

BS100C Photodiode for Visible Light

T-41-51

Features

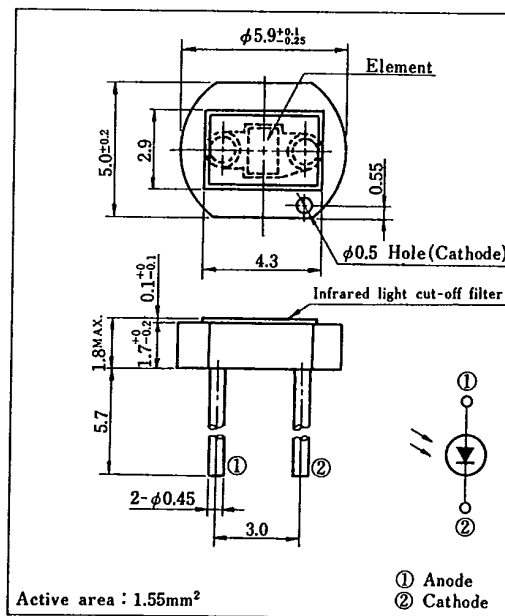
1. Wide dynamic range
(Capable of $E_v = 10^{-3} \sim 10^4 \text{ lx}$ range measurement)
2. Low dark current
(I_d : MAX. 10^{-11} A at $V_R = 1 \text{ V}$)
3. Infrared light cut-off type

Applications

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

Outline Dimensions

(Unit : mm)



Absolute Maximum Ratings

($T_a = 25^\circ \text{C}$)

Parameter	Symbol	Rating	Unit
Reverse voltage	V_R	10	V
Operating temperature	T_{opr}	$-20 \sim +60$	$^\circ \text{C}$
Storage temperature	T_{stg}	$-30 \sim +80$	$^\circ \text{C}$
*1 Soldering temperature	T_{sol}	260	$^\circ \text{C}$

*1 For 5 seconds

Electro-optical Characteristics

($T_a = 25^\circ \text{C}$)

Parameter	Symbol	Conditions	MIN.	TYP.	MAX.	Unit
*2 Short circuit current	I_{sc}	$E_v = 100 \text{ lx}$	0.14	0.16	0.21	μA
*2 Short circuit current temperature coefficient	β_T	$E_v = 100 \text{ lx}$	—	0.02	0.07	$\% / ^\circ \text{C}$
Dark current	I_d	$V_R = 1 \text{ V}$	—	3×10^{-12}	10^{-11}	A
Dark current temperature coefficient	α_T	$V_R = 1 \text{ V}$	—	3.5	5.0	times/ 10°C
Terminal capacitance	C_t	$V_R = 0, f = 1 \text{ MHz}$	—	—	500	pF
Peak sensitivity wavelength	λ_p		500	560	600	nm
*3 Spectral sensitivity infrared radiation ratio	ΔI_R		—	6	10	%

*2 E_v : Illuminance by CIE standard light source A (tungsten lamp)

*3 $\Delta I_R = \frac{I_{sc}(\lambda \geq 700 \text{ nm})}{I_{sc}(\text{full wavelength})} \times 100\%$

Fig. 1 Short Circuit Current vs. Illuminance

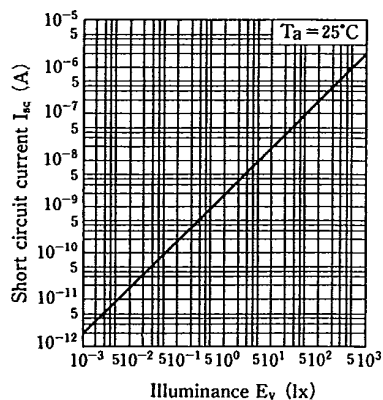


Fig. 2 Short Circuit Current vs. Ambient Temperature

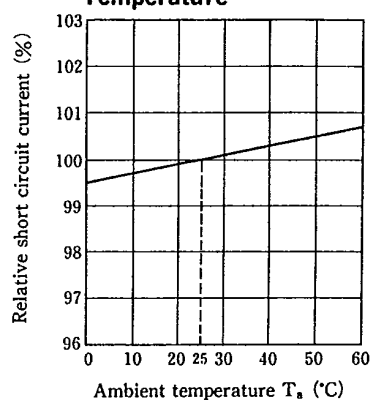


Fig. 3 Dark Current vs. Reverse Voltage

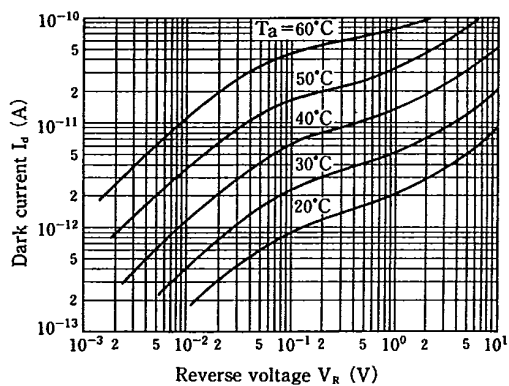


Fig. 4 Spectral Sensitivity

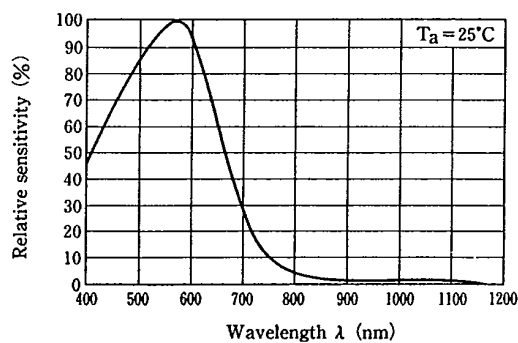
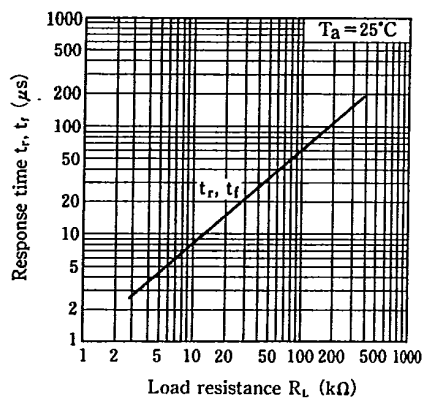


Fig. 5 Response Time vs. Load Resistance



Test Circuit for Response Time

