

Low Distortion, Low Capacitance InGaAs PIN Photodiode for Return Path and 550 MHz AM CATV

Features

- Low intermodulation distortion
- High responsivity
- Low back reflection

Applications

- AM fiber optic CATV receivers to 550 MHz
- CATV return path receiver

Description

The EPM 705 is a high quality analog photodetector designed for medium performance forward path and return path AM CATV applications. The EPM 705 is optically aligned to optimize performance and balance the parameters of responsivity, distortion and back reflection.

The photodetector die is fabricated with a proprietary InGaAsP process in EPITAXX's wafer fab and assembled into a hermetically-sealed package with an antireflective-coated lens. A stainless steel bushing is used to actively couple the fiber to the package.

The fiber is reinforced with a rubber boot which relieves fiber bending stresses. The EPM 705 can be procured without a connector or with a variety of industry standard connectors. The EPM 705 is also available with a mounting bracket which allows for both vertical panel mounting or horizontal flush-to-board mounting.

Specifications

Conditions (unless noted) $T=25^{\circ}\text{C}$, $V_R=5\text{ V}$. All specifications are without connector.

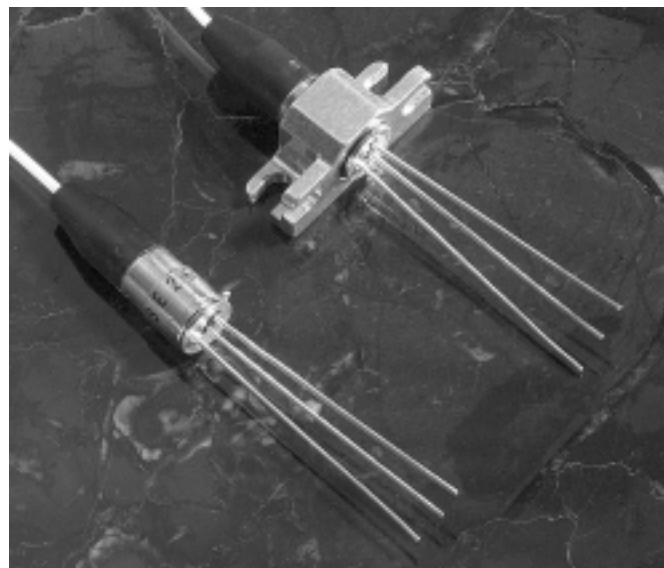
Parameter	Min.	Typ.	Max.	Units
Responsivity - 1550 nm 1310 nm	0.85 0.80			A/W A/W
Distortion Product ¹ IM_2			-70	dBc
Back Reflection			-40	dB
Dark Current			5.0	nA
Capacitance ²			0.75	pF
Bandwidth ³		2.0		GHz
Single Mode Fiber 900 μm 8.7/125 μm Core/Cladding	1.0		1.5	m

Notes:

¹ IM_2 measured at $V_R=12\text{ V}$, $P_{\text{avg}}=0\text{ dBm}$, $\text{MI}=0.7$, $R_{\text{load}}=50\text{ ohms}$, $f_1+f_2=324.25\text{ MHz}$, $f_1-f_2=54.25\text{ MHz}$.

² Measured with case grounded.

³ -3 dB point into a 50 ohm load.



Maximum Ratings

Parameter	Min.	Max.	Units
Reverse Voltage		25	V
Reverse Current ^A		10	mA
Forward Current ^B		10	mA
Power Dissipation		100	mW
Operating Temperature	-40	+85	$^{\circ}\text{C}$
Storage Temperature	-40	+85	$^{\circ}\text{C}$

Notes:

^A Under reverse bias, current at which device may be damaged.

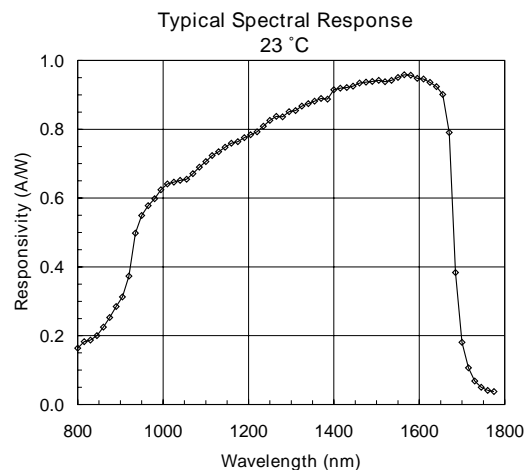
^B Under forward bias, current at which device may be damaged.

