BS112/BS142 Wide Wavelength Band Type Photodiode

T-41-51

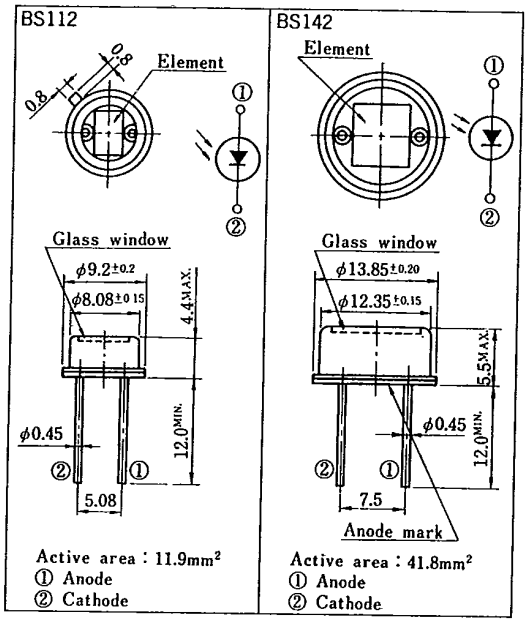
■ Features

1. A wide range of sensitivity wavelength (λ : 350~1,150nm)
2. High reliability (hermetic seal package)
3. High sensitivity (BS112 I_{sc} : MIN. 5.5μA, BS142 I_{sc} : MIN. 18μA at E_V=100ℓx)

■ Applications

1. Illuminance meters
2. Scientific color measuring instruments, such as colorimeters, flame color meters, analyzers and spectral photo meters
3. Precise optical instruments

■ Outline Dimensions (Unit : mm)



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■ Absolute Maximum Ratings (Ta=25°C)

Parameter	Symbol	BS112	BS142	Unit
Reverse voltage	V_R	5	5	V
Operating temperature	T_{opr}	−10~+60	−10~+60	°C
Storage temperature	T_{stg}	−20~+80	−20~+80	°C
*1Soldering temperature	T_{sol}	260	260	°C

*1 For 5 seconds

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

Parameter	Symbol	Conditions	BS112			BS142			Unit
			MIN.	TYP.	MAX.	MIN.	TYP.	MAX.	
*2Open circuit voltage	V_{oc}	E_V=100 ℓx	0.25	0.32	—	0.25	0.32	—	V
*2Short circuit current	I_{sc}	E_V=100 ℓx	5.5	7.0	—	18	22	—	μA
Dark current	I_d	V_R=1V	—	5×10^{-9}	10^{-7}	—	5×10^{-9}	10^{-7}	A
Peak sensitivity wavelength	λ_p		—	850	—	—	850	—	nm
Sensitivity wavelength width	λ		350	—	1,150	350	—	1,150	nm
Response time	t_r, t_f	R_L=1kΩ	—	20	—	—	27	—	μs

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

Fig. 1 Spectral Sensitivity

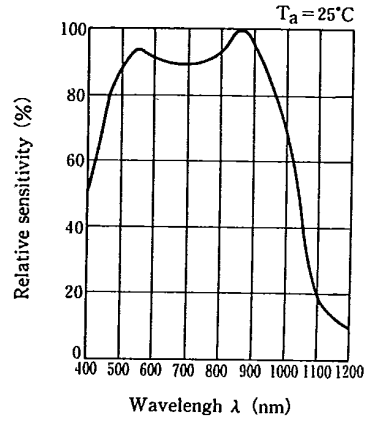

Fig. 2 Photocurrent vs. Illuminance (BS112)

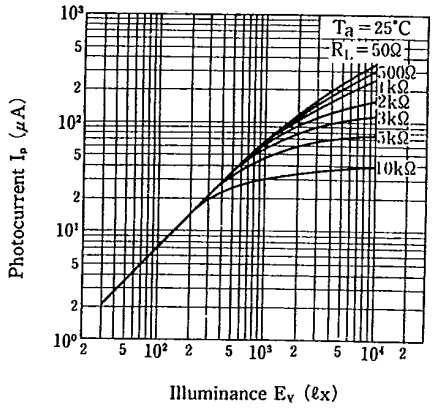

Fig. 3 Photocurrent vs. Illuminance (BS142)

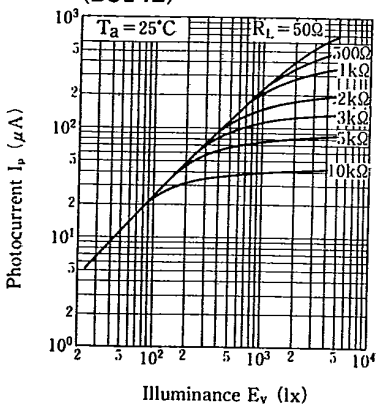

Fig. 4 Photocurrent vs. Forward Voltage (BS112)

