

# Forward and Return Path Analog CATV Detector Modules

## EPM 7xx Series

**Key Features**

- **Electro-optical**
  - Low intermodulation distortion
  - High responsivity
  - Low back reflection
- **Packaging**
  - Single mode 900  $\mu\text{m}$  fiber with or without a connector
  - Single mode 250  $\mu\text{m}$  fiber without a connector

**Applications**

- AM fiber optic CATV receivers to 550 MHz (EPM 705) and 860 MHz (EPM 745)
- Multi-channel fiber optic transmission

The EPM 7xx series are high quality analog photodetectors designed for forward path (EPM 745) and return path (EPM 705) AM CATV applications. These coaxial modules are optically aligned to optimize performance and balance the parameters of responsivity, distortion and back reflection.

The photodetector die is fabricated with a proprietary InGaAs process in our 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.

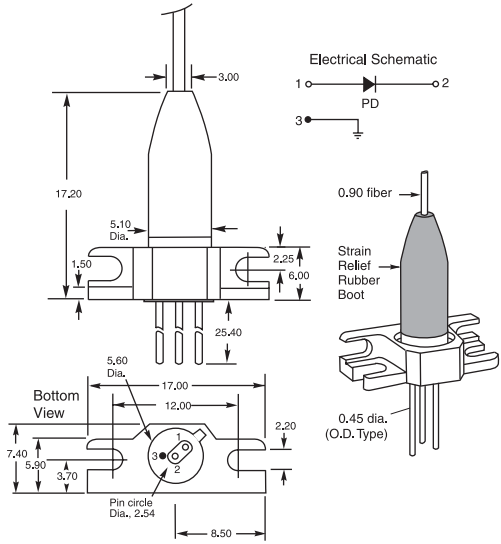
The fiber is reinforced with a rubber boot which relieves fiber bending stresses. The EPM 7xx series can be produced without a connector or with a variety of industry standard connectors. They are also available with a mounting bracket which allows both vertical panel mounting and horizontal flush-to-board mounting.

2

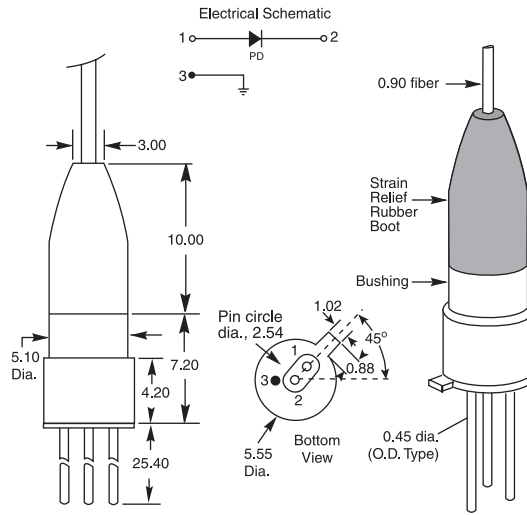
Dimensions Diagram

(Specifications in mm unless otherwise noted.)

