# **BS120**

# **Photodiode for Visible Light**

#### **■** Features

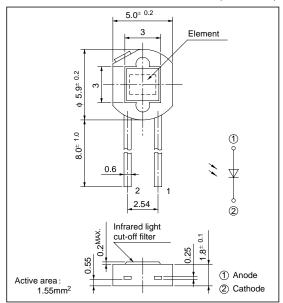
- Spectral sensitivity characteristics akin to that of human eye
- 2. Compact flat package
- 3. Low dark current(  $I_d$ : MAX.  $10^{-11}A$  at  $\ensuremath{V_{R}}\!=\ 1V)$
- 4. Infrared light cut-off type

### ■ Applications

- AE (automatic exposure) system and ES (electronic shutter) system for cameras
- 2. Stroboscopes
- 3. Precise optical instruments

#### **■** Outline Dimensions

(Unit: mm)



# ■ Absolute Maximum Ratings

 $(Ta=25^{\circ}C)$ 

Parameter	Symbol	Rating	Unit	
Reverse voltage	V <sub>R</sub>	10	V	
Operating temperature	T opr	-20 to + 60	°C	
Storage temperature	T stg	-30 to + 80	°C	
*1 Soldering temperature	T sol	260	°C	

<sup>\*1</sup> For 10 seconds

# **■** Electro-optical Characteristics

 $(Ta=25^{\circ}C)$ 

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*2 Short circuit current	$I_{SC}$	E <sub>v</sub> = 100lx	0.14	0.16	0.21	μΑ
*2 Short circuit current tempe- rature coefficient	βт	Ev= 100lx	- 0.03	0.02	0.07	% /°C
Dark current	$I_{\rm d}$	$V_R = 1V$	-	3 x 10 <sup>-12</sup>	10-11	A
Dark current temperature coefficient	αт	V <sub>R</sub> = 1V	-	3.5	5.0	*3 times/10°C
Terminal capacitance	$C_{t}$	$V_R = 0$ , $f = 1MHz$	-	-	500	pF
Peak sensitivity wavelength	λp	-	500	560	600	nm
*4 Spectral sensitivity infrared radiation ratio	$\Delta I_R$	-	-	6	10	%

<sup>\*2</sup> E <sub>V</sub>: Illuminance by CIE standard light source A(tungsten lamp)

<sup>\*3</sup> times/10°C

<sup>\*4</sup>  $\Delta$  I <sub>R</sub>=  $\frac{I_{SC}(\lambda >=700\text{nm})}{I_{SC}(\text{full wavelength})}$  x 100%

Fig. 1 Short Circuit Current vs. Illuminance

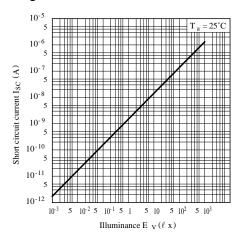


Fig. 3 Dark Current vs. Reverse Voltage

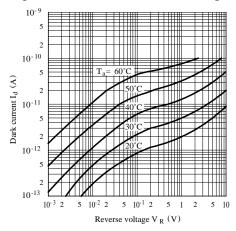
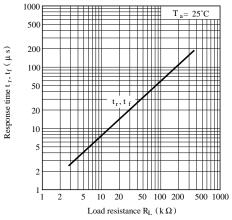


Fig. 5 Response Time vs. Load Resistance



Please refer to the chapter "Precautions for Use."

Fig. 2 Relative Short Circuit Current vs. Ambient Temperature

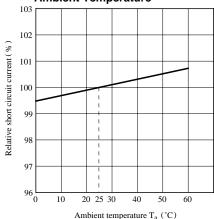
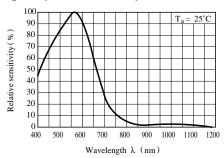
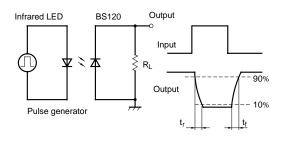


Fig. 4 Spectral Sensitivity



#### **Test Circuit for Response Time**



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