

TOSHIBA Photodiode Silicon Pin

TPS703(F), TPS704(F)

Various Kinds Of Remote Control Systems
Optical Communication

- Detector for visible, fluorescent, and other disturbance light.
TPS703(F): $\lambda > 700\text{nm}$
TPS704(F): $\lambda > 800\text{nm}$
- High sensitivity
TPS703(F): $I_{SC} = 1.5\mu\text{A}$ (typ.)
TPS704(F): $I_{SC} = 0.9\mu\text{A}$ (typ.)
- High speed response: $t_r, t_f = 100\text{ns}$ (typ.)
- Wide half value angle: $\theta_{1/2} = \pm 65^\circ$ (typ.)
- TLN115A(F), etc. are available as high radiant power infrared LEDs.

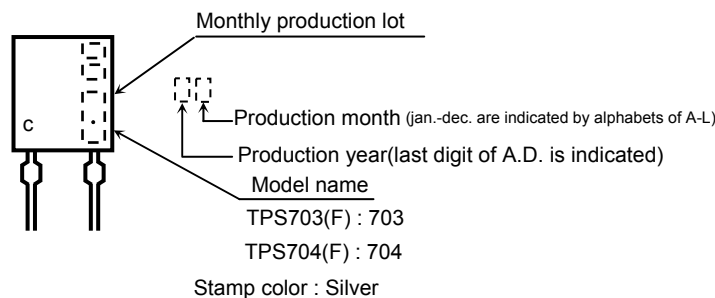
Absolute Maximum Ratings (Ta = 25°C)

Characteristic	Symbol	Rating	Unit	
Reverse voltage	V_R	20	V	
Power dissipation	P_D	150	mW	
Power dissipation derating (Ta > 25°C)	TPS703(F)	$\Delta P_D / ^\circ\text{C}$	-2.31	mW / °C
	TPS704(F)		-4.3	
Operating temperature range	TPS703(F)	T_{opr}	-30~80	°C
	TPS704(F)		-30~60	
Storage temperature range	TPS703(F)	T_{stg}	-40~90	°C
	TPS704(F)		-40~60	
Soldering temperature · time	T_{sol}	260°C · 3s	—	

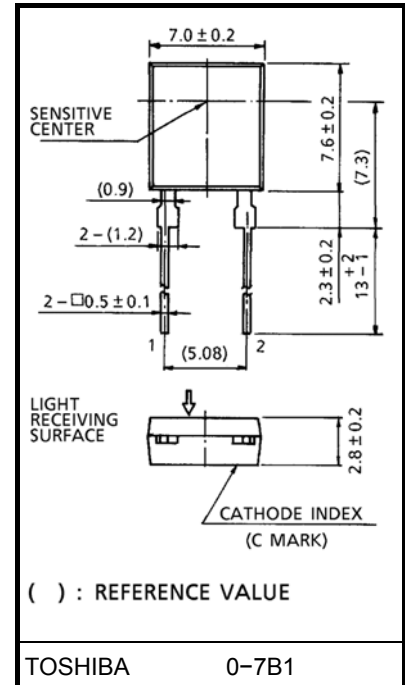
Note: Using continuously under heavy loads (e.g. the application of high temperature/current/voltage and the significant change in temperature, etc.) may cause this product to decrease in the reliability significantly even if the operating conditions (i.e. operating temperature/current/voltage, etc.) are within the absolute maximum ratings.

Please design the appropriate reliability upon reviewing the Toshiba Semiconductor Reliability Handbook ("Handling Precautions"/"Derating Concept and Methods") and individual reliability data (i.e. reliability test report and estimated failure rate, etc).

Markings



Unit in mm



Weight: 0.31 g (typ.)

