

T-41-51

BS520/BS521 Photodiode for Visible Light

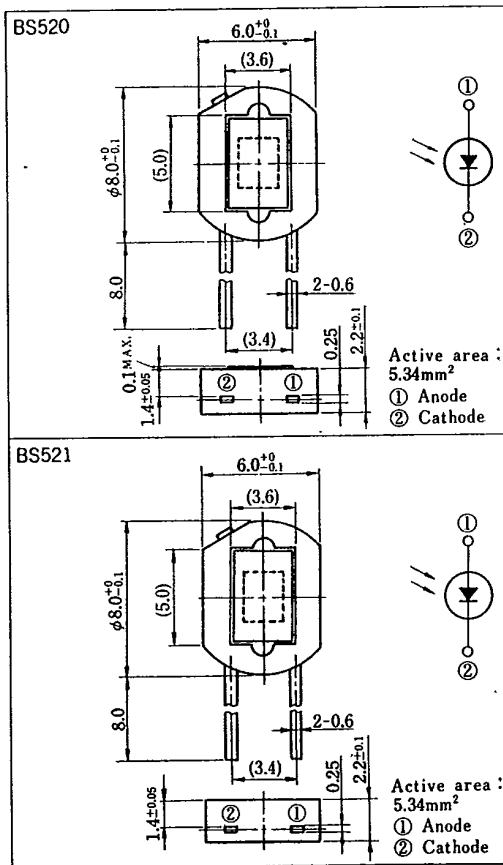
■ Features

1. Spectral sensitivity characteristic akin to that of human eye
2. Compact flat package
3. High sensitivity (BS521 I_{sc} : MIN. $0.65\mu A$ at $E_v=100 \ell x$)
4. Low dark current
5. Infrared light cut-off type : BS520

■ 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 (Ta=25°C)

Parameter	Symbol	Rating	Unit
Reverse voltage	V_R	10	V
Operating temperature	T_{opr}	-20 ~ +60	°C
Storage temperature	T_{stg}	-30 ~ +80	°C
*1 Soldering temperature	T_{sol}	260	°C

*1 For 5 seconds

■ Electro-optical Characteristics (Ta=25°C)

Parameter	Symbol	Conditions		BS520			BS521			Unit
		BS520	BS521	MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
*2 Short circuit current	I_{sc}	$E_v=100 \ell x$		0.40	0.55	0.65	0.65	0.73	0.82	μA
*2 Short circuit current temperature coefficient	β_T	$E_v=100 \ell x$		—	0.02	0.06	—	0.02	0.06	%/°C
Dark current	I_d	$V_R=1V, V_r=10mV$		—	3×10^{-12}	10^{-11}	—	1.3×10^{-12}	3×10^{-12}	A
Dark current temperature coefficient	α_T	$V_R=1V$		—	4.0	5.0	—	4.0	5.0	times/ 10°C
Terminal capacitance	C_t	$V_R=0, f=100kHz$		—	600	1,000	—	200	300	pF
Peak sensitivity wavelength	λ_p			500	560	600	500	560	600	nm
*3 Spectral sensitivity infrared radiation ratio	ΔI_R			—	5	10	—	—	25	%

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

*3 BS520 : $\Delta I_R = \frac{I_{sc}(\lambda \geq 700nm)}{I_{sc}(\text{entire wavelength})} \times 100\%$ BS521 : $\Delta I_R = \frac{I_{sc}(\text{with R-70 filter})}{I_{sc}(E_v=100 \ell x)} \times 100\%$

SHARP

Fig. 1 Short Circuit Current vs. Illuminance

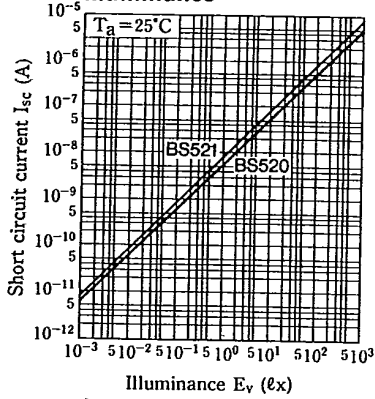


Fig. 2 Relative Short Circuit Current vs. Ambient Temperature

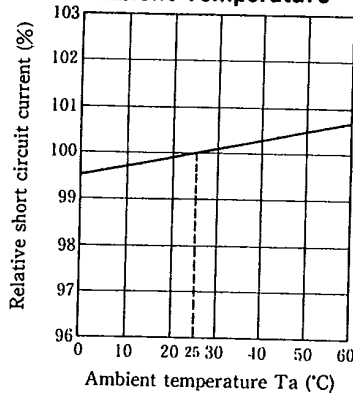


Fig. 3 Dark Current vs. Reverse Voltage (BS520)

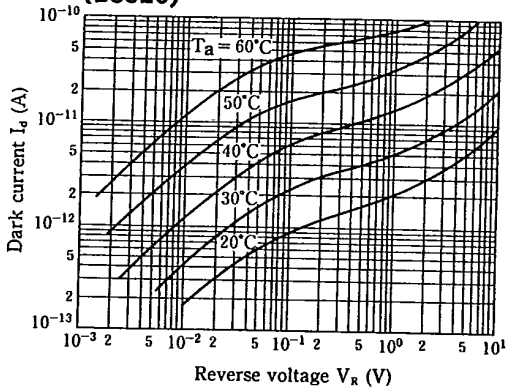
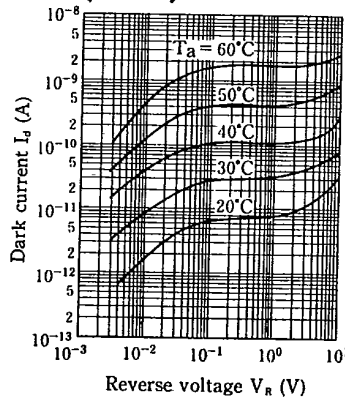


Fig. 4 Dark Current vs. Reverse Voltage (BS521)



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Fig. 5 Spectral Sensitivity

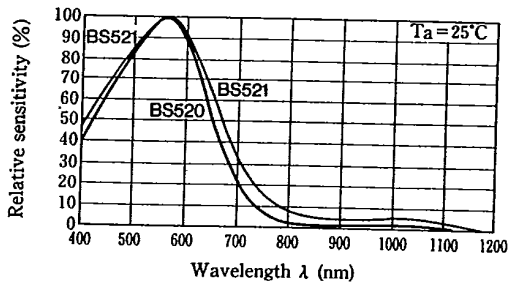


Fig. 6 Response Time vs. Load Resistance