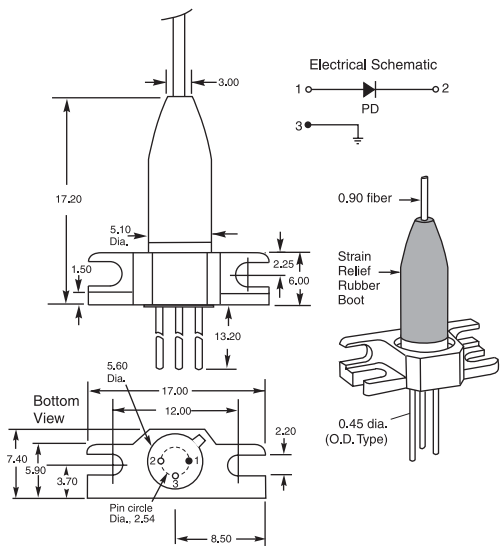
EPM 705 with Dual Mount Bracket



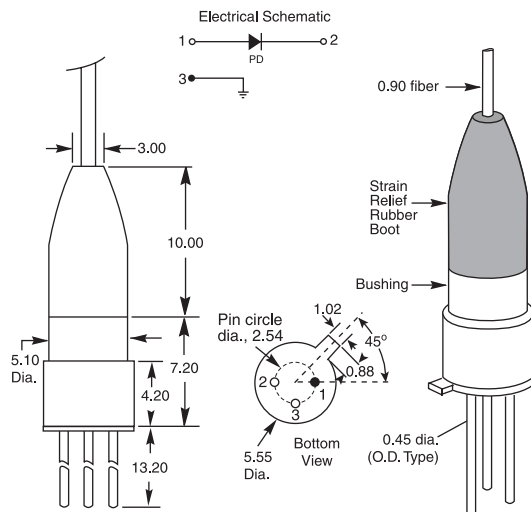
EPM 705 without Dual Mount Bracket



EPM 745 with Dual Mount Bracket



EPM 745 without Dual Mount Bracket



3

Figure 1: EPM 705

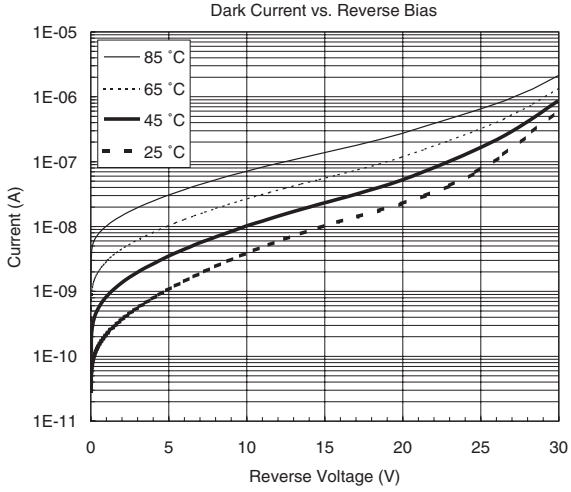


Figure 2: EPM 745

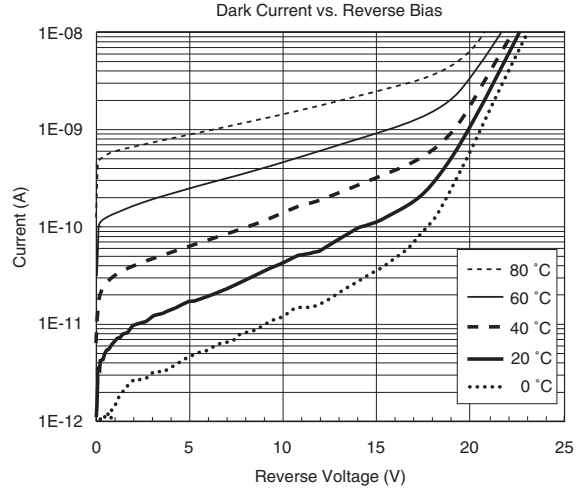


Figure 3: EPM 705

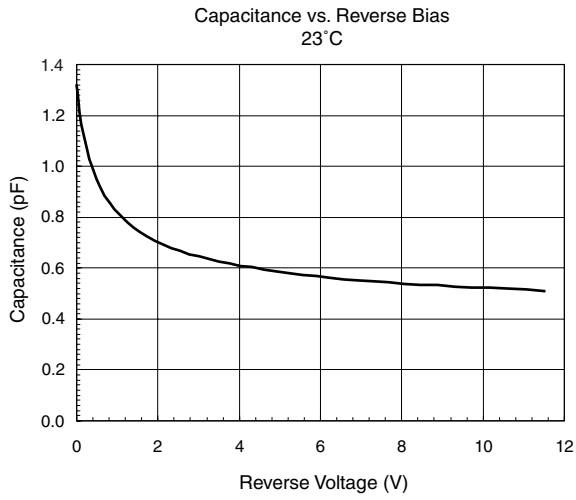
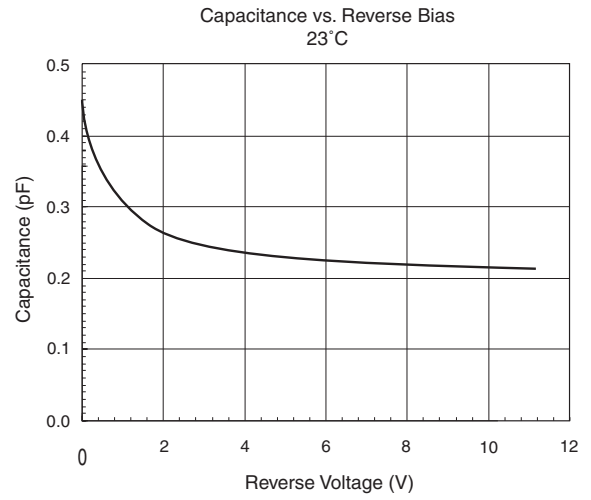