Pin Connection



1. Anode
2. Cathode

Opto-electrical Characteristics (Ta = 25°C)

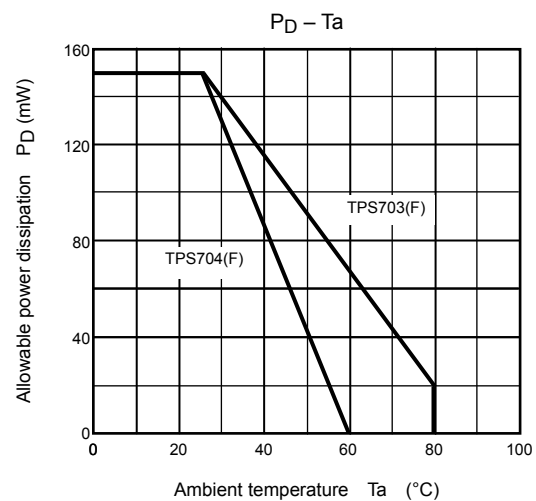
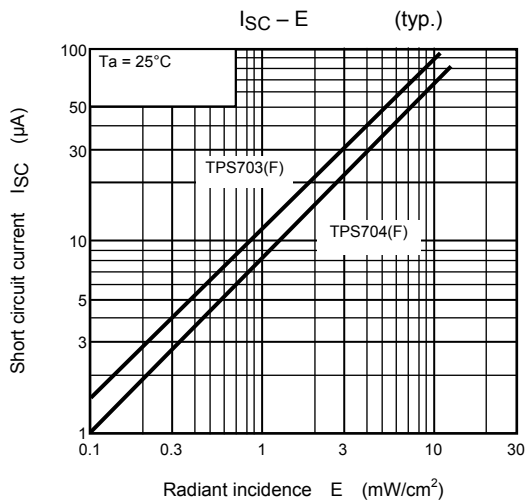
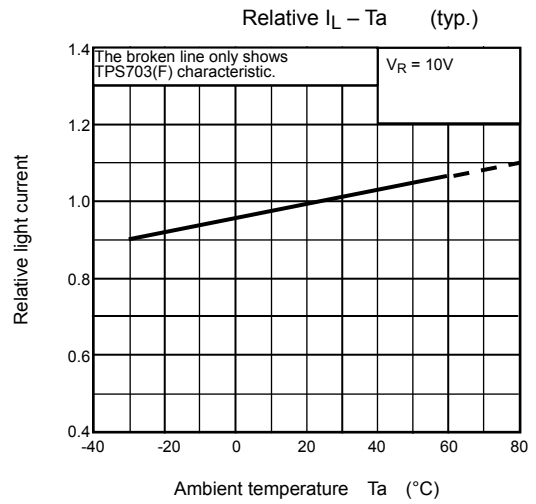
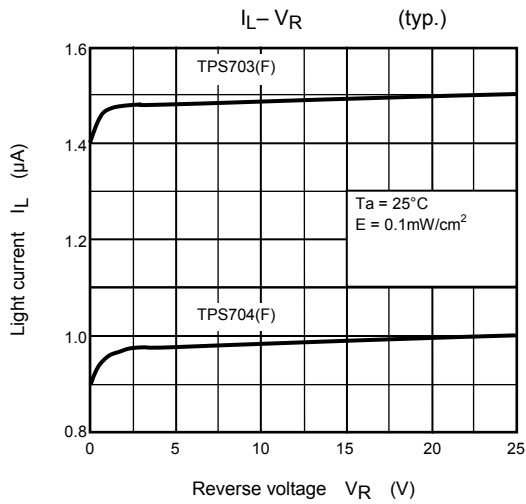
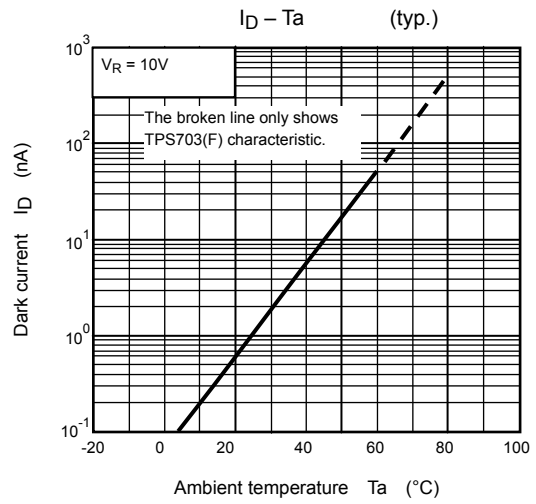
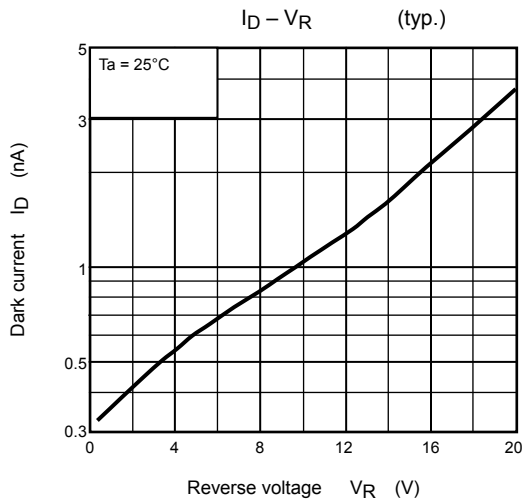
Characteristics		Symbol	Test Condition	Min.	Typ.	Max.	Unit	
Short circuit current		I _{SC}	E = 0.1mW / cm ² (Note)	TPS703(F)	0.9	1.5	—	μA
				TPS704(F)	0.5	0.9		
Dark current		I _D	V _R = 10V, E = 0	—	1	30	nA	
Open circuit voltage		V _{OP}	E = 0.1mW / cm ² (Note)	TPS703(F)	150	250	—	mV
				TPS704(F)	90	150		
Capacitance		C _T	V _R = 3V, f = 1MHz	—	20	—	pF	
Peak sensitivity wavelength		λ _P	—	TPS703(F)	—	960	—	nm
				TPS704(F)	—	1000		
Switching time	Rise time	t _r	V _R = 10V, R _L = 1kΩ	—	100	—	ns	
	Fall time	t _f		—	100	—		
Half value angle		θ _{1/2}		—	±65	—	°	

