

TOSHIBA PHOTODIODE SILICON PN

# TPS721A

LIGHT-RECEIVING DEVICE FOR PLASTIC FIBER/POLYMER-CLAD FIBER

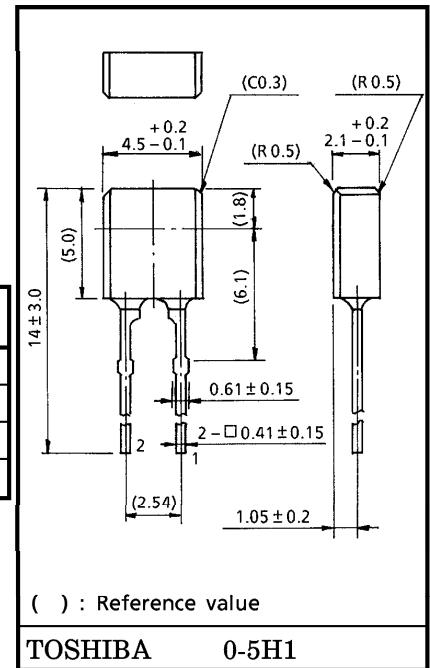
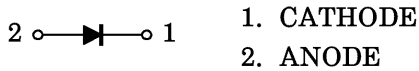
Unit : mm

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

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

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

PIN CONNECTION



Weight : 0.12 g (typ.)

OPTICAL AND ELECTRICAL CHARACTERISTICS ( $T_a = 25^\circ\text{C}$ )

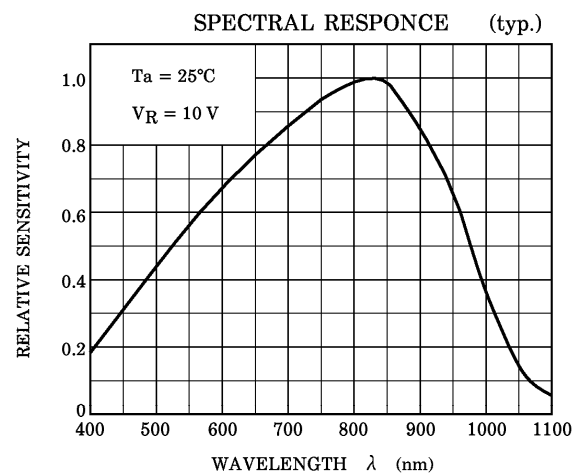
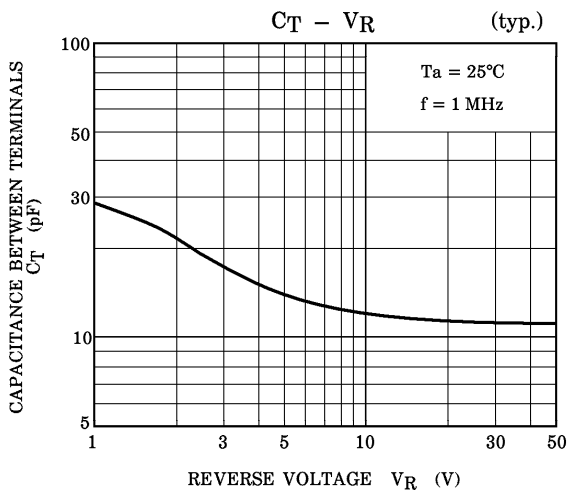
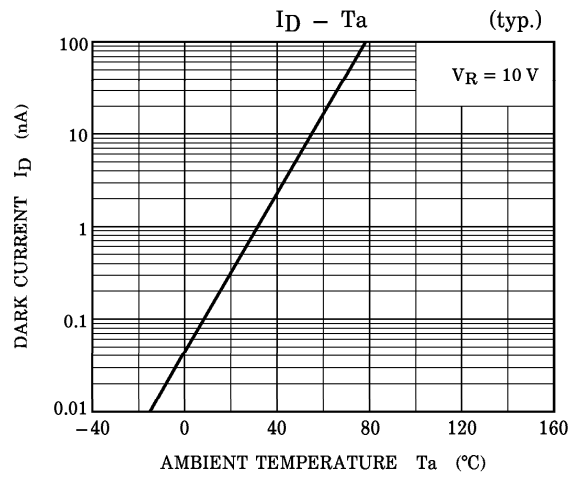
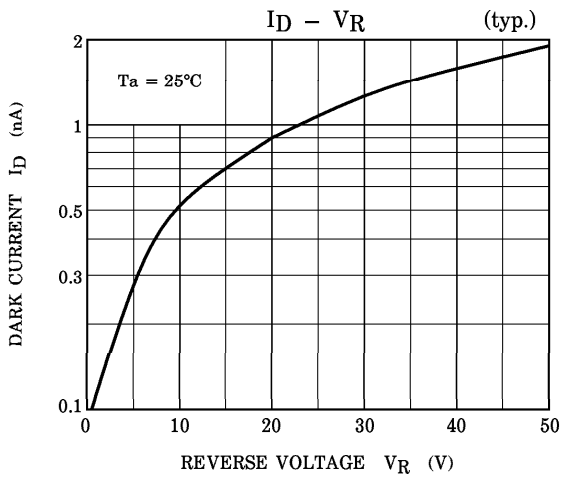
CHARACTERISTIC	SYMBOL	TEST CONDITION	Min	Typ.	Max	UNIT
Dark Current	$I_D (I_{CEO})$	$V_{CE} = 10 \text{ V}, E = 0$	—	0.5	8	nA
Fiber Coupling Sensitivity (Note)	$S_f$	$V_{CE} = 10 \text{ V}, \lambda = 660\text{nm}, P_f = 1 \mu\text{W}$	0.33	0.36	—	A/W
Peak Sensitivity Wavelength	$\lambda_p$	$V_R = 10 \text{ V}$	—	840	—	nm
Directional Angle Half Value Width	$\theta_{\frac{1}{2}}$	$V_R = 10 \text{ V}$	—	±65	—	°
Capacitance between Terminal	$C_T$	$V_R = 10 \text{ V}, f = 1 \text{ MHz}$	—	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 0.5 m, Core diameter 980  $\mu\text{m}$ , NA 0.5