Quality Vision

EPITAXX has a leadership position in the optoelectronic industry with a vision for excellence in quality. The company is committed to providing customers with the highest levels of quality and reliability in design and manufacturing. The top priorities remain continuous process improvement and total customer satisfaction. EPITAXX obtained ISO 9001 certification in 1996 for both design and manufacturing operations. In addition, EPITAXX maintains a strict quality control program to ensure that all products meet or surpass customer requirements.

Precautions for Use

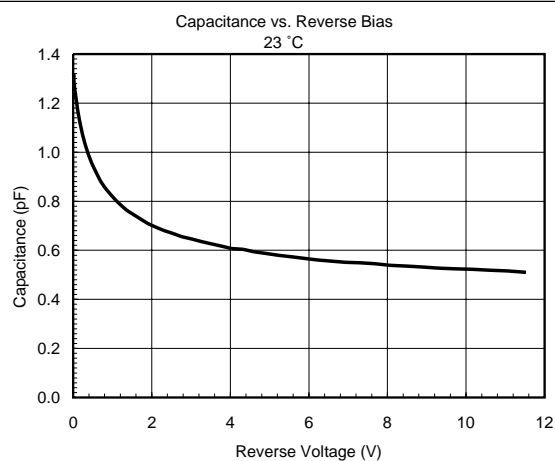
ESD protection is imperative. Use of grounding straps, anti-static mats, and other standard ESD protective equipment is recommended when handling or testing an InGaAs PIN or any other junction photodiode. Soldering temperature of the leads should not exceed 260°C for more than 10 seconds. Fiber pigtails should be handled with less than 10 N pull and with a bending radius greater than 1".



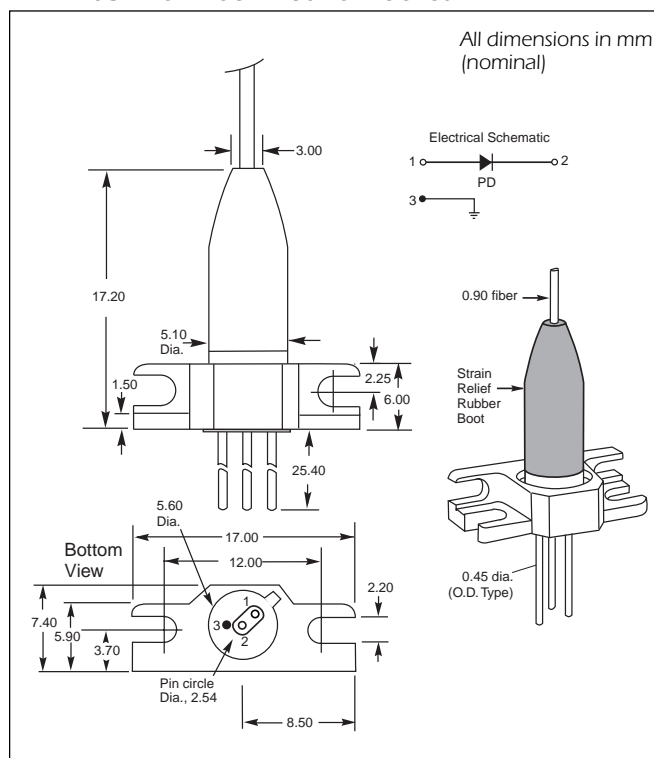
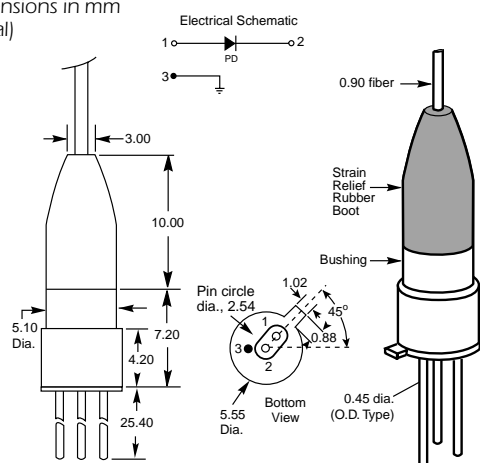
The EPM 705 can be ordered as follows:

Product Model	Fiber Description
EPM 705	900 μ m buffer without connector
EPM 705 FC/SPC	900 μ m buffer with FC/SPC connector
EPM 705 FC/APC	900 μ m buffer with FC/APC connector
EPM 705 SC/SPC	900 μ m buffer with SC/SPC connector
EPM 705 SC/APC	900 μ m buffer with SC/APC connector

EPM 705 with Dual Mount Bracket



All dimensions in mm
(nominal)



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