Low-Cost, General-Purpose Silicon Photodiode

FPT720

Optoelectronics Group

General Description

The FPT720 is a low-cost, general-purpose, silicon photodiode encapsulated in a clear plastic T1 package.

Absolute Maximum Ratings

Maximum Temperature and Humidity

Operating Temperature	−40°C to +85°C
Storage Temperature	−55°C to +100°C
Pin Temperature (Soldering, 5 s)	230°C
Relative Humidity at 85°C	85%

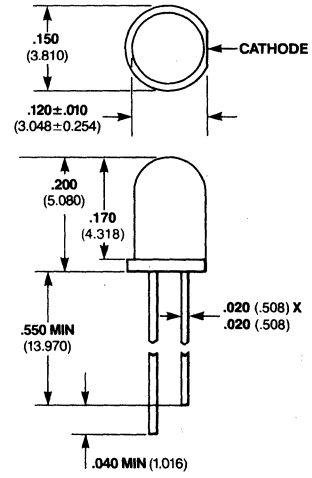
Maximum Power Dissipation

Total Dissipation at T_A = 25°C	100 mW
Derate Linearly from 25°C	1.33 mW/°C

Maximum Voltage and Current

V_R	Reverse Voltage	50 V

Package Outline



Notes

All dimensions in inches **bold** and millimeters (parentheses)
Tolerance unless specified = ±**.015** (±.381)
Blue Dot on package side differentiates PHOTODIODE from PHOTO EMITTER

Typical Electrical Characteristic

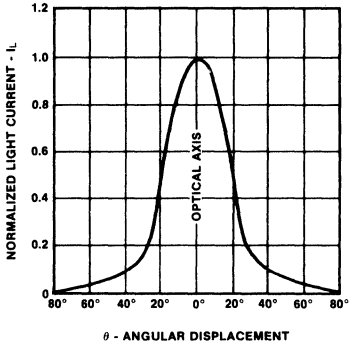
FPT720

Electrical Characteristics $T_A = 25°C$

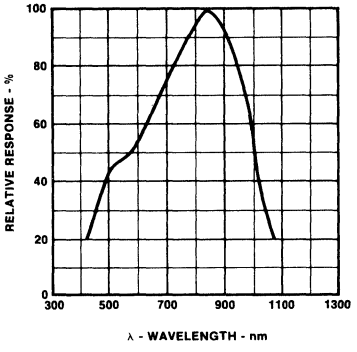
Symbol	Characteristic	Min	Typ	Max	Units	Test Conditions
BV	Breakdown Voltage	50	120		V	$I_R = 10\ \mu A$, $H \leq 0.1\ \mu W/cm^2$
V_{OC}	Open-Circuit Voltage (Note)	380	400		mV	No Bias, $H = 20\ mW/cm^2$
I_R	Dark Current		0.3	35	nA	$V_R = -10\ V$, $H \leq 0.1\ \mu W/cm^2$
I_L	Photo Current (Note)	15	25		μA	$V_R = -10\ V$, $H = 20\ mW/cm^2$
$I_{L(sc)}$	Short-Circuit Current (Note)	15	25		μA	No Bias, $H = 20\ mW/cm^2$
R (Tungsten)	Responsivity (Note)	0.6	1.0		$\mu A/mW/cm^2$	No Bias, $T_C = 2854°K$
R @ 900 nm	Responsivity 900 nm		3.9		$\mu A/mW/cm^2$	No Bias, GaAs
C_O	Open-Circuit Capacitance		60		pF	$V_R = 0\ V$, $H \leq 0.1\ mW/cm^2$
C_R	Reversed Bias Capacitance		20		pF	$V_R = -10\ V$, $H \leq 0.1\ \mu W/cm^2$
R_{max}	Responsivity (Absolute) at Spectral Peak		0.6		A/W	$V_R = 0\ V$, $\lambda = 800\ nm$
NEP	Noise Equivalent Power		1.0×10^{-14}		W	$V_R = -10\ V$, $\lambda = 800\ nm$, $\Delta f = 1.0\ Hz$
D	Detectivity		8.8×10^{12}		$\frac{cm\sqrt{Hz}}{W}$	$V_R = -10\ V$, $\lambda = 800\ nm$, $f = 1.0\ kHz$, $\Delta f = 1.0\ Hz$

Note
Irradiation source is an unfiltered Tungsten Lamp operated at 2854°K color temperature

Normalized Light Current vs Angular Displacement



Relative Spectral Response



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