Note: Color temperature = 2870K , standard tungsten lamp.

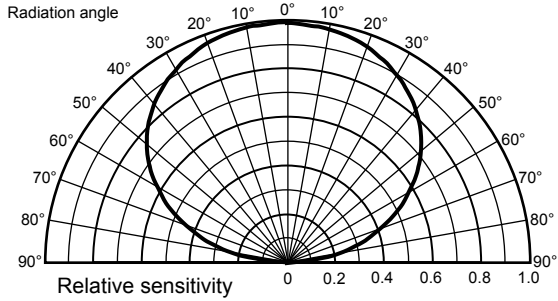
Precaution

Please be careful of the followings.

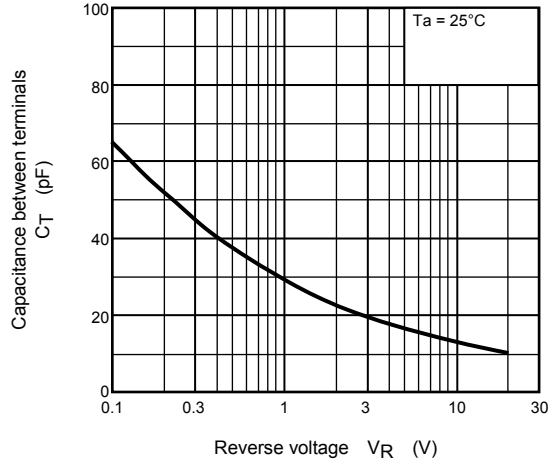
- Soldering shall be performed at a portion of lead above 2.3mm from the body of the device.
- If the lead is formed, the lead should be formed at a distance of 2.3mm from the body of the device.
Soldering shall be performed after lead forming.



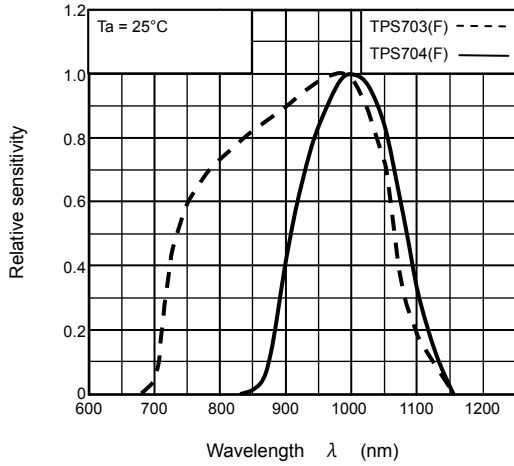
Directional Sensitivity Characteristic (typ.) (Ta = 25°C)



$C_T - V_R$ (typ.)



Spectral Response (typ.)



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