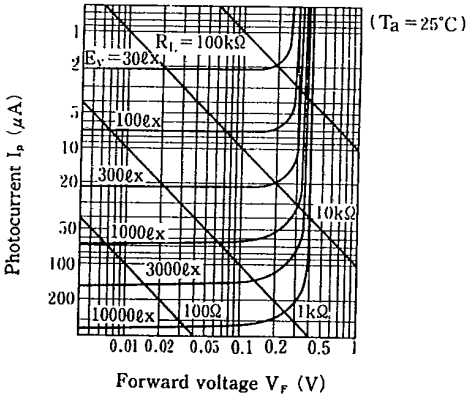

Fig. 5 Photocurrent vs. Forward Voltage (BS142)

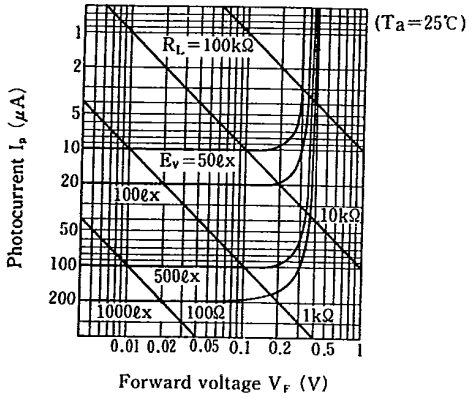

Fig. 6 Short Circuit Current, Open Circuit Voltage vs. Ambient Temperature

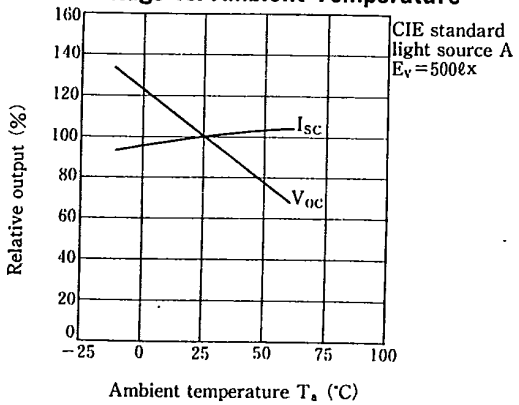

Fig. 7 Dark Current vs. Reverse Voltage (BS112)

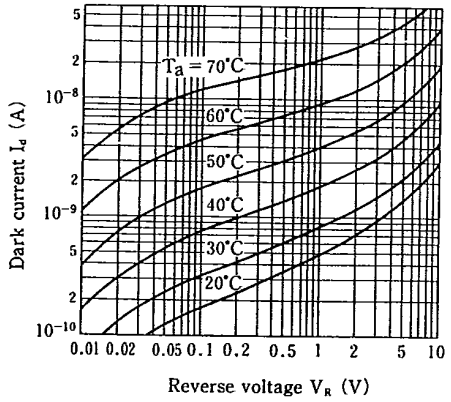

Fig. 8 Dark Current vs. Reverse Voltage (BS142)

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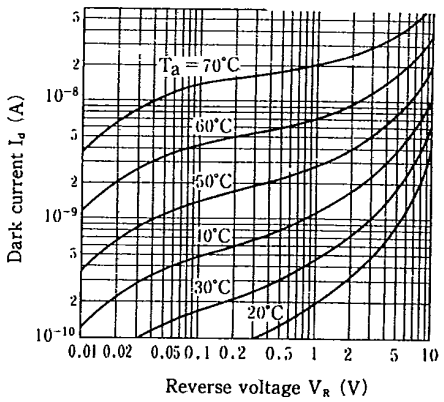


Fig. 9 Response Time vs. Load Resistance (BS112)

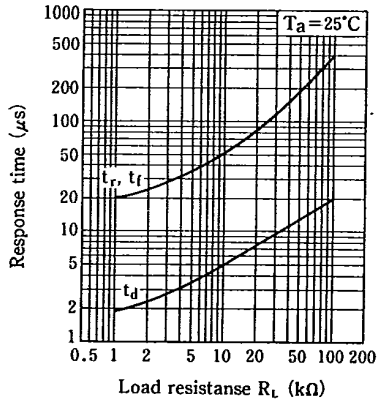
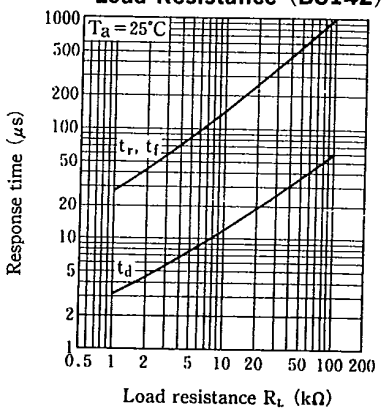


Fig. 10 Response Time vs. Load Resistance (BS142)



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Test Circuit for Response Time