

**DESCRIPTION**

Microsemi's GaAs PIN Photo Diode either bond wire or flip chip chips are ideal for high bandwidth 850nm configurations. optical networking applications.

The device family offers superior noise performance and sensitivity in single die. This device is ideal for manufacturers of optical receivers, transponders, optical transmission modules and combination of PIN photo diode and trans-impedance amplifier.

The MXP7001 is currently offered in die form allowing manufacturers the versatility of custom assembly using

**KEY FEATURES**

- 75µm aperture
- Semi-insulating substrate
- High Responsivity
- Low Dark Current
- High Bandwidth
- Anode/Cathode on Illuminated Side
- 100µm Pad size
- Die good for bond wire or flip chip applications

**APPLICATIONS**

- Short Reach Optical Networks
- 10Gigabit Ethernet, Fibre Channel
- VCSEL array receiver

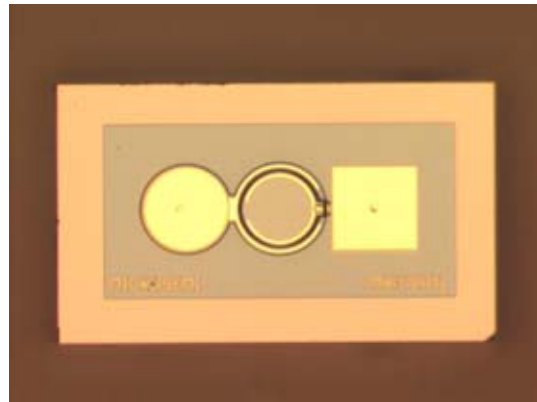
**BENEFITS**

- Large Wirebond Contact Pads
- Low Contact Resistance

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

**PRODUCT HIGHLIGHT**

- Large 100µm x 100µm pad size for ease of packaging
- Wire bond or Flip Chip capability


**PACKAGE ORDER INFO**

Part Number	Active Area, k, µm	Die Dimension, µm		Pad Dimension, µm		Pad Pitch, p, µm	Die thickness, µm
		Y	X	j	l		
MXP7001	75	304.8	508	100	100	218.35	100

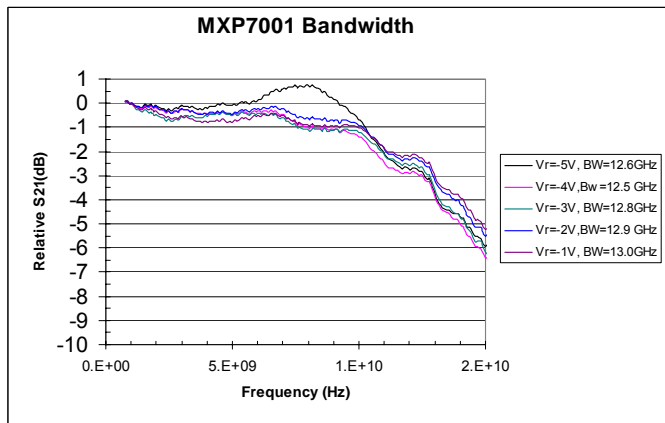
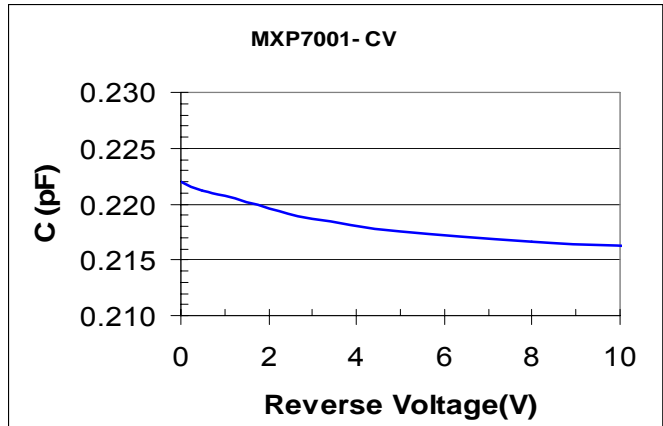
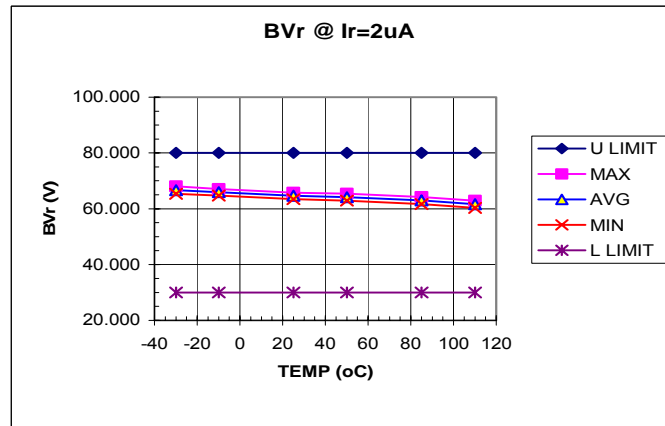
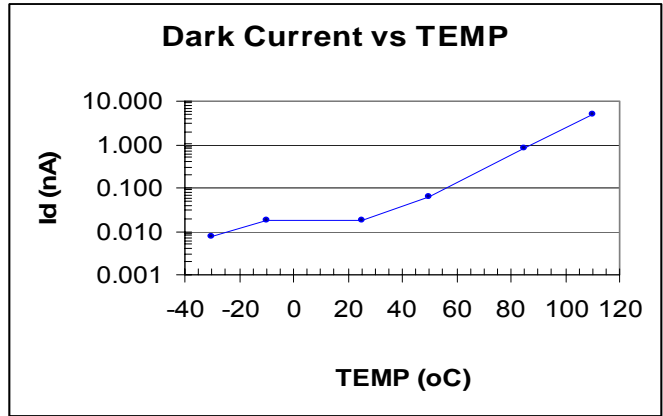
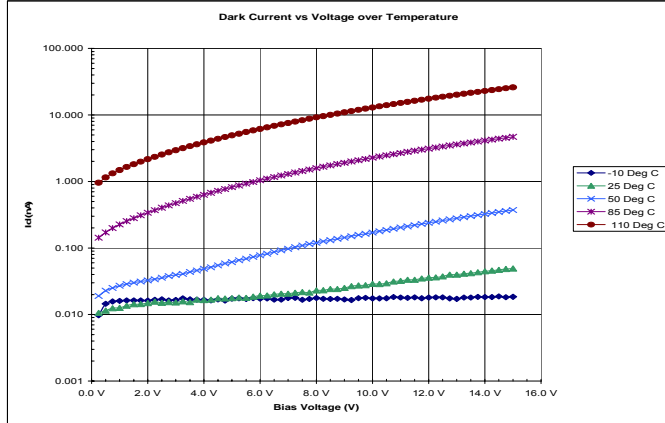
**ELECTRICAL CHARACTERISTICS**

