

**TOSHIBA**

**TPS721A**

TOSHIBA PHOTO DIODE SILICON PN

# TPS721A

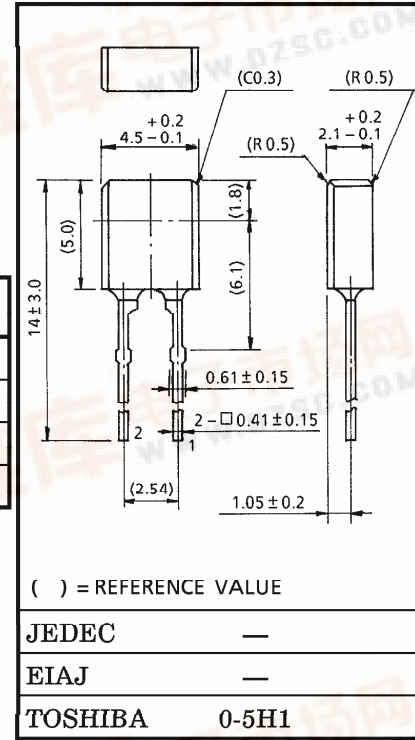
LIGHT RECEIVING DEVICE FOR PLASTIC FIBER / POLYMER CLAD FIBER

Unit in mm

- Small dark current :  $I_D = 0.5\text{nA}$  (Typ.)
- High current transfer ratio :  $S_f = 0.36\text{A/W}$  (Typ.)
- High speed application is possible :  $f_c = 70\text{MHz}$  (Typ.)

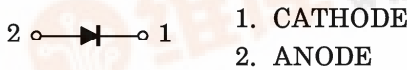
MAXIMUM RATINGS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	RATING	UNIT
Reverse Voltage	$V_R$	50	V
Power Dissipation	$P_D$	150	mW
Operating Temperature Range	$T_{opr}$	-30~85	°C
Storage Temperature Range	$T_{stg}$	-40~100	°C



Weight : 0.12g (Typ.)

PIN CONNECTION



ELECTRICAL CHARACTERISTICS (Ta = 25°C)

CHARACTERISTIC	SYMBOL	TEST CONDITION	MIN.	TYP.	MAX.	UNIT
Dark Current	$I_D$	$V_R = 10\text{V}$	—	0.5	8	nA
Fiber Coupling Sensitivity (Note)	$S_f$	$V_R = 10\text{V}, \lambda = 660\text{nm}, P_f = 1\mu\text{W}$	0.33	0.36	—	A/W
Peak Sensitivity Wavelength	$\lambda_P$	$V_R = 10\text{V}$	—	840	—	nm
Directional Angle Half Value Width	$\theta_{\frac{1}{2}}$	$V_R = 10\text{V}$	—	±65	—	°
Capacitance Between Terminals	$C_T$	$V_R = 10\text{V}, f = 1\text{MHz}$	—	10	—	pF
Switching Time	Rise Time	$V_R = 10\text{V}, R_L = 50\Omega$	—	4	—	ns
	Fall Time		—	4	—	
Cut-off Frequency	$f_c$	$V_R = 10\text{V}, R_L = 50\Omega$	—	70	—	MHz

Note : Plastic fiber used : Fiber length 0.5m, Core diameter 980 $\mu\text{m}$ , NA 0.5.

