

BS500B Photodiode for Visible Light

T-41-51

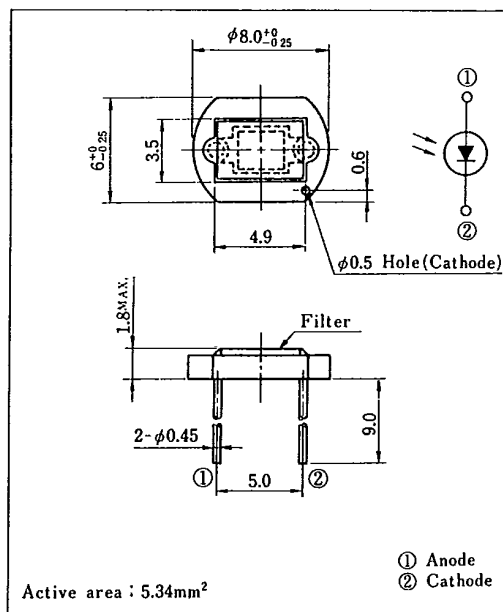
Features

1. Wide dynamic range (Capable of measuring 10^{-3} to 10^4 lx of E_v)
2. Low dark current (I_d : MAX. 10^{-11} A at $V_R=1$ V)
3. Most suitable for visible light measurement ($\lambda_p=560$ nm)
4. Infrared light cut-off type

Applications

1. AE (automatic exposure) system and ES (electronic shutter) system for cameras
2. Stroboscopes
3. 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 ~ +60	$^\circ\text{C}$
Storage temperature	T_{stg}	-20 ~ +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}	$E_v=100$ lx	0.40	0.55	0.65	μA
*2 Short circuit current temperature coefficient	β_T	$E_v=100$ lx	—	0.02	0.06	%/ $^\circ\text{C}$
Dark current	I_d	$V_R=1$ V	—	3×10^{-12}	10^{-11}	A
Dark current temperature coefficient	α_T	$V_R=1$ V	—	4.0	5.0	times/ 10°C
Terminal capacitance	C_t	$V_R=0, f=1$ MHz	—	600	1,000	pF
Peak sensitivity wavelength	λ_p		500	560	600	nm
*3 Spectral sensitivity infrared radiation ratio	ΔI_R		—	5	—	%

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

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

SHARP

Fig. 1 Short Circuit Current vs. Illuminance

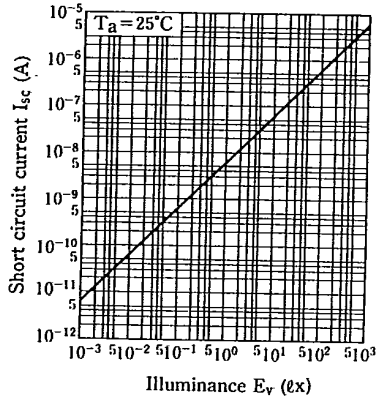


Fig. 2 Relative Short Circuit Current vs. Ambient Temperature T-41-51

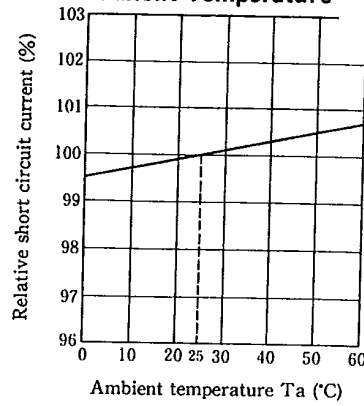


Fig. 3 Dark Current vs. Reverse Voltage

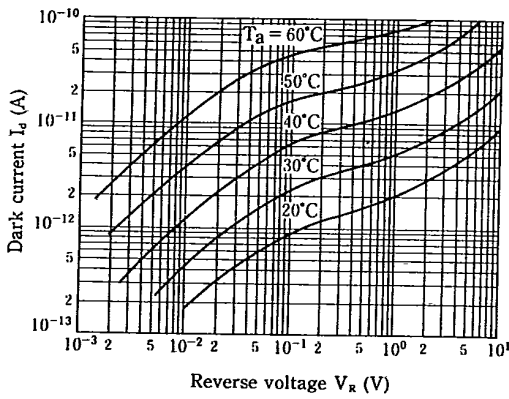
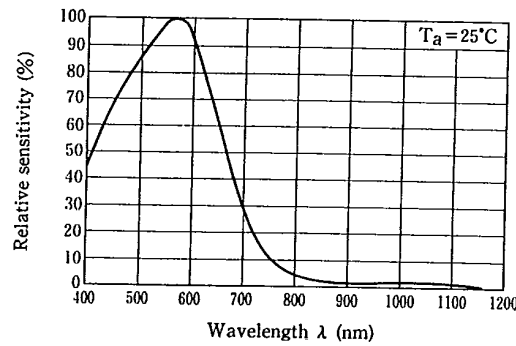
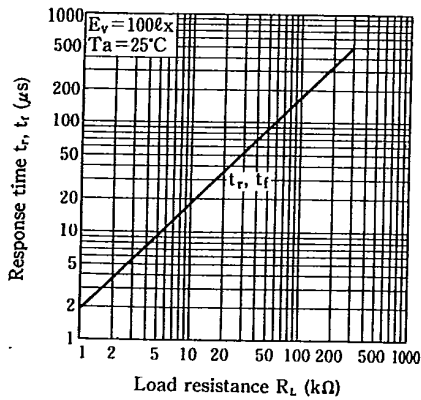


Fig. 4 Spectral Sensitivity



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Fig. 5 Response Time vs. Load Resistance



Test Circuit for Response Time