PRECAUTIONS

Please be careful of the followings.

1. Soldering temperature : 260°C max  
 Soldering time : 3 s max  
 (Soldering must be performed 2.5 mm under the package body.)
2. When forming the leads, bend each lead under the 2.5 mm from the body of the device.  
 Soldering must be performed after the leads have been formed.

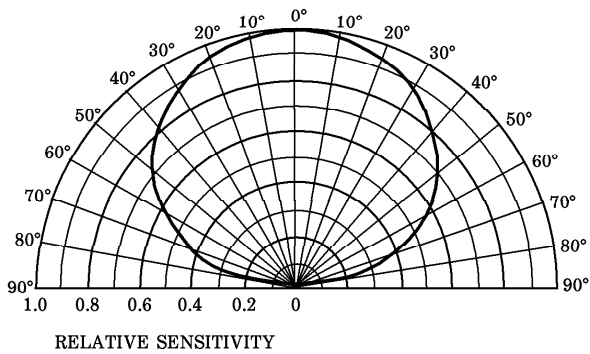


**RADIATION PATTERN CHARACTERISTIC**

(typ.)

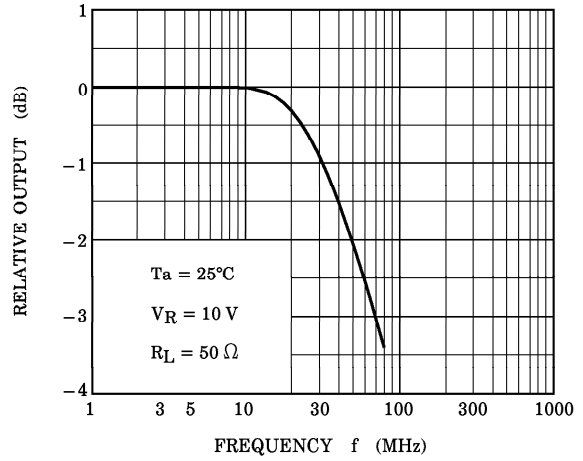
RADIATION ANGLE

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



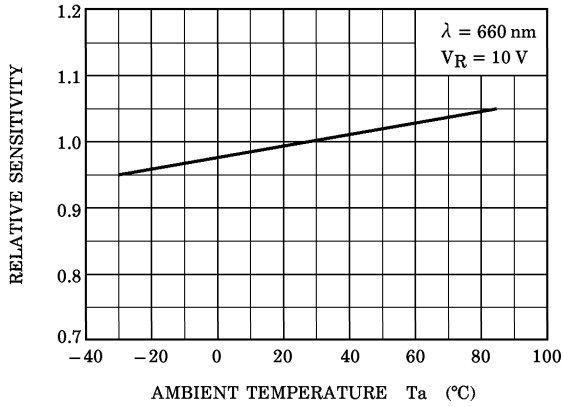
**FREQUENCY RESPONSE CHARACTERISTIC**

(typ.)



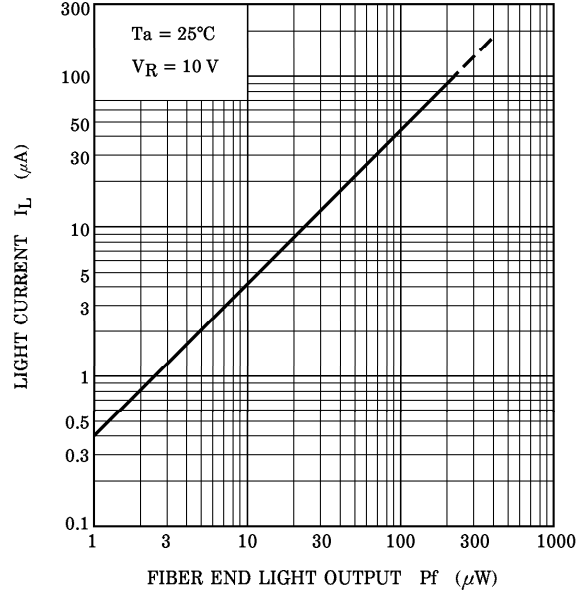
**LIGHT SENSITIVITY TEMPERATURE CHARACTERISTICS**

(typ.)



**$I_L - P_f$**

(typ.)



**RESTRICTIONS ON PRODUCT USE**

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