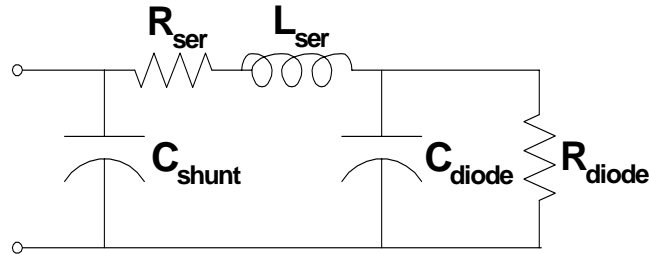
 Test conditions (unless otherwise noted):  $T_A = 25^\circ\text{C}$ ,  $V_R = 5$  Volts

Parameter	Symbol	Test Conditions	MXP7001			Units
			Min	Typ	Max	
<b>▶ MAXIMUM RATINGS</b>						
Operating Junction Temperature Range	$T_J$		-20		+100	$^\circ\text{C}$
Storage Temperature Range	$T_{STG}$		-55		+125	$^\circ\text{C}$
Maximum Soldering Temperature		10 seconds maximum at temperature			+260	$^\circ\text{C}$
<b>▶ ELECTRICAL CHARACTERISTICS</b>						
Active Area Diameter				75		$\mu\text{m}$
Responsivity	$R$	$V_R = 5\text{V}$ , $\lambda = 850\text{nm}$	0.55	0.6		A/W
Dark Current	$I_D$	$V_R = 5\text{V}$		0.01	0.5	nA
Breakdown Voltage	$BV_R$	$I_R = 2\mu\text{A}$	30	60		Volts
Capacitance	$C$	$V_R = 5\text{V}$		0.22	0.25	pF
Bandwidth (1)	BW	$V_R = 5\text{V}$ , $\lambda = 850\text{nm}$ @ -3dB	8.0	10.0		GHz

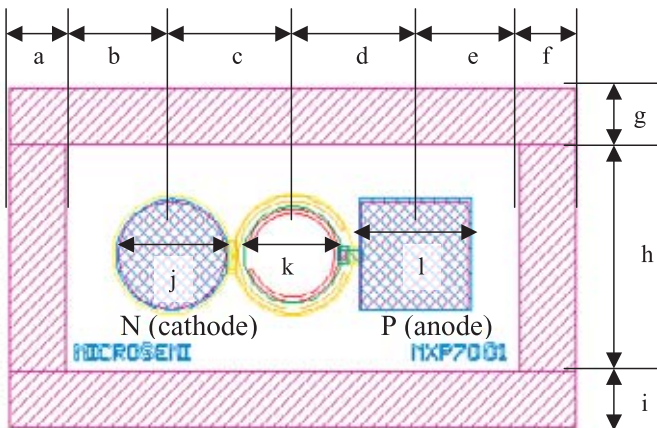
Note: 1. Bandwidth is measured at -3dB electrical power (photocurrent drops to 71% of DC value) into a 50 Ohm load

**CHARACTERISTIC CURVES**



**CIRCUIT MODEL**


	$R_{ser}$ ( $\Omega$ )	$L_{ser}$ (nH)	$C_{shunt}$ (fF)	$C_{diode}$ (fF)	$R_{diode}$ (M $\Omega$ )
MXP7001	10.6	0.05	41	170	100

**DIE GEOMETRY**


Dim	$\mu\text{M}$
a	50
b	95.7
c	108.3
d	110
e	94
f	50
g	50
h	204.8
i	50
j	100
k	75
l	100

**PRECAUTIONS FOR USE**

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

**NOTES**

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