	10	O	O
	4.0			
	5.4			
	7.2			

R=Red G=Green O=Orange Y=Yellow A=Amber

Individual Specifications

Electro-Optical Characteristics (Ta = 25°C)							
Symbol	Description	Type No.	Min.	Typ.	Max.	Unit	Test Condition
I _v	Intensity	SEL 1111 R	0.7	1.6		mcd	I _F = 10 (mA)
		SEL 1311 G	1.0	8.8			
		SEL 1711 Y	5.0	12.0			
		SEL 1811 D	3.0	7.2			
		SEL 1911 D	3.0	7.2			
2θ _{1/2}	Including Angle Between Half Intensity Points	SEL 1111 R		60°		Deg	I _F = 10 (mA) See Note 1
		SEL 1311 G					
		SEL 1711 Y					
		SEL 1811 D					
		SEL 1911 D					
λ _P	Peak Wavelength	SEL 1111 R		700		nm	I _F = 10 (mA)
		SEL 1311 G		560			
		SEL 1711 Y		570			
		SEL 1811 D		612			
		SEL 1911 D		583			
Δλ	Spectral Line Halfwidth	SEL 1111 R		100		nm	
		SEL 1311 G		28			
		SEL 1711 Y		40			
		SEL 1811 D		40			
		SEL 1911 D		36			
λ _d	Dominant Wavelength	SEL 1111 R		650		nm	See Note 2
		SEL 1311 G		562			
		SEL 1711 Y		566			
		SEL 1811 D		608			
		SEL 1911 D		585			
C	Capacitance	SEL 1111 R		38		pF	V _F = 0 f = 1 (MHz)
		SEL 1311 G		15			
		SEL 1711 Y		15			
		SEL 1811 D		15			
		SEL 1911 D		10			
V _F	DC Forward Voltage	SEL 1111 R	1.5	2.0	3.0	V	I _F = 10 (mA)
		SEL 1311 G					
		SEL 1711 Y					
		SEL 1811 D					
		SEL 1911 D					
V _R	DC Reverse Voltage	SEL 1111 R	5.0			V	I _R = 100 (μA)
		SEL 1311 G					
		SEL 1711 Y					
		SEL 1811 D					
		SEL 1911 D					

- Notes : 1. θ_{1/2} is the off-axis angle at which the intensity is half the axial intensity.
 2. The dominant wavelength, λ_d, is derived from the CIE chromaticity diagram and it represents the single wavelength which defines the color of the device.

Absolute Maximum Ratings (Ta = 25°C)

Symbol	Description	Ratings	Unit
I _p	Peak Forward Current* ¹	100	mA
I _F	Max. DC Forward Current* ²	30	mA
V _R	DC Reverse Voltage (I _R = 100μA)	5	V
I _{FP}	Transient Max. Peak Forward Current* ³ (10μsec Pulse)	500	mA
T _{op}	Operating Temp. Range	-55 to +100	°C
T _{stg}	Storage Temp. Range	-55 to +100	
T _{slid}	Lead Soldering Temp. (more than 4.0mm from body)	260°C for 5 seconds	

- Notes : 1. See Figure 4
 2. This current derates linearly from 25°C at 0.33 mA/°C
 3. Only for one pulse