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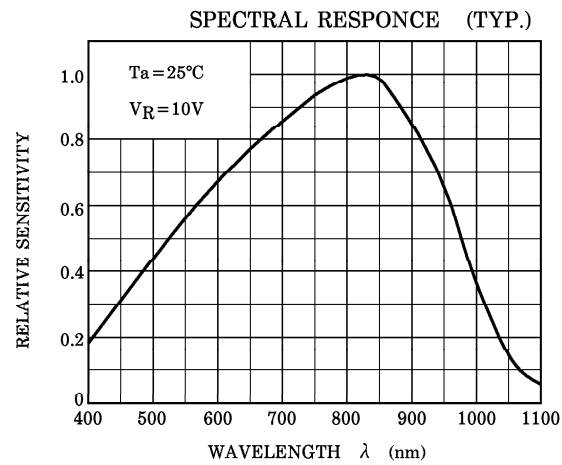
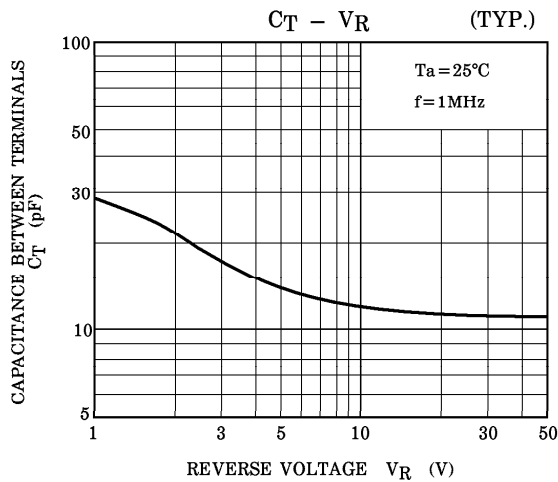
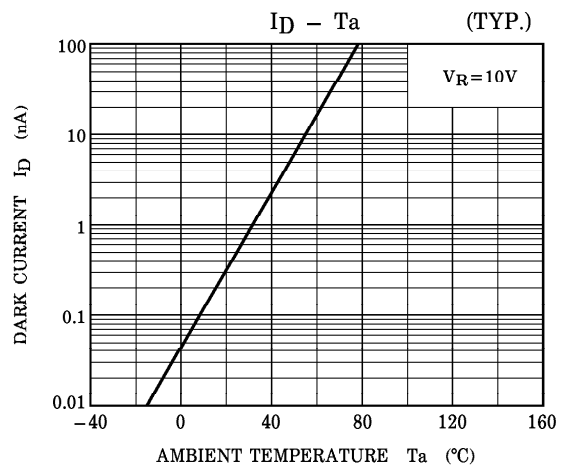
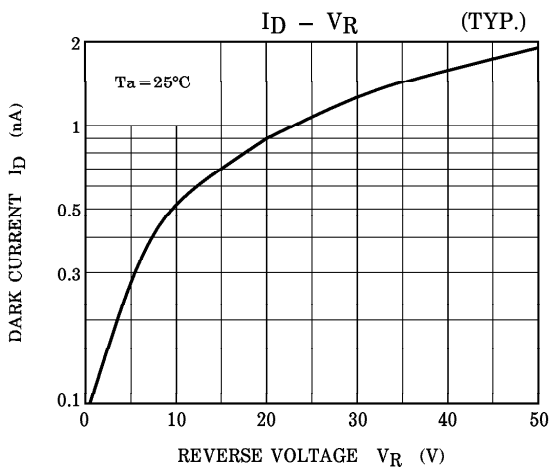
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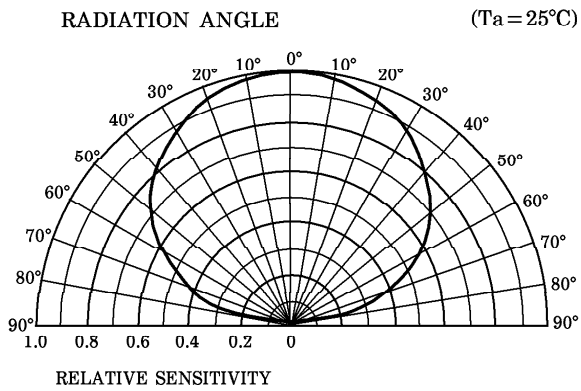
**PRECAUTION**

Please be careful of the followings.

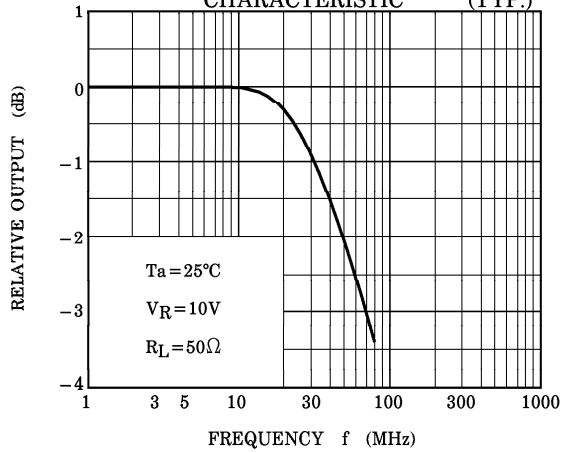
1. Soldering temperature : 260°C MAX. Soldering time : 3s MAX.  
(Soldering portion of lead : above 2.5mm from the body of the device)
2. If the lead is formed, the lead should be formed at a distance of 2.5mm from the body of the device.  
Soldering shall be performed after lead forming.



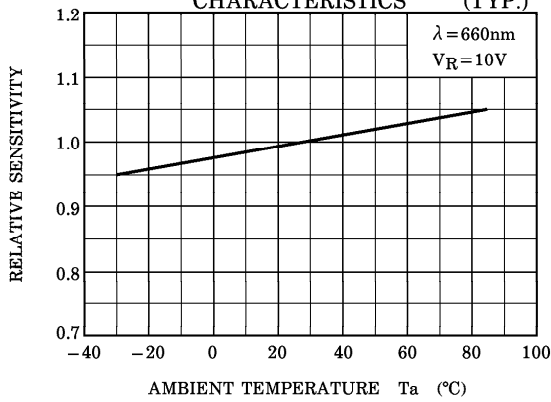
**DIRECTIONAL SENSITIVITY CHARACTERISTIC (TYP.)**  
 (Ta = 25°C)



**FREQUENCY RESPONSE CHARACTERISTIC (TYP.)**



**LIGHT SENSITIVITY TEMPERATURE CHARACTERISTICS (TYP.)**



**IL - Pf (TYP.)**