Figure 4: EPM 745



4

Figure 5: EPM 745

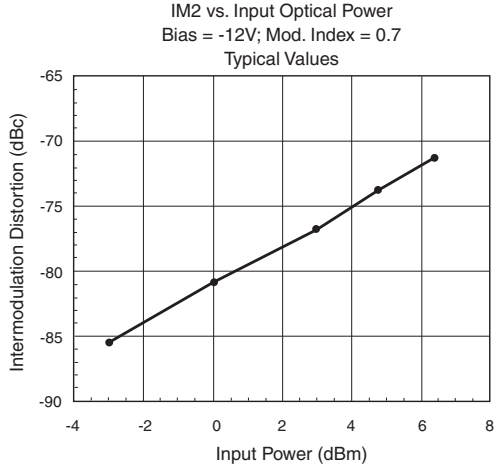


Figure 6: EPM 745

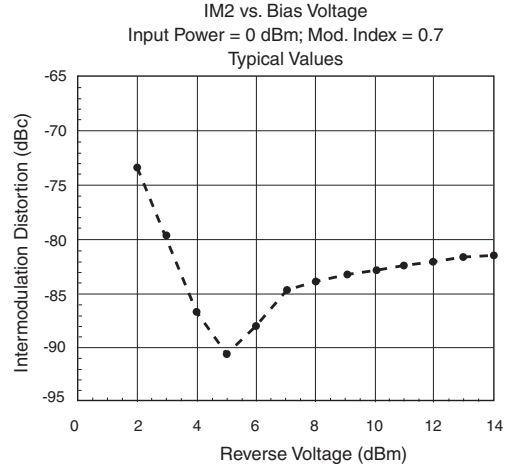
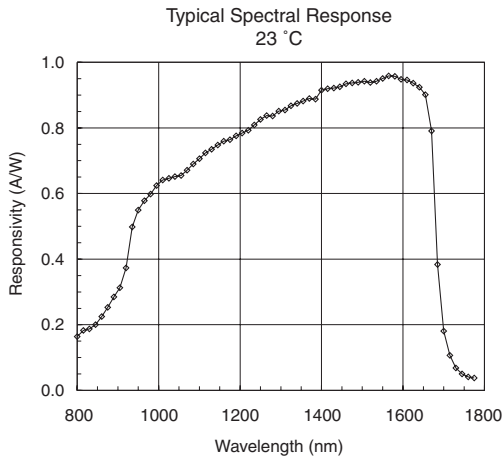
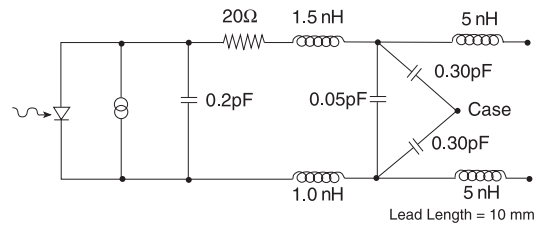


Figure 7: EPM 705/745



EPM 745 Equivalent Circuit



## 5

### Specifications

(Temperature = 25°C,  $V_R = 5$  V unless noted. All specifications without connector.)

