Microsemi
OPTO-ELECTRONIC PRODUCTS

MXP7A01 – 1x4 Array (10Gbps)

GaAs PIN Photo Diode

ENGINEERING SPECIFICATION

DESCRIPTION

Microsemi's GaAs PIN Photo Diode chips are ideal for high bandwidth 850nm optical networking applications.

The device series offers superior noise performance and sensitivity due to their construction and passivation.

Every wafer of each lot is extensively tested for responsivity and capacitance. Dark current is tested on 100% of the devices. Reliability is demonstrated by high temperature reverse bias testing on each wafer.

The MXP7000 series of photo diodes are currently offered in die form allowing manufacturers the versatility of custom assembly configurations.

This device is ideal for manufacturers of optical receivers, transponders, optical transmission modules and combination PIN photo diode – transimpedance amplifier.

KEY FEATURES

- High Responsivity
- Low Dark Current
- High Bandwidth
- Anode/Cathode on Illuminated Side

APPLICATIONS

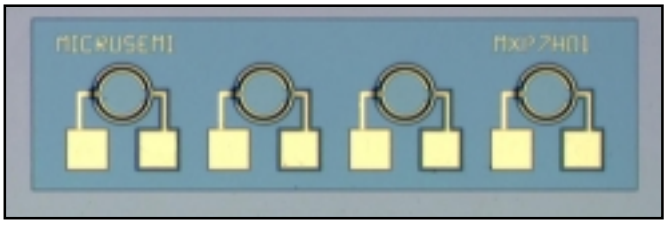
- Short Reach Optical Networks
- 10Gigabit Ethernet, Fibre Channel

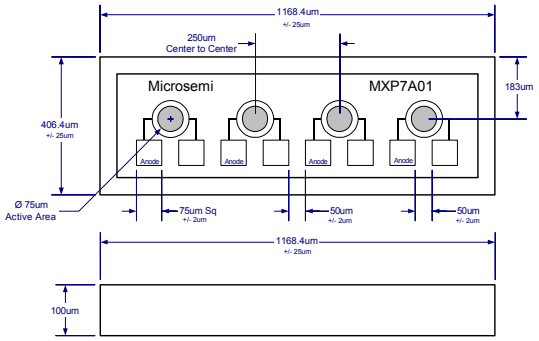
BENEFITS

- Large Wirebond Contact Pad
- Low Contact Resistance
- Low Crosstalk between Photo Diodes

IMPORTANT: For the most current data, consult *MICROSEMI*'s website: **http://www.microsemi.com**

PRODUCT HIGHLIGHT





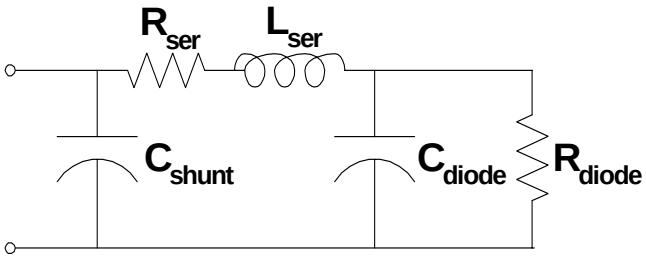
CHARACTERISTICS

Test conditions (unless otherwise noted): $T_A = 25^oC$, $V_R = 5$ Volts

Parameter	Symbol	Test Conditions	MXP7A01 Min	MXP7A01 Typ	MXP7A01 Max	Units
MAXIMUM RATINGS						
Operating Temperature Range	T_{OP}		-40		+100	°C
Storage Temperature Range	T_{STG}		-60		+125	°C
Maximum Soldering Temperature		10 seconds maximum at temperature			+260	°C
ELECTRICAL CHARACTERISTICS (each photo diode)						
Active Area Diameter				75		µm
Responsivity	R	V_R = 5V, λ= 850nm		0.45		A/W
Dark Current	I_D	V_R = 5V		0.05		nA
Breakdown Voltage	BV_R	I_R = 1µA		25		Volts
Capacitance	C	V_R = 5V		0.2		pF
Bandwidth	BW	V_R = 5V, λ= 850nm		10		GHz

Rev. 0.3

Equivalent Photodiode circuit Model



- R_{diode} > 5 MOhm is negligible
- C_{shunt} = 40.6 fF, R_{ser} = 10.6 Ohm, and L_{ser} = 411 pH (typical for test setup RF submount package)
- C_{diode} = 178.4, 177.0, and 175.7 fF for V_{bias} = 0, -5, and -10 V.

PRECAUTIONS FOR USE

ESD protection is important. Standard ESD protection procedures should be employed whenever handling GaAs PIN photo diode.