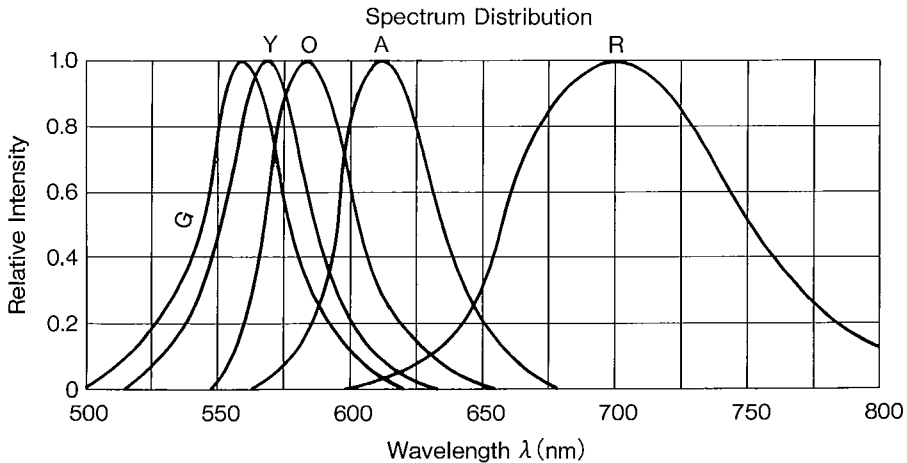


Fig. 1 : Relative Intensity vs. Wavelength

Individual Specifications

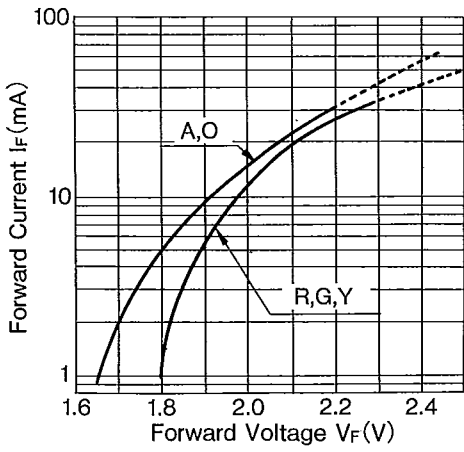


Fig.2 : Forward Current vs. Forward Voltage

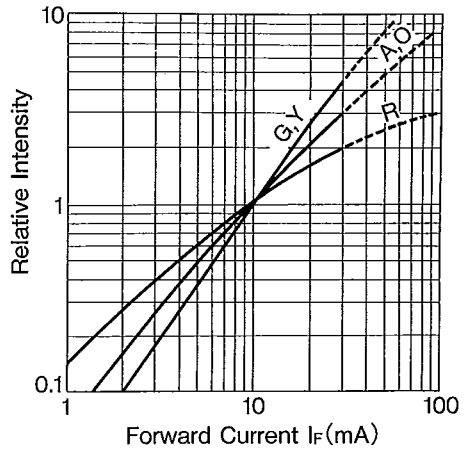


Fig.3 : Relative Intensity vs. Forward Current

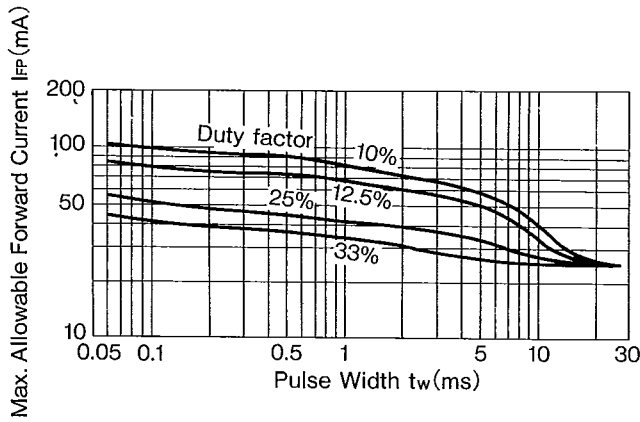


Fig.4 : Max. Allowable Forward Current vs. Pulse Width

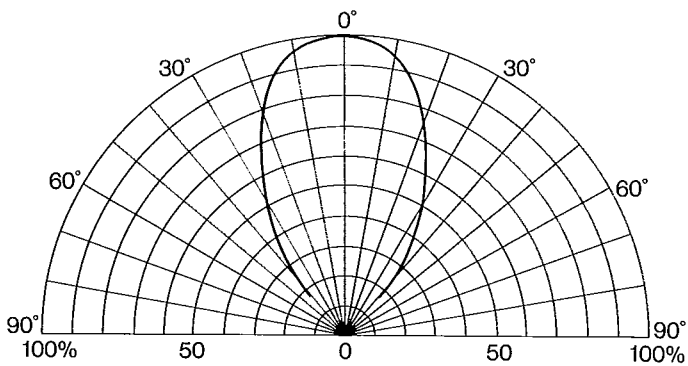


Fig.5 : Viewing Angle