Parameter	Conditions		EPM 705	EPM 745
Responsivity	$\lambda = 1310$ nm	Minimum	0.80 A/W	0.85 A/W
	$\lambda = 1550$ nm	Minimum	0.85 A/W	0.90 A/W
Distortion product $IM_2$		Maximum	-70 dBc <sup>1</sup>	-75 dBc <sup>2</sup>
Back reflection		Maximum	-40 dB	-45 dB
Dark current		Maximum	5.0 nA	1.0 nA
Capacitance <sup>3</sup>		Maximum	0.75 pF	0.35 pF
Bandwidth <sup>4</sup>		Typical	2.0 GHz	3.0 GHz
Single mode fiber 900 $\mu$ m 8.7/125 $\mu$ m core/cladding		Minimum	1.0 m	1.0 m
		Maximum	1.5 m	1.5 m

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

2.  $IM_2$  measured at  $V_R = 12$  V,  $P_{avg} = 0$  dBm,  $MI = 0.7$ ,  $R_{load} = 50 \Omega$ ,  $f_i + f_c = 850.25$  MHz,  $f_i - f_c = 50.25$  MHz.

3. Measured with case grounded.

4. -3 dB point into a 50  $\Omega$  load.

### Maximum Ratings

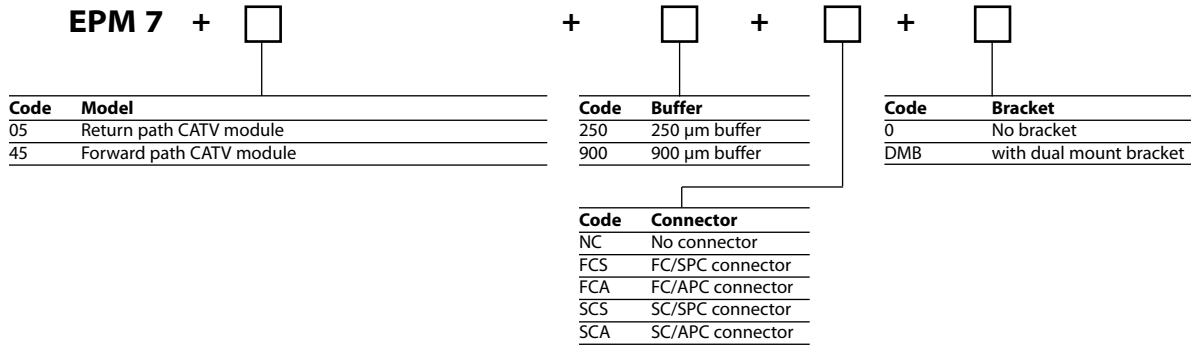
Parameter		Specification
Forward current <sup>1</sup>	Minimum	10 mA
Reverse current <sup>2</sup>	Minimum	10 mA
Reverse voltage	Minimum	25 V
Power dissipation	Minimum	100 mW
Operating case temperature	Minimum	-40°C
	Maximum	85°C
Soldering temperature	Minimum	260°C
Storage temperature	Minimum	-40°C
	Maximum	85°C

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

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

**Ordering Information**

For more information on this or other products and their availability, please contact your local JDSU account manager or JDSU directly at 1-800-498-JDSU (5378) in North America and +800-5378-JDSU worldwide or via e-mail at [customer.service@jdsu.com](mailto:customer.service@jdsu.com).

**Sample: EPM 705 900 FCA DMB**

**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 pigtailed should be handled with less than 10 N pull and with a bending radius greater than 1 inch.

All statements, technical information and recommendations related to the products herein are based upon information believed to be reliable or accurate. However, the accuracy or completeness thereof is not guaranteed, and no responsibility is assumed for any inaccuracies. The user assumes all risks and liability whatsoever in connection with the use of a product or its application. JDSU reserves the right to change at any time without notice the design, specifications, function, fit or form of its products described herein, including withdrawal at any time of a product offered for sale herein. JDSU makes no representations that the products herein are free from any intellectual property claims of others. Please contact JDSU for more information. JDSU and the JDSU logo are trademarks of JDS Uniphase Corporation. Other trademarks are the property of their respective holders. ©2006 JDS Uniphase Corporation. All rights reserved. 30137543 Rev. 001 05/06 EPM7XX.DS.CC.AE